Agenda

1. Introduction & Environmental Assessment Context
2. Roadway Design
3. Public Realm Design

Introduction & Environmental Assessment Context

Project Context:
The Gardiner and Lake Shore Bouelvard design has been shaped by:

1. The approved Gardiner Expressway and Lake Shore Boulevard Reconfiguration EA and Urban Design Study (2017)

2. Lake Shore Boulevard East Public Realm Vision, Phasing and Implementation Plan (2020)

3. Ongoing detailed design work

Lake Shore Boulevard East Public Realm Vision

Project Area: Lake Shore Boulevard East Bridge and Public Realm

Past Consultation:

Stakeholder and Public Engagement for the following projects has informed this design

- Gardiner Expressway and Lake Shore Boulevard Reconfiguration EA and Urban Design Study
- Lake Shore Boulevard East Public Realm Vision, Phasing and Implementation Plan (Jarvis to Cherry Streets)
- Port Lands Flood Protection

Lake Shore Boulevard Public Realm Design Vision - Objectives

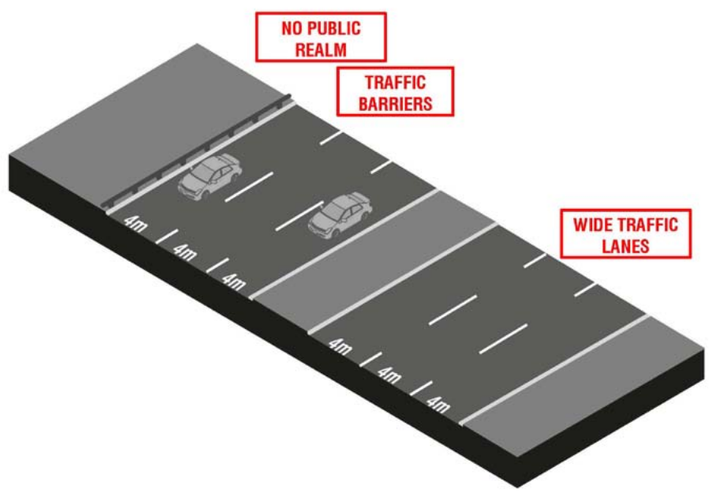
1 Design an **urban civic boulevard** with a distinct **continuous landscape identity**

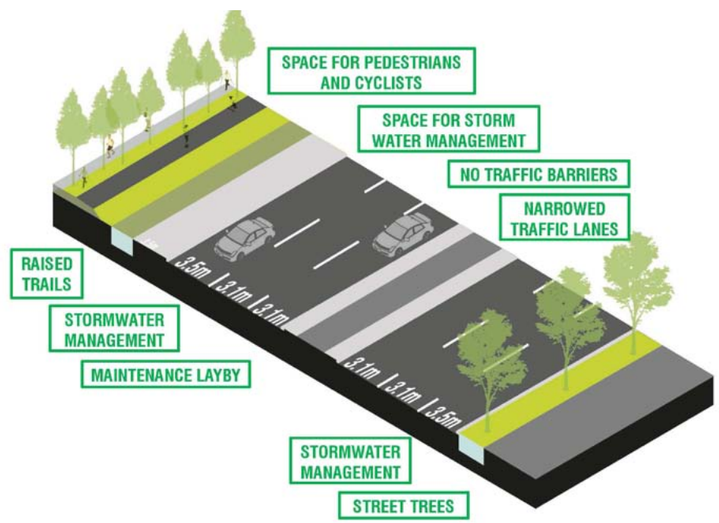
2 Prioritize **traffic calming** measures and **enhance public realm experience and safety**

3 Improve **East-West connectivity** through rebalanced multimodal mobility

4 Improve **North-South connectivity** through enhanced intersections

5 Design for **sustainable operations and maintenance** for public realm



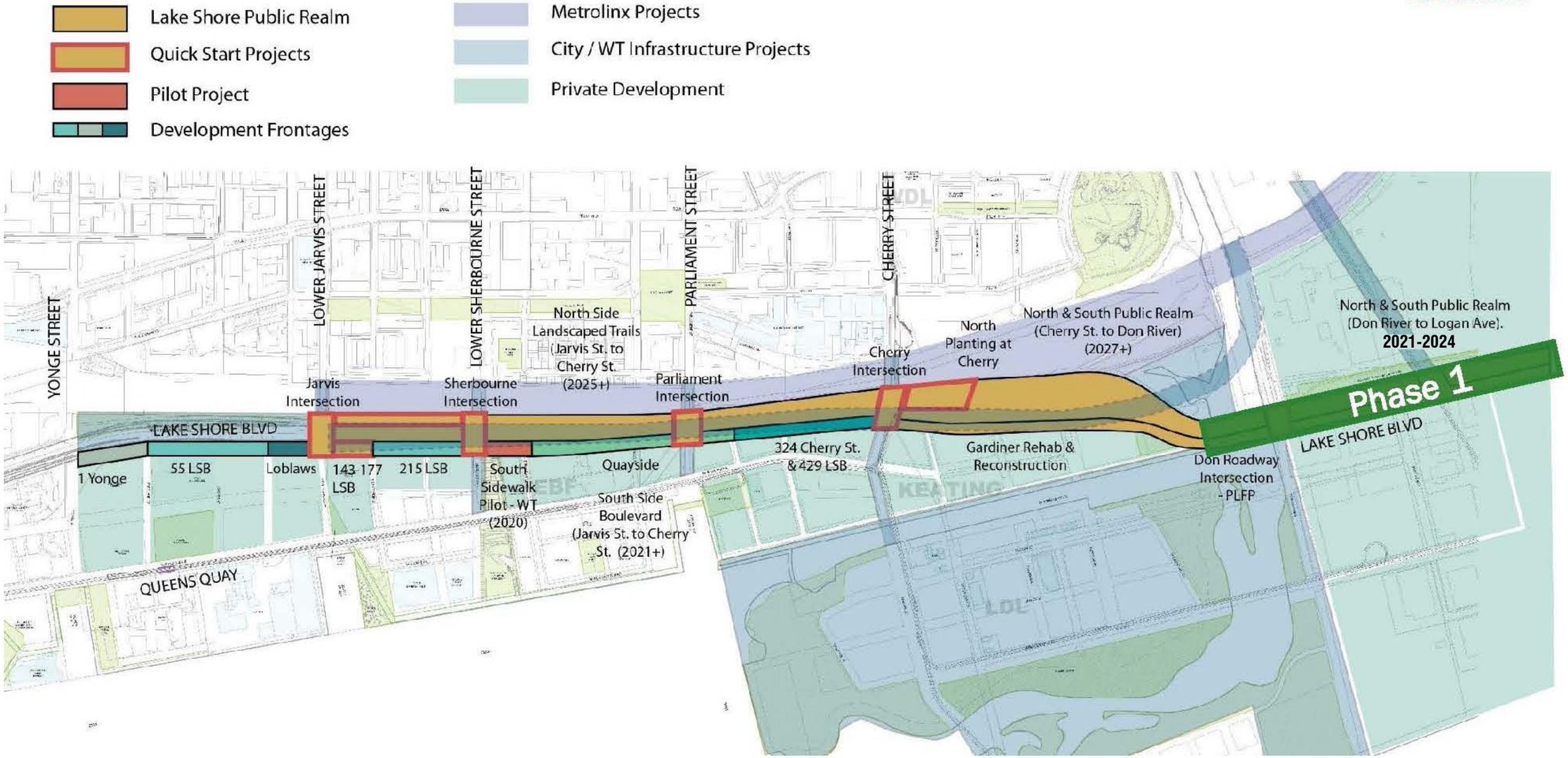


North Landscape & Trails

South Sidewalk Improvements

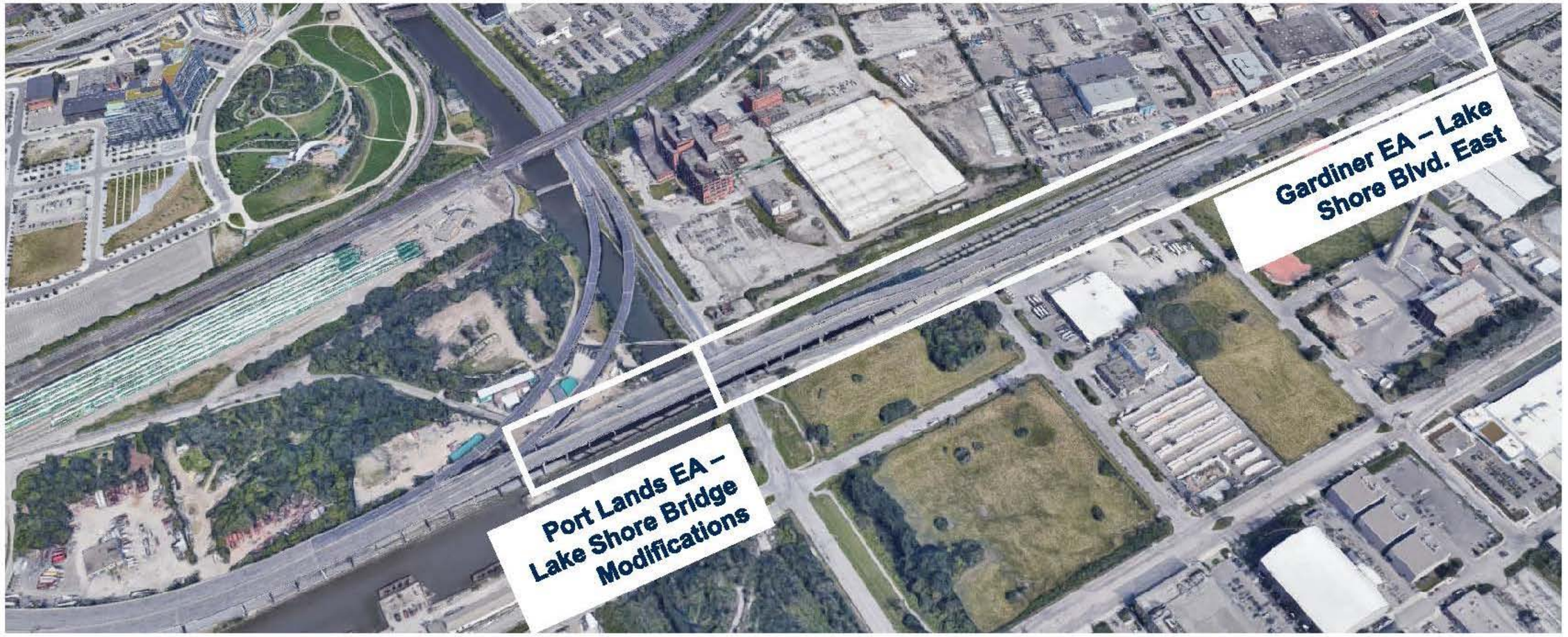
Lake Shore Boulevard Public Realm Implementation Plan

WATERFRONTtoronto



Project Area: Lake Shore Boulevard East Bridge and Public Realm

Opportunity: Integrate design and delivery of two different projects/approved Environmental Assessments as part of Port Lands Flood Protection Project



Gardiner Expressway and Lake Shore Boulevard East Reconfiguration Environmental Assessment, 2017

Lake Shore Bridge Scope

- Rebuilt to provide sufficient width for: 6 travel lanes, an eastbound left turn lane to access the northbound Don Roadway / Don Valley Parkway, a multi-use trail, and sidewalk

