



ACTION REQUIRED

Date: July 11, 2016

Subject: Waterfront Transit Network Vision – Phase 1

Attached for the consideration of the TTC Board is Executive Committee Item 16.17 “Waterfront Transit Network Vision – Phase 1” which was adopted by the Executive Committee at its meeting on June 28, 2016.

Original signed by

Vincent Rodo
Chief Financial &
Administration Officer

Attachment

Waterfront Transit Network Vision – Phase 1

<http://www.toronto.ca/legdocs/mmis/2016/ex/bgrd/backgroundfile-94287.pdf>

Appendix 1 – Planning History for Waterfront Transit

<http://www.toronto.ca/legdocs/mmis/2016/ex/bgrd/backgroundfile-94534.pdf>

Appendix 2 – Waterfront Transit Feeling congested? Evaluation Framework

<http://www.toronto.ca/legdocs/mmis/2016/ex/bgrd/backgroundfile-94535.pdf>



STAFF REPORT ACTION REQUIRED

Waterfront Transit Network Vision – Phase 1

Date:	June 20, 2016
To:	Executive Committee
From:	Deputy City Manager, Cluster B Chief Planner & Executive Director, City Planning Division
Wards:	5, 6, 13, 14, 19, 20, 28, 30 and 32
Reference Number:	P:\2016\ClusterB\PLN\EX16002

SUMMARY

At its meeting of November 3 and 4, 2015, City Council directed staff to work with the TTC and Waterfront Toronto on a comprehensive review of waterfront transit initiatives and options (Item EX 9.9). An external consultant, Steer Davies Gleave, was retained to assist staff with the review. The study area is from Long Branch in the west to Woodbine Avenue in the east, and south of the Queensway/Queen Street.

The Waterfront Transit "Reset" was divided into two phases. Council approved funding for Phase 1 of the "reset" for the following work program items: review all relevant background material; create an overall study vision with related objectives; develop a preliminary list of improvement concepts; consult with the public and stakeholders; identify preferred concepts for further study; and develop a scope of work for Phase 2.

The completion of the Phase 1 work has reinforced the importance of a comprehensive waterfront transit solution from Long Branch to Woodbine Avenue, which has not been realized to date. This is supported by the public and stakeholders, by previous studies, and by recent trends in population and employment growth in the waterfront.

One of the first tasks in Phase 1 was to conduct a complete review of the history of waterfront transit planning since 1995. It is clear from the review that transit planning has been incremental in terms of undertaking individual studies, although there have been some broader policy and network-focused efforts through the Official Plan, Official Plan Update (*Feeling Congested?*), and the Central Waterfront Secondary Plan.

A vision statement was developed early on in the study as a foundation for defining the future waterfront transit network. It also served as a reference point for discussions with the public and stakeholders. The vision is as follows:

To provide high quality transit that will integrate waterfront communities, jobs, and destinations, and link the waterfront to the broader City and regional transportation network.

This vision recognizes the wide variety of land uses that transit must serve, and the importance of considering the waterfront in the context of current and emerging transit initiatives in the City. These major initiatives include SmartTrack, the Scarborough Rapid Transit Network, the Relief Line, and Metrolinx including the Regional Express Rail (RER), Electrification of the GO Transit Corridors, updated GO Station Assessment and the "The Big Move" Regional Transportation Plan update. In terms of the overall City transit network, it is clear that there is a significant gap in the higher order transit network along the waterfront, and this gap coincides with areas of major future population and employment growth.

Following the vision for waterfront transit and a preliminary assessment of land use and travel patterns, the study area was divided into four distinct geographic segments. Within these four segments, a total of 25 initial transit improvement concepts were developed. Next, using City Planning's *Feeling Congested?* transit projects evaluation framework and considering public and stakeholder feedback, the 25 initial concepts were reduced to a list of 16 by the study team. The initial list of concepts and the shortened list that are the subject to further analysis in Phase 2 are all documented in this report.

Phase 1 of the Waterfront Transit "Reset" has identified three main findings/directions.

First, the importance of completing Phase 2 has been reaffirmed. In particular, Phase 2 will focus on unresolved areas of the network with the potential to add significant transit network benefits: the East Bayfront and the extension of transit into the Port Lands, and the section from Legion Road and Lakeshore Boulevard to Exhibition Place.

A preliminary Work Plan for Phase 2 of the Waterfront Transit "Reset" is included in this report. To summarize, Phase 2 will include (with focus on the areas of the network identified above): further development of the preferred transit improvement concepts for the complete study area; transit modelling analysis; a more detailed comparative evaluation of alternatives; coordination and consultation with Metrolinx; identification of a preferred network solution, including functional plan drawings to a 5% level of detail and associated cost estimates; public and stakeholder consultation; and a Business Case to consider the potential strategic, economic, financial, deliverability and operational impacts of the proposed solution.

Phase 2 will conclude with recommendations for advancing a preferred waterfront transit solution through the Transit Project Assessment Process (TPAP). This will be done so that priority components can be planned and designed quickly, and be ready for implementation once funding becomes available.

The second key finding of the Waterfront Transit "Reset" is that there is an opportunity to move to preliminary design on extending the existing exclusive streetcar network from

the Exhibition Loop to the Dufferin Gate Loop, through the northwest portion of Exhibition Place. It is recommended that TTC staff initiate a 30% level of design for this EA-approved section of network, with funding to be identified through the 2017 capital budget process. Design work would be coordinated with the current plan to replace the Dufferin Street bridge connection across the Gardiner Expressway and Lake Shore West Rail Corridor. The extension would have the following benefits: 1) increased transportation network connectivity and flexibility; 2) improved transit service to the Liberty Employment Area and Exhibition Place; and, 3) potential relief of transit congestion on the 504 King Streetcar, and other TTC routes.

The third key direction of the "reset" is to support the TTC's transit service improvements that support the waterfront network vision. This extensive list of improvements is documented in the report, but some of the highlights include: 1) 188 Kipling Express bus service, implemented in early 2016, between the Kipling Subway station and Lake Shore Boulevard West; 2) a revision to the 72 PAPE bus route, implemented in June 2016, that has restored a connection with Union Station, and provides new service to Queens Quay East; and, 3) restoration of continuous service on the 501 Queen Streetcar, timing subject to delivery and rollout of the new LRV's, eliminating transfers at the Humber Loop.

In conclusion, the Phase 1 work described in this report is an important step forward in the realization of a comprehensive transit network vision for the waterfront. This vision, along with the transit improvement concepts that would achieve it, were generally well received by the public and stakeholders. There is an overall public expectation that completing the work and implementing solutions will be a key priority for the City, the TTC and Waterfront Toronto.

In view of these findings, staff recommend that City Council approve funding to complete Phase 2 of the Waterfront Transit "Reset" and authorize staff to begin 30% design for the extension of the exclusive streetcar network from the Exhibition Loop to the Dufferin Gate Loop.

RECOMMENDATIONS

The Deputy City Manager, Cluster B, and Chief Planner & Executive Director, City Planning Division recommend:

1. City Council direct the Deputy City Manager, Cluster B, and Chief Planner & Executive Director, in partnership with the TTC and Waterfront Toronto, to initiate Phase 2 of the Waterfront Transit "Reset" for further development and costing of alignment concepts, detailed analysis of transit operations and ridership, identification of priority segments, as well as the creation of a Business Case and implementation strategy for delivering a coordinated waterfront transit solution;
2. City Council direct the Deputy City Manager, Cluster B, and Chief Planner & Executive Director to report back on the results of Phase 2 of the Waterfront Transit "Reset" in Q2 of 2017; and,

3. City Council direct the Deputy City Manager, Cluster B to submit for Council's consideration as part of the 2017 Budget process, a funding request to initiate a 30% preliminary design by the TTC for the extension of streetcar service from the Exhibition Loop to the Dufferin Gate Loop, in accordance with the approved Environmental Assessment Modification Report (2008.PG17.10), and to be coordinated with plans to replace the Dufferin Street bridge over the Gardiner Expressway and Lake Shore West Rail Corridor.

Financial Impact

The cost of retaining consulting services to assist the City in completing the Phase 2 scope of work is estimated to be up to \$500,000. Funding is available from the Waterfront Revitalization Initiative, capital project CWR003-10.

The cost of retaining consulting services to assist the TTC in completing a preliminary design up to 30% level of detail for extending the existing streetcar in its own right-of-way from the Exhibition Loop to the Dufferin Gate Loop is estimated by the TTC at \$3.6 million. The cost will be presented for Council's consideration as part of the 2017 Budget process.

The Deputy City Manager & Chief Financial Officer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

The following Council decisions link to the Waterfront Transit "Reset" Phase 1 Study:

On June 10, 2015, Toronto City Council directed City staff to prepare a report on acceleration and costing of the East Bayfront LRT.

Link: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.PW4.1>

In considering Council's request, staff reviewed the broader waterfront transit context and concluded that there is a clear need for a "reset" to waterfront transit planning, which had to date proceeded in an ad hoc and incremental manner. Alternatively, City staff's ambition for a "reset" is the creation of a larger comprehensive plan for a transit network that can respond to the rapid transformation occurring along the waterfront.

On November 3, 4, 2015, in consideration of the City staff response to Council's June 2015 request, City Council directed City staff in consultation with the TTC and Waterfront Toronto to undertake a Phase 1 comprehensive review of waterfront transit initiatives and options. This review process was named the "Waterfront Transit Reset". City Council additionally directed City staff to provide a status update on the "reset" initiative to Executive Committee in the first quarter of 2016. Link: [EX9.9 Waterfront Transit Reset](#)

On March 9, 2016, City staff provided a status update to Executive Committee on the Waterfront Transit "Reset" Phase 1 Study in the context of the City's developing Transit Network Plan. Link: [EX13.3 Developing Toronto's Transit Network Plan: Phase 1](#)

On March 31 and April 1, 2016 City Council requested a further status update on the Waterfront Transit "Reset" Phase 1 Study at the June 28, 2016 Executive Committee. Link: [EX13.3 Developing Toronto's Transit Network Plan: Phase 1](#)

BACKGROUND

The City's overarching land use and transportation planning policy framework, as outlined below, is clear in its support of enhanced waterfront transit, and the early implementation of higher order transit in planned waterfront communities.

The *Central Waterfront Secondary Plan* (CWSP) was adopted by City Council in 2003. The Plan calls for early implementation of higher order transit in order to encourage transit-oriented travel patterns for new waterfront residents and employees. The Plan specifically considered a new waterfront transit network as "an extended Waterfront Light Rail Transit (LRT) across the Central Waterfront from Exhibition Place to the Port Lands with excellent connections to the City. The City's Official Plan Map 4 identifies transit corridor(s) expansion elements along the waterfront, between Mimico in south Etobicoke, across the Central Waterfront, to Kingston Road in Scarborough.

