



**STAFF REPORT
ACTION REQUIRED**

Progress Report on Design Concepts for the Hybrid EA Preferred Alternative – Gardiner Expressway and Lake Shore Boulevard East Reconfiguration Environmental Assessment (EA) and Integrated Urban Design Study

Date:	September 10, 2015
To:	Public Works and Infrastructure Committee
From:	Deputy City Manager, Cluster B
Wards:	Ward 28 – Toronto Centre-Rosedale Ward 30 – Toronto-Danforth
Reference Number:	P:\2015\ClusterB\WF\PW15007

SUMMARY

This progress report provides an update on the Hybrid alternative design concepts that are being considered in the Alternative Designs stage of the Gardiner Expressway and Lake Shore Boulevard East Reconfiguration Environmental Assessment (EA) and Integrated Urban Design Study (Gardiner East EA). Based on the preferred Hybrid EA alternative solution endorsed by City Council at its meeting of June 10-12, 2015, (PW4.1 <http://app.toronto.ca/tmmis/viewPublishedReport.do?function=getCouncilMinutesReport&meetingId=9692>), the three alternative design concepts proposed for further analysis are:

- Concept 1: Revised Hybrid with “tighter” ramps;
- Concept 2: New Hybrid, further north; and
- Concept 3: New Hybrid, further north with rail bridge widening.

Development of these design concepts has been informed by proposals from community members and landowners, as well as by meetings with the project Stakeholder Advisory Committee (SAC), agencies, academics, developers and other stakeholders.

Timely decision-making related to the Gardiner Expressway East is critical as interim repairs will only extend the service life of the Gardiner's eastern deck to 2020. More than

seven years since it began, the Gardiner East EA study is nearing completion. Without further delay in the study, the EA Report will be completed and Council's endorsement of a preferred Hybrid alternative design will be sought in early 2016. Review of the completed EA by the Ontario Ministry of the Environment and Climate Change (MOECC) will then lead to the completion of engineering/design and construction tender documents, and procurement of the necessary contractors. Implementation of the preferred Hybrid could then begin as early as 2019, depending on MOECC approval timeframes.

Three Hybrid alternative design concepts have been developed in consideration of the EA Terms of Reference and study goals to: revitalize the waterfront; reconnect the city with the lake; balance modes of travel; and achieve sustainability and create value. Several key issues and constraints in the project area have also shaped the concepts, including: impacts on the Keating Precinct, private property and travel times; and road safety, constructability and cost. The three proposed concepts were selected from a broader list of alternative concepts, which are appended to this report. The three concepts best address community and stakeholder input to date, and will be subject to a thorough evaluation using a comprehensive set of evaluation criteria.

Figure 1 – Don River and Keating Channel Looking West Under Three Alternative Hybrid Design Concepts



Hybrid Concept 1
Revised with Tighter Ramps

Hybrid Concept 2
New Hybrid, Further North

Hybrid Concept 3
New Hybrid, Further North, Rail Bridge Widening

Key features of the three Hybrid design concepts are described below, along with an outline of additional work to be undertaken to complete the evaluation of alternatives. Comments from potential deputants and debate during the September 22, 2015 meeting of the Public Works and Infrastructure Committee (PWIC) will be considered as part of the development and evaluation of the design concepts. Through further EA study consultation and analysis, other Hybrid design concepts, or variations on these concepts, could emerge and would be assessed accordingly.

The three Hybrid design concepts under development and evaluation improve upon the Hybrid concept presented to Council this past June. All three design concepts would have minimal impact on private property and would facilitate development of the First Gulf site, as well as other developments proposed for the Keating, Port Lands and South of Eastern precincts. In addition, all three would complement planned initiatives such as the multi-use trail on the north side of Lake Shore, the Broadview Avenue road and transit extension, the Munition Street extension and the Don Mouth naturalization and Port Lands flood protection project.

Hybrid Design Concept 1 would involve a new realigned eastbound off-ramp connecting to Lake Shore Boulevard that would run close to the Gardiner without impacting adjacent development lands. Design Concepts 2 and 3 would involve the reconstruction of the elevated Gardiner–DVP link between Cherry Street and the Don Valley Parkway (DVP), along more northerly alignments through the Keating Precinct. This would provide for additional, higher-quality redevelopment land and open space with direct proximity to the Keating Channel. The Keating Precinct would be a strong transition and link between the city and the Port Lands. These two design concepts would involve higher capital costs that would be offset in part by increased land sales revenue.

In addition, public realm strategies are being prepared for the three distinct sections of the Gardiner East:

- East of the Don River, where the Logan ramps will be removed and Lake Shore Boulevard will be reconstructed;
- West of Cherry Street to Jarvis Street; and
- Between Cherry Street and the Don River, where the preferred design will be implemented.

The public realm strategies would lead to corridor intersection and streetscape improvements that would benefit pedestrian and cycling safety and reinforce EA and waterfront revitalization goals.

The Hybrid alternative design concepts presented in this report are undergoing a comprehensive evaluation by the EA study team, led by Dillon Consulting. The evaluation will be based on the EA Terms of Reference, as well as the objectives of the City's Official Plan and Central Waterfront Secondary Plan. The draft results of this evaluation will be presented at a planned Public Information Centre (PIC) in November

2015 as part of the EA process. The draft alternative designs will also be presented to SAC, stakeholders and landowners in advance of the public meeting. A preferred recommended alternative design will then be submitted to Committee and Council early in 2016. Following City Council's consideration, the draft EA report will be released for public and agency review, including review by the MOECC. A final EA report will be submitted to the MOECC in 2016 for review and an approval decision.

All work and schedule and cost estimates presented in this report should be considered preliminary. The alternative design concepts will be developed in more detail and further changes to these concepts are possible. Additional analysis is underway related to a number of matters, including potential land sales revenue, compatibility with Lower Don flood protection plans and public realm improvements. More detailed information will be available at public meetings this fall and in the draft EA report that is to be submitted to Committee and Council in early 2016.

RECOMMENDATIONS

The Deputy City Manager, Cluster B recommends that the Public Works and Infrastructure Committee receive this progress report for information.

FINANCIAL IMPACT

There are no direct financial implications resulting from the receipt of this report. The financial impact of selecting and implementing a preferred alternative for the east section of the Gardiner Expressway was detailed in the May 6, 2015 staff report considered by City Council at its meeting of June 10-12, 2015.

Net present value (NPV) represents the sum of the present values of future capital expenditures. It is one of the most reliable measures used in project decision-making as it accounts for time value of money. Some infrastructure projects may have higher initial costs but would realize longer term savings and vice versa. The NPV analysis properly accounts for such variations over time and brings future costs back to an appropriate current cost so as to compare alternatives along the same basis.

The cost estimates considered by Council in June 2015 for the Hybrid alternative were:

- Capital: \$260M NPV (\$414 million in 2013 uninflated dollars); and
- Lifecycle: \$76M NPV (\$505 million in 2013 uninflated dollars).

High level capital cost estimates for the three Hybrid alternative design concepts presented in this report are as follows:

- Concept 1: Revised Hybrid with “tighter” ramps: capital costs are estimated to be very similar to \$260M NPV;

- Concept 2: New Hybrid, further north: capital costs are estimated to increase by an additional \$90M to \$140M NPV over \$260M NPV; and
- Concept 3: New Hybrid, further north with rail bridge widening: capital costs are estimated to increase by an additional \$120M to \$180M NPV over \$260M NPV.

Initial high-level cost estimates suggest that there would be little variation in operating and maintenance lifecycle costs among the three Hybrid alternative concepts (all in the \$70M NPV range) as all alternatives involve complete deck replacement. This is similar to what was considered by Council in June 2015.

It is important to note that these initial cost estimates are to be considered approximate, high-level estimates only as they were based on preliminary Hybrid concept drawings. The constructability plans for these concept designs (to be developed this fall) could also influence capital cost estimates. These cost estimates will be further developed and refined along with detailing of the alternative designs as part of the Gardiner East EA, in time for public meetings in November 2015.

Land sales revenue for the three Hybrid alternative design concepts would be based on:

- Concept 1: Revised Hybrid with “tighter” ramps: approximately 8.5 acres of new development;
- Concept 2: New Hybrid, further north: approximately 12.5 acres of new development; and
- Concept 3: New Hybrid, further north with rail bridge widening: approximately 13.5 acres of new development.

Each of the concepts will generate additional new development over the approximately 5.5 acres of new development for the base Hybrid concept considered by Council in June 2015. This report includes land sales revenue estimates, subject to a more comprehensive evaluation of the impact of the Hybrid’s design alternatives on land values in the Keating and adjacent precincts to be completed by a consultant engaged by the project team. This evaluation will look at the quality of the development parcels in the area, the impact on adjacent precincts and public land value uplift for each of the concepts being considered.

Public realm improvements, to be detailed in subsequent reports, are estimated to add between \$30M and \$50M NPV to whichever alternative design is recommended. This funding will deliver streetscaping and public art initiatives, as well as intersection, pedestrian and cycling infrastructure improvements that are not included in the segments of the Gardiner / Lake Shore corridor that will be reconstructed during implementation of the preferred Hybrid design or other planned initiatives by the City.

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

DECISION HISTORY

At its June 10-12, 2015 meeting, City Council selected the Hybrid as the preferred Gardiner East EA alternative in considering the report "Gardiner Expressway and Lake Shore Boulevard East Reconfiguration Environmental Assessment and Integrated Urban Design Study – Updated Evaluation of Alternatives (PW4.1)," as well as the Supplementary Report (PW4.1.a). See PW4.1 at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.PW4.1>

In so doing, Council authorized staff to:

- Develop and evaluate alternative design concepts for the preferred Hybrid solution, including the further investigation of options to mitigate negative impacts and all required public consultation;
- Report to the September 22, 2015 meeting of PWIC on various design options for the Hybrid alignment of the Don Valley Parkway and Gardiner Expressway East, including an assessment of the following implications:
 - Degree of turns;
 - Speed of vehicles on turning point;
 - All associated costs;
 - Construction feasibility; and
 - Impact on development potential in the area.

Three related reports will be before the September 21, 2015 Executive Committee meeting:

1. A report on incorporating the preferred Gardiner East EA alternative into the F.G. Gardiner Expressway Strategic Rehabilitation Plan;
2. A report on tolling the Gardiner and DVP; and
3. A report on the feasibility of a tunnelling option for the Gardiner.

