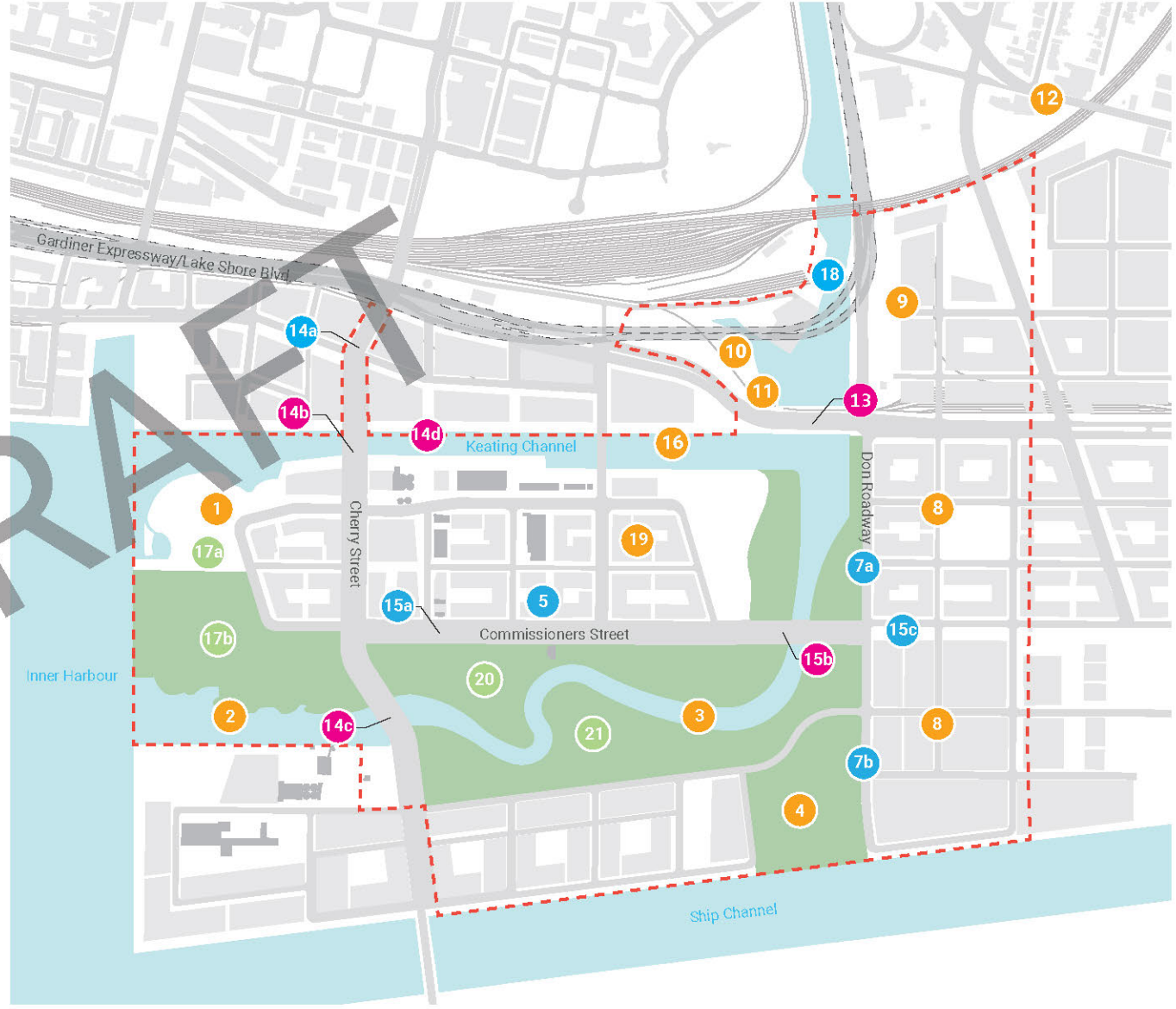
Port Lands Flood Protection Design Integration

Waterfront Design Review Panel - June 26, 2019

Project Scope

- 1 Cherry Street Stormwater and Lakefilling
- 2 Polson Slip Naturalization
- 3 River Valley System
- 4 Don Greenway (Spillway & Wetland)
- 8 Don Roadway Valley Wall Feature
- 9 East Harbour Flood Protection Land Form
- 10 Sediment and Debris Management Area
- 11 Flow Control Weirs
- 12 Eastern Avenue Flood Protection
- 16 Keating Channel Modifications
- 19 Villiers Island Grading
- 13 Lake Shore Road and Rail Bridge Modifications
- 14b Cherry Street Bridge North
- 14c Cherry Street Bridge South
- 14d Old Cherry Street Bridge Demolition
- 15b Commissioners Street Bridge
- 5 Site Wide Municipal Infrastructure
- 7a Don Roadway North
- 14a Cherry Street Re-alignment
- 15a Commissioners Street West to New Cherry Street
- 15c Commissioners Street East to Saulter Street
- 18 Hydro One Integration
- 17a Promontory Park North (unfunded)
- 17b Promontory Park South
- 20 River Park North
- 21 River Park South

- 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)

Design Integration Team

A design integration team comprised of representatives of each of the consultant teams noted above was struck. The team has been meeting bi-weekly with the aspiration of ensuring that all design related items are well integrated amongst the project streams.

Design Integration Process

Waterfront Toronto is committed to creating a cohesive design for the new parks, green spaces, roads and bridges.

A design integration team comprised of representatives of each of the consultant teams was struck. The team has been meeting bi-weekly since November 2018, with the aspiration of ensuring that all design related items are well integrated amongst the project streams. The process has helped identify gaps in the design such as:

- Coordination between road design and park frontages (i.e. Commissioners Street)
- The transition of public realm between bridges and roads to create a seamless user experience
- The transition between bridges down into the river valley system both in the interim but also in the future at full buildout.

MVVA has taken the lead as integrator of all four streams to ensure the design results in one cohesive project

Integration Goals

Port Lands Flood Protection will unlock 290 hectares of land – an area as big as downtown – for revitalization. The development of almost one third of Toronto's waterfront is a major opportunity for the city to grow sustainably.

Aspiration:

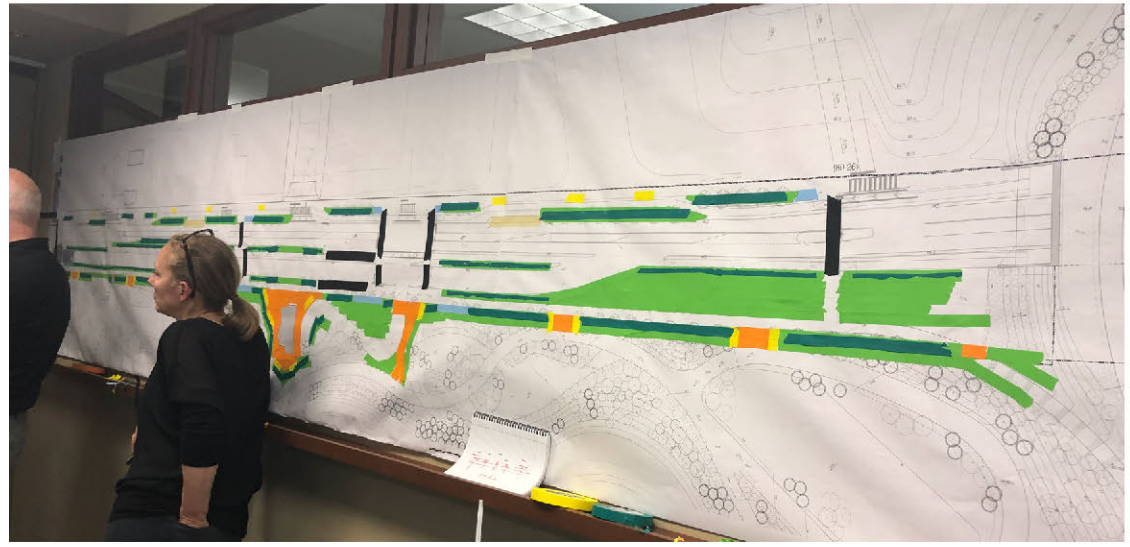
- Establish a design language and character for the new neighbourhoods to come over the next 10-50 years.
- Create a cohesive design for the new parks, green spaces, roads and bridges we're building.

By the numbers

- **32.7 hectares (80 acres)** of naturalized habitat including the river
- **11 hectares (27 acres)** of new public parks
- **25 hectares (63 acres)** of publicly accessible green space
- **2 km** of new roads
- **3** new signature bridges across the Keating Channel and river valley

How Do We Accomplish This?

1. Ensure a seamless flow of spaces and moments. This includes:
   - **Seamless connections** for cyclists and pedestrians via bridges and trails and a park program designed to connect into these access points.
   - **Coordination/blurring the lines** between the streets, bridges and parks.
2. Integrate into the full project a series of unified themes to create a cohesive whole. This includes:
   - Embrace the **juxtaposition** of **industrial materials**, urban form and **natural green space** that already exists in the Port Lands.
   - **Simple materials** used throughout all design elements.
   - Propose a unified **planting palette**.
   - Streets reflect the ecological aspiration of the river through **green bioswales** which lead/connect users to parks and green spaces.
   - Using the bridge design to provide a **contrast to the ecological habitat** marking these gateways into the Port Lands iconic.



2024 Day Plan

- Parks 60% Design - July 2019
- River 90% Design - May 2019
- IFC Cherry Street - June 2019
- Bridges 100% Design May 2019

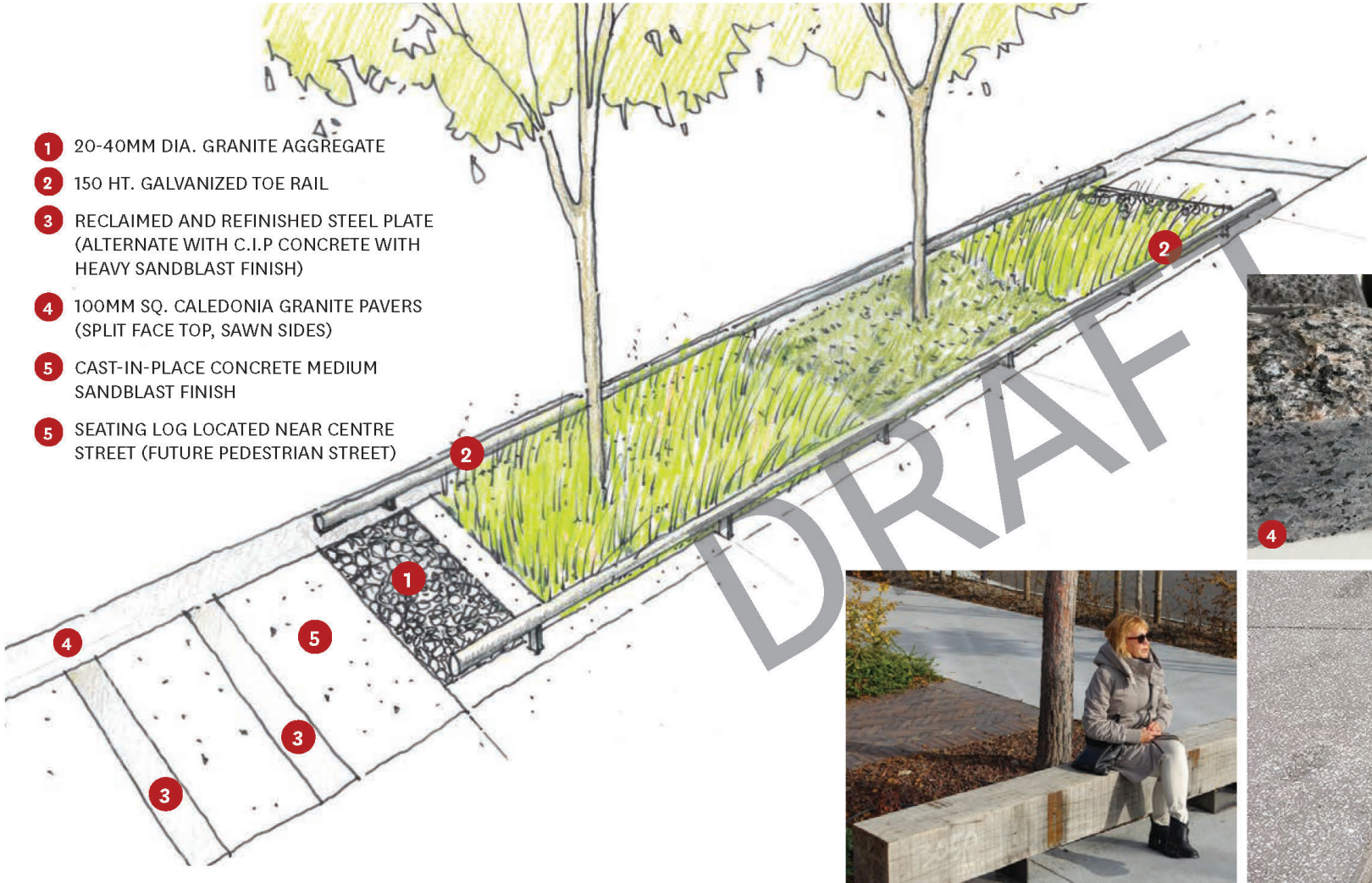
0 75 150M

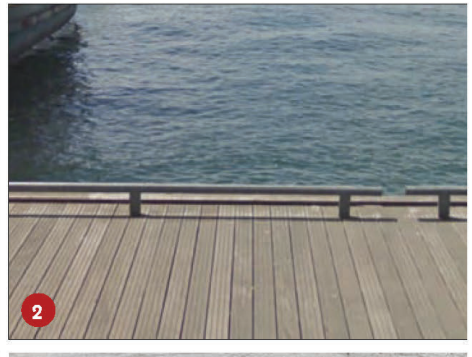
Parks and River Design Update - Promontory Park South (2024)

