

Authority to Enter Into a Project Delivery Agreement with Waterfront Toronto for the Construction of Lake Shore Boulevard East, Don River to Carlaw

Date: November 17, 2020

To: Infrastructure and Environment Committee

From: General Manager, Transportation Services

Wards: (14) Toronto-Danforth and (10) Spadina-Fort York

SUMMARY

This report recommends that City Council authorize staff to enter into a Project Delivery Agreement with Waterfront Toronto for the purpose of reconstructing Lake Shore Boulevard East from the Don River to Carlaw Avenue, in accordance with the approved Environmental Assessment for the Port Lands Flood Protection project and the Council-adopted Gardiner Strategic Rehabilitation Plan. Waterfront Toronto would deliver the project, including the reconstruction of the existing Lake Shore Boulevard East bridge over the Don River, as well as active transportation and public realm components outlined in the Gardiner East EA. The preparation of an operations and maintenance manual for the completed project would also be undertaken by Waterfront Toronto.

The Port Lands Flood Protection project will provide permanent flood protection for approximately 290 hectares or 715 acres of land through the creation of a new, naturalized mouth of the Don River and other significant flood protection measures (e.g., river valley, wetlands, natural habitat, sediment management facility and other structures). In addition, the project will deliver the essential municipal services (e.g., roads, bridges, sewers, water supply, etc.) that must be undertaken concurrently with the flood protection works for technical and logistical reasons.

Widening the Don River mouth is a key requirement for achieving permanent flood protection in the Lower Don area. As such, the existing Lake Shore Boulevard bridge over the Don River must be lengthened from two bays to four, to accommodate flow discharges during flooding events. Additionally, the Gardiner East EA requires that the Lake Shore Boulevard bridge be widened to at least seven lanes in order to accommodate the expected increase in traffic resulting from the planned removal of the Gardiner's access ramps to Logan Avenue. Furthermore, the existing Lake Shore Boulevard bridge deck and girders are at the end of their service life and need to be replaced and/or extensively refurbished.

In June 2020, City Council directed City staff to enter into a Project Delivery Agreement with Waterfront Toronto to undertake detailed design, and to assess the potential advantages of combining relevant aspects of the Port Lands Flood Protection and Gardiner East EAs as a single project. Waterfront Toronto has, accordingly, completed its detailed design and due diligence assignment, and has delivered a cost estimate and a preliminary construction phasing plan. Waterfront Toronto continues to work on a traffic assessment and a traffic mitigation plan, in close consultation with City staff.

Based on the results of the design and due diligence work described above, City staff have concluded that a single project approach is the most efficient and practical method for implementing the components of the two EAs that apply to Lake Shore Boulevard East between the Don River and Carlaw Avenue. City staff are recommending that Council authorize staff to enter into a Project Delivery Agreement with Waterfront Toronto for the construction phase of the project.

The following is a summary of some of the key advantages of undertaking the work described in this report as a single project:

- Potential cost savings through economies of scale and minimization of "throw away" costs, i.e.: eliminate the requirement to provide temporary structural support for the removal of the Gardiner access ramps at Logan Avenue in advance of bridge construction. Waterfront Toronto estimates that these potential savings would be at least \$35 million;
- Reduced construction schedule impacts, with a savings of four years of scheduled construction;
- Minimization of health and safety risks associated with undertaking heavy bridge work in the significantly confined space under the elevated Gardiner Expressway; and
- A one-time shorter duration disruption to vehicular traffic on Lake Shore Boulevard East, with 25 fewer months of disruption.

Given the extent of the project scope, significant disruption to vehicular traffic in the area is anticipated. In addition to undertaking the traffic impact assessment noted above, Waterfront Toronto and City staff are in the process of identifying and finalizing mitigation strategies and a new Construction Hub Pilot was proposed for the area as part of the MoveTO Congestion Management Interim Action Plan considered by City Council in October 2020. Details of the proposed mitigation and recommended actions will be subject to public outreach and information sessions in early 2021.