Council made dual decisions related to tolling and tunnelling – one a request to report to the Executive Committee and one a request to report to PWIC. Staff have prepared two separate but coordinated reports on tolling and tunnelling and have submitted them for the consideration of the Executive Committee.

COMMENTS

1. **Selecting a Preferred Hybrid Design**

Following Council endorsement of the Hybrid as the preferred EA solution at its June 10 to 12, 2015 meeting, the next step in the EA study process is to develop and assess alternative design concepts, and to select a preferred design.

This report identifies three alternative design concepts for the Hybrid solution which have been shaped by public and stakeholder input. The team is in the process of developing these design concepts to a higher level of design detail. The team will then assess their advantages and disadvantages against evaluation criteria to identify a preferred Hybrid alternative design. The identified advantages and disadvantages of the alternative designs will be publicly presented in November, followed by a report recommending a preferred Hybrid alternative design to Committee and Council early in 2016. The EA report will then be drafted for public and agency review, including review by MOECC. Once comments have been incorporated, the final EA will be submitted to the MOECC for review and an approval decision.

A decision on the Gardiner East EA is urgent. The elevated Gardiner structure was constructed in sections between 1955 and 1966. The deck and concrete barriers are in poor condition and considered to be at the end of their service life. Since 2012, incidents of falling concrete have occurred along the corridor, including the area east of Jarvis Street. In advance of Council's 2013 decision to reallocate funding for the Gardiner East EA, a phased approach had been planned for the replacement of the deck and parapet (concrete barrier) walls from Jarvis Street to the Don Roadway for the period 2013 to 2018. Recognizing that work to implement a preferred EA option would not likely commence until 2019 or 2020, Council instead authorized a series of interim repairs to make the structure safe and extend its service life to 2020. These repairs consisted of: temporary timber bracing under the deck; localized concrete deck repairs; and repair and replacement of severely deteriorated parapet walls. To date, \$9 million has already been spent on emergency and interim repairs for this section of the Gardiner. Council has approved an additional \$5 million for East Deck interim repairs to begin this fall.

The Gardiner East EA study is on track to be completed by the spring. Community and agency consultations will continue this fall, followed by Council consideration of a preferred alternative design in early 2016. Once the MOECC provides an EA approval decision, the appropriate engineering and detailed design work and construction tender documents can be undertaken to ensure implementation of the preferred Hybrid alternative design starting in 2019.

2. Consultation Process

The Gardiner East EA is being conducted in an open and publicly accessible manner in accordance with the Environmental Assessment Act. With the assistance of LURA Consulting as Independent Facilitator, the process features public forums, Stakeholder Advisory Committee (SAC) meetings, Technical Advisory Committee meetings, Aboriginal community engagement, and meetings with government agencies, landowners, business groups, developers and other affected parties.

SAC meetings were held on July 21 and September 1 following Council's endorsement of the Hybrid as the preferred EA alternative in June. Meetings have also been held with Metrolinx, Toronto and Region Conservation Authority (TRCA), developers First Gulf and Castlepoint Numa, as well as academics and planners. Additional stakeholder

meetings will be held this fall, including a planned public meeting in November prior to Council's consideration of a preferred Hybrid design in early 2016.

Public and stakeholder input to date has influenced the screening of a long list of alternative concepts and the rationale for the selection of the short list of the three Hybrid design concepts presented in this report. Received commentary has included:

- The need to move infrastructure as far north as possible in the Keating Precinct in order to maximize opportunities for development and open space along the Keating Channel;
- Appreciation of the opportunity to widen the Don River rail bridge to enable a tighter turning radius for the Gardiner–DVP ramps, and assist with the conveyance of Don River flood waters;
- Concern about how drivers will respond to the slower design speeds proposed for two of the alternative design concepts;
- Divided opinion regarding whether Lake Shore Boulevard is best placed beneath or adjacent to the new expressway link, and the impact this would have on the objective of making Lake Shore Boulevard a two-sided street, as per the Keating Precinct Plan; and
- Concerns about the location and need for new on/off ramps, and their impact on the role of Cherry Street as a key gateway to the Port Lands.

3. Key Issues and Constraints

This section of the report describes a number of key issues that were considered in the development of the Hybrid alternative design concepts. Two of these issues, design speeds and travel times, are outlined in greater detail. A number of physical constraints are also described.

Key Issues

The following key issues were considered in the development of the alternative Hybrid design concepts:

1. Development potential in the Keating Precinct: development in the precinct should be large enough for critical mass and allow for a street and block plan that facilitates high-quality development, in keeping with other waterfront precincts;
2. Impact on private property: property impacts should be minimized to the largest extent possible;
3. Interest in tighter turns and a lower design speed for the Gardiner–DVP ramp: achieving these objectives would require measures to slow vehicle speeds down in advance of the ramps, such as signage, vehicle speed warnings, and road lane narrowing. It will be necessary to undertake a third-party safety audit on the proposed roadway design and mitigating measures;
4. The need to be sensitive to impacts on road capacity and vehicle travel times and provide adequate access between the Gardiner and Lake Shore Boulevard: the

- need for new on/off ramps east of Cherry Street to replace from a traffic capacity perspective, the removal of the Logan ramps has been confirmed through traffic modelling work; and,
5. Cost and construction impact: the Hybrid needs to be of reasonable cost and constructed in a manner that minimizes construction impacts and traffic disruption.

Further commentary on issues #3 and #4 are provided below.

Gardiner–DVP Ramp Design Speeds

The Don Valley Parkway (DVP) and Gardiner Expressway both have a design speed of approximately 110km/h with a posted speed limit of 90km/h. The existing two-lane, directional ramps connecting these two highways have a design speed of 80km/h, based on their horizontal curvature, with a posted, advisory speed limit of 60km/h. Posted speeds are generally 10 to 20km/h below design speeds. It is also normal for higher speed directional ramps to have posted speeds of 20km/h lower than the connecting highway posted speeds. As such, 70km/h could be a driver's general expectation of the posted speed limit on the Gardiner–DVP ramps. The existing ramps have been posted at 60km/h due to the design elements of this structure, including the horizontal curvature and the absence of shoulders, which contribute to sightline restrictions.

When a Hybrid alternative solution was originally developed and investigated in response to PWIC's 2014 direction, a key operational desire for the alternative was the maintenance of a safe expressway link between the DVP and the Gardiner, and the minimization of any travel time loss. A new ramp connection with a low design speed, while investigated, was not proposed by the Gardiner East EA project team at that time due chiefly to road safety concerns associated with the linking of two high-speed expressways with a directional ramp at a much lower design speed. While there are many examples of low speed ramps connecting expressways in the GTHA, these tend to be interchange ramps (e.g., loop ramps) that, by their design and function, force vehicles to slow down as they exit from one expressway to another. Following discussions with the Ontario Ministry of Transportation and City engineering staff, the Gardiner East EA project team determined that maintaining a higher speed connection between the Gardiner and DVP would be necessary for safety reasons in accordance with the direction from PWIC.

Stakeholders expressed concern with the higher ramp speed Hybrid concept presented to Committee and Council in June of 2015, including the impact on future land use development and open space opportunities in the Keating Precinct from the Gardiner–DVP connecting ramps and the Gardiner–Lake Shore Boulevard on/off ramps just east of Cherry Street. As a result, the alignment of the Gardiner–DVP ramps was revisited to explore whether new ramps under a more northern alignment could safely mitigate these impacts. This would require introducing a lower design speed to achieve a tighter radius for the ramps, allowing them to be moved further north in the Keating Precinct.

Alternate Hybrid concepts with new Gardiner–DVP link alignments and ramps with lower design speeds have been developed and proposed for further examination in the EA study. It will be necessary to design these new alignments with safety measures on the ramps themselves (e.g., provision of right and left shoulders to enhance sightlines) and on the Gardiner and DVP to visually alert drivers and slow vehicles down in approaching the ramps. As part of the EA Study a road safety audit will be completed by Dillon Consulting and subjected to a third-party review to confirm findings and road design recommendations.

Hybrid Traffic Model Forecasting

Traffic modelling has been completed using the Paramics microsimulation software for the Hybrid alternative to:

- Confirm the need for new Gardiner–Lake Shore Boulevard access ramps, from a traffic capacity perspective, as a result of the removal of the Logan ramps; and
- Determine if a slower Gardiner–DVP ramp design speed would have an impact on auto travel times.

The most recent traffic modelling work completed for the 2031 horizon year assumed that the planned Lower Yonge Precinct road network changes are in place. Among other road design changes, this includes the relocation of the Jarvis Street westbound off-ramp further west to provide access to Lake Shore Boulevard at Yonge Street.

In reviewing the modelling results it was determined that with the removal of the Logan ramps as per the Hybrid alternative, new eastbound off-ramps and westbound on-ramps are required. Due to space restrictions in the corridor, the only viable location for these ramps would be just east of Cherry St. in the Keating Precinct. For the westbound direction, without a new on-ramp, the first opportunity to access the Gardiner would be the existing Jarvis St on-ramp. This would put significant pressure on Lake Shore Boulevard and result in the Gardiner being underutilized. Significant traffic queues would be expected along westbound Lake Shore Boulevard lanes in the AM peak resulting in increased auto travel times.

Similarly, the absence of an eastbound off-ramp in the Keating area would require vehicles headed east of the Don Roadway to exit the Gardiner at Jarvis Street and continue along Lake Shore Boulevard, or find alternate paths along other heavily utilized east-west roadways, as there would no longer be an option for these travellers to use the Gardiner to bypass the signals and congestion on Lake Shore Boulevard to touch down east of Cherry Street. Based on the traffic modelling that was completed for the 2031 horizon year, PM peak hour auto travel times for eastbound commuters would be expected to increase in the range of 2 to 4 minutes. Further, without a new eastbound off-ramp, this would greatly reduce the utility of the Gardiner in the downtown area by removing a connection that provides important relief to eastbound Lake Shore Blvd., primarily during the PM peak hour. If development densities in the study area are

increased above current approved levels assumed in the 2031 horizon year, the need for new Gardiner on/off ramps in the Keating Precinct would be even stronger.