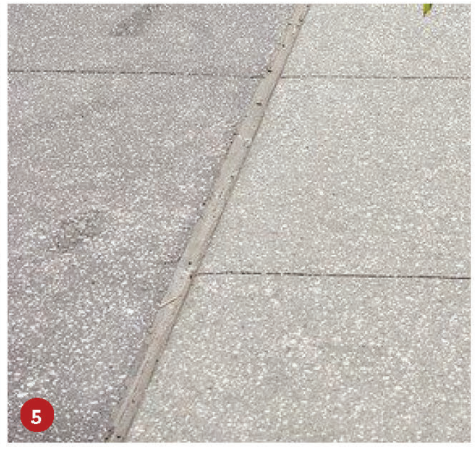
Parks and River Design Update - River Valley Park and Don Greenway (2024)

Roads Design Update

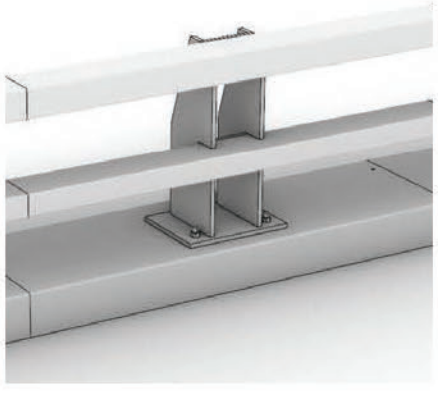
1. 20-40MM DIA. GRANITE AGGREGATE
2. 150 HT. GALVANIZED TOE RAIL
3. RECLAIMED AND REFINISHED STEEL PLATE (ALTERNATE WITH C.I.P CONCRETE WITH HEAVY SANDBLAST FINISH)
4. 100MM SQ. CALEDONIA GRANITE PAVERS (SPLIT FACE TOP, SAWN SIDES)
5. CAST-IN-PLACE CONCRETE MEDIUM SANDBLAST FINISH
5. SEATING LOG LOCATED NEAR CENTRE STREET (FUTURE PEDESTRIAN STREET)



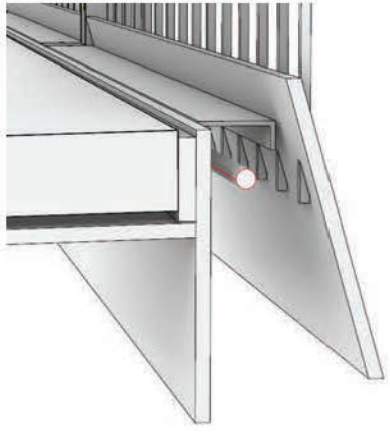




Bridges Design Update

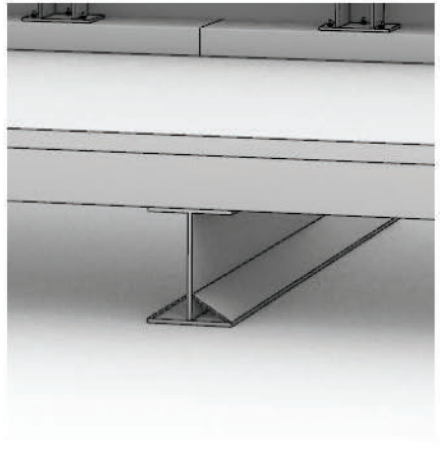


Alignment of Crash Barrier

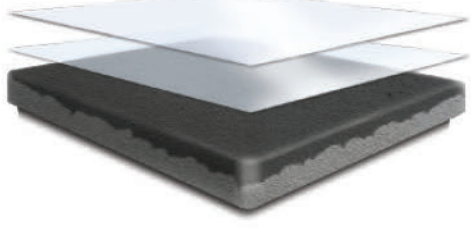


Increased Robustness of Balustrade Details

Bench Chosen to Align With Wider Masterplan

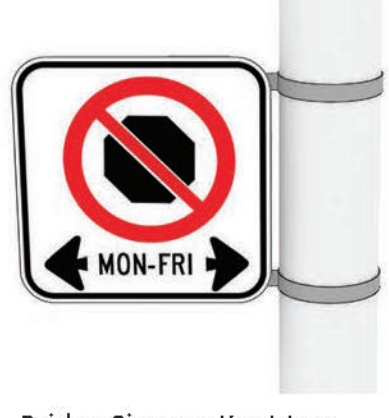


Anti-Bird Plates Integrated Into Structure



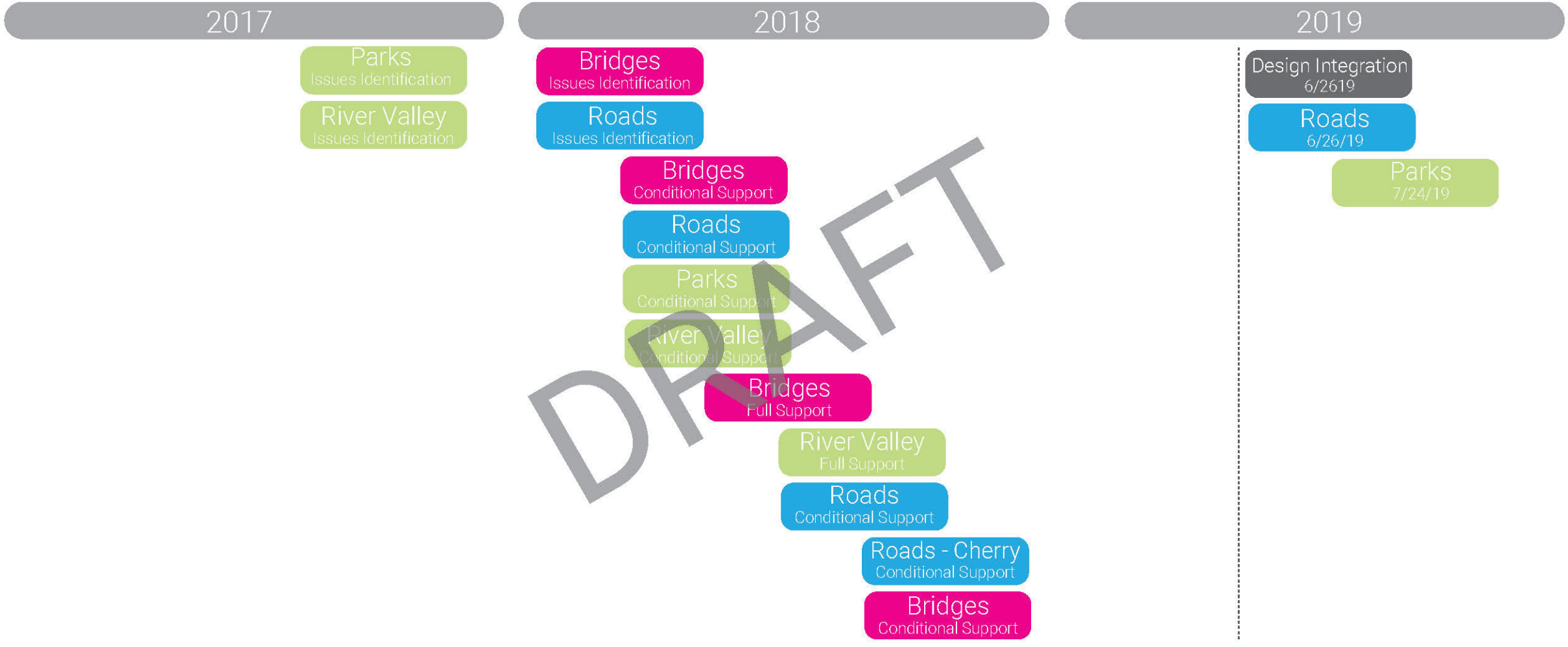
Anti-Graffiti Coating to Concrete Surfaces

Anti-Climb Methodology Defined



Bridge Signage Kept to a Minimum Required

DRP Meeting Summary



Recap of DRP Consensus Comments on Integration

November 15, 2017:

- Ensure seamless integration of all urban, historic, and natural features

November 21, 2018:

- Roads team to ensure ongoing coordination with the parks and bridge teams.

Areas for Panel Consideration

- Does the project create a seamless relationship along the edges between elements/ work packages?
- Does the proposal meet our aspirations for integration?
- Does the vision of each project element integrate to create a cohesive whole?
- Does the simple palette of materials and approach to the planting integrate across projects?
- Does the proposed design create an armature for catalyzing future development?
- Does the aproach and palette of materials create a replicable system for the rest of the Villiers Island and Polson?

3 Big Integration Ideas

Materiality

Planting

Circulation

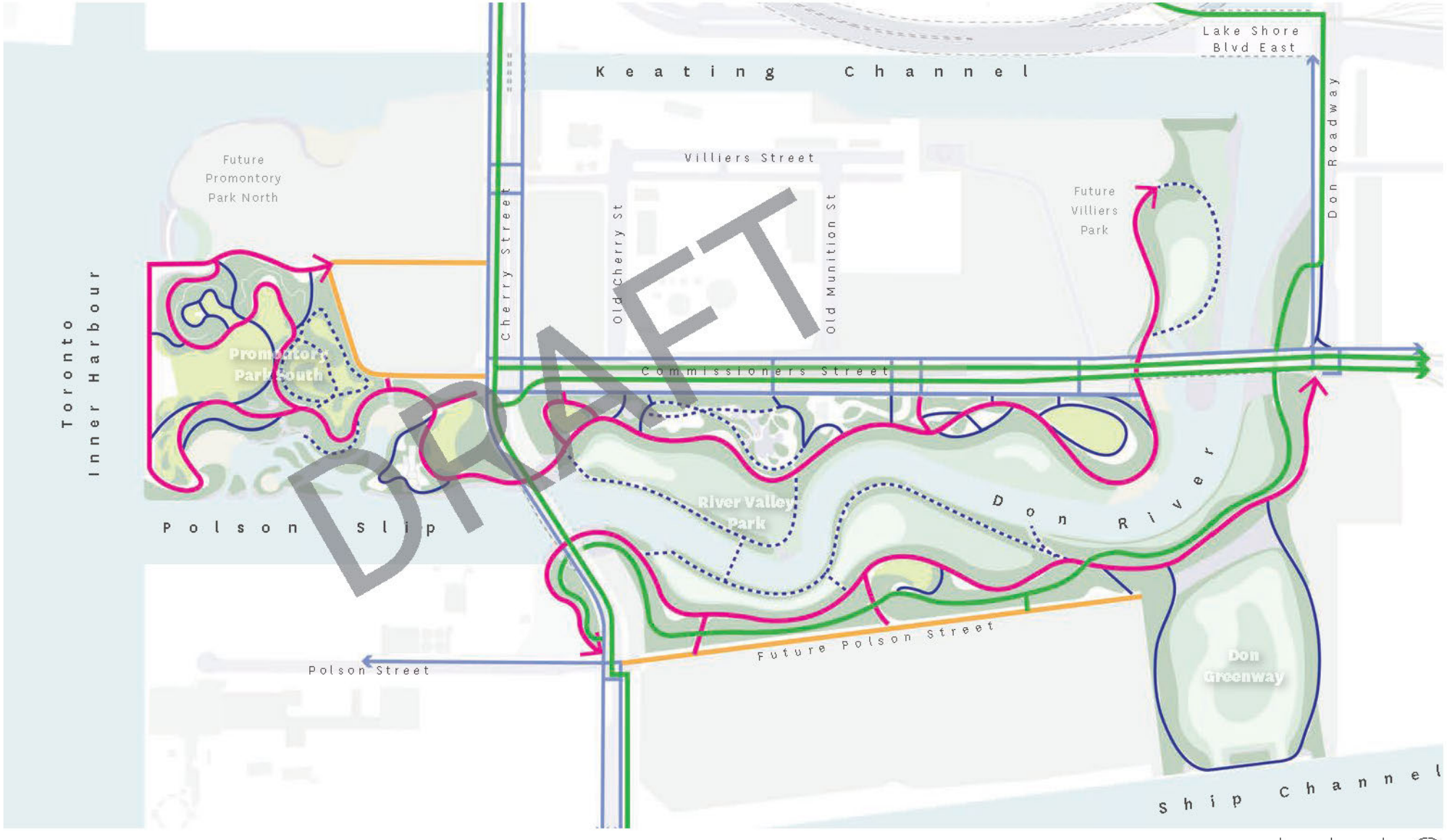
How Should Circulation, Materials, and Planting be Considered Over Four Jurisdictions?