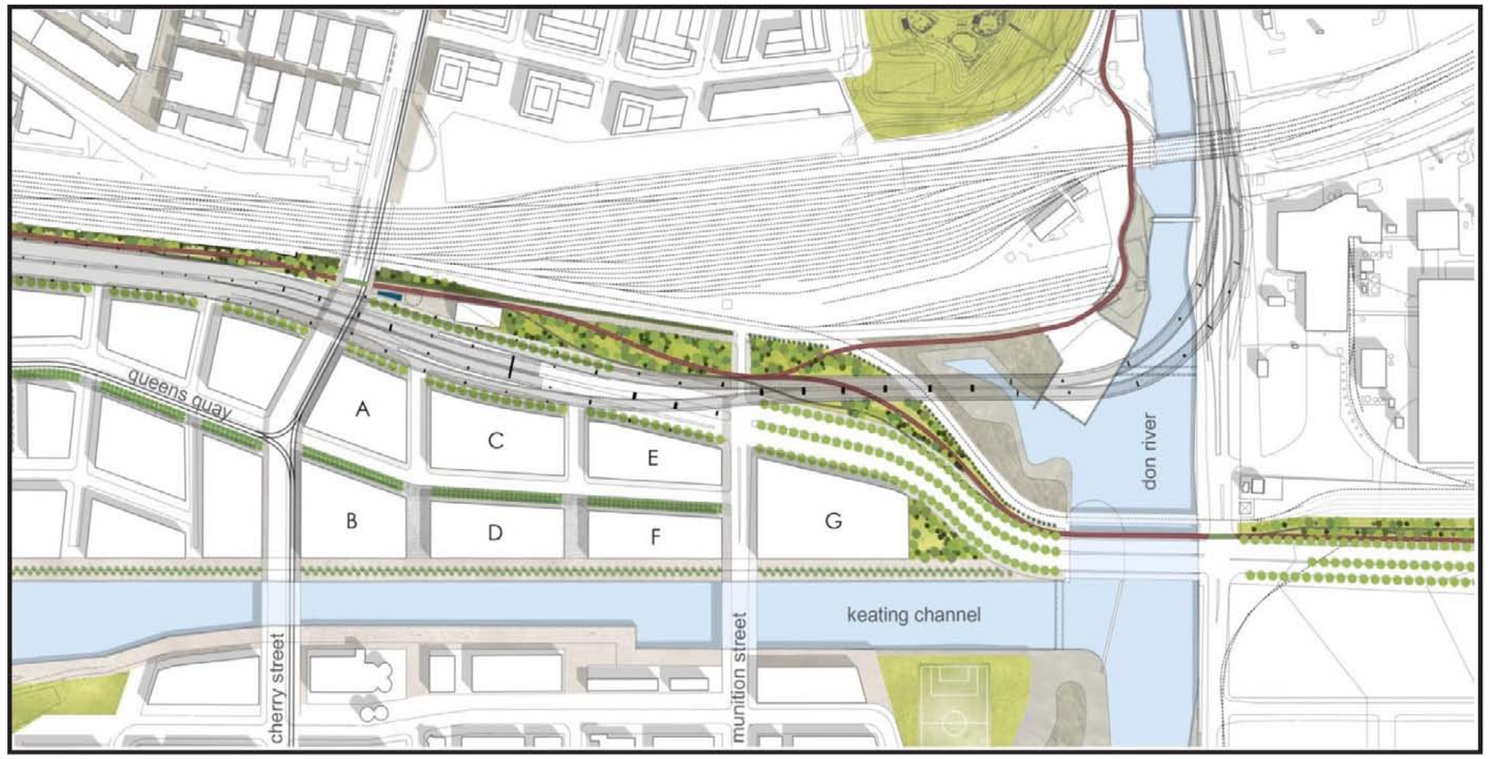
- Reconstruction to occur with Gardiner demolished

Lake Shore Don Roadway to Carlaw Scope

- Demolish Gardiner ramps

- Realign / Reconstruct Lake Shore Boulevard within the same Right of Way into a 6-lane boulevard with streetscape improvements

HYBRID 3 CONCEPTUAL DESIGN PLAN BETWEEN CHERRY STREET AND DON ROADWAY (KEATING CHANNEL PRECINCT)
CHAPTER 6 - FIGURE 6-7



Don Mouth Naturalization and Portlands Flood Protection Project Environmental Assessment, 2014

Lake Shore Bridge Scope

- To improve flood conveyance, the existing Lake Shore Boulevard and Harbour Lead rail bridges will be lengthened from the two bays that currently exist

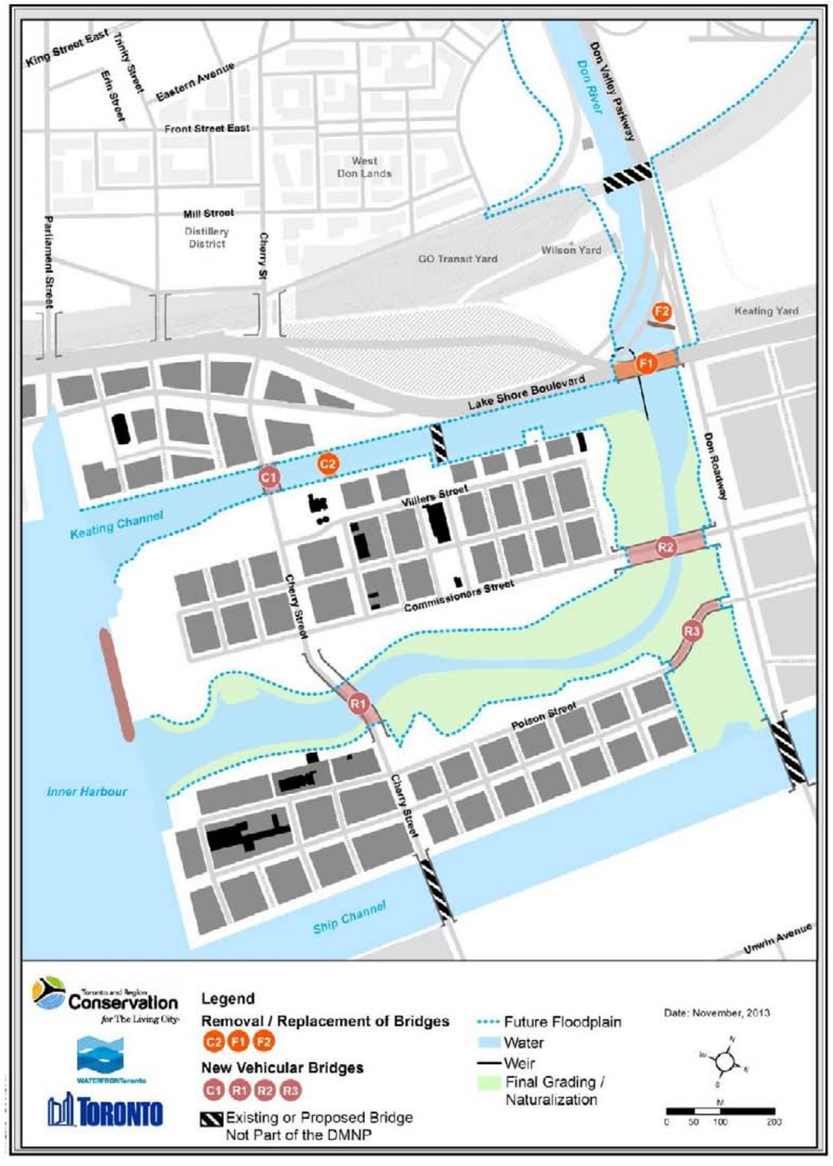
- Extended bridge remains below the existing Gardiner elevated structure

- Bridge lengthening is also proposed in the Lower Don Lands Infrastructure Master Plan and Keating Channel Precinct Environmental Study Report

Lake Shore Don Roadway to Carlaw Scope

- No work defined

PROPOSED BRIDGE CROSSINGS
CHAPTER 6 - FIGURE 6-23



Two Projects, One Bridge

Combining projects to reduce construction duration, costs, and impacts

Lake Shore Bridge Scope

- Demolish Gardiner elevated structure above.
- Construct 2 span extension and replace existing 2 spans to provide a 4 span bridge supporting 6 travel lanes, an eastbound left turn lane, a multi-use trail, and sidewalks.
- Improve Don River flood conveyance with extension.

Lake Shore Don Roadway to Carlaw Scope

- Demolish Gardiner ramps
- Realign / Reconstruct Lake Shore Boulevard within the same Right of Way into a 6-lane boulevard with dedicated left turn lanes, bicycle paths, sidewalks, and streetscape improvements
- Realign and relocate Harbour Lead Rail Line to Median of Lake Shore Boulevard

Why Combine These Projects?

- Shorter construction period
- Shorter period of traffic disruption
- Safer
- Reduced cost
- No interim conditions on Lake Shore Boulevard

Advancing design for public realm improvements approved through Gardiner Environmental Assessment

LSB BRIDGE
PLFP & Gardiner EA's

LSB ROADWAY AND PUBLIC REALM IMPROVEMENTS
Gardiner EA

Project Benefits

Considerations	Two Separate Projects	Combined Single Project
Duration of construction	**<u>Two disruption periods:</u>** 2.5 years + 3 years = 5.5 years total	**<u>Single disruption period:</u>** 3.5 years total **Reduces period of traffic disruption by approx. 2 years**
Timing to deliver: - New bridge with cylcing/pedestrian connections - Public spaces along Lake Shore - Safer intersections along Lake Shore	2028	2024 **4 years earlier**
Level of Risk	1) Structural stability related to working in and around Gardiner bents: **high risk** 2) Schedule risk related to complexity of work: **medium risk**	1) Structural stability risks related to working in and around Gardiner bents **- risk eliminated** 2) Schedule risk related to complexity of work **- low risk**
Cost savings		**Total estimated savings of $34 million**
Safety	Construction detour at Lake Shore Boulevard and Don roadway identified as significant safety risk due to presence of Gardiner bents	By removing Gardiner bents prior to construction of detour roads, **traffic safety risk reduced**

Proposed Construction Timelines* - PLFP and Lake Shore Boulevard East Public Realm

Description	Date
Traffic Management	
Public outreach on planned traffic mitigations	Winter 2021
Traffic mitigations complete	Fall 2021
Construction	
Logan Ramp Closed/Ramp Demolition Begins	Fall 2021
Lake Shore Bridge Demolition - Eastbound	Fall 2021
Rail Bridge Closure	Spring 2022
Opening Lake Shore Bridge - Eastbound	Spring 2023
Lake Shore Boulevard Closure/Demolition - Westbound	Spring/Summer 2023
Rail Bridge Construction Complete	Spring 2024
Opening Lake Shore Bridge - Westbound	Fall 2024
Construction Finish	Winter 2024

**Note: Schedule not confirmed, subject to City approval*

Would you like to get construction notices?

Sign up here.

