


**STAFF REPORT
ACTION REQUIRED**
**F.G. Gardiner Expressway Strategic Rehabilitation Plan
Procurement Strategy**

Date:	September 4, 2015	
To:	Executive Committee	
From:	Deputy City Manager, Cluster B Deputy City Manager & Chief Financial Officer	
Wards:	Ward 5 – Etobicoke-Lakeshore Ward 13 – Parkdale-High Park Ward 19 – Trinity-Spadina Ward 28 – Toronto Centre-Rosedale	Ward 6 – Etobicoke-Lakeshore Ward 14 – Parkdale-High Park Ward 20 – Trinity-Spadina Ward 30 – Toronto-Danforth
Reference Number:	P:\2015\Internal Services\Cf\Ec15017Cf (AFS# 20450)	

SUMMARY

This report provides an overview of the financing and procurement options for the implementation of the Revised Strategic Plan for the Rehabilitation of the F.G. Gardiner Expressway. An Alternative Financing and Procurement (AFP) approach is being recommended for the implementation of the Plan and authorization to pursue funding from the federal government is being requested.

AFP is the term used by the Province of Ontario for Public-Private-Partnerships (P3). AFP is not a funding source, but rather a project procurement and delivery model, designed to provide better cost, quality and scheduling results for complex infrastructure projects. The recommended approach involves a 30-year operations and maintenance concession period, adding significantly to the amount of the contract. It does not involve the transfer of ownership or sale of the highway, nor the rights to any future tolling or other highway related revenues. It is also important to note that the operations and maintenance component for the Gardiner is currently largely contracted out.

The basis for the recommended procurement approach is an analysis that concludes that the City can save at least 16% or an estimated \$500 million over the life of a 30 year rehabilitation and maintenance contract as compared to the costs that would be expected under a traditional procurement. In addition, the proposed procurement process is

expected to lead to a further significant compression of the construction period, plus add value in terms of maintenance quality and asset durability.

The Revised Strategic Plan for the Rehabilitation of the F.G. Gardiner Expressway is a complex infrastructure project. The Plan addresses the rehabilitation needs of the Expressway, extending from Highway 427 to the eastern limit at Logan Avenue, including the "at-grade" and "elevated" sections identified in the Strategic Rehabilitation Plan approved by City Council in April 2014; and incorporates the change of scope for the rehabilitation of the elevated section of the Expressway east of Jarvis Street, based on the future outcome of the Gardiner Expressway and Lake Shore Boulevard East Reconfiguration Environmental Assessment.

In adopting the Strategic Rehabilitation Plan in April 2014, Council approved an Accelerated Bridge Construction approach, using pre-fabricated segments, for rehabilitation of the elevated section of the Expressway. This approach requires a higher upfront capital investment, however it reduces the overall construction related traffic restrictions from 20 years to 12 years, representing a significant reduction in associated traffic impacts, and road user costs. Furthermore, the use of pre-fabricated sections provides for a higher quality structure with a longer service life, and lower annual maintenance costs. Based on feedback received from the industry, the implementation of the Plan could be further accelerated by up to 6 years by using Alternative Financing and Procurement approach. In addition, the use of this procurement approach pre-qualifies the project for Federal funding of up to one third of the eligible costs through the P3 Canada Fund and New Building Canada Fund, subject to the submission of successful business case applications.

Regardless of the method of project delivery that is chosen, the F.G. Gardiner Expressway will continue to be publicly owned, and the City will continue to ensure that the Expressway is maintained in a safe and operable condition.

RECOMMENDATIONS

The Deputy City Manager, Cluster B, and the Deputy City Manager & Chief Financial Officer recommend that:

1. City Council approve the incorporation of the future outcome of the Gardiner East Environmental Assessment into the scope of work for the overall rehabilitation of the F.G. Gardiner Expressway as documented in the previously approved Strategic Plan for the Rehabilitation of the F.G. Gardiner Expressway, and now referred to as the Revised Strategic Plan.
2. City Council authorize the Deputy City Manager, Cluster B, and the Deputy City Manager & Chief Financial Officer to proceed with an Alternative Financing and Procurement approach for the implementation of the Revised Strategic Plan, including issuance of the RFP, using a Design-Build-Finance-Operate-Maintain approach, as described herein, subject to the approval of Government of Canada

- funding of one-third of capital construction costs eligible for funding under the P3 Canada and Infrastructure Canada Programs.
3. City Council direct the City Manager to:
 - a. Submit business cases and such other material as may be required by P3 Canada and Infrastructure Canada to formally request Government of Canada funding for the Revised Strategic Plan; and,
 - b. Enter into the necessary contribution agreements.
 4. City Council reiterate the City's request to the Province of Ontario to provide matching one-third funding of the capital cost of the Revised Strategic Plan, in recognition of the vital importance of the F.G. Gardiner Expressway to the economy of Ontario as outlined in the attached executive summary report from HDR Consulting.
 5. City Council authorize the Deputy City Manager, Cluster B, and the Deputy City Manager & Chief Financial Officer, in consultation with the City Solicitor, to negotiate and enter into an agreement with Ontario Infrastructure and Lands Corporation (IO), under which IO would:
 - a. Act as commercial procurement lead for the Alternative Financing and Procurement approach, through to execution of project agreements and financial close, at an estimated cost of \$12 million; and
 - b. Retain the necessary professional services required to support the AFP procurement at an estimated cost of \$40 million, based on the scope of services terms outlined in Attachment 3 to this report.
 6. City Council direct the Deputy City Manager, Cluster B, and the Deputy City Manager & Chief Financial Officer to report back, in 2017, to Executive Committee and Council on the results of the procurement process identified in Recommendation No. 2 to seek authority to award the contract to the preferred proponent.
 7. City Council direct that the Revised Strategic Plan cash flows, and proposed sources of funding be submitted for Council's consideration as part of the 2016 Budget Process, in accordance with the recommended procurement strategy as described herein.

Financial Impact

Procurement Recommendation

An analysis of procurement options was conducted by the City with the advisory support of Ontario Infrastructure and Lands Corporation (IO), and sub-consultants (Ernst & Young, Hanscomb, HDR), in accordance with IO methodology and the public-private-partnership (P3) assessment requirements of the federal government.

The results of a quantitative Value for Money (VFM) analysis indicate that a Design-Build-Finance-Operate-Maintain (DBFOM) procurement is estimated to result in lower overall capital construction, operating and maintenance, and major life cycle maintenance costs by a factor of approximately 16%, equivalent to \$500 million on a present value basis, over a 30 year operating and maintenance concession period, compared to the costs that would be expected under a conventional procurement.

The analysis indicates that the lower cost is achievable because the AFP process combines various aspects of project delivery under one contract, allowing for the bid consortium to coordinate activities, realize economies of scale, be more innovative with respect to design and scheduling, and manage potential cost escalation risks.

The analysis also identified qualitative benefits that are expected to be an outcome of the DBFOM procurement process, which include: improved cost and completion date certainty, a shortened construction period (by up to six years or 50%), and an effective 30-year plus warranty on the infrastructure given that the successful proponent would be required to maintain the asset to City quality output specifications over this period.

Project Capital Cost

The total capital cost estimate for the construction portion (excluding operations and maintenance, and lifecycle maintenance) of the Plan is \$2.6 billion (inflated dollars), compared to the previous estimate of \$1.9 billion (of which \$970 million was expected to be expended within the Transportation Services’ 10 year Capital Plan). The higher cost estimate is attributable primarily to:

- Scope modifications to include the Gardiner East hybrid (for this process, assumed to be \$155 million in accordance with the base hybrid alternative, as considered by Council in June 2015);
- Inclusion of the proponent's financing costs during construction, where traditionally the City makes and finances payments during construction but does not budget nor bill financing costs to the project (approximately \$230 million); and,
- The costs of managing risks transferred to the proponent, which protects the City against further exposure to related cost increases (approximately \$315 million).

The estimated net capital cost in relation to total project construction costs, after the anticipated federal funding of \$820 million or one-third of capital construction costs, is \$1.8 billion, as shown in Table 1.

Table 1
Gardiner DBFOM
Total Estimated Capital Expenditures

	\$ millions (As spent dollars)
Construction Cost	\$2,460
Professional Services	\$110
Total Capital Costs	\$2,570
Estimated Federal Capital Funding = 1/3 Construction Cost	(\$820)
Net Capital Cost	\$1,750

Under the recommended DBFOM contract, only 85% of construction costs would be paid upon project completion, and the balance of 15% amortized over the 30 year concession period. The total net cost (less federal funding) expected to be included for Council’s consideration in the 2016 to 2025 Capital Budget and Plan is \$1.43 billion, an increase/acceleration of approximately \$460 million in City-own funding over the previous 10-Year Capital Plan, as shown in Table 2.

Table 2
Gardiner DBFOM
Preliminary Estimated 10 year Capital Outlay

	\$ millions (As spent dollars)
Professional Services	\$110
Estimated Net City Substantial Completion Payment	\$1,265
Amortized 15% Construction Payments 2024,25	\$58
Total Estimated Net Capital Outlay 2016 – 2025	\$1,433

Total Contract Value

The DBFOM procurement would include contracting for operations and maintenance costs and lifecycle maintenance over the 30 year concession period as a means to ensure that the contractor has appropriate incentives to design and build quality, low maintenance works. In addition, it has been determined that for this project approximately 15% of the capital construction cost would be paid over the life of the contract, to provide appropriate performance incentive for the contractor throughout the concession period. As a result, the total contract value is expected to be approximately \$3.8 billion, or \$3.0 billion net of Federal funding.

Table 3
Gardiner DBFOM
Total Estimated Contract Value

	\$ millions (As spent dollars)
Construction Cost	\$2,460
Concession Charges: Operations and Maintenance Costs, Lifecycle Maintenance costs, Capital Financing	\$1,390
Total Estimated DBFOM Contract Value	\$3,850
Less Estimated Federal Capital Funding	(\$820)
Estimated Net Contract Value	\$3,030

Operations and maintenance costs, and lifecycle maintenance (such as periodic resurfacing) costs, would normally be contracted separately in a conventional procurement. Inclusion of these elements in a single contract contributes to the overall estimated cost savings potential.

Funding Assumptions

Major capital works such as the Strategic Rehabilitation Plan are typically debt financed and funded through tax supported debt service payments over a term which could extend to 30 years, for assets with a very long service life (i.e., much greater than 30 years), which in this case represents the concession period in the proposed DBFOM model. Some allocations from current, prior year surplus, or other sources may be identified in the capital plan to reduce debt requirements.

For a DBFOM procurement, the contractor would finance the work during construction, and the City would not make any payments until the work, or sometimes a discrete completed portion of the work, is completed. The 'substantial completion payment' is expected to be 85% of the total construction cost, with the balance to be paid by the City over the term of the concession.

Federal funding would be timed to offset a portion of the substantial completion payment obligations, expected to occur in 2023. Based on current estimates, the City expects to be eligible for one-third federal capital project funding of \$820 million through contributions from the P3 Canada Fund and the New Building Canada Fund.

Funding is predicated on acceptance of the City's business case and procurement options analysis. The City and its advisors have been in regular contact with P3 Canada officials throughout the analysis to ensure that the City's application is compliant with P3 Canada requirements. Some issues, such as the most appropriate substantial completion payment ratio, need to be resolved. Submissions are due early in 2016, and formal acceptance notification would be expected later in the year.

It should be noted that under currently-existing federal funding rules, the City must pursue a DBFOM procurement to be eligible for P3 Canada funding. Funding is also being sought under the New Building Canada Fund, which currently also requires a P3 project screen, which, if favourable, requires the project to be delivered as a P3.

Under the recommended approach and preliminary project schedule, the City would not make any significant payments until at least 2023, the year of completion if the work is successfully compressed into six years (although it is possible that for a project of this size, it may ultimately be determined to be in the City's interest to incorporate some interim payments prior to completion). Around the time of completion, the City would begin to issue the necessary debt to finance the project, and start to incur debt service costs in the operating budget, estimated at \$85 million per year at current interest rates. These debt service costs would normally be funded from the tax base. The remaining 15% capital cost would be paid over a 30-year concession period, adding an additional annual payment averaging approximately \$27 million, for total annual debt service and

capital concession payments of about \$112 million, beginning after project completion, which could be as early as 2024.

Should Council decide at some point in the future to implement tolling, such revenues could offset part or all of the net costs associated with the Plan.

All of the estimates above are based on current assumptions regarding federal and provincial funding, project cost estimates and applicable interest rates, and would be built into the preliminary 2016-2025 Capital Budget and Plan.

