

# GLEN ROAD PEDESTRIAN BRIDGE ENVIRONMENTAL ASSESSMENT STUDY PUBLIC INFORMATION CENTRE #2 OCTOBER 24, 2017



#### **WELCOME!**

# Welcome to the second Public Information Centre (PIC) for the Glen Road Pedestrian Bridge Class Environmental Assessment

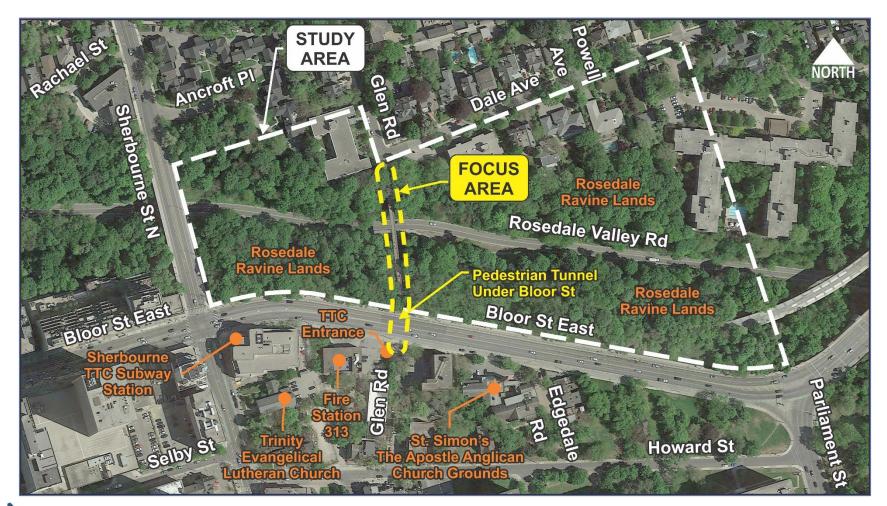
The information displayed today is available online at:

toronto.ca/glen-rd-ped-bridge



## **PURPOSE & STUDY AREA**

- Address the deteriorated condition of the Glen Road Pedestrian Bridge
- Opportunity to improve natural surveillance in the pedestrian tunnel





#### STUDY PROCESS AND SCHEDULE

This study is being conducted in accordance with the Ontario Environmental Assessment Act through the application of the *Municipal Class Environmental Assessment Process*.

Community Walk-Shop June 2016 PIC #1 September 2016

PIC #2 October 2017

Finalize ESR End of 2017 Detail Design & Construction

Phase 1: Problem and Opportunity Phase 2: Alternative Planning Solution Phase 3: Alternative Design Concepts and Preliminary Preferred Design

Phase 4: Environmental Study Report (ESR)

Implementation

#### The purpose of PIC #2 is to:

- Provide an update on the EA Study
- Provide a summary of PIC 1
- Present the Preliminary Preferred Design

- Review potential benefits, impacts and mitigations
- Answer questions and gather feedback
- Identify next steps

Please ask questions and make your opinions known to the Project Team.

Fill out a comment sheet here or online.







# BACKGROUND INFORMATION & PIC #1

Phase 1

#### PLANNING AND POLICY CONTEXT

#### Official Plan (June 2015)

A long-term plan with a vision to create vibrant neighbourhoods, conserve heritage resources, encourage walking and cycling for local trips, and create strong pedestrian and cycling linkages to transit stations.

# South Rosedale Heritage Conservation District (2003)

South Rosedale was designated as a Heritage Conservation District under Part V of the Ontario Heritage Act to conserve and reinforce the neighbourhood's unique character.

#### Other area policies

- Streetscaping Program
- Trail Network
- Walking Strategy
- Toronto Ravine Strategy and Ravine By-law (Ch. 658)
- Accessibility for Ontarians with Disabilities Act (AODA)

# Adjacent Development Application Sites and Projects



See City website for related information



## **EXISTING CONDITIONS - BRIDGE**



- Existing structure was built in 1973; steel inclined leg rigid frame bridge with a timber deck
- Three (3) spans structure; totaling 107 m
- Deck width ~ 3.7 m; Height ~ 20 m
- The 2014 routine inspection revealed substantial deterioration at a greater rate than expected
- Emergency repairs in 2015 were not intended to be a long-term solution, as corrosion will continue. The bridge remains safe but requires replacement



View of corrosion on inclined leg

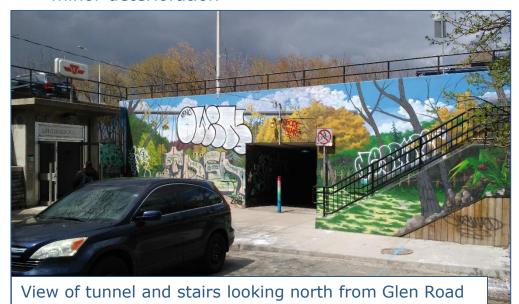


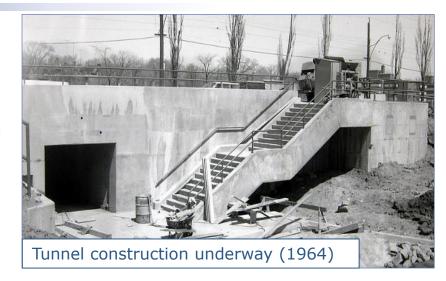
View looking south



## **EXISTING CONDITIONS - TUNNEL**

- Tunnel construction initiated in 1962
- Rigid frame reinforced concrete box structure
- 26.2m long; 2.4m wide; 2.9m high
- Bloor Street East access from staircases at north and south end of tunnel
- Utilities are located below, parallel and above the tunnel
- Tunnel inspection for this study identified the structure is generally in good condition with local minor deterioration