Since adoption of the CWSP, an incremental and largely uncoordinated approach to waterfront transit planning has left a series of plans in various stages of completion and/or approval. For example, of the multiple studies and approvals commenced to implement higher order transit along various sections of the waterfront over the last 20 years, to date only two such proposals have reached the Environmental Assessment (EA) approval stage:

- East Bayfront Transit, a 1.6 kilometre LRT line extending from Union Station along Queens Quay to Parliament Street (Ministry approval in 2010); and,
- Waterfront West LRT EA Modification; a ~500 metre LRT extension within the northwest corner of Exhibition Place from Exhibition Loop at Manitoba Drive to Dufferin Street (Ministry approval in 2008)

In addition to the EA approvals noted above, there has been incremental advancement in the planning and implementation of a dedicated transit right-of-way along Lake Shore Boulevard between the Humber Loop and Park Lawn Road, with work completed to date including installation of centre overhead pole bases, and some necessary property acquisition. This work builds upon the Ministry-approved 1995 Waterfront West LRT Environmental Assessment for this area.

An exhibit that summarizes the various background studies is included in Appendix 1.

In 2013, as part of the "*Feeling Congested?*" Official Plan review, City Planning ranked both a Waterfront West LRT and Waterfront East LRT as two of the City's top five "planned but unfunded rapid transit proposals".

In addition to the City of Toronto's own transportation planning initiatives, in 2008 Metrolinx's *'The Big Move' Regional Transportation Plan* identified a Waterfront West LRT from Union Station to Port Credit in Mississauga as a project to be implemented within the 15 year timeframe.

In light of the various policies and initiatives outlined above, at its November 3, 2015 meeting Toronto City Council endorsed a City staff report on the need to "reset" waterfront transit planning (EX9.9 Waterfront Transit "Reset"). The report indicated that having numerous individual waterfront transit projects at different stages of approval was impeding progress in securing funding for new transit infrastructure in the area.

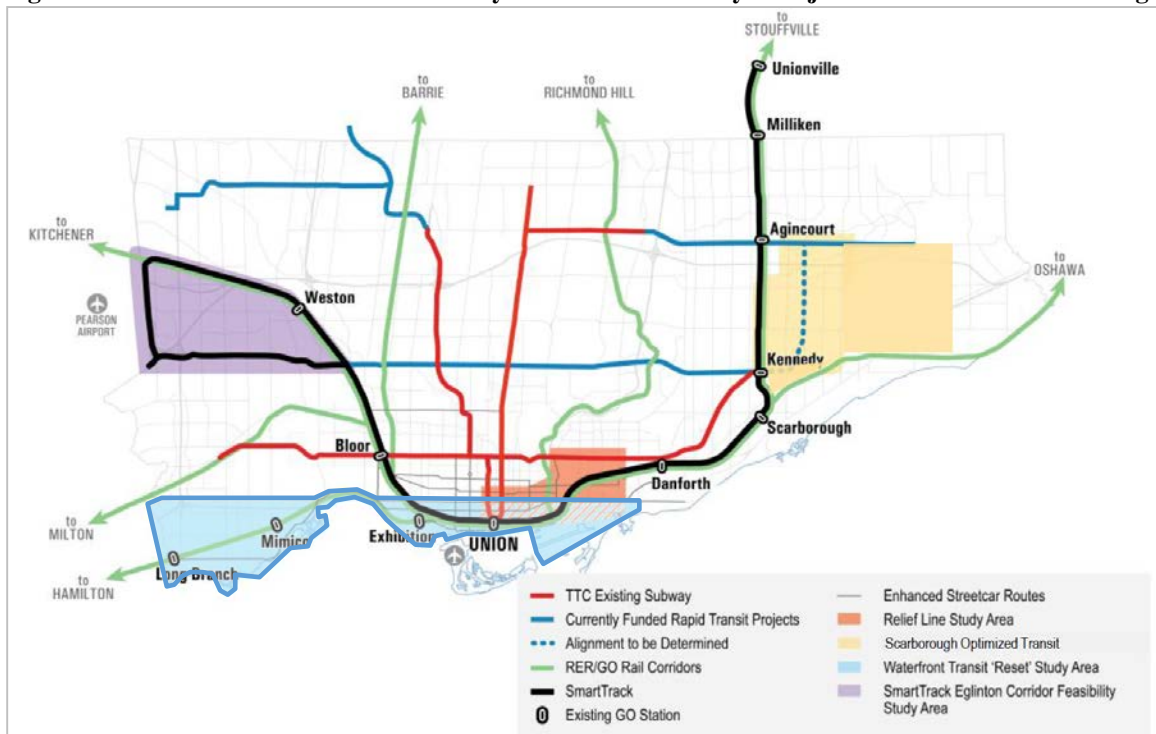
Following Council direction, staff identified an opportunity to include planning for waterfront transit in the coordinated transit network planning work initiated in 2014 for each of Scarborough Transit, SmartTrack, and the Relief Line. Benefiting from a coordinated approach, these other City-wide major transit studies have made considerable progress over a relatively short timeframe. Accordingly, the Waterfront Transit "Reset" Phase 1 Study was introduced to the public in the context of the City-wide, co-ordinated transit network planning (Developing Toronto's Transit Network Plan) in February and March 2016.

The "reset" Study is proceeding with the assumption that Light Rail Transit (LRT) is the appropriate transit technology for the waterfront, as identified through previous planning. For the purposes of the study, the base assumptions for LRT include:

- Transit separation from automobile traffic in a fully exclusive or partially exclusive (i.e. at intersections) right-of-way;
- Single-ended Light Rail Vehicles (LRV's) (requiring turnback loops) and compatibility with the legacy TTC streetcar network; and,
- Transit stop spacing would be considered in the context of built form and network needs.

The study area, as directed by Council, extends from the Long Branch GO Station and the Mississauga border in the west to Woodbine Avenue in the east, and south of the Queensway/Queen Street corridor to Lake Ontario (see Figure 1 below).

Figure 1. Waterfront Transit "Reset" Study Area within the City's Major Transit Network Planning



COMMENTS

Phase 1 Study Initiation

Since receiving direction from City Council in November 2015 to proceed with the "reset" initiative, City Staff developed a Phase 1 scope of work; tendered a competitive Request For Proposals (RFP); and retained the successful bidder (transportation consulting firm Steer Davies Gleave) to undertake the study. The Phase 1 study team has been led by City Planning, in partnership with the TTC and Waterfront Toronto. Metrolinx has been consulted during the course of the Phase 1 study. In addition, City staff consulted with the City of Mississauga on relevant aspects of the study.

Key Issues

The study team, in consideration of Council's approved recommendations and motions, identified the following major constraints and opportunities within the study area:

- Lack of an integrated, high order/priority transit connection serving the waterfront area and the East Bayfront area (i.e. east of Bay Street), in particular;
- Increasing transit demand along the waterfront corridor;
- Significant peak period constraints on existing services; and,
- Multiple travel needs and a diverse range of destinations: local needs vs. regional commuting patterns.

In response, a number of "big questions" were posed to guide the formation of objectives and a vision for Waterfront Transit and the subsequent development of transit concepts:

- *South Etobicoke travel demands* – Should a waterfront transit solution prioritize local service or longer commuter travel?
- *Metrolinx Regional Express Rail (RER) and potential for a competitive regional fare structure within the City*—How should a waterfront transit solution integrate with planned RER and potential regional fare structure changes?
- *Possibilities for improved north-south linkages to an east-west waterfront transit line* – Improved north-south linkages into the City could be achieved on each of: Kipling, Royal York, Park Lawn, Roncesvalles-Jameson, Dufferin, King-Liberty-Exhibition Place-Ontario Place, Bay, Parliament, Cherry, Broadview, and/or Leslie. What are the priorities? Are there others?
- *Capacity and operational risk at the Union Station / Bay Street loop* – Can a proposed re-configuration of the existing Union Station Loop meet the entire waterfront transit network demands, or the eastern section alone? Does the network require "redundancy" rather than reliance on one terminus?
- *Does every waterfront-related transit line need to terminate at Union Station? - Is a second terminus required? If so, should it be connected to Union Station (i.e. to the regional transit network)?*

- *Need for continuous Waterfront LRT line* – Does a waterfront transit solution need to be continuous and in constant proximity to the waterfront (with high quality transfer points)? Alternatively, are diversions of a main line from the waterfront appropriate and desirable in some instances?

Waterfront Transit Vision and Objectives

Four key study objectives were developed to directly influence the creation of a vision for waterfront transit:

1. *Connect waterfront communities locally and to downtown with reliable and convenient transit service:*
 - Promote and support residential and employment growth;
 - Provide more travel choices.
2. *Enhance accessibility (improved reliability and convenience) of transit service linking key destinations (employment, housing, institutional, education, cultural, recreational, commercial):*
 - Better connect people to everyday places;
 - Improve connectivity in neighbourhood improvement areas;
 - Make transit an attractive option for more trips;
 - Attract new transit riders;
 - Improve quality of life.
3. *Promote broader City and regional transportation network connections.*
4. *Develop implementable and affordable solutions to address current needs and the flexibility to respond to future conditions.*

Taking into the account the four key study objectives, the vision for waterfront transit is captured in the following statement:

Provide high quality transit that will integrate waterfront communities, jobs, and destinations and link the waterfront to the broader City and regional transportation network.

The vision recognizes the wide variety of land uses and needs that transit must serve, and the context of current and emerging transit initiatives in the City.

Review and Confirmation of Existing and Future Land Use and Travel Patterns

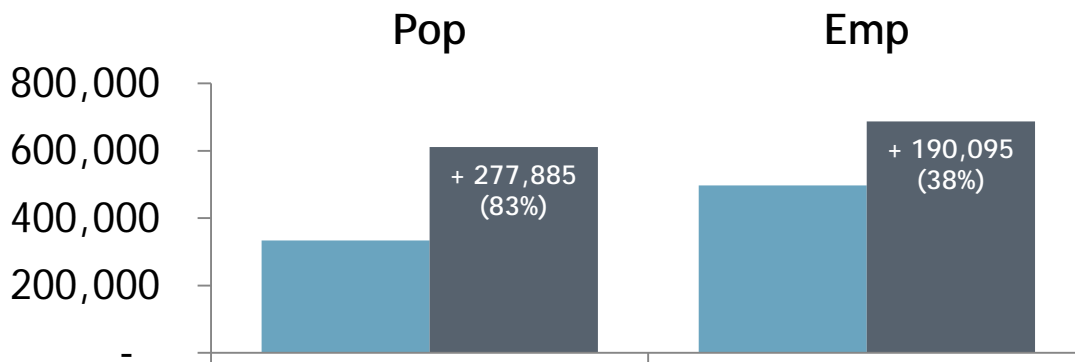
Prior to the development of alternative transit concepts, the study team undertook an audit of existing and future land use and travel patterns. The results of the audit are summarized below.

Land Use

In May 2016, the Province announced plans to amend the *Growth Plan for the Greater Golden Horseshoe*, a Plan which establishes the long-term framework for where and how the Greater Golden Horseshoe will grow. One of the major amendments to the plan is the recognition of urban growth centres (e.g. Downtown Toronto), higher-order transit corridors, and the areas around major transit stations (e.g. Union Station) as priority areas for increased development intensification. Municipalities, including the City of Toronto, are required to align future policy to the policy direction within the amended Growth Plan.