Also examined as part of the traffic modelling work, were the proposed slower design speed of the Gardiner–DVP ramps. The Hybrid concepts with more northern alignments would require posted speeds limits that would be 10 km/h slower than current posted ramp speed limits. The modelling work shows that the reduced design/posted speed of the new realigned Gardiner–DVP ramps would have little impact on auto travel times as compared to what was reported for the Hybrid in June. As was previously reported on for the original Hybrid, there would be some minimal increase in travel times for trips originating in the east and heading west into the downtown area.

Considering the results of the Hybrid traffic modelling work completed for the 2031 horizon year, the traffic modelling work confirmed that with the removal of the Logan ramps, new eastbound and westbound ramps are required to provide access to/from the Gardiner. As well, the modelling work has shown that Gardiner–DVP ramps with a slower design speed would not have a material impact on auto travel time for the 2031 horizon year as compared to what was reported earlier to Committee and Council.

Physical Constraints

The following physical constraints were also considered in the development of the alternative Hybrid design concepts:

Don Rail Bridge – The Metrolinx rail bridge over the Don River and DVP has limited space for additional roadway infrastructure beneath it and the location of the existing bridge support piers (and their width) limit opportunity for lane reconfiguration through the underpass. Without the widening of this underpass, the rail bridge serves as a control point for the DVP ramp design/radius and requires an alignment closer to the Keating Channel. The potential to widen the Rail Bridge is being explored as part of the EA Study to allow a more northern alignment of a new Gardiner–DVP ramp.

Don Roadway – The Don Roadway facilitates direct access between the DVP and Lake Shore Boulevard. The importance of this link is expected to increase with further Port Lands and South of Eastern development. Capacity of this roadway is limited and physically constrained by the Don River. As part of the EA, the ability to increase the capacity of this roadway is being examined.

Stormwater Management (SWM) Facility – A storm and sanitary management facility is in the process of being constructed to serve the West Don Lands and East Bayfront. The facility includes two underground shafts and a building to house needed equipment. The building design is currently proposed at a height of about 13 metres (similar to the height of the Gardiner deck). There may be an opportunity to redesign the building and reduce its height to approximately eight metres. Placing the expressway ramp deck over the SWM facility may be possible and it would allow a more northern alignment of the roadway, although Lake Shore Boulevard would still need to be south of the facility as it

is at-grade. The paralleling of Lake Shore Boulevard and the Gardiner Expressway, as opposed to a “stacked” configuration, would complicate on/off ramps between the roadways. Furthermore, the overtopping of the facility with the expressway would mean that the westbound on-ramp would need to be pushed back further east into the Keating Precinct, creating road design and operational challenges.

Planned Don Roadway Sediment Control Basin – As part of the plan to renaturalize the mouth of the Don River, a sediment control management facility will be located on the west bank of the river north of Lake Shore Boulevard. Details regarding how the facility would be developed and operated are not yet available from the TRCA. The design of new Gardiner–DVP ramps needs to be sensitive to this facility. While spanning of the facility may be possible, minimum vertical clearances will be required.

TPLC Wilson Yard and Rail Lead – The Wilson Rail Yard (on the west side of the Don River south of the Metrolinx Don Rail Yard) and rail lead line into the Port Lands are potential constraints for the design of the Hybrid alternative.

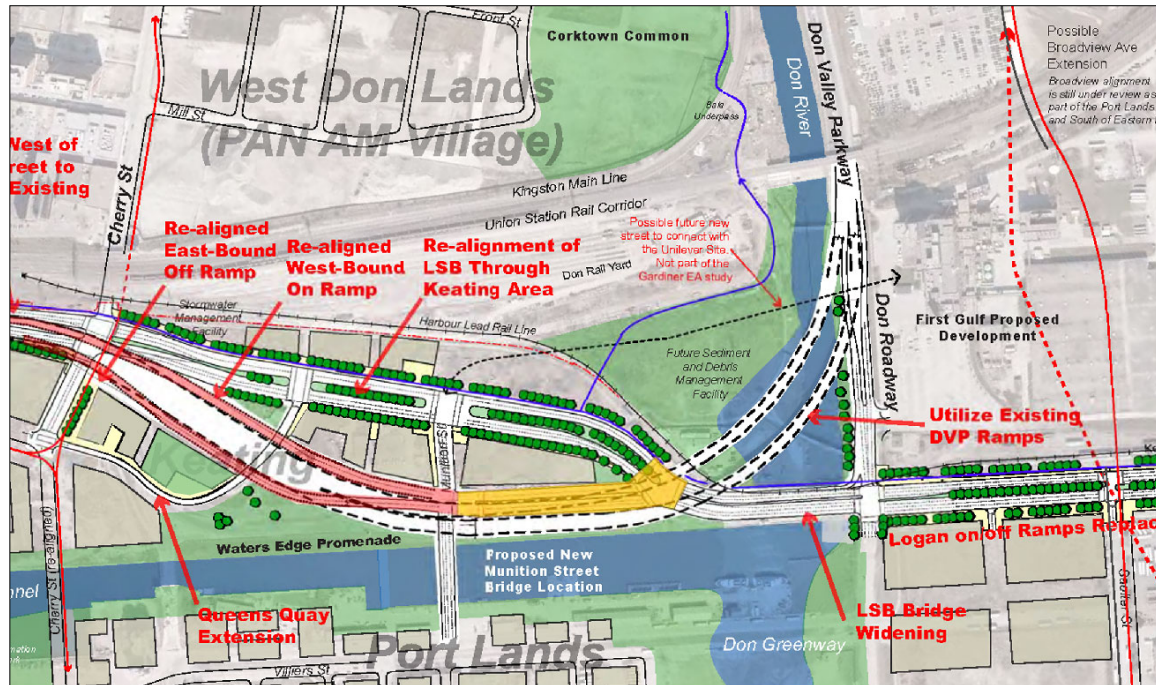
4. Three Proposed Hybrid Alternative Design Concepts

Three Hybrid design concepts have been identified for further development and evaluation to select a preferred EA alternative design. They are:

- Concept 1: Revised Hybrid with “tighter” ramps;
- Concept 2: New Hybrid, further north; and
- Concept 3: New Hybrid, further north with rail bridge widening.

These three Hybrid alternative design concepts are still preliminary and will be revised subject to more detailed design work as well as public and agency input. They have been developed in line with EA study goals identified in the Terms of Reference. All three concepts respect key project area issues and constraints, including the footprints of the stormwater and sediment management facilities, and have been designed to coordinate and enhance adjacent precinct planning efforts. They have been selected over a number of design concepts described in detail in Appendix A.

Concept 1: Revised Hybrid with “Tighter” Ramps

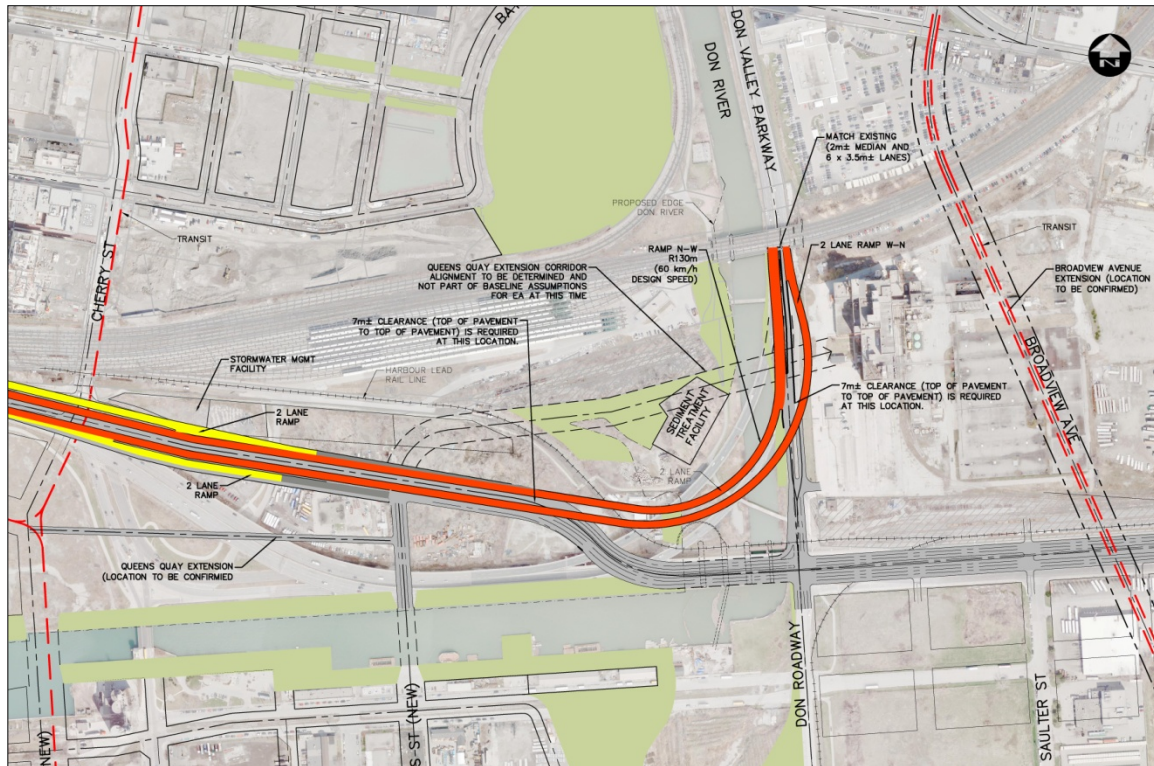


This Hybrid option is closely based on the Hybrid endorsed by Council this June. Its key features are:

- The eastbound and westbound Gardiner on/off ramps would be moved from Logan Avenue to Cherry Street, creating development and green space opportunities along Lake Shore Blvd east of the Don River;
- The existing elevated Gardiner and DVP ramps would be retained, with a design speed of 80km/h and posted speed limit of 60km/h;
- A new at-grade ramp access road on the north side of the Keating Channel would be constructed; and
- Lake Shore Boulevard would have its own right-of-way east of Cherry Street, as per the Keating Precinct Plan.

The proposed design differs from the Hybrid concept reviewed by Council in June in that the Gardiner eastbound off-ramp has been made "tighter" against the south side of the Gardiner Expressway to avoid private property impacts.