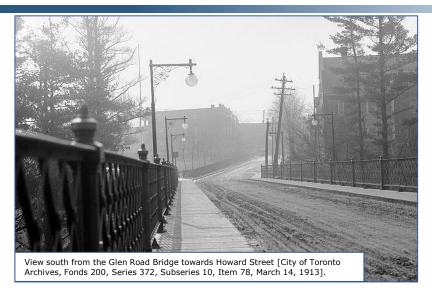








## **EXISTING CONDITIONS – CULTURAL HERITAGE**





- 1884 First record of bridge over Rosedale Valley
- 1951 Bridge closed to vehicular traffic; however maintained for pedestrian use
- 1973 Construction of the current pedestrian bridge
- 1992 Officially renamed as the Morley Callaghan Footbridge
- 2001 Rehabilitation
- 2003 Glen Road Footbridge designated under Part V of the Ontario Heritage Act within the South Rosedale Heritage Conservation District and added to the City's heritage register

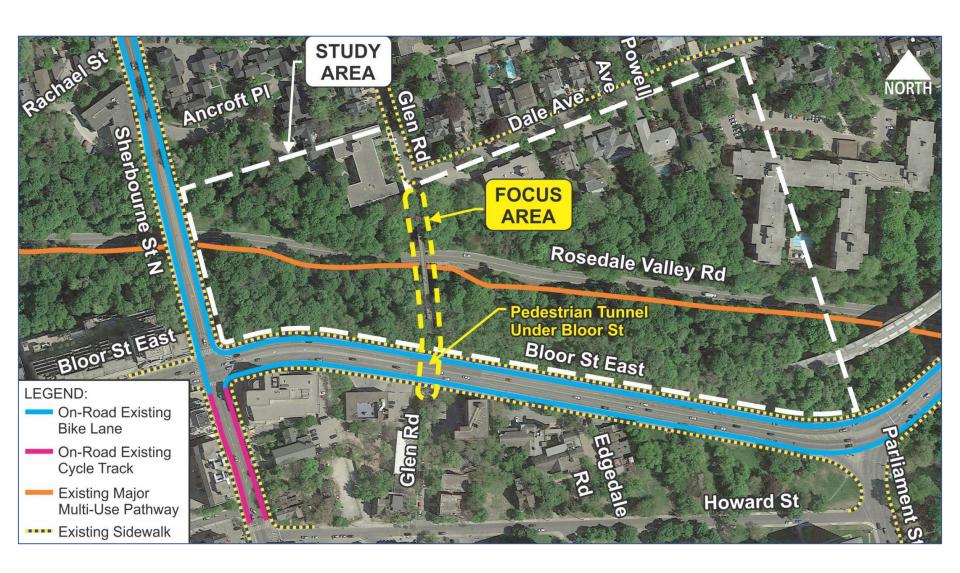
#### **Recommendation:**

Any new structure should explore design options that retain the design attributes of the existing bridge, at the same location, and the view from Rosedale Valley.





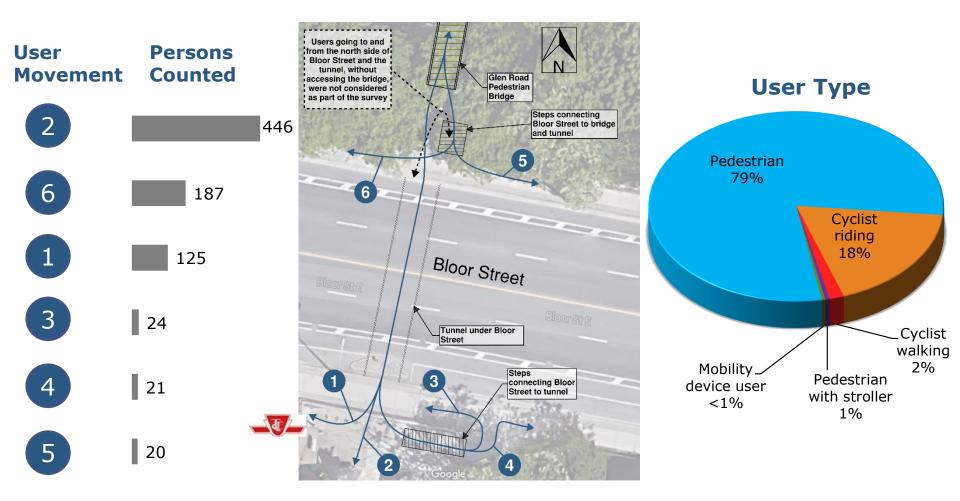
#### **EXISTING CONDITIONS – ACTIVE TRANSPORTATION**





#### **EXISTING CONDITIONS – ACTIVE TRANSPORTATION**

- Existing bridge user counts Wednesday June 22 and Saturday June 25, 2016
- 823 trips were observed on the bridge over 11 hrs (75 users per hour)





## PROBLEM AND OPPORTUNITY STATEMENT

The Glen Road Pedestrian Bridge is a heritage structure, extending from Bloor Street East in the south to Glen Road in the north, passing over the Rosedale Valley. At the south end of the bridge, under Bloor Street East, is a pedestrian tunnel which provides a connection to Glen Road in the south and the TTC's Sherbourne Station.

