Relief Line Project Assessment

Public Information Centre

April 5, 2017
Tonight’s Meeting

PURPOSE
To review the preferred alignment for the Local Segment.

AGENDA
6:30  Open House
7:00  Presentation / Discussion
8:00  Open House
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>City Council approves Yonge North Extension EA, contingent on Relief Line and City/TTC commence study to determine need for the Relief Line.</td>
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<tr>
<td>2012</td>
<td><strong>Downtown Rapid Transit Expansion Study</strong> concludes that initial phase of Relief Line and GO Transit improvements would help ease crowding on the transit network.</td>
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<td>2012</td>
<td>Relief Line identified as part of the “Next Wave” of transit projects in the Metrolinx Big Move plan and is identified by Metrolinx as a priority for future transit investment.</td>
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<td>2014</td>
<td>Relief Line Project Assessment launched. City/TTC commence planning for the preferred route alignment and station locations for the Relief Line, to deliver planning approvals in mid-2016. The relationship between SmartTrack and the Relief Line is being reviewed as part of this work.</td>
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<td>2015</td>
<td><strong>Yonge Relief Network Study</strong> recommendations approved by Metrolinx Board. Allows project development for the Yonge North Subway Extension. Affirms that the Relief Line Project Assessment should continue, to ensure that a project is ready for when needed in 2031.</td>
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<tr>
<td>March 2016</td>
<td>City Council approves preferred corridor for Relief Line: Pape to Downtown via Queen/Richmond.</td>
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<tr>
<td>July 2016</td>
<td>City Council approves Relief Line Initial Business Case and Preferred Alignment for Relief Line (Pape to Downtown via Queen/Eastern) subject to assessment of an additional alignment west of Pape, within a local segment between Gerrard and Queen.</td>
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</tbody>
</table>
City Council approved a general alignment from downtown to Danforth and directed City and TTC staff to assess an additional alignment in this LOCAL SEGMENT.
July 2016 City Council Decision

City Council approved the Pape-Eastern-Queen alignment, subject to the determination of a specific alignment as described below, and authorized the Chief Planner and Executive Director, City Planning and the Chief Executive Officer, Toronto Transit Commission to:

• work in partnership with Metrolinx to confirm station locations for optimal connections between the Relief Line and SmartTrack/Regional Express Rail, including future extensions of the Relief Line; and

• undertake an additional assessment of an alignment west of Pape Avenue, starting immediately north of the GO tracks on Pape Avenue to south of Queen Street, with a station box at Queen Street and Carlaw Avenue and:
  – prepare an Outreach Plan in consultation with the local Councillor to review these option(s) with stakeholders, including the General Manager, Economic Development and Culture, and the public, including local residents; and
  – bring back a recommendation to Council, through Executive Committee, prior to commencing the formal Transit Project Assessment Process; and

• prepare the Environmental Project Report for the Relief Line and issue the Notice of Commencement for the Transit Project Assessment Process once ready to proceed.
Evaluation of Alignment Options

Comprehensive Evaluation Framework

SERVING PEOPLE
- CHOICE
- EXPERIENCE
- SOCIAL EQUITY

STRENGTHENING PLACES
- SHAPING THE CITY
- HEALTHY NEIGHBOURHOODS
- PUBLIC HEALTH AND ENVIRONMENT

SUPPORTING PROSPERITY
- SUPPORTS GROWTH
- AFFORDABILITY

RELIEF LINE
Key Decision Factors for the Local Segment

• Maximize city-building opportunities around stations:
  – Ability to integrate stations into the existing urban fabric
  – Serve the areas with the most people and jobs, today and in the future
  – Compatibility with existing neighbourhoods and support for local businesses
  – Potential opportunities for public/private partnership

• Provide people with the best ways to make transfers between the Relief Line and local buses/streetcars.