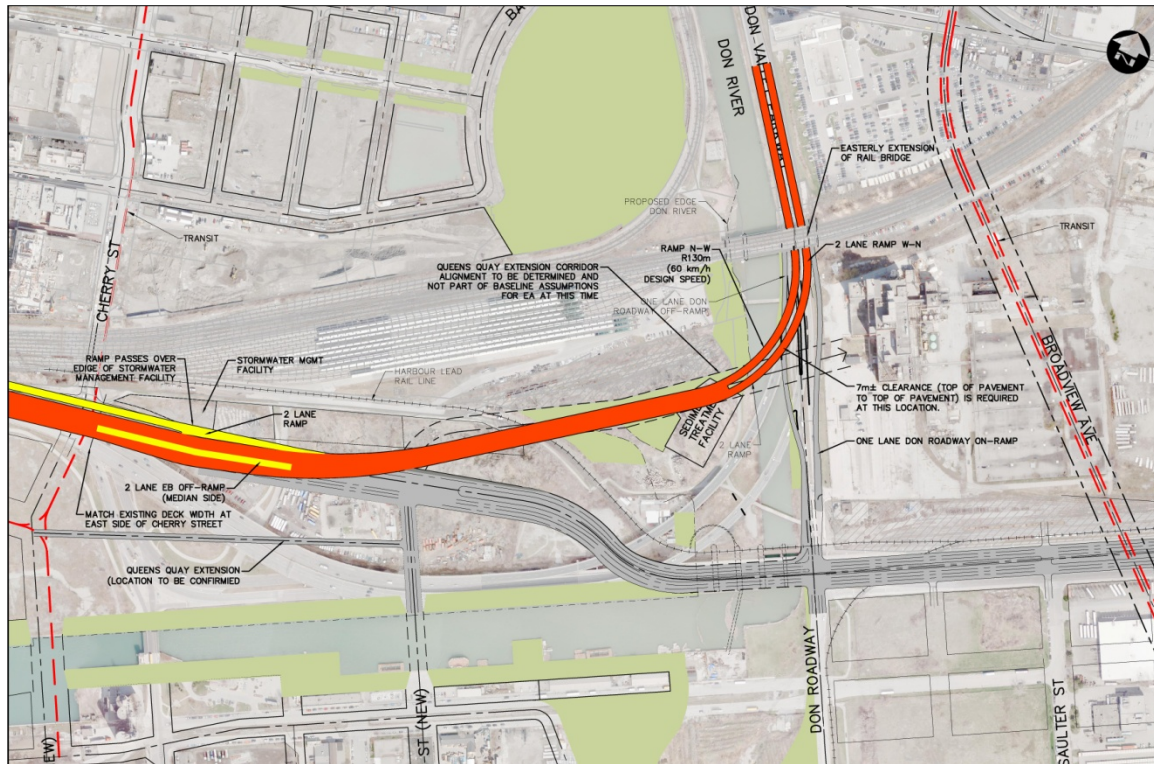
Concept 2: New Hybrid, Further North



This Hybrid design concept differs significantly from Concept 1 as it would:

- Replace the elevated expressway east of Cherry Street in a more northern alignment;
- Reduce the Gardiner–DVP ramps to a lower design speed of 60km/h (proposed posted speed of 50km/h) from the current 80km/h ramp design speed (a posted speed limit of 60 km/h); and
- Place Lake Shore Boulevard beneath the new expressway link to maximize available development parcels and green space in the Keating Precinct, and facilitate ramp connections between Gardiner and Lake Shore Boulevard.

Concept 3: New Hybrid, Further North with Rail Bridge Widening



This Hybrid design is a variation of Concept 2, presented above. While it would maintain the tighter radius and lower Gardiner–DVP ramp design speed of 60km/h (posted speed limit of 50km/h), it would replace the elevated express east of Cherry Street at an even more northerly alignment through the Keating Precinct. To facilitate the tight northern alignment of the ramps under Concept 3, it would be necessary to widen the existing spans of the Metrolinx rail bridge over the Don River to allow for ramp curves to start as far north as possible. This would result in the need to replace the part of the existing bridge east of the Don River. This rail bridge supports the four-track Metrolinx Union Station Railway Corridor where it passes over both the Don River and the DVP. The feasibility of this bridge underpass widening, and identification of benefits for Don River flood conveyance associated with Don Mouth naturalization and flood protection, are being reviewed with Metrolinx and TRCA.

Other key design differences include:

- Providing an opportunity to improve the direct connection to/from the Don Roadway;
- Positioning the new eastbound Gardiner off-ramp at Cherry Street to the north side of Gardiner / Lake Shore Boulevard eastbound lanes to better facilitate development and

- open space on the south side of the eastbound Lake Shore Boulevard lanes (this positioning of the eastbound off-ramp could also be done with Concept 2 above); and
- Partially opening Lake Shore Boulevard to daylight east of Munition Street, while stacking it beneath the new expressway west of Munition Street to Cherry Street.

Common Elements of Hybrid Design Concepts

Notwithstanding their differences, the three Hybrid design concepts have several elements in common. First, the focus of the concept development is between Cherry Street and the DVP. Between Jarvis and Cherry Streets, road infrastructure will largely be maintained, subject to other approved plans such as the Lower Yonge Precinct Plan. Proposed changes to this area to be explored in the EA would include public realm and streetscape improvements. East of the Don River, the existing Logan Ramps will be removed and replaced with a new landscaped six-lane at-grade boulevard. Public realm and streetscaping improvement strategies will be recommended and included in the EA Report. In upcoming design work, possible Queens Quay alignments for each Hybrid design concept will be explored, including connections to Lake Shore Boulevard and other areas within the Keating Precinct.

The preferred Hybrid alternative design (once determined) will be combined with the other recommended improvements for the sections of the expressway between Jarvis Street and Cherry Street, and that east of the Don River. Along with the Hybrid alternatives, these recommended corridor improvements will be presented at the planned November 2015 PIC.

Cost Estimates of Hybrid Alternative Design Concepts

The cost estimates considered by Council in June 2015 for the Hybrid alternative were:

- Capital: \$260M NPV (\$414 million in 2013 uninflated dollars); and
- Lifecycle: \$76M NPV (\$505 million in 2013 uninflated dollars).

High level capital cost estimates for the three Hybrid alternative design concepts presented in this report are as follows:

- Concept 1: Revised Hybrid with “tighter” ramps: capital cost would be very similar to \$260M NPV;
- Concept 2: New Hybrid, further north: capital costs are estimated to increase by an additional \$90M to \$140M NPV over \$260M NPV; and
- Concept 3: New Hybrid, further north with rail bridge widening: capital costs are estimated to increase by an additional \$120M to \$180M NPV over \$260M NPV.

Initial high-level cost estimates suggest that there would be little variation in operating and maintenance lifecycle costs for the three Hybrid alternative concepts (all in the \$70M

NPV range) as all alternatives involve complete deck replacement. This is similar to what was considered by Council in June 2015.

It is important to note that these initial cost estimates are to be considered approximate, high level estimates only as they were based on preliminary Hybrid concept drawings. The constructability plans for these concept designs (to be developed this fall) could also influence the capital cost estimates. These cost estimates will be further developed and refined along with further detailing of the alternative designs as part of the Gardiner East EA, in time for public meetings in November 2015.

The cost of public realm improvements is estimated to add between \$30M and \$50M NPV to whichever alternative design is recommended. This funding will deliver streetscaping and public art initiatives, as well as those intersection, pedestrian and cycling infrastructure improvements that are not included in the portions of the Gardiner and Lake Shore that will be reconfigured and reconstructed.

Estimated Land Sales Revenue for Hybrid Alternative Design Concepts

Land sales revenue estimates for the Hybrid alternative were reported to Committee and Council in May and June 2015 as approximately \$40 million (2013 uninflated dollars), based on the creation of 5.5 acres of development area.

Land sales revenue estimates for the three alternative design concepts presented in this report are as follows:

1. Revised Hybrid with “tighter” ramps: approximately \$60 million (2013 uninflated dollars), based on the creation of approximately 8.5 acres of development area;
2. New Hybrid, further north: approximately \$90 million (2013 uninflated dollars), based on the creation of approximately 12.5 acres of development area; and
3. New Hybrid, further north with rail bridge widening: approximately \$100 million (2013 uninflated dollars), based on the creation of approximately 13.5 acres of development area.

Land sales revenue estimates are high-level only. They will be further developed and refined along with further detailing of the alternative designs as part of the Gardiner East EA, in time for public meetings in November 2015. NPV estimates will also be provided at that time.

The study team has engaged a consultant to conduct a more comprehensive evaluation of the impact of the Hybrid’s design alternatives on land values in the Keating and adjacent precincts. This evaluation will look at the quality of the development parcels in the area, the impact on adjacent precincts and public land uplift for each of the concepts being considered.

5. Proposals Originating from Stakeholders and Community Members

While developing Hybrid design concepts, the study team benefitted from unsolicited proposals from stakeholders and community members. Three proposals were submitted to the study team. The proposals are being reviewed to see if elements can be incorporated into the emerging Hybrid design concepts. The proposals are included in Appendix B of this report.

The first proposal, called "The Viaduct", was submitted by a team of planning professionals (Robert E. Millward Associates, David Dennis Design, DTAH and Paul Bedford). The proposal calls for the Gardiner to be reconstructed on a new berm between Jarvis Street and Munition Street because the new berm would "daylight" Lake Shore Boulevard and be less expensive to maintain than an elevated structure. New Gardiner–DVP ramps would be constructed over the east-west Metrolinx rail bridge. The project team has concluded that it is not advisable to consider Gardiner–DVP ramps that would "fly over" the Metrolinx rail bridge (See Appendix A for a review of fly over concepts), however, it will study the viaduct berm idea further as part of the EA process.

The second proposal was developed by First Gulf's consulting team. The proposal is similar in many respects to the two new design concepts presented in this report (Concepts 2 and 3). The study team will study the First Gulf work further as part of the EA process.

The third proposal, called "The Consolidated," was submitted by a team of consultants including BrookMcIlroy, Planning Alliance and Entuitive. The proposal calls for the consolidation of railway and road infrastructure with development. Specifically, the Gardiner would be stacked above the rail corridor, between Yonge Street and Cherry Street. The Gardiner would be incorporated into new development that would be located north of Lake Shore Boulevard and occupy parts of the rail corridor. Eventually, new development would cover the full width of the rail corridor. The proposal has not yet been costed. Senior Metrolinx officials have commented that the agency needs to maintain flexibility until the full buildout of Regional Express Rail and related proposals such as Smart Track. The Consolidated proposal will continue to be studied as part of the Gardiner East EA.