In order to ensure permanent flood protection is provided by 2024, construction needs to commence in the third quarter of 2021. Accordingly, a public outreach and information program will be undertaken by Waterfront Toronto in consultation with staff from Transportation Services, Engineering and Construction Services, City Planning and offices of the local area Councillors.

RECOMMENDATIONS

The General Manager, Transportation Services recommends that:

1. City Council authorize the General Manager, Transportation Services to execute a Project Delivery Agreement with Waterfront Toronto, on terms and conditions satisfactory to the General Manager, Transportation Services, and in a form satisfactory to the City Solicitor, for the reconstruction of Lake Shore Boulevard East between the Don River and Carlaw Avenue, including the Lake Shore Boulevard bridge and all required active transportation and public realm components.

2. City Council direct City staff to continue working in consultation with Waterfront Toronto and the staff of the local Councillors' offices to coordinate and implement a public outreach and information program related to traffic mitigation for the duration of the project.

FINANCIAL IMPACT

The total estimated cost of this project is \$163.2 million. Of this amount, \$16.0 million was previously allocated for detailed design and due diligence, including the required traffic analysis. Constructing the project is currently estimated to be \$147.2 million, not including \$37.3 million for scope that is related to Port Lands Flood Protection and is part of the City of Toronto's 1/3rd share of the \$1.25 billion cost of the Port Lands Flood Protection project.

\$147.2 million represents the estimated costs of constructing the relevant required elements of the Gardiner East EA such as the widening of the Lake Shore Bridge, the demolition of the Gardiner access ramps at Logan Avenue, the inclusion of cycling and pedestrian infrastructure on the rebuilt Lake Shore Bridge and the required public realm along a rebuilt Lake Shore Boulevard East between the Don Roadway and Carlaw Avenue.

A current estimated cash flow summary for the Gardiner and Lake Shore Boulevard component of the project is provided in the table below.

Total Cost/Budget	Cash Flow Summary by Year			
	2021	2022	2023	2024
\$147,240,000	\$24,000,000	\$42,110,000	\$53,960,000	\$27,170,000

The above budget estimate was developed after extensive consultation and involvement from City staff who will continue to work with Waterfront Toronto to refine these estimates as the design process proceeds to the 100% design milestone, and are prepared to for tendering. Detailed monthly cash flow estimates are being prepared by

Waterfront Toronto. City staff will monitor project risks and financial claims for the duration of the project.

Funds are available in the approved Transportation Services Capital budget (CTP 122-08 FG Gardiner Rehabilitation).

The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial implications as identified in the financial impact section.

DECISION HISTORY

At its meeting on March 31 and April 1, 2016, City Council approved the Hybrid Alternative Design 3 as the Preferred Design for the Gardiner East Environmental Assessment and directed staff to report to the Budget Committee on implementation funding for the preferred Environmental Assessment alternative design following completion of Class C cost estimates.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2016.PW11.1>

At its meeting of November 8 and 9, 2016 City Council adopted the Port Lands Flood Protection Due Diligence Review, which provided information regarding flood protection infrastructure design, the site investigation program, soil and groundwater conditions, options and technologies for remediation and management, and a community-based risk assessment to properly evaluate and manage environmental risks. The report also summarized costs and benefits associated with the project, and also recommended a proposed scope, budget, and schedule.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2016.EX18.3>

At its meeting on December 13, 14 and 15, 2016, in consideration of the report on the New Implementation Approach for the F.G. Gardiner Expressway Revised Strategic Rehabilitation Plan, City Council authorized the Executive Director, Engineering and Construction Services, to proceed with the new approach for the implementation of the Revised Strategic Rehabilitation Plan for the F.G. Gardiner Expressway; and directed the General Manager, Transportation Services, to include the revised cash flows associated with the new approach for the implementation of the Revised Strategic Rehabilitation Plan for the F.G. Gardiner Expressway within the Transportation Services 2017-2026 Capital Budget.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2016.EX20.14>

At its special meeting of February 12, 2018, City Council directed staff to enter into a Contribution Agreement with Waterfront Toronto for the Port Lands Flood Protection project. Executed in April of 2018, the Agreement contains terms related to eligible expenses, risk management, scope and overall project management.