- Bridges
- Roads and Municipal Infrastructure
- Parks
- River

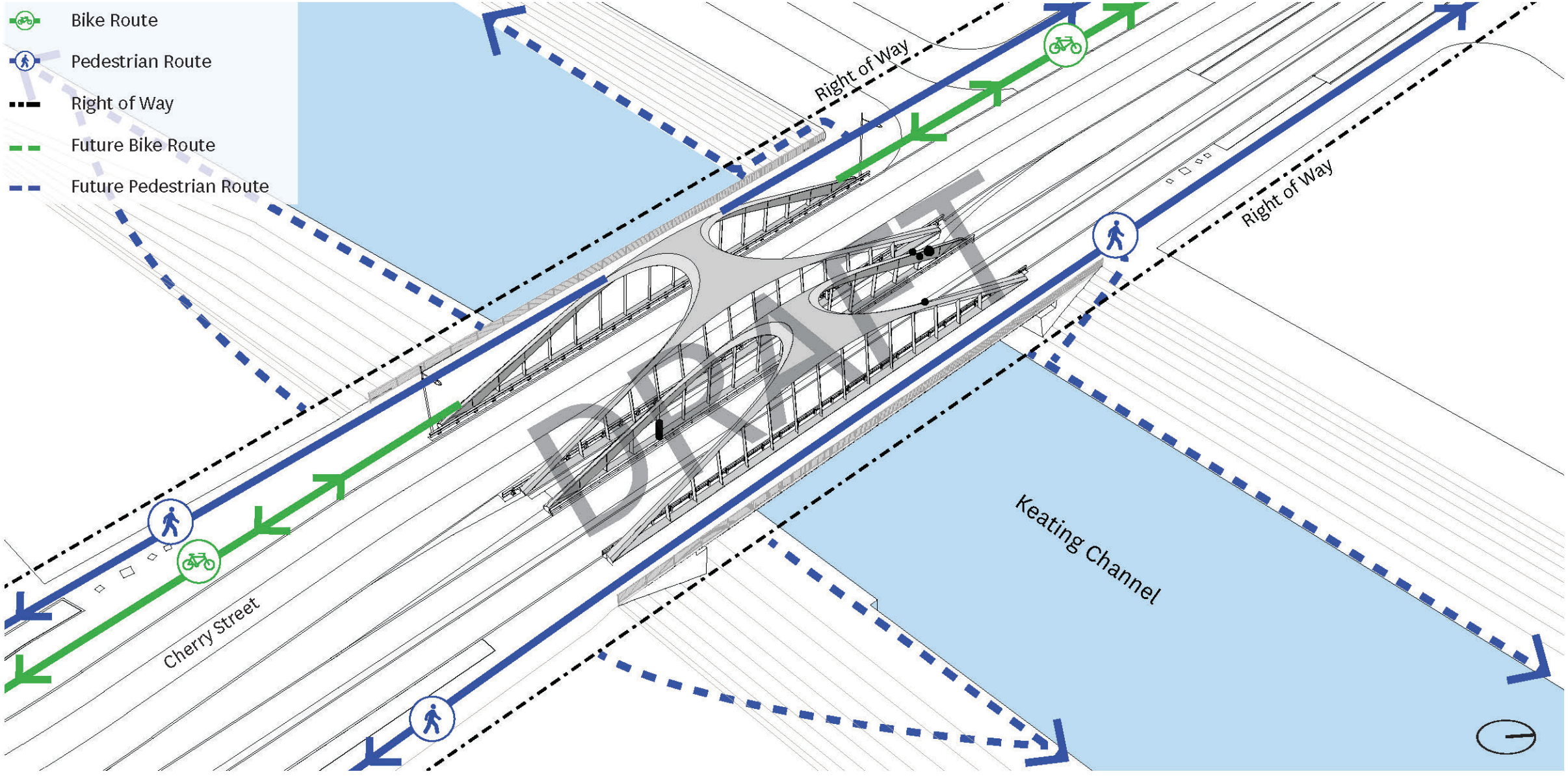
1. Circulation

Overall Circulation

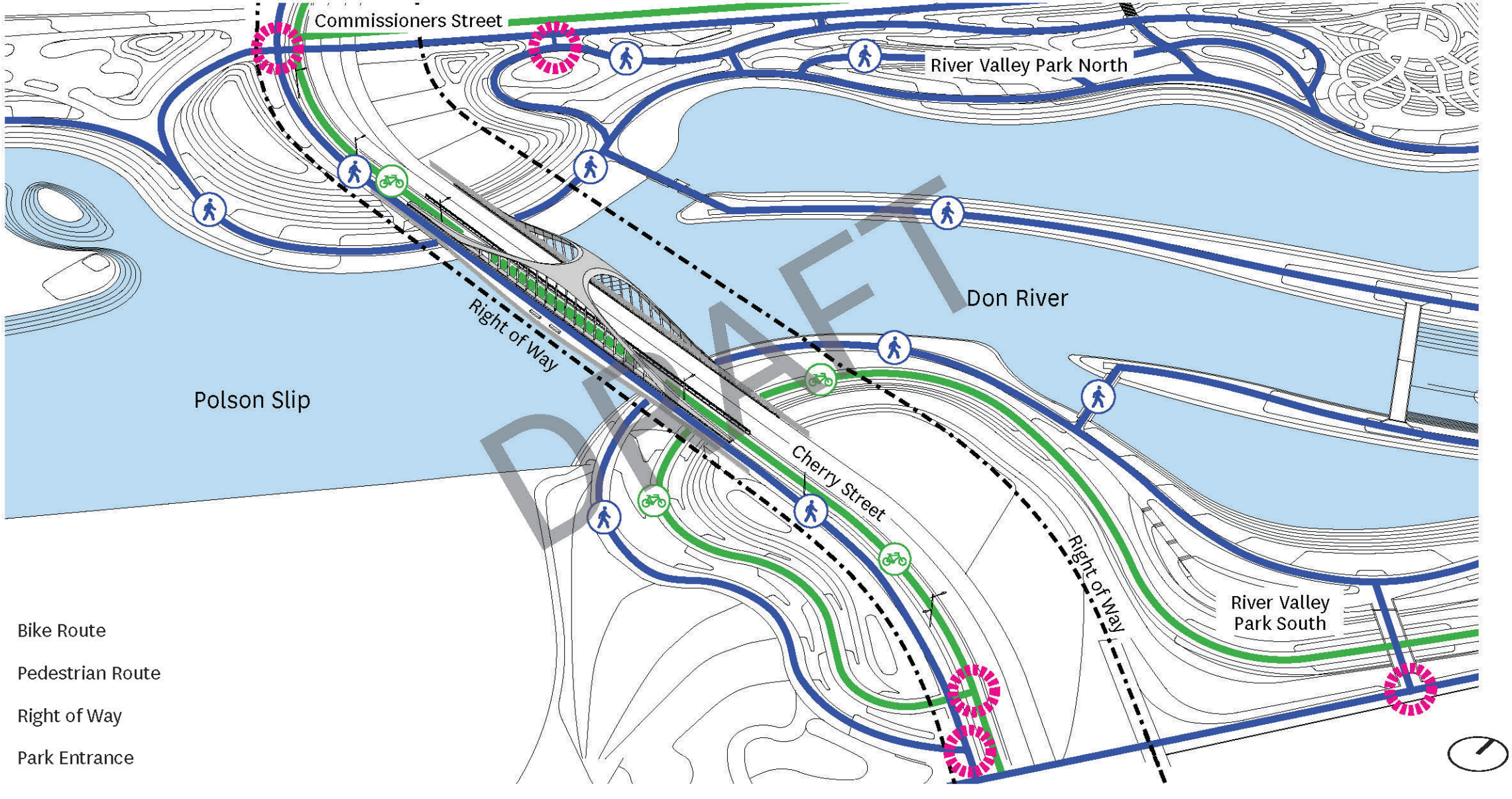
- Main Paths:
  5-6m (width)
- Secondary Paths:
  3-4m (width)
- Trails:
  2.4m (width)
- City Sidewalk:
  2.1m (min. width)
- Bike Routes:
  - Lower Don Trail:
    2100m (length)
  - Martin Goodman Trail:
    950m (length)
  - Commuter Bike Lane:
    900m (length)
  - Commissioners Street:
    800m (length)
- Interim Path:
  700m (length)



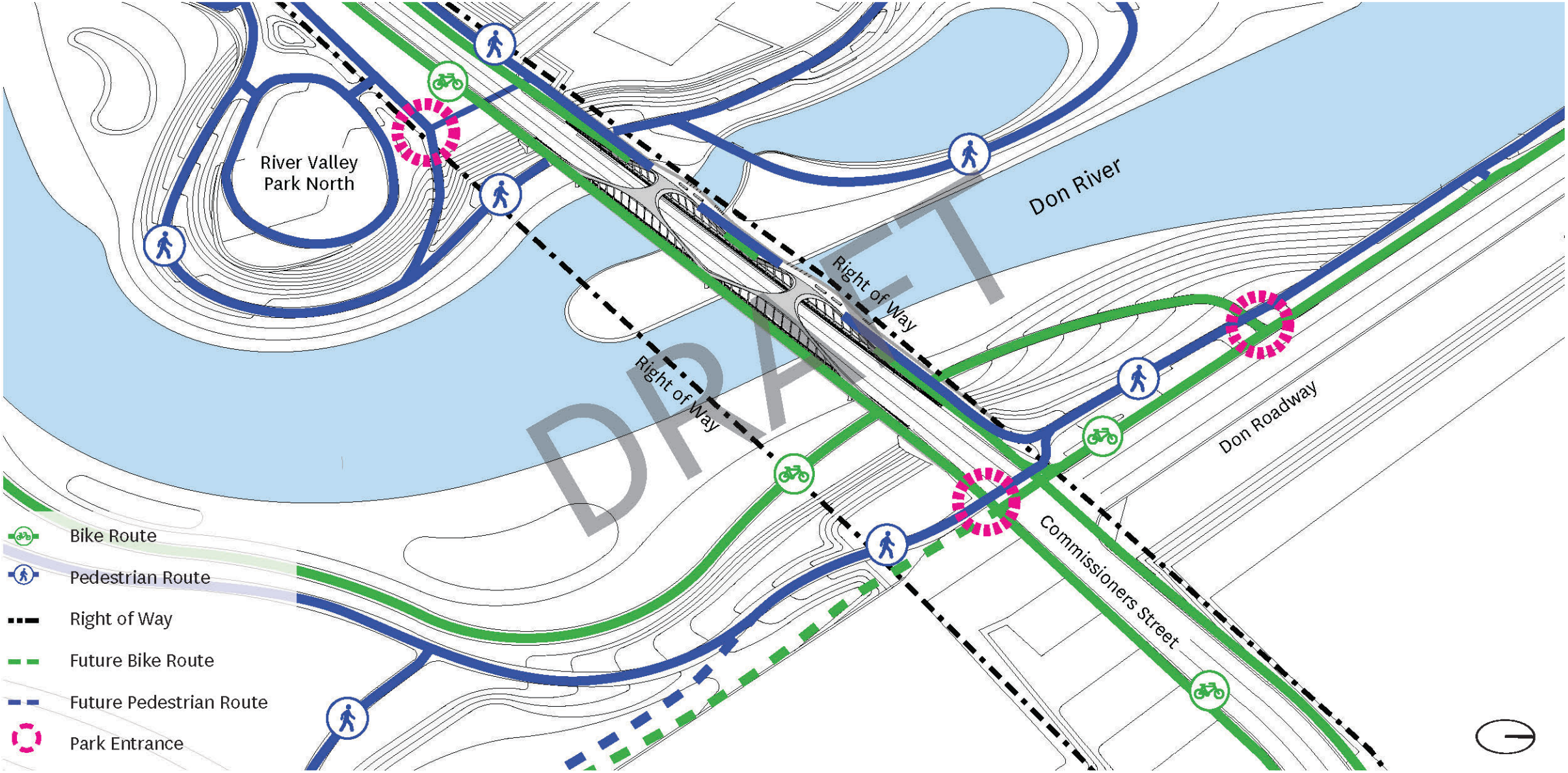
Bridge/Road/Park Connectivity - Cherry Street North



