



- Remove temporary crossing at Keating Channel
- Open all structures and roadways



LEGEND

- Demolition
- Construction (at grade)
- Construction (elevated)
- In Service (at grade)
- In Service (elevated)
- 3 No. Lanes (at grade)
- 2 No. Lanes (elevated)
- 2 1 No. Lanes (bi-directional)

Option 2A
Final

Hybrid Alternative 3 - Constructability Review

Key Features

Generally, the existing elevated F.G. Gardiner (FGE) will undergo life cycle rehabilitation as per the City's Maintain Scheme from Yonge Street to Cherry Street; this section of the FGE will remain at its longitudinal and vertical alignment. For the section east of Cherry Street, a number of major structural work will be carried out as follows:

- o) **Logan Ramps** - the FGE Logan ramps will be demolished.
- p) **Don River Bridge** - the existing Don River Bridge will be removed and replaced with a wider bridge carrying 7 lanes and 1 track. The new bridge will be longer to accommodate the new widened Don River layout.
- q) **DVP Ramps** - the existing DVP ramps will be demolished.
Future traffic from the DVP will access the FGE via new DVP ramp bridges that will be constructed starting north of the Metrolinx Rail Bridge and will connect directly to the existing FGE in the vicinity of Cherry Street. The two new DVP ramp bridges (2 lanes each) which will be located north of the existing FGE. To accommodate the new horizontal curve of the new DVP ramp bridges, the north ramp bullnose shall be shifted further north encroaching to the Metrolinx Rail bridge. The existing Metrolinx Rail bridge will need to be lengthened with the east abutment pushed further into the embankment to the east.
- r) **F.G Gardiner** - the existing FGE main bridge from Cherry Street to Don Roadway will be demolished.
- s) **Don Roadway** - the existing Don Roadway between the CPR Bridge and LSB will be widened and slightly realigned to carry 4 lanes (2 NBL + 2 SBL) of traffic during construction staging..
- t) **On/Off Ramps** - LSB traffic east of Don Roadway will access the FGE via new on and off ramps that will be constructed near Cherry Street. These two ramps will start from ground level approximately 250 m east of Cherry Street.
- u) **Lake Shore Blvd.** - the existing LSB between Cherry Street and Don Roadway will be bypassed freeing up space for future development.
A new 6 to 7 lane (3 EBL + 3 WBL+ LRL) LSB roadway will be constructed to carry WB/EB traffic at ground level and will extend to the Don River Bridge. The new LSB will be constructed north of the existing FGE and will generally run parallel to the new elevated DVP ramp structures.
A pedestrian sidewalk and a multi-use lane will be provided outside of the new LSB curbs.
- v) **Queens Quay** - a new 2 lane (1 EBL +1 WBL) Queens Quay Road extension will be constructed from Cherry Street to future Munition Street north of the Keating Channel.

In addition to the work items listed above, additional work will be required to further develop the area south of the Keating Channel and to construct two new structures crossing the Keating Channel (Munition Street-Keating Channel Crossing and New Street-Keating Channel Crossing). At this time, consideration of this work is premature; therefore, the associated structural items are excluded in this constructability review and cost study.

Constructability review and Recommendation – Hybrid Alternative 3:

9. For this alternative, all elevated structures east of Cherry Street will generally be removed and replaced with structures on an altered alignment. The new LSB roadway and structures are generally located north of the existing structures/roadways, resulting in a different footprint. The total number of lanes in the FGE /LSB corridor will be reduced during construction due to the need to provide sufficient working areas for the new construction work, contractor access, as well as laydown areas and prefabrication yards. Additionally, safety considerations will preclude the removal of major deck panels and substructure components over live traffic or public / inhabited areas due to the inherent danger / hazard associated with such significant operations.
10. Described below is a possible scheme for how the removal and new construction work can be staged to allow this corridor to remain partially operational during construction; there may be costs associated with temporary strengthening of the structure.
11. Traffic management under this Alternative will consider the following:
 - Utilizing Commissioners Street and Villiers Street to detour LSB traffic around the Gardiner East Ramp structures and the Don Roadway/LSB Intersection to facilitate the construction of this major intersection.
 - ½ and ½ staged removal and construction of existing FGE and DVP ramp to allow more temporary traffic lanes during construction.
12. Potential Staging Alternative:
 - Pre-Stage
 - Demolition*
 - Remove Metrolinx Rail Bridge for the segment crossing over the existing Don Roadway.
 - Construction*
 - Widen the existing Don Roadway to two lanes in both the NB and SB directions and realign to fit the future final alignment.
 - Construct a new 6 lane EB/WB detour. The detour will begin at the Don Roadway and LSB intersection, continue south to Villiers Street, across Villiers Street, and then back north of Keating Channel before finally connecting to the existing LSB west of Cherry Street. The work will include construction of a temporary timber deck bridge across Keating Channel (approximately 80 m east of Cherry Street), widening of Villiers Street, and adding temporary roadways to swing the traffic back to the existing LSB.

