Eglinton West LRT:
Development of Conceptual Grade Separations

STAGE ONE REPORT APPENDIX

October 3, 2017

-FOR INTERNAL DISCUSSION PURPOSES ONLY-
APPENDIX A:
ALTERNATIVE GRADE SEPARATION OPTIONS
OPTIONS NOT PURSUED FURTHER DUE TO FATAL FLAWS OR CUMULATIVE NEGATIVE ASPECTS

For each of the six intersections analyzed for grade separations, a series of options were considered. The following represent all of the options considered but not chosen to be pursued in the forthcoming stages of evaluation.
EXPLORING GRADE SEPARATION OPTIONS
The following table indicates options explored and key issues with options that are not to be explored further.

<table>
<thead>
<tr>
<th>Jane Street</th>
<th>North</th>
<th>Centre</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated</td>
<td></td>
<td>Impact on road and adjacent properties</td>
<td>Impact on MUP/sports facilities</td>
</tr>
<tr>
<td></td>
<td>Option 1</td>
<td>Feasible, not carried forward</td>
<td>Feasible, not carried forward</td>
</tr>
<tr>
<td></td>
<td>Advanced to Stage 2 analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At Grade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below</td>
<td>Below flood line</td>
<td>Fatally flawed</td>
<td>Below flood line</td>
</tr>
</tbody>
</table>

- **Elevated**: Option 1 advanced to Stage 2 analysis, feasible, not carried forward.
- **At Grade**: EA, base option (2010 EA), fatally flawed.
- **Below**: Below flood line, fatally flawed.
JANE STREET
ELEVATED, STRADDLING / SOUTH SIDE / CENTRE PLATFORM

Specific Considerations:
Potential impact on natural features
Potential impact on adjacent sports facilities
Potential impact on the golf course
Near side far side bus connection
Potential impact on east-west MUP
## SCARLETT ROAD

### EXPLORED GRADE SEPARATION OPTIONS

The following table indicates options explored and key issues with options that are not to be explored further.

<table>
<thead>
<tr>
<th>Scarlett Road</th>
<th>North</th>
<th>Centre</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated</td>
<td>Option 1a (elevated return to centre)</td>
<td>Impact on bridge and Eglinton alignment.</td>
<td>Impact on existing development, MUP, and may require Eglinton to shift South</td>
</tr>
<tr>
<td></td>
<td>Advanced to Stage 2 analysis</td>
<td>Feasible, not carried forward</td>
<td>Feasible, not carried forward</td>
</tr>
<tr>
<td>At Grade</td>
<td>Option 1b (dives below grade return to centre)</td>
<td>Feasible, not carried forward</td>
<td>Fatally flawed</td>
</tr>
<tr>
<td>Below</td>
<td>Portal below flood line, chasing grade</td>
<td>Portal below flood line, Impact on bridge structure, chasing grade</td>
<td>Portal below flood line, chasing grade</td>
</tr>
<tr>
<td></td>
<td>Fatally flawed</td>
<td>Fatally flawed</td>
<td>Fatally flawed</td>
</tr>
</tbody>
</table>

- **Green** indicates options that are advanced to Stage 2 analysis.
- **Yellow** indicates options that are feasible but not carried forward.
- **Red** indicates options that are fatally flawed.
SCARLETT ROAD

OPTION 1B: ELEVATED, STRADDLING / NORTH SIDE / CENTRE PLATFORM

BELOW GRADE CONNECTION TO CENTRELINE WEST OF INTERSECTION
SCARLETT ROAD

OPTION 1B: ELEVATED, STRADDLING / NORTH SIDE / CENTRE PLATFORM

BELOW GRADE CONNECTION TO CENTRELINE WEST OF INTERSECTION

*PRECLUDES A STOP AT MULHAM PLACE

IMPACT ON ADJACENT PROPERTIES
Requires partial permanent property taking at 1 Richview Road. No impacts anticipated to existing structure; however, alignment may conflict with property owner’s plans for 239 new units (in pre-application stage)"

IMPACT OF FLOOD PLAIN
None

GENERAL COST ESTIMATE
Approx. 1000m long elevated structure and 1000m long underground tunnel/trench

$$$$$$

MAJOR PHYSICAL BARRIERS
Potential significant impact to existing below-grade infrastructure in the tunnel section.