Bridge/Road/Park Connectivity - Cherry Street South



Bridge/Road/Park Connectivity - Commissioners Street



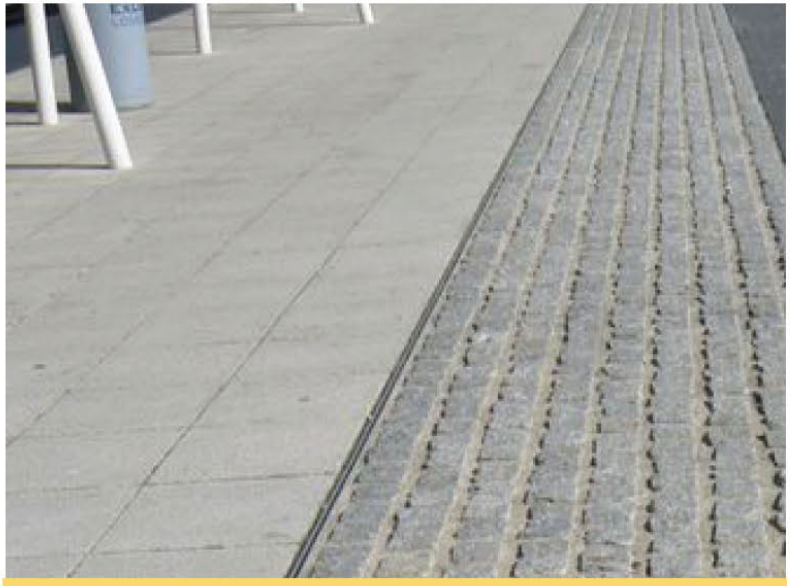
Overlapping Modes of Transportation

2. Materiality

Pavement Layout Diagram

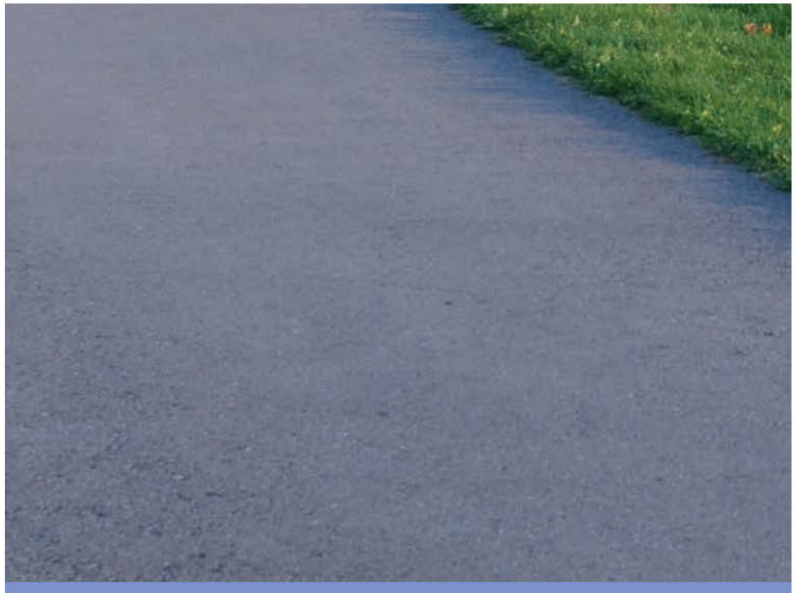
- Concrete Pavement
- Concrete Pavement with Granite Buffer
- Asphalt Pavement
- Other Pavement:
  - Screened Limestone Pavement
  - Engineered Wood Fiber
  - Timber Decking
  - Paleo-Tec Pavement
  - Exposed Aggregate Concrete Pavement

Pavement Types

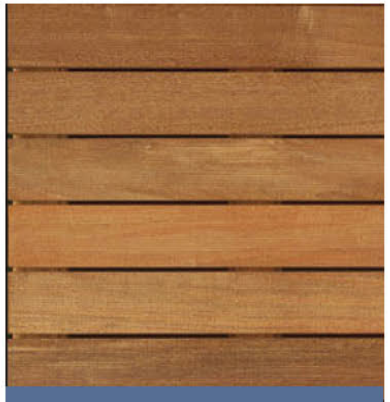


Concrete Pavement with Granite Buffer

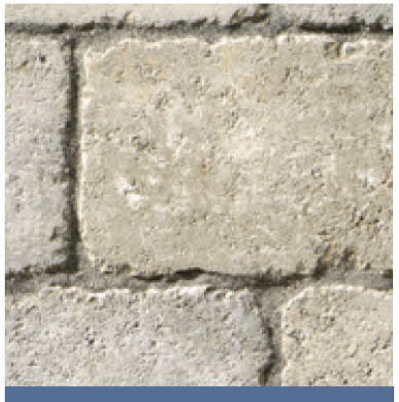
Concrete Pavement



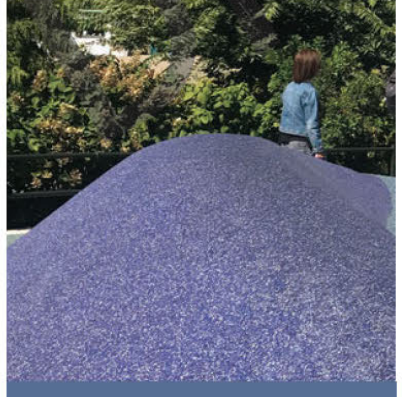
Asphalt



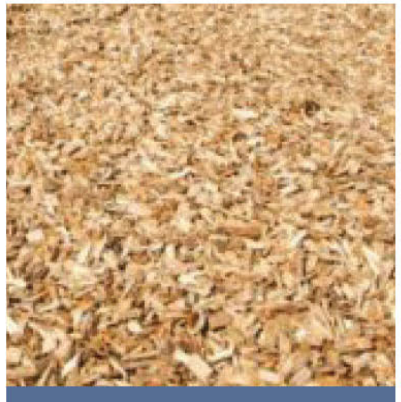
Timber Decking



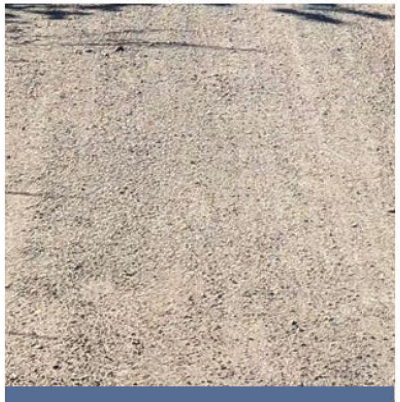
Paleo-Tec Pavement



Play Surface



Engineered Wood Fiber

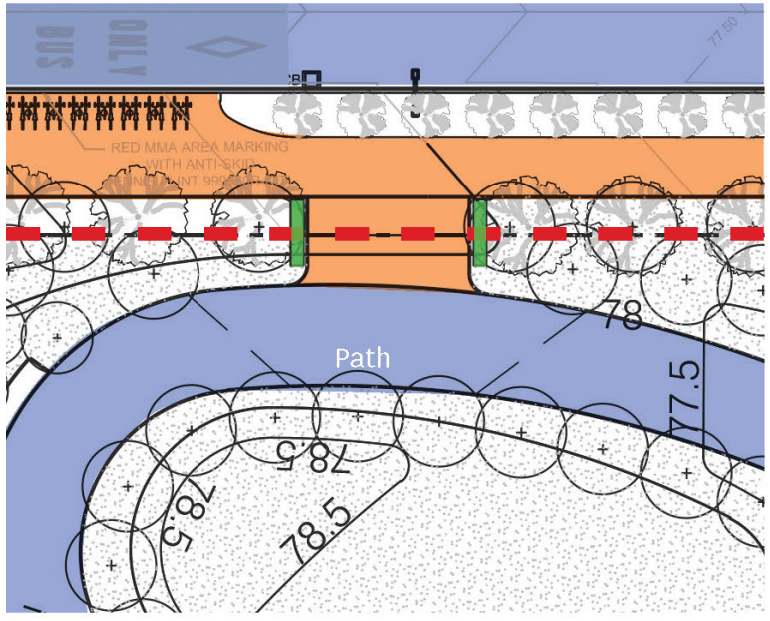


Screened Limestone

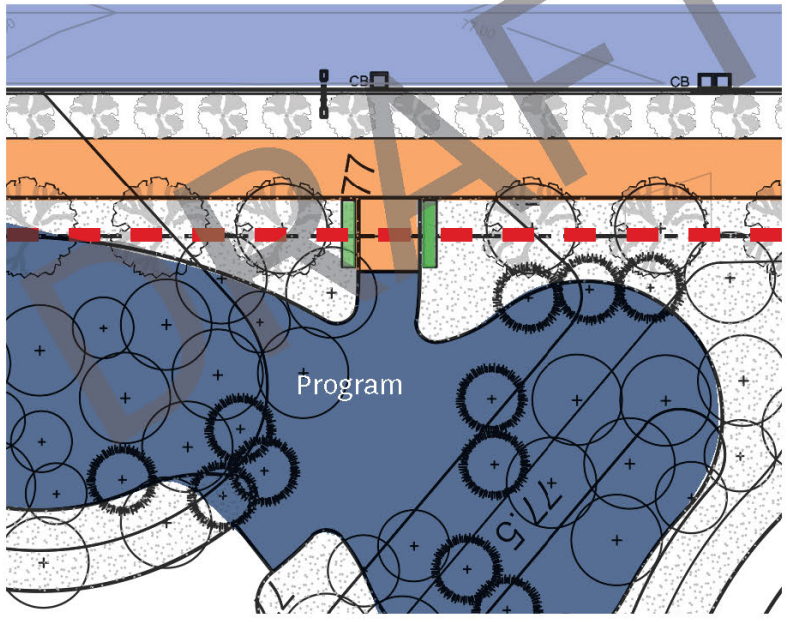
Exposed Aggregate

Pavement Transitions at Roads and Parks

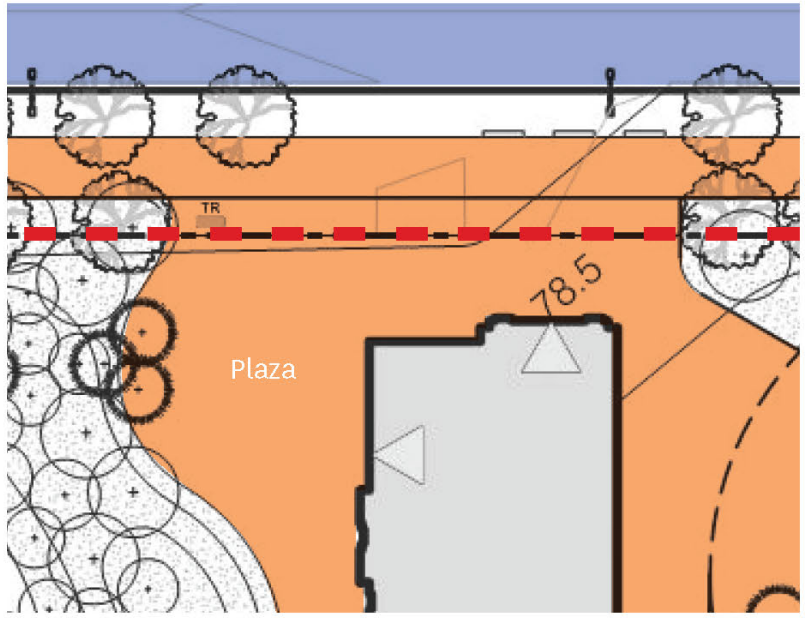
- Concrete Pavement
- Asphalt Pavement
- Other Pavement
- Bench
- Right of Way