The Waterfront Transit "Reset" study area includes many of the highest existing population and employment densities within the City of Toronto and Greater Toronto Area. Considerable population growth has occurred over the past decade, and indications are that this growth will not be slowing in the coming years. Employment has also been increasing, albeit more modestly than population growth, and projections envision a continued and potentially accelerated increase in the future. Figure 2 below reveals the projected growth in population and employment within the study area within the 30-year planning horizon. Population over the period 2011-2041 is projected to increase 83%, with approximately 280,000 new residents calling the area home. Projected employment growth is relatively more modest, however still significant, at an anticipated 38% increase and approximately 190,000 new jobs over the 30 year planning horizon.

Figure 2. Growth Projections for the Waterfront Transit "Reset" Study Area



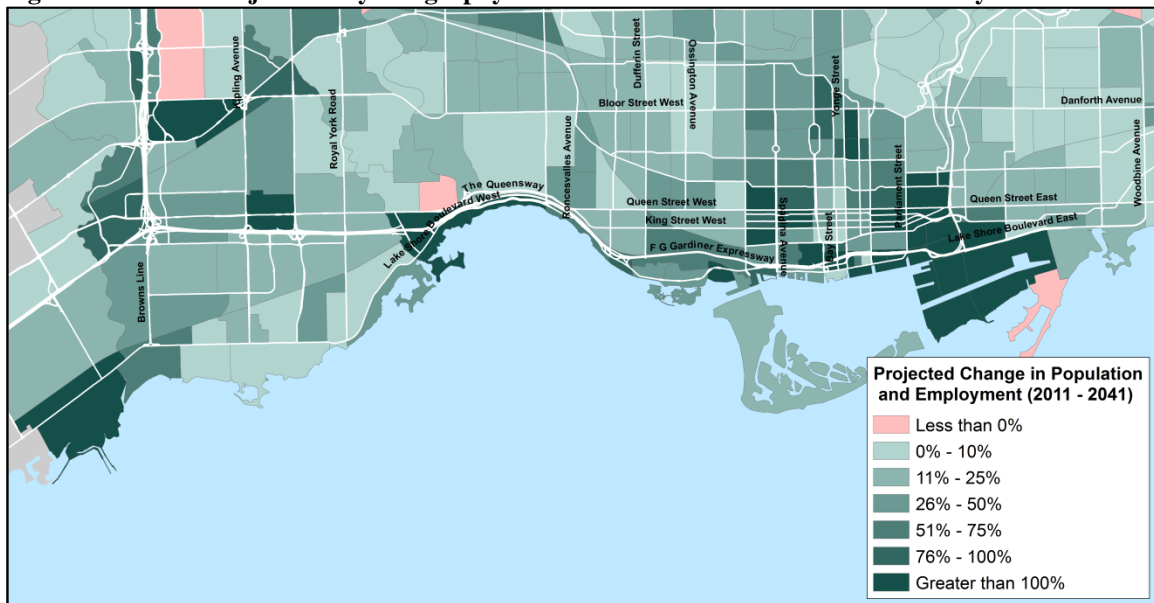
Projected Change in Study Area

■ 2011 ■ 2041

Note: Population and employment data for 2011 and 2041 are the base case used for the travel demand modelling for the SmartTrack review.

Figure 3 below reveals population and employment growth projections for locations within the southern portion of Toronto and southeastern areas of Mississauga. Some of the highest anticipated population and employment growth areas are within the "Reset" study area, including the Port Lands, West Don Lands, Unilever Site, South of Eastern Areas, Lower Donlands, East Bayfront, Lower Yonge, South Core, Entertainment District, Liberty Village, Humber Bay Shores, Mimico, areas along the Queensway generally west of Islington Avenue, and the area around Long Branch, extending across the City border into Mississauga. It should be noted that some areas depicted as "greater than 100%" are anticipated to greatly exceed 100% growth.

Figure 3. Growth Projections by Geography for the Waterfront Transit "Reset" Study Area



In addition to population and employment land uses, there are a number of key recreational and cultural destinations throughout the waterfront corridor, including Humber Bay Shores Park, Western Beaches, Fort York, Ontario Place, Exhibition Place, Rogers Centre, CN Tower, Ripley's Aquarium, Harbourfront Centre and other Queens Quay attractions, Jack Layton Ferry Terminal, Ashbridges Bay, Tommy Thompson Park, Cherry Beach, and the Toronto Islands. Major institutional uses include Humber College Lakeshore Campus, Trillium Health Partners-Queensway Health Centre, St. Joseph's Hospital, and George Brown College. The magnitude and location of these land uses within the study area is important as they generate a significant proportion of off-peak travel in addition to the traditional peak period work commutes.

Travel Patterns and Transit Demands

A detailed transportation modelling analysis was not available for this Phase 1 study. However, the transit market assessment and concept scoping undertaken in Phase 1 will frame the transit demand modelling requirements for Phase 2 studies (subject to Council approval) to address key questions and evidence-based planning. In lieu of the modelling

analysis, a high-level travel assessment was undertaken in Phase 1 using the following sources:

- Previous studies and associated modelling work;
- Existing TTC ridership for key routes; and,
- Latest travel patterns data (from *Transportation Tomorrow Survey (2011)*)

Previous Studies

Transit demands from modelling analysis completed for various studies and environmental assessments over the past twenty years have supported the need for LRT along the waterfront. Updated transit modelling forecasts during Phase 2 study will include: recent and planned future significant growth in the study area; the major City-wide transit network evolution; and, planned Metrolinx initiatives such as two-way all-day GO train service, potential new GO stations, and the regional fare integration strategy.

Existing TTC Ridership

There are two key TTC east-west streetcar routes that serve the wider study area: the 501 Queen and the 504 King streetcar routes. General passenger patterns for the current AM peak hour for these two routes are summarized in the table below.

	501 Queen	504 King
West of Downtown		
Long Branch to Humber Loop	Steady increases to passenger volumes eastbound	N/A
Humber Loop to Roncesvalles Ave	Steady passenger volumes	
Roncesvalles Ave to Downtown	Significant and consistent increases in passenger volume eastbound	Significant and consistent increases in passenger volume eastbound
East of Downtown		
Broadview Ave to Downtown	Significant and consistent increases in passenger volume westbound	Consistent increases in passenger volume westbound

Operating in largely mixed traffic conditions, both routes experience similar and recognized known issues: overcrowded streetcars during peak travel periods, slow operating speeds, operating delays, service reliability that is below expectations, and longer than scheduled wait times – all leading to transit user frustration.

The TTC recognizes and has begun responding to these challenges where possible, including operational changes on 501 Queen earlier in 2016, and phased service changes along the King Street corridor since the fall of 2015. While these service improvements may bring some relief, the continued operation of these routes in mixed traffic will limit

the extent of service improvements, especially with respect to transit capacity and travel times. Furthermore, these issues will continue to worsen with increased development along the corridor.

Travel Patterns Assessment

The *Transportation Tomorrow Survey* (2011) collects data on travel choices of people in the Greater Golden Horseshoe. Using the latest 2011 data, overall travel patterns of the study area were assessed to understand areas where: (1) there is already high transit demand that could support higher-order transit, (2) there is latent demand that could be captured with improvements to transit. Findings from the travel patterns assessment are summarized below:

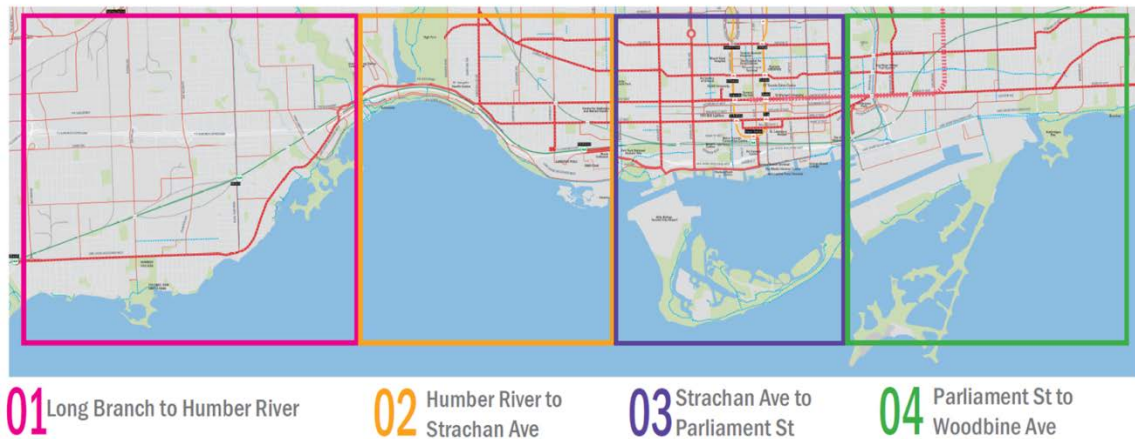
Study area section	Summary of findings
Long Branch to Strachan Ave	<ul style="list-style-type: none"> • Transit improvements needed to support long distance commuting journeys to downtown and to mitigate ongoing east-west transit operational issues • Transit improvements required to support recent and planned growth, including Humber Bay Shores, King-Liberty neighbourhoods • Metrolinx planned fare integration and GO rail improvements may alleviate some demand pressures along the corridor
Strachan Ave to Parliament St	<ul style="list-style-type: none"> • Additional east-west transit capacity and priority is needed to support the significant growth that has already realized and planned in the future • Reliable and frequent service required to support significant planned growth in the east (East Bayfront) and to direct its development vision
Parliament St to Woodbine Ave	<ul style="list-style-type: none"> • Transit improvements required to accommodate planned growth (Port Lands, West Don Lands) and to shape future travel behaviour • Planned Relief Line and GO Rail improvements may affect waterfront transit demand in this section

Given the diverse destinations within the Waterfront Transit catchment area, peak commuter ridership and travel patterns at all other times will need to be considered.

The Four Segments of the Study Area

The extensive geography of the study area and the varied nature of transit needs within the geography necessitated a division of the study area into four segments. Most importantly, this allowed for a more focused consultation process where local needs could be considered in light of the larger network planning exercise. Figure 4 shows the four segments.

Figure 4. The Four Study Area Segments



Communications and Public Consultation

One Stakeholder Advisory Committee (SAC) meeting and two public forums were held in May 2016 as part of the Phase 1 consultation program to introduce the study, present background material and opportunities and constraints, and obtain input on components of the study, including the introduction of the four study area segments, and an initial screening of preliminary concepts within each segment. The SAC meeting was held on May 11, 2016 and the public forums were held in the central and western waterfront, on May 25 and 26, 2016, respectively.

Formal notices were published in local newspapers approximately two weeks before the public forums to encourage participation in the study. Webpages on the City of Toronto website (www.toronto.ca/waterfronttransit) and Waterfront Toronto website ([http://www.waterfronttoronto.ca/explore_projects2/the_wider_waterfront/waterfront transit_reset](http://www.waterfronttoronto.ca/explore_projects2/the_wider_waterfront/waterfront_transit_reset)) were established at the outset of the study to provide details about the study area, background information and consultation events. Social media, E-blasts, email invitations and media advisories were also used to increase awareness of the public consultation events and encourage broad participation.