6. Concepts Not Carried Forward for Full Evaluation

A long list of nine Hybrid design concepts were developed following Committee and Council deliberation earlier this year. Six of these design concepts were screened out following an analysis of the issues and constraints, as detailed in Section 3 of this report. Appendix A includes the rationale for the screening out of the other alternative concepts that are not being considered further.

7. Review of Three Hybrid Design Concepts

The following provides initial commentary on the three Hybrid alternative design concepts that are recommended for further development and evaluation in the EA Study. This review is preliminary as noted earlier, the concepts are to be subject to further development as part of the alternative concept design process. This review is organized on the basis of the four Gardiner East EA evaluation lenses in the study Terms of Reference:

- Transportation & Infrastructure;
- Urban Design;
- Environment; and
- Economics.

This initial review of the alternative concepts is presented to fully explain each of the concepts for Committee’s consideration. This review is not intended to be a full EA level evaluation of these concepts. Once the concepts are fully developed as alternative designs, they will be subject to a thorough assessment and evaluation on the basis of a comprehensive set of EA evaluation criteria (similar to that undertaken for the alternative solutions) which will be presented to the public in November 2015. The information presented in Table 1 below helps clarify the differences among the alternatives and is not intended for use to select a preferred alternative at this time.

	Concept 1: Revised Hybrid with “Tighter” Ramps	Concept 2: New Hybrid, Further North	Concept 3: New Hybrid, Further North with Rail Bridge Widening
Transportation and Infrastructure	<ul style="list-style-type: none"> - Provides similar road capacity - Less complex construction – can be largely built with minimal impact to traffic - Maintains ramps with a higher design speed but without shoulders so inconsistent with current roadway design standards 	<ul style="list-style-type: none"> - Provides similar road capacity - More complex construction - Provides Gardiner–DVP ramps with a lower design speed but would include full shoulders 	<ul style="list-style-type: none"> - Provides similar road capacity - More complex construction but with expansion of rail bridge, expected to offer better opportunity to maintain traffic flow during construction - Provides Gardiner–DVP ramps with a lower design speed but would include full shoulders
Urban Design	<ul style="list-style-type: none"> - Similar benefits east of the Don River - LSB realignment as per Keating Plan with two- 	<ul style="list-style-type: none"> - Similar benefits east of the Don River - LSB realignment as per Keating Plan but 	<ul style="list-style-type: none"> - Similar benefits east of the Don River - LSB realignment as per Keating Plan

	<ul style="list-style-type: none"> - sided, tree-lined street - New Keating on/off ramps and at-grade approach roads will act as a barrier between Keating Channel and planned development/public realm in Keating - New Keating ramp access roads would be aligned close to the Keating Channel and would impact the planned continuous pedestrian promenade along the water's edge 	<ul style="list-style-type: none"> - with limited opportunities for a two-sided, tree-lined street given the stacking of expressway over LSB - Realigned expressway and LSB provides for more land area to the south adjacent to the Keating Channel and maintains the planned continuous pedestrian promenade along the water's edge - More northerly expressway alignment improves planned developments north and south of the Keating Channel and minimizes the barrier impacts of the new ramps 	<ul style="list-style-type: none"> - with significant opportunities for a two-sided, tree-lined street for LSB - Realigned expressway and LSB provides for greatest land area to the south adjacent to the Keating Channel, and maintains the planned continuous pedestrian promenade along the water's edge - Most northerly expressway alignment closer to the rail corridor that minimizes its visual impact and improves planned development context north and south of LSB
Environment	<ul style="list-style-type: none"> - Similar air quality emissions expected - Limited environmental benefit enhancements - Expressway and new approach roads will be close to the Keating Channel - Opportunity for tree planting along realigned LSB 	<ul style="list-style-type: none"> - Similar air quality emissions expected - Relocation of expressway from the Keating Channel provides opportunity for water quality improvements - Limited opportunity for tree planting along realigned LSB due to overhead roadway but new opportunity for plantings along pedestrian promenade with removal of overhead Gardiner 	<ul style="list-style-type: none"> - Similar air quality emissions expected - Relocation of expressway from the Keating Channel provides opportunity for water quality improvements - Opportunity for tree planting along portion of the realigned LSB and new opportunity for plantings along pedestrian promenade with removal of overhead Gardiner
Economics	<ul style="list-style-type: none"> - Lowest cost of the three options but land in the Keating Precinct is expected to have lower redevelopment opportunity/value than the other concepts. 	<ul style="list-style-type: none"> - Expected to result in additional capital cost of between \$90M and \$140M (NPV) (very preliminary high level cost estimate 	<ul style="list-style-type: none"> - Expected to result in additional capital cost of between \$120M and \$180M (NPV) (very preliminary high-level cost estimate

		only) - Greater redevelopment opportunities in Keating Precinct as land base south of LSB	only) - Greatest redevelopment opportunities in Keating Precinct
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8. Alternative Designs Development and Evaluation

Continuing EA study work will involve the further development of the three proposed alternative design concepts and their evaluation to identify a preferred alternative design. This ongoing work is described below.

Alternative Designs Development

More detailed road design layouts are being developed for each of the alternative concepts. This will include the detailing of the following:

- Confirming road and bridge design standards and criteria, such as lane, shoulder and median widths, maximum grades, vertical clearances, etc.
- Establishing the horizontal alignment and lane configurations for the Gardiner, Lake Shore Boulevard and Don Roadway;
- Defining the location, length and slope of the Gardiner–Lake Shore Boulevard ramps in the Keating Precinct;
- Establishing the vertical profile of the elevated Gardiner to ensure that required clearances can be provided;
- Finalizing road and bridge plan layouts to establish quantities, (e.g., bridge deck areas, new pavement areas) and more accurate costing of the alternatives;
- Incorporating appropriate urban design elements into the road plans;
- Determining approximate location of required Gardiner support columns;
- Establishing road right-of-way requirements;
- Determining how the realigned Gardiner–DVP link will connect with the remaining Gardiner;
- Establishing a road network layout in the Keating area including the location of property entrances; and
- Preparing a constructability phasing plan for each alternative design that will define among other things, staging and timing recommendations for the construction of the infrastructure components and road detour requirements.

The road design layout for each concept will be developed in an integrated manner with the urban design/public realm team that is expected to inform the design of each concept. Ultimately the objective will be to develop a functioning roadway design for each concept that accommodates future traffic demand and maximizes opportunity for development of public realm creation in the Keating Precinct. Further, it will also be

necessary to conduct hydraulic modelling to ensure that new Gardiner–DVP ramp crossings of the Don River would not result in a reduction in the conveyance of flood waters.

Assessment and Evaluation of Alternative Designs

Once the alternative designs are fully developed later this fall, the next step will be to assess and then comparatively evaluate them. The assessment of alternative designs will involve additional work, including the completion of a more detailed costing exercise, as well as land valuation work to determine City land revenue from the creation of new and/or improved development opportunities in the Keating Precinct and adjacent neighbourhoods.

The Hybrid alternative designs will then be comparatively evaluated on the basis of a comprehensive set of evaluation criteria. The evaluation criteria will be in keeping with the four EA study lenses in the Terms of Reference which were used to evaluate the alternative solutions and will be developed considering the evaluation criteria set that was developed for the alternative solutions. The alternative solution criteria set will be modified to be applicable to the range of alternatives being examined in the alternative design stage of the EA (to evaluate the three Hybrid designs). It is typical EA process practice for the evaluation criteria used in the alternative solutions stage to differ from the alternative design stage. As an example, there could be some criteria/measures considered in the alternative solution stage that are no longer applicable for the evaluation of alternative designs and so these criteria would be deleted. New criteria/measures may be added to reflect important issues regarding the evaluation of the alternative designs. The draft comparative evaluation criteria set will be subject to stakeholder and public review and comment prior to the completion of the alternatives evaluation. Consistency with the Central Waterfront Secondary Plan as well as the City's Official Plan will also be part of the evaluation.

9. Opportunities to Improve the Public Realm

The Gardiner East EA study Terms of Reference calls for a public realm that contributes to the revitalization of the waterfront by rejuvenating underutilized areas under and adjacent to the expressway through the provision of welcoming and accessible routes to the waterfront enhanced by streets, promenades, pathways and visual corridors.

Opportunities to improve the public realm along the Gardiner–Lake Shore corridor east are being explored as part of the alternative designs phase. Considered in the review of possible public realm improvements will be additional pedestrian and cycling infrastructure, improved safety for pedestrians and cyclists, and enhancement of the corridor's overall character through streetscaping and public art initiatives. Of particular interest to City staff and many affected stakeholders is the opportunity to improve the underside of the elevated Gardiner west of Cherry Street which has not benefitted from the many City public realm programs that have improved Toronto's major roads in recent years because of uncertainty related to the EA.

Among other matters, public realm improvements would address Lake Shore Boulevard intersections, particularly the intersection of Cherry Street and Queens Quay. The eastern portion of the Gardiner, in particular those portions of Lake Shore Boulevard East beneath the elevated Gardiner, is bleak and unwelcoming and serves as a barrier to pedestrian movement to the waterfront. The opportunity to animate the underside of the Gardiner will also include investigations to enhance pedestrian safety, such as more generous east-west sidewalks and reducing north-south pedestrian crossing lengths.

Three sets of public realm strategies (including concept plan drawings) will be prepared for the three distinct sections of the Gardiner East, along with high-level cost estimates and an implementation process:

1. East of the Don River, where the Logan ramps will be removed and Lake Shore Boulevard will be reconstructed;
2. West of Cherry Street to Jarvis Street; and
3. Between Cherry Street and the Don River, where one of the three design concepts will be implemented.

A sampling of local and international public realm enhancements beneath expressways were reported to Council in June 2015 in a Supplementary Report on the Gardiner East EA; they are provided in Appendix C of this report. It should be noted that public realm improvements recommended for the Gardiner East EA study area could be relevant to other sections of the Gardiner–Lake Shore corridor, wherever there is elevated structure.