Medium Threshold



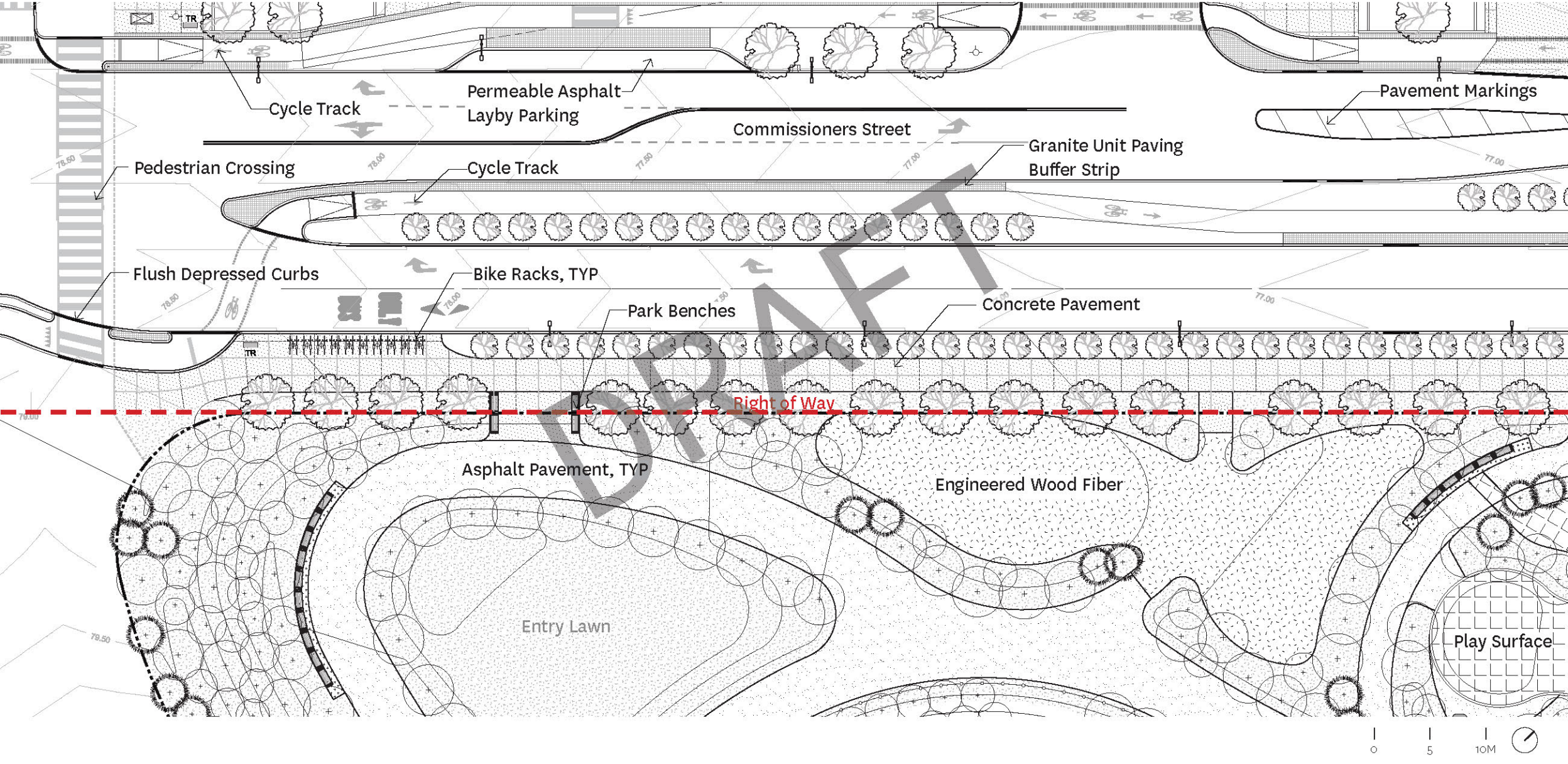
Small Threshold



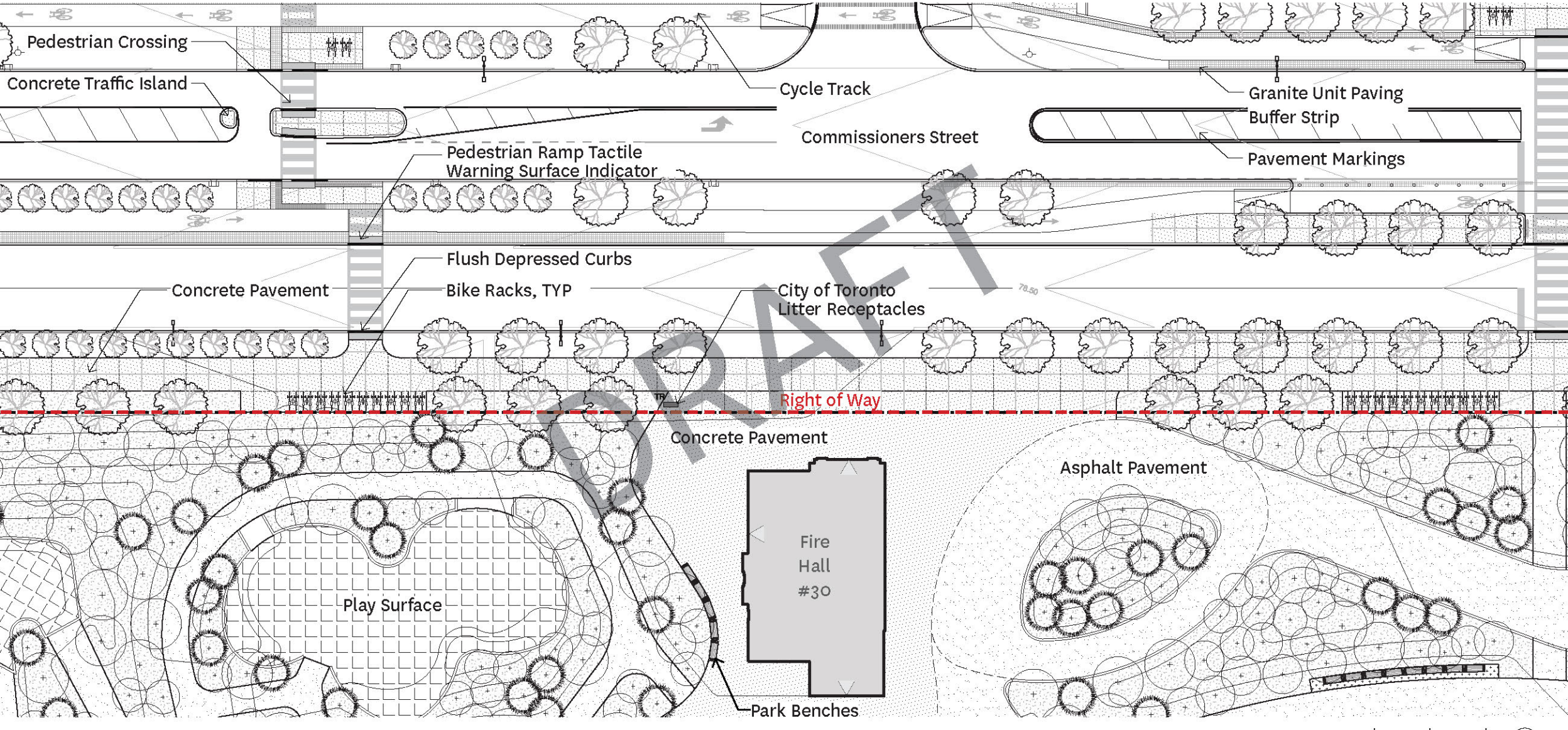
Large Threshold

0 10 20M

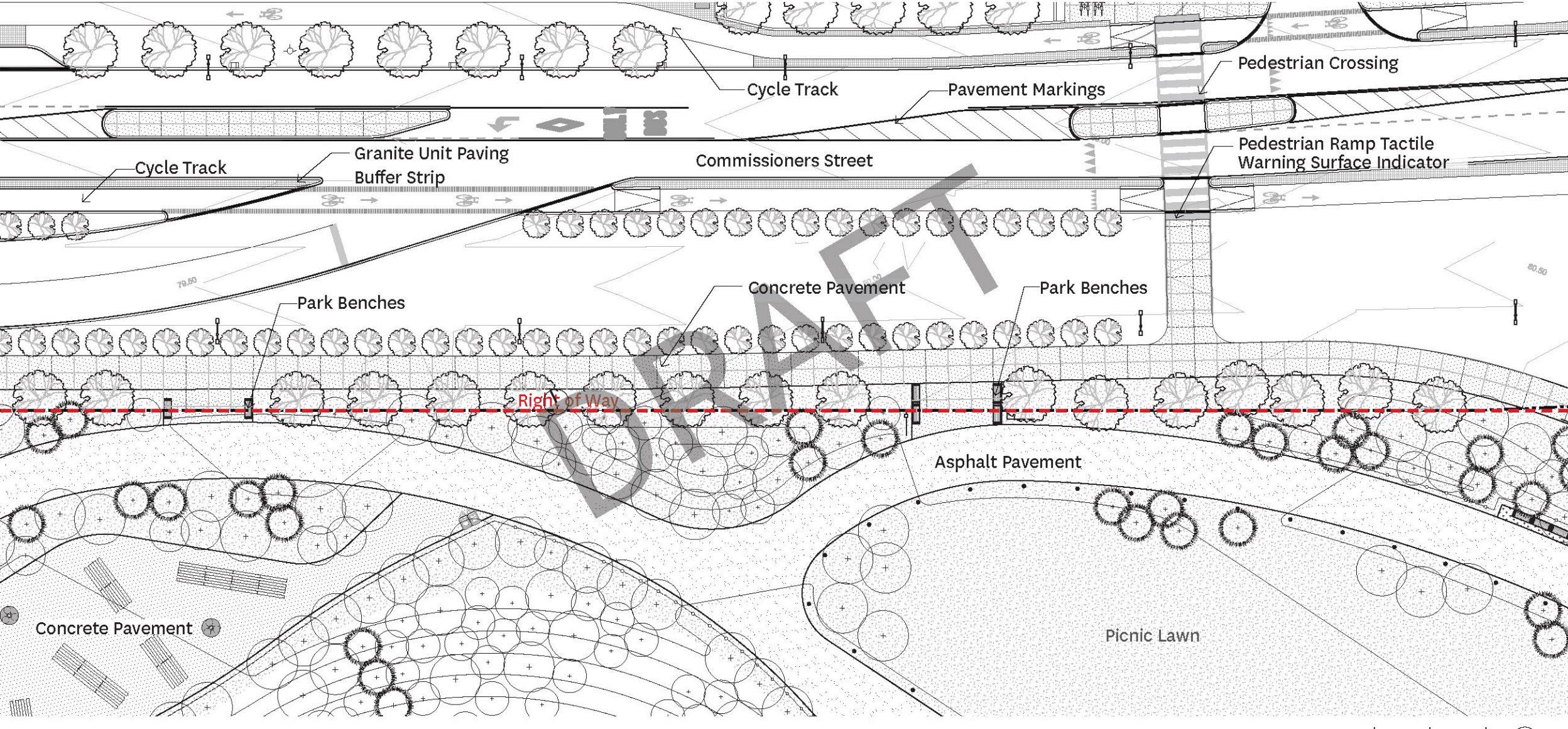
Commissioners Street and River Valley Park North - Western Enlargement