TRAFFIC IMPACTS*
Traffic operations may be better than the EA at-grade option and Scarlett 1a - avoids any widening of Eglinton. *based on preliminary qualitative analysis

PEDESTRIAN ACCESS: Access at NW and/or NE corner of intersection. Entrances would lead to a centre platform and therefore to both eastbound and westbound directions. No access from south side, requires at-grade Eglinton crossing.

BUS TRANSFER ACCESS: Bus Routes: 73, 79. Northbound transfer would require passengers to cross Eglinton at-grade unless stop is shifted farside. Southbound transfer does not require an at-grade street crossing.

IMPLICATIONS FOR ADJACENT STOPS:
Mulham stop location precluded by tunnel connection back to Eglinton west of stop. Royal York platforms would need to be changed from the EA to a parallel configuration west from the intersection.

PROS
Centre platform allows an entrance to access both directions of travel, simplifying user experience. Reduced visual impact compared to Option 1A.

CONS
South side pedestrians and cyclists will need to cross Eglinton at-grade to access the stop. Precludes a stop at Mulham Place.

This option is not to be pursued further.
SCARLETT ROAD
UNDERGROUND / NORTH SIDE / CENTRE PLATFORM

SPECIFIC CONSIDERATIONS:
- Portal located below flood line
- Richviews underground parking
- Potential impact on the Eglinton alignment
- Poor connectivity to the northbound bus
- Potential infill proposal on the Richviews property
- Chasing the grade going west

Fatal flaw: portal is below flood line, unable to make up grade change to west.
SPECIFIC CONSIDERATIONS:
- Portal located below flood line
- Impact on property to the south
- Potential entrance east of Eglinton
- Bridge reconstruction
- Significant realignment of Eglinton
- Chasing the grade going west
- Potential impact on east-west MUP

Fatal flaw: portal is below flood line, unable to make up grade change to west.
**ROYAL YORK ROAD**

**EXPLORED GRADE SEPARATION OPTIONS**

The following table indicates options explored and key issues with options that are not to be explored further.

<table>
<thead>
<tr>
<th>Royal York Road</th>
<th>North</th>
<th>Centre</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proximity to existing development</td>
<td>Feasible, not carried forward</td>
<td>Cost, access challenges</td>
<td>Feasible, not carried forward</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Proximity to existing development, MUP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Feasible, not carried forward</td>
</tr>
<tr>
<td>At Grade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proximity to existing development</td>
<td>Feasible, not carried forward</td>
<td>Below flood line</td>
<td>Advanced to Stage 2 Analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Centre platform) - access challenges</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Feasible, not carried forward</td>
</tr>
<tr>
<td>Below</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proximity to existing development</td>
<td>Feasible, not carried forward</td>
<td>Below flood line</td>
<td>Advanced to Stage 2 Analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Centre platform) - access challenges</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Feasible, not carried forward</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Option 1a - slope too steep to west</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fatally flawed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Option 1b - slope too steep to west</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fatally flawed</td>
</tr>
</tbody>
</table>
ROYAL YORK ROAD
OPTION 1A: TRENCHED / SOUTH SIDE / CENTRE PLATFORM
RETURNS TO EA ALIGNMENT BY RUSSELL

Fatally flawed: grade west of intersection exceeds 5% in order to meet grade before Russell stop.

This option is not to be pursued further, unless Russell Stop can be skipped.
ROYAL YORK ROAD
OPTION 1B: TRENCHED / SOUTH SIDE / CENTRE PLATFORM
DEPENDENT ON ISLINGTON OPTION 2

Fatally flawed: precludes an at-grade Russell/Eden Valley stop because alignment cannot return to grade between Royal York and Islington. Underground alignment in conflict with 30” diameter, high pressure gas line.