As discussed above, the cost of public realm improvements is estimated to add between \$30M and \$50M NPV to whichever alternative design is recommended. This funding will deliver streetscaping and public art initiatives, as well as those intersection, pedestrian and cycling infrastructure improvements that are not included in the portions of the Gardiner and Lake Shore that will be reconfigured and reconstructed.

10. Upcoming Process and Schedule

Next steps in the Gardiner East EA process are as follows:

- Development and evaluation of the Hybrid alternative designs: ongoing through to November 2015;
- Meetings with stakeholders and landowners: ongoing through to November 2015;
- Final meetings of SAC and PIC: November 2015;
- PWIC and Council: January and February 2016 (Council and Committee meeting dates to be scheduled);
- Incorporation of final preferred design into Strategic Plan for the Rehabilitation of the F.G. Gardiner Expressway: starting in March 2016;
- Draft EA release for public, stakeholder and agency review: March 2016; and
- Final EA submission to MOECC: April or May 2016.

CONCLUSION

The three Hybrid alternative design concepts outlined in this report will be explored further this fall as part of the Alternative Designs stage of the EA study. They will be evaluated against a set of criteria to be developed in line with the EA study Terms of Reference. Additional stakeholder and public consultations will be held in the fall including a planned PIC in November to receive feedback on the more detailed Hybrid alternative designs and the evaluation of these alternative designs. Council will then consider a recommended preferred Hybrid alternative design for the Gardiner Expressway East in early 2016.

This report was prepared by the City's Waterfront Secretariat in conjunction with Transportation Services, City Planning, Corporate Finance, Financial Planning, Engineering & Construction Services and Waterfront Toronto. Information about the Gardiner East EA can be found on the project web site at www.gardinereast.ca

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Appendices:

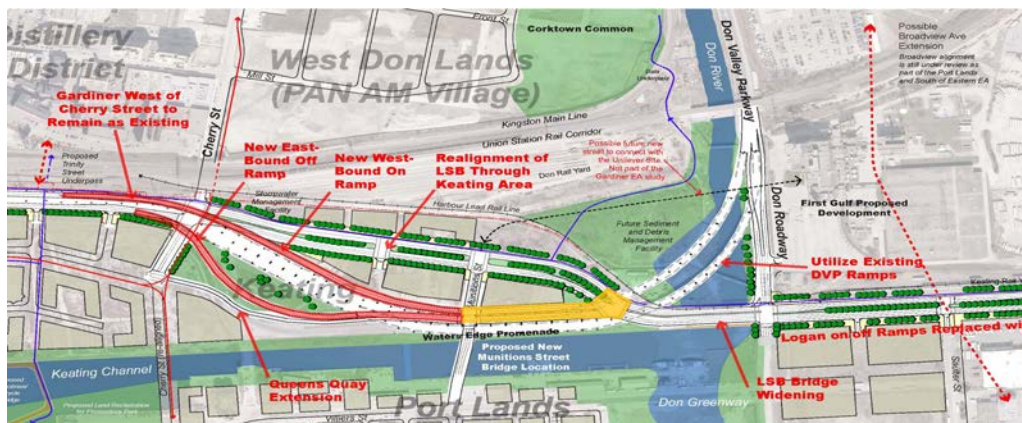
Appendix A – Concepts Not Carried Forward for Full EA Evaluation
Appendix B – Proposals from Stakeholders and Community Members
Appendix C – Local and International Public Realm Precedents

Appendix A – Concepts Not Carried Forward for Full EA Evaluation

The three Hybrid alternative design concepts that will undergo full EA evaluation were selected from a broader list of concepts. These concepts were developed by the Gardiner East EA project team, and were influenced by proposals submitted to the team from community members, planners and landowners. Following public and stakeholder input, and an analysis of key issues and constraints, the following six Hybrid alternative design concepts are not being carried forward in the EA process for detailed design work, costing and assessment. They include:

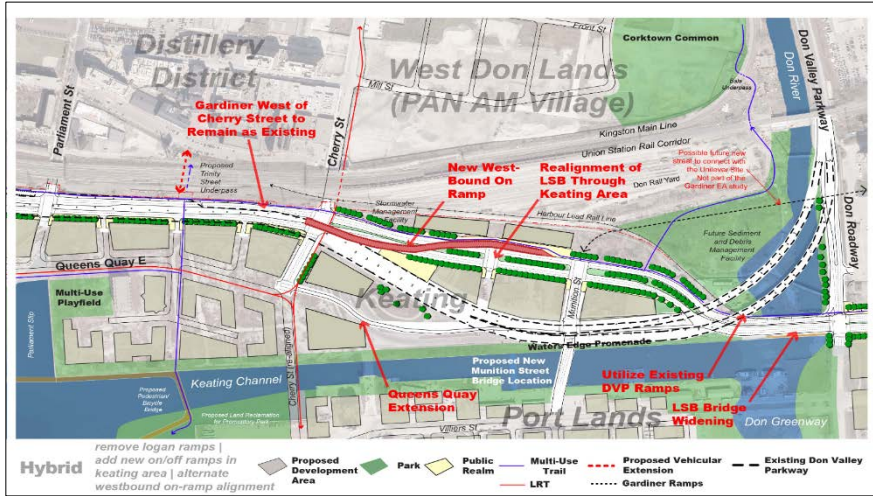
- Council-Reviewed Hybrid;
- Hybrid with Westbound On-Ramp Only;
- Realigned Hybrid with 70km/h Design Speed;
- Hybrid over Stormwater Facility with 60km/h Design Speed;
- 15-metre Rail Flyover with 80km/h Design Speed; and
- 15-metre Rail Flyover Without on/off Ramps and with 80km/h Design Speed.

Council-Reviewed Hybrid



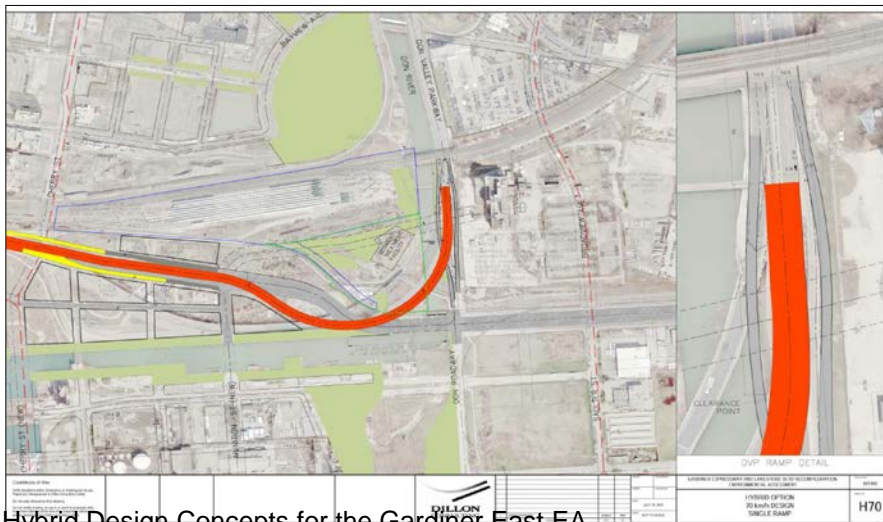
This Hybrid alternative concept, reviewed by Council in June 2015, included new eastbound and westbound on/off ramps in the Keating Precinct to replace the Logan on/off ramps. The eastbound off-ramp in this concept would swing south of the Gardiner. Members of the public and landowners expressed concern with this ramp due to its impact on private property, as well as Keating Channel public realm opportunities. A version of this concept with an eastbound off-ramp that would be "tighter" to the elevated structure is included as a viable Hybrid design concept, described as "Revised Hybrid with Tighter Ramps" in the body of this report.

Hybrid with Westbound On-Ramp Only



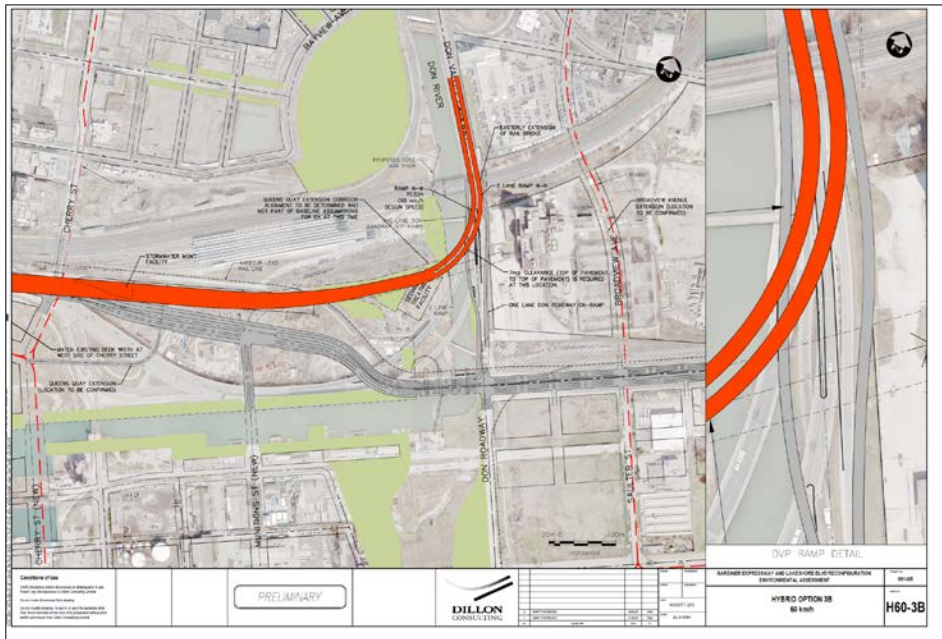
To minimize the impact of new on/off ramps on the Keating Precinct, a Hybrid concept with a westbound on-ramp only at Cherry Street was explored. For this concept, the westbound on-ramp was redesigned to feature a ramp with access from the north side of Lake Shore Boulevard, which would cross over Lake Shore to connect with the Gardiner above Cherry Street. With the proposed Lower Yonge Precinct Plan road network changes in place, the length of travel along Lake Shore Boulevard would increase over current conditions as the Jarvis off-ramp is to be shortened to west of Yonge Street. The absence of an eastbound off-ramp in the Keating area would force vehicles headed east of the Don Roadway to stay on Lake Shore Boulevard or find alternate paths along other heavily trafficked east-west roadways. Based on the traffic modelling that was completed for the 2031 horizon year, PM peak hour auto travel time for eastbound commuters could be expected to increase in the range of two to four minutes. This ramp configuration would also greatly reduce the utility of the Gardiner in the downtown area by removing a connection that provides important relief to eastbound Lake Shore Boulevard, primarily during the PM peak hour. This and other Hybrid concepts that do not provide new Gardiner on and off ramps will not be considered further.