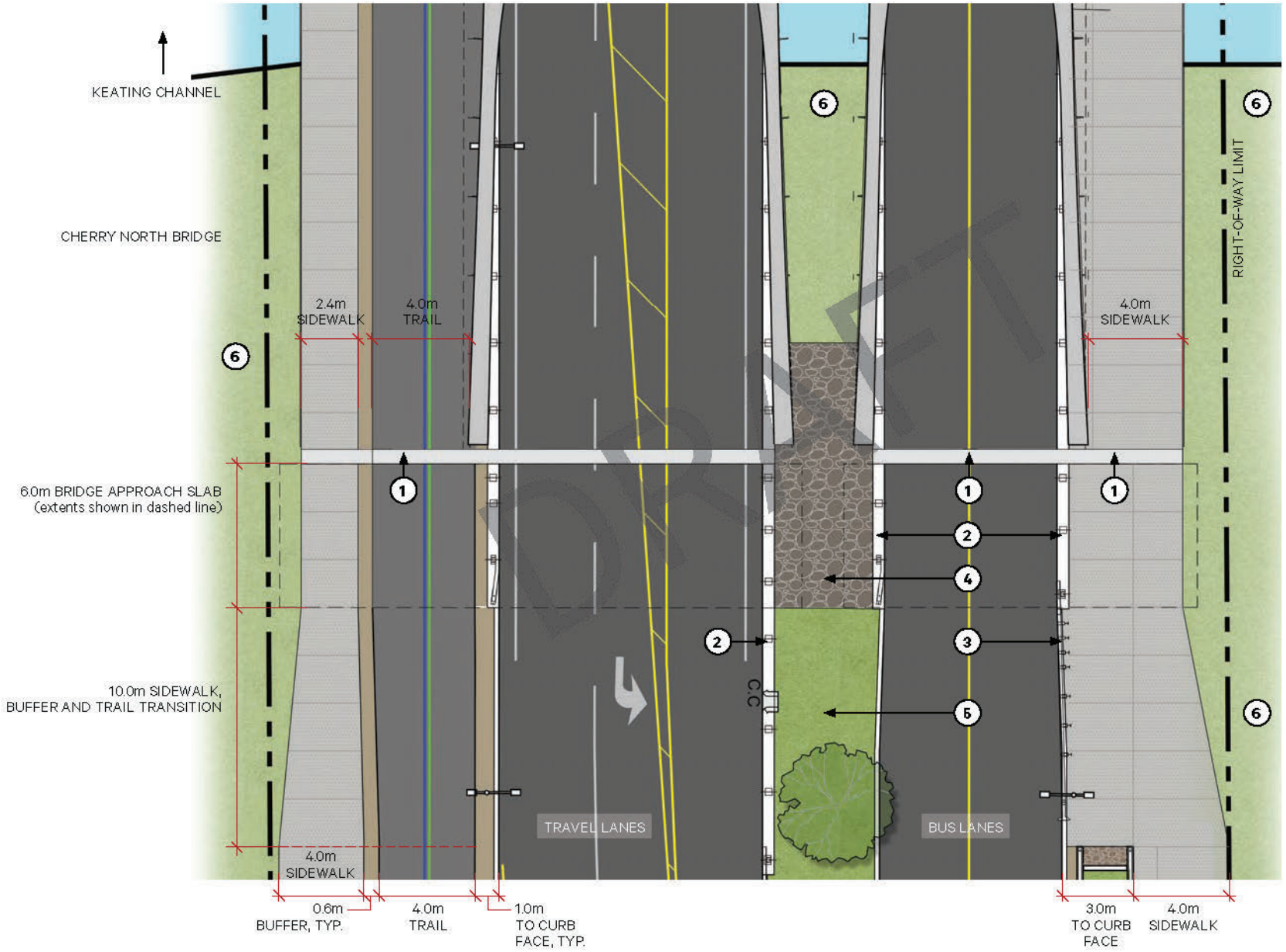
Commissioners Street and River Valley Park North - Central Enlargement



Commissioners Street and River Valley Park North - Eastern Enlargement



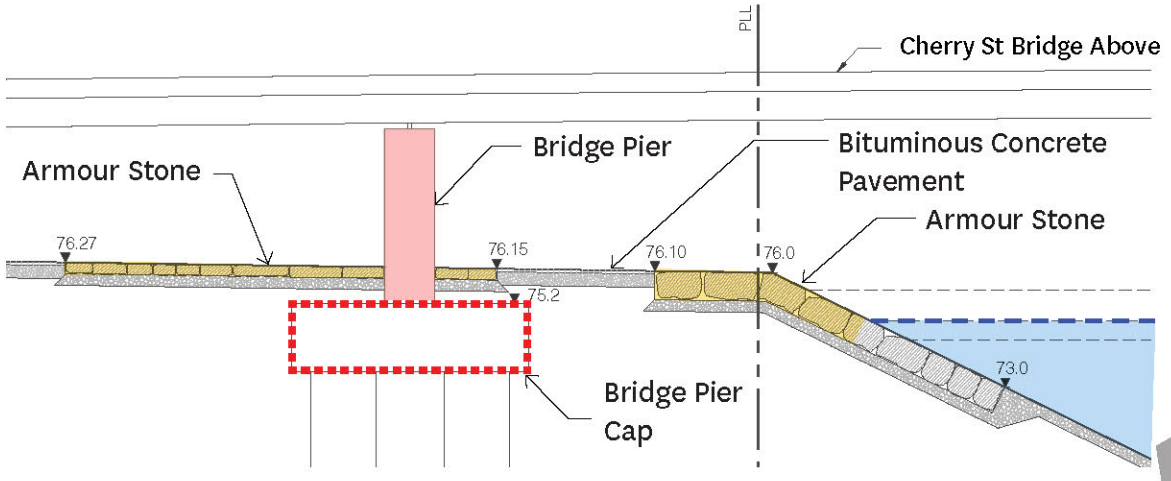
Pavement Transitions at Bridges and Roads



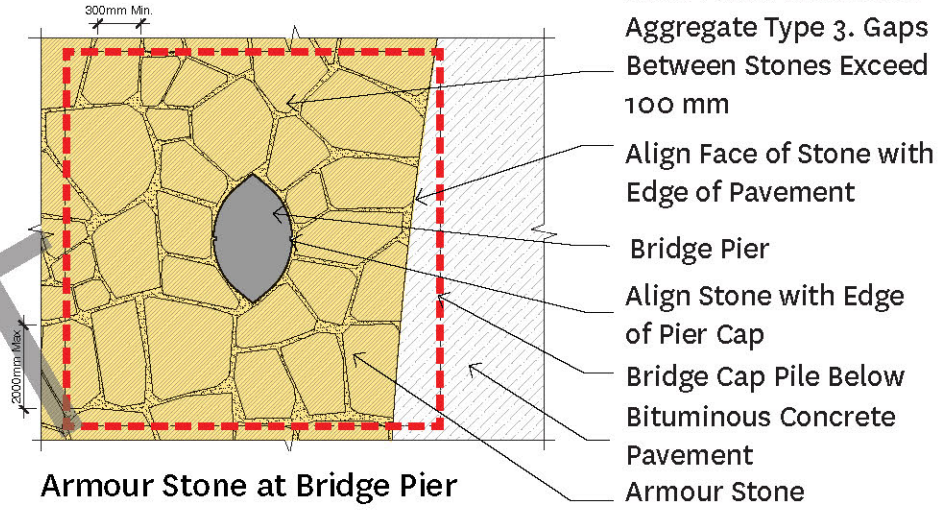
1. Steel transition plate
2. Bridge crash barrier on 600mm wide reinforced concrete curb
3. Crash barrier extension at grade
4. Stone revetment
5. Bioswale
6. Terraseeding (temporary condition)

NORTH

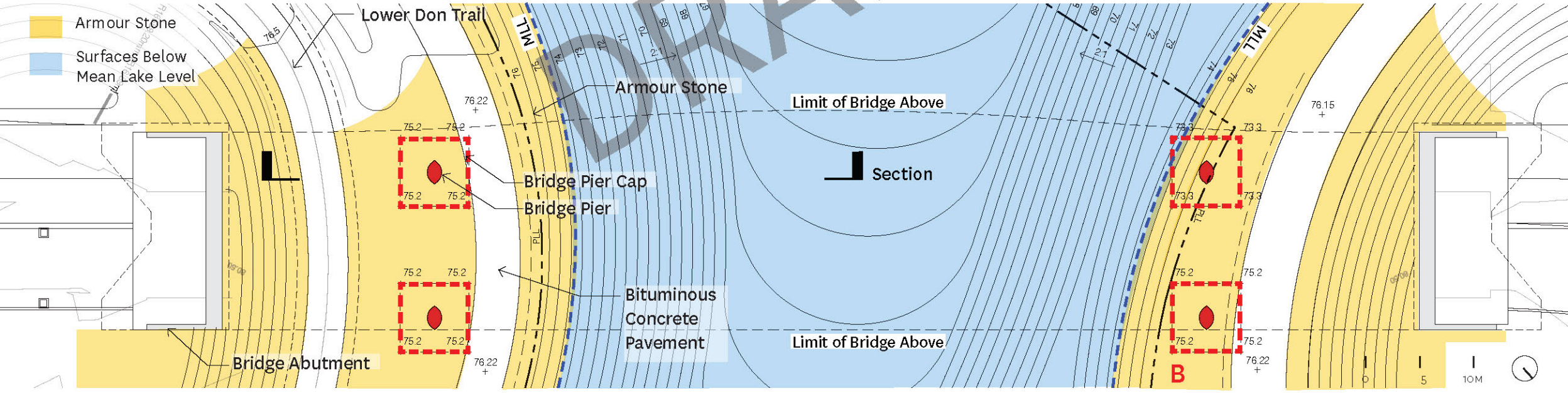
Bridge Pier Caps at River Finishes



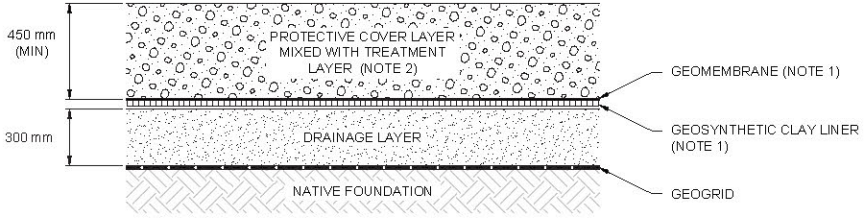
Revetment Section at Bridge Pier



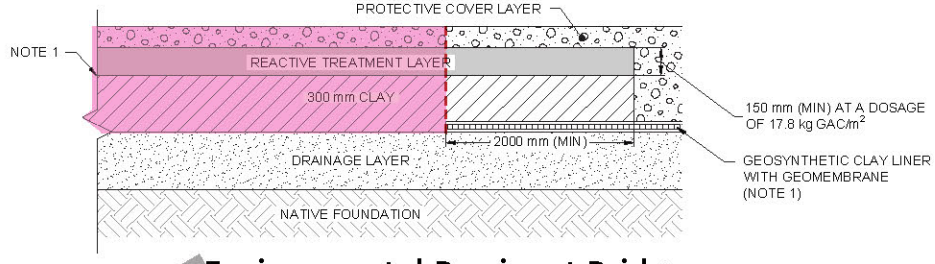
Armour Stone at Bridge Pier



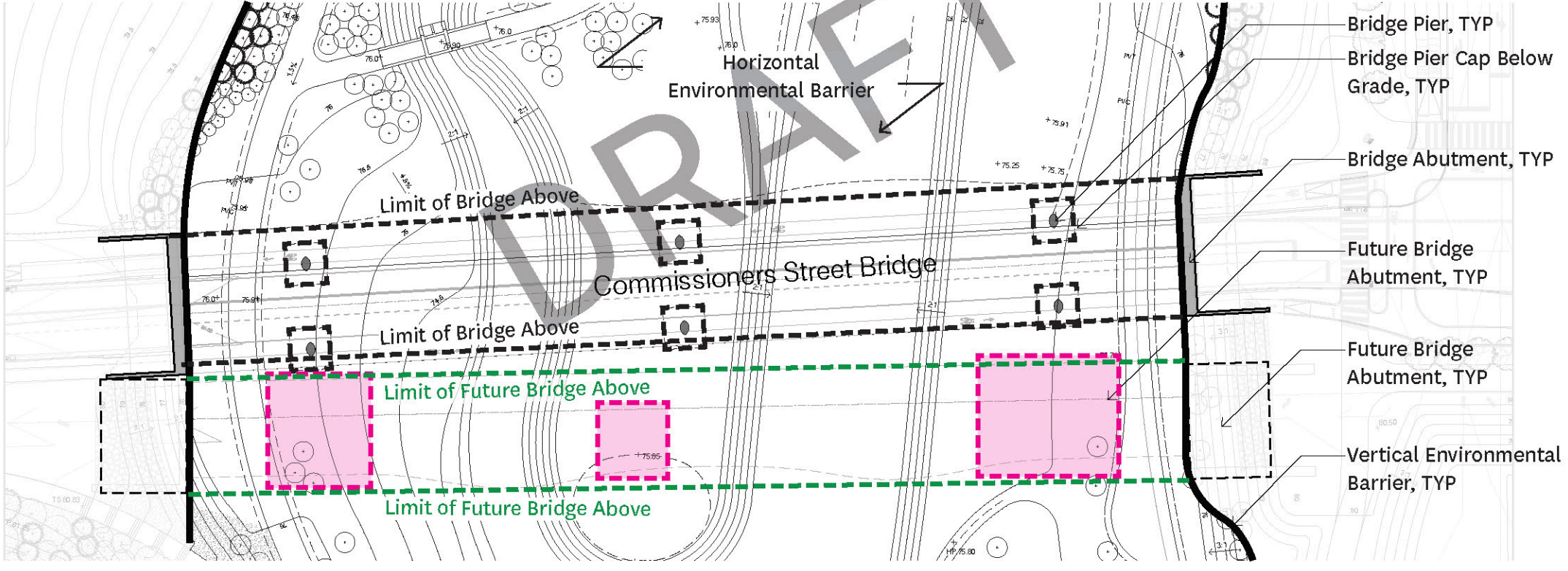
Future Bridge Piers at River Finishes



Environmental Barrier Detail



Environmental Barrier at Bridge Foundation Penetration



0 10 20M

Seating Diagram

- Roads Bench
- Bridges Bench
- Parks Bench
- River Bench

Seating Types

Bridges

Roads

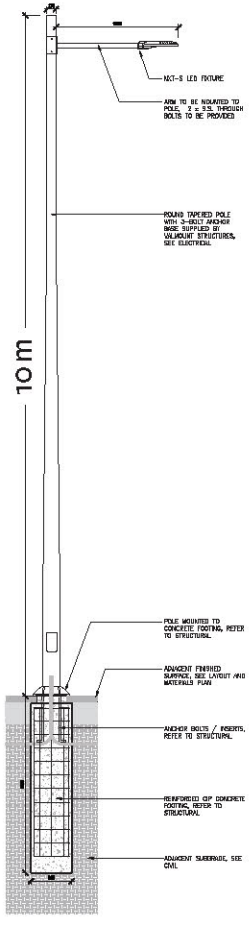
Parks

Lighting Layout Diagram

- Roads/Bridges: Metal Pole
- Park Lawns: Wood Utility Pole
- Park: Wood Poles
- Under-Bridge Path Lighting
- On-Bridge Path Lighting
- Brides: Arch/Fin Lighting

