DON MILLS CROSSING

PEDESTRIAN AND CYCLE BRIDGE

ENVIRONMENTAL ASSESSMENT

Virtual Community Consultation

February-March 2021

1.0 PROJECT BACKGROUND & APPROACH

1.3 DON MILLS CROSSING MPS – EA PHASE 1 & 2

- Phase 1 of the MPS developed the following Problem & Opportunity Statement for the study:

"Within the study area, Eglinton Avenue and Don Mills Road serve as arterial roads that carry significant through traffic volumes, especially due to their proximity to the Don Valley Parkway. Historically, the intersection of these two major roads have experienced some of the highest traffic volumes and collision risks in the City of Toronto. ***There is currently limited transportation network connectivity, especially for active modes, due to*** *major natural or man-made barriers including the Don Valley Parkway, Don Valley Ravine,* ***CP Rail corridor****, wide roadways, and separated development blocks.* ***As a result, there is a lack of coherent and integrated multi-modal transportation network****."*

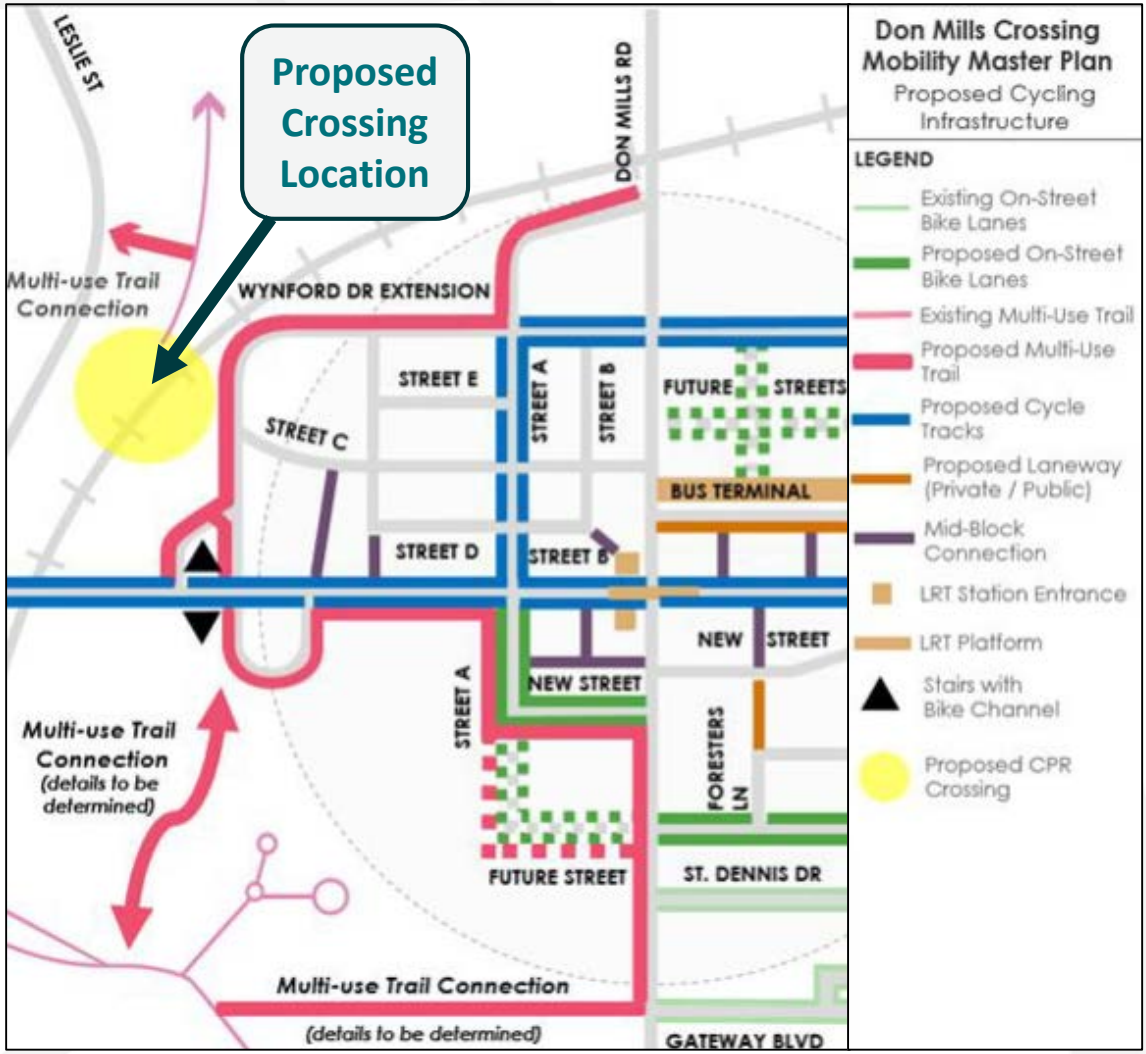
(Source: Don Mills Crossing – Mobility Planning Study https://www.toronto.ca/legdocs/mmis/2019/ph/bgrd/backgroundfile-131008.pdf**)**

Current terminus of Don Mills trail at the rail corridor

View towards the rail corridor from Wynford Drive

1.3 DON MILLS CROSSING MPS – EA PHASE 1 & 2

- Broader Mobility Planning Study for the Don Mills / Eglinton Area
  - Vision of a complete and connected transportation network
  - Identified options to improve active transportation connectivity
- Area currently exhibits poor connectivity in pedestrian and cycling networks
  - Physical barriers and safety concerns
  - CP Rail Corridor identified as major barrier to connectivity
  - A grade-separated crossing for pedestrians and cyclists emerged as a key recommendation of the MPS
- DMC MPS satisfied requirements of the MCEA Phases 1 & 2 for the Crossing
  - **Phase 1:** Problem & opportunity statement identified
  - **Phase 2:** Identified alternative solutions (tunnel and bridge options)