Realigned Hybrid with 70 km/h Design Speed



A Hybrid with a 70 km/h Gardiner–DVP ramp design speed was developed. The alignment for a ramp at this speed would place the ramp in a similar location as the existing Gardiner–DVP ramps, close to the Keating Channel. As there would be little benefit in incurring significant costs to rebuild a new ramp in virtually the same location as the existing ramps, this concept is not being considered further.

Hybrid Over Stormwater Facility



In an effort to move roadway infrastructure as far north as possible from the Keating Channel, a Hybrid design was considered in which the expressway would pass over the new West Don Lands Storm Water Management (SWM) facility just east of Cherry Street. There are however, several issues with this concept:

- While the elevated expressway could potentially span over the SWM facility, the at-grade Lake Shore Boulevard would still run south of it. The continuation of this parallel –versus a stacked – roadway configuration would mean a larger overall roadway “footprint” in the Keating Precinct;
- Spanning of the SWM facility would have higher capital costs as a result of both longer spans between structure supports, and the removal of a longer portion of the Gardiner west of Cherry Street to align the new elevated expressway with the existing Gardiner;
- A parallel Gardiner/Lake Shore Blvd. configuration would result in a more complex road and ramp arrangement needed to provide on/off access to the expressway. A stacked configuration would better facilitate new on/off ramps in the corridor;
- Due to insufficient vertical clearance, spanning of the expressway over the SWM facility would require relocation of the westbound on-ramp to east of the SWM

facility. This would complicate the design of the realigned Lake Shore Boulevard, including intersection locations, through the Keating Precinct;

- Reducing the height of the SWM facility to approximately eight metres from the current 13 metres would result in the need to redesign and tender the building project; and
- Spanning of the expressway over the SWM facility could result in impacts and/or restrictions on maintenance activities for both the new expressway and the SWM facility.

A northern expressway alignment may be achieved with design concepts that do not involve the overhead spanning of the SWM facility and all its associated challenges. For these reasons, design concepts that overtop the SWM facility will not be considered further.

15-Metre Rail Flyover with 80km/h Design Speed

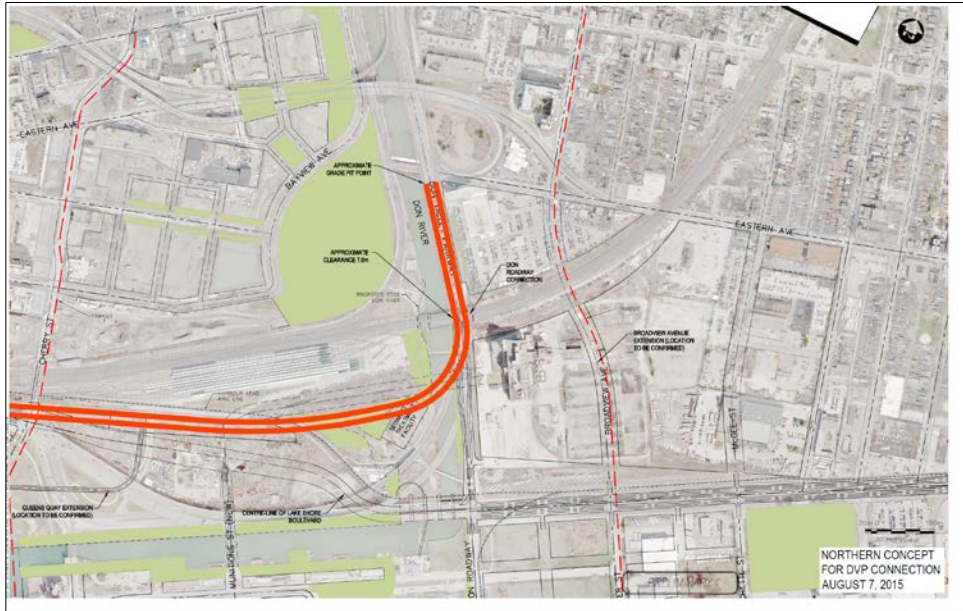


To overcome the constraint of the Metrolinx rail bridge over the Don River in achieving a more northern alignment for the expressway through the Keating Precinct, a Hybrid concept that involves an overpass over the rail bridge was explored. This ramp configuration would start along the DVP just south of Eastern Avenue with a minimum 7.4-metre clearance over the rail tracks, resulting in an approximately 9-10 metre high ramp over the rail tracks.

Construction of this concept would be complex and costly. The need for ramp support structures and fill close to the Don River could have impacts on flood water conveyance. Further, the need for a vertically high ramp (to meet rail track clearance requirements) could have negative impacts on adjacent land uses, including Corktown Common. It was determined that the benefits of the higher ramp design speed of this northerly alignment

could be largely achieved through an expansion of the Metrolinx rail bridge underpass. As a result, this concept will not be considered further.

15-Metre Rail Flyover at 80km/h Design Speed Without On/Off Ramps



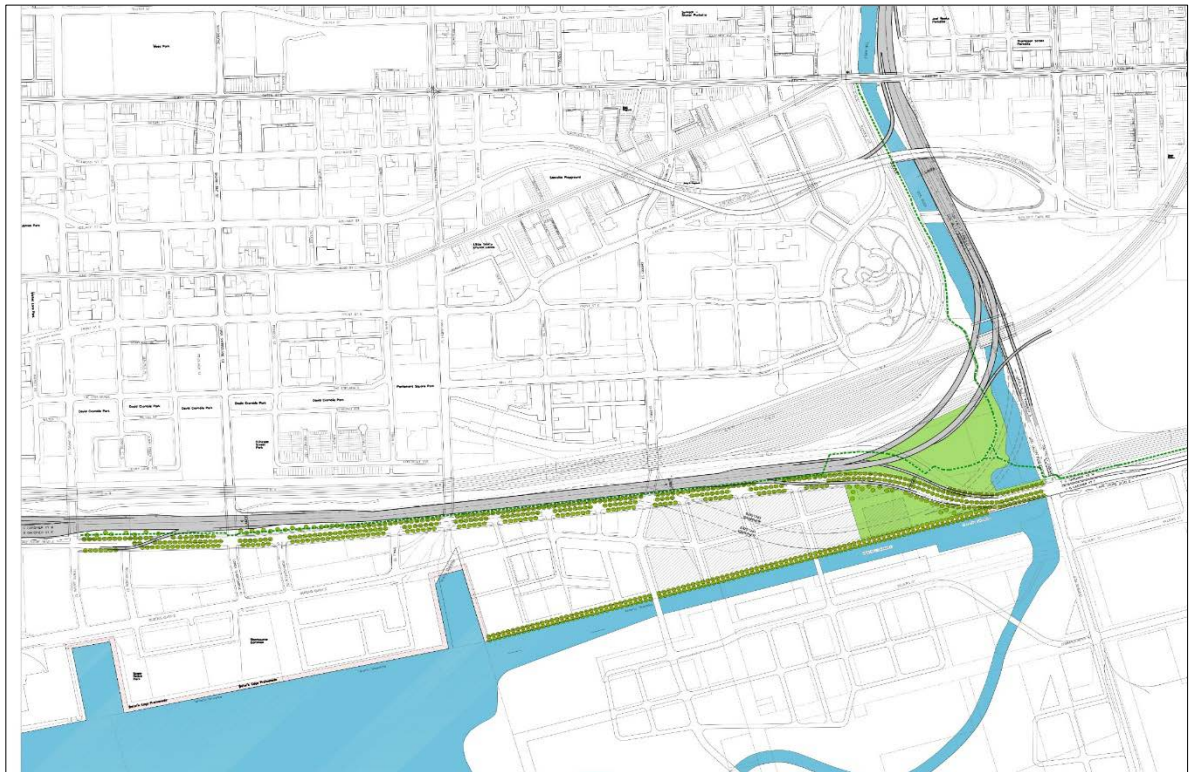
This Hybrid would overpass the Metrolinx rail bridge to achieve an even more northern alignment than Concept 4 above. However, it would achieve this by overtopping the planned stormwater management facility at the cost of the on/off ramps to the Gardiner. As discussed in Concept 1B, traffic modelling results confirm that both Gardiner on/off ramps are required to avoid significant travel time impacts. Thus, the benefits of the higher ramp design speed of this northernmost alignment do not outweigh the many impacts. Its benefits can be largely achieved through an expansion of the Metrolinx rail bridge underpass. Consequently, as discussed in Concepts 1B and 3B above, Hybrid designs that overtop the West Don Lands Stormwater Management Facility and do not provide both Gardiner on/off ramps, will not be considered further.

Appendix B – Proposals from Stakeholders and Community Members

While developing Hybrid design concepts, the study team has benefitted from unsolicited proposals from stakeholders and community members. The unsolicited proposals listed below continue to be reviewed to see if elements can be further incorporated into the Hybrid alternative design concepts.