The bridge is identified as needing major improvements. Emergency repairs were completed in 2015, extending the timeframe to undertake this Environmental Assessment Study, which will determine the future of the bridge. Concerns about personal safety in the pedestrian tunnel have been identified.

Opportunities to increase natural surveillance in the tunnel area will also be considered.

Alternatives will be developed and evaluated, considering all active transportation users.









#### **PUBLIC CONSULTATION TO DATE**

Project Web Page (June 2016)

Stakeholder Walk-Shop (June 27, 2016)

 Representatives of local resident associations, active transportation groups, and the community

**Bridge User Online Survey** (June – August, 2016)

#### Public Information Centre #1 (September 28, 2016)

- Summary of the results of the public consultation:
  - Consistent support for replacing the bridge in its current location, and preference for a similar simple design
  - Desire for personal safety improvements in the pedestrian tunnel
  - Competing views on whether and how to accommodate cycling

#### **Design Review Panel** (July 18, 2017)

• Staff presented the study findings to the panel of private sector design professionals who were generally supportive of the preliminary recommended preferred alternative design, providing comments about the importance of maintaining a connection to Bloor Street and potential to connect to the valley.









# ALTERNATIVE PLANNING SOLUTIONS

Phase 2

## **ALTERNATIVE SOLUTIONS - BRIDGE (PIC 1)**

#### **Do Nothing**

Allow bridge to deteriorate until such a time that the conditions require closure and removal

## Rehabilitate the Existing Bridge

Patch-up deteriorating sections of the existing bridge to achieve a safe structure

## Replace Bridge in Same Location

Replace existing bridge and maintain crossing with new bridge in same location

## Replace Bridge in New Location

Replace existing bridge and maintain crossing with new bridge in different location

#### **Not Recommended**

- Bridge will eventually be removed due to deteriorating conditions.
- Cost for more frequent bridge inspections.
- Does not address the long term requirements of the bridge, or the cultural heritage value of the crossing.
- Removes direct links to other active transportation and transit services.

#### **Not Recommended**

- Bridge will eventually require to be removed due to deteriorating conditions.
- Requires extensive costs for short term benefits.
- Does not address the long term requirements of the bridge, or the cultural heritage value of the crossing.
- Eventual removal of direct links to other active transportation and transit facilities.

#### Recommended

- Addresses long term needs of the bridge, maintains heritage crossing, and maintains connections to active transportation and transit facilities.
- Requires capital costs for long term benefits.
- Provides opportunity for design improvements.

#### **Not Recommended**

- Addresses long term needs of the bridge but diminishes the cultural heritage crossing.
- Requires capital costs for long term benefits.
- Results in most environmental impacts.
- Maintains link to active transportation facilities, but removes direct link to transit services.
- Provides opportunity for design improvements.



## **ALTERNATIVE SOLUTIONS - TUNNEL**

#### **Do Nothing**

Maintain existing tunnel as-is

#### **Aesthetic Modifications**

Provide enhancements to existing structure including lighting, materials, colour etc.

# Replace and Reconstruct Wider Tunnel

Remove existing tunnel with wider structure in addition to aesthetic modifications



#### **Not Recommended**

- Does not improve natural surveillance around tunnel.
- Does not accommodate for future increase in active transportation traffic.
- Does not provide for enhanced urban design features.

#### **Not Recommended**

- Provides limited opportunity to improve natural surveillance around existing structure.
- Does not accommodate for future increase in active transportation traffic.
- Provides some opportunity for enhanced urban design features around existing structure.

#### Recommended

- Provides the best potential to improve natural surveillance around the tunnel by increasing sightlines.
- Provides best opportunity to accommodate future increase in active transportation traffic.
- Provides best opportunity to enhance the urban design features with wider tunnel and larger landing areas.







## RECOMMENDED ALTERNATIVE SOLUTIONS

The Project Team's recommended alternative solution for the bridge and tunnel, based on the technical analysis completed to date is to:

- Replace the bridge in the same location; and
- Replace and reconstruct a wider tunnel.

These have the greatest potential to address the goals included in the Problem and Opportunity Statement.

It provides opportunities to:

- Address the deteriorating condition of the bridge structure.
- Increase natural surveillance around the tunnel with improved sightlines, lighting, and redesign of accesses.
- Accommodate additional capacity for active transportation users with a wider bridge and tunnel.
- Improve the bridge, tunnel and landing areas with enhanced aesthetic treatments.