1.1 PROJECT INTRODUCTION

What

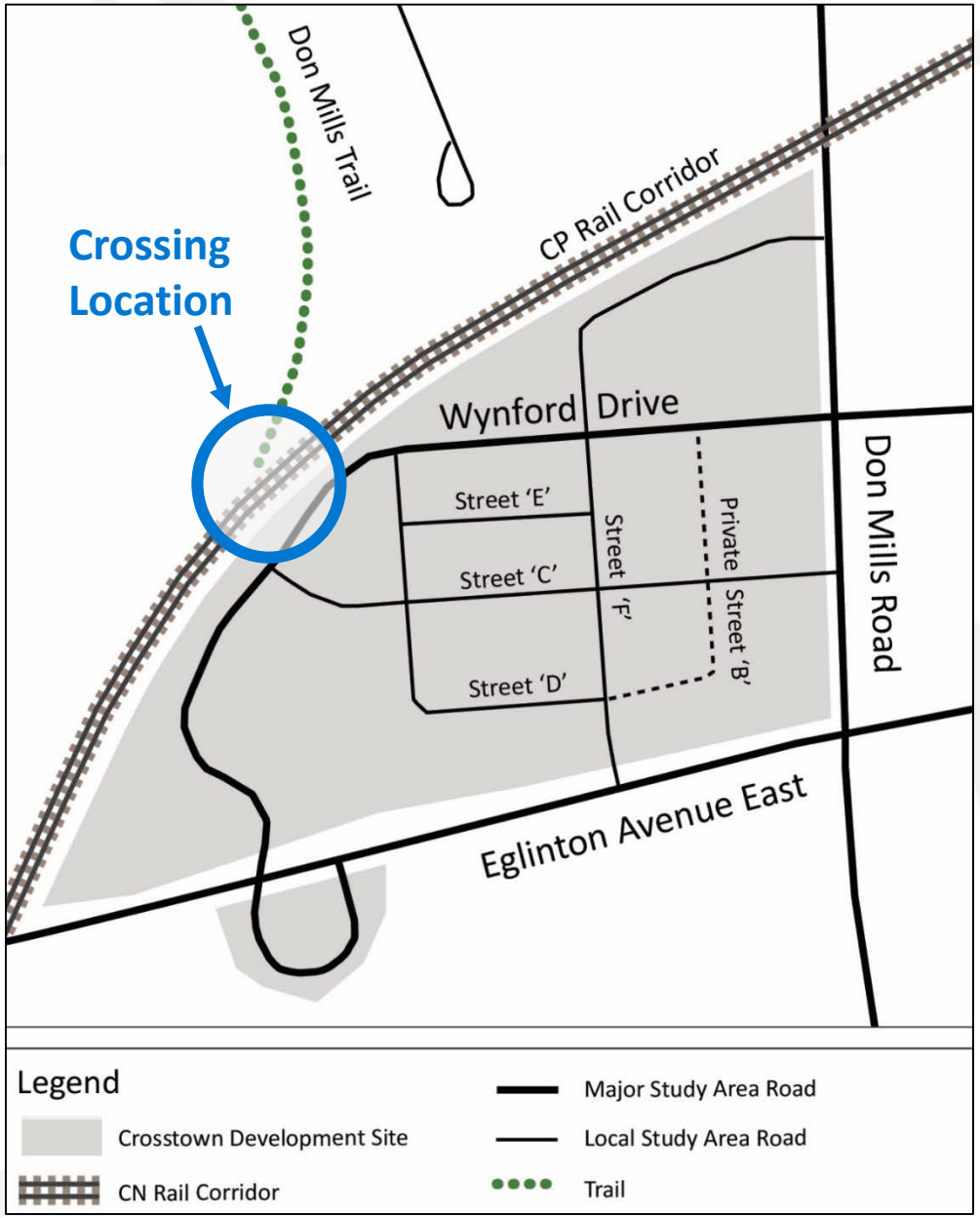
- Phases 3 and 4 of the Municipal Class Environmental Assessment for a new pedestrian cycle bridge to connect the existing Don Mills Trail to the future Crosstown community and broader Don Mills and Eglinton Area; building off the Don Mills Crossing Mobility Planning Study (DMC MPS) 2019

Why

- DMC MPS identified that the area lacks an active transportation network; opportunities to provide new active transportation connections in the area exist with the current terminus of the Don Mills Trail at the CP Rail Corridor

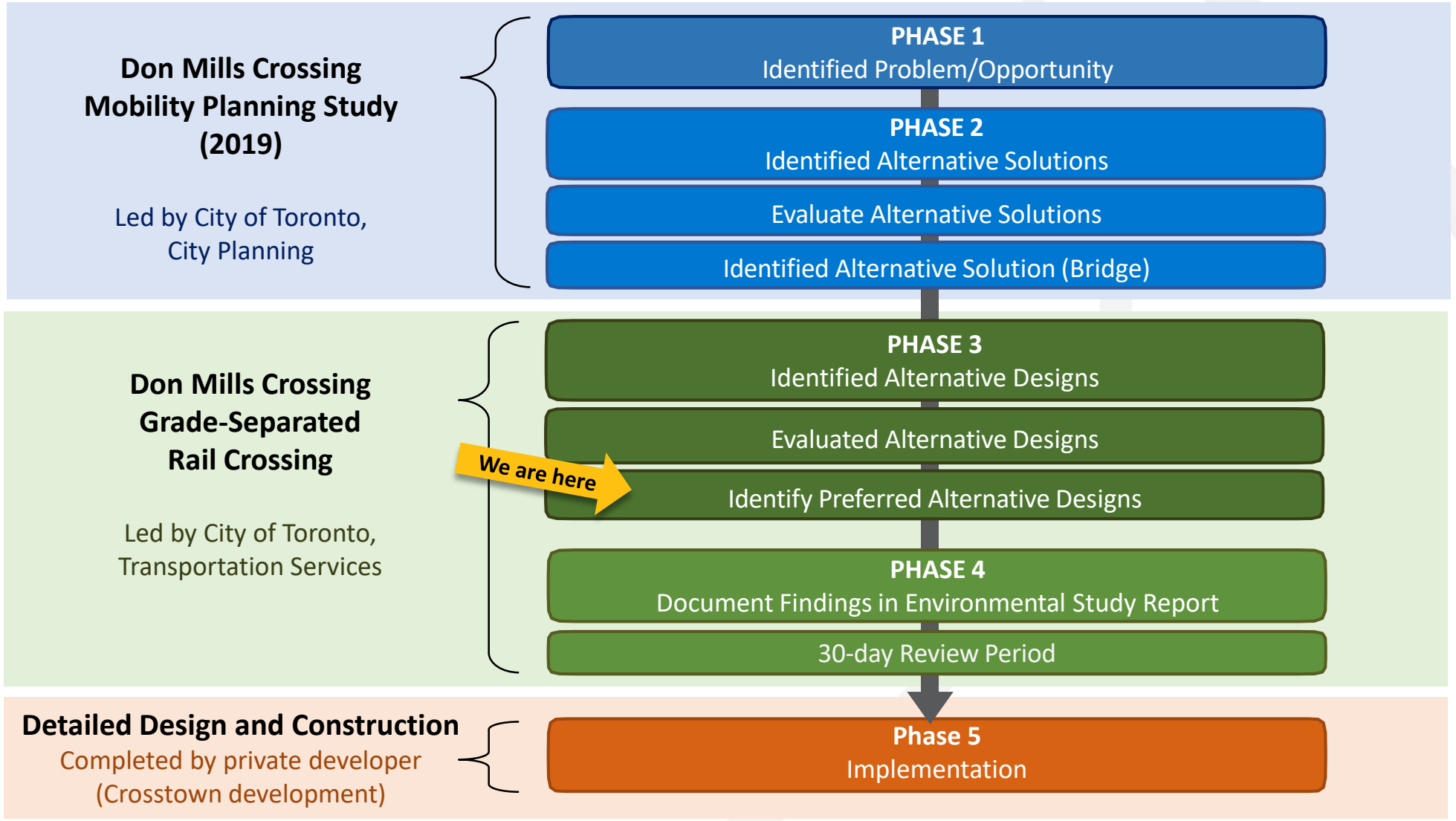
Who

- City of Toronto Transportation Services, supported by a cross-divisional project team including:
  - LEA Consulting (Project Planning and Engineering Lead)
  - Fotenn Planning + Design (Urban Design)
  - Alta Planning + Design (Active Transportation)