Light Pole Types

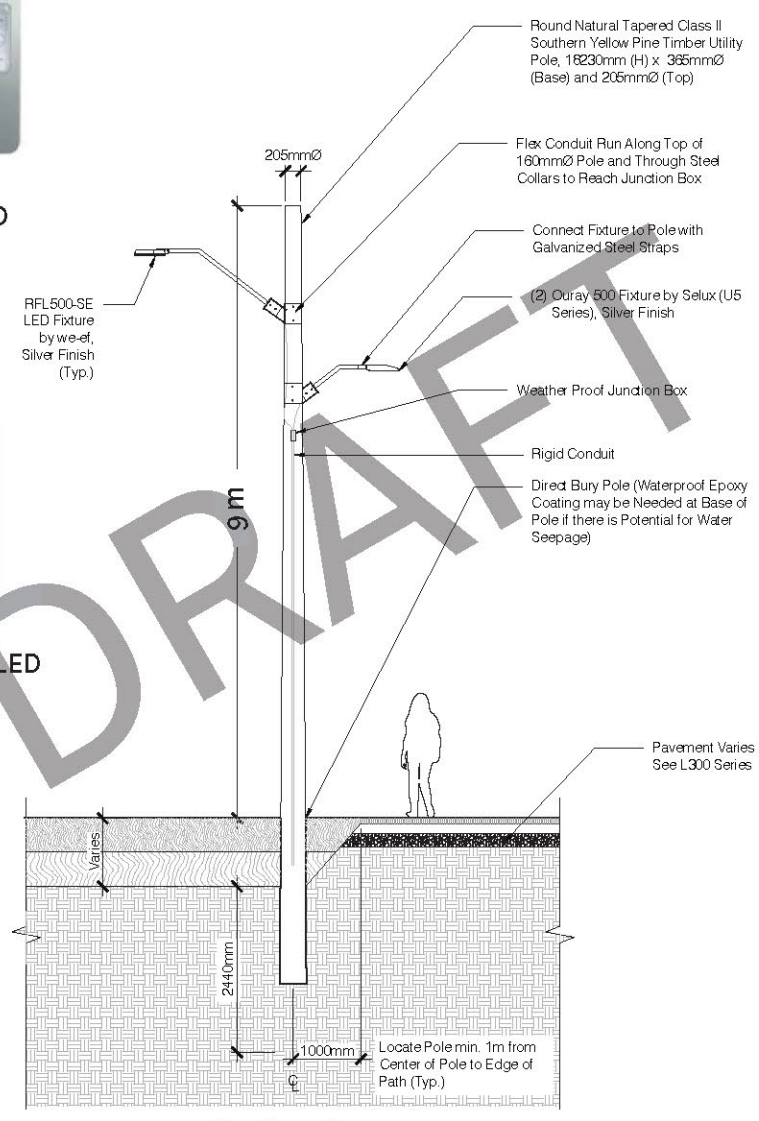
NXT-S LED Fixture



Roads/Bridges

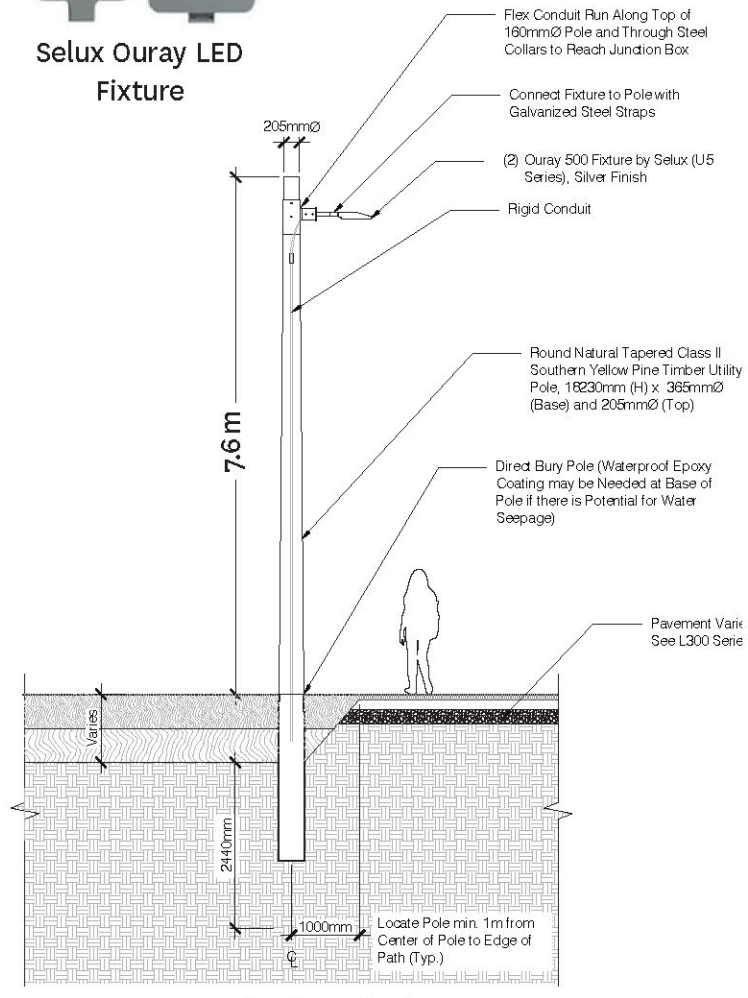
Selux Ouray LED Fixture

We-ef RFL-530 LED Fixture



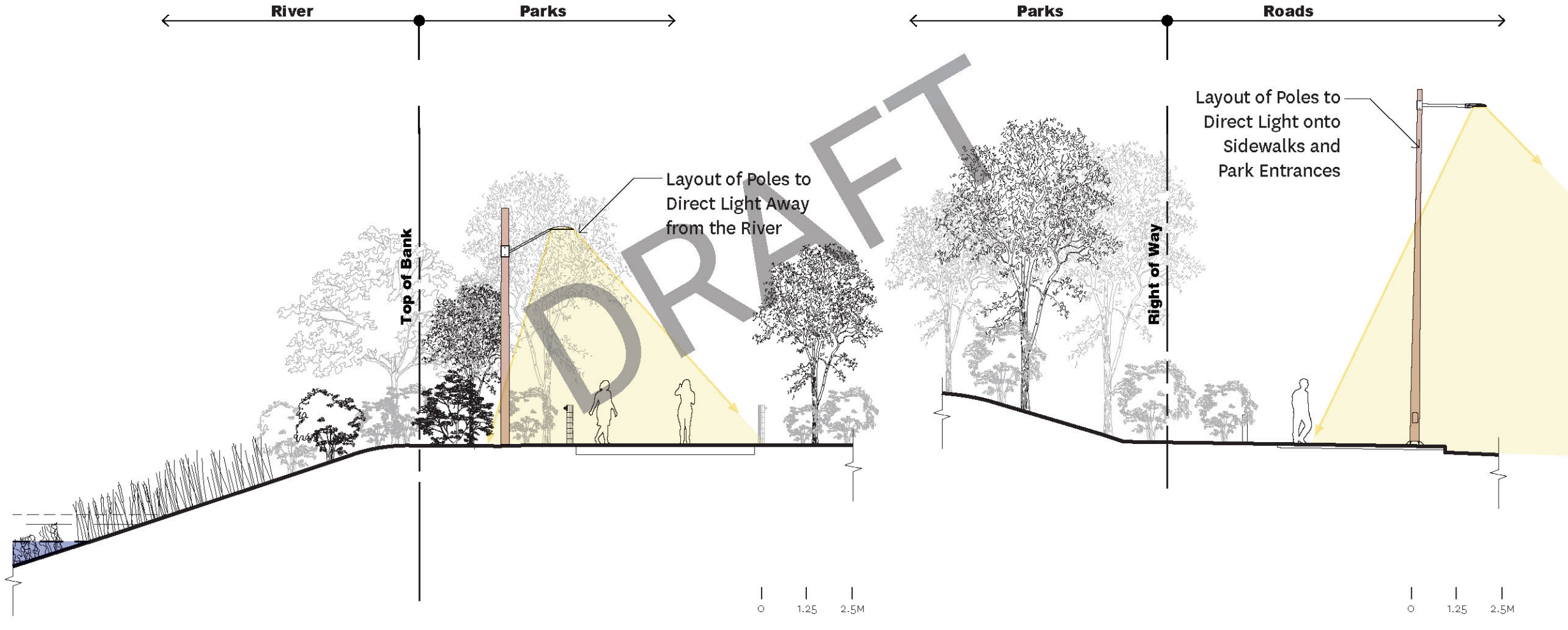
Parks - Lawn

Selux Ouray LED Fixture

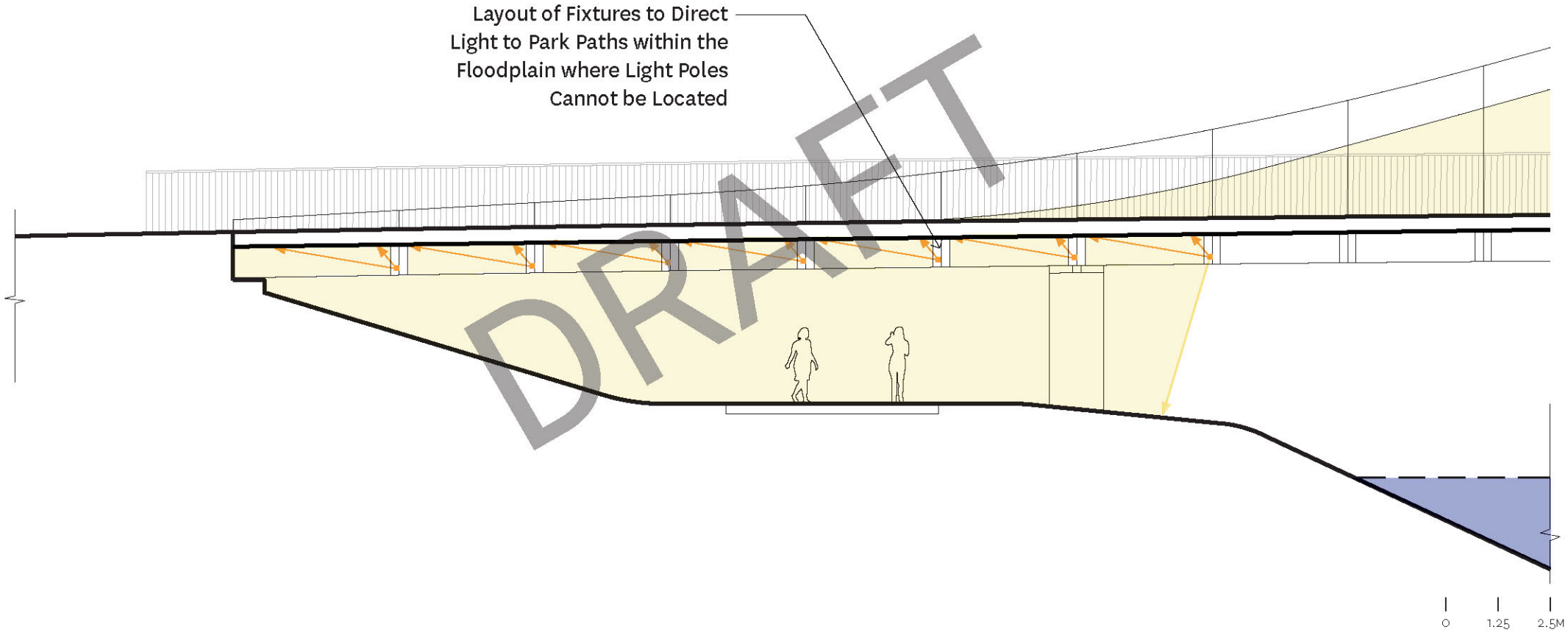


Parks - Paths

Park Lighting At River and Road Edges



Park Lighting At Bridge Underpasses



Cherry Street North View from Keating Channel Promenade

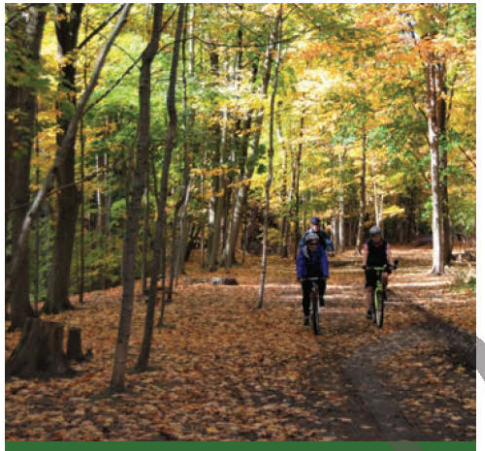
3. Planting

Planting Strategy Diagram

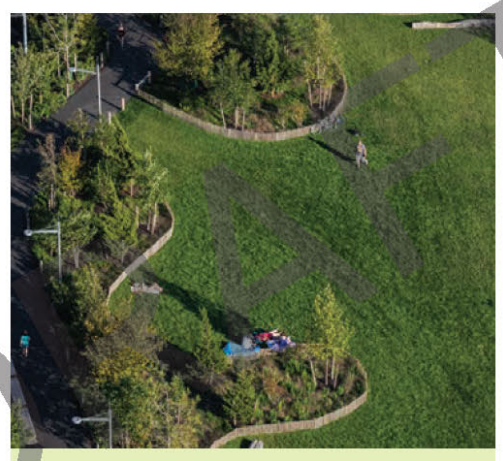
- Wetland
- Forest Frame
- Lawn
- LID Planters
- LID Bioswales