# ALTERNATIVE DESIGN CONCEPTS

Phase 3

## **HOW ARE ALTERNATIVES EVALUATED?**

Engineering	Cultural Heritage	Natural Environment	Socio- Economic	Urban Design	Transportation Planning	Cost
	HERITAGE	8			(Fig. 1)	\$
<ul> <li>Addresses existing and future structural needs</li> <li>Minimizes construction constraints and complexity</li> <li>Minimize utility impacts</li> </ul>	<ul> <li>Effects on cultural heritage resources and landscapes in terms of:</li> <li>Design or physical value</li> <li>Historical or associative value</li> <li>Contextual value</li> </ul>	Potential temporary and permanent impacts to existing natural environmental features including vegetation and wildlife	<ul> <li>Supports existing and future community planning</li> <li>Potential temporary and permanent impacts to adjacent properties</li> <li>Provides improved natural surveillance (Crime Prevention through Environmental Design, CPTED)</li> </ul>	<ul> <li>Potential to provide improved aesthetic design features on bridge, tunnel and landing areas through:</li> <li>Lighting</li> <li>Materials</li> <li>Streetscape</li> </ul>	<ul> <li>Addresses existing and future active transportation needs</li> <li>Maintains/ improves network connectivity</li> <li>Minimizes impacts to existing access points</li> </ul>	<ul> <li>Comparative costs including:</li> <li>Capital construction</li> <li>Operation/maintenance</li> <li>Utility relocation</li> </ul>

## **DESIGN ALTERNATIVES – BRIDGE TYPE**

Three bridge types were chosen for evaluation, as shown here.

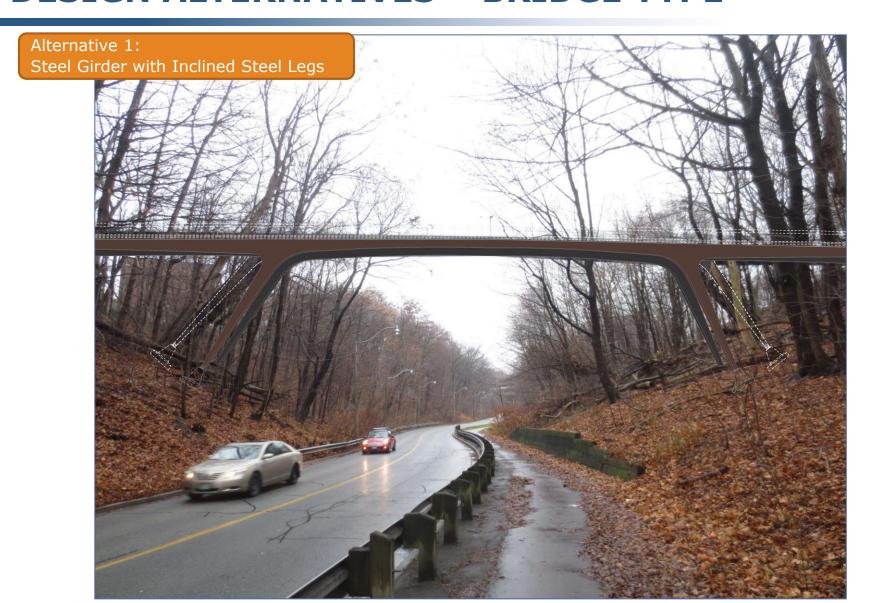
These bridge types were considered based on the study area topography, and ability to be sympathetic to the cultural heritage value of the existing bridge.