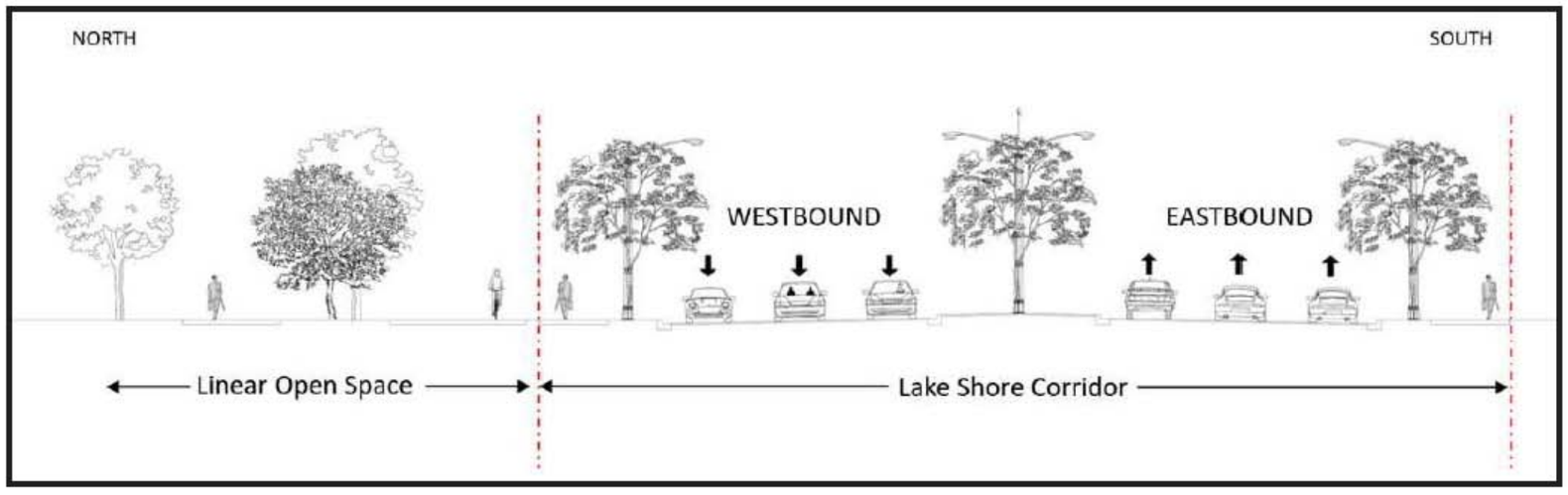
Roadway Design

Lake Shore Boulevard East Roadway Design

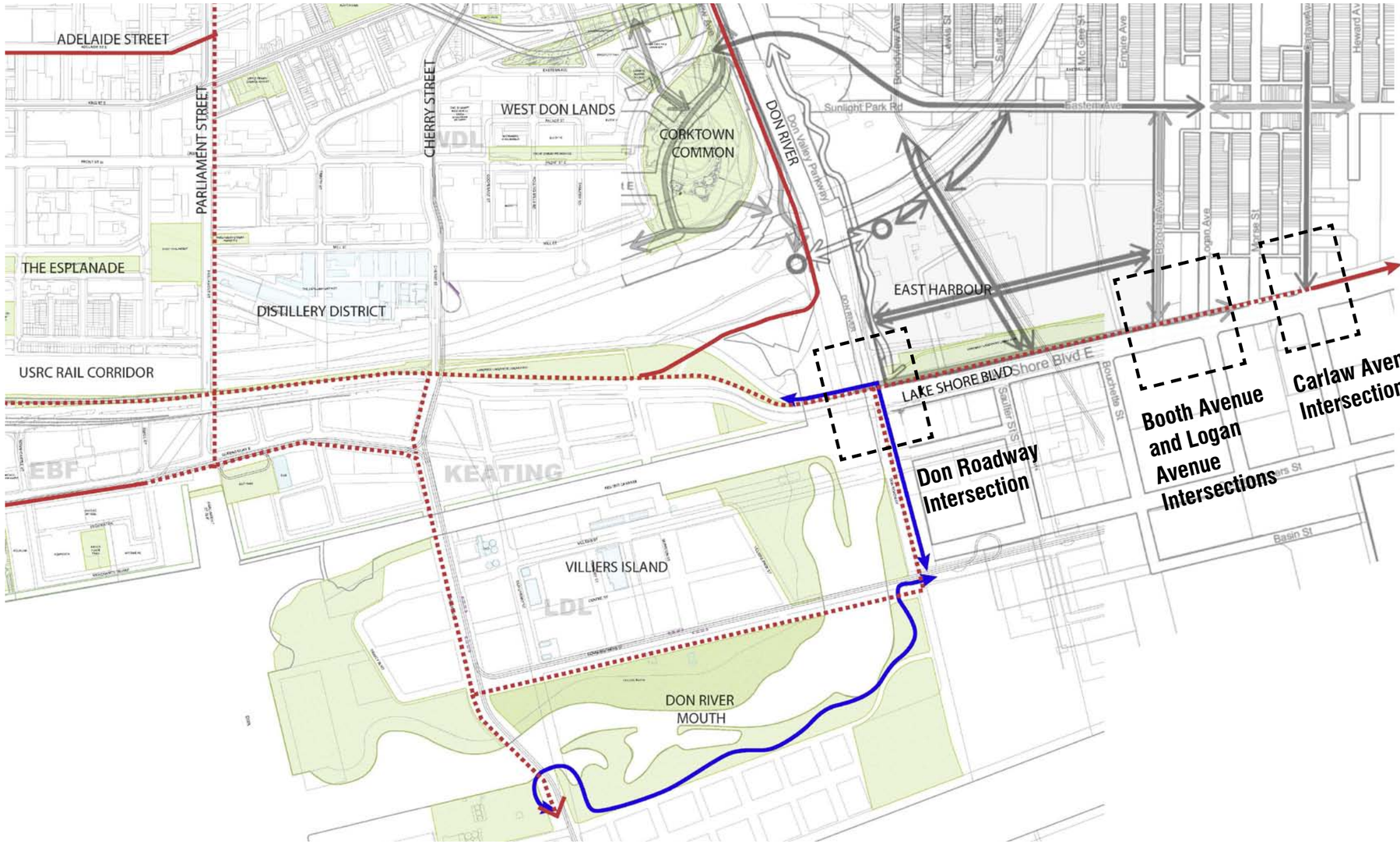
ROADWAY LAYOUT

- In 2017, City Council approved proposed design in Gardiner Expressway and Lake Shore Boulevard East Reconfiguration EA: landscaped 6-lane boulevard with generous medians
- Design advanced following guidelines by City and by Transportation Association of Canada
- Incorporating past public and stakeholder feedback
- In coordination with City and nearby projects (East Harbour, McCleary District, PLFP)
- Lake Shore Boulevard remains an arterial road with dedicated left turn lanes added at intersections

EA CROSS SECTION EAST OF DON RIVER
CHAPTER 6 - FIGURE 6-4



Cycling Connections - Existing and Planned



Lower Don Trail

Planned Bicycle Network Infrastructure

Existing Bicycle Network Infrastructure

Planned Bicycle Network Infrastructure (per Unilever Precinct Secondary Plan)

Existing Bicycle Network Infrastructure (per Unilever Precinct Secondary Plan)

Multi-use Path

Lake Shore Boulevard East Intersection Design

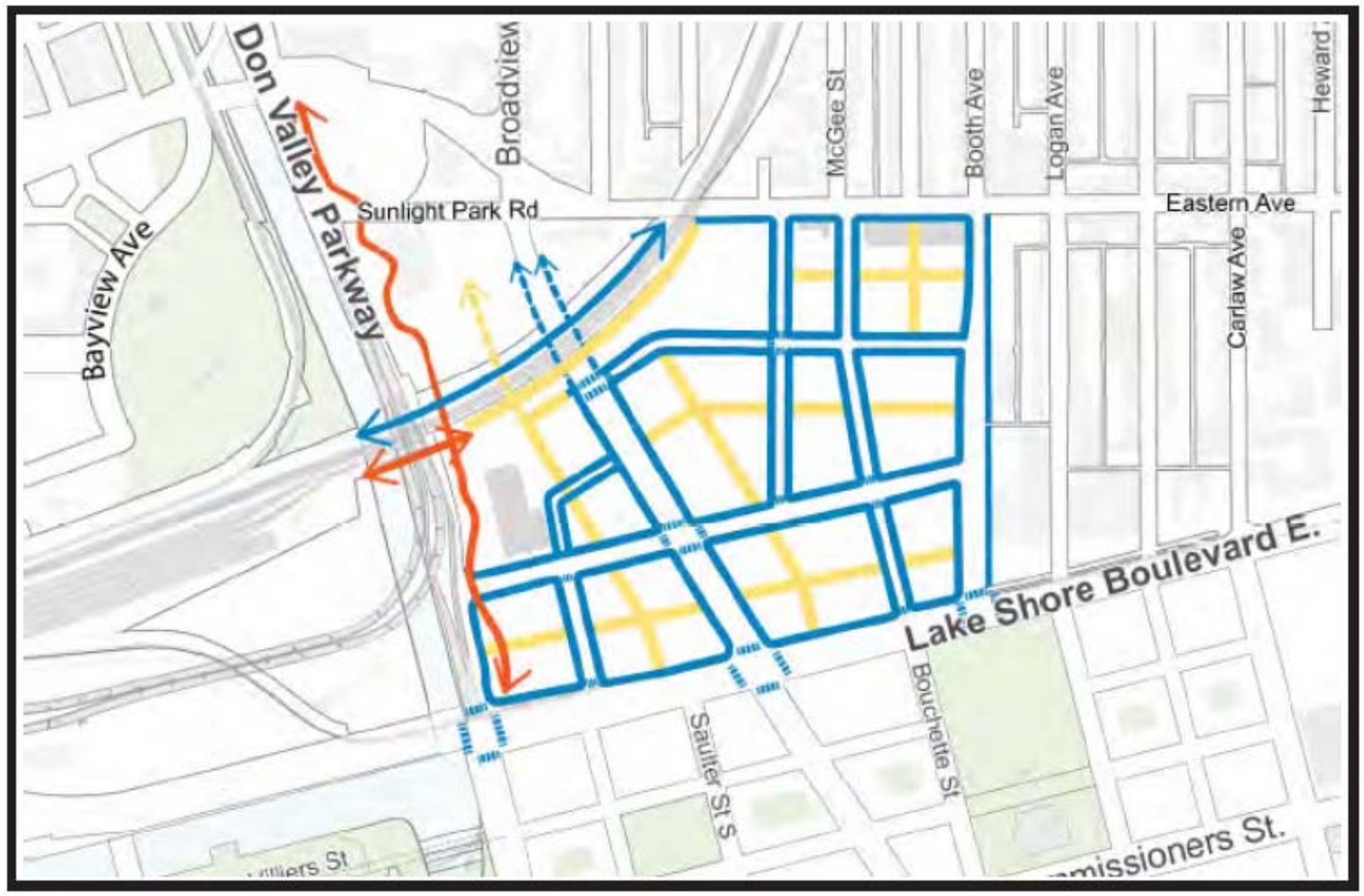
INTERSECTION GEOMETRY AND LOCATIONS

- Design advanced following guidelines by City and by Transportation Association of Canada
- Improved crossing for cyclists and pedestrians with dedicated, separated waiting areas
- In coordination with City and nearby projects (East Harbour, McCleary District, PLFP)
- Improved connectivity to future trail along Don Roadway and to existing McCleary Park
- Dedicated cyclist crossing signals
- Traffic modelling to optimize traffic flow

Final alignments and designs for intersections to be determined through additional studies

UNILEVER PRECINCT PLANNING FRAMEWORK (EAST HARBOUR)

PEDESTRIAN NETWORK MAP

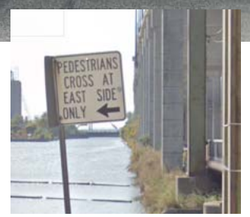


Intersection Design

Three Key Intersections in Context of Future Expanded Connectivity

Future Intersections (per Unilever Precinct Plan)