Immediate Financial Impacts

In order to proceed with any project procurement, the City will incur various costs or financial obligations leading up to award of the contract. These include:

- Technical assessment of the elevated structure supports;
- Development of the Request for Quotation (RFQ) and Request for Proposal (RFP) bid documents;
- Retention of an Owner's Engineer; and,
- Various other professional services as identified in the body of this report.

Funding is available for these requirements with the Transportation Services' approved 2015 – 2024 Capital Budget and Plan within the account CTP122 - F.G. Gardiner Capital Project.

Additionally, a DBFOM procurement is expected to result in the obligation to pay bid fees estimated at up to \$10 million to compensate unsuccessful shortlisted bidders (assuming 3 or 4 are shortlisted) for the cost to mount a bid. These costs are typically included in the costs covered by the successful bidder, and may be a direct City responsibility if the RFP was aborted or not awarded.

Consequently, it could be very expensive for the City in terms of sunk costs, bidder compensation, reputational risk, project delays, and failed funding agreements, if, after committing to this form of procurement, the City changed its procurement approach.

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

DECISION HISTORY

Strategic Rehabilitation Plan for the F.G. Gardiner Expressway

At its meeting on April 1 to 3, 2014, in consideration of the report and presentation about the Strategic Rehabilitation Plan for the F.G. Gardiner Expressway, City Council (a) approved the Accelerated Bridge Construction approach as the method of construction for implementation of the Plan, based on maintaining the Expressway in its current configuration; (b) requested a further report to include a project delivery schedule, multi-year cash flow requirements and financing strategy, proposed project delivery model and proposed procurement process for the implementation of the Strategic Rehabilitation Plan; (c) advised staff to ensure that the Strategic Rehabilitation Plan be revised in the event that Gardiner East Environmental Assessment Study identified a preferred option

other than “maintain”; (d) awarded Contract 13SE-19S, Tender Call 314-2013, to Grascan Construction Limited, for the replacement of the deck on the elevated section of the F.G. Gardiner Expressway, between Exhibition Place and Grand Magazine Street; and, (e) awarded Contract 13SE-21S, Tender Call 14-2014, to Soncin Construction Corporation for the rehabilitation of the F.G. Gardiner Expressway at-grade bridges between Park Lawn Road and the Humber River. The associated Council decisions can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2014.PW29.1> and <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2014.PW29.3>

The report on the Strategic Rehabilitation Plan can be found at:

<http://www.toronto.ca/legdocs/mmis/2014/pw/bgrd/backgroundfile-67051.pdf>

The presentation about the Strategic Rehabilitation Plan to the Public Works & Infrastructure Committee by the Executive Director, Engineering & Construction Services, and the General Manager, Transportation Services, can be found at:

<http://www.toronto.ca/legdocs/mmis/2014/pw/bgrd/backgroundfile-67367.pdf>

At its meeting on June 10, 2014, City Council authorized the City Manager to retain the advisory services of Infrastructure Ontario (IO) for the purpose of preparing a procurement options analysis in support of the implementation of the Strategic Plan for the Rehabilitation of the F.G. Gardiner Expressway. The Council decision can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2014.PW31.17>

Gardiner Expressway and Lakeshore Boulevard East Reconfiguration Environmental Assessment and Integrated Urban Design Study

At its meeting on August 5 – 6, 2009, City Council authorized the submission of the Terms of Reference for the Gardiner Expressway and Lake Shore Boulevard Reconfiguration Environmental Assessment Study to the Minister of Environment. The Council decision can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2009.EX33.17>

At its meeting of June 10 – 12, 2015, City Council adopted the "Hybrid" option as the preferred alternative for the Gardiner Expressway and Lake Shore Boulevard Reconfiguration Environmental Assessment Study and directed the Deputy City Manager, Cluster B, and the Deputy City Manager & Chief Financial Officer to report back to Executive Committee on incorporating the preferred alternative into the Strategic Plan for the Rehabilitation of the F.G. Gardiner Expressway, including a preferred procurement delivery option, project delivery schedule, multi-year cash flow requirements and financing strategy. The Council decision can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.PW4.1>

ISSUE BACKGROUND

The City of Toronto owns and operates the F.G. Gardiner Expressway, a major arterial roadway that runs parallel to the Lake Ontario shoreline in the downtown core. The

Expressway, which is shown in Figure 1, is 18 kilometres long and has “at grade” and “elevated” sections. Details about the Expressway are presented in Table 4.

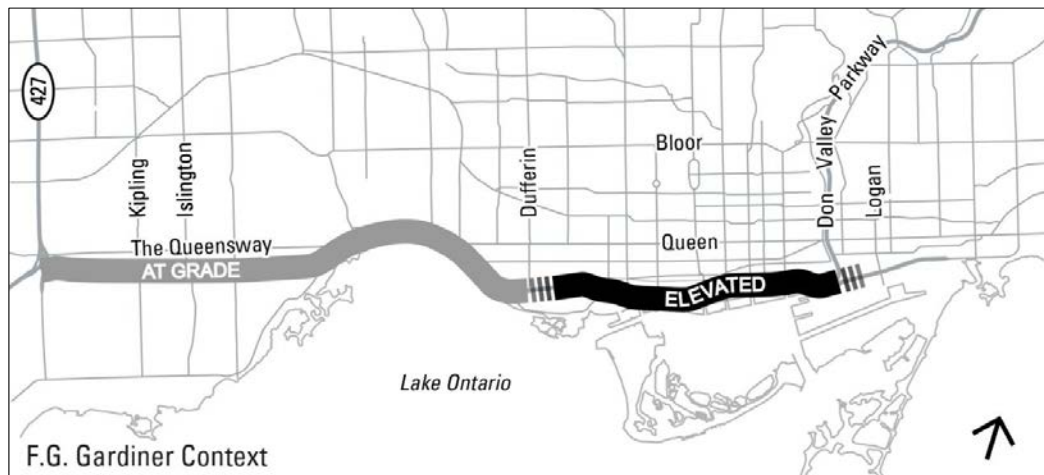


Figure 1. Map showing the F.G. Gardiner Expressway

Table 4. Features of the “At Grade” and “Elevated” Sections of the F.G. Gardiner Expressway

Feature	At Grade	Elevated
Length and Location	11 kilometres long, starting at Highway 427 to about 300 metres east of Dufferin Street;	7 kilometres long, from just east of Dufferin Street to approximately Logan Avenue
Structures	32 structures (e.g., bridges and culverts);	335 bridge spans
Driving Lanes	6 to 10 driving lanes west of the Humber River 6 driving lanes east of Humber River	6 driving lanes and 17 ramps
Total Surface Area of Paved Traffic Lanes	~370,000 square metres (m ²)	~300,000 m ²
Posted Speed Limit	100 km/h west of the Humber River 90 km/h east of the Humber River.	90 km/h.

The "elevated" section of the Expressway has 3 main components, shown in the cross-section in Figure 2:

1. The "deck", which is the road surface and is composed of a layer of asphalt and waterproofing on top of reinforced concrete;
2. "Girders", which support the deck; and,
3. A series of 334 steel reinforced concrete "bents", which consist of a steel reinforced concrete pier cap that sits on top of steel reinforced concrete columns.

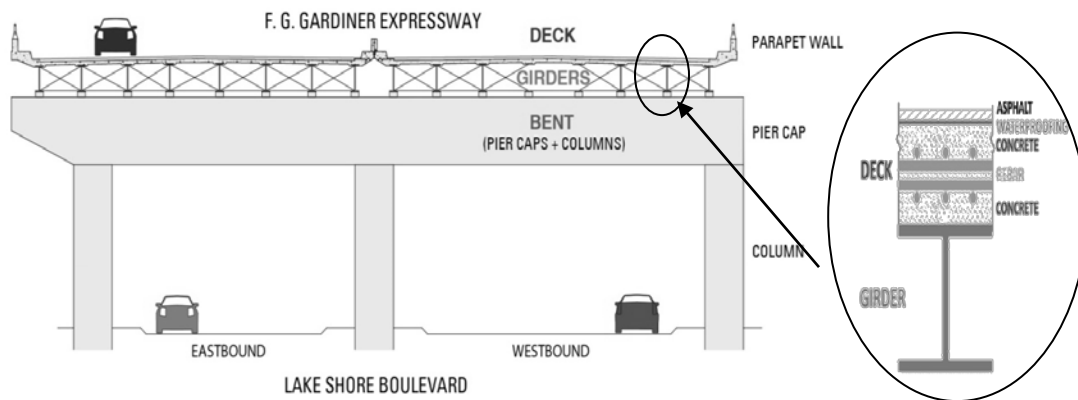


Figure 2. Typical cross-section of "elevated" section of the Expressway

Strategic Plan for the Rehabilitation of the Expressway

The Expressway was constructed over an 11-year period from 1955 to 1966, and has been in service for almost 60 years. The effects of weathering, salt, and increasing traffic loads have had an impact, and the concrete deck for the elevated section of the Expressway is approaching the end of its original design life.

The need to extensively rehabilitate of the Expressway was highlighted in 2012, when a number of incidents of falling concrete occurred, including on May 2, 2012, when a piece of concrete approximately 16 inches by 12 inches by 2 inches (16" x 12" x 2") fell on Lake Shore Boulevard east of Lower Jarvis Street, and on May 10, 2012, when a piece of concrete approximately 6" x 6" x 1" fell on Parkside Drive near Lake Shore Boulevard West. The falling pieces of concrete consisted of "concrete cover" and the loss of this concrete did not affect the overall structural integrity of the Expressway, but did pose a threat to public safety.

The City responded by:

- Enhancing the controlled chipping program in order to minimize spalling¹ of loose or delaminated concrete;
- Increasing visual inspections of the underside of the deck and ramps to identify sections requiring immediate attention;
- Retaining external engineering expertise to conduct detailed inspection of the entire Expressway in accordance with the Ontario Structural Inspection Manual (OSIM);
- Approving immediate repairs to sections of the Expressway identified to be in poor condition; and,
- Initiating development of an Expressway management strategy to prioritize future repair work.

¹ Although there is no definitive method of identifying an imminent concrete spall, controlled chipping minimizes the risk.

In addition, City Council approved \$505 million in capital funding over 10 years to fund replacement of key components of the Expressway and ensure the ongoing safe operation of the entire Expressway. This included the concrete deck of the Expressway between Jarvis Street and the Don Roadway which was found to be in poor to very poor condition, requiring complete replacement, and work was started on this section in early 2013.

During this period, the City also re-initiated the Individual Environmental Assessment (EA) to examine options for the eastern part of the Expressway and Lake Shore Boulevard East. This initiative, which originally commenced in 2008, sought to determine the future of the Expressway from Jarvis Street, including the remaining Lake Shore East ramp to Logan Avenue.

Re-initiation of the EA study necessitated revisions to the previously planned rehabilitation program for the Expressway. Specifically, the program was changed so that the approximately 800 metre long West Deck (from approximately 240 metres west of Strachan Avenue to about 480 metres east of Strachan Avenue) would be replaced first, while the full deck replacement of the East Deck (Jarvis Street to Logan Avenue) was deferred in favour of ongoing interim repairs to keep the East Deck in a safe and operable condition until 2020, pending the outcome of the EA and implementation of the preferred option. These interim repairs to the East Deck consisted of: temporary timber bracing under the deck; localized concrete deck repairs; and repair and replacement of severely deteriorated parapet walls. An estimated \$9 million has already been spent on emergency and interim repairs for this section of the Expressway, and an additional estimated \$5 million will be required to complete the interim repairs.

- **Strategic Rehabilitation Plan**

In March 2014, drawing on detailed investigations and available condition assessment data for both the “at-grade” and “elevated” sections, a Strategic Plan for the rehabilitation of the Expressway was completed and presented to the Public Works and Infrastructure Committee. The main findings, which formed the basis for the Plan, were as follows:

1. The concrete deck and barrier walls of the "elevated" section of the Expressway are in poor condition and are considered to be at the end of their service life. As a result, the Strategic Rehabilitation Plan recommended replacing the existing deck on the entire elevated section as soon as possible;
2. The steel girders are in good condition and will need to be recoated within the next 25 years;
3. Concrete T-beams and Box Girders are in good to moderate condition;
4. The substructure components (bents) vary in condition, with some requiring extensive concrete repair work;
5. Drainage modifications are necessary at various locations; and,
6. Most of the bridges, within the "at-grade" section, are in no immediate need of replacement or major rehabilitation, generally requiring only minor rehabilitation.