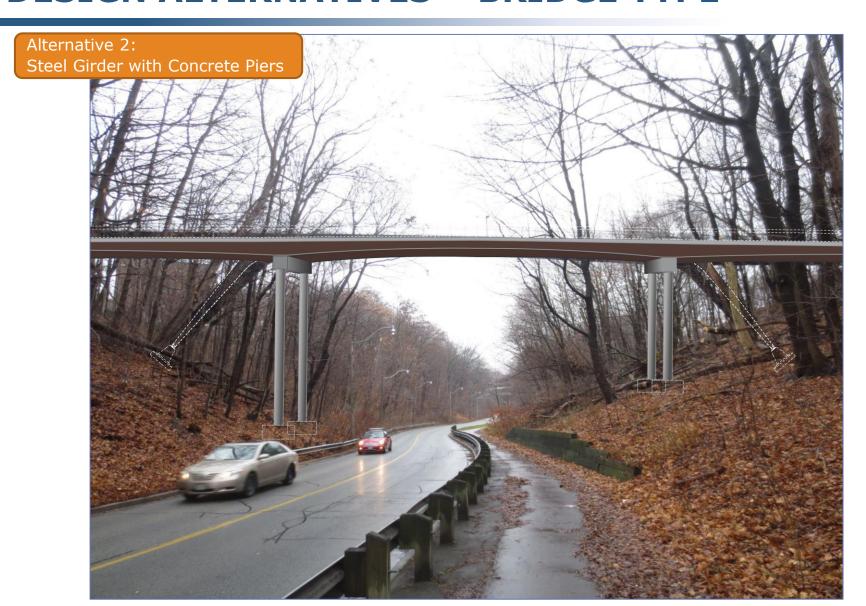


## **DESIGN ALTERNATIVES - BRIDGE TYPE**



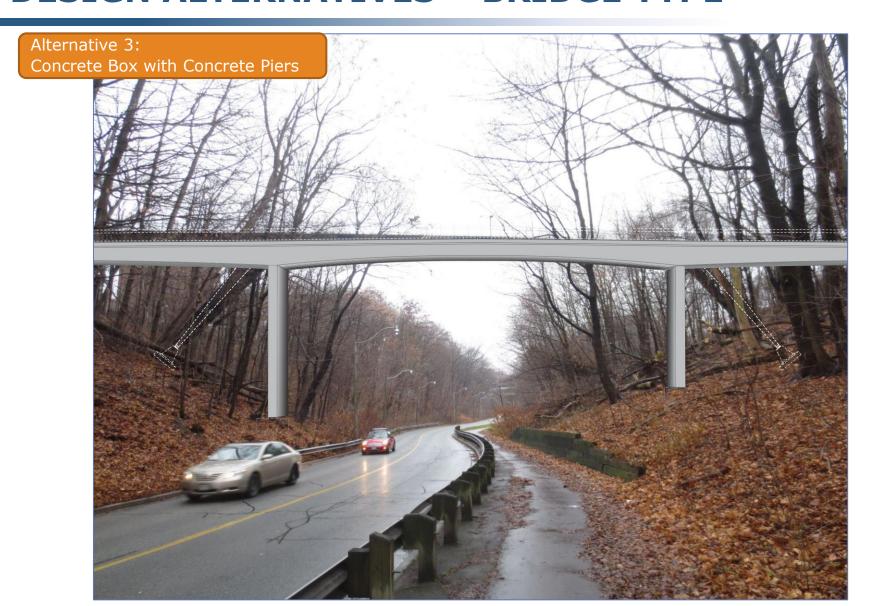


## **DESIGN ALTERNATIVES - BRIDGE TYPE**





## **DESIGN ALTERNATIVES - BRIDGE TYPE**





## **DESIGN ALTERNATIVES - BRIDGE EVALUATION**

#### Criteria

#### Alternative 1 Steel Girders with Inclined Steel Legs

#### Alternative 2 **Steel Girders with Concrete Piers**

#### Alternative 3 **Concrete Box with Concrete Piers**

Conventional construction method, but requires

significant cast-in-place concrete formwork.

**Bridge Engineering** 

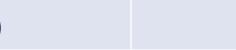
**Cultural Heritage** 

HERITAGE

- Complex bridge design and construction method.
- Increased access complexity of steel legs during construction on valley slopes.

and location, and view from Rosedale Valley.

✓ Maintains heritage value of bridge connection.



- ✓ Conventional bridge design and construction method.
- ✓ Relatively easier access of concrete piers during construction.



- \* Bridge type not sympathetic to the cultural heritage value of the existing bridge type or view from Rosedale Valley.
- ✓ Maintains heritage value of bridge connection.



Relatively easier access of concrete piers, but additional

Bridge type not sympathetic to the cultural heritage value of the existing bridge type or view from Rosedale Valley.

✓ Maintains heritage value of bridge connection.





**Natural Environment** 

 Permanent impacts to valley vegetation limited at new bridge footings; similar for all alternatives.

✓ Bridge type sympathetic to the cultural heritage value of

the existing bridge by maintaining the existing bridge type

➤ Temporary impacts to valley vegetation from larger construction area relatively moderate due to complex design.



✓ Temporary impacts to valley vegetation from construction relatively less, due to conventional construction methods.



construction area relatively high, due to more complex design and staging.

➤ Temporary impacts to valley vegetation from larger

bridge footings; similar for all alternatives.



- ✓ No permanent property impacts.
- × Temporary disruption to adjacent properties due to construction methods; largely in valley.
- ✓ No permanent property impacts.
- Temporary disruption to adjacent properties due to construction methods; largely in valley.



- ✓ No permanent property impacts.
- \* Additional temporary impacts to adjacent properties for additional staging of on-site fabrication; largely in valley.
- × Potentially longer disruption due to construction duration.



**Urban Design** 



- ✓ All alternatives provide opportunity to improve lighting and materials of the bridge.
- ✓ All alternatives provide additional opportunity for aesthetic details to the bridge girders and legs.



- Capital cost for structure: \$7.9 M
- Total life cycle maintenance: \$1.0M

- Capital cost for structure: \$6.1 M
- Total life cycle maintenance: \$0.9

- Capital cost for structure: \$6.8
- Total life cycle maintenance: \$0.3

**Evaluation** Summary

Recommended

**Not Recommended** 

**Not Recommended** 















Three tunnel widening alternatives were generated for evaluation, as shown here.

Existing Tunnel

Tunnel Alternative







Alternative A:

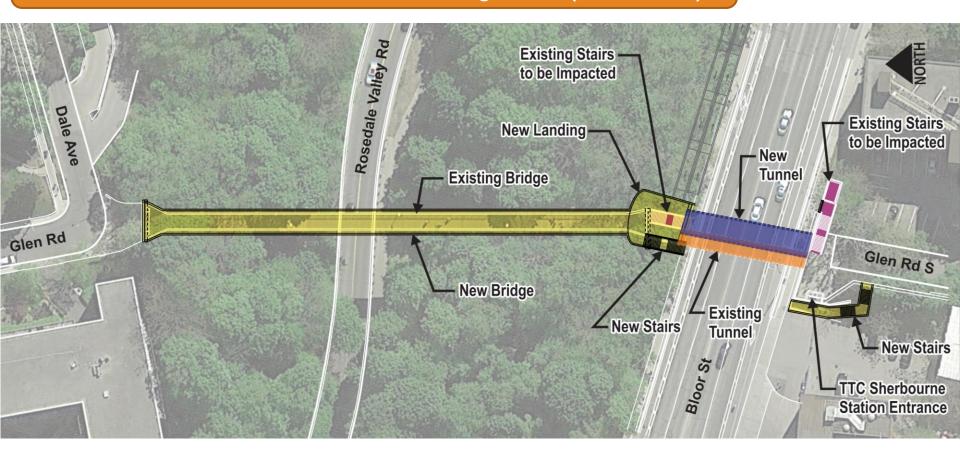
Reconstruct and Widen Tunnel to the West