Lake Shore Boulevard Intersections - Existing Conditions



Don Roadway

Booth Avenue

Carlaw Avenue

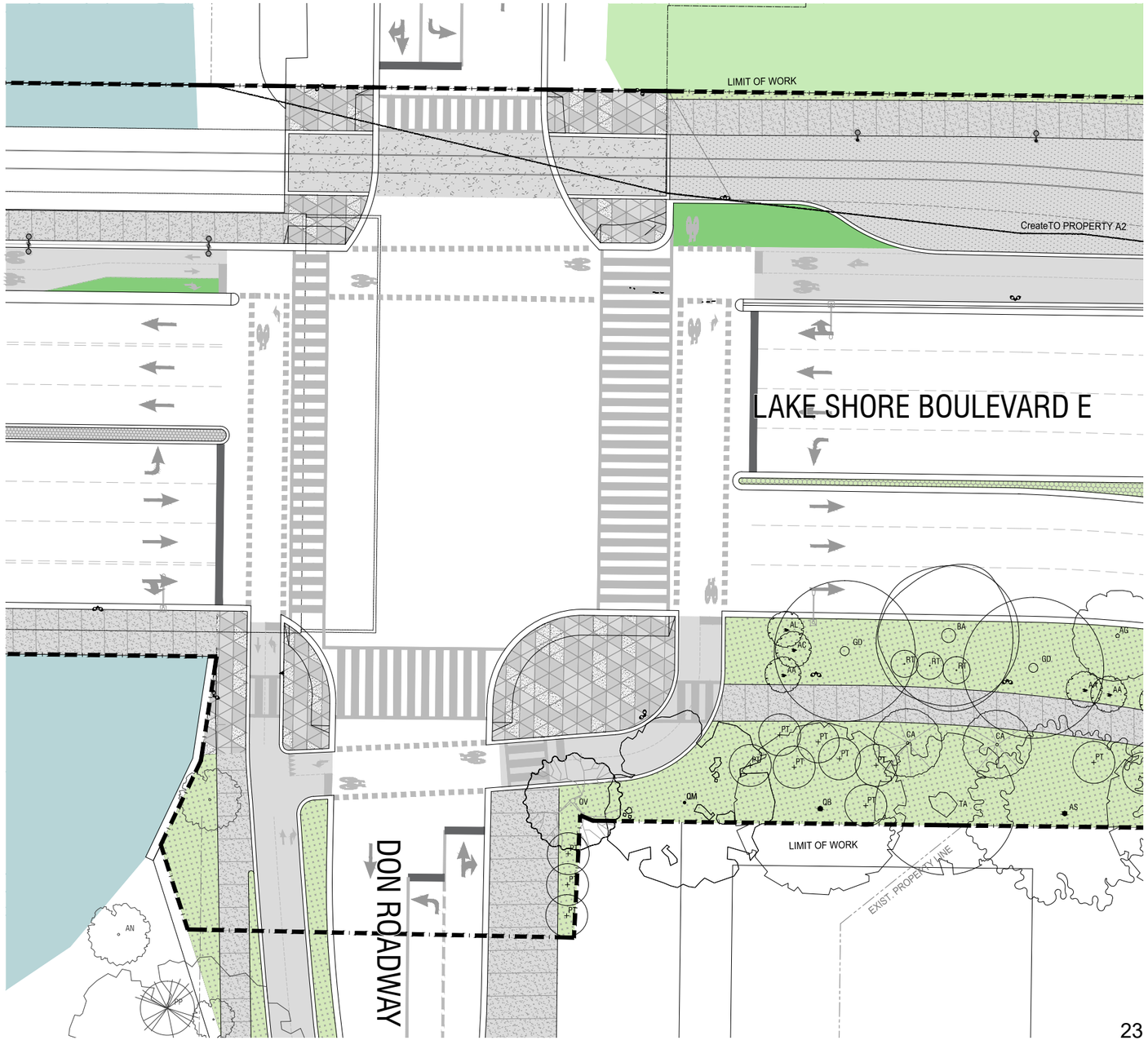
Intersection Design - Don Roadway

Proposed Design

Key Design Features

- Where existing Don Roadway meets new Don Roadway (designed by PLFP Roads team)
- Where Lower Don Trail on Don Roadway meets trail along Lake Shore Boulevard
- Safe crossings for pedestrians and cyclists: pedestrians cross east-west north of Harbour Lead Rail Line, cyclists have extra space for turning
- Leading signal interval for advanced north-south crossing of pedestrians and cyclists for increased safety and visibility
- No right turn on red for vehicles
- All left turning vehicles to turn within a dedicated signal phase

Note: The design for Don Roadway between Lake Shore and Commissioners Street has been finalized and approved as part of Port Lands Flood Protection project



Intersection Design - Don Roadway

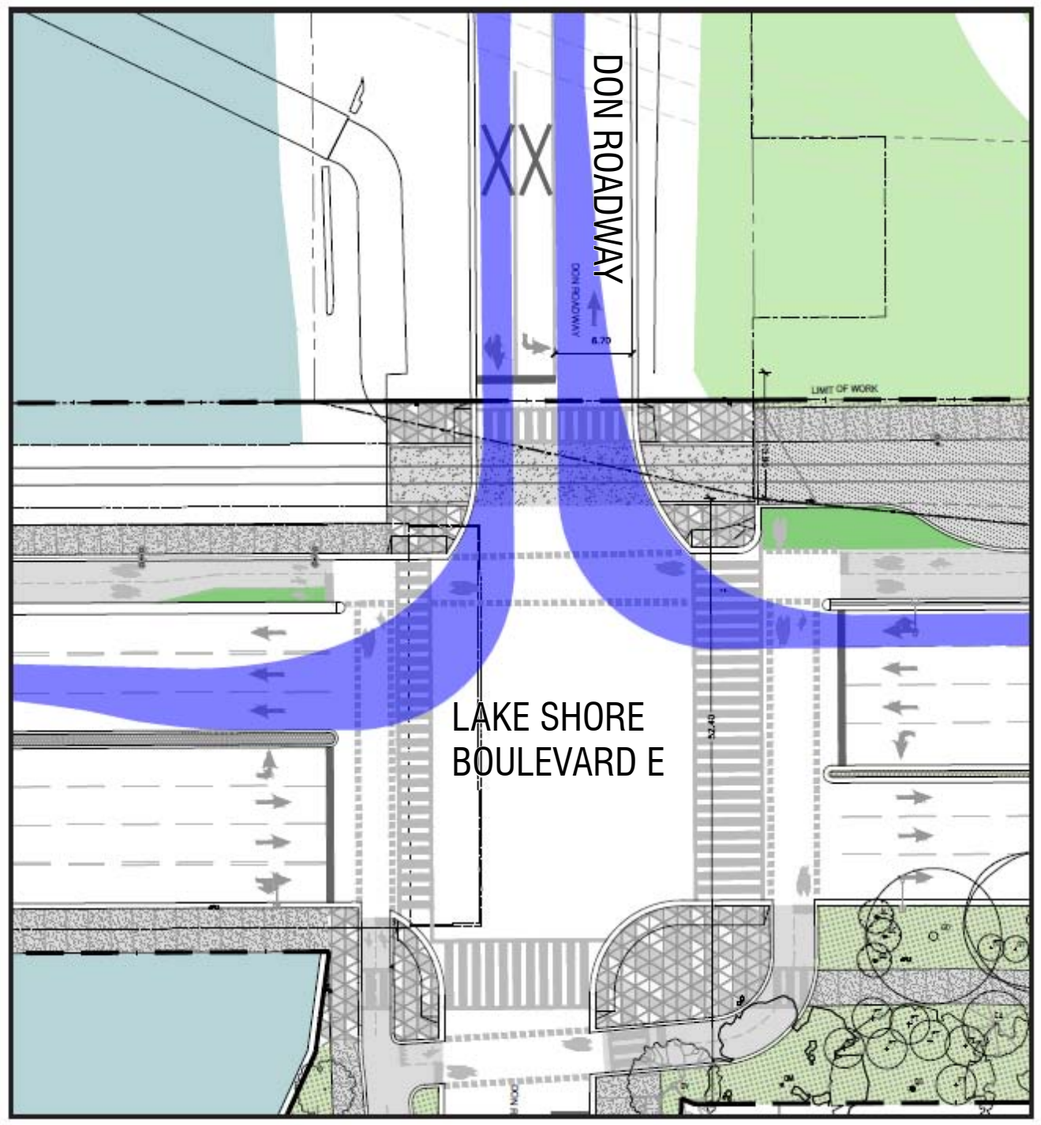
Truck Turning Analysis

Verifying Intersection Geometry

- Ensure truck movement through intersections are in accordance with City's Curb Radii Guideline.
- WB-20 (tractor semi-trailer) used at north corners of Don Roadway intersection.
- MSU (medium single unit truck) used at all other intersections.
- Trucks do not track over the curb, bicycle trail or sidewalk to complete turn.
- Carlaw Ave. intersection curb radii set to match existing.
- Don Roadway intersection south corners match new Don Roadway design between LSB to Commissioners St.

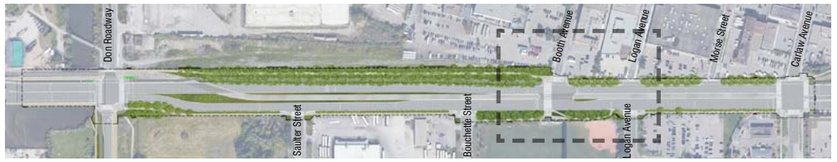
TRUCK TURN ANALYSIS PATHING EXAMPLE

WB-20 RIGHT TURN AT NORTH CORNERS OF DON ROADWAY INTERSECTION



Intersection Design - Booth and Logan Avenue

Proposed Design



Key Design Features

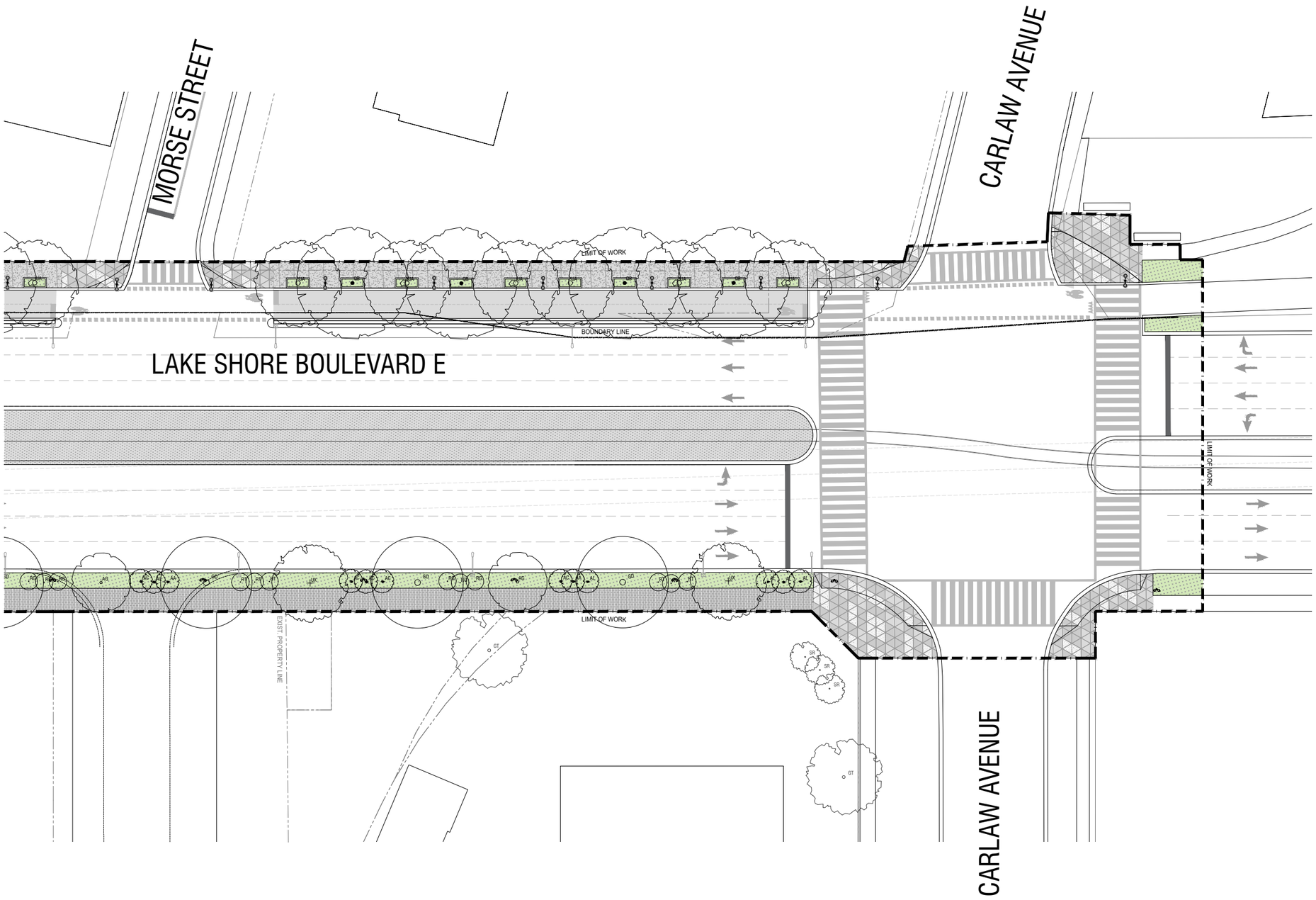
- New controlled intersection at Booth Avenue
- Extra wide pedestrian crossing North to South at Booth Avenue and McCleary Park - no cycling crossride
- Access to McCleary Park via stair and ramp to preserve mature Elm trees
- No controlled intersection at Logan Avenue

