



TTC-TWRC Waterfront Transit Environmental Assessments – *East Bayfront*

Summary Report on EA Public Workshop 2

June 21, 2007



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1. STUDY DESCRIPTION

The Toronto Transit Commission (TTC), under the auspices of Waterfront Toronto, has initiated an Environmental Assessment to identify the required transit infrastructure to support approved planned future development in the East Bayfront precinct of Toronto's Eastern Waterfront. The process to select the preferred alternative for providing future transit service in this area requires the completion of an Individual Environmental Assessment (EA). As the first step of the undertaking, the TTC and Waterfront Toronto have recently completed a Terms of Reference (ToR) for the EA study. The ToR was submitted to the Ministry of the Environment on July 14, 2006 and approved by the Minister of the Environment on January 24, 2007.

The purpose of this EA study is to determine the transit facilities appropriate to serve the long-term residential, employment, tourism, and waterfront access needs in the study area while achieving the City's and Waterfront Toronto's objectives for land use, design, and environmental excellence. Transit in the East Bayfront precinct will be interconnected with future transit services in the neighbouring West Don Lands and Port Lands precincts. Together, these three precincts will support an area-wide transit network linking the Eastern Waterfront with the downtown core, the subway system, the existing TTC surface routes, the GO inter-regional commuter rail/bus network, and the VIA Rail inter-city rail system.

2. CONSULTATION TO DATE

Terms of Reference (March 2006 to July 2006)

- Four Community Liaison Committee (CLC) meetings
- Two Public Workshops
- First Nations and Technical Advisory Committee (TAC) input

EA Study – Planning Alternatives Stage (September 2006 to date)

- Five East Bayfront CLC meetings
- Two TAC meetings
- One Public Workshop (March 28, 2007)

3. PURPOSE OF THIS WORKSHOP

This workshop was the second of four public forums planned for this EA study. The purpose of this workshop was to discuss the following:

- The assessment of alternative transit technologies and related recommendations regarding the use of streetcar or bus for providing transit service along Queens Quay East and north to Union Station

- Potential locations for transit vehicles travelling to/from Queens Quay East to enter the existing Bay Street tunnel and connect to the Union Station loop. These locations will be assessed in detail at the next stage of the study

Workshop attendees were invited to provide their input on these topics and the Project Team's recommendations.

4. DATE, TIME, LOCATION

This workshop was held as noted below:

Date: Thursday, June 21, 2007
Time: 6:00 p.m. to 9:00 p.m.
Location: The Champaign Room
Novotel Hotel
45 The Esplanade
Toronto, ON

5. PUBLIC NOTIFICATION

A notice of the workshop was advertised in the Toronto Star on Thursday, June 7, 2007 (**Appendix A**). A postcard invitation to the workshop was also distributed to over 9000 condo units along the Central Waterfront from Stadium Road to Cherry Street. In addition, an email notification was sent to over 4000 contacts on the project's general mailing list (**Appendix B**).

6. PROJECT TEAM ATTENDANCE

The following representatives from Waterfront Toronto, the TTC, City of Toronto, and the consultant team were in attendance to answer questions and discuss the study with workshop attendees:

Toronto Transit Commission

Name	Role	Department
Bill Dawson	Superintendent of Route and System Planning	Service Planning

Waterfront Toronto

Name	Role	Department/Organization
Pina Mallozzi	Project Manager (East Bayfront Transit	Planning and Design

Name	Role	Department/Organization
	EA)	
Pino DiMascio	Project Manager	Urban Strategies Inc.
Andrea Kelemen	Assistant	Communications and Marketing

City of Toronto

Name	Role	Department
Tim Laspa	Program Manager	Transportation Planning

Consultant Team

Name	Role	Organization
Dennis Callan	Consultant Project Manager	McCormick Rankin Corporation
Hank Wang	Consultant Staff	McCormick Rankin Corporation
Alun Lloyd	Traffic Analysis	BA Group Consulting
Brent Raymond	Urban Design	du Toit Allsopp Hillier

7. PUBLIC WORKSHOP FORMAT

The workshop was held as an open house between 6:00 p.m. and 6:45 pm. during which attendees reviewed project display panels and discussed the study with members of the Project Team. Attendees were asked to sign-in at the front desk. An example of the sign-in sheet is in **Appendix C**. A total of 52 people chose to sign-in. Each attendee was given a copy of the Workshop Discussion Guide and a Workshop Workbook (**Appendix D**). Attendees could use the workbook to provide their comments to the Project Team.

A formal presentation was made by Waterfront Toronto, the TTC, and the Consultant between 6:45 p.m. and 7:45 p.m. A 15-minute Question and Answer period was provided at the end of the presentation for attendees to raise any points of clarification pertaining to the contents of the presentation.

Following the formal presentation, attendees were invited to participate in breakout group discussions. The session provided an opportunity for attendees to discuss their views on the Project Team's recommendations and provide their input to the team. Each group was provided with a workbook to document a summary of their discussions. Participants were also encouraged to fill out their own workbook independently should they wish to share their own views and comments with the Project Team. The session ran from 8:00 p.m. to 8:45 p.m. and

was followed by a 15-minute summary period. Each group was invited to share the highlights of their discussions with other participants and with members of the Project Team.

The workshop adjourned at 9:00 p.m.

8. DISPLAY MATERIALS

In addition to the Project Team's PowerPoint presentation, a series of display panels (**Appendix E**) were created for the workshop. The display panels provided a key summary of the Project Team's analysis and recommendation on transit technology and portal alternatives. The display panels were as follows:

- EA Public Workshop 2 – *Welcome*
- Study Area
- Approved Central Waterfront Secondary Plan
- Long Range Population & Employment Forecast
- Study Process
- Alternative Technologies
- Alternative Technologies (Bus Service Reliability Issues)
- Alternative Technologies (Tunnel Widening Required to Accommodate Buses)
- Alternative Technologies (Recommendation)
- Alternative Technologies (Assessment)
- Alternative Technologies (Evaluation)
- Tunnel Portal Alternatives
- Next Steps

9. PRESENTATION AND DISCUSSIONS

A copy of the formal presentation can be found in **Appendix F**. The following is an abstract of the proceedings reflecting the comments of each speaker:

Glenn Pothier, GLPi

G. Pothier introduced himself as the Independent Meeting Facilitator for the public workshop and introduced key members of the Project Team. He provided an overview of the workshop agenda and confirmed the discussion items. He informed participants of the format for the evening's discussions and introduced a list of guiding principles to help facilitate a successful evening.

Pina Mallozzi, Waterfront Toronto

P. Mallozzi welcomed participants to the second EA public workshop of this study. She noted that Waterfront Toronto is in support of the initiative led by the Toronto Transit

Commission and expressed enthusiasm for the progress to date. She reminded participants of the importance of bringing higher-order transit into the East Bayfront area to help shape the community into a sustainable and environmentally-friendly neighbourhood.

Bill Dawson, Toronto Transit Commission (TTC)

B. Dawson reminded attendees that three sets of Terms of Reference were approved by the Minister of the Environment to plan for future transit services in the Eastern Waterfront precincts: the East Bayfront, the West Don Lands, and the Port Lands. He provided a high-level overview of the interrelationship between the East Bayfront Transit EA and other concurrent studies, namely the West Don Lands Transit EA, the design of the Central Waterfront public realm, the Don Mouth Naturalization EA, and the design of the Lower Don Lands. He thanked Waterfront Toronto for supporting the City’s ‘Transit First’ policy.

Dennis Callan, McCormick Rankin Corporation (MRC)

D. Callan reviewed the Project Team’s recommendations at the previous Public Workshop, which resulted in the selection of transit in a dedicated right-of-way along Queens Quay East as the preferred option for providing transit service in the East Bayfront area. He presented the Project Team’s assessment on the community-suggested ‘shuttle’ connection between Union Station and Queens Quay, and concluded that the ‘shuttle’ is not a viable connection alternative. D. Callan presented the key findings from the Project Team’s analysis on bus and streetcar/LRV which led to streetcar/LRV being recommended as the preferred transit technology. He ended the presentation with an overview of the recommended portal alternatives to be assessed in more detail at the next step.