- The existing Jarvis ramp will be widened and the pavement remarked to carry two lanes with reduced speed. Widening of the ramp will assist in balancing the traffic capacity and carrying LSB traffic onto the FGE.
- Begin construction of all structures and the new LSB roadway (north of the existing FGE between Cherry Street and Don Roadway) that are not in conflict with the existing structure or the existing LSB. The work would include part of the new Cherry Ramp Bridges (except the west ends), DVP Ramp Bridges (except the north and west ends), and the new LSB (except the east and west ends).
- Construct a longer CPR bridge for the segment crossing over the existing Don Roadway. [Given the existing CPR is currently carrying only 4 tracks and wide enough to carry 6 tracks, it appears that a half and half replacement and reconfiguration can be carried out at this structure.]

- Stage 1

Demolition

- Shut down and demolish the N/W DVP ramp, FGE WBL, Logan Ramp WB, Don River Bridge WB, and existing LSB WBL.
- The above ground demolition work shall be carried out over the weekend and during night time with protection to avoid fallen objects to the north side of the existing LSB. Also one lane of the north side of the existing LSB may be shut down to provide additional clearance.

Construction

- Construct the new Don River Bridge WB.
- Construct the new S/W DVP Ramp and the remainder of the FGE WBL on ramp at Cherry Street.
- Continue construction of the new LSB WBL where not in conflict with the existing W/N DVP ramp.
- For the Don Roadway, the traffic shall be shifted to the east side.
- The WB/EB traffic will be shared with the new 6 lane detour and the south half of existing LSB.

- Stage 2

Demolition

- Shut down and demolish the W/N DVP ramp, FGE EBL, Logan Ramp EB, Don River Bridge EB, and existing LSB EBL.
- The above ground demolition work shall be carried out over the weekend and night time with protection to avoid fallen object to the south side of the existing LSB. Also one lane of the south side of the existing LSB may be shut down to provide additional clearance.

Construction

- Construct the new Don River Bridge EB.
- Construct the new W/N DVP Ramp and the remainder of the FGE EBL off ramp at Cherry Street.
- Complete the construction of the new LSB EBL.
- For the Don roadway, the traffic shall be shifted to the west side.
- The WB/EB traffic will be shared among the new 6 lane detour and the north half of the new LSB.

○ Final

Demolition

- Remove the temporary timber deck bridge over Keating Channel.
- Finish the new Queens Quay, Munition Street, Don Roadway, and other road work as required to be in alignment with final configuration.

Sketches

- Remove CPR bridge over DVP.
- Construct longer span CPR bridge over DVP.
- Widen the existing Don Roadway to two lanes in both directions.
- Construct six-lane detour from Don Roadway and LSB intersection down to Viller Avenue, over Keating channel via temporary bridge, and back to LSB west of Cherry Street.
- Widen existing Jarvis ramp to two lanes.
- Construct portions of structures and new LSB roadway north of existing FGE not in conflict with existing FGE structures.

Jarvis Ramp—2 Lanes

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	Demolition
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	Construction (elevated)
	In Service (at grade)
	In Service (elevated)
	No. Lanes (at grade)
	No. Lanes (elevated)
	No. Lanes (bi-directional)

Option 3
Pre-Stage