Intersection Design - Carlaw Avenue

Proposed Design

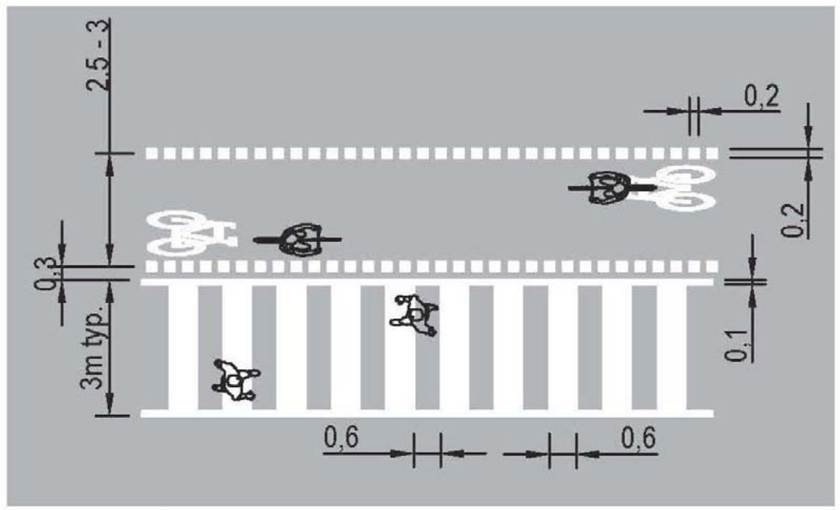
Key Design Features

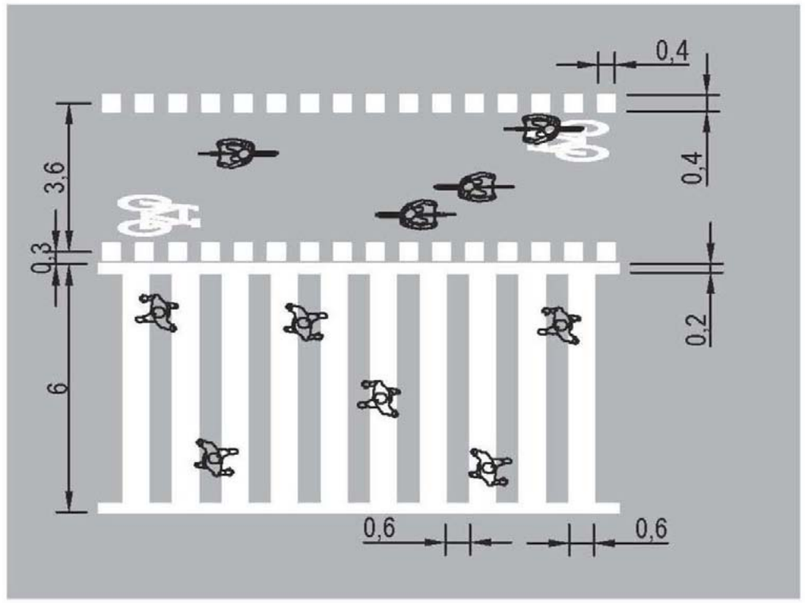
- Existing cycling trail ties into new one with new crossride and intersection modifications
- Cyclist and vehicles at same grade at intersection
- Harbour Lead Rail Line ties into existing location in median after Carlaw Avenue



Improved Pedestrian and Cycling Markings for Visibility at Intersections

Thermoplastic
Application





TYPICAL CROSSING CONDITION

Pedestrian zebra based on existing condition on Lake Shore Boulevard
Bi-Directional bicycle cross ride width from Ontario Traffic Manual Book 18
Elephants' feet dimensions from Cycling Toronto

PROPOSED CROSSING CONDITION

Typical zebra width doubled
Bi-directional bicycle cross ride wider
Elephants' feet dimensions from Ontario Traffic Manual Book 18

Public Realm Design

Public Feedback on PLFP Roads and Bridges 2017-2019

Strong emphasis on separated cycling paths for safety, both from vehicular and pedestrian traffic

Having a physical barrier that separates cyclists from traffic was identified as the most important feature to help cyclists feel safer.
- participants prioritized higher barriers such as planters that would physically prevent cars from entering bike paths
- curbs or medians were the next preferred option, followed by the elevation of bicycle paths
- extra separation and robust barriers contribute to a sense of safety
- feeling safe but also feeling good are important

Clear and separated bicycle and pedestrian paths preferred
- Participants would be ok with different approaches in different parts of the network based on space and cost
- Put cyclists and pedestrians at a different level (grade separation) on the bridges

Visual cues can help indicate separation

Preference was for a combination of multiple cues
- vertical signage
- horizontal pavement markers (should be used regularly and maintained regularly)
- limit textured surfaces on cycling paths
- no preference over colour, texture, or graphic cues

Project Overview

Five Zoomed In Areas

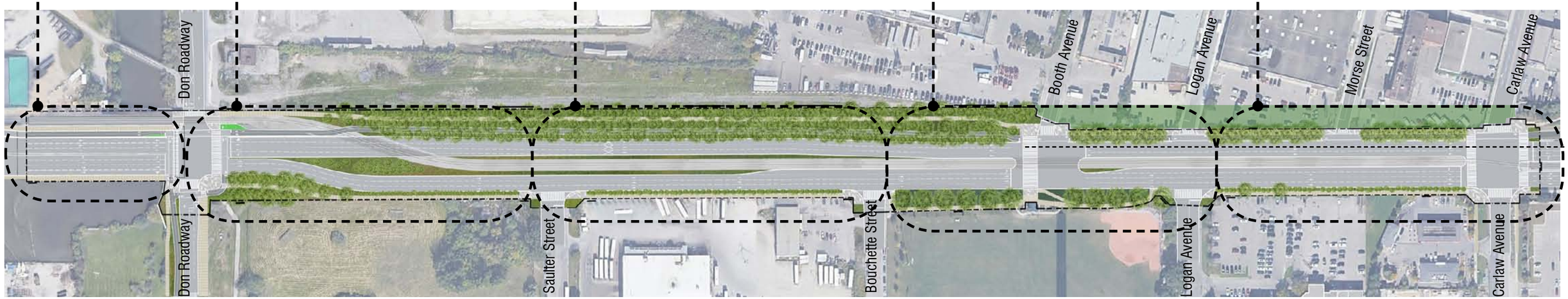
Area 1 - Lake Shore Boulevard Bridge

Area 2 - Don Roadway to Saulter Street

Area 3 - Saulter Street to Bouchette Street

Area 4 - McCleary Park

Area 5 - Logan Avenue to Carlaw Avenue



Future Improvement Zone - Setbacks Adjacent to New Development

Area 1 - Lake Shore Boulevard Bridge

A Wider Space for Public Realm

FUTURE CONNECTION TO PEDESTRIAN AND CYCLING TRAILS

NEW PEDESTRIAN SIDEWALK ON NORTH

EXTENSION OF BICYCLE TRAIL ON NORTH

DON ROADWAY

BOUNDARY LINE

LIMIT OF WORK / BOUNDARY LINE

LIMIT OF WORK

ROAD CONNECTS WITH EXISTING AND FUTURE LAKE SHORE BOULEVARD ALIGNMENTS

LAKE SHORE BOULEVARD EAST

LIMIT OF WORK

FUTURE CONNECTION TO WATERS EDGE PROMENADE

NEW 4M PEDESTRIAN SIDEWALK IN SOUTH

LIMIT OF WORK

DON ROADWAY

EXIST. PROPERTY LINE

LEGEND

MATERIALS - SOUTH SIDE BOULEVARD
- PERMEABLE UNIT PAVERS

MATERIALS - MEDIANS
- ROUGH STONE TYPE 1 AGGREGATE, 2-4CM DIAMETER ON BRIDGE ONLY
- STORMWATER / PLANTING

MATERIALS - NORTH SIDE TRAIL
- ASPHALT BICYCLE PATH
- CIP CONCRETE PAVING WITH BROOM FINISH
- ROUGH STONE TYPE 1 AGGREGATE, 2-4CM DIAMETER

MATERIALS - INTERSECTIONS AND ROAD
- PAVING PATTERN - 3 TYPES OF CONCRETE FINISH
- THERMOPLASTIC WHITE ROAD MARKINGS

PROPOSED LIGHTING
- LIGHTPOLE TYPE III

EXISTING SURVEY
- SURVEY OF EXISTING CONDITIONS - EXISTING CURBS IN DARK BLUE

FUTURE DEVELOPEMENT
- DESIGN OF FUTURE BROADVIEW AVENUE

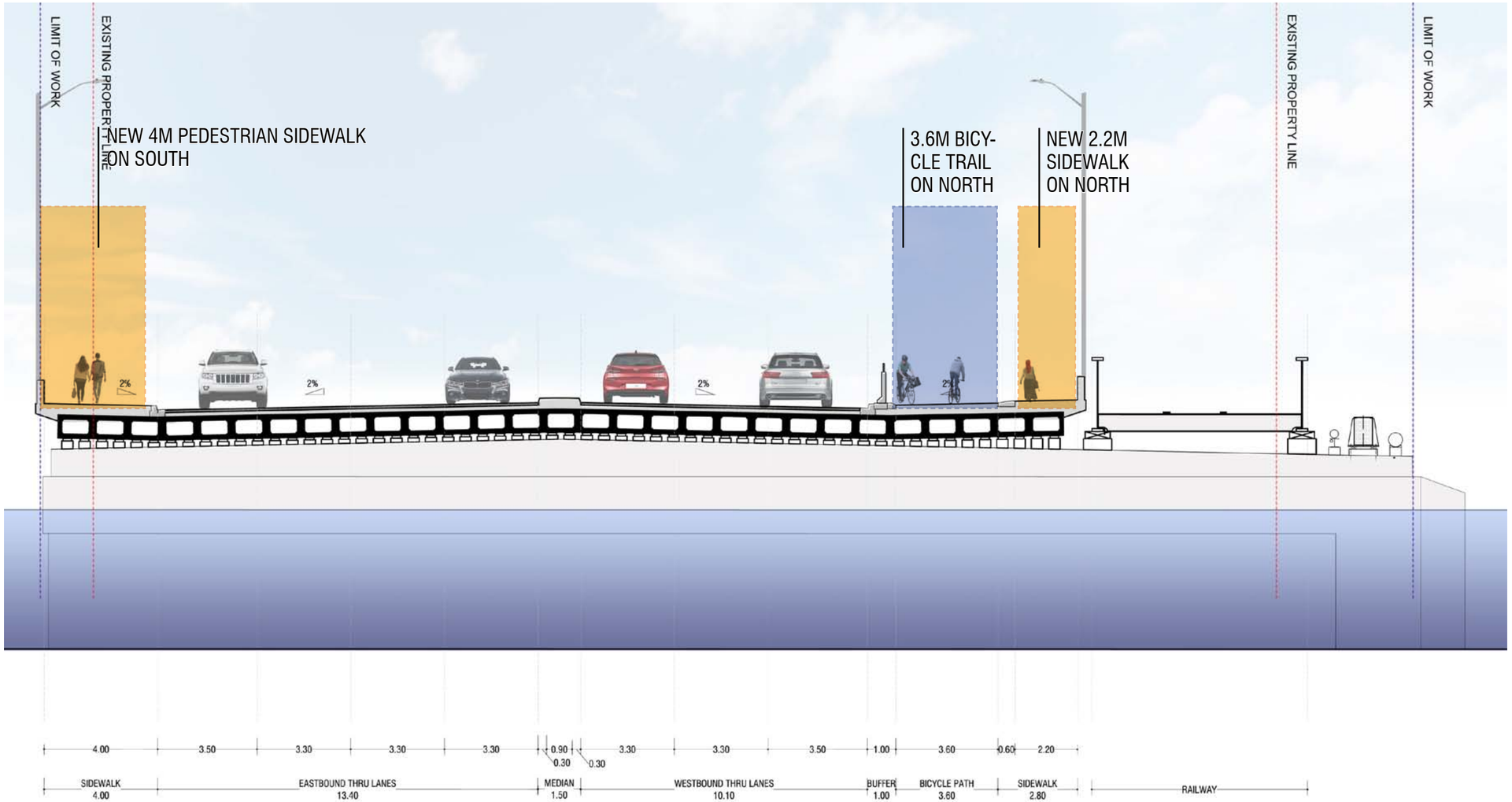
PLANTING - REFER TO L-500 SERIES
- PROPOSED PLANTING AREA

LEGEND - PLANTING
- PROPOSED NEW TREE
- EXISTING TREE

Overlay with 90-100% Design Sketch by Portlands Road Team received from Waterfront Toronto