Following the presentation, G. Pothier invited attendees to raise any question of fact or clarification pertaining to the contents of the presentation. The following table contains a summary of questions/comments from the attendees and responses from the Project Team.

ID #	Question	Project Team Response
1	(RE: Proposed Union Station loop expansion) What is the level of the new streetcar platforms relative to the subway platforms?	The new streetcar platforms will be at the same level as the subway platforms.
2	In your analysis, did you compare the life cycle costs of streetcar versus bus?	The Project Team did not carry the analysis to that level of detail since the assessment on transportation objectives shows that the bus option is not a viable alternative to streetcar.
3	The Project Team seems to have a lot of confidence in the ridership forecast.	Yes, but keep in mind that the demands due to population and employment growth may materialize within the next 30, 40, or 50 years depending on how fast or slow the waterfront becomes fully developed.

ID #	Question	Project Team Response
		The Project Team is planning for a long-term, fully-built scenario of the entire waterfront.
4	(RE: Proposed Union Station loop expansion) Will there be the same number of loading areas as today or will there be multiple loading/unloading areas at the platforms? If you can fit multiple buses at the platform and allow them to load simultaneously, than the problems with buses will be solved.	You can certainly organize buses into platoons – as they do today in Ottawa – but platoons are difficult to organize and they are not the preferred way of operating a bus service. More importantly, in order to provide the required level of service (i.e. 54 buses per hour at 67-second headways), you would have to provide these buses the ability to bypass one another inside the terminal. This is not possible even with an expanded Union Station loop.
5	With streetcar, will you be doing what they do today on Queen Street, i.e. operating streetcars below the speed limit?	Operating streetcars in mixed traffic is not the preferred way for transit to compete with cars in a congested roadway, and it is not what the Project Team recommends for this study. The average speed along a dedicated right-of-way will be higher than the average speed in a mixed-traffic environment.
6	(RE: Proposed Union Station loop expansion) Is there room both at the east platform and the west platform to build a passing track?	No, as is the case that there is no room for buses to bypass one another at either platform.
7	Was the extension of the Yonge subway line down to Queens Quay ever considered by the Project Team as an alternative to streetcar and bus?	Subway was ruled out early on during the Terms of Reference stage as the forecast demands and the high costs neither warrant nor justify the capacity that would be provided by a subway.

10. SUMMARY OF GROUP DISCUSSIONS

Following the presentation and the Questions & Answers period, attendees were invited to participate in breakout group discussions as described in Section 7. It was noted that a number of attendees chose not to participate in these discussions. Those attendees who chose to participate formed groups of approximately 6 to 8 people. A total of 4 groups were formed. The following sections contain a summary of their written comments as provided in their workbooks (**Appendix G**).

10.1 QUESTION 1

What are your views on **Streetcar/Light Rail Vehicle (LRV) being recommended as the preferred technology** for providing transit service to the East Bayfront? (Please identify perceived strengths, weaknesses, and questions)

Strengths

Participants were in agreement with streetcar/LRV in a dedicated right-of-way as the preferred technology for providing transit service along Queens Quay East. Overall, participants recognized that streetcar/LRV can provide the capacity to accommodate the forecast demands and will offer a more reliable service compared to bus. Other perceived strengths listed by the participants are as follows:

- System consistency
- Don't have to widen the tunnel
- Less set up costs
- Cost effective
- Can platoon due to streetcar design (2, 3, or 4 cars)
- Patrons prefer streetcars
- Low rise for entry/exit

Weaknesses

Track obstruction due to vehicle breakdown and the inability to bypass on the same track were identified by participants as inherent weaknesses of the streetcar/LRV technology. Streetcar is also perceived by some to be slower than bus. Noise, vibration, and its dependence on electricity from the grid were also identified as perceived weaknesses.

Questions

ID #	Question (as provided)	Project Team Response
1	What happens if ridership increases due to (1) Port Lands and (2) dismantling of the Gardiner?	Future ridership growth as a result of development of the Port Lands has been accounted for in the City's travel demand forecast model. The ridership projection derived from the City's model assumes a fully-built, fully-developed waterfront as per the City's land-use policies/designations contained in the Official Plan. Although studies have been done on the future of Gardiner Expressway, there are no plans to demolish the expressway in the foreseeable future.
2	How does this integrate with Port Lands and Don Lands studies?	As part of the development of design alternatives the Project Team will examine possible connection opportunities at Cherry Street. Ultimately, there will be an opportunity to connect Queens Quay East to Cherry Street north to the West Don Lands and south to the Port Lands.
3	Where is the eastern most loop?	In the short term, an interim loop may be located at Small Street. Ultimately, it will be possible to operate

ID #	Question (as provided)	Project Team Response
		streetcars along Queens Quay East and continue north or south via Cherry Street.

10.2 QUESTION 2

What are your views on each of the following alternatives as a potential location for streetcar/LRV traveling to/from Queens Quay East to enter the existing Bay Street tunnel and connect to the Union Station Loop? (Please identify perceived strengths, weaknesses, and questions)

- a. Bay Street between Lake Shore Boulevard and Harbour Street
- b. Bay Street between Harbour Street and Queens Quay
- c. Queens Quay between Bay Street and Yonge Street
- d. Queens Quay between Yonge Street and Freeland Street
- e. Queens Quay between Freeland Street and Cooper Street

Strengths

Participants held various views on potential portal locations. Based on the comments received, there was considerable support for each of the following scenarios:

(1) Portal on Bay Street

- No portal(s) on Queens Quay
- Visually more attractive
- More appreciation of the waterfront
- Better for passenger pickup/drop-off on street

(2) Portals on Queens Quay

- Best for transfer when travelling east-west or west-east and not wanting to go to Union (tourists)
- Fewer underground stations [Alternative 'C' in particular]
- Might be cost effective as a station is below

(3) Keep streetcars on the surface

- Potential for some of the cars to go north into the city
- Serves GO terminal better
- More attractive ride
- Much cheaper

Weaknesses

Similar to the question on perceived strengths, participants held different views on the perceived weaknesses:

(1) Portal on Bay Street

- Costly
- Disruptive
- Not wide enough for two lanes of traffic
- Will cause traffic problems during construction

(2) Portals on Queens Quay

There were some concerns over the perceived impact of Alternatives ‘D’ and ‘E’ on the existing LCBO facilities on Queens Quay East:

- May disrupt the LCBO at Queens Quay and Cooper Street (Canada’s largest liquor store, \$40 M in sales, 1 million plus visits per year).
- Careful consideration needed to ensure that licensees and customers can enter and exit

Questions

ID #	Question (as provided)	Project Team Response
1	Will there be stations underground?	Decisions on the existing station at Queens Quay/Ferry Docks, as well as the need for an additional underground station, are dependent on the location of the preferred portal(s).

10.3 OTHER COMMENTS

One group suggested that the Yonge/University subway line should be extended south to Queens Quay. Another group noted the significant turning movements generated by the existing LCBO and Canada Post facilities on Queens Quay East between Freeland and Cooper streets. The same group also suggested that the Project Team should consider locating the streetcar/LRV tracks on the south side of the Queens Quay right-of-way.

11. INDIVIDUAL COMMENT SHEETS RECEIVED AT WORKSHOP

In addition to their participation during the group discussions, four workshop attendees filled-out and submitted an individual workbook – though none of the workbooks was fully completed. The comments are generally similar to those received during the workshop discussion. The original comments as received can be found in **Appendix H**.

12. POST-WORKSHOP COMMENTS

No comments were received during the two-week commenting period following the workshop.

13. NEXT STEPS

Based on the recommendations presented at this workshop, the Project Team will proceed to: (1) detailed analysis on the short-listed portal alternatives, and (2) developing and screening Queens Quay East design alternatives. The next public workshop has been tentatively planned for early fall of 2007 to present the preferred portal location and the short-listed design alternatives for Queens Quay East. Recommendation on the preferred Queens Quay East design alternative will be presented at the forth public workshop tentatively planned for the late fall of 2007. The Project Team will continue the on-going consultation process with the Community Liaison Committee to obtain their input on the development, assessment, and evaluation of design alternatives. Consultation with the Technical Advisory Committee will also occur at key milestones.