• Minimize potential negative impacts on the local area, both during and after construction
Local Segment

Options Evaluated

1. Subway running under **Pape** from Queen to Danforth, with stations near Queen and Gerrard

2. Subway running under **Carlaw** from Queen to the GO Rail Corridor, then running diagonally under commercial and residential properties to connect to Pape near Riverdale Avenue, with stations near Queen and Gerrard

*Planning and design for the Relief Line and SmartTrack is being coordinated to provide for a good interchange connection. Discussions with Metrolinx are underway.*
Preferred Alignment

Carlaw option is recommended:

• Best achieves city-building objectives
  – Helps strengthen the area as a hub for business and transitioning residential uses as envisioned by Special Policy Area 247
  – Station at Queen-Carlaw would invite a high level of activity that would support the emerging higher density, mixed-use Carlaw+Dundas area
  – Station at Queen serves a higher concentration of projected future employment and supports existing businesses
  – Both stations can be well-integrated into the existing urban fabric

• Best opportunities for transit network connectivity with SmartTrack and surface transit

• Most compatible with preserving integrity of existing neighbourhood
Pape Avenue Characteristics
(between Gerrard and Queen)

- Low-density residential street
- Classified as a local road
- Roadway width: 7.4 metres
- Right-of-way width: 18.3 metres
- Official Plan land use designation is Residential
- Estimated existing population along Pape: 1,100 *

* Estimated using 2016 Census data
Carlaw Avenue Characteristics  
(*between Gerrard and Queen*)

- Mixed-use street with mid-rise buildings, including residential, retail, and offices.
- Classified as a minor arterial
- Roadway width: 12.2 metres
- Right-of-way width: 20.1 metres
- Official Plan designation is Employment; Site and Area Specific Policy 247 also permits residential and live/work uses and retail
- Carlaw+Dundas Community Initiative was a response to the redevelopment taking place and recommends public realm improvements
- Surface transit route along Carlaw: 72 Pape bus
- Existing population along Carlaw: 2,500 *

* Estimated using 2016 Census data
Things to Consider

Station
- Both station options at Gerrard would serve people, jobs, and redevelopment opportunities well
- Station on Carlaw may have to be deeper
- Station at Queen and Carlaw is closer to more people and jobs
- SmartTrack station closer to Carlaw

Tunnel
- Tunnels on both Pape and Carlaw would need to get either over or under a combined sewer on Gerrard
- Tunnel on Carlaw would require reconstruction/relocation of a combined sewer on Carlaw
- Tunnel depth would range from 18-25 metres

Construction
- Tunnel construction will create temporary noise/vibration issues
- Construction of stations will impact immediate area as well as a wide area of the neighbourhood, including traffic diversions
- Traffic management plan will be prepared and will include maintaining access to local business and residents during construction

Operation
- Noise and vibration of the subway will be very limited because of tunnel depth, bedrock conditions, and state of the art technology
- Volume of traffic, including pedestrians and cyclists, will increase around station areas.
Technical Work Completed to Support Evaluation of Local Segment Options Since July 2016

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Evaluation of Local Segment Options</strong></td>
<td>Comprehensive evaluation based on wide variety of technical data and information</td>
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<tr>
<td><strong>Geotechnical/Seismic Analysis</strong></td>
<td>Undertook detailed field analysis to map geological conditions (e.g. soils, bedrock) as input for noise and vibration analysis *</td>
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<td>**Existing Subway Noise and Vibration Testing ***</td>
<td>Compared noise and vibration data from the Bloor-Danforth Subway and Sheppard Subway to confirm significant reduction in vibration has been achieved as a result of depth and newer track design.</td>
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<td><strong>Analysis of Potential Real Estate Impacts</strong></td>
<td>Studied potential real estate impacts on existing residential properties of construction and operation of the Relief Line along Pape or Carlaw.</td>
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<td><strong>Constraints Investigation</strong></td>
<td>Examined potential underground building constraints (i.e. deep foundations, underground parking)</td>
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<td>Examined potential constraints from existing and planned underground services and utilities (e.g. water, sewer, hydro)</td>
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* Note: An additional noise and vibration study will be carried out during the Transit Project Assessment for the Relief Line to confirm that the line will operate within accepted thresholds
Existing Subway Noise & Vibration Testing

Vibration levels for Sheppard Subway and Bloor-Danforth Subway were measured to compare differences. Sheppard is more comparable to Relief Line since it is deeper than Bloor-Danforth.