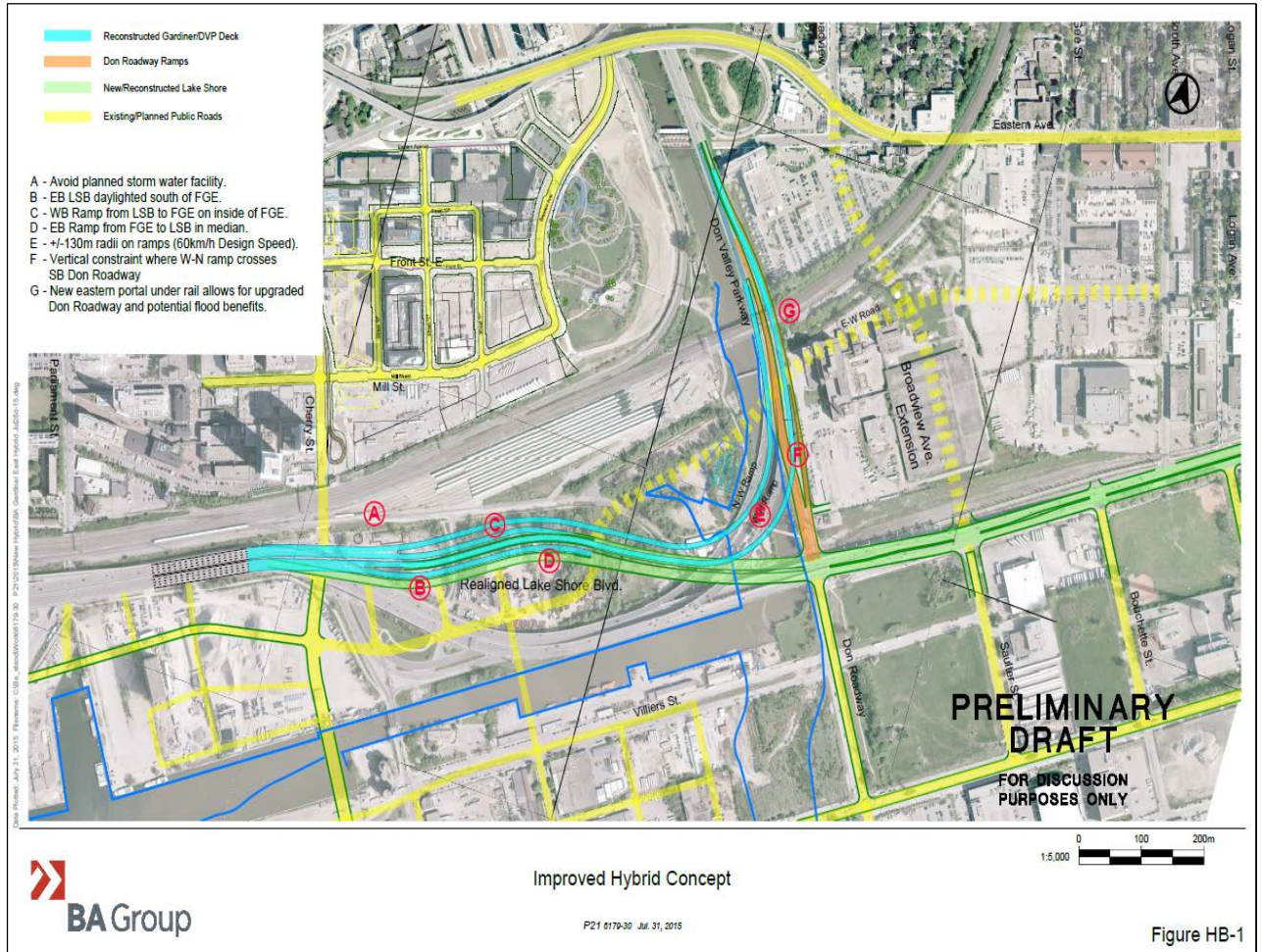
The Viaduct – R.E. Millward Associates + David Dennis Design + DTAH + Paul Bedford

The first proposal, called "The Viaduct", was submitted by a team of consultants (Robert E. Millward, David Dennis Design, DTAH and Paul Bedford). The proposal calls for the Gardiner Expressway to be reconstructed on a new berm south of the rail lands between Jarvis Street and Munition Street, reducing costs associated with maintaining an elevated structure. A fully landscaped Lake Shore Boulevard would run parallel to, rather than beneath, the expressway to the south. New Gardiner–DVP ramps would be constructed over the east-west Metrolinx rail bridge. While the EA study team has concluded that it is not advisable to consider Gardiner–DVP ramps that "fly over" the Metrolinx rail bridge, it will study the viaduct-berm idea further as part of the EA process.



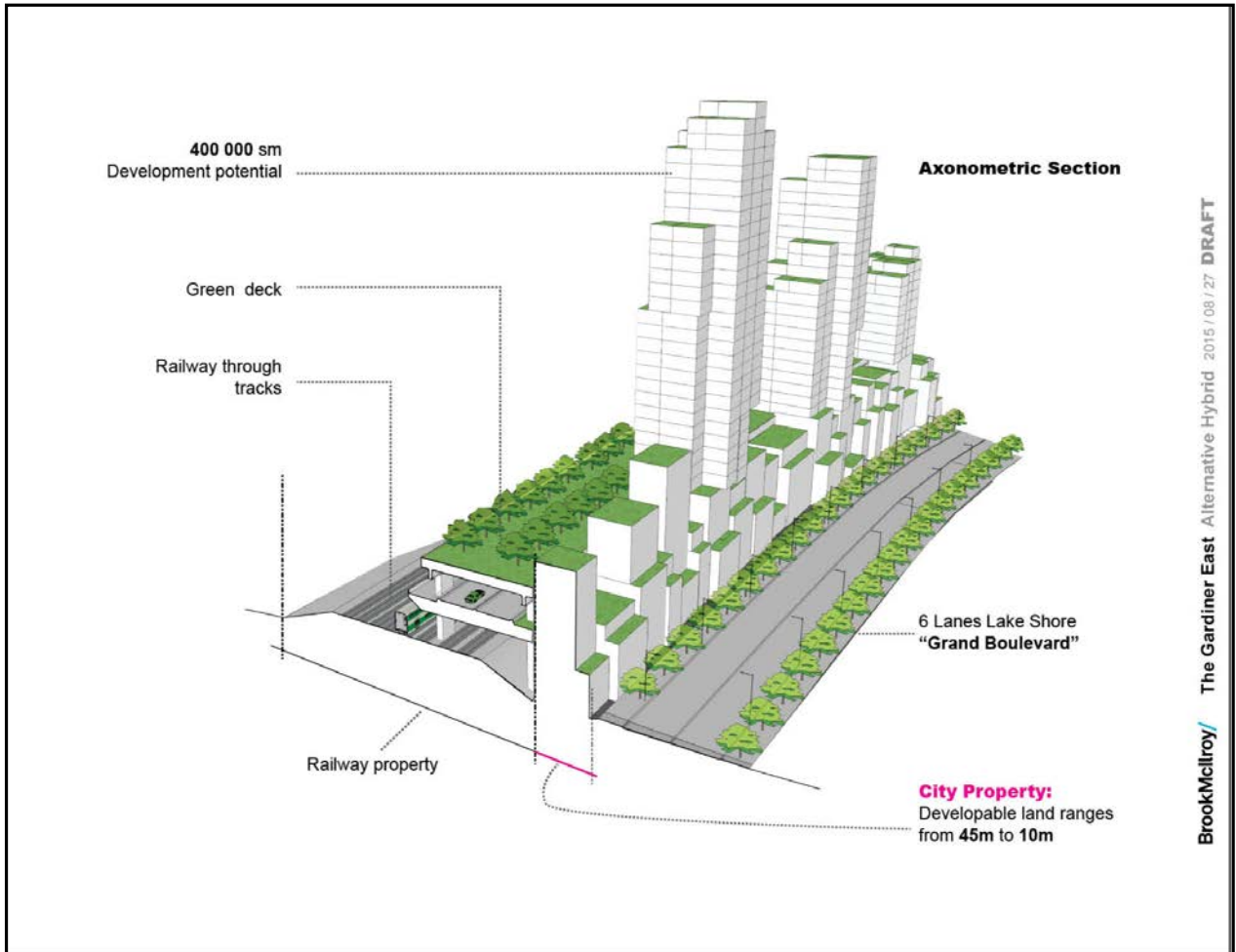
First Gulf's Hybrid

The second proposal was developed by First Gulf's consulting team. The proposal is similar in many respects to Concepts 2 and 3, presented in this report. The study team will continue to study the First Gulf proposal as part of the EA process.



The Consolidated – BrookMcIlroy, Planning Alliance, Entuitive

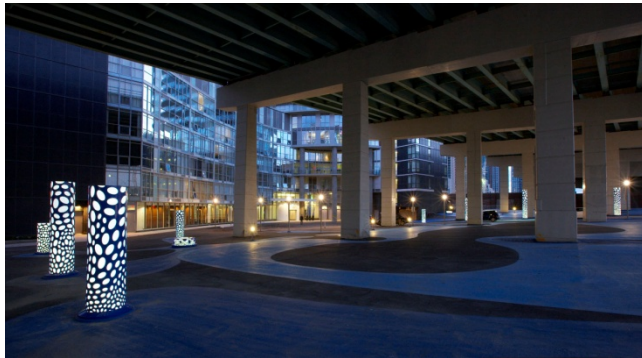
The third proposal, called "The Consolidated," was submitted by a team of consultants including Brooke McIlroy, Planning Alliance and Entuitive. The proposal calls for the consolidation of railway and road infrastructure with new development. Specifically, the Gardiner is to be relocated above the rail corridor, between Yonge Street and Cherry Street. The Gardiner would be incorporated into new development that would be located north of Lake Shore Boulevard and occupy parts of the rail corridor. Eventually, new development would cover the full width of the rail corridor. The proposal has not yet been costed. Senior Metrolinx officials have commented that the agency needs to maintain flexibility until full buildout of Regional Express Rail and related proposals such as Smart Track. The Consolidated proposal will continue to be studied as part of the Gardiner East EA.



Appendix C – Local and International Public Realm Precedents

Numerous local and international case studies demonstrate a wide range of possible public realm enhancements, uses and activities for the underside of the Gardiner East. Recent local case studies include projects at the Mitosis Courtyard at City Place, the Onni development on Bathurst Street known as the "Garrison," the Fort York Visitors Centre and Underpass Park in the West Don Lands beneath the Richmond-Adelaide ramps.

Mitosis Courtyard, TORONTO



Onni Development, TORONTO



Fort York Visitors Centre, TORONTO



Underpass Park, TORONTO



International case studies include a skatebowl under the Burnside Bridge in Portland, public garden and recreation spaces in the East River Esplanade below Franklin D. Roosevelt Drive in Manhattan, a cycle and pedestrian trail edged by aluminum flowers in Glasgow and a glowing gallery of synthetic trees beneath a Sydney highway overpass.

Burnside Skatepark, Portland OREGON



East River Esplanade NEW YORK



Garscube Link, Glasgow SCOTLAND



Aspire, Sydney AUSTRALIA