The Strategic Rehabilitation Plan contemplates rehabilitation efforts over a 25-year period and recommends replacing the existing deck on the “elevated” sections of the Expressway as soon as possible. The cost to rehabilitate the entire Expressway from

Highway 427 in the west to Logan Avenue in the east was estimated to be \$1.9 billion, assuming an Accelerated Bridge Construction approach is used to rehabilitate the elevated sections.

The Accelerated Bridge Construction approach condenses the construction schedule for the overall rehabilitation of the Expressway by bundling work on "at-grade" sections with replacement of the deck for the "elevated" sections. Prefabricated sections, containing new girders and deck segments, would be fabricated in advance, at a remote facility and then transported to the site and placed in their final locations, using crane hoisting equipment. The existing deck would be saw cut in sections and each deck section, together with the supporting girders, would be hoisted and removed utilizing the same equipment used to place the prefabricated components.

The net effect of using the Accelerated Bridge Construction approach is that the time needed to rehabilitate the "elevated" section of the Expressway could be reduced by about 40% when compared to the conventional approach, from an estimated 20-year construction period to 12 years or less, if the rehabilitation was undertaken as one continuous project. It is estimated that eliminating eight (8) years of traffic restrictions would reduce road user impacts by almost \$3 billion (\$400 million per year of construction).

The Strategic Rehabilitation Plan also recognized the works identified in three completed Municipal Class Environmental Assessment Studies (EAs):

1. Gardiner Expressway Improvements EA from Kipling Avenue to Park Lawn Road (2012);
2. Dufferin Street Bridges EA (2011); and,
3. York/Bay/Yonge Ramps Reconfiguration EA (2013).

The costs associated with the works identified in the above-listed Class EAs were not included in the Strategic Rehabilitation Plan because these costs were being funded separately as enhancement works. Furthermore, because the Gardiner Expressway and Lake Shore Boulevard East Reconfiguration Environmental Assessment was underway at the same time that the Strategic Rehabilitation Plan was being developed, and no final decision had been made, the costs included in the Strategic Rehabilitation Plan for the eastern part of the Expressway represented the costs associated with keeping the Expressway in its current configuration.

Gardiner Expressway and Lake Shore Boulevard East Reconfiguration Environmental Assessment

In July 2008, Council authorized the City to act as a co-proponent with Waterfront Toronto to undertake an Individual Environmental Assessment (EA) for a 2.4-kilometre segment of the Expressway and Lake Shore Boulevard from Jarvis Street to just east of the Don Valley Parkway at Logan Avenue. Figure 3 shows the Individual EA study area.

Based on an evaluation using the EA criteria and other factors, including: transportation functionality; impacts on key economic sectors; cost benefit; future land use

considerations; public transit components: environmental impact; and neighbourhood growth and compatibility, City Council adopted the Hybrid option in June 2015.

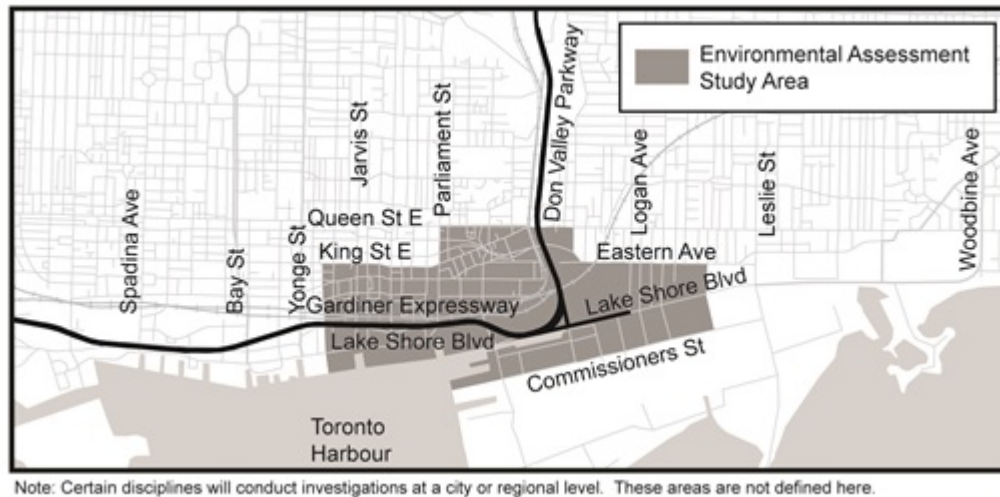


Figure 3. Map showing the study area for the Gardiner Expressway & Lake Shore Boulevard Reconfiguration Environmental Assessment & Urban Design Study

The Hybrid option retains continuous expressway linkage to the Don Valley Parkway and comprises:

- Re-decking of the existing elevated expressway east of Jarvis Street;
- Re-decking of existing Gardiner-Don Valley Parkway ramps;
- Removal of about 750 m (eastbound lanes) and 850 m (westbound lanes) of the existing Gardiner on/off ramps west of Logan Avenue;
- Addition of two new ramps (two lanes each) in the Keating Channel Precinct including 470 metres of new westbound on-ramp and 425 metres of new eastbound off-ramp;
- Realignment of Lake Shore Blvd. from Cherry Street to Don River; and,
- Construction of a new multi-use pathway, as well as some pedestrian and intersection improvements.

As directed by City Council, and consistent with the EA process, further refinement of the Hybrid option is underway to examine and evaluate design alternatives, and will be presented as design concepts in a companion report from the Deputy City Manager, Cluster B to the Public Works and Infrastructure Committee, for consideration at the Committee's meeting of September 22, 2015. The report outlines three Hybrid alternative design concepts that are undergoing a comprehensive evaluation by the EA study team, including Dillon Consulting and its sub-consultants. 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 stakeholders and landowners in advance of the PIC for early input into the process.

Following the development, assessment and evaluation of alternative designs, which will consider stakeholder and public input, a staff report with a recommended design will be submitted to the Public Works and Infrastructure Committee early in 2016. Following City Council's consideration of the staff report, the draft EA report will be released for public and agency review, including review by the Ontario Ministry of the Environment and Climate Change (MOECC). A final EA report, incorporating input received, will be submitted to MOECC for review and an approval decision.

Detailed cost estimates for each design alternative are under development, and are expected to depend on the number and location of new structures (e.g., new bents, on/off ramps); site and subsurface conditions, in particular soil conditions in the area, which is largely lake fill; and, proximity to the Don River, including consideration and alignment with implementation of the Don Mouth Naturalization and Port Lands Flood Protection Project².

Given Council's approval of the Hybrid Option, the Revised Strategic Plan for the Rehabilitation of the F.G. Gardiner Expressway addresses the rehabilitation needs of the Expressway, extending from Highway 427 to the eastern limit at Logan Avenue, including the "at-grade" and "elevated" sections identified in the Strategic Rehabilitation Plan approved by City Council in April 2014; and incorporates the change of scope for the rehabilitation of the elevated section of the Expressway east of Jarvis Street, based on the outcome of the Gardiner Expressway and Lake Shore Boulevard East Reconfiguration Environmental Assessment.

The procurement analysis in this report is based on the "base case" hybrid option presented to Council in June, 2015. Including proposed public realm improvements, the hybrid option design alternatives that are being evaluated represent an increase in capital costs over the "base case" of between \$30 million and \$230 million (NPV) less City land sales revenues that would offset these capital costs in part (\$60 million to \$100 million). Both the cost and land value analysis are initial estimates to be further refined as part of the Gardiner East EA. The recommended procurement option is not expected to be affected by the choice of hybrid option design alternative, but project costs will be affected. As a result, timely decision making regarding the hybrid option is required in order to meet federal funding application deadlines in 2016.

² The Don Mouth Naturalization and Port Lands Flood Protection Project is a collaborative initiative among the Toronto and Region Conservation Authority, the City of Toronto, and Waterfront Toronto. The Project, which is being undertaken as an Individual EA, has the objective of transforming the existing mouth of the Don River, including the Keating Channel, by (i) improving water and habitat quality, (ii) providing a more naturalized river outlet to the lake, and (iii) reducing the risk of flooding to 240 hectares of urban land to the east and south of the river.

COMMENTS

Procurement

In April 2014, Council requested further details regarding a proposed project delivery and procurement process for the Strategic Rehabilitation Plan for the F.G. Gardiner Expressway. Subsequently, in June 2014, Council authorized the retention of Infrastructure Ontario to assist with the identification of procurement options. A formal procurement options analysis is also a requirement in order to be considered eligible for federal funding.

Conventional Approach

- **Design-Bid-Build (DBB)**

The City's Engineering & Construction Services Division traditionally delivers its capital projects using a Design-Bid-Build (DBB) model. Using this model, design and construction services for a project are procured separately, in a sequential manner, as shown in Figure 4 and described below:

1. **Design:** The City uses a competitive process to hire a private sector engineering design firm to design the project according to City specifications and produce design documents.
2. **Bid:** Once the design documents have been completed, the City initiates another competitive process by issuing a tender to procure construction services to build the project. The contract would be awarded to the contractor with the lowest compliant bid that meets the mandatory contract requirements.
3. **Construct:** The successful contractor would be required to complete the project in accordance with the design firm's plans and specifications and warrant their workmanship.

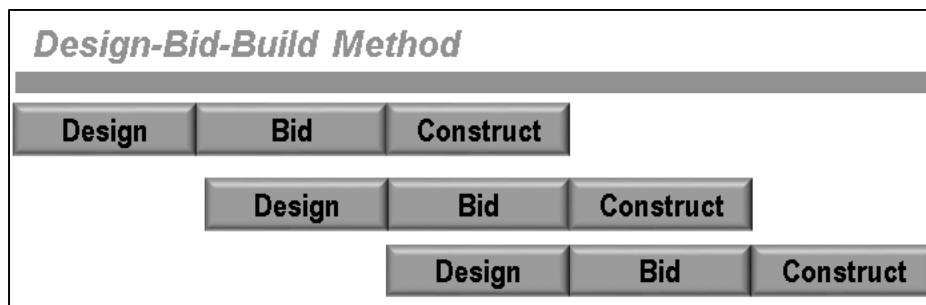


Figure 4. Schematic diagram showing the design-bid-build model for capital project delivery.

The City pays for the construction project via monthly progress payments to the contractors during the construction period, based on work completed. With this method of payment, construction contractors do not have to obtain significant amounts of private

financing to carry out construction. Contractor performance is secured through performance bonding and limited construction warranties. Upon completion, the City tests and commissions the asset to ensure it has been constructed according to contract specifications. When testing and commissioning are satisfied, the assets are turned over to the City, which then assumes full responsibility for operations and maintenance.

With this model, the City assumes many of the risks of integrating the various project design and construction contracts. These risks tend to increase with project size and complexity. A contractor would look to the City to remedy any inadequacies in the design and unexpected site conditions or constraints, the result of which can be increased costs and delays in contract completion, which could, in turn, lead to construction coordination issues with subsequent construction phases.

The Strategic Rehabilitation Plan proposed an implementation schedule for the rehabilitation work that would follow the City's typical delivery approach utilizing a DBB model, involving multiple, phased project design and construction contract procurements, as shown in Figure 4. However, this model has a number of drawbacks that could result in significant schedule delays and higher costs, due to:

- Protracted timelines, due to procuring services for each design assignment followed by the tendering for the associated construction contract separately;
- Efficiencies of scale not realized; and,
- Significant City resources required to coordinate multiple separate design and construction contracts.

- **Design-Build (DB)**

A Design-Build approach (DB) is an alternative to a DBB. With a DB, the City bundles the design and construction of a project, and undertakes a competitive procurement to hire a private sector firm to both (i) design the project according to City specifications; and, (ii) construct the project, for a fixed fee. Due to the cost competitiveness of the bidding process, this approach also encourages innovations in design and construction approach used.

The benefit of applying the DB model to the Revised Strategic Rehabilitation Plan is that further compression of the schedule could be achieved. For example, since design and construction are under the control of a single private sector firm, construction could begin in advance of having all engineering design work completed.

Similar to the DBB model, the City pays for the asset through progress payments to the contractor during the construction period based on the value of work completed. Performance security is limited to performance bonding and construction warranties, and delay costs charged to the contractor are typically limited to the approved liquidated damage clauses within the contract.