<https://www.toronto.ca/legdocs/mmis/2018/ex/bgrd/backgroundfile-111934.pdf>

At its meeting on June 29, 2020 City Council authorized the Deputy City Manager, Infrastructure and Development Services to enter into a project delivery agreement with Waterfront Toronto for the design of Lake Shore Boulevard East, Don River to Logan.

Under this agreement, Waterfront Toronto would undertake detailed design work, and prepare a Class B cost estimate and traffic impact assessment for a new Lake Shore Boulevard Bridge over the Don River, as well as a reconstructed Lake Shore Boulevard East from approximately Don Roadway to Logan Avenue.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.IE13.3>

COMMENTS

In order to accommodate the widening of the Don River mouth as required by the Port Lands Flood Protection project, the Lake Shore Boulevard Bridge needs to be lengthened from an existing two bay configuration to four. This will allow for the required flood water conveyance. In addition, the required excavation of the two new bays will help facilitate the construction of a planned Sediment and Debris Management Area (immediately north of Lake Shore Boulevard on the west side of the Don River), which is required so that sediment and debris that typically flows downstream can be removed in order that it not accumulate and impede flood water conveyance.

One Bridge, Two Projects

In addition to the Port Lands Flood Protection project, the approved Gardiner East EA requires that the Lake Shore Boulevard Bridge be widened to at least seven lanes in order to accommodate the expected increase in traffic resulting from the planned removal of the Gardiner East access ramps to Logan Avenue. The Gardiner East EA also set out requirements for the provision of new streetscape, cycling, and pedestrian infrastructure. However, under the current two project scenario, these benefits would not be delivered until after 2028, leaving the planned public realm, cycling and pedestrian components in a partially revitalized, interim state. Interim conditions at intersections along Lake Shore Boulevard East would also remain in place until after 2028.

One Bridge, One Project

Staff are recommending an approach that combines scope elements of the Gardiner East EA project with those of the Port Lands Flood Protection project to deliver the following modifications to the Lake Shore Boulevard Bridge, Gardiner Expressway and Lake Shore Boulevard East as one integrated project:

- Construct two new spans to extend and widen the Lake Shore Boulevard Bridge and to extend the adjacent rail bridge;
- Replace two existing spans of Lake Shore Boulevard Bridge and rehabilitate the existing pier and abutments;
- Demolish the elevated structure of the Gardiner Expressway from Bent #330 (west of the Lake Shore Bridge) to the eastern end of Gardiner Expressway near Logan;
- Relocate utilities from the existing rail bridge to accommodate extension of this structure;
- Realign Lake Shore Boulevard East from Don Roadway to Carlaw Avenue; and

- Construct new landscaping, pedestrian and cycling facilities on the Lake Shore Bridge and Lake Shore Boulevard from Don Roadway to Carlaw Avenue.

One Project Advantages

Delivery as proposed will have a significant number of advantages:

1) Improved health and safety: Undertaking major bridge construction within a confined space under a still operating elevated expressway ramp carries significant risk to the overhead structure as well as to the health and safety of workers. Implementing the work as a single project would minimize these risks as well as eliminate the need for expensive and specialized heavy construction equipment.

2) Minimized "throw away costs": Proceeding with a single project would eliminate the need to provide costly and risky underpin supports for the elevated Gardiner expressway ramps, only to demolish them later under the two projects scenario.

3) Economies of scale: Implementing the work as a single project would allow for potential economies of scale where there is one design team and one constructor, including one mobilization and one demobilization.