Approximately 200 members of the public attended the public forums, and more than 100 detailed comment feedback forms were submitted to the study team at and following each forum with numerous additional comments and feedback following the events. The following summarizes some of the general comments, themes, concerns, and advice received from the public regarding the preliminary concepts and initial screening. Comments are organized based on the four segments of the study area (see Figure 4). In general, there was much enthusiasm for the study with consensus that improvements are overdue.

Segment 1: Long Branch to Humber River

Comments generally related to improving the reliability of local transit service, and accelerating the implementation of both short-term and long-term improvements. Participants supported an enhanced streetcar service in New Toronto/Mimico with LRT further east on Lake Shore Boulevard. Support for Queensway LRT was mixed. There were a number of comments, concerns, and frustrations relating to the need to eliminate transfers at the Humber Loop and the state of the public realm in vicinity of the loop, and the desire to ensure that existing neighbourhood commercial nodes remain viable.

Segment 2: Humber River to Strachan Avenue

There was support around the need for a reliable, higher-speed transit service through this area. There was support for using the existing The Queensway infrastructure or Lake Shore Boulevard to connect to Exhibition Loop. There was mixed reaction to the concept of using King Street/Dufferin Street as a potential LRT corridor.

Segment 3: Strachan Avenue to Parliament Street

Comments were mixed in terms of support for any specific concept in this area, however there was understanding for urgency in implementing an East Bayfront transit solution along Queens Quay East. There was general agreement that the improvement of the downtown transit network is required as a priority (both east-west and north-south), and that the maintenance of existing transit service is an important factor. In addition to the concepts already identified, the idea of using Front Street for a dedicated transit right-of-way was raised.

Segment 4: Parliament Street to Woodbine Avenue

Comments were also mixed in this area. Phasing was identified as a concern as well as improved transit connections to the Upper Beaches and Scarborough. The idea of LRT alignment along Lakeshore Boulevard, as opposed to the Port Lands alignment along Commissioners Street, was raised.

Additional Comments

Recurring themes throughout consultation included support for strengthened TTC integration with the existing and future planned Regional Transit Network, ensuring that future enhanced transit planning integrates active transportation, and including a ridership analysis(es) for future public and stakeholder review.

Some additional comments included: clarifying the difference between LRT and streetcar, concern over the number of concepts presented, expediting the timelines for planning and implementation, strengthening transit priority for existing routes, and

considering ferry service as part of a waterfront transit solution. Participants expressed mixed reaction to the idea of prioritizing options that are affordable and implementable.

There was overall support to continue with Phase 2 of the study.

Alternative Transit Concepts Development

As noted above, the study area was divided into four distinct segments (see Figure 4) for which a series of high-level east-west LRT alignment concepts were developed. For the purposes of evaluation, Segment 3 (The Downtown Core) was further sub-divided into "sub-segments" to reflect the complexity and diversity of transit needs in high-density, mixed-use areas.

Notwithstanding the division of the study area into segments, the connections between segments and the overall network solution is considered in the evaluation. All of the concepts also consider enhanced north-south and regional transit connections.

In addition to including LRT alignments from previous (complete and incomplete) studies, new alignment concepts were also developed to respond to more recent concerns or emerging opportunities. All of the alternative alignments are referred to as "concepts" for the purposes of consistency.

In order to determine appropriateness for further study during Phase 2, the concepts were assessed using City Planning's *Feeling Congested?* transit evaluation framework, based on the three broad themes of *Serving People*, *Strengthening Places*, and *Supporting Prosperity*. The *Feeling Congested?* evaluation framework used for this study was refined to be consistent with the vision for waterfront transit, and was generally well-received by public and stakeholders. Refer to Appendix 2 for the *Feeling Congested?* Evaluation Framework for Waterfront Transit.

Note that for the purposes of the study (with the exception of proposed "enhanced service" in Concept 1A) LRT is assumed in all concepts to operate in an exclusive right-of-way with single-ended LRV compatible with the legacy streetcar network, with stop spacing dependent on the built form and network context needs.

A summary of the concept evaluation process is provided Table 1. A detailed description of the concepts and commentary on the evaluation process follows.

Table 1. Waterfront Transit "Reset" Phase 1 Evaluation Summary

Concept #	Description	Recommended for additional study?
SEGMENT #1	LONG BRANCH TO HUMBER RIVER	
1A	Enhanced Lake Shore Boulevard Transit Service	Yes
1B	Lake Shore Boulevard LRT	Yes
1C	The Queensway LRT	No

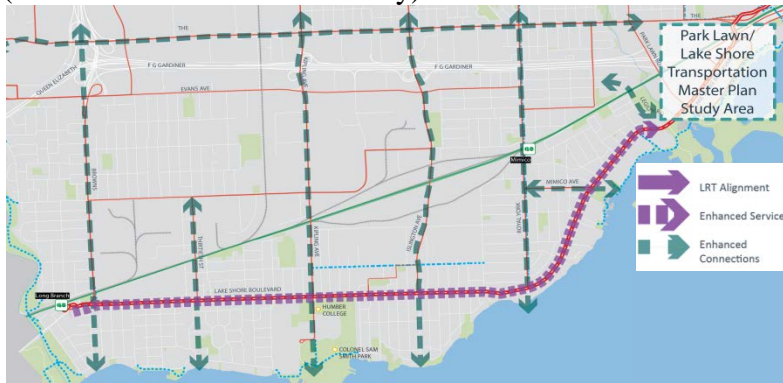
Concept #	Description	Recommended for additional study?
SEGMENT #2	HUMBER RIVER TO STRACHAN AVENUE	
2A	The Queensway and LRT Bridge across Gardiner Expressway / Rail Corridor (crossing location to be determined) to Exhibition Place	Yes
2B	The Queensway and LRT Alignment on Embankment North of Rail Corridor	No
2C	Lake Shore LRT Crossing Humber River to South Edge of Coronation Park	No
2D	Lake Shore LRT Crossing Humber River to Exhibition Place	Yes
2E	Queensway / Colborne Lodge Drive / Lake Shore to Exhibition Place LRT	Yes
2F	Queensway / Dufferin St / King St LRT	No
SEGMENT #3	STRACHAN AVENUE TO PARLIAMENT STREET	
Sub-Segment:	Western Approach to Downtown Core (Strachan to Bathurst)	
3A	Existing Fleet St – Bathurst St – Queens Quay LRT	Yes
3B	Fleet St – Fort York Blvd – Bremner Blvd LRT	Yes
3C	South of Rail Alignment – North of Rail Alignment / South of Front Street LRT	Yes
3D	Lake Shore Blvd – South of Coronation Park – Queens Quay LRT	No
Sub-Segment:	The Downtown Core (Bathurst to Parliament)	
Family A	Union Loop Modifications	
A1	Expanded Union Loop	Yes
A2	Extend Underground Alignment Easterly	Yes
Family B	New Downtown West Loop	
B1	Second Loop	Yes
Family C	Queens Quay Through Service	
C1	Tunnel By-Pass of Bay Street and maintain some transit service into Union	Yes
C2	Tunnel By-Pass of Bay, Repurpose Bay Street Tunnel into Union	Yes
C3	At-Grade By-Pass of Bay Street and maintain some transit service into Union	No
C4	At-Grade By-Pass of Bay Street and Repurpose Bay Street Tunnel into Union	No
Family D	Network Distribution	

Concept #	Description	Recommended for additional study?
D1	Distribute On Network & Use Existing Loop	Yes
D2	Distribute On Network & Bay Street LRT	No
D3	Bay Street LRT (& Queens Quay at-grade LRT)	No
SEGMENT #4	PARLIAMENT STREET TO WOODBINE AVENUE	
4A	Lake Shore Blvd LRT Extension from Leslie Street and Port Lands	Yes
4B	Eastern Avenue LRT Extension from Leslie Street and Port Lands	Yes

Segment 1: Long Branch to Humber River

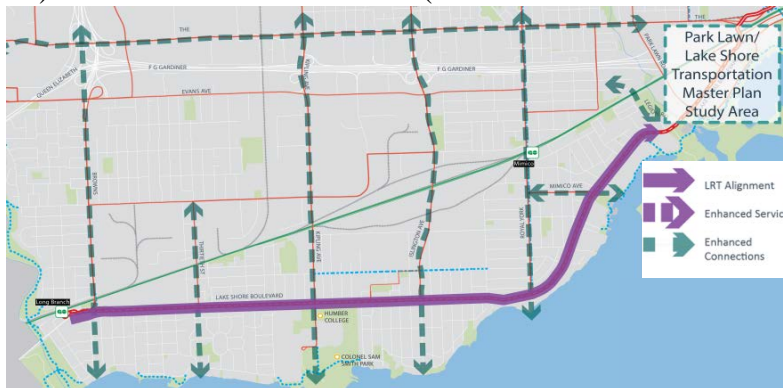
A total of three east-west concepts were initially developed for this segment. After evaluation, Concepts 1A and 1B are recommended for further Phase 2 assessment.

1A) Enhanced Lake Shore Boulevard Transit Service (recommended for further study)



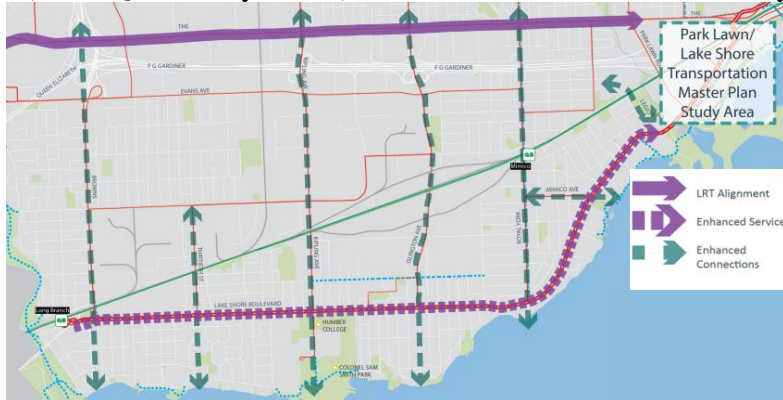
Concept 1A considers measures to improve the existing streetcar service in mixed traffic. Improvements may include the public realm (stops, shelters, platforms, lighting, landscaping, etc), east-west transit signal priority, queue-jump lanes, and turn restrictions.

1B) Lake Shore Boulevard LRT (recommended for further study)



Concept 1B proposes LRT operating in an exclusive right-of-way on Lake Shore Boulevard from the Long Branch area to the Humber Bay Shores area.

1C) The Queensway LRT (not recommended for further study)



Concept 1C proposes LRT operating on The Queensway while the Lake Shore streetcar would continue to operate in mixed traffic and could include enhanced service as per Concept 1A.