Public-Private-Partnerships – Alternative Financing and Procurement Approach

Public-private-partnerships (P3s) are a widely-used approach to procuring large-scale public infrastructure projects as a single project, across Canada and the United States. P3s span a spectrum of models that progressively engage the expertise and/or capital of the private sector. Under a P3, asset ownership remains in public hands (i.e. with the asset owner), the construction and delivery, financing, and sometimes the maintenance and operations, are undertaken by the private sector according to specific terms and conditions. These terms and conditions include private sector partner responsibility for delivering a project on-time, and on-budget.

Alternative Financing and Procurement (AFP) is a P3 approach that was developed and refined by Infrastructure Ontario, and is often pursued in Ontario. The design of AFP contracts has evolved over time and created market specialists to assist governments with AFP procurements. In Ontario, Infrastructure Ontario, a wholly-owned provincial agency, has become the pre-eminent government-side contract specialist, and at the same time developed relationships with other market participants and government funding agencies.

Although AFP is sometimes characterized as a funding source, it is not. It is a type of procurement strategy that involves a different approach to project delivery. AFP processes are designed to transfer responsibilities and risks to the contractor in such a way as to ensure that potential scheduling and project cost estimating challenges are taken into account in the original bid. Often this means recognizing that costs are ultimately likely to be higher than typically acknowledged. This can make the decision to choose AFP contentious.

Nevertheless, the AFP process can be advantageous, especially for large, complex projects. AFP is designed to combine responsibilities under one bidder to reduce conflicts between sub-contractors and encourage coordination and innovation between various specializations involved. Any changes required to complete the original project specific output specifications become the private sector partner's responsibility. Also, the underlying agreements are designed so that interim project lenders oversee the project to ensure that all parties work toward the key goals of meeting timelines and budget.

Under an AFP, the private sector partner generally consists of a consortium of project designers, constructors, operators, financiers and investors, assembled in a corporate structure (referred to as "ProjectCo") created solely for the purpose of a particular AFP project. The City, or other public sector entity would enter into a contract with ProjectCo for the design and construction, and often for life cycle maintenance and operation of an infrastructure asset over a given period.

At substantial completion of the project construction, payment is made by the public sector for all or a large portion of the construction cost, depending on the particular AFP model. Any balance of the construction cost would then be payable over a long-term

concession period (often 30 years) along with payment for other contracted services such as life cycle maintenance and operations.

AFP includes a spectrum of options that increasingly shift more responsibility to the bidder, in order to create the conditions for better contract outcomes. As the bidder responsibilities grow, so does the onus on the municipality to have an appropriately thorough contract, and contract administration.

The AFP includes Design-Build-Finance and Design-Build-Finance-Operate-Maintain, which are frequently used and described below.

- **Design-Build-Finance (DBF)**

Under this model, the contractor has the added responsibility of financing the engineering design and construction of the project upfront. As City payments are not made until construction completion, the contractor has an incentive to complete the project as expeditiously as possible, which can achieve further compression of the schedule.

Furthermore, this model provides an additional layer of benefit to the City, in that it requires the contractor to work with its financing partners, who will ensure that their investment is protected by: independently evaluating contractor qualifications; requiring the contractor to provide a security package; and monitoring the contractor's performance during construction to deliver the work on time and within other project requirements.

To ensure that there are limited issues related to long-term maintenance, the DBF model requires a higher degree of output specification in the tender documents and must be more prescriptive about critical components and/or systems, thus reducing the amount of innovation the private sector can bring to the project. Additionally, there may also be a need for a higher degree of testing prior to project completion and acceptance by the City.

- **Design-Build-Finance-Operate-Maintain (DBFOM):**

DBFOM includes a long-term operations and life cycle maintenance concession contract, in addition to the design and construction contract, and as well, the contractor retains responsibility for financing project costs.

Benefits of this model include that the private sector contractor, as the operator, has an incentive to ensure that the design of the project minimizes the overall costs.

Additionally, DBFOM transfers lifecycle risks, and at the end of the operations and maintenance term, control of the asset is transferred to the City under agreed-upon terms and conditions, which explicitly outline the expected condition in which the infrastructure responsibility must be returned to the City as well as a stipulated life-expectancy beyond the concession period. As the contractor is accountable for the long-term maintenance of the infrastructure, this provides for a higher quality project to ensure that it is built to last.

Furthermore, the DBFOM payment mechanism is such that public sector payment is made for only a portion of the infrastructure cost at completion of construction, with the

balance paid over the length of the concession term. As a result, DBFOM benefits attributable to the finance element (as described in DBF) are further extended throughout the long-term concession period, as the contract can require financial compensation if the infrastructure is unavailable for use or if the services it delivers fall short of the specified standard. This provides the contractor with a strong incentive to plan for the long-term needs of the infrastructure at the outset of the project.

As explained in more detail above, both DBF and DBFOM involve private sector financing, which is an important aspect of AFP. As the private sector partner is dependent on the revenue streams from the contractual arrangements with the public sector so that it may repay its financing, and as payment may be withheld by the public sector if the private partner is not meeting its contractual obligations, the potential loss of revenue provides a strong incentive to the private sector to consider its contractual obligations with great care.

Of the four procurement models described above, only DBFOM qualifies for Government of Canada funding under the P3 Canada funding program.

Table 5 presents an overview of the extent to which each of the four procurement models discussed above satisfies various project delivery criteria.

Table 5. Summary of Qualitative Analysis

Criteria	DBB	DB	DBF	DBFOM
Accelerated schedule		○	●	●
Cost Certainty			●	●
Lifecycle Performance				●
Innovation			○	●
Minimization of Traffic Impacts			●	●
Schedule Certainty			●	●
Federal Funding			○	●

○ partial benefit ● benefit

Overview and Analysis of Procurement Options

In order to help determine the most appropriate procurement model for implementation of the Strategic Rehabilitation Plan, in June 2014, City Council authorized the City Manager to retain the advisory services of Infrastructure Ontario (IO) for the purposes of preparing a procurement options analysis and directed staff to report back on the analysis of the project delivery models and procurement options for Council consideration and direction.

The City, using IO's methodology, undertook both a quantitative analysis and qualitative assessment, which resulted in the recommendation that the implementation of the Plan be undertaken under a Design-Build-Finance-Operate-Maintain AFP approach.

As part of the assessment methodology, the City and IO undertook a "Market Sounding", which was conducted in order to gain an understanding of market interest in pursuing the implementation of the as an AFP, willingness to accept transferred risks, and potential challenges and constraints that the market may face.

Twenty-seven (27) companies were invited, and provided feedback, representing key relevant sectors of the market, including construction companies, designers, companies that would play a lead role in an AFP, lenders, and equity investors.

As an outcome of the Market Sounding, it was determined that there would be significant interest within the private sector for the implementation of the Plan to be delivered as a DBFOM. The scope of the project is expected to attract top contractors and financiers, and there is sufficient market capacity to ensure a competitive process and a timely project delivery.

The Market Sounding also allowed for testing of various assumptions about project delivery. Participants indicated that a DBFOM, under a single contract would facilitate a compressed construction schedule and opportunities for innovation, leading to a reduction in construction completion to as little as 6 years (compared to the 12 years documented in the Strategic Rehabilitation Plan). The actual duration will depend on City RFP conditions and incentives.

- **Quantitative Analysis – Value for Money**

Value for Money analysis (VFM) is a quantitative tool used to identify and assess project risks and compare project delivery under an AFP approach and a conventional project delivery (DBB). When the risk-adjusted cost of AFP delivery is shown to be sufficiently lower than the cost to deliver the same project using a conventional approach, the VFM is considered to be positive and an AFP model is preferred.

A VFM quantifies and compares the value of retained risks, identifying who (public or private sector) should manage the risk, estimating the probability of occurrence, and estimating resultant cost impacts. The VFM process typically generates estimate ranges, and relies on a combination of best professional judgement, experience, and statistical analysis.

VFM is performed at various points up until commercial (project agreements signed) and financial (project funding begins) close, in order to ensure that the beneficial impact of project delivery remains intact.

The most recent comparison of the DBFOM vs DBB for the Revised Strategic Rehabilitation Plan is provided in Figure 5.

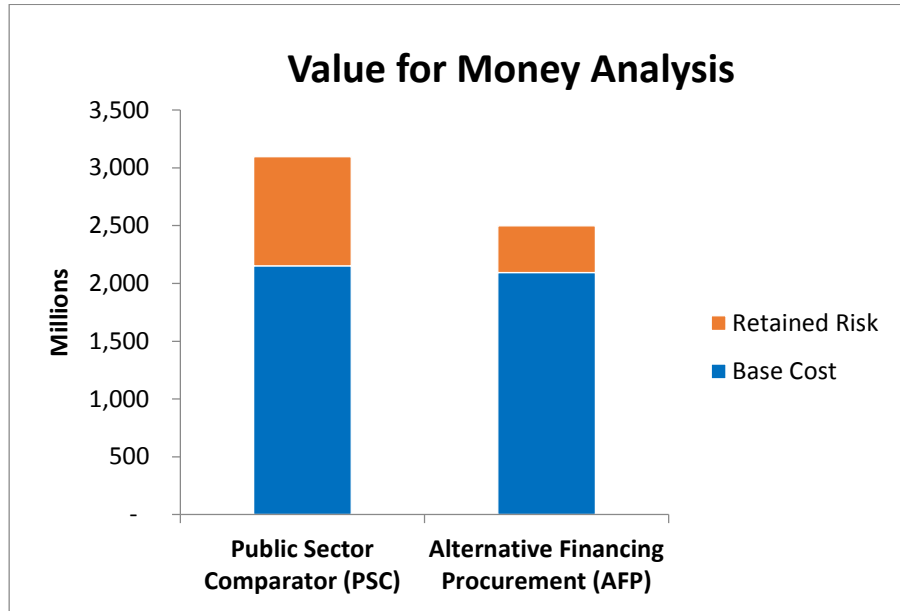


Figure 5. VFM comparison of DBFOM and DBB for the Revised Strategic Rehabilitation Plan (Net Present Value \$2018)

The information in Figure 5 indicates that despite higher private sector financing costs, and the necessity for retaining external advisory support that, on a risk adjusted basis, DBFOM would be estimated to be at least 16% less costly than traditional project delivery over the term of the contract. On a net present value basis, this is equivalent to approximately \$500 million over a 30-year period.

Financing costs are a major part of bid costs. Under a DBFOM, at substantial completion, a portion of construction payments are made, with the remainder (sometimes as high as 50%) held back and paid over the concession period, and financed by the proponent over the term of the concession. IO's analysis and market sounding assumed a substantial completion payment of 85% of construction capital costs, which would be paid at the end of construction, with the remaining 15% paid over a 30-year concession period. The 85% ratio is IO's current standard for highway projects. It is considered the most appropriate for this project and for ensuring that ProjectCo remains committed through financial and contractual incentives to maintain the roadway through the 30 year concession.

Lower substantial completion payments delay City payments to ProjectCo, and delay the corresponding requirement to issue City debt. However, lower substantial completion payments would increase financing costs borne by ProjectCo, which would be passed on to the City in the form of higher project costs. Higher substantial completion payments would allow for lower ProjectCo financing costs, thereby reducing the overall cost to the City, and improving project affordability on a present value basis.

- **Qualitative Analysis**

In general, a qualitative analysis for the purpose of AFP involves a review of project characteristics, to determine which procurement model would best suit its requirements. The qualitative assessment for the implementation of the Plan included:

- Quality of infrastructure renewal;
- City's ability to enforce performance standards;
- Cost and schedule certainty;
- Minimizing traffic impact; and,
- Degree of market interest.

It was determined that a DBFOM model would best suit this project's requirements for the following reasons:

- DBFOM would provide cost certainty for design and construction, as well as for maintenance and operations for the project term, shifting the risk of potential project cost overruns to the private sector partner. It is important to note that a significant proportion of Gardiner operations are already contracted out.
- Schedule certainty would be ensured. Adherence to the project schedule is critical as delays would potentially result in increased costs to the project, as well as to the City's economy. Experience with projects that have been delivered using DBFOM demonstrates an on-time, or an earlier, completion.
- Innovation in design and delivery can add significant value to a project. The market sounding revealed that through optimization of design and build activities, the private sector believes that the construction period can be reduced from 12 years to as little as 6. The reduced traffic disruption is a huge benefit to the City's economy. There is also a potential for similar innovation in ongoing maintenance and lifecycle activities.
- DBFOM would provide the City with a long-term warranty on the infrastructure assets, as the private sector partner is responsible for the life cycle maintenance over the 30-year concession period, and must meet the hand-back requirements for the infrastructure to be in excellent condition at the end of the full contract term.