1.2 MCEA PROCESS AND PROJECT STATUS

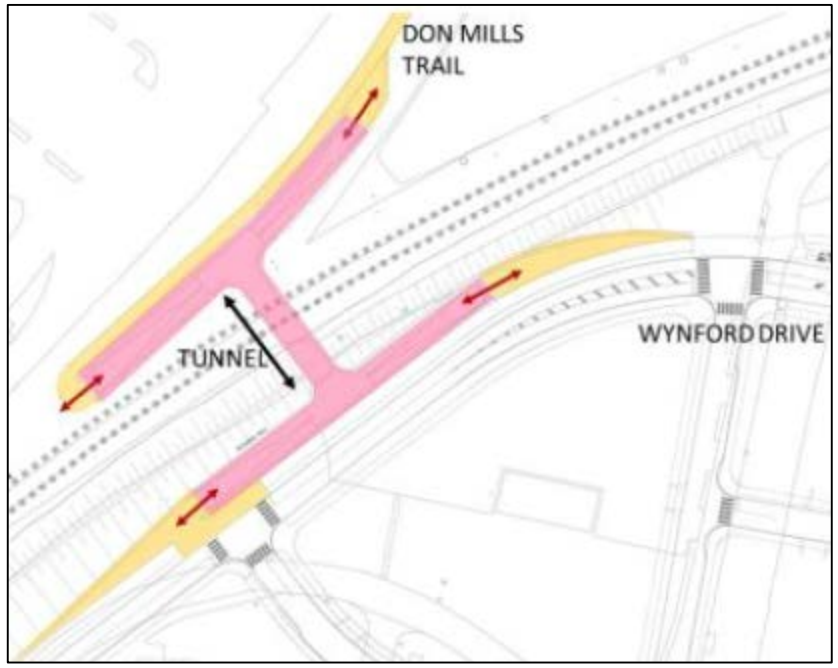
- The project follows the Municipal Class Environmental Assessment (MCEA) process, and will complete Phase 3 and 4



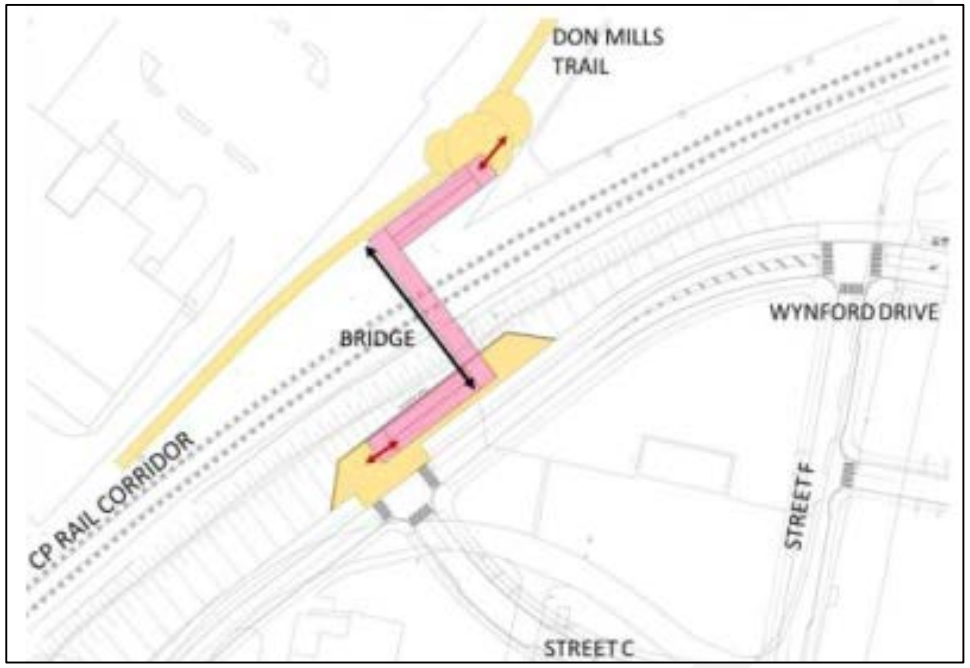
1.3 DON MILLS CROSSING MPS – EA PHASE 1 & 2

- Phase 2 of the MPS assessed the following three alternative solutions for crossing the CP corridor:

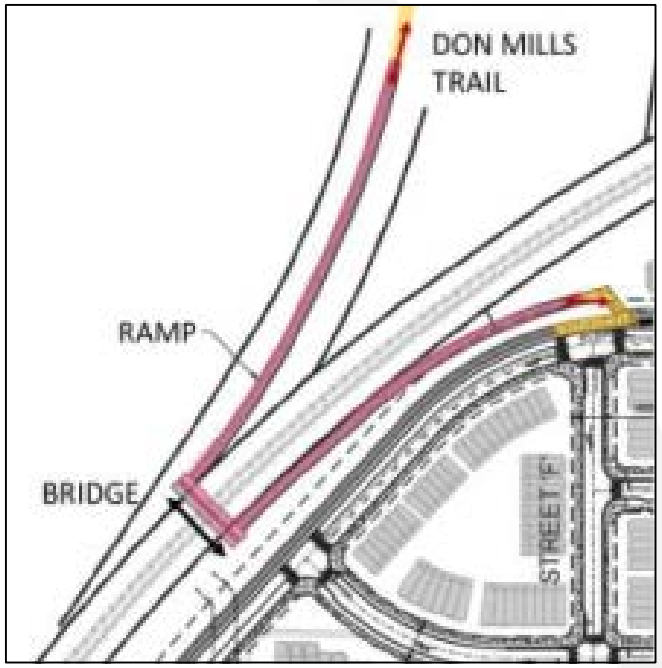
1. Tunnel



2. Bridge with Switchback Ramps



3. Bridge with Straightened Ramps



1.4 PROJECT APPROACH AND GUIDING PRINCIPLES

- A set of Guiding Principles were developed to inform the identification and evaluation of alternative designs for Phase 3, based on:

Guiding Principles from the Don Mills Crossing MPS

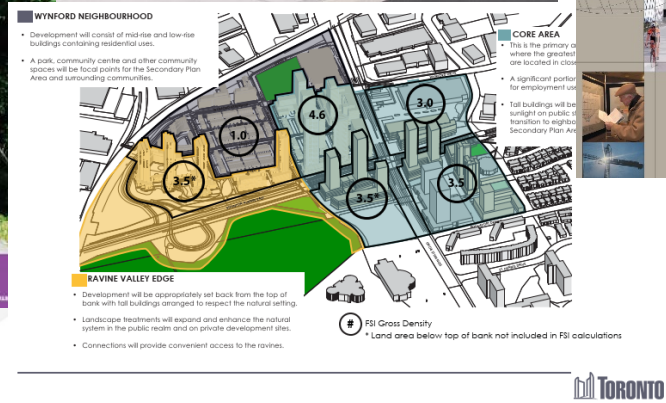
- Enhance mobility choice, comfort, and resilience
- Connect with Nature and Build Resiliency

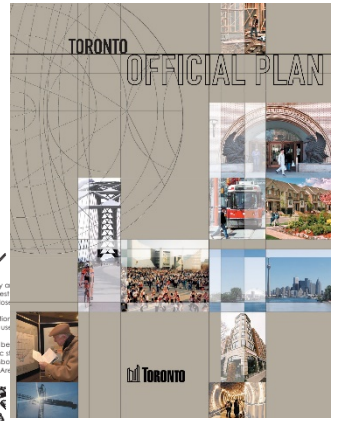
Emerging Goals identified through Review of Policy and Consultation with City Stakeholders