After evaluation, Concepts 1A (Enhanced Lake Shore Boulevard Transit Service) and 1B (a Lake Shore Boulevard LRT) were found to best align with the study objectives and vision, and therefore are recommended for further Phase 2 assessment. In particular, these concepts offer better transit connections to serve the waterfront and GO Transit and MiWay.

Concept 1C was eliminated primarily because the Lakeshore corridor options in Concepts 1A and 1B offer better transit connections to serve the waterfront and GO Transit and MiWay. The Queensway also presents challenges for the Gardiner Expressway and Highway 427 ramp operations. While The Queensway is not recommended for further study as a potential waterfront transit solution, the route may present potential benefits as an additional higher-order transit corridor in the future.

Relationship to Park Lawn Lake Shore Transportation Master Plan EA

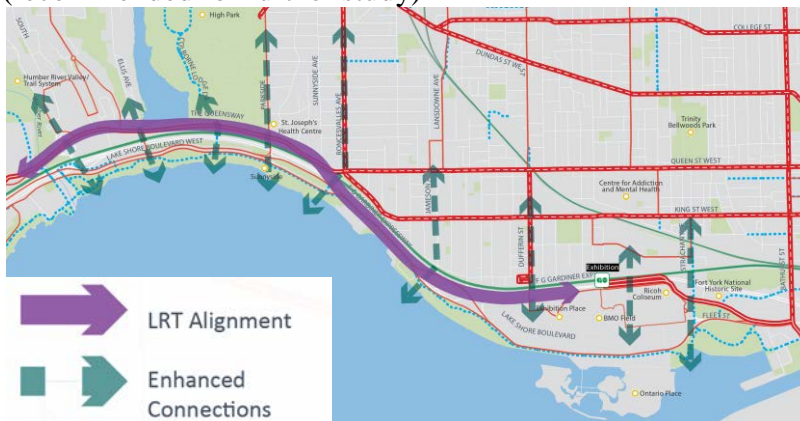
The City is currently undertaking the Park Lawn Lake Shore Transportation Master Plan EA (Phase 1 and 2) to develop a complete and sustainable (multi-modal) transportation network for existing and future area residents. The study area is roughly from Park Lawn Road to the Humber Loop and south of The Queensway. This is a key section of the waterfront LRT, and work is being coordinated to address the following key issues:

- Implementation of the previously approved dedicated transit right-of-way on Lake Shore Boulevard between the Humber Loop and Park Lawn Road (2002 Lake Shore Boulevard West Widening Functional Design Study);
- Potential relocation of the Humber Loop to Park Lawn Road;
- The possibility of a GO Transit station at Park Lawn Road;
- The proposed Legion Road extension north under the Railway Corridor to Manitoba Street;
- The proposed AM peak turning restrictions on Park Lawn Road from the Gardiner Expressway;
- 2150 Lake Shore Boulevard West (former Mr. Christie bakery site); and,
- Relationship to the Mimico By-the-Lake Secondary Plan (Mimico 20/20).

Segment 2: Humber River to Strachan Avenue

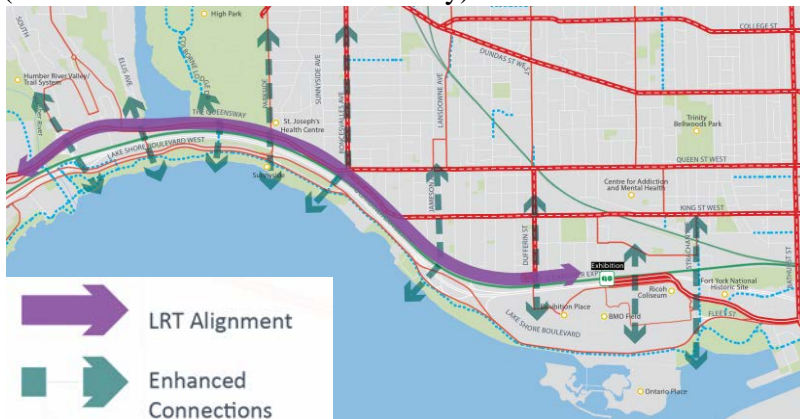
A total of six east-west concepts were developed for Segment #2, all of which vary on the theme of "bridging the gap" by improving the existing waterfront transit connection from south Etobicoke to the area around Exhibition Place and/or Ontario Place, and continuing to points east. After evaluation, three concepts (2A, 2D and 2E) are recommended for further Phase 2 assessment.

2A) The Queensway and LRT Bridge across Gardiner Expressway / Rail Corridor (crossing location to be determined) to Exhibition Place (recommended for further study)



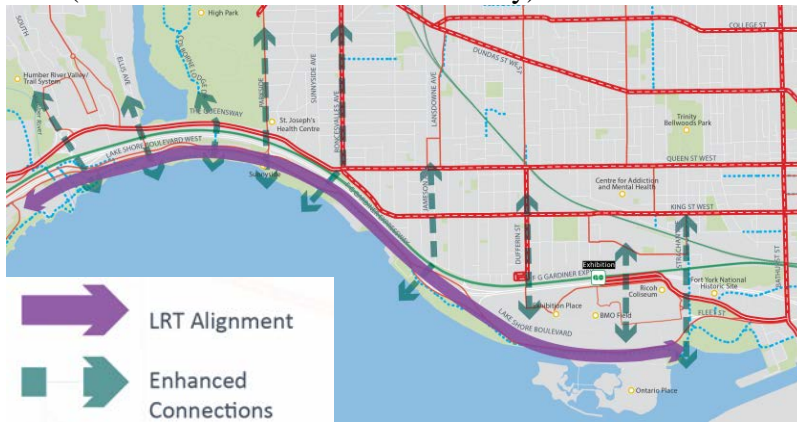
Concept 2A proposes LRT operating in the existing The Queensway right-of-way and a new LRT corridor bridging the Gardiner Expressway and Rail Corridor (at a location to be determined) to connect to Dufferin Street and the Exhibition Place streetcar loop.

2B) The Queensway and LRT Alignment on Embankment north of Rail Corridor (not recommended for further study)



Concept 2B proposes LRT operating in the existing The Queensway right-of-way and a new LRT corridor along the embankment north of the Gardiner Expressway and Rail Corridor to Dufferin Street.

2C) Lake Shore Boulevard LRT Crossing Humber River to South Edge of Coronation Park (not recommended for further study)



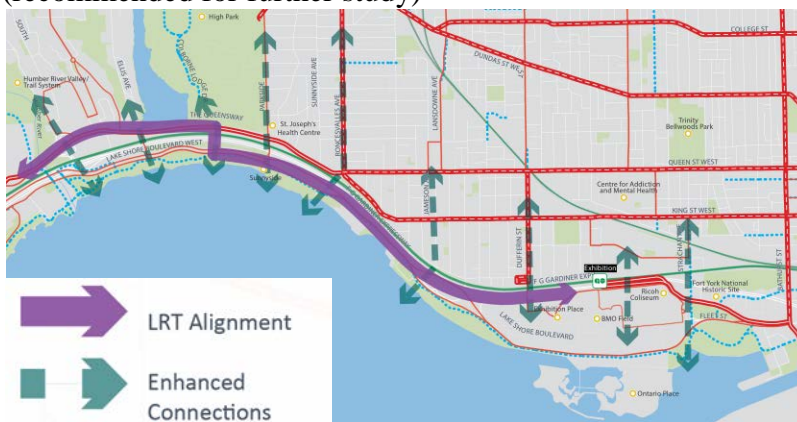
Concept 2C proposes a new LRT corridor crossing the Humber River south of the Gardiner Expressway, and continuing along the Lake Shore to the south edge of Coronation Park.

2D) Lake Shore LRT Crossing Humber River to Exhibition Place (recommended for further study)



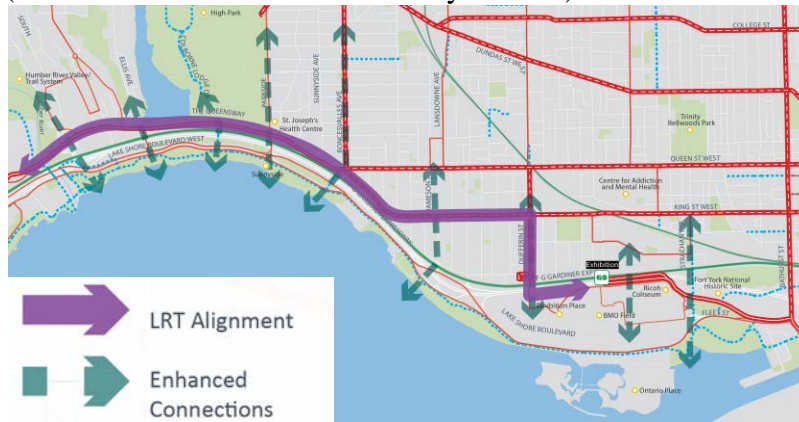
Concept 2D proposes a new LRT corridor crossing the Humber River south of the Gardiner Expressway, and continuing along the Lake Shore prior to connecting to Dufferin Street and the Exhibition Place streetcar loop.

2E) Queensway / Colborne Lodge Drive / Lake Shore Blvd to Exhibition Place LRT (recommended for further study)



Concept 2E proposes LRT operating in the existing The Queensway right-of-way, crossing under the Gardiner Expressway and Rail Corridor using Colborne Lodge Drive, and continuing along the Lake Shore to connect to Dufferin Street and the Exhibition Place streetcar loop.

2F) Queensway / King St / Dufferin St LRT
(not recommended for further study as LRT)



Concept 2F proposes LRT operating in the existing The Queensway right-of-way, upgrading the existing King Street and Dufferin Street streetcar trackage to a transit exclusive LRT right-of-way, and crossing over the Gardiner and Rail Corridor on a new Dufferin Bridge to ultimately connect to the Exhibition Place streetcar loop.

After evaluation, Concepts 2A (The Queensway, LRT bridging the Gardiner Expressway and Rail Corridor at, or west of Jameson Avenue to Exhibition Place), 2D (Lake Shore LRT to Exhibition Place, and 2E (The Queensway, LRT under the Gardiner/Rail Corridor using Colborne Lodge Drive to Exhibition Place) were found to best align with the study objectives and vision, and therefore are recommended for further Phase 2 assessment. In particular, these concepts provide the greatest opportunity to integrate with the City's and Regional transit network.

Concept 2B was eliminated through an initial consultant screening due to anticipated property impacts along the north side of the Rail Corridor east of Jameson Avenue. Based on further analysis taking into account public and stakeholder consultation feedback, City staff screened out Concepts 2C and 2F. Concept 2C was screened out because of the transit service impact to Exhibition Place, Liberty Village, and Exhibition GO Station, and because Ontario Place may be served by improved north-south connections to the network. Concept 2F was screened out because of the potential issues related to implementing LRT (in own right-of-way) on King Street, operational constraints at the Queensway/Roncesvalles/Queen/King intersection, and the overall anticipated travel time.