4) A one-time disruption of traffic: While traffic impacts are expected to be significant for any project scenario, implementing the work as a single project would allow for a compressed schedule impact. Using a single coordinated traffic mitigation plan, it is estimated that traffic disruption in the area may be reduced by up to 25 months.

5) Construction efficiency: Under a single project scenario, the two new bridge spans would be constructed in a manner that includes both the lengthening of the Lake Shore Boulevard Bridge to accommodate flood flow discharges, as well as widening in order to accommodate the public realm, pedestrian and cycling requirements set out in the Gardiner East EA. Under a two project scenario, the required construction would occur in two phases, where the first phase would only lengthen the Lake Shore Boulevard Bridge and the second would widen the Lake Shore Boulevard Bridge as well as remove the elevated Gardiner East access ramps to Logan Avenue.

6) Earlier delivery of cycling and pedestrian connections: Under a two project scenario, the Lower Don Trail Bridge crossing the Don River would be removed as part of the Port Lands Flood Protection project. The cyclist and pedestrian crossing could only be reinstated on the widened Lake Shore Boulevard Bridge as part of the Gardiner work. Under a single project scenario, cycling and pedestrian crossings would be reinstated concurrent with the lengthening and widening of the Lake Shore Boulevard Bridge.

7) Utility coordination: Both the Port Lands Flood Protection and the Gardiner East EA projects require the upgrade of municipal infrastructure within Lake Shore Boulevard East, Don Roadway and Saulter Street Right of Ways. This work would be completed on a temporary basis under the Port Lands Flood Protection project and then reconstructed through Gardiner implementation under the two project scenario.

In addition to the above, the Toronto Region Conservation Authority (TRCA) prefers the recommended approach in that it minimizes disruption to the river and area habitats by limiting construction activities over the river to a single event.

The advantages are summarized in the following table:

Item	One Project Approach
Traffic	Single disruption of 42 months; savings of 25 months
Construction Duration	42 months; savings of 25 months
Total Duration	3.5 years; savings of four years
Lake Shore Boulevard East and Bridge Public Realm	Delivery in 2024; four years earlier
Construction, Health and Safety Risk Reduction	1) Structural stability related to underpinning - eliminated 2) Health and safety risk associated with working in and around Gardiner bents - eliminated 3) Schedule risk related to complexity of work - eliminated
Estimated Cost Savings (i.e.: reduced "throwaway", mobilization and demobilization costs, etc.)	At least \$35M
Traffic Risk	Gardiner bents removed prior to construction of detour, traffic safety risk reduced.

Project Design, Budget, Traffic Mitigation and Construction Phasing

In addition to assessing the potential advantages of combining the project scopes, Waterfront Toronto undertook the required detailed structural/engineering and streetscape design work in accordance to the Project Delivery Agreement for the design phase of the project. Additionally, a Class B cost estimate was prepared. A traffic mitigation plan and construction phasing plan are in the process of being finalized in consultation with City staff. These elements are summarized below.

Project Design

As per the design and due diligence Project Delivery Agreement signed with the City of Toronto this past summer, Waterfront Toronto has now reached the 90% design milestone for the proposed project. In addition to the required design and structural aspects of the lengthened and widened Lake Shore Boulevard Bridge, designs have been developed for the planned removal of the Gardiner East access ramps to Logan and for streetscaping, pedestrian and cycling elements in accordance to the Gardiner East EA, from the Don River to Carlaw Avenue.

City staff from Transportation Services, City Planning, Engineering and Construction Services provided extensive input and comment during the design process, and took part in a number of workshops organized by Waterfront Toronto. Separate workshops were also held on specific features such as the proposed design and layout of the Don Roadway/Lake Shore and Booth/Lake Shore intersections. City staff from Parks Forestry and Recreation also provided input regarding plantings within the proposed public realm for Lake Shore Boulevard East between the Don Roadway and Carlaw.