This option is not to be pursued further, unless Russell/Eden Valley Stop can be skipped.
ROYAL YORK ROAD
UNDERGROUND / CENTRE / CENTRE PLATFORM

SPECIFIC CONSIDERATIONS:
• Trench in the centre of ROW
• Eglinton widening will be required
• Improved opportunity for natural surveillance (compared with side platform)
• Additional crossings required for pedestrians
• More direct bus/LRT transfers

Option not pursued due to access challenges for pedestrians.
## ISLINGTON AVENUE

### EXPLORED GRADE SEPARATION OPTIONS

The following table indicates options explored and key issues with options that are not to be explored further.

<table>
<thead>
<tr>
<th>Islington Avenue</th>
<th>North</th>
<th>Centre</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated</td>
<td>Visual impact on adjacent properties</td>
<td>Option 1 Advanced to Stage 2 analysis</td>
<td>Option 2 (elevated, south) - precludes Russell stop, school impacts Fatally flawed</td>
</tr>
<tr>
<td></td>
<td>Feasible, not carried forward</td>
<td></td>
<td>Fatally flawed</td>
</tr>
<tr>
<td>At Grade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below</td>
<td>slope west is too steep to make the grade</td>
<td>Option 3 - slope west is too steep to make the grade, precludes Wincotte stop Fatally flawed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fatally flawed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Option 4 - slope west is too steep to make the grade, gas line impacts Fatally flawed</td>
</tr>
</tbody>
</table>
ISLINGTON AVENUE

OPTION 2: ELEVATED. STRADDLING / SOUTH SIDE/ CENTRE PLATFORM

DEPENDENT ON ROYAL YORK OPTION 1B

Fatally flawed: precludes an at-grade Russell/Eden Valley stop because alignment cannot return to grade between Royal York and Islington. Potential conflict with piers and 30” diameter, high pressure gas line.

This option is not to be pursued further, unless Russell/Eden Valley stop can be skipped.
Fatally flawed: precludes an at-grade Wincott stop because alignment cannot return to grade between Islington and Kipling. Underground section in close proximity to existing 30” diameter, high pressure gas line.

This option is not to be pursued further, unless Wincott stop can be skipped.
ISLINGTON AVENUE
OPTION 4: TRENCHED / SOUTH SIDE / CENTRE PLATFORM

Fatally flawed: steep 4.97% grade approaching Wincott Drive exceeds the maximum length of 250m.

This option is not to be pursued further, unless Wincott stop can be skipped.
SPECIFIC CONSIDERATIONS:
- Trench in the centre of ROW
- Eglinton widening will be required
- Improved opportunity for natural surveillance (compared with side platform)
- Additional crossings required for pedestrians
- More direct bus/LRT transfers

This option is not to be pursued further as it precludes a stop at Wincott and conflicts with the gas line.
**KIPLING AVENUE**

**EXPLORED GRADE SEPARATION OPTIONS**
The following table indicates options explored and key issues with options that are not to be explored further.

<table>
<thead>
<tr>
<th>Kipling Avenue</th>
<th>North</th>
<th>Centre</th>
<th>South</th>
</tr>
</thead>
</table>
| Elevated       | Impact on existing development  
Feasible, not carried forward | Impact on existing development  
Feasible, not carried forward | Impact on existing development  
Feasible, not carried forward |
| At Grade       | Will require to shift Eglinton south,  
conflict with townhouses  
Fatally flawed | Option 2 (underground, centre)  
Advanced to Stage 2 analysis | Option 1 (trench, south side) -  
greater conflict with gas line  
Feasible, not carried forward |
| Below          | | | |
KIPLING AVENUE

OPTION 1: TRENCHED / SOUTH SIDE / CENTRE PLATFORM
KIPLING AVENUE
OPTION 1: TRENCHED / SOUTH SIDE / CENTRE PLATFORM

IMPACT ON ADJACENT PROPERTIES
Curb and cross-section updates required to determine property impacts. Constrained boulevard may require trade-offs.