APPENDIX A

Newspaper Notice of Workshop



WATERFRONToronto



Toronto Transit
Commission

Notice of Public Workshop #2 TTC-TWRC Waterfront Transit Environmental Assessment East Bayfront (June 21, 2007)

The Toronto Transit Commission (TTC) and Waterfront Toronto invite the public to attend the **second** workshop for the EA Phase of the TTC-TWRC Waterfront Transit Environmental Assessment - East Bayfront. The purpose of this study is to identify the required transit infrastructure to serve future waterfront development in the East Bayfront area.

The study is being planned to meet the requirements of the *Ontario Environmental Assessment Act* and is being undertaken in accordance with the planning process identified in the Terms of Reference of this EA. The Terms of Reference were approved by the Ontario Minister of the Environment on January 24, 2007.

The first public workshop of the study was held on March 28, 2007 which resulted in the selection of transit in a dedicated right-of-way along Queens Quay East as the preferred option for providing transit service in the East Bayfront area. As part of the environmental assessment process, a second Public Workshop is being held on June 21, 2007 to discuss the following:

- Assessment of alternative transit technologies and recommendations regarding the use of streetcar or bus for providing transit service along Queens Quay East and north to Union Station.
- Potential locations for transit vehicles traveling to and from Queens Quay East to enter the existing Bay Street tunnel to Union Station. These locations will be assessed in detail at the next stage of the study.

Date: Tuesday June 21, 2007
Location: Novotel Hotel, 45 The Esplanade
Time: 6:00 p.m. to 9:00 p.m.

Doors will open at 6:00 p.m. for review of project display panels. Presentation will begin at 6:45 p.m. followed by a workshop discussion session.

We encourage your participation at this workshop and look forward to your attendance. If you wish to receive additional information about the study, be included on the project mailing list, or provide input at any point during the study, please contact either of the following:

Bill Dawson
Project Manager
TTC-TWRC Transit EA Projects
Toronto Transit Commission
transit@waterfrontoronto.ca
416-393-4490

Andrea Kelemen
Communications &
Marketing Department
Waterfront Toronto
transit@waterfrontoronto.ca
416-214-1344

Please visit our Website at <http://www.waterfrontoronto.ca> under "Current Projects"

APPENDIX B

Postcard Invitation and Email Notification

East Bayfront Transit EA

Public Information Workshop II
Thursday, June 21, 2007
6:00 p.m. – 9:00 p.m.
(Presentation at 6:45 p.m.)

Novotel Hotel
(Champagne Ballroom)
45 The Esplanade, Toronto

www.WATERFRONToronto.ca



Waterfront Toronto, in partnership with the Toronto Transit Commission, is undertaking an environmental assessment study of the transit services needed to serve future waterfront development in the East Bayfront area. The study area extends from west of York Street to east of Cherry Street. The first public workshop of the study was held on March 28, 2007 which resulted in the selection of transit in a dedicated right-of-way along Queens Quay East as the preferred option for providing transit service in the East Bayfront area. As part of the environmental assessment process, a second Public Workshop is being held on June 21, 2007 to discuss the following:

- Assessment of alternative transit technologies and recommendations regarding the use of streetcars or buses for providing transit service along Queens Quay East and north to Union Station.
- Potential locations for transit vehicles traveling to and from Queens Quay East to enter the existing Bay Street tunnel to Union Station. These locations will be assessed in detail at the next stage of the study.

As a waterfront resident, we are interested in hearing your views and want to keep you informed about this project. To be added to our mailing list or to receive public workshop notices, please contact us at:

(P) 416-214-9990, (F) 416-214-4591, (E) transit@waterfronttoronto.ca



Wang, Hank

From: Andrea Kelemen [AKelemen@waterfrontoronto.ca]
Sent: Tuesday, June 19, 2007 4:24 PM
To: Wang, Hank
Subject: Notice of Public Workshop #2 for the East Bayfront Waterfront Transit EA (June 21, 2007)



Notice of Public Workshop #2 for the East Bayfront Waterfront Transit EA

June 21, 2007

The Toronto Transit Commission (TTC) and Waterfront Toronto invite the public to attend the **second** workshop for the EA Phase of the TTC-TWRC Waterfront Transit Environmental Assessment - East Bayfront. The purpose of this study is to identify the required transit infrastructure to serve future waterfront development in the East Bayfront area.

The study is being planned to meet the requirements of the *Ontario Environmental Assessment Act* and is being undertaken in accordance with the planning process identified in the Terms of Reference of this EA. The Terms of Reference were approved by the Ontario Minister of the Environment on January 24, 2007.

The first public workshop of the study was held on March 28, 2007 which resulted in the selection of transit in a dedicated right-of-way along Queens Quay East as the preferred option for providing transit service in the East Bayfront area. As part of the environmental assessment process, a second Public Workshop is being held on June 21, 2007 to discuss the following:

- Assessment of alternative transit technologies and recommendations regarding the use of streetcar or bus for providing transit service along Queens Quay East and north to Union Station.
- Potential locations for transit vehicles traveling to and from Queens Quay East to enter the existing Bay Street tunnel to Union Station. These locations will be assessed in detail at the next stage of the study.

Date: Thursday, June 21, 2007
Location: Novotel Hotel, 45 The Esplanade
Room: Champagne Ballroom
Time: 6:00 p.m. to 9:00 p.m.

Doors will open at 6:00 p.m. for review of project display panels. Presentation will begin at 6:45 p.m. followed by a workshop.

We encourage your participation at this workshop and look forward to your attendance. If you wish to receive additional information included on the project mailing list, or provide input at any point during the study, please contact either of the following:

Bill Dawson

6/19/2007

Project Manager
 TTC-TWRC Transit EA Projects
 Andrea Kelemen
 Communications & Marketing Department
 Waterfront Toronto
 transit@waterfrontoronto.ca
 416-214-1344

Please visit our Website at <http://www.waterfrontoronto.ca/> under "Current Projects".

To unsubscribe from our newsletter please click [here](#).



6/19/2007

APPENDIX C

Sign-In Sheets

APPENDIX D

Workbook



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TTC-TWRC Waterfront Transit Environmental Assessment *East Bayfront*

Workshop Discussion Guide

June 21/07

Please follow these simple steps to maximize the value of your small group discussion:

- Appoint someone to chair your table's discussion (don't be shy, volunteer your services!).
- Appoint someone to share your discussion highlights with the larger group following the breakout exercise.
- Appoint someone to record (bullet-style) the highlights of your discussion in the workbook provided (this should probably be the person who will report back to the larger group). Each table will submit that workbook summarizing their input.
- Before starting the group discussion on each question, personally reflect on the topic and note your responses in your own workbook — this will help facilitate more meaningful group dialogue and idea exchange.
- As a group, answer the workbook questions (make sure you leave enough time to discuss all of the topics!).
- For **each** question, first quickly map-out the range of ideas and comments that are surfaced, then identify the most common points/themes and essential information you would like to convey in plenary to the larger group. Also make note of any less broadly held views that are unique and interesting.

Some helpful hints:

- Participate enthusiastically.
- Accept that there may not be consensus on all topics (agree to disagree and be respectful of different points of view) — and then move on.
- Make your points quickly and concisely — be mindful of the time.
- Build on what others say, don't duplicate.
- Contact the workshop facilitator or a Project Team member if you need help.



**TTC-TWRC
Waterfront Transit Environmental
Assessments – *East Bayfront***

EA Public Workshop #2

Novotel Hotel
45 The Esplanade

June 21, 2007

Workbook

What's Inside...