Area 1 - Lake Shore Boulevard Bridge

Expanded Public Realm



Area 2 - Don Roadway to Saulter Street

Transition of Harbor Lead to Center Median

FUTURE ROAD

LIMIT OF WORK

LIMIT OF WORK/ 150 FOOT ROAD ALLOWANCE BY REGISTERED PLAN 159E

LIMIT OF WORK / 150 FOOT ROAD AL

CreateTO PROPERTY A2

CreateTO PROPERTY A2

LAKE SHORE BOULEVARD EAST

HARBOR LEAD RAIL RELOCATION

LIMIT OF WORK

EXIST. PROPERTY LINE

EXPANDED PUBLIC REALM WITH PLANTED AREA IN SOUTH

FUTURE ROAD

LEGEND

MATERIALS - SOUTH SIDE BOULEVARD
- PERMEABLE UNIT PAVERS

MATERIALS - MEDIANS
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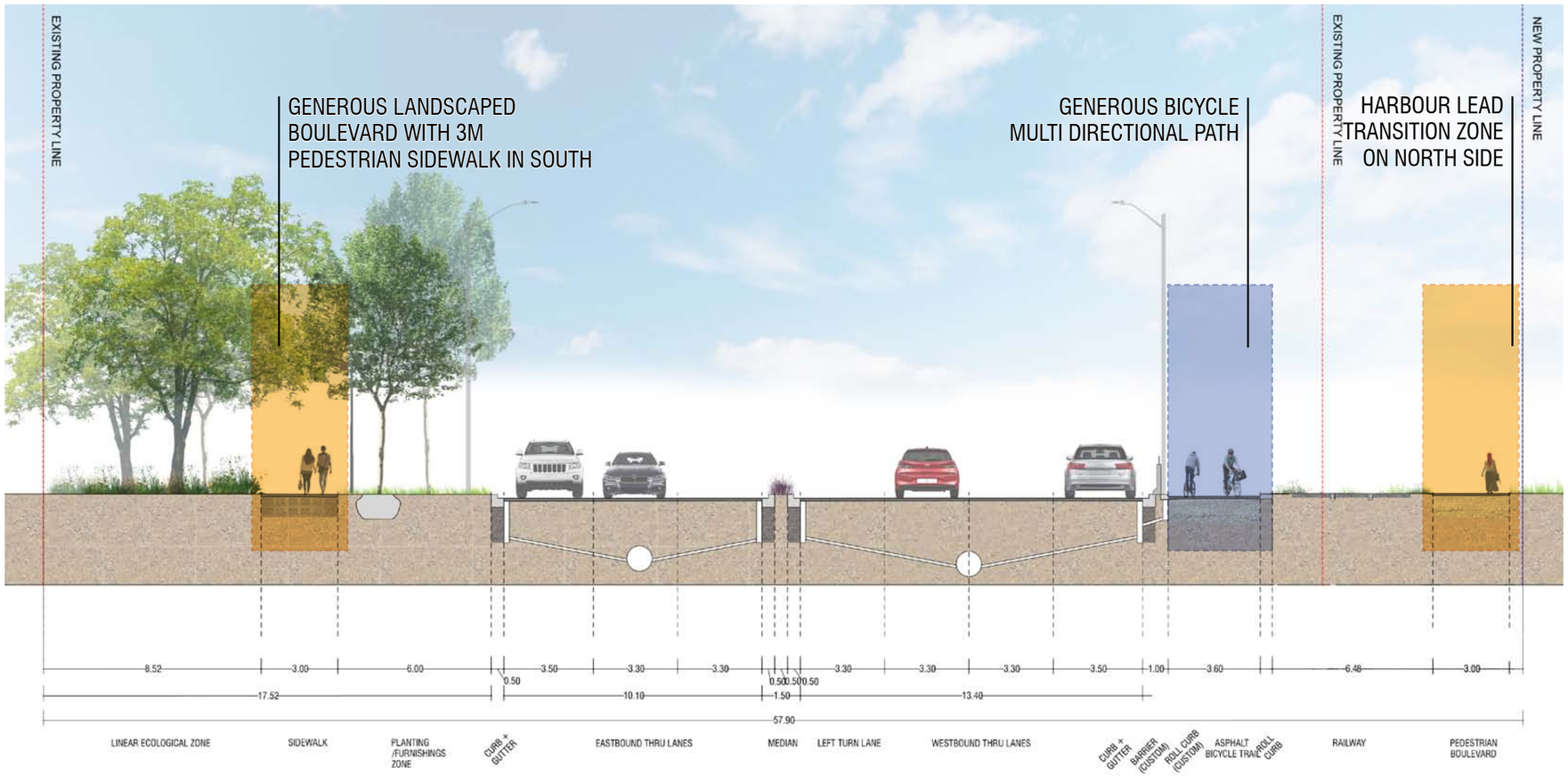

Area 3 - Saulter Street to Bouchette Street

Linear Park and Green Scenery

FUTURE BROADVIEW AVENUE

LINEAR PARK WITH GENEROUS BICYCLE AND PEDESTRIAN PATHS

LIMIT OF WORK / 150 FOOT ROAD ALLOWANCE BY REGISTERED PLAN 159E

LAKE SHORE BOULEVARD EAST

LAKE SHORE BOULEVARD EAST

LIMIT OF WORK

CONTINUOUS PUBLIC REALM WITH PLANTED AREA IN SOUTH

FUTURE PROOFING FOR BROADVIEW INTERSECTION

SAULTER STREET

BOUCHETTE STREET

FUTURE BROADVIEW AVENUE

LEGEND

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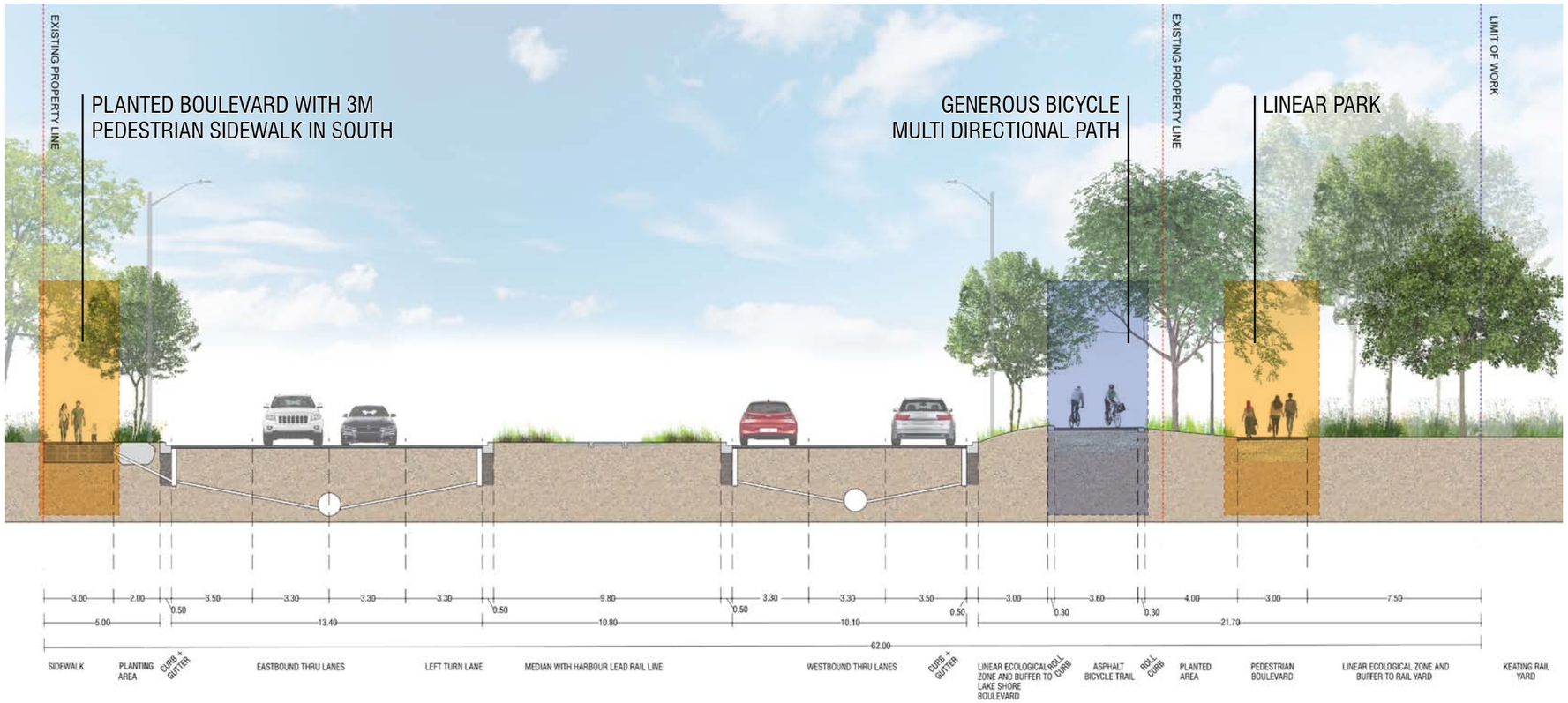
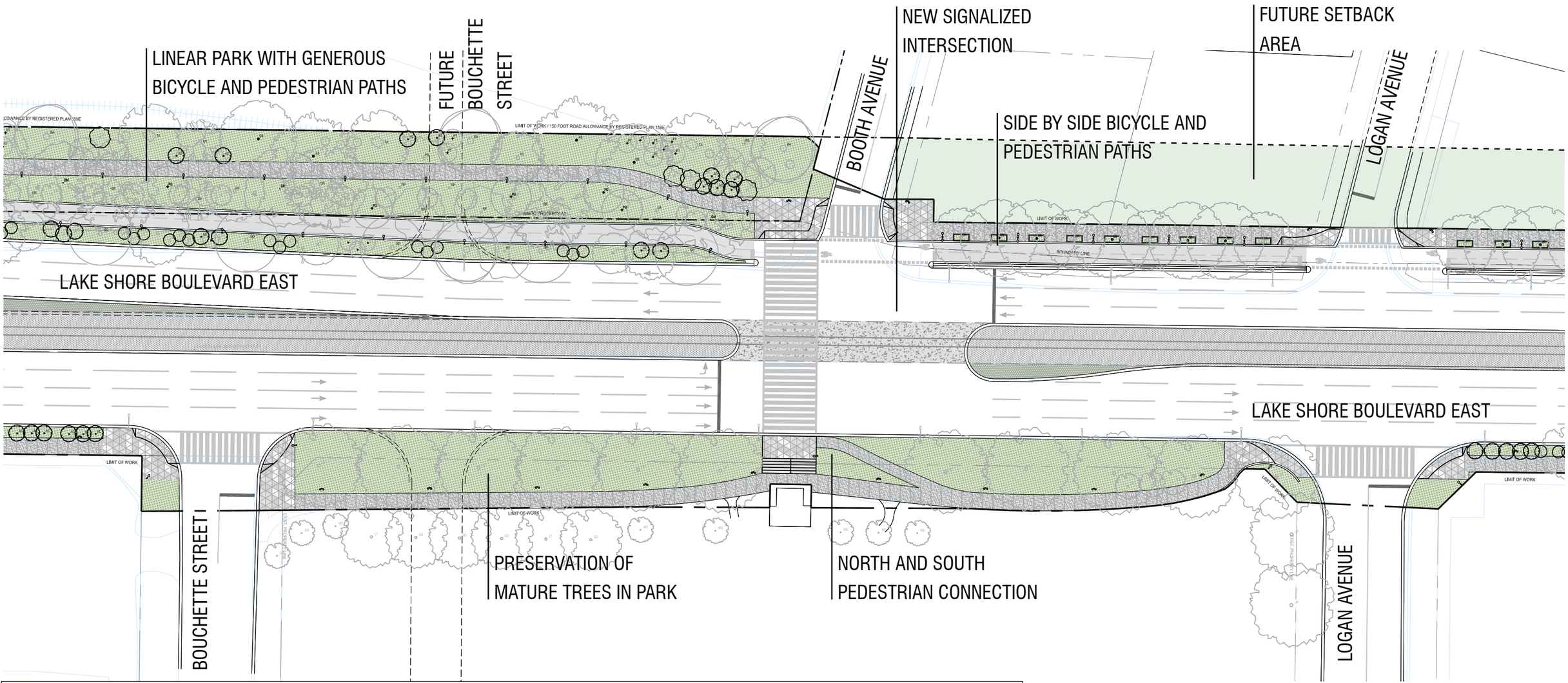
Area 3 - Saulter Street to Bouchette Street