In addition, a preliminary design up to 30% level of detail is recommended for extending the existing streetcar in its own right-of-way from the Exhibition Loop at Manitoba Drive to the Dufferin Gate Loop as per the 2008-approved Environmental Assessment for this section, and coordination of the design with the current and planned work to replace the Dufferin Street bridge over the Gardiner Expressway and Lake Shore West Rail Corridor.

This extension of the streetcar will provide much needed transit service to the Liberty Village Employment area and northwest portion of Exhibition Place. It would also give the TTC significant flexibility to refine service routing to align with latent and future demand, providing potential relief to the 504 King streetcar route and other TTC routes. As an additional network benefit, the extension would allow for future enhanced north-south transit and active transportation connections to Ontario Place. Finally, the extended

streetcar right-of-way within the northwest corner of Exhibition Place will be a common element to each of the three LRT concepts being carried forward for further assessment.

Segment 3: Strachan Avenue to Parliament Street

Due to the complexity of transit needs in this high-density, mixed-use area, Segment #3 is divided into two distinct sub-segments:

- "Western Approach to the Downtown Core", which include concepts for a western approach to Downtown. These concepts would be ultimately contingent on the assessment of "Downtown Core Concepts".
- "Downtown Core Concepts", which focuses on what happens to the transit line in the central waterfront area around Union Station, assessment of which is of critical importance to completing an overall waterfront transit network solution.

Sub-segment: Western Approach to the Downtown Core (Strachan Ave to Bathurst St)

Four main east-west concepts were initially developed for this western approach sub-segment. After evaluation, three concepts (3A, 3B and 3C) are recommended for further Phase 2 assessment.

3A) Existing Fleet St – Bathurst St - Queens Quay LRT (recommended for further study)



Concept 3A proposes utilizing the existing semi-exclusive transit right-of-way along Manitoba Drive and Fleet Street to connect to Bathurst Street and Queens Quay. Improvements to transit priority along this route would be considered.

3B) Fleet St – Fort York Blvd – Bremner Blvd (recommended for further study)



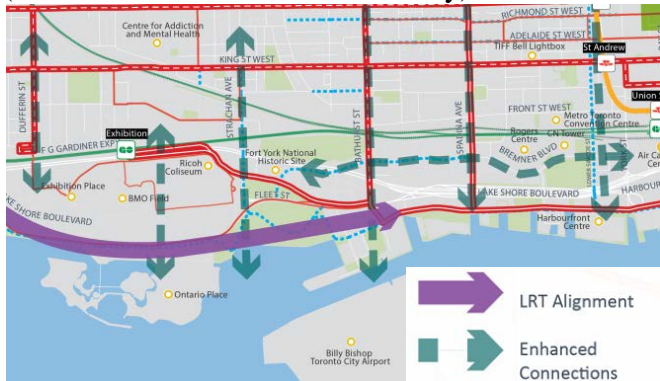
Concept 3B proposes utilizing the existing semi-exclusive transit right-of-way along Manitoba Drive and Fleet Street, and a new LRT right of way along Fort York Boulevard and Bremner Boulevard to points east.

3C) South of Rail Alignment – North of Rail Alignment / South of Front St (recommended for further study)



Concept 3C proposes a new LRT right-of-way from the Exhibition Place streetcar loop, crossing under the Gardiner/Rail Corridor(s) to points east. Concept 3C would require coordination with potential Metrolinx advancement of plans for a potential Union Station satellite station in the vicinity of Front Street at Bathurst Street/Spadina Avenue.

3D) Lake Shore Blvd – South of Coronation Park – Queens Quay (not recommended for further study)



Concept 3D proposes a new LRT corridor along the south edge of Coronation Park, connecting to Queens Quay.

After evaluation, Concepts 3A, 3B, and 3C were found to best align with the study objectives and vision, and therefore recommended for further Phase 2 assessment. In particular, these concepts provide the greatest opportunity to integrate with the City's and Regional transit network.

City staff screened out Concept 3D in light of its greater transit service impact to Exhibition Place, Liberty Village, and Exhibition GO Station; because Ontario Place may be served by improved north-south connections to the network; and taking into account stakeholder and public consultation feedback.

Operational improvements at the complex intersection of Queens Quay/Fleet/Lakeshore Boulevard/Bathurst Street are integral to ensuring the viability of additional or enhanced higher order transit service using Queens Quay. Further analysis would consider allowing transit only operations on Fleet St, transit priority at the intersection, and ongoing planning for the Bathurst Quay Neighbourhood. This analysis will be a key factor for Concepts 3A and 3B in particular.

Sub-segment: The Downtown Core: Families of Alternatives for Serving Downtown

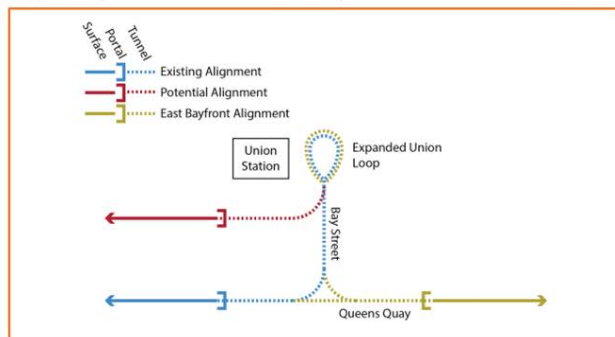
The downtown is a critical section in the transit network because of the land use density, street activity, connections to other transit service, and the impact and influence of Union Station. Furthermore, implementation of East Bayfront transit is the catalyst for unlocking the eastern extension of the waterfront LRT, and is necessary to serve the major redevelopment envisioned for the Port Lands. Ultimately, there may be more than one solution or alignment required in this section of the network in order to fully address transit demands, and solutions will require phasing to address immediate and longer term demands. Recognizing the urgency of delivering higher order transit within the East Bayfront and its importance to realizing planned transit improvements in the Port Lands, all concepts incorporate the Queens Quay section of the East Bayfront LRT.

A total of ten concepts were initially developed for this sub-segment. To aid in their respective assessments, and in order to recognize variations on a common theme within single concepts, these concepts were grouped into four "families" of alternatives (A through D) as follows:

Family A – Union Loop Modifications (recommended for further study)

Prior ridership forecast analyses have determined that a direct connection to Union Station is a key characteristic of transit demand along the waterfront. Family A represents two options for modifying the Union station below-grade streetcar infrastructure to accommodate additional demand. Both are recommended for further Phase 2 assessment.

A1: Expanded Union Loop



- As per approved East Bayfront Transit EA, expand existing Union Loop to increase station capacity and to improve terminus operations (i.e. new platforms, additional by-pass and crossover trackage)
- Includes the potential to implement the Bremner Blvd route as originally envisioned
- Through service along Queens Quay will be provided by a new tunnel as per the approved East Bayfront Transit EA

Concept A1 proposes expanding the existing Union Station Streetcar Loop to a new loop that would accommodate future transit demand. The previously approved East Bayfront LRT EA assumed an exclusive transit right-of-way on the south side of Queens Quay from Parliament Street to a portal entrance to a new tunnel section at Freeland Street, and connecting to Bay Street and Union Station via the existing tunnel. Expansion of the existing Union Station streetcar loop would be required to accommodate 1) Existing Streetcar services (e.g. 509 Harbourfront and 510 Spadina); 2) East Bayfront LRT (with a future extension to Leslie Street; and, 3) A potential new Waterfront West LRT route (via Bremner Boulevard). Previous TTC studies had identified feasible plans for expanding the existing loop to accommodate the above transit routes based on the land use forecast available at the time.

A2: Extend Underground Alignment Easterly



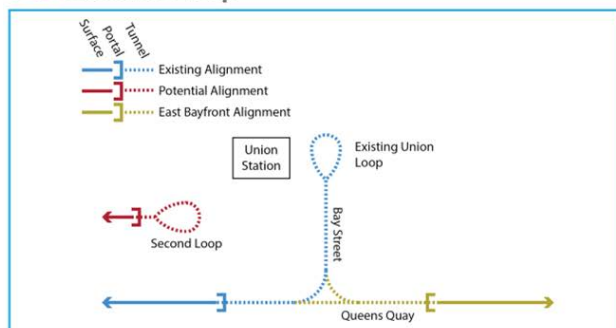
- Eliminate Union Loop by extending the existing Queens Quay LRT easterly under the rail corridor or in the adjacent development, creating an in-line station on a continuous route

Concept A2 would create a bypass to the Union Station LRT loop by continuing the line east from Bay Street (potentially under the Rail Corridor) and returning to Queens Quay below a north-south street (Freeland Street is identified as a possibility). New in-line stations would be considered where appropriate. Continued engineering feasibility investigation is required to confirm the viability of this concept.

The latest population and employment growth projections for the Port Lands, East Bayfront, and Lower Yonge Precinct, among other areas along the waterfront will be considered in an updated travel forecasting analysis. In addition, prior planning for a Union Streetcar loop expansion did not consider LRT service to Woodbine Avenue and may have a further influence on travel behaviour. These factors would be addressed through updated transit operations modelling and engineering feasibility study during Phase 2. Based on further analysis taking into account public and stakeholder consultation feedback, City staff has recommended each Family A Concept for further Phase 2 assessment.

Family B – New Downtown West Loop (recommended for further study)

B1: Second Loop



- Construct a second downtown terminus loop, likely on the west side of Union Station
- Maintain existing Union Loop, limiting operations to its existing capacity
- Includes the potential to implement the Bremner route, however likely not as originally envisioned
- Through service along Queens Quay will be provided by a new tunnel as per the approved East Bayfront Transit EA

Concept B1 would involve constructing a second LRT terminal loop west of Union Station to serve western transit demand. The existing Union Loop would be maintained, limiting operations to its existing capacity.

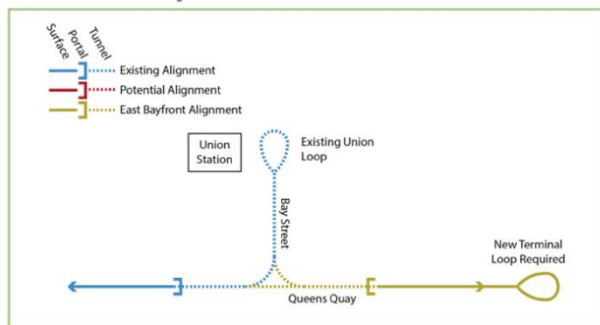
Based on public and stakeholder feedback, City staff recommend this concept for further Phase 2 assessment. This concept is, however, contingent on a number of assumptions that would need to be addressed. The major assumptions include: the need for an

appropriate site for the station and new loop, projected transit demands from the west, the ability to integrate with a potential new GO Station to the west of the Downtown core, and the connection to the rest of the TTC network and other destinations to the east.

Family C – Queens Quay Through Service

Each of the four Family C concepts propose, as a main element, a continuous Queens Quay through service that would complete the TTC transit network grid. These concepts could be phased to respond to transit demands, and also consider affordability and potential flexibility to address current transit service needs; both key objectives for the study. After evaluation, Family C Concepts C1 and C2 are recommended for further Phase 2 assessment.