Meeting Agenda
Worksheets
Comment Form

TTC-TWRC Waterfront Transit EAs – East Bayfront EA Public Workshop 2

June 21, 2007 – 6:00 p.m. to 9:00 p.m.
Novotel Hotel
45 The Esplanade

MEETING AGENDA

6:00 – 6:45 p.m. **Registration/Display Board Review**

6:45 – 8:00 p.m. **Welcome and Presentation**

Glenn Pothier, GLPi
"Introduction, Study Guide, and Workbook"

Pina Mallozzi, Waterfront Toronto
Bill Dawson, Toronto Transit Commission
"Welcome and Context Setting"

Dennis Callan, McCormick Rankin Corporation
"Presentation of Recommended Transit Technology and Portal Options"

8:00 – 8:45 p.m. **Workshop Discussion Groups**

Participants will be given time to go through questions in the workbook about the recommended transit technology as well as potential portal locations to be analyzed further at the next stage of this study. At your table, please discuss your responses and consolidate common themes and unique or creative ideas in the workbook provided.

8:45 – 9:00 p.m. **Summary of Discussions**

Glenn Pothier, GLPi

Next Steps and Closing Remarks

Bill Dawson, Toronto Transit Commission

QUESTION 1:

What are your views on **Streetcar/Light Rail Vehicle (LRV)** being recommended as the **preferred technology** for providing transit service to the East Bayfront? (Please identify perceived strengths, weaknesses, and questions)

1

Queens Quay East Service to Union Station

- Required headways (Queens Quay East):
 - Streetcars: 35 veh/hr = 1 car every 106 seconds
 - Buses: 54 veh/hr = 1 bus every 67 seconds

Note: Shortest existing headways on the TTC system:

- 39 Finch East bus: 1 bus every 90 seconds at TTC Finch Bus Terminal
- 510 Spadina streetcar: 1 car every 113 seconds at Spadina Station

2

Service Reliability

- 54 buses during peak hour arriving at east side Union Station platform, resulting in a short headway (67 sec) and a short (7 sec) gap between buses
- A peak hour gap of only 7 seconds between buses will result in a high probability of platooning and delay at Union Station and along the entire line creating an unreliable transit service
- Shortest bus headway on any TTC route today is 90 seconds (Finch East – Yonge to Don Mills) but at the TTC Finch Bus Terminal these buses have multiple bus loading bays and can pass each other.
- Conclusion** - Not possible to reliably provide this level of service using buses in the underground tunnel/loop

3

Lawrence Bus Terminal

- TTC's narrowest bus tunnel
 - Approx 4.5 m per lane at the narrowest point
 - Poor bus operation (slow speed and difficult to maneuver)

4

Bay Street Tunnel

- Bay Street tunnel would require widening and paving in order to accommodate buses
- For a desirable bus operation, tunnel lane has to be wider than 4.5 m plus extra width for an evacuation catwalk

5

Technology Assessment Summary

- Buses cannot adequately accommodate the forecast passenger demands
- Required short bus headways will result in low service reliability – not possible in practice to maintain reliable bus service operation
- Significantly more expensive than streetcar due to the need to both widen/rebuild and pave the entire Bay Street tunnel to support bus operation
- Lack of network continuity/connectivity with the Harbourfront streetcar to the west and the future West Don Lands streetcar to the north-east

6

Technology Selection

Objectives	Streetcar	Bus
Land Use	●	○
Transportation	●	○
Socio-Economic	●	●
Natural	●	○
Cultural	●	○
Cost	●	○
OVERALL	●	○

Question 1

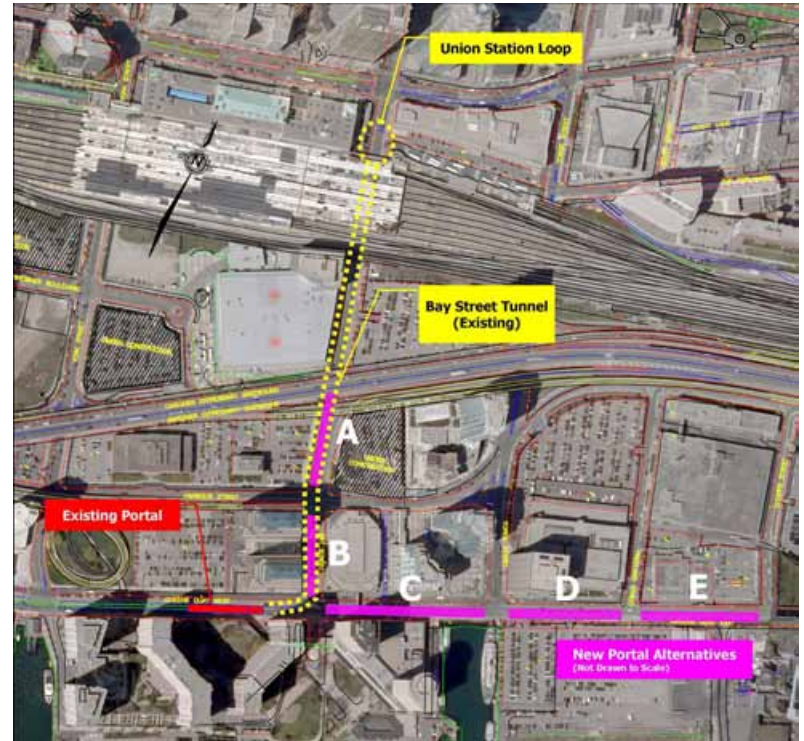
Strengths:

Weaknesses:

Questions:

QUESTION 2:

What are your views on each of the following alternatives as a potential location for streetcar/LRV traveling to/from Queens Quay East to enter the existing Bay Street tunnel and connect to the Union Station Loop? (Please identify perceived strengths, weaknesses, and questions)



- | | |
|---------------------------------------------------------------|----------------------------------------------------------|
| A. Bay Street between Lake Shore Boulevard and Harbour Street | C. Queens Quay between Bay Street and Yonge Street |
| B. Bay Street between Harbour Street and Queens Quay | D. Queens Quay between Yonge Street and Freeland Street |
| | E. Queens Quay between Freeland Street and Cooper Street |

Question 2

STRENGTHS

Alternative 'A':

Alternative 'B':

Alternative 'C':

Alternative 'D':

Alternative 'E':

Question 2

WEAKNESSES

Alternative 'A':

Alternative 'B':

Alternative 'C':

Alternative 'D':

Alternative 'E':

OTHER GENERAL COMMENTS

Please Print

Name:

Email:

Address:

Thank you for your participation. Comments and information regarding this study are being collected solely for the purpose of conducting the environmental assessment. **With the exception of personal information**, all comments will become part of the public record.

Please return your workbook at the end of tonight's workshop

You may also email, mail, or fax your comments by Wednesday, July 5, 2007 to:

Andrea Kelemen
Communications and Marketing Department
Waterfront Toronto
20 Bay Street, Suite 1310
Toronto, Ontario
M5J 2N8
Tel: (416) 214-1344
Fax: (416) 214-4591
E-mail: transit@waterfronttoronto.ca

APPENDIX E

Display Panels

Welcome to the

East Bayfront Transit Environmental Assessment

EA Public Workshop 2

June 21, 2007
6:00 p.m. to 9:00 p.m.