- **Economic Analysis**

City staff retained the services of HDR Corporation to undertake an independent economic review of the Gardiner. The Executive Summary from this study is provided in Attachment 1.

The HDR analysis concluded the following:

- The Gardiner Expressway contributes approximately \$1 billion to Canada's GDP annually;
- The Gardiner Expressway is nationally significant in that it is one of the most used highways for passenger and freight travel in the Greater Toronto and Hamilton Area, representing almost 20% of Canada's GDP. Removing the Gardiner Expressway would, therefore, result in broader national and provincial impacts; and,

- A cost-benefit analysis undertaken on the Revised Strategic Rehabilitation Plan, delivered as an AFP, results in a benefit/cost ratio of 1.44:1. This means that further accelerating the rehabilitation of the Gardiner Expressway through an AFP will generate socioeconomic benefits in excess of the capital costs.

These findings can be used to support the application for Government of Canada funding, and would be of interest to the Province.

Summary of Capital Costs for Delivery of the Revised Strategic Rehabilitation Plan using a DBFOM Approach

Table 6 provides an overview of the capital costs and funding available for implementation of the Revised Strategic Rehabilitation Plan as a DBFOM.

Table 6. Total Estimated Capital Costs

	\$ millions (As spent dollars)
Construction Cost	\$2,460
Professional Services	\$110
Total Capital Costs	\$2,570
Estimated Federal Capital Funding = 1/3 Construction Cost	(\$820)
Net Capital Cost	\$1,750

The total gross capital cost estimate for the implementation of the entire Plan is \$2.6 billion (inflated dollars), compared to the previous estimate of \$1.9 billion (of which \$970 million was budgeted in the 2015 – 2025 Capital Budget and Plan). The higher cost estimate is attributable primarily to:

- Scope modifications to include the Gardiner East hybrid (for this process, assumed to be \$155 million in accordance with the base hybrid alternative, as considered by Council in June 2015);
- Inclusion of proponent's financing costs during construction (traditionally, the City makes and finances payments during construction but does not bill them to the project) (approximately \$230 million); and,
- The costs of managing risks transferred to the proponent, which protects the City against further exposure to related cost increases (approximately \$315 million).

The estimated net cost after the anticipated federal funding of \$820 million or one-third of capital construction costs is \$1.75 billion.

Under the recommended DBFOM contract 85% of construction costs will be incurred upon project completion, and the balance of 15% amortized over the 30 year concession period, the total net cost (less federal funding) expected to be included for consideration in the 2016 – 2025 Capital Budget and Plan is \$1.43 billion, an increase of approximately

\$470 million in net capital expenditures over the previous 10-Year Capital Plan, as shown in Table 7.

Table 7. Preliminary Estimated 10 year Capital Outlay.

	\$ millions (As spent dollars)
Professional Services	\$110
Estimated Net City Substantial Completion Payment	\$1,265
Amortized 15% Construction Payments 2024, 2025	\$58
Total City Estimate 2016 – 2025	\$1,433

Total Estimated Contract Value

The DBFOM procurement would include contracting for operations and maintenance costs and lifecycle maintenance over the 30 year concession period as a means to ensure that the contractor has appropriate incentives to design and build quality, low maintenance works. In addition, it has been determined that for this project approximately 15% of the capital construction cost would be paid over the life of the contract, to provide appropriate performance incentive for the contractor throughout the concession period. As a result, the total contract value is expected to be approximately \$3.8 billion, or \$3.0 billion net of Federal funding.

Table 8

Gardiner DBFOM Total Estimated Contract Value	
	\$ millions (As spent dollars)
Construction Cost	\$2,460
Concession Charges: Operations and Maintenance Costs, Lifecycle Maintenance costs, Capital Financing	\$1,390
Total Estimated DBFOM Contract Value	\$3,850
Less Estimated Federal Capital Funding	(\$820)
Estimated Net Contract Value	\$3,030

Operations and maintenance costs, and lifecycle maintenance (such as periodic resurfacing) costs, would normally be contracted separately under a conventional procurement model. Inclusion of these elements in a single contract contributes to the overall estimated cost savings potential of the DBFOM approach.

Federal Funding

It is recommended that the City apply for federal funding from the P3 Canada Fund and the New Building Canada Fund for delivery of the Revised Strategic Rehabilitation Plan, for total federal funding of one-third of eligible construction costs, which is the current

maximum federal stacking limit³. P3 Canada officials have indicated that given the size of the project, and limits on available funding allocations, applications should be made to request half of the federal funding from each the P3 Canada Fund, and the New Building Canada Fund. This report recommends that approval for the AFP procurement is conditional on receipt of the maximum one third eligible federal construction funding.

Funding is predicated on acceptance of the City's business case and procurement options analysis. The City and its advisors have been in regular contact with P3 Canada officials throughout the analysis to ensure that the City's future application is compliant with P3 Canada and Infrastructure Canada requirements. Some remaining issues, such as the most appropriate substantial completion payment ratio, need to be resolved before the application is submitted. Submissions to P3 Canada are due early in 2016, and formal acceptance notification would be expected later in the year.

It should be noted that under currently-existing Federal funding rules, the City must pursue a DBFOM procurement to be eligible for P3 Canada funding. Funding is also being sought under the New Building Canada Fund, which currently also requires a P3 project screen, which, if favourable, requires the project to be delivered as a P3.

P3 Canada Fund

In order for a project to be eligible to receive funding from the P3 Canada Fund, the project must be structured as a P3, and must include “meaningful private sector involvement”. According to P3 Canada officials, this means that a project must include Design-Build-Finance-Operate-Maintain elements for a project to be considered for funding.

In June 2014, City staff, in consultation with P3 Canada officials, submitted an application to the P3 Canada Fund (Round 6) for the Strategic Rehabilitation Plan to be considered for funding. The application was successful. However, the process was suspended while the City progressed with efforts to resolve the Gardiner East design approach. Subsequently, City staff engaged IO and at the advice of P3 Canada, reapplied to Round 7. Senior P3 Canada officials have indicated that they expect the project to be screened-in again, and that formal acceptance notification for all approved Round 7 applications is to be provided in October 2015.

Assuming the City receives formal notification that it is screened-in to the next phase of the P3 Canada Fund, a P3 Canada business case will be required to be submitted to P3 Canada by March 31, 2016. P3 Canada expects to identify its Round 7 funding recipients in September of 2016.

³ Per Government of Canada, the stacking limit is the maximum level of total Canadian government funding authorized by the terms and conditions for a transfer payment program for any one activity, initiative or project of a recipient.

New Building Canada Fund

The City has indicated its intention to apply for funding for the Revised Strategic Rehabilitation Plan under the National Infrastructure Component (NIC) program in a letter from the City Manager dated December 16, 2014 to the Deputy Minister of Infrastructure Canada. In February 2015, federal staff participated in a tour of the Gardiner Expressway.

In order to apply for funding to the NBCF, the City must submit a business case, and a P3 screen to Infrastructure Canada, which would be reviewed by P3 Canada officials (on behalf of Infrastructure Canada). City staff have already submitted the P3 screen portion, which indicates that this project may be most effectively delivered as a P3. NBCF funding will therefore be contingent upon a P3 project delivery. As a next step, the City would be required to submit a further Procurement Options Analysis (POA) to Infrastructure Canada. Federal officials have indicated that the City may submit the P3 Canada Fund business case, which would satisfy the POA requirements.

Provincial Funding

The targeted P3 Canada and Infrastructure Canada funding programs do not require matching funds from provincial governments. However, as has been shown by the City's economic analysis study, the Expressway is a vital transportation link. The Strategic Rehabilitation Plan recognizes this fact by allocating the necessary resources to ensure that the construction period and associated traffic disruption is significantly reduced.

In a letter dated December 16, 2014, the City Manager wrote to the Deputy Minister of Economic Development, Employment and Infrastructure seeking matching provincial government funding support for the project. The Province has not provided any indication that it is prepared to fund the project, citing its 2014 and 2015 budget priority to invest approximately \$15 billion over ten years in the Big Move Transportation expansion program, including Regional Express Rail which involves a complete overhaul of the GO Transit rail network.

Nevertheless, it is recommended that Council reiterate its request for funding for this important regional project, citing the vital importance of the Gardiner Expressway to the economy of Ontario, the enormous cost burden for a single municipality to fund the project, and the responsible approach the City is taking toward ensuring that the project is well managed and the construction period minimized.

City Funding

The City's estimated net capital construction cost of the project with the recommended DBFOM procurement is \$1.75 billion, after federal funding.

For a DBFOM procurement, it is expected that the contractor will finance work during construction, and the City does not make any payments until the work, or sometimes a discrete completed portion of the work, is completed. Completion is assumed to occur as early as 2023. A portion of the construction cost (15%) would be financed by the proponent and amortized over the 30 year concession period. The City's estimated capital outlays would be as shown in Table 9.

Table 9. Estimated Capital Outlay for Revised Gardiner Strategic Plan Construction (\$ Millions)

Year	0 -10	11-20	21-30	31- 40
Substantial Completion Payment (85% of construction cost)	1265			
Professional Services	110			
Amortized Construction Payments (15% of construction cost)	58	285	270	203
Total*	1433	285	270	203

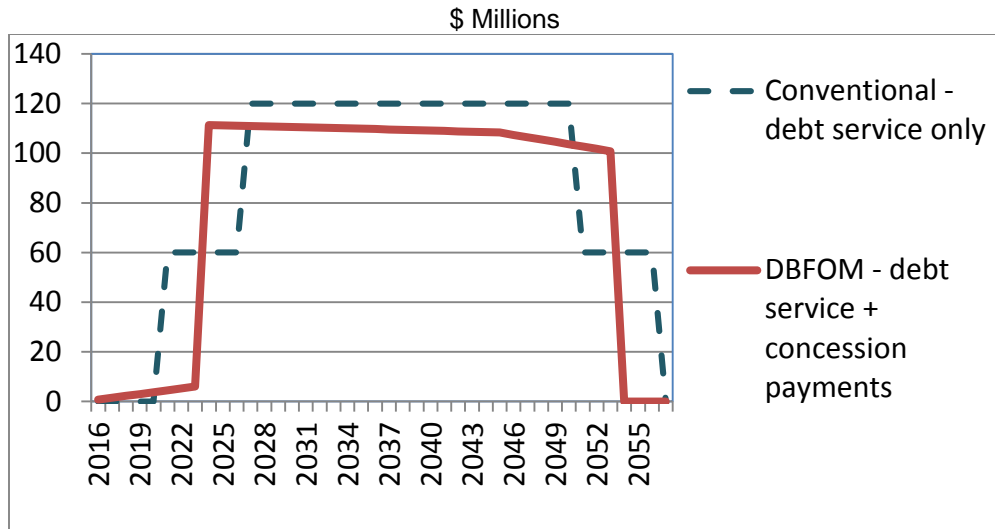
**Excludes O & M and Life Cycle Maintenance expenditures*

Operations and maintenance costs, and lifecycle maintenance (such as periodic resurfacing) costs, would be part of the contract, and would be in addition to the capital project amounts, similar to conventional procurement.

Major capital works such as the Strategic Rehabilitation Plan are typically debt financed and funded through tax supported debt service payments over a term which could extend to 30 years, for assets with a very long service life (i.e., much greater than 30 years), which in this case represents the concession period in the proposed DBFOM model. Some allocations from current, prior year surplus, or other sources may be identified in the capital plan to reduce debt requirements.

Based on these assumptions, under the recommended approach and preliminary project schedule, the City would not incur significant funding obligations until 2023, when the project could achieve the substantial completion milestone, if the work is successfully compressed into six years. Around that time, the City would begin to issue the necessary debt to finance the project, and start to incur debt service costs in the operating budget or approximately \$85 million per year, at interest rates comparable to today's interest rates. The remaining 15% capital cost would be paid over a 30-year concession period, adding an additional annual payment averaging an estimated \$27 million, for total annual debt service and capital concession payments of about \$112 million, beginning at after project completion, as early as 2024, as illustrated in Figure 6. It should be noted that there is the possibility that an interim payment, prior to substantial completion, could be requested. The need for such an interim payment would be confirmed at the time bids are being evaluated.