Alternative B:

Reconstruct Tunnel to Match Glen Road Alignment (to the East)





Alternative C:

Reconstruct Tunnel on New Alignment with Bridge





## **DESIGN ALTERNATIVES - TUNNEL ASSESSMENT**

#### Alternative B Alternative A Alternative C Criteria Reconstruct and Widen Tunnel to the West Reconstruct Tunnel to Match Glen Road **Reconstruct Tunnel on New Alignment with** Alignment (to the East) **Bridge** Socio-Economic ✓ Some temporary disturbance to adjacent properties during ✓ Less temporary disturbance to adjacent properties during \* Additional temporary disturbance to adjacent properties **Environment** construction of tunnel. during construction as staircases also need to be construction of tunnel. ✓ Improved sightlines providing natural surveillance. reconstructed north and south of Bloor Street. x Improved sightlines, but creates areas with poor visibility on north side of tunnel limiting effectiveness of natural \* Reduces sightlines limiting effectiveness of natural surveillance. surveillance. **Transportation** ✓ Addresses existing and provides for future active ✓ Addresses existing and provides for future active ✓ Addresses existing and provides for future active **Planning** transportation needs. transportation needs. transportation needs. ✓ Maintains network connectivity. ✓ Maintains network connectivity. Maintains network connectivity; but creates jog between ✓ Does not impact existing staircases. Impacts existing accesses north and south of Bloor Street; staircase and bridge. ✓ Does not impact existing staircases. and requires new accesses. **Natural Environment** ➤ Some natural impacts around north tunnel entrance with \* Additional natural impacts around north tunnel entrance \* Additional natural impacts around replacement of bridge due to new alignment of bridge and tunnel. additional landing area. with larger landing area, new staircase, and new alignment. **Structural** ✓ Minimal impacts to existing utilities (gas). \* Higher potential impact to utilities on east side of tunnel ✓ Minimal impacts to existing utilities (gas). Engineering ✓ Conventional construction and staging methods. Medium complexity of construction and staging replacing (sanitary, Bell, gas). ➤ More complex construction and staging methods to also tunnel on new alignment. replace staircases. ✓ All alternatives provide potential for enhanced aesthetic improvements to the new and wider tunnel and approaches. **Urban Design** Cost • Tunnel reconstruction - \$4.16 M Tunnel reconstruction - \$5.10 M Tunnel reconstruction on new alignment - \$5.10 M \* Additional cost for new staircases and alternate access to Bloor Street. **Evaluation** Recommended **Not Recommended Not Recommended Summary**



## **BRIDGE & TUNNEL RECOMMENDED DESIGN**

Based on the results of the EA Study and technical analysis completed to date, the preliminary recommendations are to:

- Replace the bridge in the same location with a steel girder incline leg bridge type, and
- Replace and the widen the tunnel to the west.

#### These recommendations will:

- Maintain the cultural heritage value of the unique bridge design, crossing, and view from Rosedale Valley.
- Improve natural surveillance around the tunnel with improved sightlines, lighting, and redesign of accesses.
- Add capacity for future growth in active transportation.
- Enhance aesthetics of the bridge and tunnel and redesign the approaches.









## STUDIES, IMPACTS & MITIGATION

Potential Effects and Proposed Mitigation					
Natural Environment     Vegetation     Wildlife	<ul> <li>Construction will require the removal of trees and other vegetation under and adjacent to the bridge.</li> <li>All work will be completed in compliance with applicable legislation, in consultation with appropriate authorities.</li> </ul>				
	Landscape plan, including tree replacement, will be developed in detail design.				
Cultural Environment	Cultural Heritage Assessment Report and Recommendation was completed for the bridge. During detail design and prior to construction:				
	<ul> <li>The new bridge (i.e., railings, lighting) should be designed to reflect the original materials and context, and to be sympathetic to the built heritage value.</li> </ul>				
	<ul> <li>A photographic and historical record of the existing bridge will be completed and supplied to City of Toronto Archives, Reference Library, and other heritage associations deemed necessary.</li> </ul>				
Construction Impacts and Mitigation	Temporary impacts include air quality, noise, bridge and tunnel access and lane closures for staging areas and temporary work zones.				
	<ul> <li>Best management practices will be used to minimize dust emissions and noise; activities will be conducted in accordance with City noise by-laws.</li> </ul>				
	A traffic management plan will be developed to minimize impacts to road users.				
	Existing mural on south side tunnel approach will be impacted and the existing planter with plaque at the north approach of the bridge will be temporarily removed.				
	The potential to retain the mural and replace the planter will be reviewed in detail design.				
	No permanent property impacts.				