Please Sign-In at the Front Desk

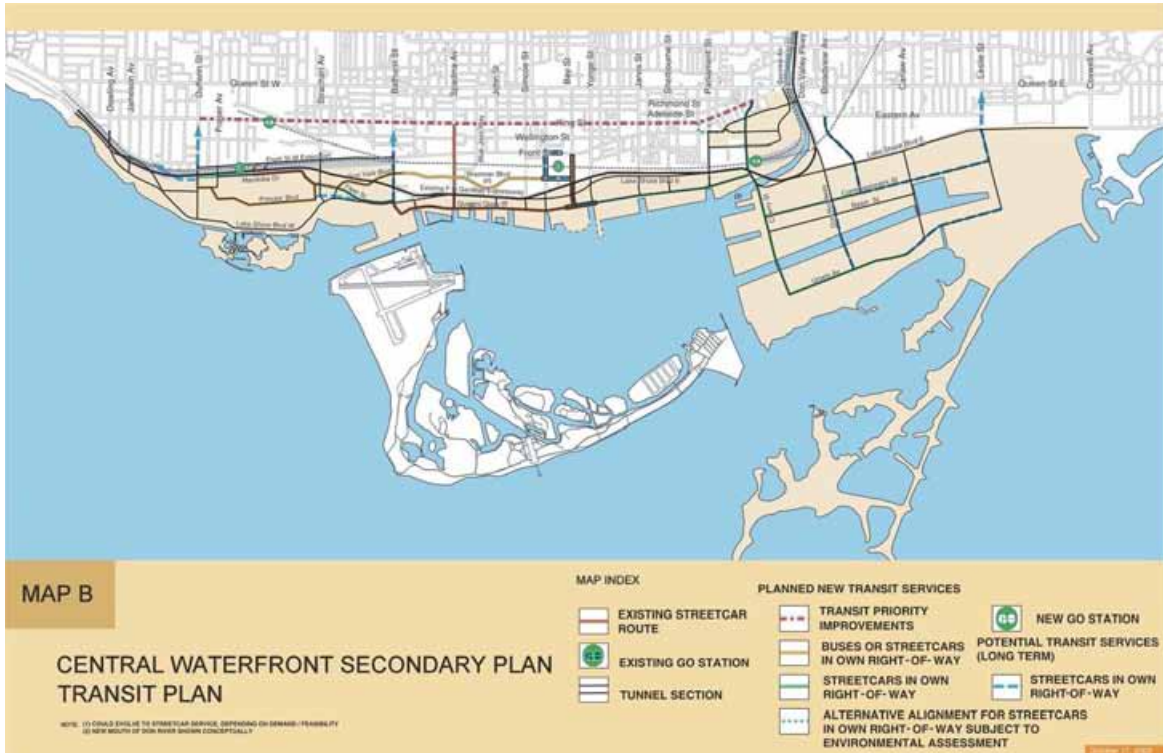


Study Area

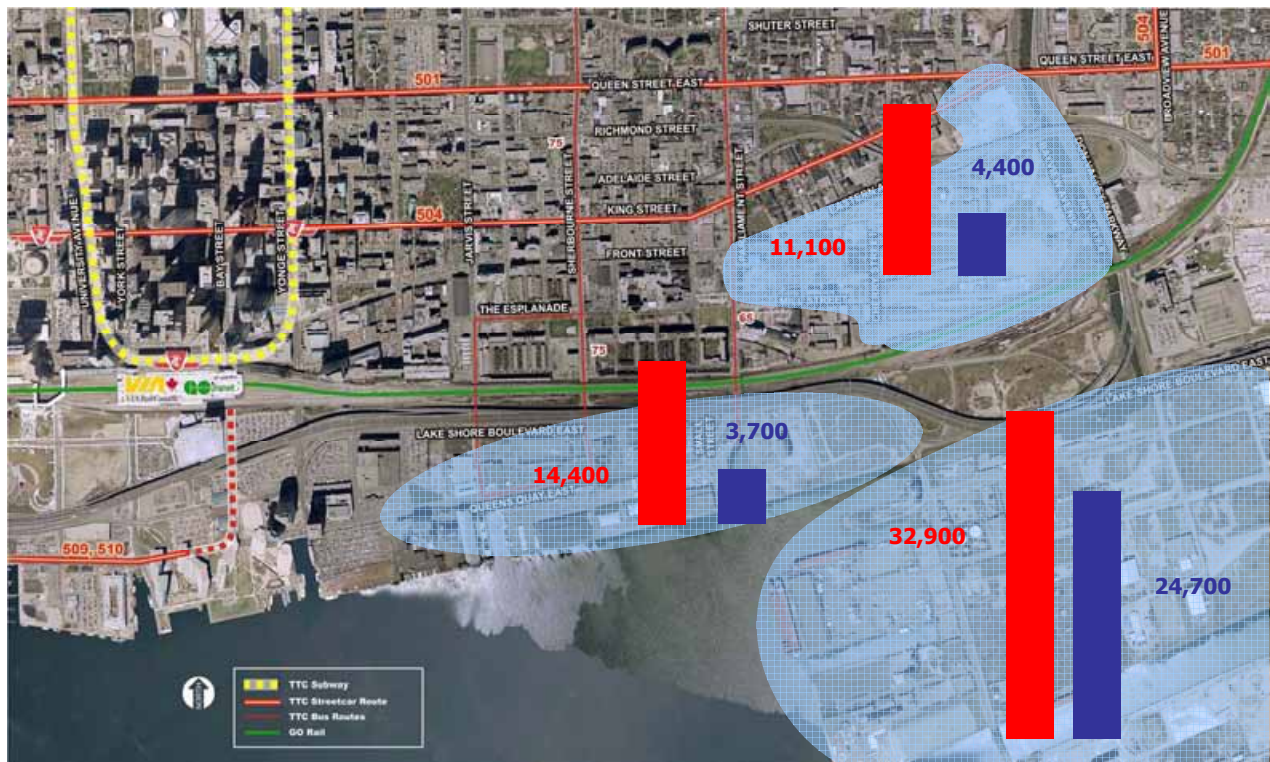
Purpose: *To determine the transit facilities appropriate to serve the long term residential, employment, tourism and waterfront access needs in the study area while achieving the City's and Waterfront Toronto's objectives for land use, design and environmental excellence.*



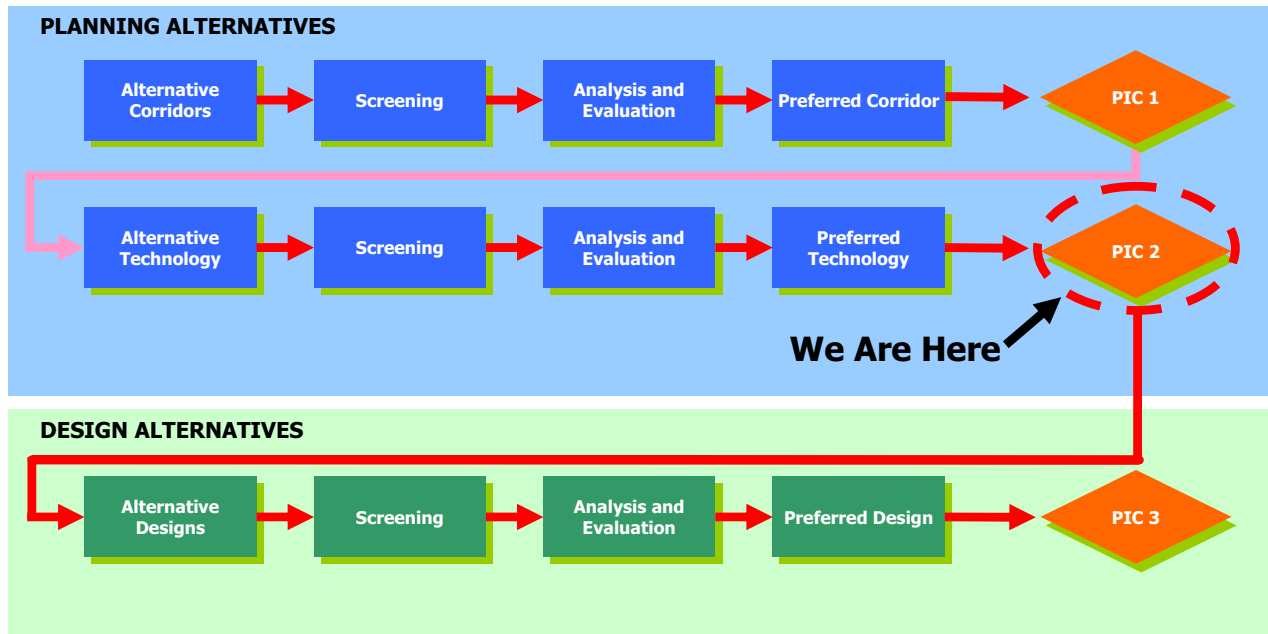
Approved Central Waterfront Secondary Plan



Long Range Population & Employment Forecast



Study Process



Alternative Technologies



Streetcar/LRV in Dedicated Right-of-Way



Bus in Dedicated Right-of-Way



A.M. Peak Hour Ridership Forecast (Full Built-Out Scenario for the Waterfront)

Vehicle Assumptions

- To handle the forecast demands we are assuming
- 18 m buses (articulated) or
 - 28 to 29 m new streetcar/LRV