The Relief Line will meet or exceed TTC and Ministry of Environment and Climate Change’s stringent noise and vibration standards.

Conclusions:
• The deeper the tunnel, the greater the reduction in noise and vibration.
• Bedrock absorbs vibration better than soft soils.
• Contemporary track design results in reductions.

Implications for the Relief Line:
• Relief Line is more comparable to the Sheppard Subway as it will be deeper than Danforth, and possible even deeper than the Sheppard line (~18-25 metres).
• Tunnel will be mostly in bedrock.
• Relief Line will be built with state-of-the-art tunnel design (floating slab).
• Depth combined with geotechnical conditions and newer technologies will help to reduce potential for vibration/noise.
Real Estate Study by NBLC has been completed:

• In general, transit has a positive impact on real estate markets in terms of demand and pricing.

• After construction of the Relief Line is complete:
  – Both a Carlaw and Pape options likely to experience net positive real estate impacts within the area in general
  – Net positive real estate impacts expected for most low-density property values, especially within walking distance of a station
  – Some homes immediately adjacent to a station may have limited negative impacts, which could include a lower value or weaker price appreciation. Through more detailed station design, techniques would be explored to mitigate potential impacts.
  – Apartments/condos can expect to display a strong value premium

• During construction of the Relief Line:
  – Potential for temporary negative impacts to the value of a property and to the ability to sell a property during construction
  – Living conditions may be more stressful
  – Real estate market is still expected to display strong demand characteristics
## Summary of Local Segment Options Evaluation

<table>
<thead>
<tr>
<th>Category</th>
<th>Pape</th>
<th>Carlaw</th>
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<tbody>
<tr>
<td><strong>Choice</strong></td>
<td>![Circle]</td>
<td>![Circle]</td>
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<tr>
<td><strong>Experience</strong></td>
<td>![Circle]</td>
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<tr>
<td><strong>Social Equity</strong></td>
<td>![Circle]</td>
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<td><strong>Shaping the City</strong></td>
<td>![Circle]</td>
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<td><strong>Healthy Neighbourhoods</strong></td>
<td>![Circle]</td>
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<td><strong>Public Health &amp; Environment</strong></td>
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<td><strong>Affordability</strong></td>
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<tr>
<td><strong>Supports Growth</strong></td>
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### Overall Technical Summary

- **Pape:** ![Circle]
- **Carlaw:** ![Circle]
Preferred Alignment within the Local Segment is the CARLAW Option

Carlaw option is recommended:

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• Best opportunities for transit network connectivity with SmartTrack and surface transit

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Next Steps

**LOCAL SEGMENT APPROVAL**

<table>
<thead>
<tr>
<th>Date</th>
<th>Authority</th>
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</thead>
<tbody>
<tr>
<td>May 16, 2017</td>
<td>Executive Committee</td>
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<tr>
<td>May 24, 2017</td>
<td>City Council</td>
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</tbody>
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**RELIEF LINE PROJECT ASSESSMENT TPAP**

<table>
<thead>
<tr>
<th>Time</th>
<th>Action</th>
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<tbody>
<tr>
<td>Summer/Fall 2017</td>
<td>- Refine station locations and prepare station concept plans</td>
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<td>- Develop functional design for preferred alignment</td>
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<td>- Determine potential impacts and mitigation measures</td>
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<td>- Prepare Draft Environmental Project Report (EPR)</td>
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<td></td>
<td>- Launch formal Transit Project Assessment Process (TPAP) and submit Draft EPR to MOECC</td>
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<td>- Public and stakeholder consultation</td>
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Questions / Comments