Figure 6. Preliminary Estimated Capital Payments for Gardiner Strategic Plan Construction



**Assumes 100% debt financing of construction capital and no debt financing of DBFOM 15% capital concession payments. Assumes conventional construction over 12 years for comparison purpose.*

The conventional procurement approach had been expected to require capital expenditures of \$1.9 billion over 12 years, of which \$970 million was included in the 2015 Capital Plan, with some associated non-debt funding. The debt service impact of this approach is also illustrated in Figure 6, assuming it would be entirely debt financed (for comparison purposes) in two equal tranches, and with no offsetting federal funding (per current funding eligibility rules, which are subject to change).

The future tax impact to support these debt service charges is about a 4% residential tax increase in 2024, depending on the future tax base and applicable interest rates for long term debt. However, a large portion of the project cost (\$970 million) is already planned in the 2015 – 2026 Capital Budget and Plan. The incremental impact of the recommended procurement would therefore be much smaller, and would be incorporated into the analysis, review and approval of the 2016 Capital Budget process.

If, at some point in the future, Council were to implement tolls on the Gardiner and/or the Don Valley Parkway, the tolls could be used to offset all or a portion of the expected debt service, capital concession and ongoing maintenance requirements related to the rehabilitation contract.

All of the estimates above are based on current assumptions regarding federal and provincial funding, project cost estimates and applicable interest rates, and would be built into the preliminary 2016-2025 Capital Budget and Plan.

Continuing Role of Infrastructure Ontario

Based on the quality of advice and assistance received to date, and IO's extensive experience in procuring and managing large infrastructure projects using the AFP model, it is recommended that IO be retained to support the City as Commercial Procurement Lead in a DBFOM procurement for the Revised Strategic Rehabilitation Plan.

IO has significant experience with the AFP procurement process, the preparation of performance-based specifications, establishing payment mechanisms, and the preparation of project agreements (contracts). Furthermore, potential private sector proponents have become familiar with IO, its processes, and documents. This is beneficial because it means there is potential for broader level of interest amongst potential private partners for IO-led projects. Examples of IO-led project are provided in Attachment 2.

IO would lead the procurement phase of the project up to commercial and financial close with City staff from Purchasing and Materials Management, Engineering & Construction Services, Transportation Services, Corporate Finance and Legal Services working closely with IO per the governance structure described below. The City will adopt and apply IO's AFP procedures and templates, with necessary modifications for the City's non-AFP related policies including the Fair Wage Policy, Labour Trades Obligations, Environmentally responsible procurement and declaration of compliance with anti-harassment and discrimination policies are incorporated, and that the City would retain final approval authority on all decision-making during the entire procurement process. The City would retain final approval authority on all decision-making during the entire procurement process.

The scope of work for IO's continued engagement is presented in Attachment 3. Specifically, the City would rely on IO to assist with:

- Development of Project Specific Output Specifications (PSOS) documents which set out the standards that the Preferred Proponent will work towards;
- Identification, procurement and management of the necessary technical advisors to support the procurement;
- Project investigation, project assessment and analysis;
- Procurement preparation and management for the Request for Qualifications and Request for Proposals processes;
- Development of a legal agreement that is tried and tested in AFP projects recognized by the vendor community as bankable and biddable;
- Review of the proponent's proposals and submissions;
- Leading the negotiations with the Preferred Proponent to reach Commercial Close and Financial Close;
- Providing advice until the agreement with private sector partner is in place; and,
- Providing advice on best practices in project management as the City prepares for the construction phase.

At the time the project agreement with the preferred proponent is concluded (at the end of the RFP phase), the City could give consideration to engaging IO in an “advisory role” or “lead project management role” during the construction and maintenance phase. A recommendation regarding this future involvement of IO will be part of the forthcoming staff report to the Public Works and Infrastructure Committee recommending a contract award to the preferred proponent.

As a non-profit entity, IO's fees represent a recovery of its costs, with no added profit margin. The IO fee estimate for their role as procurement lead, up to financial close, is approximately \$12 million, inclusive of non-recoverable HST.

The above fee does not include the necessary technical advisors that are also required through the course of the project delivery, including fairness monitor, financial advisor, legal advisor, traffic consultant, insurance consultant, scheduling consultant, quality advisor, and technical advisor. IO would work with City staff to retain sub-advisors as required, some of which could be retained by IO under a competitive process that would involve City staff participation, with the City retaining all final decision making authority. These sub-advisors are expected to cost \$40 million. It is important to note that much of these costs would be required regardless of the procurement process utilized.

Project Governance

The project’s governance framework will provide clear direction in the planning and implementation of the Revised Strategic Rehabilitation Plan. The City will establish a Senior Management Steering Committee, comprising the division heads for Transportation Services, Engineering & Construction Services, and Corporate Finance, to ensure that the project meets the procurement and implementation objectives. Reporting to Council would be via Executive Committee through the City Manager, Deputy City Manager, Cluster B, and the Deputy City Manager & Chief Financial Officer. The proposed governance structure is presented in Figure 7.

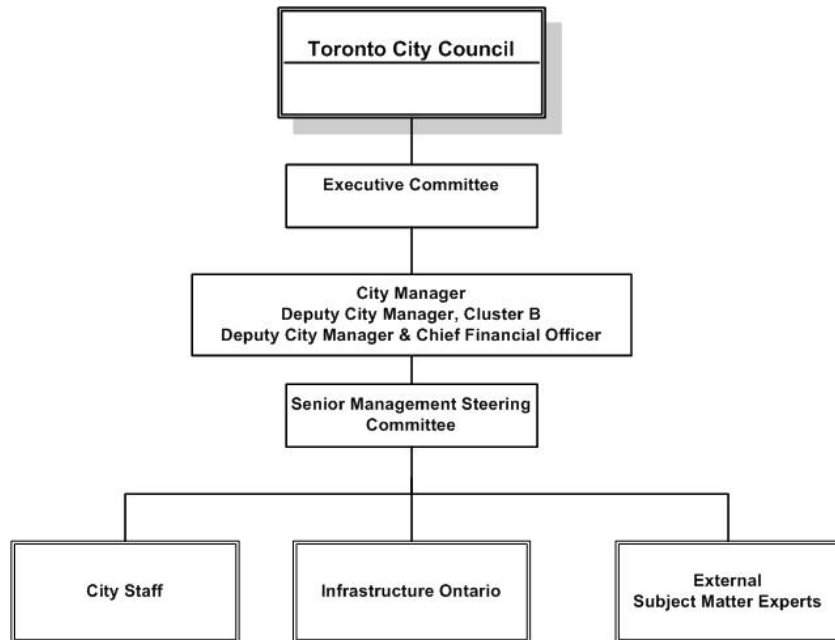


Figure 7. Proposed governance structure for procurement of the Revised Strategic Rehabilitation Plan.

Public Consultation

As directed by City Council at its meeting of June 10, 2014, staff undertook public consultation on the delivery of the rehabilitation of the F.G. Gardiner Expressway. The public consultation activities included polling, an online survey, and facilitated public sessions; in addition, written submissions were received.

The top issue identified through the polling, which was conducted by Ipsos Reid, was the need for the City to ensure the rehabilitation of the F.G. Gardiner Expressway is completed on time and on budget; whether the project would be delivered by the private or public sector was not considered to be relevant. The same poll found that among those with knowledge about P3, and/or for those who were provided with some basic information about P3, there is strong acceptance of a P3 model for implementation of the Revised Strategic Rehabilitation Plan, with 54% supporting the P3 model and only 12% opposing it. An overview of the public consultation, including activities, outcomes, and stakeholders involved, is provided in Attachment 4.

Staffing Implications

Given the scope and scale of the Revised Strategic Rehabilitation Plan, the City will need to establish a project team comprising City staff with the appropriate expertise and resources to successfully provide the necessary oversight for the procurement and, eventually, project management activities associated with Plan implementation. The additional staff resources will be requested through the 2016 Budget process.

It is important to note that proceeding with a DBFOM for the Revised Strategic Rehabilitation Plan will not result in any job losses. While Gardiner operations already involve a significant amount of external contracts, Transportation Services currently has 3 supervisory and 9 unionized full time staff who perform various operations and maintenance activities on the Expressway, such as asphalt and concrete repairs, heavy equipment operators and general labourers, and 3 unionized bridge workers. These staff would be redeployed to perform similar functions and duties on other assets across the City; this would only occur after the procurement process has been completed and a contract is awarded to the preferred proponent; this is not expected to occur until 2017.

Overall Project Schedule

An aggressive schedule is proposed for the implementation of the Revised Strategic Rehabilitation Plan due to the urgent rehabilitation needs that have been identified for the Expressway. There are a number of major activities that will have to be completed within tight timelines to maintain adherence to the project schedule, as shown in Figure 8.

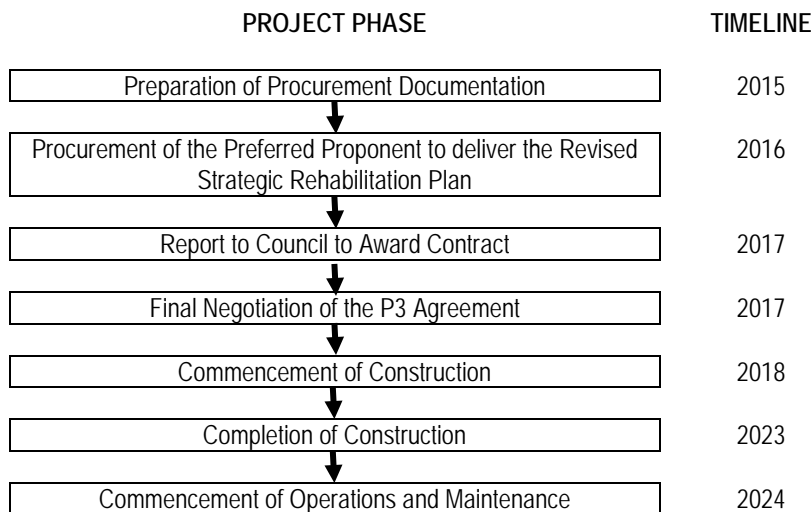


Figure 8. Major activities and timelines.

Based on the schedule proposed, the capital construction could commence by 2018 and based on feedback from the private sector could be completed within a six-year time frame.

Next Steps: Project Procurement Process

The project is currently in the planning and pre-transaction stage, with initiation of the procurement process as the next major milestone. The recommended procurement process will be modelled on City of Toronto's and industry best practices, and the City

will retain final approval authority on all decision-making throughout the entire procurement process. Attachment 5 outlines the recommended procurement process.

Once the procurement process has concluded with a recommended Proponent, a staff report will be presented to Executive Committee in the latter half of 2017 for a final decision by Committee and Council.

It is important to reiterate that should Council change its mind after committing to the recommended form of procurement, it could be very expensive for the City in terms of sunk costs, bidder compensation, reputational risk, project delays, and failed funding agreements.

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Deputy City Manager

Roberto Rossini
Deputy City Manager & Chief Financial Officer

- Attachment 1 – Executive Summary abstracted from the Report on the Cost Benefit and Economic Impact Analysis of the Gardiner Expressway Rehabilitation Project's Acceleration
- Attachment 2 – Illustrative Examples of Projects Successfully Delivered by IO
- Attachment 3 – Scope of Work for Infrastructure Ontario
- Attachment 4 – Overview of Consultations on Delivering the Rehabilitation of the Gardiner Expressway
- Attachment 5 – Proposed AFP Procurement Process

Attachment 1
Executive Summary abstracted from the Report on the
Cost Benefit and Economic Impact Analysis of the Gardiner Expressway
Rehabilitation Project's Acceleration

Background

The Frederick Goldwin Gardiner Expressway (the “**Gardiner Expressway**” or the “**Expressway**”) is a municipal expressway, wholly located within the City of Toronto (the “**City**” or “**Toronto**”). It primarily serves traffic coming into and leaving downtown Toronto and particularly commuters, who live outside of the City. In addition, the Gardiner Expressway facilitates and enables goods movement in and out of Toronto and provides an important connection for residents and businesses to the 400-series highway system in Ontario and to Toronto Pearson International Airport (“**Pearson Airport**”) – Canada’s largest airport. In this respect, the Gardiner Expressway is an important and critical part of the transportation infrastructure in Southern Ontario and more broadly the Quebec City-Windsor Corridor, along which over half of Canada’s population resides.

Many parts of the Gardiner Expressway are now over 50 years old and in need of rehabilitation – essentially reconstruction. To this end, the City assessed two construction options using a traditional approach that would take 20 years to complete and an accelerated approach that would take 12 years, at a cost premium. The City selected the accelerated approach and concluded that the benefits of decreased traffic disruption more than offset the additional costs. Employing an Alternative Financing and Procurement (“**AFP**”) model could further accelerate the rehabilitation of the Gardiner Expressway – decreasing the construction period from 12 years to 6 years. Further accelerating the rehabilitation of the Gardiner Expressway would cost more in terms of capital costs, but significantly decrease traffic disruption associated with the construction of the rehabilitation project.