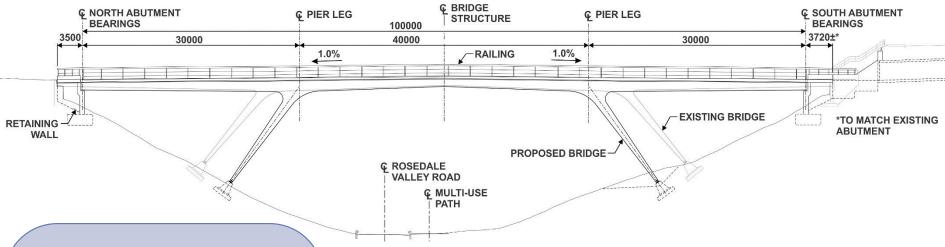




# PRELIMINARY PREFERRED DESIGN & NEXT STEPS

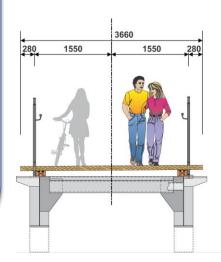
Phase 3

## **BRIDGE & TUNNEL ELEVATION & CROSS-SECTION**

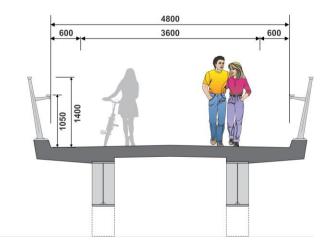


- The cross-section was developed based on the Toronto Multi-Use Trail Design Guidelines.
- A 4.8m cross-section is proposed as the bridge and tunnel are considered a High-Capacity Trail based on the various types of users, volume, and adjacent destinations including the TTC entrance.
- Designated for pedestrian use only.
- Maintaining existing requirement for cyclists to dismount on bridge and through tunnel.