- Establish a landmark crossing for the community
- Maintain safe, year-round access

Additional policies reviewed include:

- Toronto Multi-Use Trail Guidelines
- City of Toronto Official Plan
- Eglinton Connects





1.5 URBAN DESIGN CONSIDERATIONS

- A set of Urban Design Considerations were also developed based on the following:

Crosstown Development: Block 12 SPA

- 1150 Eglinton Ave. E. to be partially retained in-situ with 3 towers above
- Integration of existing heritage elements
  - Reclaimed brick as permeable paving
  - Heritage wall to be maintained in landscaped area
- Towers feature alternating extruded/recessed volumes clad in black metal panels

Cultural & Built Heritage

- Modernist architecture a feature of the Don Mills/Eglinton area, including:
  - 1150 Eglinton Ave. E. modernist building
  - 844 Don Mills Rd. modernist industrial / beaux arts building

Natural Heritage

- Bridge to be located within Toronto's ravine system
- Bridge will provide access to trails and views of the surrounding ravine and Toronto's downtown skyline

Image Source: Robert Moffatt, 2010 (https://www.acotoronto.ca/show_building.php?BuildingID=10968)

2.0 ALTERNATIVE BRIDGE DESIGN CONCEPTS

2.1 ALTERNATIVE DESIGN CONCEPTS CONSIDERED

- Elevated Option chosen as preferred from Phase 2 of the DMC MPS
- Phase 3 confirmed the Bridge with Straightened Ramps as the preferred option over the Bridge with Switchback Ramps
- Key concerns regarding Switchback Option:
  - Minimum 5m radius required at switchback
  - Space constrained by Wynford Drive Extension and multi-use trail design already underway by Crosstown Development team
  - Preliminary sketches for a Switchback Concept conflicted with the multi-use trail due to insufficient space

2.2 ALTERNATIVE DESIGNS

- **Structural Alternatives** have been developed separately for two main components of the bridge:

- **Bridge Alternatives**
  1. Steel I-girder
  2. Precast concrete box girder
  3. Steel truss

- **Ramp Alternatives**
  1. Elevated ramp on piers (concrete solid slab)
  2. Elevated ramp on piers (steel girders)
  3. Retained soil system wall-supported ramp

2.3 ALTERNATIVE DESIGNS: STRUCTURAL BRIDGE ALTERNATIVES

1. Steel I-Girder Bridge

- Single span structure
- 3 girders, 2 metre spacing
- Superstructure depth of 1.13 metre
- 1m overhang

Aesthetics:

- 1 metre overhang provides shadows to enhance slenderness
- Discoloration of steel contrasts with concrete deck
- Open steel railing enhances superstructure slenderness
- Can accommodate utilities between girders without increasing depth

Maintenance:

- Bottom flanges of girders can encourage bird roosting & debris build-up
- Medium maintenance level required

Cost Estimate: $1 – 1.1 million

Pine Valley Pedestrian Bridge, Vaughan, ON

2.3 ALTERNATIVE DESIGNS: STRUCTURAL BRIDGE ALTERNATIVES

2. Pre-cast Concrete Box Girder

- Single span structure
- 4 concrete boxes, girders side-by-side
- Superstructure depth of 0.95 metre
- 0.56 metre overhang

Aesthetics:

- Material is uniform
- Open steel railing enhances superstructure slenderness
- Less overall superstructure depth provides cleaner, streamlined appearance

Maintenance:

- Corrosion in concrete box can be minimized by no direct exposure to de-icing salts and other chemicals
- Low maintenance level required

Cost Estimate: $1 – 1.1 million

Place de la Concorde Pedestrian Bridge, Montreal, QC

No. 2 Road Bridge, Richmond, B.C.

2.3 ALTERNATIVE DESIGNS: STRUCTURAL BRIDGE ALTERNATIVES

3. Steel Truss

- Single span structure
- Supported by 4.5 metre truss
- Superstructure depth of 0.68 metre
- No overhang

Aesthetics:

- No overhang
- Discoloration of steel contrasts with concrete deck
- Open steel railing enhances superstructure slenderness
- Joint connections can affect aesthetic qualities

Maintenance:

- Exposed steel bracings & connections encourage bird roosting and debris build-up
- High maintenance level required

Cost Estimate: $1.2 – 1.3 million

New Creemore Bridge, Clearview Township, ON

2.4 ALTERNATIVE DESIGNS: STRUCTURAL RAMP ALTERNATIVES

1. Elevated Ramp on Piers (Concrete Solid Slab)

- 0.3 metre concrete slab supported on piers with 9 metre spacing

Constructability & Access:

- Deeper excavation required to lay footing
- Temporary support structures for piers

Aesthetics:

- Visually open with spacing between piers

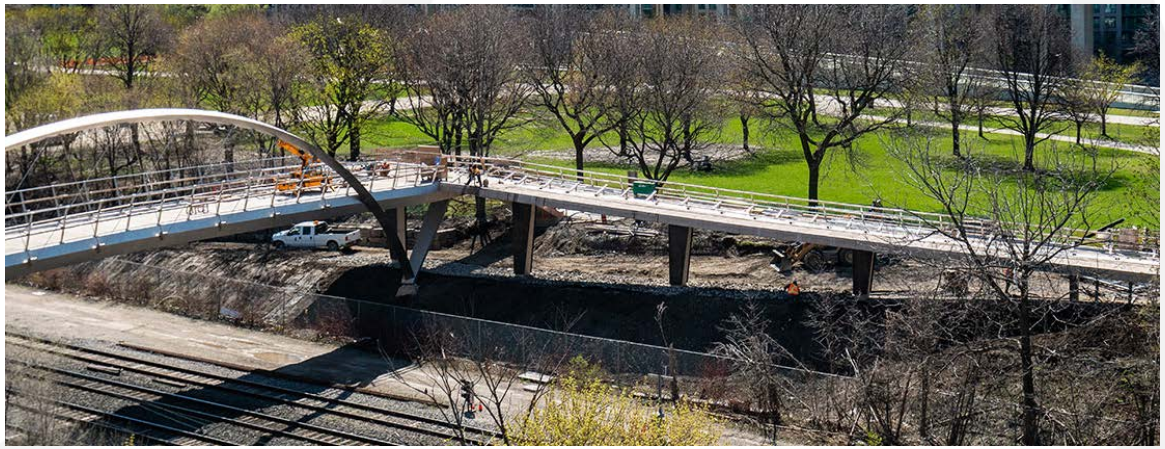
Maintenance:

- Deck may exhibit signs of deterioration (may require maintenance)

Cost Estimate:

- 6.1m wide: $5.2 – 5.3 million
- 4.1m wide: $4.2 – 4.3 million

Puente de Luz Pedestrian & Cyclist Bridge, Toronto, ON



Garrison Crossing Pedestrian & Cyclist Bridge, Toronto, ON

2.4 ALTERNATIVE DESIGNS: STRUCTURAL RAMP ALTERNATIVES

2. Elevated Ramp on Piers (Steel Girders)

- 0.175 metre concrete slab supported on piers with 20 metre spacing

Constructability & Access:

- Deeper excavation may be required to lay footing
- Less temporary support structure needed compared to concrete slab piers

Aesthetics:

- Visually open – can accommodate utilities between piers without increasing depth
- Less efficient at accommodating curvature than other options

Maintenance:

- Deck may show signs of deterioration – requires maintenance, incl. bearings

Cost Estimate:

- 6.1m wide: $6.5 – 6.7 million
- 4.1m wide: $4.9 – 5.1 million

The Big Four Bridge, Louisville, KY

Flora Footbridge, Ottawa

2.4 ALTERNATIVE DESIGNS: STRUCTURAL RAMP ALTERNATIVES

3. Retained Soil System (RSS) Wall-Supported Ramp

- 0.25m concrete slab with continuous RSS wall supporting grade change

Constructability & Access:

- Shallow excavation and modular installation
- No temporary support structure required

Aesthetics:

- Significant visual impact to landscape

Maintenance:

- Minimal maintenance requirements (increased risk of graffiti)

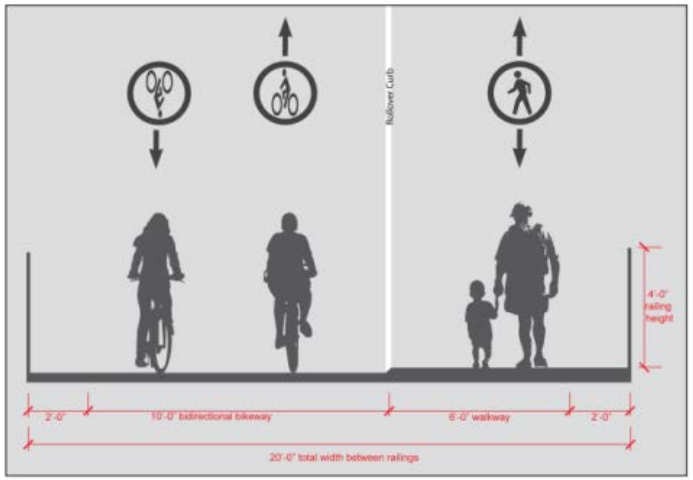
Cost Estimate:

- $8.8 – 9 million

RSS Walls with Minimal vs. Enhanced Aesthetics

2.5 ALTERNATIVE DESIGNS: USER EXPERIENCE

1. Separated Pedestrian & Cycling Facilities



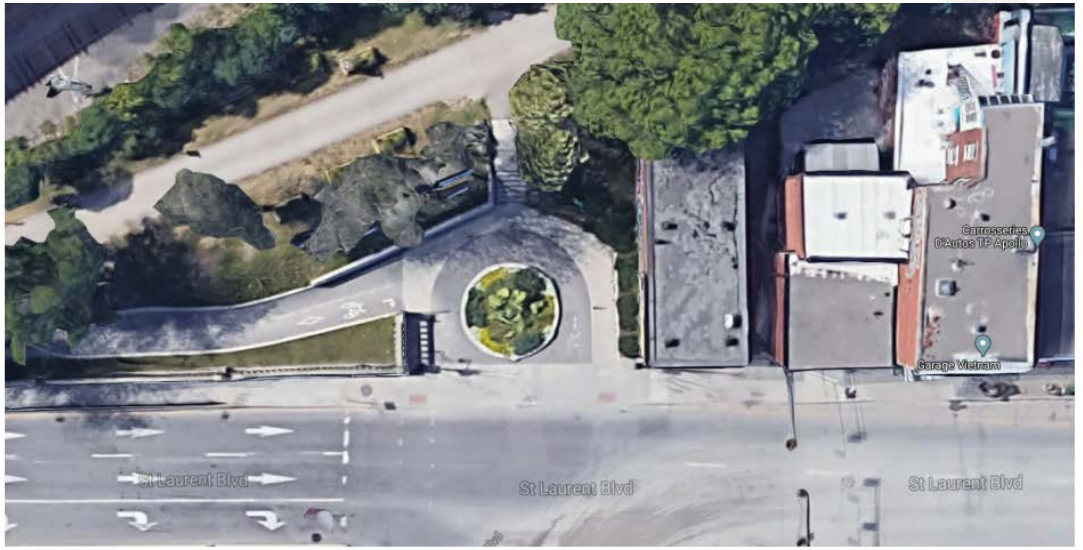
- 4 metre wide bike path
- 2.1 metre pedestrian walkway
- 5% slope
- 15 metre flat landing
- Curve towards tie-in point at Wynford Drive

Advantages

- Pedestrians and cyclists have separate dedicated pathways
- Appropriate for high-density bidirectional traffic flow
- Appropriate when there is significant speed differentials between users

Disadvantages

- Higher costs and visual impact of the ramps



Imagery: Montreal, QC

2.5 ALTERNATIVE DESIGNS: USER EXPERIENCE

2. Shared Multi-Use Trail

- 4.1 metre wide shared-use path with 1 metre buffer between path & railing (both sides)
- 5% slope
- 15 metre flat landing
- Curve towards tie-in point at Wynford Drive

Boston, MA Charles Square

Advantages:

- Narrower path reduces costs & visual impact of ramps
- Appropriate for when there is low-density traffic flow and slower than expected speeds

Disadvantages:

- No separation of facility may require accessibility treatments to ensure low-to-no vision pedestrians are able to orient themselves
- Less space to accommodate pedestrians and cyclists in separate bi-directional facilities

3.0 EVALUATION OF ALTERNATIVE BRIDGE DESIGNS

3.1 EVALUATION PROCESS

- The alternatives presented in the previous boards are being evaluated based on the following eight evaluation criteria

- **Socio-Economic Environment**

- **Cultural Environment**

- **Accessibility**

- **Public Realm / Aesthetics**

- **Natural environment**

- **Safety (incl. Crime Prevention Through Environmental Design)**

- **Maintenance**

- **Cost**

- Each alternative is being evaluated on a 5-level scale from least preferred to most preferred based on a set of measures corresponding to each criteria

3.1 EVALUATION CRITERIA AND MEASURES

- Each evaluation criteria and its corresponding measures are detailed below:

Socio-Economic Environment

- Conformity with City of Toronto policies and objectives
- Conformity with provincial and federal approvals
- Degree of property impacts and requirements

Cultural Environment

- Impacts to designated archaeology or heritage resources

Accessibility

- Compliance with AODA
- Opportunities to create direct routes between destinations
- Level of consideration to all bikes and mobility devices
- Ensures continuity with adjacent facilities
- Level of difficulty to use and navigate crossing

Public Realm & Aesthetics

- Opportunities for landscaping
- Opportunities for public space at base of ramp
- Opportunities for views from bridge and ramp structure
- Opportunities for congregation and rest areas
- Consideration to visibility of bridge from adjacent property

Natural Environment

- Degree of impact to TRCA protection area
- Degree of vegetation and tree removal required
- Opportunities to enhance natural heritage features

Safety

- Crime Prevention Through Environmental Design (CPTED)
- Consideration for pedestrian-scale lighting
- Reduces bike and pedestrian conflicts on structure
- Reduces bike and pedestrian conflicts where ramps meet Wynford Drive

Maintenance

- Ability of snow clearing equipment to maneuver bridge and ramps
- Considers windrow locations for snow clearing