Linear Park and Green Scenery



Area 4 - McCleary Park

Transition from Linear Park to Side by Side Trails and Connection to Park



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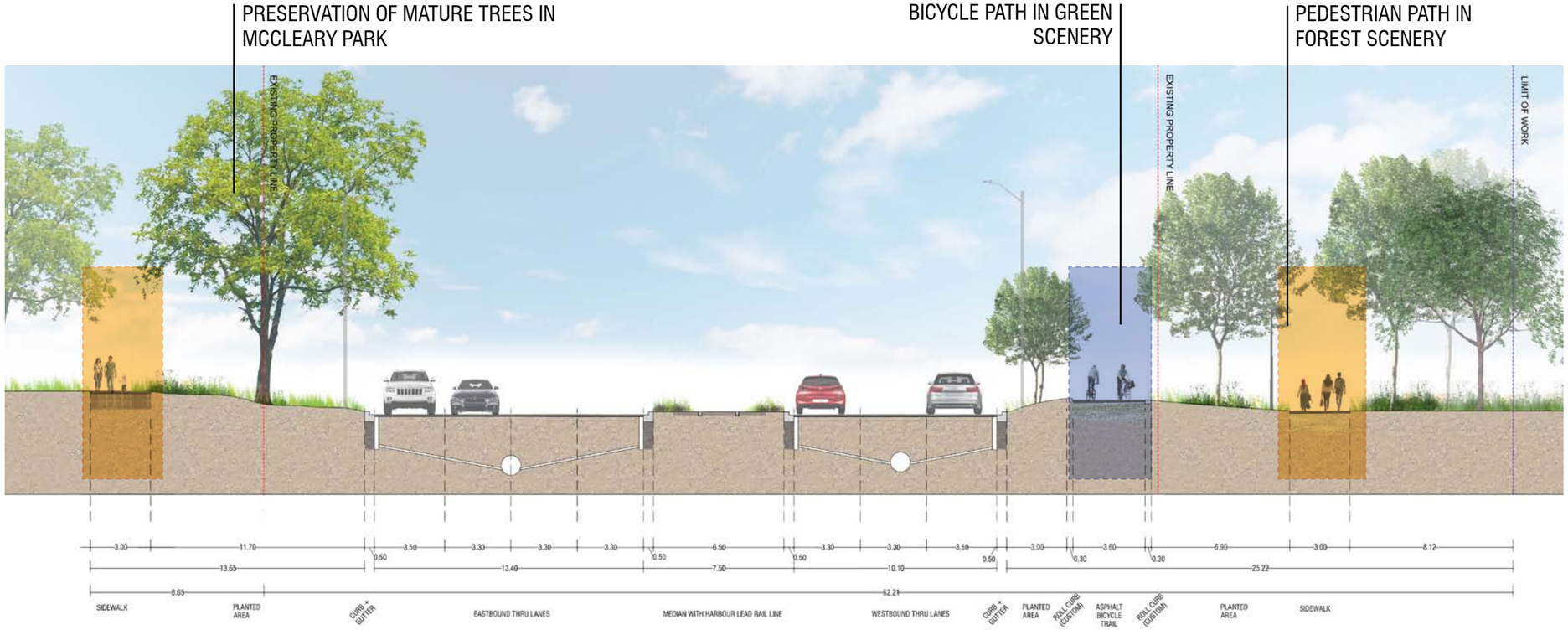
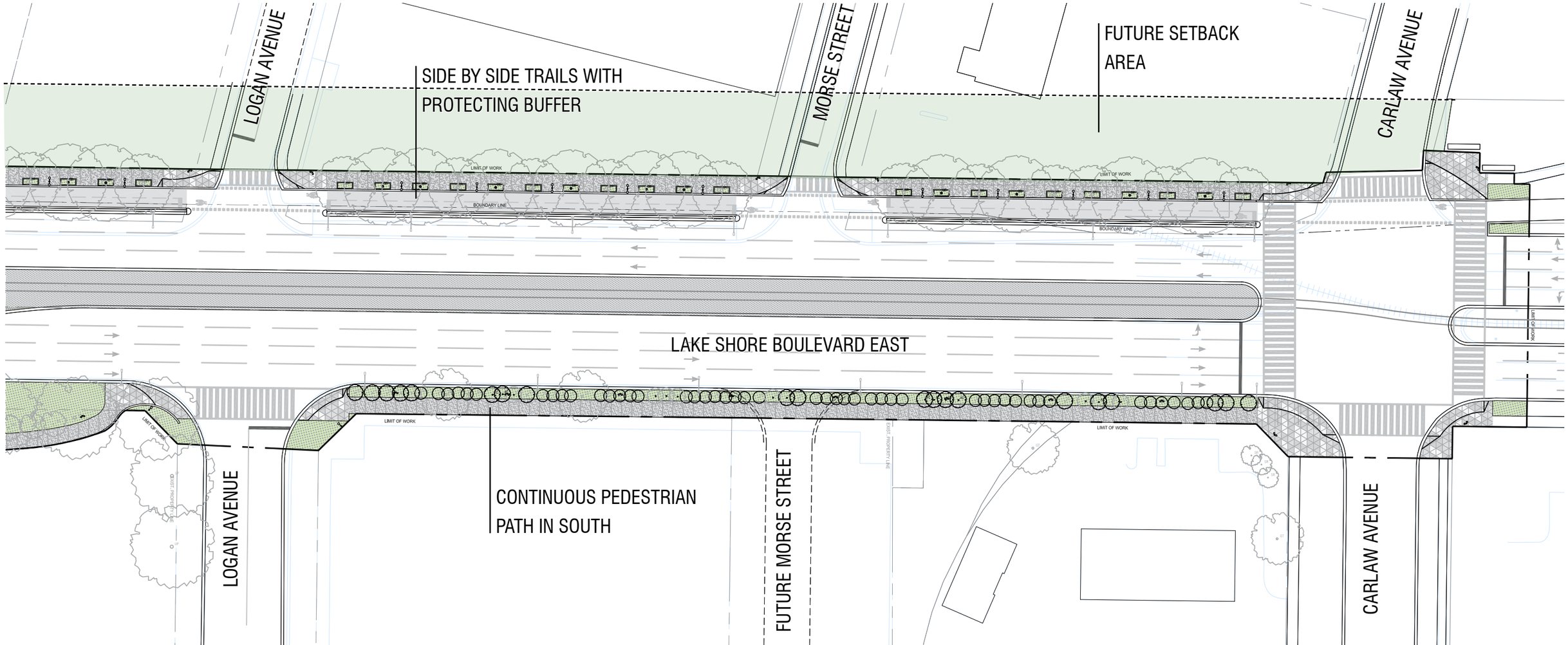


Area 5 - Logan Avenue to Carlaw Avenue

Protected and Side by Side Trails



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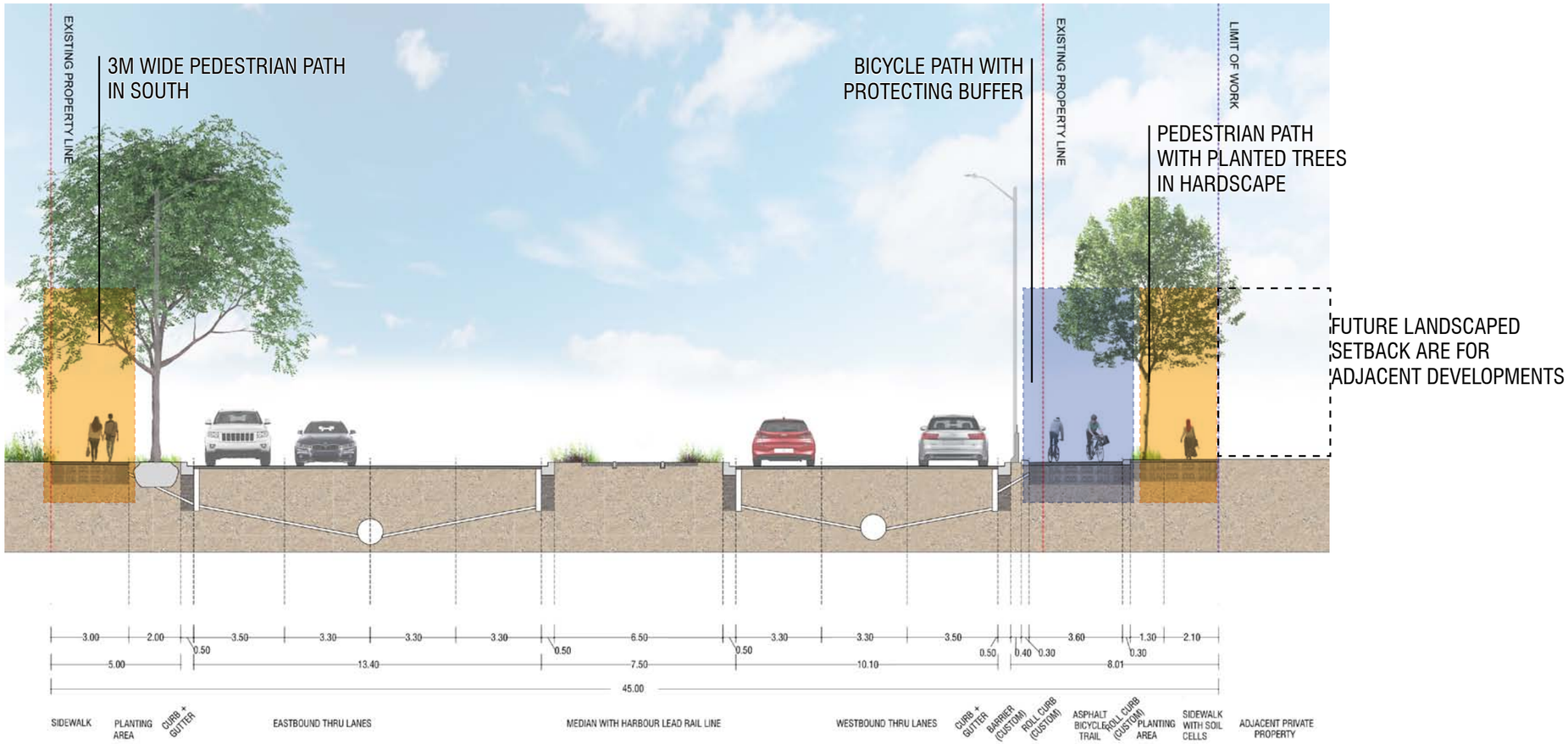
Protected and Side by Side Trails



Character of Lake Shore Boulevard East of Carlaw Avenue

North Boulevard / Linear Park

Separate bi-directional cycling trail and pedestrian sidewalk with bar shaped seating at intersections

Landscaped and planted linear park on north side

South Boulevard and Median

Formal boulevard layout of planting and sidewalk
Harbour Lead Rail Line crosses from median to Porlands at multiple points between Carlaw and Leslie Street

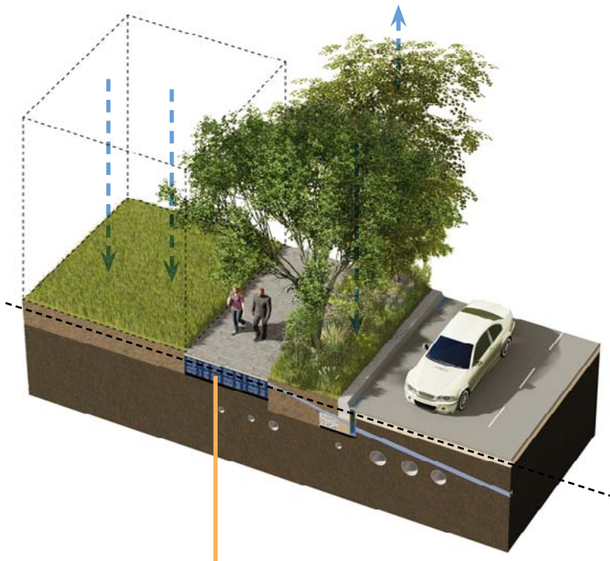
Bi-directional multi-use Martin Goodman Trail after Leslie connects to Leslie Street Spit (in addition to cycling trail on north side)
Planted median, no more Harbour Lead Rail Line

Public Realm Design

Do you have any feedback about the approach to landscaping in the streetscape shown here, including the median?