IMPACT OF FLOOD PLAIN
None

GENERAL COST ESTIMATE
Approx. 1000m long below-grade structure. Underground alignment in conflict with 30” diameter, high pressure gas line.

MAJOR PHYSICAL BARRIERS
Gas line will need to be carefully considered.

TRAFFIC IMPACTS*
Traffic operations may be better than the EA at-grade option due to avoidance of protected EB and WB left turns at intersection.
*based on preliminary qualitative analysis

PEDESTRIAN ACCESS: Pedestrian access at SW and/or SE corner of intersection. Entrances would lead to a centre platform and therefore to both eastbound and westbound directions. No access from north side, requires at-grade Eglinton crossing.

BUS TRANSFER ACCESS: Bus Route: 45. Northbound passenger transfer does not require at-grade street crossing. Southbound transfer would require an at-grade crossing of Eglinton unless stop is shifted farside.

IMPLICATIONS FOR ADJACENT STOPS:
Eastbound Widdicombe stop platform would need to be moved nearside.

PROS
Centre platform allows an entrance to access both directions of travel, simplifying user experience. South side multi-use path would interface directly with entrances.

CONS
Impacts to Widdicombe stop platform configuration

This option is not to be pursued further.
EXPLORED GRADE SEPARATION OPTIONS
The following table indicates options explored and key issues with options that are not to be explored further.

<table>
<thead>
<tr>
<th>Martin Grove Road</th>
<th>North</th>
<th>Centre</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated</td>
<td>Conflicts with the hydro corridor</td>
<td>Conflicts with the hydro corridor</td>
<td>Conflicts with the hydro corridor</td>
</tr>
<tr>
<td></td>
<td>Fatally flawed</td>
<td>Fatally flawed</td>
<td>Fatally flawed</td>
</tr>
<tr>
<td>At Grade</td>
<td></td>
<td>EA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Base option (2010 EA)</td>
<td></td>
</tr>
<tr>
<td>Below</td>
<td>Conflict with townhouses and reservoir</td>
<td>Option 1</td>
<td>Option 2 would introduce complex geometry, and may conflict with the gas line</td>
</tr>
<tr>
<td></td>
<td>Fatally flawed</td>
<td>Advanced to Stage 2 analysis</td>
<td>Feasible, not carried forward</td>
</tr>
</tbody>
</table>
MARTIN GROVE ROAD
OPTION 2: UNDERGROUND / SOUTH SIDE / CENTRE PLATFORM
OPTION 2: UNDERGROUND / SOUTH SIDE / CENTRE PLATFORM

IMPACT ON ADJACENT PROPERTIES
Assuming the EA centreline is shifted south, this option should fit largely within the existing ROW with potential underground easements required beneath the hydro corridor.

IMPACT OF FLOOD PLAIN
None

GENERAL COST ESTIMATE
Approx. 900m long below-grade structure. $$$$$

MAJOR PHYSICAL BARRIERS
Gas line will need to be carefully considered.

TRAFFIC IMPACTS
Similar traffic operations to Martin Grove Option 1.

PEDESTRIAN ACCESS: Access at SW and/or SE corner of intersection. Entrances would lead to a centre platform and therefore to both eastbound and westbound directions. No access from north side, requires at-grade Eglinton crossing.

BUS TRANSFER ACCESS: Bus Routes: 46, 111. The addition of a bus loop at south-west corner of intersection would facilitate one-entry transfer to and from the LRT, avoiding the need for an at-grade street crossing.

IMPLICATIONS FOR ADJACENT STOPS:
Westbound Widdicombe platform would need to be moved nearside.

PROS
Good transit interface opportunity with future planned bus loop. Centre platform allows an entrance to access both directions of travel, simplifying user experience.

CONS
Prolonged impacts to traffic on both Eglinton and Martin Grove, both major arterials, during construction. Complex geometry created by alignment shift could create complications.

This option is not to be pursued further.