Propulsion

- Streetcar – electric
- Buses – clean diesel, hybrid, fuel-cell, trolley

Vehicle Service Loads

- Articulated bus – 80 passengers/vehicle
- New streetcar/LRV – 125 passengers/vehicle

Alternative Technologies (Bus Service Reliability Issues)

Queens Quay East Service to Union Station

Required headways (Queens Quay East), without vehicles passing:

- Streetcars: 35 veh/hr = 1 car every 106 seconds
- Buses: 54 veh/hr = 1 bus every 67 seconds

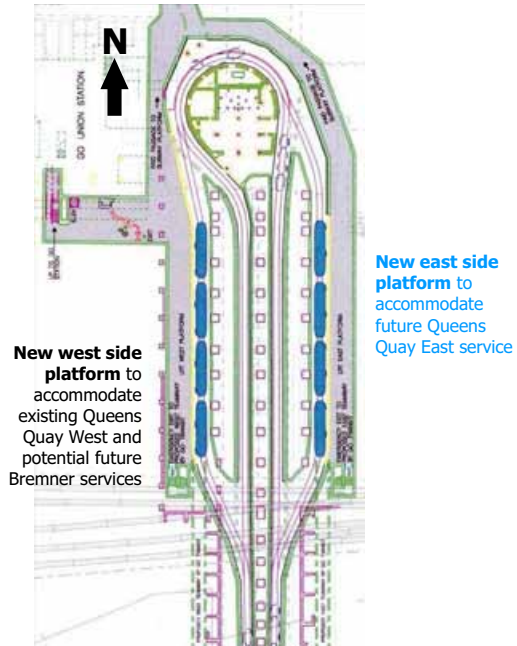
Note: shortest existing peak hour bus headways on the TTC system:

- 39 Finch East bus: 1 bus every 90 seconds at TTC Finch Bus Terminal (achieved because the buses can pass each other inside the terminal and on the street)

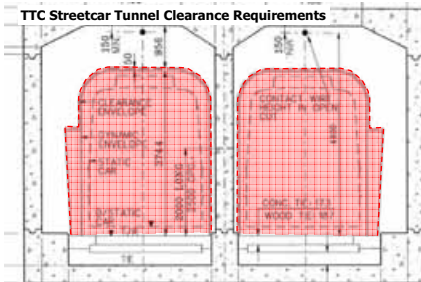
Service Reliability

- 54 buses during peak hour arriving at **east side Union Station platform**, resulting in a short headway (67 sec) and a short (7 sec) gap between buses
- A peak hour gap of only 7 seconds between buses will result in a high probability of platooning and delay at Union Station and along the entire line creating an unreliable transit service
- Shortest bus headway on any TTC route today is 90 seconds (Finch East – Yonge to Don Mills) but at the TTC Finch Bus Terminal these buses have multiple bus loading bays and can pass each other.
- **Conclusion** - Not possible to reliably provide this level of service using **buses** in the underground tunnel/loop

Proposed Union Station Loop Expansion (Concept)



Alternative Technologies (Tunnel Widening Required to Accommodate Buses)



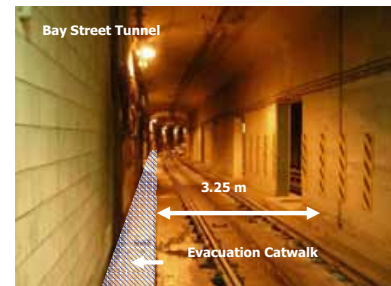
Tunnel Clearance

- Streetcars and Buses are the same width (2.59 m excluding mirrors)
- Existing streetcar tunnel is 3.25 m driving width plus .665 m clearance for evacuation (includes open vehicle door)
- Buses require extra width for manoeuvrability



Lawrence Bus Terminal Tunnel

- TTC's narrowest bus tunnel
- Approx 4.5 m per lane at the narrowest point
- Poor bus operation (slow speed and difficult to manoeuvre)



Bay Street Tunnel

- Bay Street tunnel would require widening and paving in order to accommodate buses
- For a desirable bus operation, tunnel lane has to be wider than 4.5 m plus extra width for an evacuation catwalk

Cost of Tunnel Widening

- Cost of widening/reconstructing the existing tunnel will be comparable to building a whole new tunnel
- Approx. length of tunnel requiring widening/reconstruction – 500 m
- Estimated costs of tunnel widening/reconstruction – \$40 M to \$50 M

Alternative Technologies (Recommendation)

Technology Assessment Summary

- Buses cannot adequately accommodate the forecast passenger demands
- The required short bus headways will result in low service reliability – not possible in practice to maintain a reliable bus operation
- Significantly more expensive than streetcar due to the need to widen/rebuild and pave the entire Bay Street Tunnel to support bus operation
- Lack of network continuity/connectivity with the Harbourfront LRT to the west and the future West Don Lands streetcar to the north-east.

Technology Conclusion

- **Streetcar/LRV selected as the Preferred Technology**
- Carried forward in conjunction with assessment/evaluation of portals and ROW design for Queens Quay East

Technology Selection Summary

(Please see the following panels for the complete tables)

OBJECTIVES	STREETCAR	BUS
Land Use Key Indicators: the ability to accommodate the forecast transit demands	●	●
Transportation Key Indicators: the extent to which an alternative maximizes non-auto modal split; the ability to provide an attractive transit service trips to and from the study area, and provide flexibility and adaptability for future expansion	●	○
Socio-Economic Key Indicators: the extent to which an alternative minimizes noise and vibration adverse effects after construction	●	●
Natural	Not a Determining Factor	Not a Determining Factor
Cultural	Not a Determining Factor	Not a Determining Factor
Cost Key Indicators: the extent to which an alternative minimizes construction, capital, and operating costs	●	●
OVERALL	●	○



Alternative Technologies (Assessment)