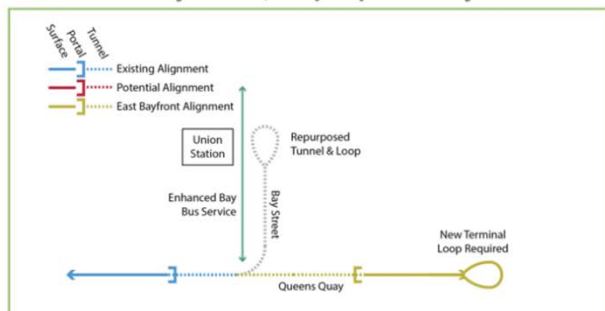
C1: Tunnel By-Pass



- Maintain existing Union Loop, limiting operations to its existing capacity
- Through service along Queens Quay will be provided by a new tunnel as per the approved East Bayfront Transit EA (potentially extended to provide an underground station for access to the ferry terminal - consistent with Alternative Q3 from the EA)
- New terminal loop required in the east

Concept C1 would involve a below grade LRT through-service along Queens Quay, maintaining some streetcar service into the existing Union Streetcar Loop.

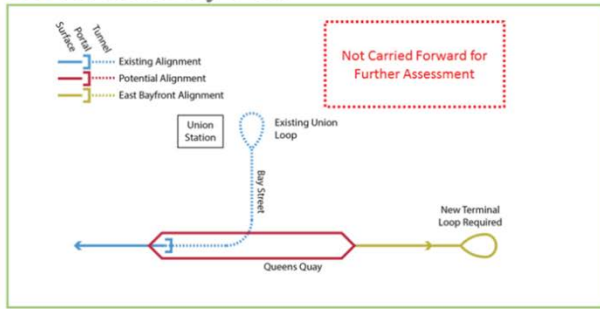
C2: Tunnel By-Pass, Repurpose Bay St Tunnel



- Existing Union Loop and Bay Tunnel are repurposed for pedestrian use
- Enhanced Bay bus service provided to Queens Quay (such as reserved bus lanes)
- Through service along Queens Quay will be provided by extending the existing LRT easterly in a tunnel under Bay, emerging east of Yonge St
- New terminal loop required in the east

Concept C2 would involve below grade LRT through-service along Queens Quay, repurposing (e.g. moving sidewalk, PATH pedestrian connection, or pedestrian/cycling connection) the tunnel between Queens Quay and the Union Subway Station in conjunction with an enhanced Bay Street Bus service.

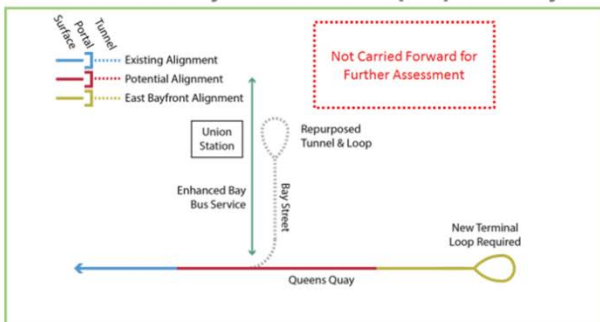
C3: At-Grade By-Pass



- Maintain existing Union Loop, limiting operations to its existing capacity
- Through service along Queens Quay will be provided by splitting off a separate LRT line in the vicinity of York St in order to avoid the existing portal and underground service to the Union Loop
- Mixed traffic operations within the Queens Quay roadway will result between York St and Yonge St, prior to connecting to the approved East Bayfront LRT alignment New terminal loop required in the east

Concept C3 would involve at-grade LRT through-service along Queens Quay, maintaining some streetcar service into the existing Union Streetcar Loop.

C4: At-Grade By-Pass and Repurpose Bay St Tunnel



- Existing Union Loop and Bay Tunnel are repurposed for pedestrian use
- Enhanced Bay bus service provided to Queens Quay (such as reserved bus lanes)
- Through service along Queens Quay will be provided by extending the existing LRT easterly at-grade over existing Queens Quay portal
- New terminal loop required in the east

Concept C4 would involve at-grade LRT through-service along Queens Quay, repurposing (e.g. moving sidewalk, PATH pedestrian connection, or pedestrian/cycling connection) the tunnel between Queens Quay and the Union Subway Station in conjunction with an enhanced Bay Street Bus service.

There is general public support to consider the common element of Family C which is the creation of a continuous transit route on Queens Quay with various connection alternatives to Union Station.

The consultant's initial technical analysis has recommended screening out both concepts that would involve implementing an at-grade LRT through service on Queens Quay at Bay Street, based on the following rationale:

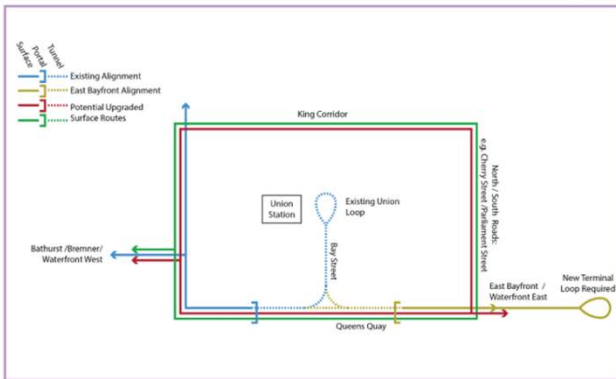
- The at-grade Queens Quay alignment (Concept C4) would present significant challenges to the pedestrian, cycling, and public space, traffic and parking impacts (including bus parking management), and LRT passenger stop platforms would not be possible in this location.
- Maintaining the existing streetcar portal (and some service into the Union Streetcar Loop) (Concept C3) would not provide enough space in the existing Queens Quay right-of-way to permit an at-grade LRT by-pass, and would further compound the issues of Concept C4.

Based on further analysis taking into account public and stakeholder consultation feedback, the concept of a continuous below-grade transit service along Queens Quay at Bay Street, with two potential options of either: maintaining some streetcar service into the existing Union Streetcar Loop (Concept C1), or, repurposing the existing tunnel into Union Station (Concept C2), is recommended by City staff for further assessment.

Family D – Network Distribution

Each of the three total Family D concepts propose distributing transit service over an upgraded and transit-prioritized network, utilizing the existing surface infrastructure where possible, and introducing new surface infrastructure where necessary. These concepts could be phased to respond to transit demands, and also consider affordability and potential flexibility to address current transit service needs. After evaluation, only Concept D1 is recommended for further Phase 2 study.

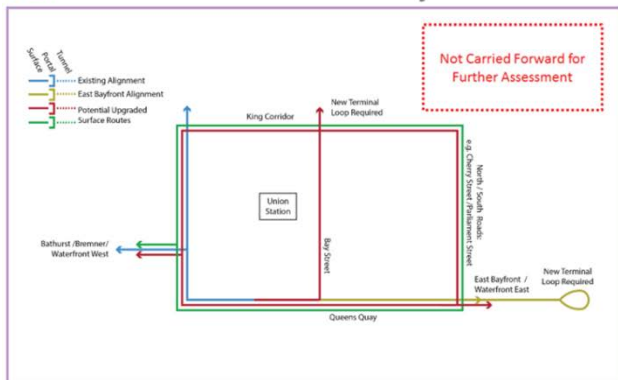
D1: Distribute On Network & Use Existing Loop



- Transit service from the east and west will be distributed and looped over upgraded LRT corridors
- Maintain existing Union Loop, limiting operations to its existing capacity
- Through service along Queens Quay will be provided by a new tunnel as per the approved East Bayfront Transit EA (potentially extended to provide an underground station for access to the ferry terminal - consistent with Alternative Q3 from the EA)
- New terminal loop required in the east

Concept D1 would distribute waterfront-related LRT service from east and west on upgraded transit corridors, using the existing downtown street network for looping. Accommodation for this concept would need to be considered in respect of other transit routes. This is the only Family D concept recommended for further Phase 2 study.

D2: Distribute On Network & Bay St LRT



- Existing Union Loop and Bay Tunnel are repurposed for pedestrian use
- Introduce semi-exclusive transit corridor along Bay Street potentially linking with the Relief Line
- Through service on Queens Quay provided at-grade
- New terminal loop required in the east

Concept D2 would distribute LRT service from east and west on upgraded transit corridors, using the existing downtown street network for looping. In addition, a semi-

exclusive transit corridor along Bay Street would be introduced. Accommodation for this concept would need to be considered in respect of other transit routes.

D3: Bay St LRT



Concept D3 would introduce, as a main element, a semi-exclusive transit corridor along Bay Street, and an at-grade LRT on Queens Quay.

The consultant's initial technical analysis recommended screening out LRT along Bay Street (Concepts D2 and D3). Introducing LRT within the Bay Street corridor would present significant impacts to all users on the street and to the public realm.

Based on further analysis taking into account public and stakeholder consultation feedback, the concept of distributing downtown waterfront-related transit service over an upgraded and transit prioritized network (Concept D1) is recommended by City staff for further assessment. To make this concept effective, it is anticipated that a transit-prioritized network in this area would require exclusive rights-of-way (excluding at intersections). This concept will require coordination with the *King Street Visioning Study* as part of *TOcore*, Secondary Plan Study for the Downtown. The *King Street Visioning Study* is looking at methods of improving transit priority along King Street in the context of overall public realm street improvements.

Segment 4: Parliament Street to Woodbine Avenue

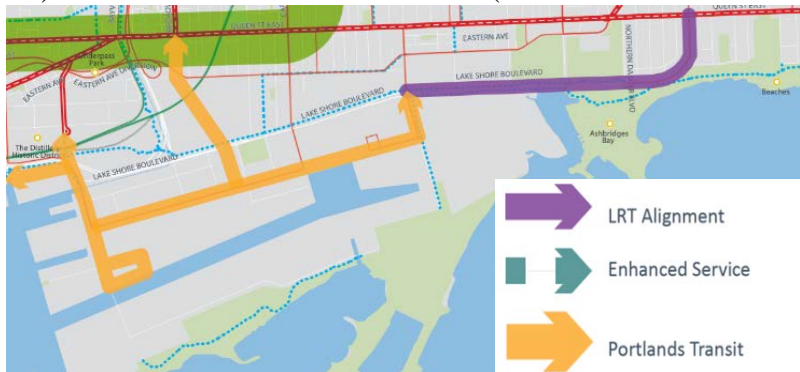
A total of two concepts were prepared for this segment. After evaluation, both concepts are recommended for further Phase 2 study.

Similar to the East Bayfront section of the waterfront, there has been extensive planning for future LRT service east of Parliament Street. LRT along Queens Quay East from Parliament Street to Cherry Street is assumed in the current planning and approvals for the redevelopment of lands south of Lake Shore Boulevard. East of Cherry Street to Leslie Street, this study has assumed the proposed transit network based on the work being completed for the Port Lands and South of Eastern Transportation and Servicing Master Plan. This includes a transit network with a main east-west LRT line along Commissioners Street and connecting to Leslie Street with a turn-around at the TTC Leslie Barns Streetcar Maintenance Facility. The Port Lands and South of Eastern area

would be served by LRT extensions to Queens Quay and Cherry Street in the west, and from an extended Broadview Avenue in the north. The Cherry Street LRT would extend south of Commissioners Street to the ship channel. The results of Port Lands and South of Eastern study will be reported to Council later this year.