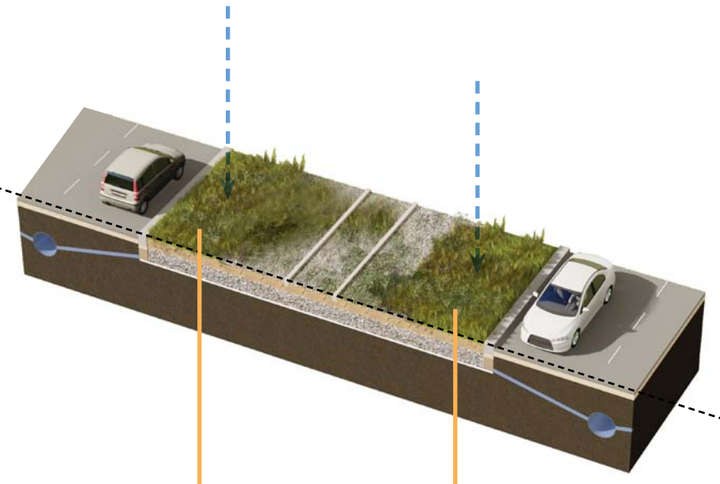
Answer questions 2 of this survey.

South Boulevard



SOILS CELLS UNDER CONCRETE PEDESTRIAN PATH TO INFILTRATE WATER AND HELP TREE GROWTH

Centre Median



PLANTED MEADOW ALONGSIDE RAIL BALLAST HARBOUR LEAD RAIL LINE

North Boulevard (Linear Park)

PLANTED AREAS AND TRAILS RAISED ABOVE ROADWAY

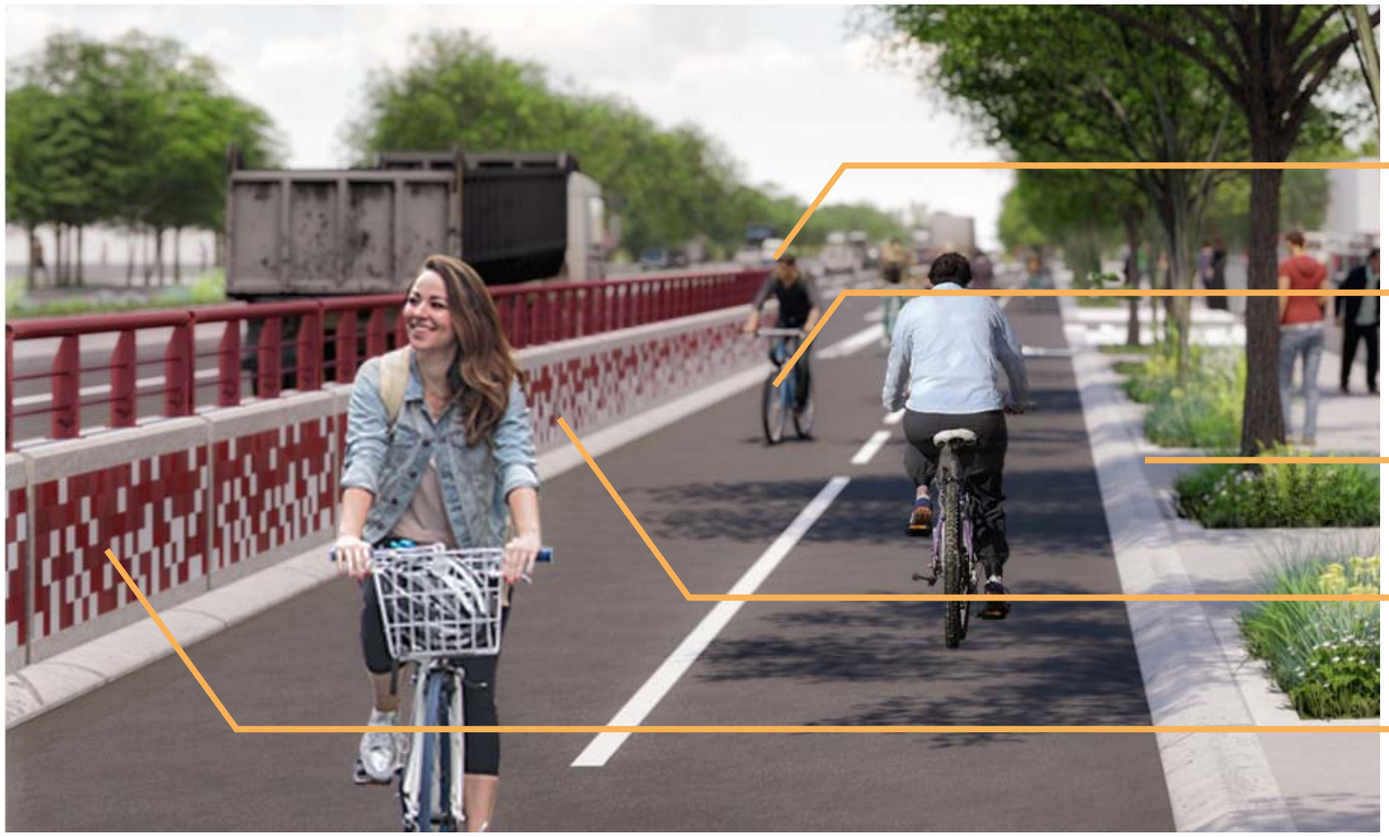
STRUCTURAL SOIL BELOW ASPHALT BICYCLE PATH AND CONCRETE SIDEWALK TO PROVIDE NUTRIENT AND OXYGEN EXCHANGE

Public Realm Design

Barrier Design - Comfort, Safety, and Delight

What do you think about this preliminary design for a protective barrier for cyclists?

Answer question 3 of [this survey](#).



Railing provides additional height, transparency

Rolled curb provides spacing between wall and cyclists

Rolled curb separates pedestrians and cyclists

Tile inlaid in modular barrier provide sense of place, delight, human scale

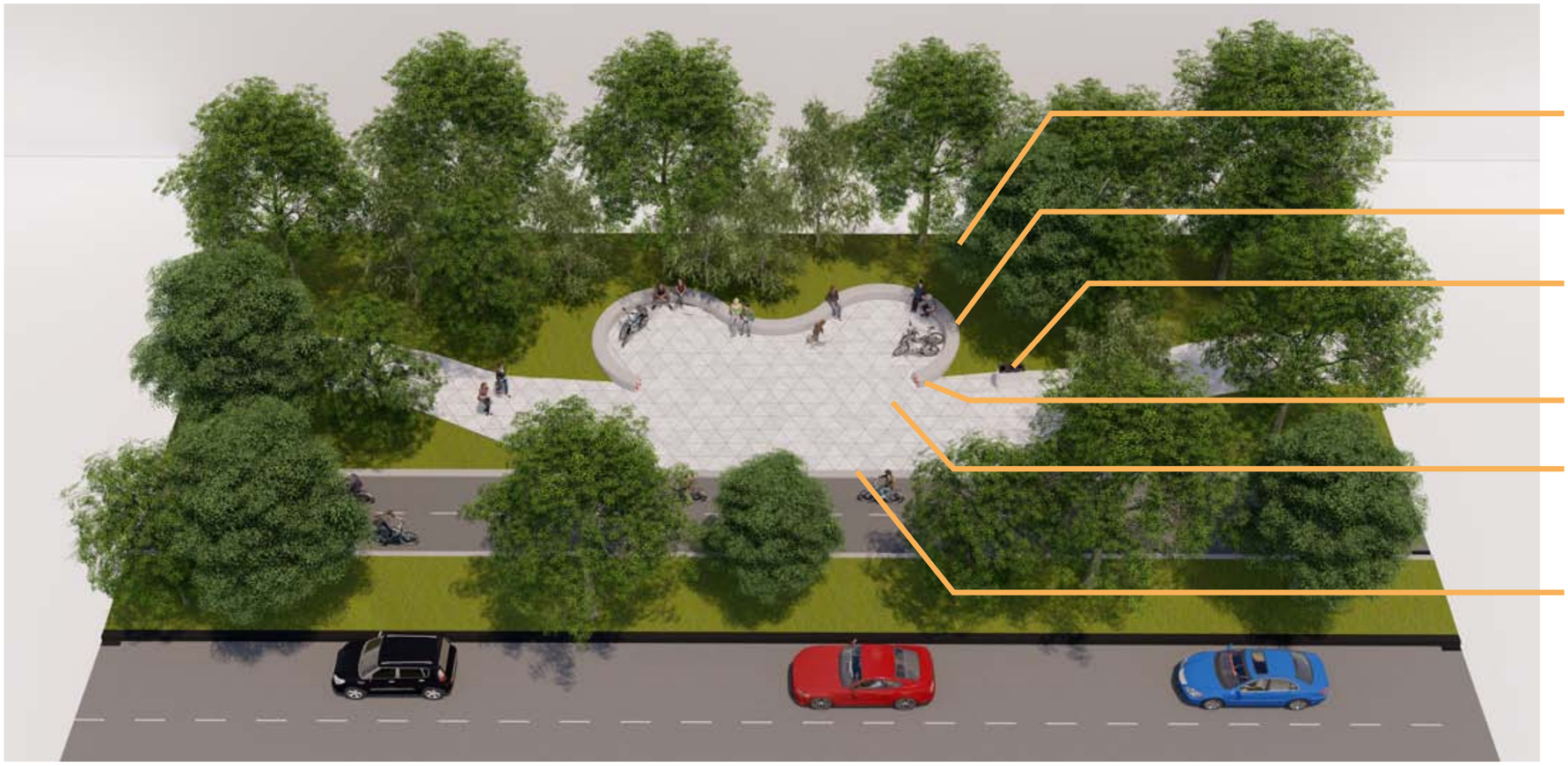
Crash tested TL-4 straight profile barrier provides protection, safety for cyclists

Public Realm Design

Resting Area “Pocket Parks”

Is there anything you would change about this park design?

Answer question 4 of [this survey.]



Raised Planting Bed for Trees and Shrubs

Concrete Social Seating Circle

Drinking fountain

Tile to match barrier

Special Paving at Pocket Park Matches Intersection Corners

Rolled Curb at Bicycle Path: cyclists stop and dismount to use rest area

Tell us what you think about the proposed lighting.

Answer question 5 of [this survey.]

Public Realm Design - In Progress

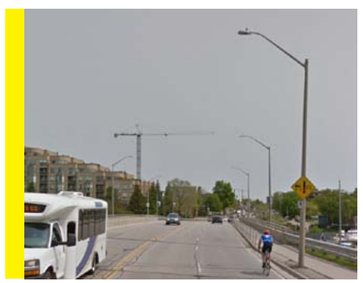
Lighting Strategy

Lake Shore Bridge Roadway Lighting mounted on outside of bridge

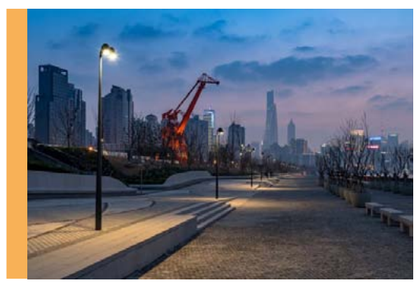
Additional pedestrian level lighting in “Linear Park” condition between cycling and pedestrian pathways

Existing flood lighting for McCleary Park baseball diamond - additional pedestrian lighting required?

Existing Combined Roadway & Pedestrian Lighting on LSB
Shared pedestrian and street lighting pole no longer permitted



Proposed Roadway & Cycle Path Lighting
Fixture: NXT-72M-700mA-2ES-3000K
Pole: Standard Toronto Hydro
Spacing: 30m o.c.



Proposed Pedestrian Lighting
Fixture/Pole: Olivio Grande, Asymmetric, 2G350 LED Engine, 3000K CCT
Minimum Height: 4.5m
Spacing: 15m o.c.
Avg. Illuminance: 1.04

Public Realm Design - Linear Park

Biodiverse Pollinator Paradise, 65m Right of Way

Public Realm Design - Formal Boulevard

Anticipates Future Development Setback, 41m Right of Way

Public Realm Design - Linear Park

Seasonal Variation in Experience, 65m Right of Way

Questions and Comments?