EMAIL SENT BY TRANSPORT ACTION ONTARIO TO GARDINER EAST PROJECT TEAM, OCTOBER 25, 2015

SUBJECT: Vertical Alternative for SAC # 9 Option 2

Dear Liz, Don, and Gavin,

Thank you very much for your presentations and generating great discussion at last week's SAC meeting.

As requested, I have prepared some drawings to illustrate what came to my mind after Gavin's presentation involving a different vertical approach to Option 2 (with the Option 3 version of the Lake Shore alignment). With minor exceptions, the horizontal is effectively the same as presented; the focus is on the vertical. In that respect, this could perhaps be thought of as "Option 2A."

Starting from around Cherry St, where the Gardiner is elevated and Lake Shore is below, heading east, three things begin to happen:

1. The Gardiner dives down at -3% (assumed maximum based on 400-series highway standards; if steeper permitted, may yield some improvement(?))
2. Lake Shore, after descending slightly to maintain vertical clearance while still beneath the Gardiner, shoots up at 4%
3. The rail spur gently ascends towards the Don River crossing instead of descending like it does today

The eastbound Lake Shore lanes jut out from below the Gardiner on the south side and hug the edge immediately south of it after clearing the east limits of the Cherry St intersection. Once east of the Stormwater Management Facility on the north side of Lake Shore, the westbound Lake Shore lanes swing out to the north side of the Gardiner to clear the way for the Gardiner to descend while Lake Shore ascends as they occupy the same elevation range. The westbound lanes of Lake Shore during this northern swing-out are occupying the space Gavin identified as undevelopable in his presentation due to noise and odours associated with the future sediment control facility for the Don. It is around this point that a shorter ramp structure can take shape in the left lanes.

When the Gardiner is low enough below Lake Shore and Lake Shore high enough above the Gardiner, the westbound Lake Shore lanes swing overtop the Gardiner as Lake Shore meets the rail spur. Both the Gardiner and Lake Shore level off vertically to very gentle grades, as the Gardiner swings away

north to the DVP and Lake Shore heads across the Don River towards Logan Ave (using the Option 3 alignment in the attached). Lake Shore is much higher in Option 2A, as is the rail spur, as the rail spur and Lake Shore are both above the Gardiner just west of the proposed sediment control facility for the Don Mouth Naturalization. The rail spur (along with Lake Shore) is at about the same elevation as the main line rail corridor (Kingston subdivision) further north at its crossing with the DVP, and the Gardiner also at about the same elevation as the DVP at its crossing with the Kingston subdivision. Considering that flood protection measures would raise Lake Shore Blvd across the Don River anyway, this would be an incremental raising. At Don Roadway, Lake Shore would be at an elevation of around 81m in Option 2A, which appears to be less than 2m higher than it would have been for flood protection based on a waterfront graphic I have that indicates the crossing would be between 79 and 80 metres crossing the Don River on a new, higher bridge. I would expect this to result in a modest incremental cost on earthworks while reducing the concrete quantities involved in the Gardiner as less of the Gardiner structure is elevated in Option 2A.

The descent of Lake Shore east of the Don River is shown as a very gentle 0.8%, out of consideration for the rail spur. Marginally steeper may be acceptable - if so, wonderful, but I assumed less than 1% would be sought by the railway. Lake Shore (and the rail spur) would reach its existing grade around Bouchette St.

It also appears that staging opportunities may improve with Option 2A, as one may expect fewer vertical conflicts between old and new expressway structures across the Don River, creating potential opportunities for enhanced traffic staging strategies that would both reduce the duration of detours and perhaps also the associated costs from detour works.

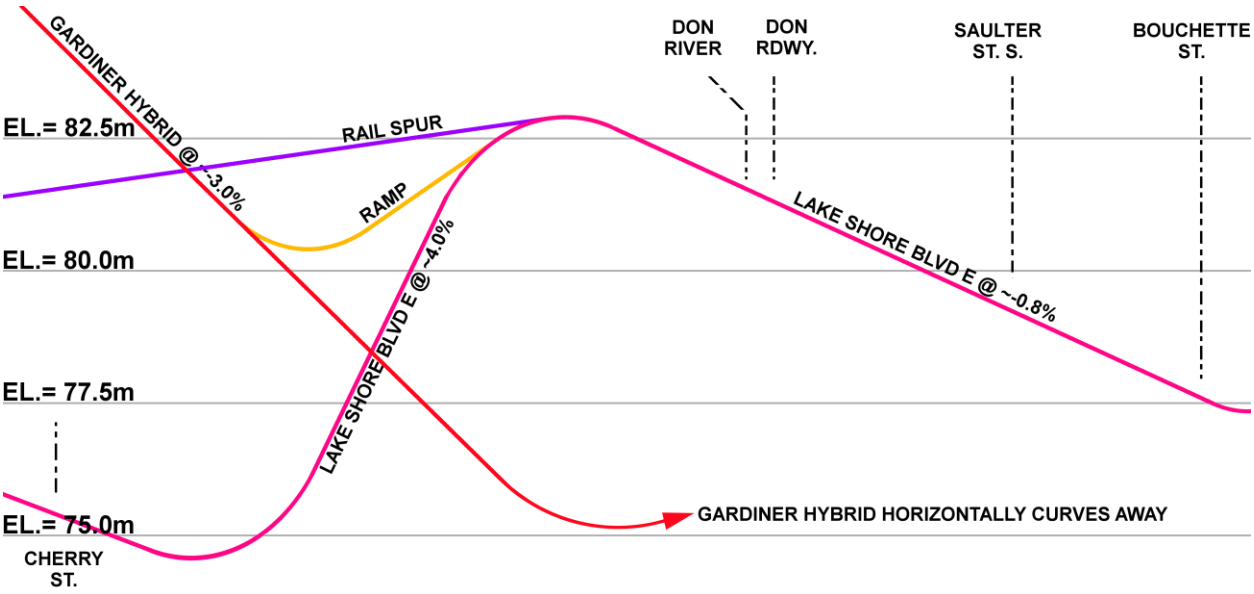
As discussed at the meeting, this opens up interesting public realm benefits as the Gardiner becomes more "out-of-sight, out-of-mind" with Lake Shore at a higher elevation than the Gardiner in the eastern half of the Keating precinct. The development frontages on the higher portions of Lake Shore would, by extension, also be at a higher elevation. Among other things, it creates opportunities to hide parking in a flood-sensitive area that may not otherwise have been viable. The sediment control facility structure could also be tucked under Lake Shore like Gavin suggested, similar to the slide that showed it tucked under the Gardiner in option 3 - the south wall would have to be inoffensive, however, with noise and odours directed towards the north side of Lake Shore.