Cost

- Life-cycle costs
- Service life
- Degree of utility impacts

3.3 EVALUATION MATRIX – BRIDGE DESIGN

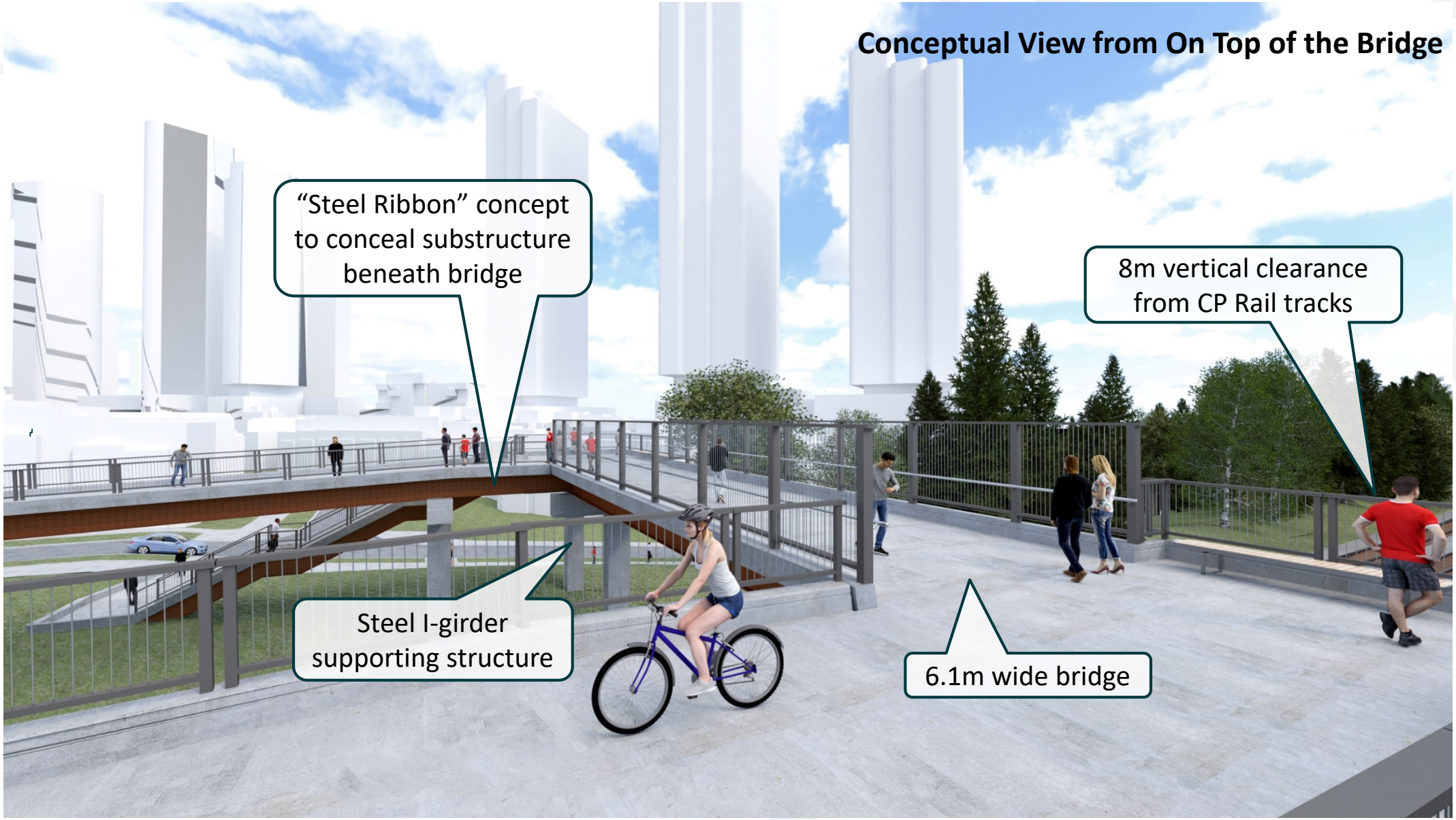
	1. Steel I-Girder	2. Precast Concrete Box Girder	3. Steel Truss
➢ **Socio-Economic**	• Conform with City objectives; minimizes property impacts	• Conform with City objectives; minimizes property impacts	• Conform with City objectives; minimizes property impacts
➢ **Cultural Environment**	• No archaeology impacts; 'steel ribbon' reflects industrial character	• No archaeology impacts; doesn't reflect cultural heritage	• No archaeology impacts; truss reflects industrial character
➢ **Accessibility**	• All cyclists and mobility devices can be accommodated	• All cyclists and mobility devices can be accommodated	• All cyclists and mobility devices can be accommodated
➢ **Public Realm / Aesthetics**	• Steel overhang enhances slenderness • Steel contrasts with concrete deck	• Uniform concrete material • Minimal design variation	• Steel truss offers visual variety • Impacts adjacent building views
➢ **Natural Environment**	• Requires some tree removal	• Requires some tree removal	• Requires some tree removal
➢ **Safety**	• Opportunities for lighting • Some opportunity for graffiti	• Opportunities for lighting • Some opportunity for graffiti	• Opportunities for lighting • Some opportunity for graffiti
➢ **Maintenance**	• Moderate maintenance required	• Low maintenance required	• Significant maintenance required
➢ **Cost**	• Lower cost	• Lower cost	• Highest cost

3.3 EVALUATION MATRIX – RAMP DESIGN

	1. Elevated on Piers (Concrete Solid Slab)	2. Elevated on Piers (Steel I-Girder)	3. RSS Wall-Supported
➢ **Socio-Economic**	• Conform with City objectives; minimizes property impacts	• Conform with City objectives; minimizes property impacts	• Conform with City objectives; minimizes property impacts
➢ **Cultural Environment**	• Minimal impacts to archaeology or heritage resources	• Minimal impacts to archaeology or heritage resources	• Minimal impacts to archaeology or heritage resources
➢ **Accessibility**	• All cyclists and mobility devices can be accommodated	• All cyclists and mobility devices can be accommodated	• All cyclists and mobility devices can be accommodated
➢ **Public Realm / Aesthetics**	• Visually open • Significant concrete visible	• Most visually open • Continuous 'steel ribbon'	• Not visually open • Significant impacts to landscape
➢ **Natural Environment**	• Requires some tree removal	• Requires some tree removal	• Requires some tree removal
➢ **Safety**	• Opportunity for graffiti (CPTED)	• Least opportunity for graffiti (CPTED)	• Greatest opportunity for graffiti (CPTED)
➢ **Maintenance**	• Moderate maintenance required to mitigate deterioration	• Moderate maintenance required to mitigate deterioration	• Less structural maintenance • Some aesthetic maintenance
➢ **Cost**	• Lowest cost	• Moderate cost	• Highest cost