#### **Existing Bridge**

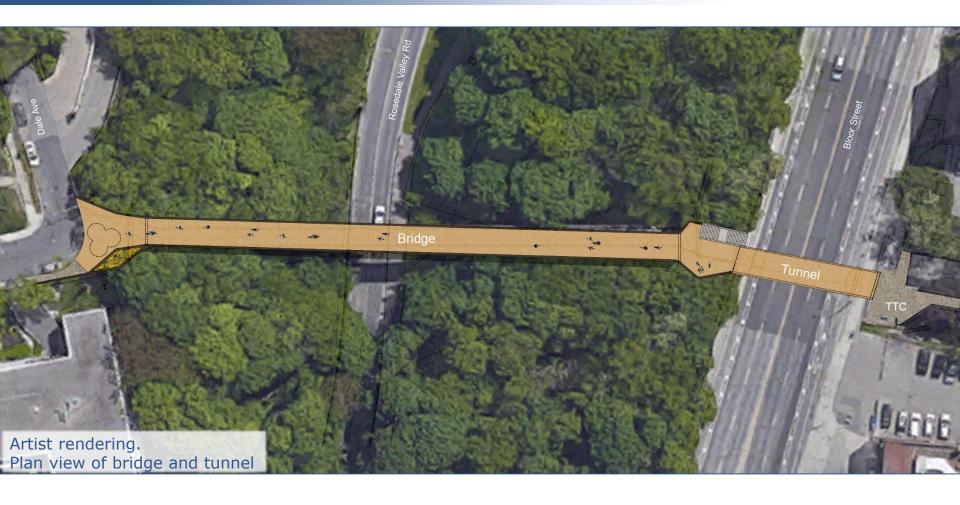


# Proposed Width of Bridge and Tunnel

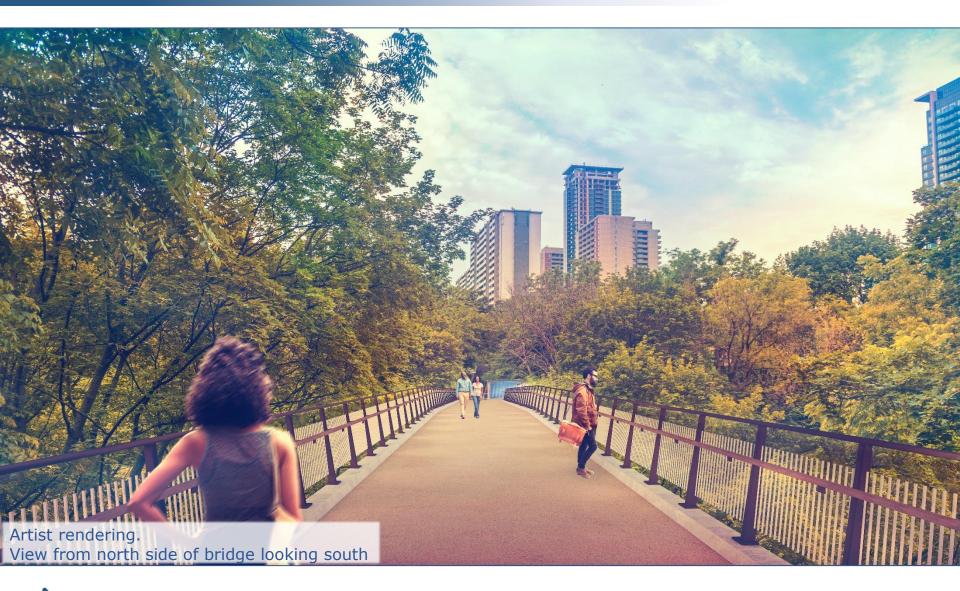




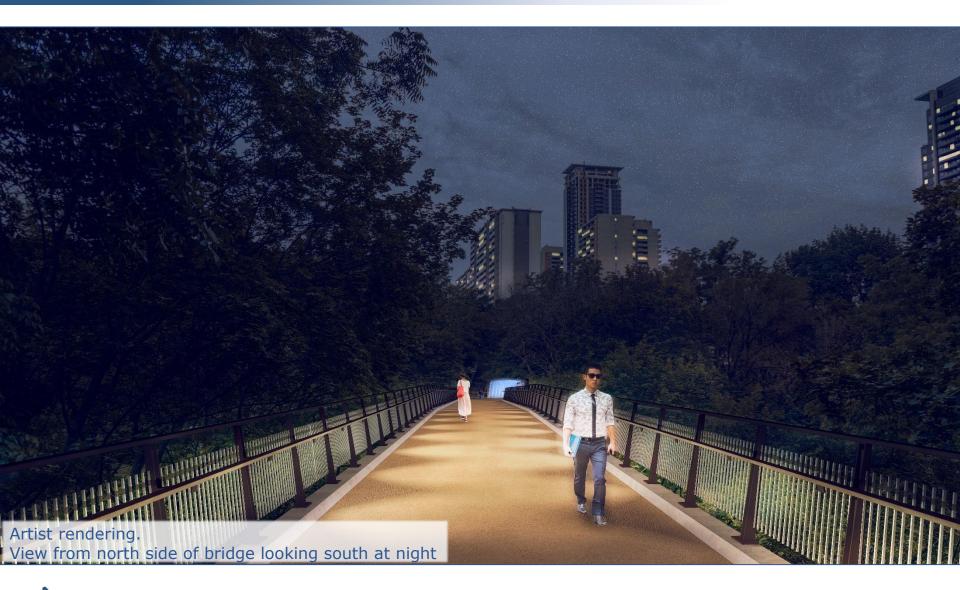
## **RECOMMENDED PREFERRED PLAN**



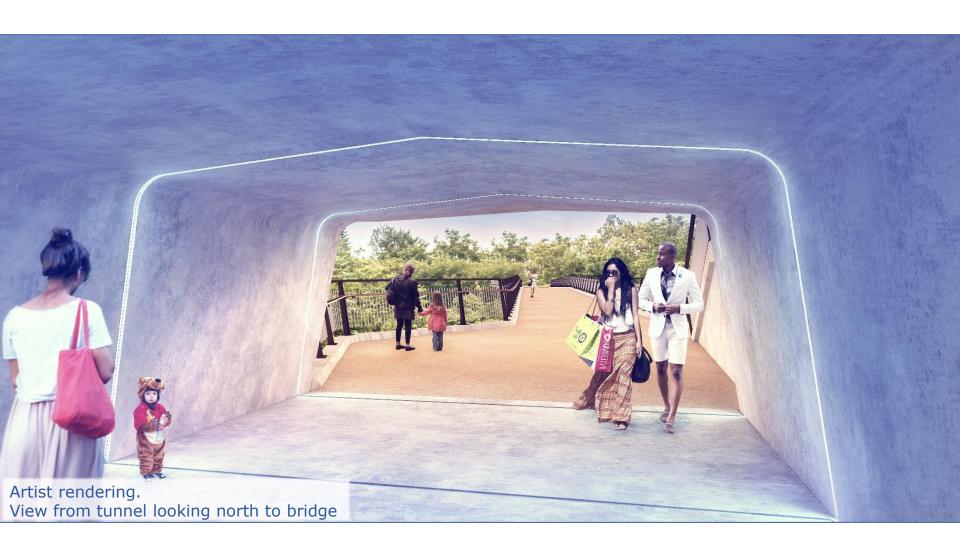


















#### **DETAIL DESIGN ELEMENTS**

- Some elements of the bridge and tunnel design will be considered during the next phase of design (Detail Design), such as:
  - Specific colouring of bridge and tunnel
  - Bridge materials including deck, railing, illumination poles
  - Tunnel wall finishes
  - Urban design/illumination in the tunnel and entrance areas
  - Public art
- Additional consultation will be conducted during the Detail Design phase.







## **NEXT STEPS**

#### Following this PIC the Project Team will:

- Review comments received from the public
- Present to the Toronto Preservation Board:
  - Fall 2017
- Confirm the preferred design of bridge and tunnel, and finalize the Environmental Study Report (ESR)
  - Fall 2017
- Make ESR available for a 30-day public review
  - Late Fall 2017

#### **Following this Environmental Assessment:**

 Detail design and construction, including additional public consultation, will be undertaken following completion of this EA study, subject to available funding.

#### How to get involved?

Provide your feedback now, using the online form!

#### **Contact Information:**

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Your comments are welcome at any time throughout the project. However, we ask that you provide your feedback with respect to the PIC 2 materials by November 7, 2017.

# Thank you!

Your involvement is essential to the success of this study.

toronto.ca/glen-rd-ped-bridge