Study Objectives

With this in mind, HDR Corporation (“**HDR**”) was engaged by the City of Toronto to provide a third-party, independent assessment of the economic advantages and the broader public benefits of further accelerating the rehabilitation of the Gardiner Expressway, which includes:

- Determining the importance of the Gardiner Expressway and the local, regional, and national economy (e.g. GDP, jobs);
- Quantifying the net benefit of further accelerating the rehabilitation of the Gardiner Expressway; and
- Linking the benefits of further accelerating the rehabilitation of the Gardiner Expressway Project to other Federal priorities.

This analysis has been structured to be consistent with requirements listed under the New Building Canada Fund-National Infrastructure Component (“**NBCF-NIC**”) and Public

Private Partnerships Canada (“**PPP Canada**”). This report will form one part of the City’s broader submission to Infrastructure Canada and PPP Canada.

Key Findings

- By any objective measure, the GTA and the broader area are essential to Ontario’s and Canada’s economy. The GTA represents almost 20% of Canada’s economy and its importance to the rest of Canada is expected to increase given its
- The Gardiner Expressway is critical to the City of Toronto, the GTA, GTHA and the broader Greater Golden Horseshoe Area (“**GGHA**”). It facilitates travel to and from the downtown core and is the most highly used municipal expressway in the City of Toronto.
- The Gardiner Expressway facilitates and enables goods movement in and out of Toronto and provides an important connection for residents and businesses to the 400-series highway system in Ontario – the backbone of Ontario’s transportation system.
- Congestion costs the Canadian economy dearly. In the GTHA alone, road congestion costs Canadians and the Canadian economy almost \$7 billion in lost GDP and in increased user and environmental and other social costs. HDR estimates that removing the Gardiner Expressway would decrease GDP by almost \$1 billion as a result of decreased productivity across the GTA, which demonstrates the importance and significance of the Gardiner Expressway.
- The Gardiner Expressway is now over 50 years old and in need of rehabilitation – essentially reconstruction. The City decided to rehabilitate the Expressway using an accelerated construction method that would take 12 years. Employing an AFP approach can further reduce the construction period to 6 years, but would cost about \$255 million more (assuming a 3% real discount rate).
- Further accelerating the rehabilitation of the Gardiner Expressway would generate socioeconomic benefits in terms of decreased travel delays and decreased accidents in excess of costs. HDR estimates that further accelerating the rehabilitation of the Gardiner Expressway generates a benefit-cost ratio of 1.44 assuming a 3% real discount rate.
- Further rehabilitation of the Gardiner Expressway aligns to the requirements laid out by the NBCF-NIC and PPP Canada for funding.

National Importance and Significance of the Gardiner Expressway

The Gardiner Expressway is a critical transportation asset that connects the City of Toronto the rest of Ontario and Canada. It carries significant volumes of passenger traffic and freight that far exceed the NBCF-NIC traffic level requirements. Based on traffic volumes, it is one of the most important transportation routes in the City of Toronto and the GTHA and facilitates connection to Downtown Toronto, Pearson Airport and to the Port of Toronto. From an economic perspective, the Gardiner Expressway is essential to Toronto’s economy – **removing the Gardiner Expressway would decrease GDP by almost \$1 billion as a result of decreased productivity**. This decrease in GDP means lower wages, lower corporate profits and as a result lower government revenues.

The GTHA is essential to Canada's long-term economic growth and prosperity. The GTA accounts for almost 20% of Canada's population and economy. Economic activity in Toronto and the surrounding area has a broad impact across the rest of Ontario and Canada through supplier linkages and through the presence and high concentration of corporate headquarters and its financial services industry. In many respects, Toronto and the surrounding region is Canada's gateway to the rest of the world - it plays a significant role in facilitating domestic and international goods movement and attracts a high percentage of highly qualified individuals from other parts of the world. Simply put, Canada's long term economic growth prospects are vitally dependent on Toronto's long term economic success.

Congestion, however, costs the region dearly and these costs are expected to increase significantly as the population in the region grows with GTA's population projected to increase to 9.4 million by 2041 according to the Ontario Ministry of Finance. Addressing economic growth hindering congestion in the Toronto region should be a priority for all levels of government given the Toronto area's importance to Canada's broader economy.

Cost-Benefit Analysis

Cost-Benefit Analysis ("CBA") results indicate that the benefits of further accelerating the rehabilitation of the Gardiner Expressway outweigh the costs assuming a 3% and 5% discount rate. The CBA specifically measures compares the Base Case to the Build Case, which are defined below:

- **The Base Case:** The elevated section of the Gardiner Expressway is re-constructed under the "accelerated" construction approach that will take 12 years. During that period, the deck would be re-constructed in small sections that would require closing of one lane in each traffic direction. This will result in various disruptions in the road network. In particular, the lane closures will reduce traffic flow on the Expressway, reduce the average speed and result in traffic delays on the section being re-constructed as well as throughout the Gardiner Expressway and in other parts of the region's transportation network. The reduction in average speed, in particular close to the work zone, will result in an increase in environmental emissions (greenhouse gases, and criteria air contaminants) as many of these emissions are increased under a low average vehicle speed. Similarly, certain vehicle operating costs, such as fuel consumption, are expected to increase due to lower average speeds. The safety is likely to be negatively affected as the statistics and literature indicate that accident rates in construction zones tend to be somewhat higher than under normal operations. The net effect on the number of accidents will depend on the interplay of the increased accident rates and the traffic volume. In addition, some of the traffic that would normally go to the Gardiner Expressway will divert to adjacent roads. As a result, those roads would also experience traffic delays, reduction in average speed, increase in vehicle operating costs, increase in vehicle emissions, and increase in number of accidents (due to higher vehicle volumes on the road).

- The Build Case:** The elevated section of the Gardiner Expressway is re-constructed under a P3 arrangement that allows for additional efficiencies and work coordination. As a result, this construction scenario is expected to take 6 years. During that period, the deck is also expected to be re-constructed in small sections requiring closures of one lane in each direction. Some traffic is also expected to divert to adjacent roads. This construction scenario will have similar implications for the various construction-related disruptions, including traffic delays, average speed and vehicle operating costs, environmental emissions and accidents as the Base Case scenario.⁴ The expected key difference is that each of the above impacts would be experienced over a period of 6 years rather than 12 years. At the same time, however, the Build Case is expected to have a higher capital cost. The post-construction operation and performance of the Gardiner Expressway under the Build Case are expected to be the same as the post-construction operation and performance under the Base Case.

The table below summarizes the results for key project evaluation metrics:

Table – Cost-Benefit Analysis Results, Discount Rate Sensitivity

Project Evaluation Metric	3% Real Discount Rate	5% Real Discount Rate
Total Discounted Benefits	\$365.8 million	\$310.5 million
Total Discounted Net costs	\$254.5 million	\$293.1 million
Net Present Value (NPV)	\$111.3 million	\$17.4 million
Benefit-Cost Ratio	1.44	1.06
Internal Rate of Return (%)	5.43%	5.43%
Payback Period (years)	5.2 years	5.8 years

Using a 3% real discount rate, the total discounted benefits of the Build Case (i.e., further accelerating the rehabilitation of the Gardiner Expressway) equal \$366 million and total net costs equal \$255 million, which generates an NPV of \$111 million and a Benefit-Cost Ratio of 1.44. This signifies that further accelerating the rehabilitation of the Gardiner Expressway (i.e., the Build Case) will generate socioeconomic benefits in excess of incremental capital costs. Using a discount rate assumption of 5%, which is a particularly conservative assumption in the present environment of low interest rates, the Benefit-Cost Ratio is still greater than one and the NPV is still positive.

The wider economic benefits of the Build Case are not considered as part of the CBA although the assessment of the wider economic benefits as part of this study indicated that the Gardiner Expressway plays an important role in increasing the effective density

⁴ The magnitude of the various construction-related disruptions under the Build Case could be different than under the Base Case. The analysis of traffic data and road performance metrics under each scenario is adopted to calculate each of the disruption costs under each scenario.

of the City of Toronto. In doing so, it increases the available market for businesses, enables more effective matching between an employee’s skills and abilities and an employer’s needs and increases innovation by bringing complimentary firms closer together. Closing a lane on the Gardiner Expressway in either direction for 12 years would decrease the effective density of the City of Toronto and ultimately decrease productivity and economic growth in the GTHA, and thus in the rest of Ontario and Canada.

Link to Federal Priorities and Funding Requirements

This study demonstrates that further accelerating the rehabilitation of the Gardiner Expressway is expected to generate benefits in excess of costs and that the Gardiner Expressway is critical to the GTHA’s economic success and thus important to the rest of Ontario and Canada. NBCF-NIC are however quite specific and the table below briefly summarizes how further accelerating the rehabilitation of the Gardiner Expressway meets the requirements and priorities.

Table – Project Link to Federal Requirement and Priorities

Federal Requirement/Priority as per the NBCF-NIC for Highways and Major Roads	Further Acceleration of the Rehabilitation of the Gardiner Expressway Project
Highways or major roads with national significance	The Gardiner Expressway is nationally significant given that it is the most important municipal expressway in the City of Toronto and one of the most used for passenger and freight travel in the GTHA, which comprises almost 20% of Canada’s GDP. Removing the Gardiner Expressway would decrease the region’s GDP by \$1 billion, which would have broader impacts across Ontario and Canada.
Provides connection to border crossings and to facilities such as ports and airports	The Gardiner Expressway provides connection to the Port of Toronto and to Pearson Airport – Canada’s busiest and most important airport in terms of passenger traffic. The GTA regions accounts for almost two-thirds of daily outgoing trucking shipments and just over half of incoming shipments.
Carries significant volumes defined as 50,000 Average Annual Daily Traffic (“AADT”) for an urban corridor	AADT on the Gardiner Expressway far exceeds 50,000. Traffic volumes on the Gardiner Expressway are larger than any other municipal expressway in the City of Toronto and are more than double passenger volumes on the Lakeshore West and Lakeshore East GO lines.
Demonstrate economic advantages and broader public benefits of the project	CBA demonstrates that the public benefits of decreasing the construction period from 12 years to 6 years outweigh the added costs.
Substantiate traffic demand forecasts used in the analysis	All future traffic data was obtained from the City of Toronto’s EMME model. This is calibrated to current demand levels and forecasts that traffic on the Gardiner Expressway increases only marginally over the analysis period.

Federal Requirement/Priority as per the NBCF-NIC for Highways and Major Roads	Further Acceleration of the Rehabilitation of the Gardiner Expressway Project
<p>Increasing efficiency and mobility by supporting efforts to reduce congestion, reduce travel times and improve productivity</p>	<p>Further accelerating the rehabilitation of the Gardiner Expressway would significantly decrease disruption and traffic congestion associated with construction. Public benefits monetized as part of the CBA are largely due to travel time savings and productivity benefits.</p>
<p>Improve safety</p>	<p>Nearly 10% of the value of public benefits monetized as part of the CBA is due to decreased traffic accidents and associated injuries and fatalities. The empirical evidence suggests that traffic accidents occur more frequently in construction zones.</p>
<p>Compatible with official transportation plans</p>	<p>The project is a key part of the City's official transportation plans.</p>

Attachment 2 Illustrative Examples of AFP Projects

Infrastructure Ontario Delivered AFP Projects

IO has managed procurements for about 80 projects since 2005 using the AFP approach. Of these 80 projects, 37 have reached Substantial Completion as of March 31, 2014. Of those projects, 36 of the 37 were completed on budget and 27 were completed on time. Where a project was not completed on time, in almost all cases, the contractor was responsible for the costs of delay.