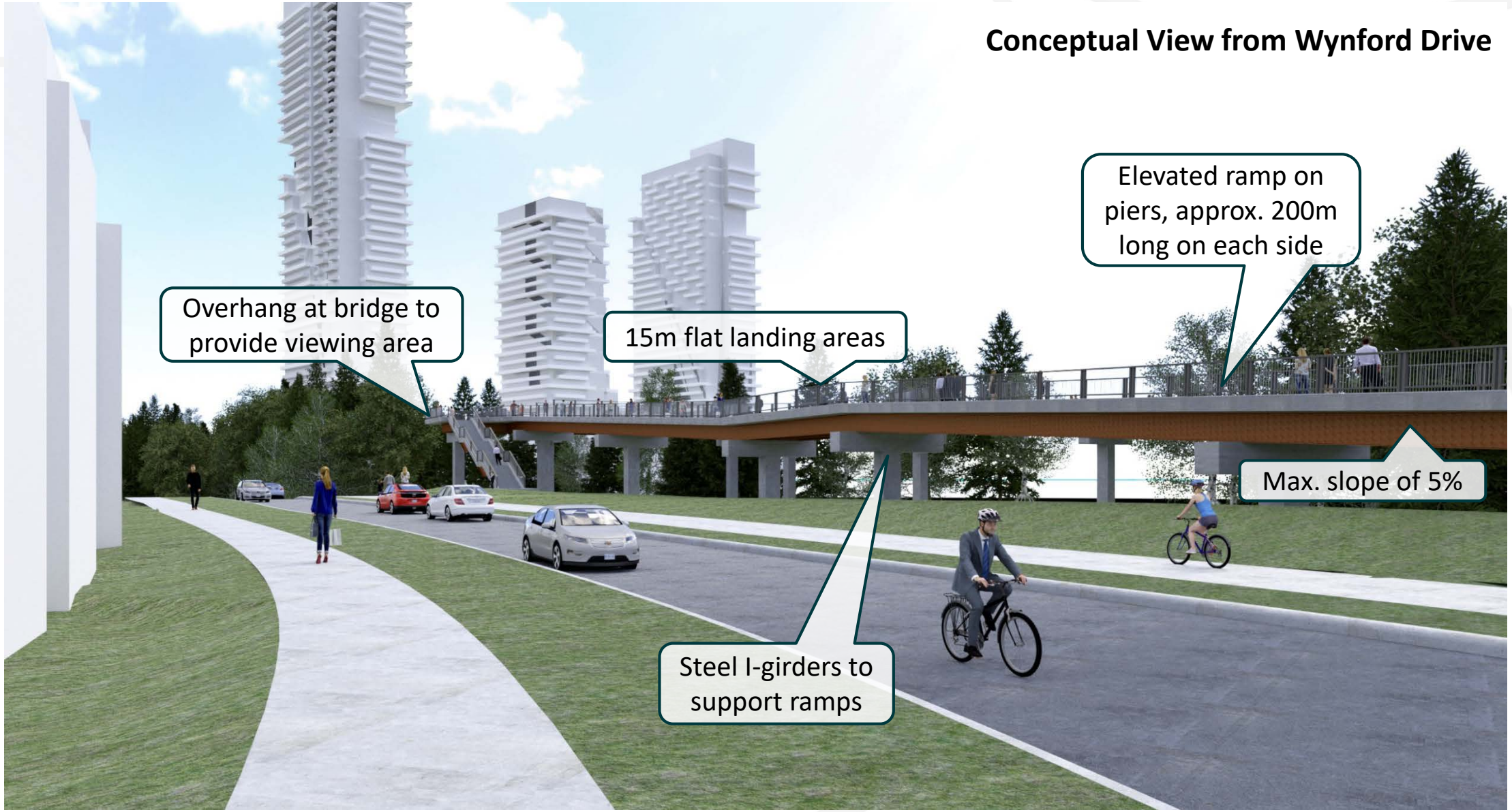
4.0 EMERGING PREFERRED SOLUTION

4.1 EMERGING PREFERRED SOLUTION – BRIDGE STRUCTURE



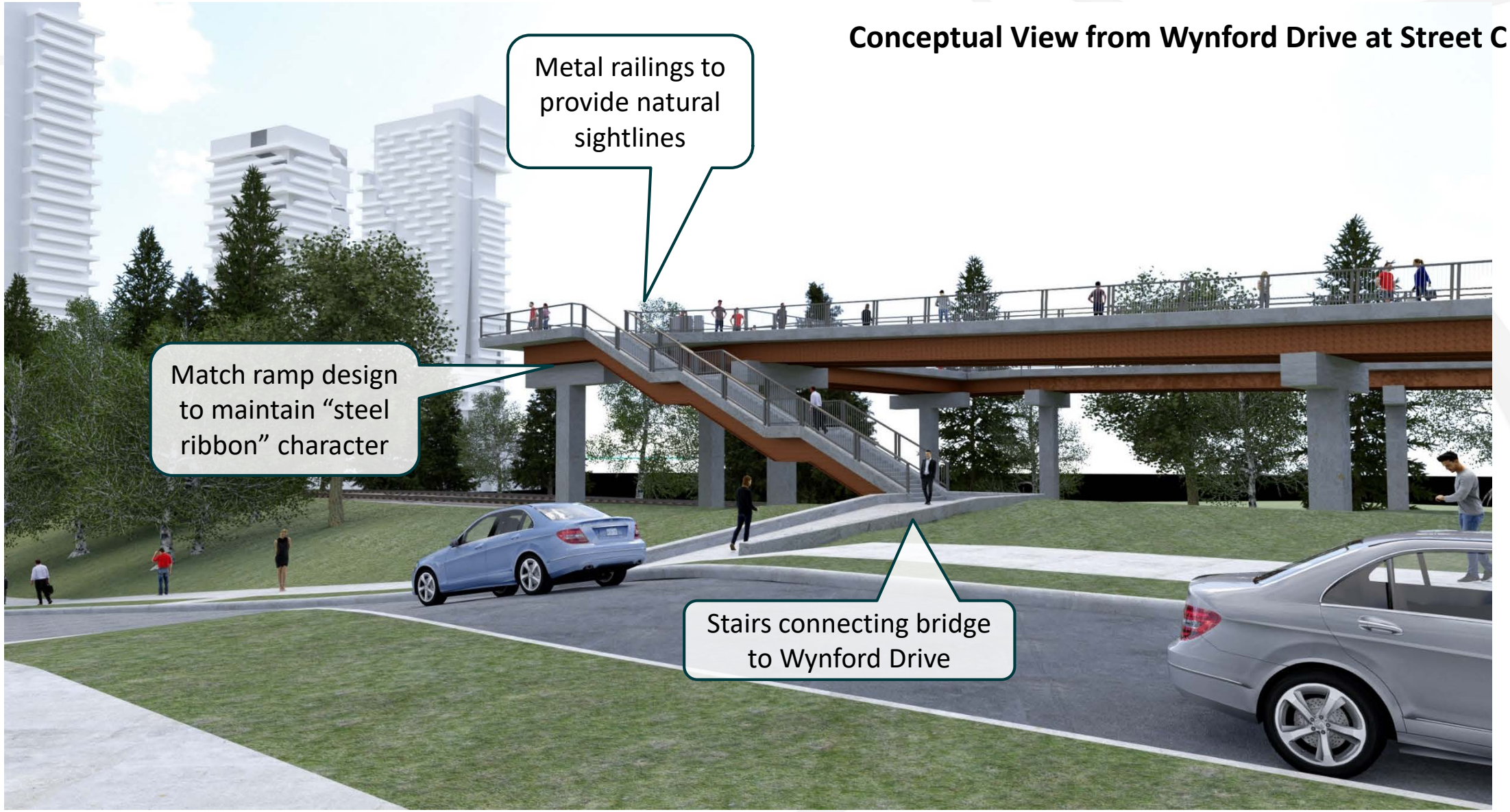
4.1 EMERGING PREFERRED SOLUTION – RAMP STRUCTURE