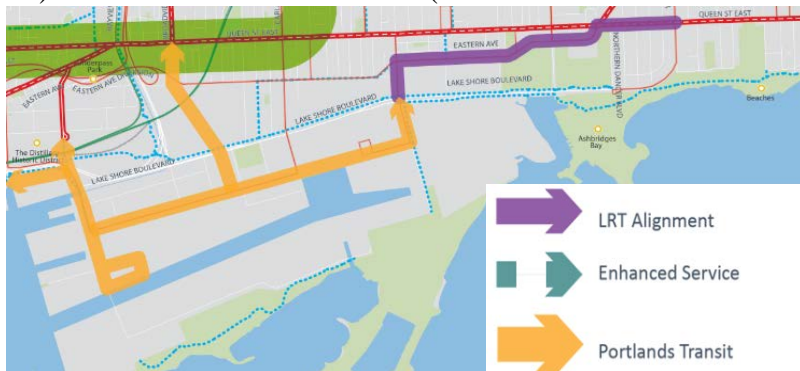
East of Leslie Street and the Leslie Barns, two east-west concepts were developed for this segment:

4A) Lake Shore Blvd LRT Extension (recommended for further study)



Concept 4A assumes the transit network being completed for the Port Lands and South of Eastern Transportation and Servicing Master Plan, and east of Leslie Street, a new LRT right of way along Lake Shore Boulevard to Queen Street.

4B) Eastern Ave LRT Extension (recommended for further study)



Concept 4B assumes the transit network being completed for the Port Lands and South of Eastern Transportation and Servicing Master Plan, LRT right-of-way along Leslie Street north to Eastern Avenue, and along Eastern Avenue to Queen Street.

After evaluation, both concepts 4A and 4B are recommended for further Phase 2 assessment. This segment would require an appropriate eastern terminal, ensuring high quality transit connections to the Beach area and potentially east to Scarborough. Modelling results would be required to assist in determining configuration and potential transit network implications. Based on Phase 2 results, the City would initiate steps to protect a corridor and terminal for future enhanced transit.

Next Steps

Phase 1 of the Waterfront Transit "Reset" has resulted in the following three main findings/directions:

Direction #1: Commence Waterfront Transit "Reset" Phase 2

Having established study objectives, vision, and series of recommended concepts for further study, the commencement of Phase 2 is critical for moving towards the implementation of a much needed transit network infrastructure solution. Phase 2 of the Study is recommended, and will include the following key objectives for the complete study area between Long Branch and Woodbine Avenue:

- Transit modelling analysis;
- Focus on alignment solution/s for the area of the network between Legion Road in south Etobicoke and Dufferin Street at Exhibition Place;
- Focus on alignment solution/s for the area of the network between Strachan Avenue and Cherry Street, with a particular emphasis on the East Bayfront area, realizing its importance to extension of transit into the Port Lands;
- Development of alignment solution/s, including functional plan drawings to a 5% level of detail and cost estimates reflecting 5% detail;
- Furthering of a Business Case to consider the potential strategic, economic, financial, deliverability and operational impacts of the waterfront transit solution; and,
- Identification of recommendations to advance a preferred waterfront transit solution to the Transit Project Assessment Process (TPAP).

The recommended Phase 2 scope of work would include but not necessarily be limited to, the following tasks:

1) Conduct a Macro-Level Transit Modelling Analysis

- As a priority, updated modelling is required to frame (upper and lower bounds) of the potential demand for LRT, and to provide input into technical feasibility and engineering analyses. Modelling work would be refined as key external (i.e. various Metrolinx initiatives) and alignment screening decisions are made. Given the narrow corridor and the proximity to other east-west higher order transit corridors, initial WT modelling approach would consider:
 - Medium and long-term timeframes to assist in potential staging scenarios
 - Inputs such as - feeder bus and transit network;
 - Realistic transit operational speeds per segment;
 - Transfer quality;
 - Metrolinx RER / new stations / fare assumptions; and,
 - Key intersections with potential turning restrictions

Non-peak transit demands would also need be considered in the context of the above.

2) Further develop the Preferred Concepts identified from the Phase 1 assessment to a basic functional level suitable for a more detailed assessment of operational feasibility, including high level cost considerations

- 3) *Conduct a micro-level transit modelling analysis to compare alternative LRT alignments*
 - As a key priority for this task, with updated transit demand ranges from the west and east and in the vicinity of Union Station (appreciating Line 1 and RER transfers / interactions), a downtown sub-area micro-simulation analysis would be undertaken to assess remaining "Downtown Core Concepts". Capacity, various risks, transit user experience, pedestrian flow, traffic impacts, network connectivity, flexibility / redundancy, and cost are some of the key considerations that require quantitative measures to facilitate necessary trade-offs.
- 4) *Complete a comparative evaluation of the alternative alignments with potential to create a complete network solution as a key criteria*
 - Overall, the evaluation would continue to consider the *Feeling Congested?* evaluation framework however the measures will be refined to reflect a greater level of detail.
- 5) *Identify Preferred Alignment Solution(s)*
- 6) *Develop the Preferred Alignment Solution(s) to a 5% functional plan level of detail.*
 - As the direction for the preferred network solution emerges through Phase 2 study, an alternate, accelerated approach to 5% design for critical areas of the network could be applied in recognition of the fact that an Environmental Assessment, plus preliminary design has already been completed for some sections, including the East Bayfront and the section of Lake Shore Boulevard between the Humber Loop and Park Lawn Road.
- 7) *Prepare detailed cost estimates for the Preferred Alignment Solution(s)*
- 8) *Prepare a Business Case for the waterfront transit network*
 - The Business Case will be consistent with established Metrolinx Business Case draft guidelines, assembling a suite of evidence on the potential strategic, economic, financial, deliverability and operational impacts of a proposed project to inform decision making throughout the project lifecycle.
- 9) *Identify Recommendation(s) to move forward to the Transit Project Assessment Process (TPAP)*

Other Phase 2 tasks will include Public and stakeholder consultation, Metrolinx coordination, (importantly to ascertain the status of planning for Union Station capacity, and other Regional Transportation Network initiatives with impact on Waterfront Transit), and City of Mississauga coordination.

Note: Ongoing Phase 1 analysis taking into account public feedback and Metrolinx decisions regarding major components of the Regional Transit Network may refine the above noted Phase 2 scope of work.

Direction #2: Accelerate Network Infrastructure Improvements

This report clearly outlines that while new transit infrastructure concepts under consideration are preliminary at this stage, some of the concepts have been the subject of more detailed study in the past. Emerging directions for new infrastructure are focused on two key objectives; 1) Ensuring that solutions consider a broader network perspective, and, 2) Identifying short to medium term solutions that can be compatible with a long term vision for waterfront transit.

As a result of the Phase 1 work, a preliminary design study is recommended for the extension of the existing streetcar in its own right-of-way from the Exhibition Loop at Manitoba Drive to the Dufferin Gate Loop, as per the approved Environmental Assessment for this section. This study would be coordinated with the current and planned work to replace the Dufferin Street bridge connection across the Gardiner Expressway and Lake Shore West Rail Corridor. Also for consideration in design and cost estimation are potential improvements to the Dufferin Gate loop to accommodate additional streetcar and bus traffic, and required pedestrian connectivity/circulation enhancement(s) in the vicinity of the Exhibition Loop at Manitoba Drive.

This extension of the streetcar service would provide a much needed transit service to the Liberty Village Employment area and northwest portion of Exhibition Place. It would also give the TTC significant flexibility to refine service routing to align with latent and future demand, providing some relief to the 504 King streetcar route and possibly, other TTC routes. As an additional network benefit, the extension would allow for future enhanced north-south transit and active transportation connections to Ontario Place.

Direction 3: Continue Immediate and Planned TTC Service Improvements

The Phase 1 study has focused on medium-long term transit network solutions, and the TTC has also been actively initiating and implementing a number of service improvements within the study area. These initiatives help support the longer-term study vision and provide some level of relief until LRT service is in place. These short-term initiatives include the following:

- New 188 Kipling South Rocket express bus route (implemented early 2016);
- New 514 Cherry streetcar route between the Dufferin Gate Loop and Cherry Street Loop (started June 19, 2016);
- New 121 Fort York-Esplanade bus route, providing new service to the Bremner Boulevard and Fort York areas (started June 19, 2016);
- Revised 72 PAPE route , restoring connection with Union Station and providing new service to Queen's Quay East (started June 19, 2016);

- 501 Queen, Humber Loop to Long Branch Loop, increased service to include the route on the 10 minute network (implemented early 2016);
- Restoring continuous service on the 501 Queen Streetcar, eliminating transfers at the Humber Loop (implementation subject to rollout of new low-floor LRV's);
- 66 Prince Edward increased service to reduce overcrowding (implemented early 2016); and,
- 145 Downtown/Humber Bay Express revised schedule to improve service reliability (implemented early 2016).

Potential infrastructure improvements that would further allow TTC service improvements within the study area have been identified, though no work on implementation of funding has yet been initiated. These improvements include: implementing a bus loop at Jameson Avenue and Lake Shore Blvd (which would permit an extension of 47 Lansdowne from Queen to Lake Shore, via Jameson); widening Sherbourne Street to two way operation at Queens Quay to allow extension of the 65 Parliament bus to Queens Quay; and, implementing a bus loop at Marine Parade Drive and the waterfront (to permit two-way operation of 66B Prince Edward bus route on Marine Parade Drive).

In addition to the planned and potential TTC service improvements, the City is conducting the King Street Visioning Study as part of *TOcore*, Secondary Plan Study for the Downtown. This study is looking at methods of improving transit priority along King Street in the context of overall public realm street improvements. This effort will be further supported by a joint City and TTC study to look at prioritizing transit along the entire length of King Street between Roncesvalles Avenue and River Street.

Ongoing City and TTC analysis of travel behaviour as a result of new or revised TTC services, and King Street Visioning study directions would be coordinated and incorporated in the Phase 2 Study of the Waterfront Transit "Reset".

CONCLUSION

In conclusion, the Phase 1 work described in this report is an important step forward in the realization of a comprehensive transit network vision for the waterfront. This vision, along with the transit improvement concepts that would achieve it, were generally well received by the public and stakeholders. There is an overall public expectation that completing the work and implementing solutions will be a key priority for the City, the TTC and Waterfront Toronto.

In view of these findings, staff recommend that City Council approve funding to complete Phase 2 of the Waterfront Transit "Reset" and authorize staff to begin 30% design for the extension of the exclusive streetcar network from the Exhibition Loop to the Dufferin Gate Loop.

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SIGNATURE

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ATTACHMENTS

Appendix 1 – Planning History for Waterfront Transit
Appendix 2 – Waterfront Transit *Feeling Congested?* Evaluation Framework