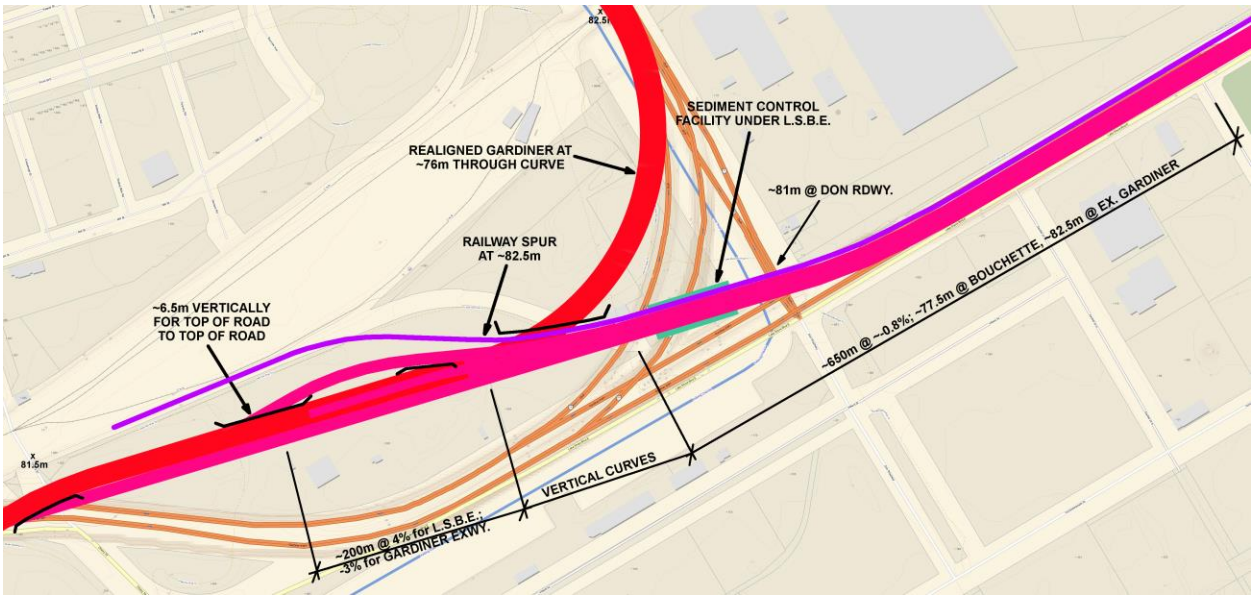
The attached drawings are intended to be roughly geographically representative but are not to scale; I've included just enough to convey the concept so that the details can be looked at by the team. I hope this is useful and constructive and I would be very interested in any results of a more detailed review of this Option 2A.

Thank you very much,

Karl Junkin
Transport Action Ontario

CC: Peter Miasek, President, Transport Action Ontario


GARDINER HYBRID @ ~-3.0%
RAIL SPUR
RAMP
LAKE SHORE BLVD E @ ~4.0%
LAKE SHORE BLVD E @ ~-0.8%
DON RIVER
DON RDWY.
SAULTER ST. S.
BOUCHETTE ST.
EL.= 82.5m
EL.= 80.0m
EL.= 77.5m
EL.= 75.0m
CHERRY ST.
GARDINER HYBRID HORIZONTALLY CURVES AWAY


SEDIMENT CONTROL FACILITY UNDER L.S.B.E.
REALIGNED GARDINER AT ~76m THROUGH CURVE
~81m @ DON RDWY.
RAILWAY SPUR AT ~82.5m
~6.5m VERTICALLY FOR TOP OF ROAD TO TOP OF ROAD
~650m @ ~-0.8%; ~77.5m @ BOUCHETTE; ~82.5m @ EX. GARDINER
VERTICAL CURVES
~200m @ 4% for L.S.B.E.; -3% for GARDINER EXWY.