Conceptual View from Wynford Drive



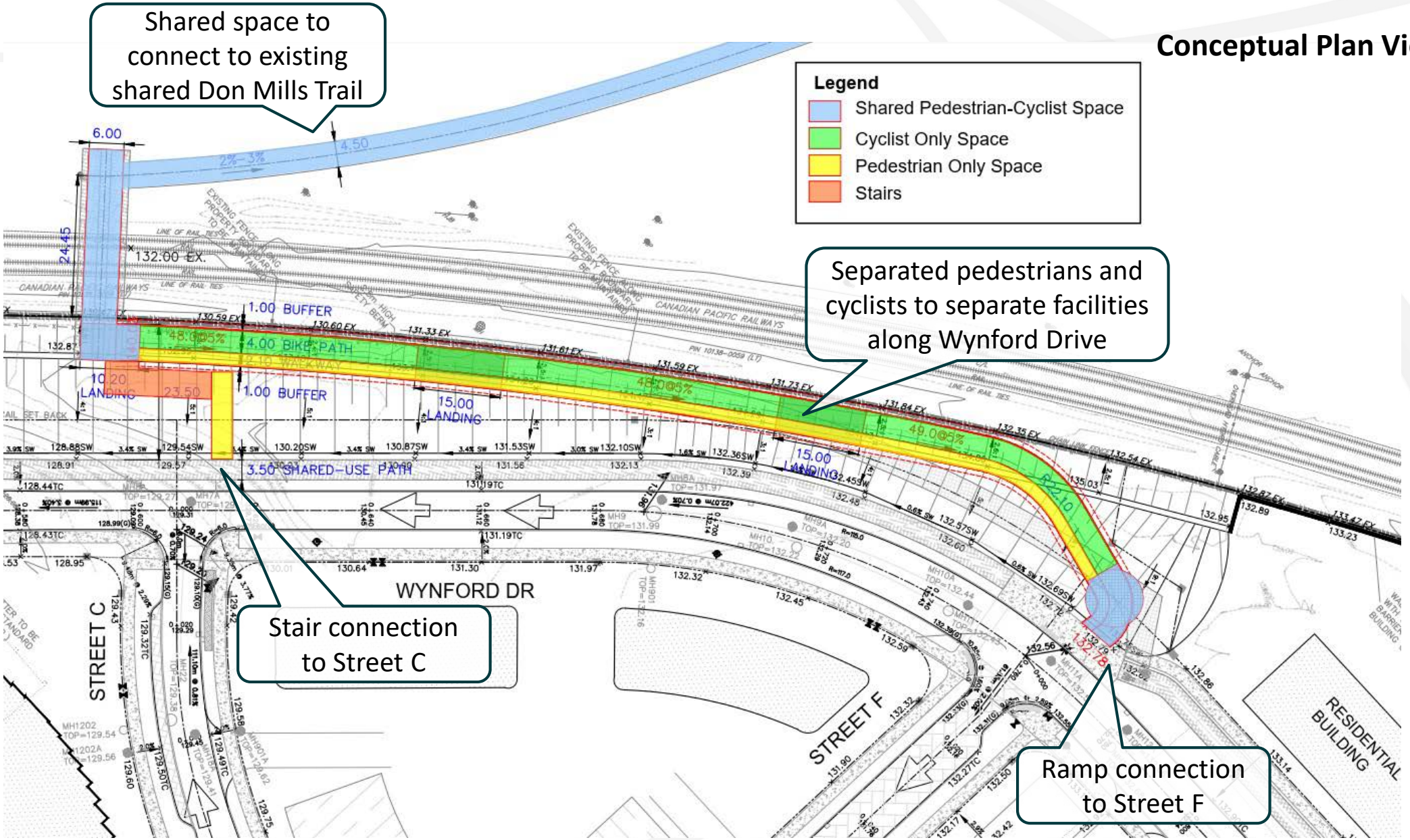
4.1 EMERGING PREFERRED SOLUTION – USER EXPERIENCE

Conceptual View from Wynford Drive at Street C



4.1 EMERGING PREFERRED SOLUTION – USER EXPERIENCE

Conceptual Plan View



4.1 EMERGING PREFERRED SOLUTION – COST ESTIMATE

Preliminary Cost Estimate of Emerging Preferred Alternative

- Cost will be confirmed during detailed design process
- Final cost to be shared between the developer and City of Toronto

Preferred Bridge Alternative	
Steel I-Girder	$1,000,000 - $1,100,000
Preferred Ramp Alternative	
6.1m Wide Elevated Ramp on Piers (Steel Girders)	$6,500,000 - $6,700,000
Other	
Stair Connection to Street ‘C’	$500,000
Emerging Preferred Design High Level Cost Estimate	**$8,000,000 - $8,300,000**

Conceptual Aerial View

5.0 ADDITIONAL CONSIDERATIONS AND NEXT STEPS

5.1 ADDITIONAL CONSIDERATIONS

- This EA will identify the functional design for the Crossing and will set the parameters for the detailed design process to be carried out by the developer following this EA
- The following elements will be considered at a high-level for this EA and will be further studied during the detailed design process

Integration of Public Art

- **Urban Design Measure:** Recommended that art be incorporated into Bridge or Ramp design, instead of as a standalone piece
- **Crime Prevention Through Environmental Design Measure:** Promote ownership, implement anti-tagging materials

Signage and Wayfinding

- **Wayfinding Measure:** To identify location of the Crossing and connections to surrounding trails and cycling networks
- **Safety Measure:** Implement prohibitive signage, applicable City by-laws

Lighting

- **Urban Design Measure:** Coordinate with Crosstown development for uniformity of illumination
- **Safety and Accessibility Measure:** Pedestrian level lighting to be mounted between 3m-6m apart; high contrast light and shadow areas should be avoided

Landing Area

- **Safety and Accessibility Measure:** Determine appropriate materials for landing area where the stairs meet grade and for the ramp to Street C connector; integrate ramp connection with Wynford Drive Multi-Use Trail Design

Landscaping

- **Safety Measure:** Maintain clear view of bridge, ramp and stairs; shrubs to be offset 1m from paths and have maximum height of 0.8m

5.2 NEXT STEPS

City Led **EA and 10% Design (2019-2021)**	**January 2021:**Public Consultation (online) **Spring 2021:** Report to Infrastructure and Environment Committee and City Council **Spring 2021:** Notice of Study Completion and Start of 30-day Public Review
Developer Led **100% Design and Construction (2021-2025)**	**2021:** Detailed design (led by developer's team) begins **2024:** Construction anticipated to begin **2025:** Construction anticipated to end; project handed over to City of Toronto

5.3 CONTACT THE STUDY TEAM

Project Contact

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Provide Your Feedback

Use the feedback form at toronto.ca/DonMillsCrossingBridge
Please submit your comments by **March 22, 2021** to be included in the consultation report

THANK YOU