Examples of transportation projects successfully procured by Infrastructure Ontario include:

- Union Pearson Express Spur Line (Rail Link from Pearson Airport to Union Station (contract cost approx. \$128.6 million)
- Right Honourable Herb Gray Parkway, Windsor (contract cost approx. \$1.1 billion)
- Highway 407 Phase 1, Pickering/Ajax/Whitby (contract cost approx. \$1 billion)
- Highway 407 Phase 2, Whitby/Oshawa/Clarington (contract cost approx. \$800 million)

Lead procurement advisor role:

- Viva Bus Rapid Transit, Centre Street and Hwy 7 west of Hwy 400, York Region Rapid Transit (approx. \$500M capital cost)
- Ottawa Confederation Line LRT (approx. \$2.1B project cost)
- Waterloo LRT (approx. \$500M project cost)

Other examples of recently completed projects procured and delivered by IO in time for the Toronto 2015 Pan Am and Parapan Am Games include:

- Pan Am Games Athletes' Village
- Milton Velodrome
- York University Athletics Stadium
- University of Toronto Aquatics Centre
- Markham Pan Am Centre
- Tim Horton's Field Hamilton
- University of Toronto Field Hockey Centre

Other Canadian P3 Projects- Roads and Bridges

Successful road and bridge projects delivered by other P3 agencies across Canada include:

- Sea to Sky Highway to Whistler, BC
- Golden Ears bridge, Lower Mainland, BC
- South Fraser Perimeter Road, Lower Mainland, BC
- SE Anthony Henday Drive, Edmonton AB

- NW Anthony Henday Drive, Edmonton AB
- NE Stony Trail, Calgary AB
- SE Stony Trail, Calgary AB
- Regina Bypass (procurement only to date)
- AutoRoute 25, Montreal
- AutoRoute 30, Montreal
- Confederation Bridge, NB to PEI
- Route 2, Fredericton to Moncton Highway NB
- Route 2 East of Fredericton NB
- Route 1 Gateway NB

Attachment 3

Scope of Work for Infrastructure Ontario

Role:

Infrastructure Ontario (IO) will act as Commercial Procurement Lead until Financial Close of a Design-Build-Finance-Operate and Maintain concession contract, overseeing the procurement phase of the project, and reporting to City staff through all stages of the assignment.

The procurement will follow the IO Alternative Finance and Procurement (AFP) procurement process, to be undertaken in accordance with IO template processes, standards and documents, which are internationally recognized, thereby ensuring the credibility and success of the procurement.

City has Final Approval Authority on All Decision-Making:

The City will adopt and apply IO's AFP procedures and templates, with necessary modifications for the City's non-AFP related policies including the Fair Wage Policy, Labour Trades Obligations, Environmentally responsible procurement and declaration of compliance with anti-harassment and discrimination policies are incorporated. The City will retain final approval authority on all decision-making during the entire procurement process. IO will be responsible for producing, modifying and issuing to the City for its final approval, all necessary documentation from project initiation until financial close. IO, along with the City, will provide direction to a project Owner's Engineer over the duration of the due diligence, procurement and contract negotiation process.

Staff Resources and Sub-Advisors:

IO will provide staffing resources as required, and will work with City staff to retain sub-advisors (on a cost pass through basis) as required to perform specific project tasks. The City provide input to the process and provide for access to and the involvement of the appropriate City resources as may be required for input, review, and approvals.

Sub-advisors to be retained by IO may include the following:

- Fairness Monitor;
- Financial Advisor;
- Legal Advisor;
- Traffic Consultant;
- Insurance Consultant;
- Technical Advisor;
- Scheduling Consultant, and;
- Quality Advisor.

IO will also make available communications resources, as may be required to support the project announcements and process milestones. The City will be responsible for all community and stakeholder engagement communications.

IO's responsibilities and deliverables will include the following:

- Lead development of Project Charter;
- Lead development of a Project Implementation Plan;
- Procurement and direction of all procurement sub-advisors;
- Assist in the management sub-structural/structural investigation;
- Manage other project due diligence review, including
 - interface scope requirements with third-party stakeholders, and
 - project schedule and project budget;
- Review property constraints and requirements, determine required permits, licenses and approvals;
- Review site investigations to determine any risks, constraints or requirements prior to commencement of construction;
- Explore value engineering opportunities;
- Perform updates to Value for Money (VFM) and risk analyses;
- Manage the Request for Qualifications process to determine the eligible bidders shortlist, including developing Evaluation Criteria and guidelines, issuance, and organizing applicants' meeting and respond to requests for information;
- Manage the evaluation of RFQ submissions and recommend, in cooperation with the City, the shortlisted Proponents;
- Manage the RFP development, including preparation of the Project Agreement and the Project-Specific Output Specifications (with significant input from the Owner's Engineer and City staff);
- Manage the RFP Issuance, and issue RFP addenda as required;
- Organize Proponents' Meeting to gain input during RFP open period, and manage responses to bidder requests for information and clarifications. Manage Design Presentations process and lead the Commercially Confidential Meetings and provide written feedback to Proponents;
- Lead evaluation of RFP submissions, working in conjunction with City staff;
- Conduct due diligence on Proponent term sheets, financial models, innovations, financing solutions and credit agreements;
- Negotiate and resolve any outstanding/open issues prior to identification of a Preferred Negotiating Proponent, with input and involvement by the City;
- Identify the First and Second Negotiating Proponents together with City staff; and
- Assist in the Commercial and Financial close of the procurement and document the Close-out of the RFP Phase.

The IO deliverables noted above relates to work either directly performed by IO, or by sub-advisors, with City staff providing input and comment with respect to applicable City policies and processes.

As part of the transaction finance scope of work, IO will:

- Evaluate and validate financial aspects of the transaction including Value for Money (VFM) analyses, project finance structure, financial model analysis; and
- Test, evaluate and confirm financial model analyses in RFP stage and financial model of preferred proponent.

Templates:

IO templates (and methodology) will be employed for the purpose of project procurement and delivery, and will be customized to meet City and project requirements. IO will provide advice and analysis on any proposed template amendments.

IO templates will include:

- Value for Money templates (and methodology), including the IO-VFM model, and the underlying IO risk matrix;
- AFP Project Agreement;
- RFQ, RFP templates, which have been specifically designed for Highway AFPs, and;
- Project Specific Output Specification templates.

Attachment 4

Overview of Consultations on Delivering the Rehabilitation of the Gardiner Expressway

Purpose

The public consultation program was designed and carried out in order to:

- Recognize level of support for a P3 procurement model, including the reasons for support and concerns;
- Ensure interested stakeholders would have an opportunity to be heard by decision-makers;
- Ensure the public at large would have an opportunity to provide comment; and,
- Conduct a statistically defensible process for recognizing public opinion.

Activities

The above goals were met through an array of public consultation activities, including:

- Polling by Ipsos Reid, which involved a representative sample of 1,000 Toronto residents;
- An online survey, completed by 234 respondents;
- Two public consultation sessions, attended by 16 participants; and,
- Receipt of 2 written submissions.

The following communication activities were carried out to raise awareness of consultation venues and let the public and stakeholders know about opportunities to provide input:

- Dedicated web page - live as of February 6, 2015, which is accessed from the Gardiner Expressway general landing page (www.toronto.ca/gardiner);
- Ad published in the Toronto Sun on February 9, 2015;
- Invitations emailed directly to 30 stakeholder associations on February 9, 2015 (the list of stakeholders that were Invited to Participate in Consultations on Delivering the Rehabilitation of the Gardiner Expressway, which included non-profit organizations, industry associations, and labour unions, is presented in Attachment 3);
- Tweets sent to about 94,000 followers on February 9, 11, 13, and 17, 2015, via @GetInvolvedTO and @TorontoComms (plus tweets from several Councillors); and,
- A Media Release published on February 11, 2015 advertising the public consultation sessions (the media release can be found at: <http://bit.ly/1Mdrt9y>).

Key Outcomes

The Ipsos Reid poll identified the following top 3 issues:

1. Residents "...don't care if a public infrastructure construction is managed by private or public sector, as long as work is completed on time and on budget" (76% agreement, Ipsos Question #8a);
2. Only 1 in 3 Torontonians have heard of a "Public-Private-Partnership (P3)", and even fewer know at least something about them (Ipsos Question #2); and,
3. Among those with knowledge about P3, and/or for those who were provided with some basic information about the P3 model, there is strong acceptance of a P3 model for the Gardiner Expressway rehabilitation, with 54% supporting the P3 model and only 12% opposing it (Ipsos Question #6).

Overall, the key insights gained from the surveys included the following priorities for residents on the subject of the Gardiner rehabilitation (in order of importance):

1. Ensure that the construction work that is undertaken is of high quality;
2. Minimize traffic congestion caused by construction;
3. Minimize construction duration;
4. Deliver the construction work on budget;
5. Keep the costs to the City as low as possible;
6. Ensure the Expressway will be well maintained over the long-term regardless of other City priorities; and,
7. Ensure that contractors only receive payment when their obligations to the City are met.

Complete public consultation information materials and reports are available on the Project web page, which can be found at:

<http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=b52dbb0ff4b5b410VgnVCM10000071d60f89RCRD>

Stakeholders Invited to Participate in the Consultation

C.D. Howe Institute
Canadian Car Association (CAA)
Canadian Courier & Logistics Association
Canadian Taxi Association
CivicAction
Consulting Engineers of Ontario (CEO)
CUPE Local 416
CUPE Local 79
Federation of Canadian Municipalities (FCM)
Independent Cabs Taxi Association of Toronto
Independent Taxi Association

Infrastructure Ontario
iTaxiworkers Association
Labourers International Local 183 (LiUNA!)
Metrolinx
Ontario Chamber of Commerce
Ontario Motor Coach Association
Ontario Trucking Association
PPP Canada
Professional Engineers Ontario
Residential and Civil Construction Alliance of Ontario (RCCAO)
Taxi-cab brokerage Assoc.
The Institute of Competitiveness & Prosperity
Toronto Association of BIAs
Toronto Board of Trade
Toronto Construction Association
Toronto Industry Network
Toronto Taxicab Industry Association
Toronto Trucking Association
Tourism Toronto
Waterfront Toronto

Attachment 5 Proposed AFP Procurement Process

The procurement process used for the Revised Strategic Rehabilitation Plan will be modelled on the City of Toronto's and industry best practices. The process is expected to involve the following main steps:

Request for Qualification (RFQ)

The City, with assistance from IO, will prepare, and IO will release, a Request for Qualifications (RFQ) based on feedback received from the market sounding.

The RFQ will be designed to identify a short list of suitably qualified private sector proponents, with the appropriate technical and financial capacity to implement the Strategic Rehabilitation Plan. Proponents in this context are expected to include consortia consisting of firms with the required different capabilities, such as engineering design companies, project management companies, construction contractors, and venture capitalist firms, among others.

The RFQ process will identify a short list of 3 proponents. The rationale to shortlist 3 proponents is to ensure (1) competitive tension; and, (2) that proponents selected to move to the next step in the procurement process understand and appreciate the importance of the assignment and take the process seriously.

Request for Proposals (RFP)

Subsequently, the City, with assistance from IO, will develop the Request for Proposals (RFP), which IO will issue to the short-listed proponents.

The 3 short listed proponents will be given 9 – 12 months to conduct the appropriate due diligence and develop proposals that responds to the RFP requirements.

During this time, proponents may ask questions and request changes related to the specifications and terms and conditions. The mechanisms to do this will be either through request for information or during the commercial in confidence meetings. The City and IO will respond to these questions and requested changes via an addendum process, as appropriate.

The proposals will be evaluated by the City and IO and a Preferred Proponent will be selected in accordance with the RFP evaluation process. Once the procurement process has concluded with a recommended Proponent, a staff report will be presented to Executive Committee in late 2017 for a final decision by Committee and Council. Once approved by Council, the City and IO will complete negotiations with the successful Proponent and Commercial Close will occur when the contract has been signed. Financial Close will occur when the project financing is released.

Evaluation and Selection of Preferred Proponent

The proposals will be evaluated by the City and IO. A Preferred Proponent will be selected in accordance with the RFP evaluation process, and the VFM model will be re-run on the preferred bid.

Throughout the procurement process, staff will ensure that all of the procurement documents comply with government procurement rules and will incorporate City of Toronto policies such as the Fair Wage Policy, Labour Trades Obligations and the non-discrimination policy. A fairness monitor will be engaged throughout the RFQ and RFP stages, and attestation reports from the fairness monitor will be included as documentation supporting the results of the RFQ and RFP processes.

It should also be noted that the VfM will be run three more times during the course of the procurement process:

- a. Prior to the release of the RFP;
- b. At the selection stage, the VfM will be run on the preferred bid; and
- c. Prior to the Commercial Close (after negotiations with the Preferred Proponent).

Council will retain final approval authority on all decision-making throughout the entire procurement process, and will make the final decision to award the contract to the preferred proponent identified.

Commercial and Financial Close

Once contract negotiations have concluded, the VFM model will be re-run for a final time prior to Commercial Close, when the contracts are signed. Financial Close occurs immediately thereafter, when the project financing is released.