Objective	Criteria	Indicators	Measure	OPTION 1: Dedicated LRV/ Streetcar ROW w/way	OPTION 2: Lane in Dedicated Right-of-Way	Discussion
A) Lane Use	A.1) Lane expansion/employment growth in the study area	A.1.1) Require future road and transit capacity requirements for forecast development	Ability to accommodate forecast transit demand (and non-transit vehicle)	Yes	Less than streetcar	Bus has a lower capability to accommodate the forecast transit demand
	A.2) City, TTC and Provincial Policies	A.2.1) Support the City's Central Waterfront Secondary Plan (CSP) and East Bayfront City Centre Plan (EBCP) A.2.2) Support the TTC's Priority Transit and Sustainability Framework (PTSF)	How structure and lane use issues will respond to existing regional and/or existing local policies	Yes	Yes	
	A.3) Support Provincial growth management plans, policies, and objectives	A.3.1) Support Provincial growth management plans, policies, and objectives	Ability to reduce vehicle on open and protected bikeway, cycling, and walking - PGP Section 3.2.2.20	Yes	Yes	Both options are considered an efficient form of higher order transit, both options support higher-order transit objectives
	A.4) Support Provincial growth management plans, policies, and objectives	A.4.1) Support Provincial growth management plans, policies, and objectives	Ability to reduce vehicle on open and protected bikeway, cycling, and walking - PGP Section 3.2.2.20	Yes	Yes	Both options are considered an efficient form of higher order transit, both options support higher-order transit objectives
B) Transportation	B.1) Auto Dependence	B.1.1) Minimize non-auto transit (streetcar and trolley) modal split for trips to and within the study area	Not a determining factor	Not a determining factor	Not a determining factor	
B.2) Transit	B.2.1) Provide structure transit service (see table)	B.2.1.1) Provide structure transit service (see table)	Contradict with the existing Harbourfront LRT	Yes	None	Streetcar/LRV from the Eastern Waterfront could travel through to the Western Waterfront via the existing Harbourfront LRT along Queens Quay Street
B.2.2) Provide structure transit service (see table)	B.2.2.1) Provide structure transit service (see table)	B.2.2.1.1) Provide structure transit service (see table)	Contradict with the future Cherry Street trolley	Yes	None	The ability to provide a continuous service from Union Station to the future Don Lands, King Street, Brimley Avenue, and beyond via existing and future transit facilities
B.2.3) Provide structure transit service (see table)	B.2.3.1) Provide structure transit service (see table)	B.2.3.1.1) Provide structure transit service (see table)	Highway between vehicles from East Bayfront entering Union Station	115 seconds	67 seconds	Bus has a lower passenger capacity, requires larger number of vehicles compared to streetcar to carry the same passenger volume, hence shorter headways
B.2.4) Provide structure transit service (see table)	B.2.4.1) Provide structure transit service (see table)	B.2.4.1.1) Provide structure transit service (see table)	Gap between vehicles from East Bayfront entering Union Station	40 seconds	7 seconds	Based on headway and an assumed headway of 60 seconds at Union Station. Gap is the time difference between the first vehicle leaving the specific area and the following vehicle already at the platform area
B.3) Minimize operation and employment costs (see table)	B.3.1) Minimize operation and employment costs (see table)	B.3.1.1) Minimize operation and employment costs (see table)	Provision for providing street services to the Western Waterfront and provide further east	High	Low	Consistency with respect to the existing Harbourfront LRT, future Western Waterfront LRT extension, and the existing Queenway
B.4) Provide flexibility and adaptability for changing and expansion by providing opportunities for existing and future connections	B.4.1) Provide flexibility and adaptability for changing and expansion by providing opportunities for existing and future connections	B.4.1.1) Provide flexibility and adaptability for changing and expansion by providing opportunities for existing and future connections	Ability to provide street services to the east via Cherry Street and Brimley Avenue	High	Low	Adaptability with respect to the future Cherry Street structure and the existing transit facilities on King Street and Brimley Avenue
B.5) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	B.5.1) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	B.5.1.1) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	Ability to provide street services to the study area	High	Low	Streetcar/LRV offers greater flexibility and adaptability for existing and additional transit needs in the future
B.6) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	B.6.1) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	B.6.1.1) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	Ability to provide street services to the study area	High	Low	Both options provide services (beyond the study area). However, bus option provide services (beyond the study area) via streetcar connection to the study area via streetcar (see table) and bus (see table)
B.7) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	B.7.1) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	B.7.1.1) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	Ability to provide street services to the study area	High	Low	Both options provide services (beyond the study area) via streetcar connection to the study area via streetcar (see table) and bus (see table)
B.8) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	B.8.1) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	B.8.1.1) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	Ability to provide street services to the study area	High	Low	Both options provide services (beyond the study area) via streetcar connection to the study area via streetcar (see table) and bus (see table)
B.9) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	B.9.1) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	B.9.1.1) Provide for transit facilities linking to and from the study area that are not best suited for location in the study area	Ability to provide street services to the study area	High	Low	Both options provide services (beyond the study area) via streetcar connection to the study area via streetcar (see table) and bus (see table)

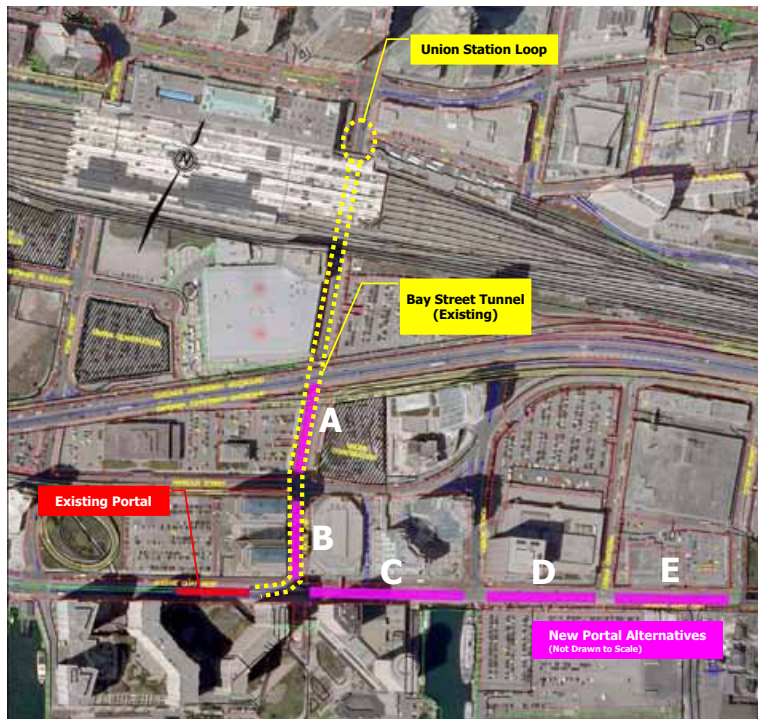
Objective	Criteria	Indicators	Measure	OPTION 1: Dedicated LRV/ Streetcar ROW w/way	OPTION 2: Lane in Dedicated Right-of-Way	Discussion
C) Noise and Vibration	C.1) Minimize noise and vibration adverse effects after construction	C.1.1) Minimize noise and vibration adverse effects after construction	Reduction of through road capacity for roads?	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	C.1.2) Minimize noise and vibration adverse effects after construction	C.1.2.1) Minimize noise and vibration adverse effects after construction	Reduction of through road capacity for roads?	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	C.1.3) Minimize noise and vibration adverse effects after construction	C.1.3.1) Minimize noise and vibration adverse effects after construction	Reduction of through road capacity for roads?	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	C.1.4) Minimize noise and vibration adverse effects after construction	C.1.4.1) Minimize noise and vibration adverse effects after construction	Reduction of through road capacity for roads?	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
D) Air Quality	D.1) Minimize air quality adverse effects after construction	D.1.1) Minimize air quality adverse effects after construction	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	D.1.2) Minimize air quality adverse effects after construction	D.1.2.1) Minimize air quality adverse effects after construction	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	D.1.3) Minimize air quality adverse effects after construction	D.1.3.1) Minimize air quality adverse effects after construction	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	D.1.4) Minimize air quality adverse effects after construction	D.1.4.1) Minimize air quality adverse effects after construction	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
E) Cultural	E.1) Minimize cultural heritage adverse effects after construction	E.1.1) Minimize cultural heritage adverse effects after construction	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	E.1.2) Minimize cultural heritage adverse effects after construction	E.1.2.1) Minimize cultural heritage adverse effects after construction	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	E.1.3) Minimize cultural heritage adverse effects after construction	E.1.3.1) Minimize cultural heritage adverse effects after construction	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	E.1.4) Minimize cultural heritage adverse effects after construction	E.1.4.1) Minimize cultural heritage adverse effects after construction	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
F) Cost	F.1) Minimize construction costs	F.1.1) Minimize construction costs	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	F.1.2) Minimize construction costs	F.1.2.1) Minimize construction costs	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	F.1.3) Minimize construction costs	F.1.3.1) Minimize construction costs	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	F.1.4) Minimize construction costs	F.1.4.1) Minimize construction costs	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
G) Property Acquisition	G.1) Minimize property acquisition costs	G.1.1) Minimize property acquisition costs	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	G.1.2) Minimize property acquisition costs	G.1.2.1) Minimize property acquisition costs	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	G.1.3) Minimize property acquisition costs	G.1.3.1) Minimize property acquisition costs	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	G.1.4) Minimize property acquisition costs	G.1.4.1) Minimize property acquisition costs	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
H) Operating Costs	H.1) Minimize operating costs	H.1.1) Minimize operating costs	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	H.1.2) Minimize operating costs	H.1.2.1) Minimize operating costs	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	H.1.3) Minimize operating costs	H.1.3.1) Minimize operating costs	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width
	H.1.4) Minimize operating costs	H.1.4.1) Minimize operating costs	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width	Yes	Yes	Provision of dedicated transit ROW would reduce the number of lanes available to private vehicles, within a given ROW width

Alternative Technologies (Evaluation)