All Planting Types

Wetland



Forest Frame



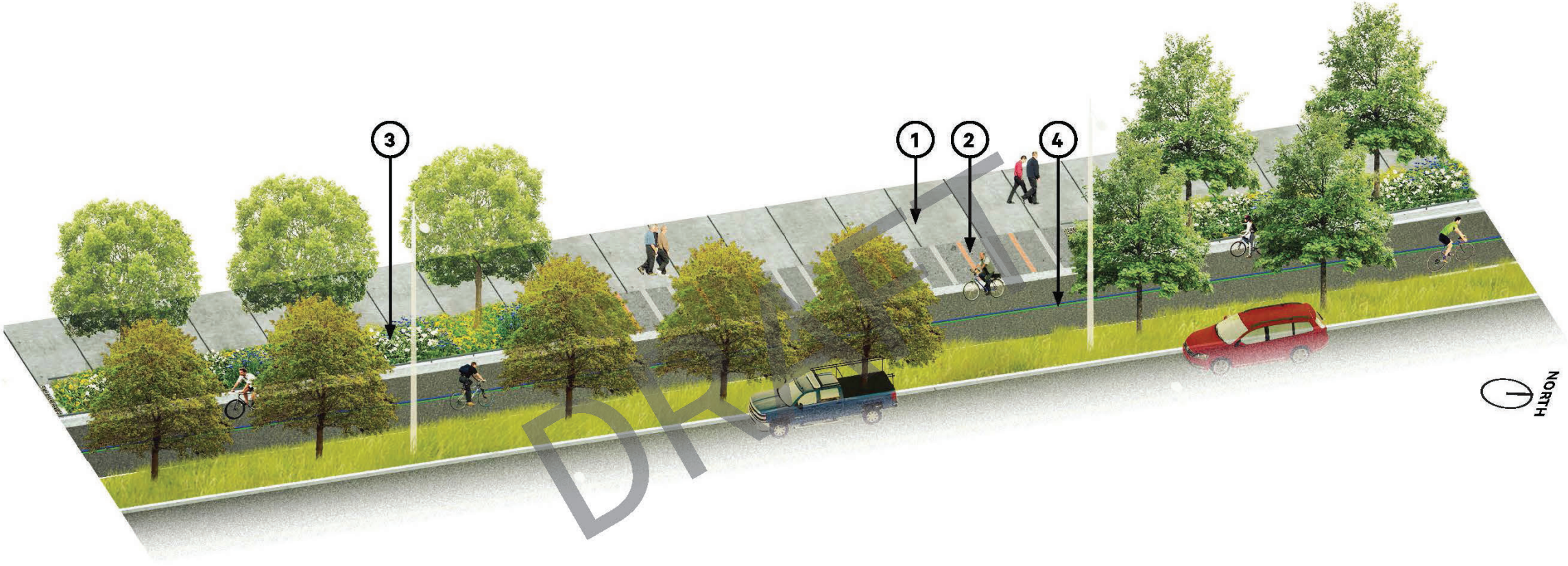
Lawn

LID/Planters

LID Bioswales

Cherry Street North View from Roadway

Cherry Street Axonometric Diagram

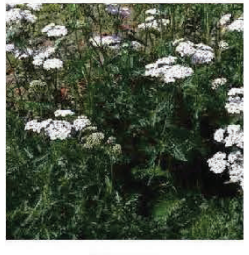


1. Sidewalk (min. 3.0 m)
2. Social spaces & site furnishings zone
3. Open pit planters with robust urban tolerant planting. The planter is one component of the green infrastructure
4. Martin Goodman Trail (4.0 m)

Cherry Street Planting Sample:


Honeylocust


Marmo Freeman Maple

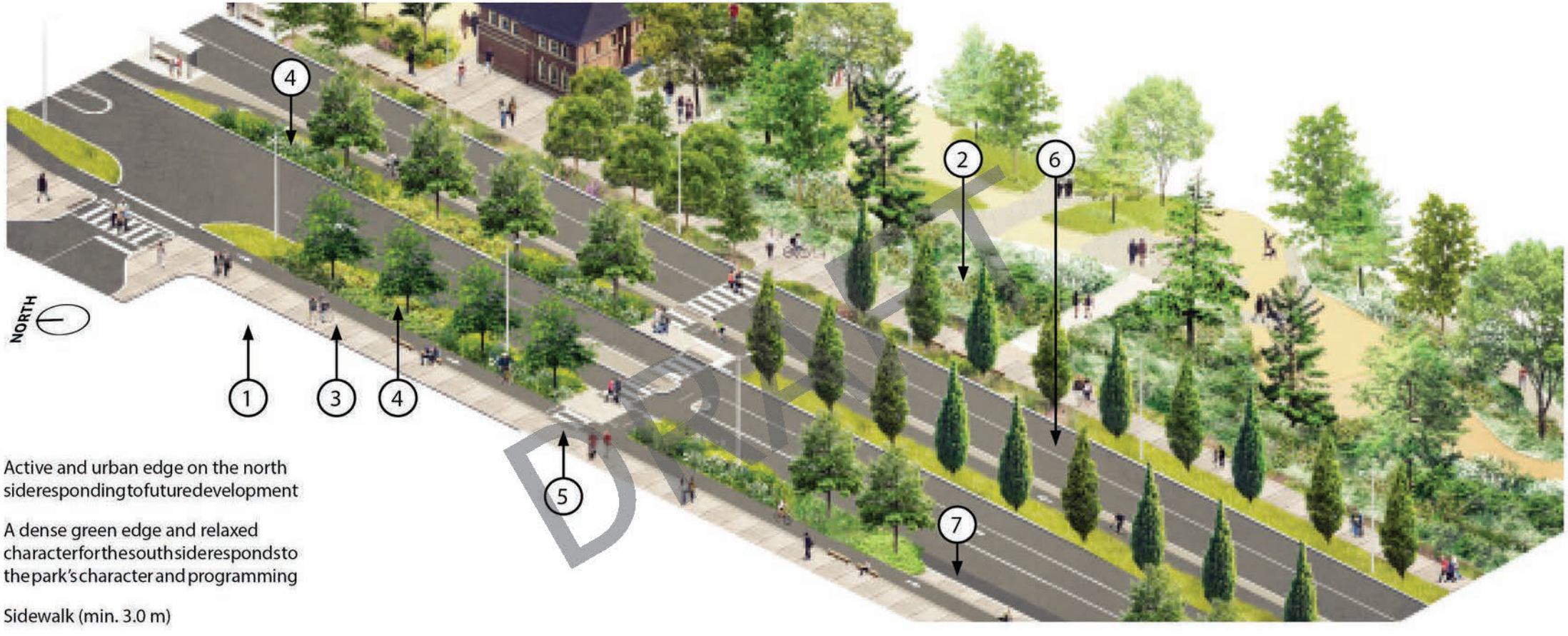

Yarrow


Juniper


Perennial + Grasses Mix

View Looking West at Commissioners Street and River Valley Park

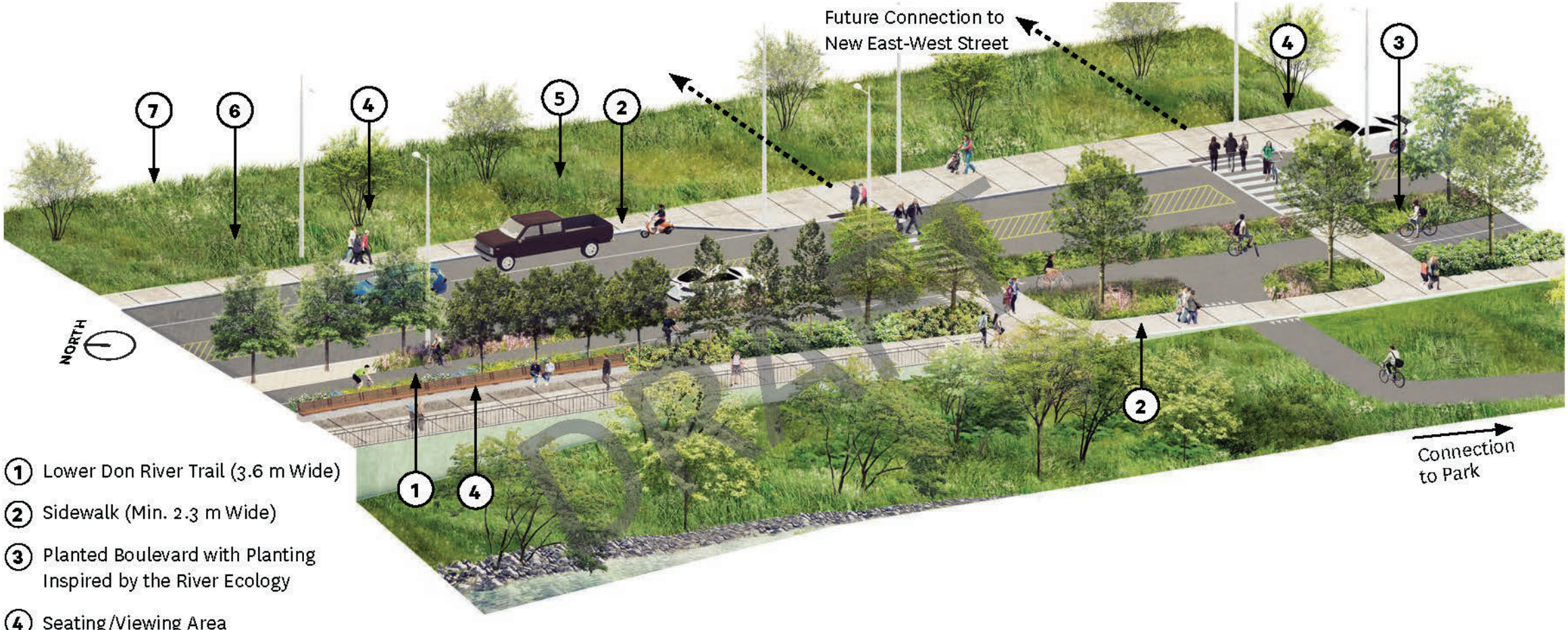
Commissioners Street Axonometric Diagram



1. Active and urban edge on the north side responding to future development
2. A dense green edge and relaxed character for the south side responds to the park's character and programming
3. Sidewalk (min. 3.0 m)
4. Bioswale
5. Mid-block crossing
6. Dedicated transit lane
7. Vehicular lay-by

View Looking North at Commissioners Street Bridge

Don Roadway Axonometric Diagram



1. Lower Don River Trail (3.6 m Wide)
2. Sidewalk (Min. 2.3 m Wide)
3. Planted Boulevard with Planting Inspired by the River Ecology
4. Seating/Viewing Area
5. Interim Landscape
6. Reclaimed and Re-purposed Railway Tracks
7. Hydroelectric Transmission Corridor

View of Don Roadway Looking Towards Commissioners Street Bridge