Objectives	Criteria	Indicators	Measure	OPTION 1: Streetcar/RTV in Dedicated Right-of-Way	OPTION 2: RTV in Dedicated Right-of-Way	Discussion	
A) Land Use	A.1) Local population employment growth in the study area	A.1.1) Support future land use and transit capacity requirements for transit development.	Ability to accommodate forecast transit demand (peak and non-peak periods)	●	○	Not a determining factor	
	A.2) City, Transit and Provincial Policies	A.2.1) Support the City's Centre Waterfront Community Plan (CP) and East Bayfront Class EA Master Plan objectives.	How transit and other bus routes will be able to enhance right-of-way on existing streets (SP Policy No. 1)	●	●		
		A.2.2) Support the TTC's Transit Plan and Accessibility Performance (AP)	Consistency with the East Bayfront Transit Plan	●	●		
	A.3) Support Provincial growth management (peak, policies, and objectives)	A.3.1) Reduce reliance on cars and promote transit, cycling, and walking - POP Section 12.2 (TRM)	Reduced reliance on cars and promote transit, cycling, and walking - POP Section 12.2 (TRM)	●	●	Equal attractiveness to development/performance	
		A.3.2) Support Provincial growth management (peak, policies, and objectives)	Ability to reduce reliance on cars and promote transit, cycling, and walking - POP Section 12.2 (TRM)	●	●	Both options are considered an efficient form of higher-order transit. Both options support higher-order transit objectives.	
	Summary for Land Use						
	● ○ Not a determining factor						
	B) Transportation	B.1) Auto Dependence	B.1.1) Maximize non-auto transit, pedestrian and cycling modes split for trips to and within the study area	Not a determining factor	●	○	Not a determining factor
		B.2) Transit	B.2.1) Provides attractive transit service (see metrics)	Conforms with the existing Harbourfront LRT	●	○	Not a determining factor
			B.2.2) Provides attractive transit service (see metrics)	Conforms with the future Cherry Street Streetcar	●	○	Not a determining factor
B.3) Mass transit population and employment within 300m of station		B.3.1) Mass transit population and employment within 300m of station	Provision for providing direct services to the Western Waterfront and other further east	●	○	Not a determining factor	
		B.3.2) Mass transit population and employment within 300m of station	Provision for providing direct connections to the East Bayfront and other further east	●	○	Not a determining factor	
B.4) Provides health and safety for people and expansion by providing opportunities for existing and future connections		B.4.1) Provides health and safety for people and expansion by providing opportunities for existing and future connections	Provision for providing direct connections to the East Bayfront and other further east	●	○	Not a determining factor	
		B.4.2) Provides health and safety for people and expansion by providing opportunities for existing and future connections	Provision for providing direct connections to the East Bayfront and other further east	●	○	Not a determining factor	
B.5) Vehicle		B.5.1) Provides for local access (see metrics)	Provision for local access (see metrics)	○	○	Not a determining factor	
		B.5.2) Provides for local access (see metrics)	Provision for local access (see metrics)	○	○	Not a determining factor	
Summary for Transportation							
● ○ Not a determining factor							

Objective	Criteria	Indicators	Measure	OPTION 1: Streetcar/RTV in Dedicated Right-of-Way	OPTION 2: RTV in Dedicated Right-of-Way	Discussion	
C) Socio-Economic Environment	C.1) Accessible and safe for all through the study area	C.1.1) Minimize through-street travel on local streets	Reduction of through-street travel on local streets	○	○	Provision of dedicated transit RTV would reduce the number of lanes available to provide vehicles, unless a green RTV wide.	
	C.2) Transit and other modes	C.2.1) Provide transit stop access to	Not a determining factor	●	○	Not a determining factor	
		C.2.2) Affects existing properties	Not a determining factor	●	○	Not a determining factor	
	C.3) Encourage commercial activity	C.3.1) Affects existing properties	Not a determining factor	●	○	Not a determining factor	
		C.3.2) Encourage commercial activity	Attractiveness to development/performance	●	○	Equal attractiveness to development/performance	
	C.4) Affects existing properties	C.4.1) Affects existing properties	Not a determining factor	●	○	Not a determining factor	
		C.4.2) Affects existing properties	Not a determining factor	●	○	Not a determining factor	
	C.5) Affects existing properties	C.5.1) Affects existing properties	Not a determining factor	●	○	Not a determining factor	
		C.5.2) Affects existing properties	Not a determining factor	●	○	Not a determining factor	
	C.6) Existing and future properties	C.6.1) Affects existing properties	Not a determining factor	●	○	Not a determining factor	
C.6.2) Affects existing properties		Not a determining factor	●	○	Not a determining factor		
Summary for Socio-Economic Environment							
● ○ Not a determining factor							
D) Natural Environment	D.1) Air Quality	D.1.1) Minimize adverse effects to Air Quality	Annual total emission of greenhouse gas pollutants and other pollutants (grams/VKT)	●	○	Comparing streetcar/RTV with hydrogen fuel cell bus and trolley bus	
	D.2) Noise	D.2.1) Minimize adverse effects to Noise	Ability to improve transit modal split - based on attractiveness to potential new users	●	○	Exclusion RTV would allow transit vehicles to operate without restrictions from low-noise vehicles, thereby providing a faster and more reliable service.	
		D.2.2) Minimize adverse effects to Noise	Ability to improve transit modal split - based on attractiveness to potential new users	●	○	Exclusion RTV would allow transit vehicles to operate without restrictions from low-noise vehicles, thereby providing a faster and more reliable service.	
	Summary for Natural Environment						
	NDF NDF						
	E) Culture Environment	E.1) Built Heritage Features	E.1.1) Minimize built heritage impacts	Not a determining factor	●	○	Not a determining factor
		E.2) Cultural Landmarks	E.2.1) Minimize adverse effects to Cultural Landmarks	Not a determining factor	●	○	Not a determining factor
			E.2.2) Minimize adverse effects to Cultural Landmarks	Not a determining factor	●	○	Not a determining factor
		E.3) Archaeological Resources	E.3.1) Minimize archaeological impacts	Not a determining factor	●	○	Not a determining factor
			E.3.2) Minimize archaeological impacts	Not a determining factor	●	○	Not a determining factor
Summary for Cultural Environment							
NDF NDF							
F) Cost		F.1) Capital costs	F.1.1) Minimize construction costs	Relative comparison of costs associated with potential capital expenditures in the Union Station Loop to accommodate existing service as well as the proposed transit operations	●	○	Option 2 requires more infrastructure than Option 1 due to the higher frequency (higher arrival rate) - may require larger platform
		F.2) Operating costs	F.2.1) Minimize operating costs	Relative comparison of infrastructure costs (total line construction, track and overhead wire)	●	○	One Streetcar would require widening in order to accommodate
			F.2.2) Minimize operating costs	Relative comparison of infrastructure costs (total line construction, track and overhead wire)	●	○	Streetcar has a higher infrastructure costs due to track work and overhead wire
	F.3) Property acquisition	F.3.1) Minimize property acquisition	Relative comparison of estimated capital cost required	●	○	Not a determining factor	
		F.3.2) Minimize property acquisition	Relative comparison of estimated capital cost required	●	○	Not a determining factor	
	F.4) Operating costs	F.4.1) Minimize the net operating cost	Operating cost per seat-kilometer	●	○	Not a determining factor	
		F.4.2) Minimize the net operating cost	Operating cost per seat-kilometer	●	○	Not a determining factor	
	Summary for Cost						
	● ○ Not a determining factor						
	OVERALL						
● ○ Not a determining factor							

Tunnel Portal Alternatives



A long-list of alternatives was considered as potential locations for streetcars from Queens Quay East to enter the Bay Street Tunnel and access the Union Station loop. A screening assessment was undertaken which resulted in two alternatives (York Street and Yonge Street) screened out from further consideration.

The following alternatives will be carried forward for further assessment:

Bay Street Alternatives:

- 'A' – between Lake Shore Boulevard and Harbour Street
- 'B' – between Harbour Street and Queens Quay Boulevard

Queens Quay Alternatives:

- 'C' – between Bay Street and Yonge Street
- 'D' – between Yonge Street and Freeland Street
- 'E' – between Freeland Street and Cooper Street

Next Steps

- Receive comments from the public
- Conduct detail analysis of short-listed portal options
- Select the preferred portal location and develop Queens Quay East design alternatives
- Assess and evaluate Queens Quay East design alternatives with the Community Liaison Committee and the Technical Advisory Committee
- Hold a third public workshop in Fall 2007 to present the assessment of design alternatives and the recommendation on the Preferred Alternative for Queens Quay East