All proposed designs are consistent with the approved EAs, as well as all applicable City design and engineering requirements and standards. City staff worked with Waterfront Toronto to ensure the designs were coordinated with other ongoing City infrastructure projects in the area, such as the Coxwell Stormwater Bypass project. A key objective was to ensure the proposed designs were "future proofed" as best as possible, to accommodate future infrastructure projects such as the planned extension of Broadview Avenue, as well as the future redevelopment of East Harbour and the McCleary District.

Highlights of the 90% design package include:

- 1) Removal of the Gardiner East access ramps from Bent 330 west of the Lake Shore Bridge to Logan Avenue.
- 2) Extending and widening the Lake Shore Boulevard Bridge from two bays to four bays in accordance with the requirements of the approved EAs; the design will accommodate a 4m pedestrian sidewalk on the south side as well as pedestrian sidewalk and a separated cycle path on the north.
- 3) Relocation of the Harbour Lead Line from the north side of Lake Shore Boulevard East between Don Roadway and Carlaw into the centre median, allowing for a widened and improved public realm, cycling and pedestrian environment along the north side of Lake Shore Boulevard from Don Roadway to Booth Avenue.
- 4) Extensive greening, planting and improved separation between vehicular lanes on Lake Shore Boulevard and pedestrian and cycling infrastructure, from Don Roadway to Booth Avenue.
- 5) Widening Lake Shore Boulevard East to a consistent six lane configuration between Don Roadway and Carlaw Avenue, with separate left and right turn lanes where appropriate.
- 6) Signalization of the Booth Avenue and Lake Shore Boulevard intersection, allowing for improved cyclist and pedestrian connections across Lake Shore Boulevard into the Port Lands.
- 7) Improved and enhanced intersection markings, crossings and operational features at all affected intersections.

The 90% design package was presented to the Waterfront Design Review Panel (DRP) on October 21, 2020 where, subject to some minor comments related to specific streetscape design features, it received the full support of the panel.

Waterfront Toronto is currently in the process of incorporating final comments received from the DRP and City staff as it advances the designs to the 100% milestone. This will allow Waterfront Toronto to secure the necessary procurements in time for construction to start in the third quarter of 2021.

Project Budget

The total estimated cost of this project is \$163.2 million. Of this amount, \$16.0 million was previously allocated for detailed design and due diligence, including the required traffic analysis. Constructing the project is currently estimated to be \$147.2 million, not including \$37.3 million for scope that is related to Port Lands Flood Protection and is part of the City of Toronto's 1/3rd share of the \$1.25 billion cost of the Port Lands Flood Protection project.

City and Waterfront Toronto staff will continue to review and refine these estimates as the designs approach the 100% milestone and are prepared for tendering. Detailed cash flow estimates are also being prepared by Waterfront Toronto and City staff will continue to monitor project risks and financial claims for the duration of the project.

Traffic Assessment and Mitigation

Given the proposed project includes the removal of the existing Gardiner access ramps near Logan Avenue and the major reconstruction of the current Lake Shore Boulevard Bridge, significant disruption to vehicular traffic is anticipated. In order to assess the potential impacts and develop a mitigation strategy that will be implemented over the anticipated three year period of construction, Waterfront Toronto, in consultation with City staff, has initiated a substantial traffic modelling exercise.

Covering a vast geographic area, the process began with the development of an existing traffic operations model (Base Condition). From this Base Condition model, data was incorporated that included up-to-date approved City traffic, road, transit projects and any planned road closures over the 2021 to 2024 period of construction. Proposed construction stages of the Lake Shore Boulevard Bridge project were also included with the overall objective of observing the potential impacts the project may have on traffic within the broad geographic area studied, as well as on active transportation within the area of construction itself.

Through this process, Waterfront Toronto and City staff are able to identify and test various options that are intended to reduce negative impacts on traffic operations. These options are still under development and will be part of the public outreach and information strategy being designed for the project.

The MoveTO 2021-25: Congestion Management Interim Action Plan considered by City Council in October 2020 included the proposed expansion of the Construction Hub Pilot program to include a new Construction Hub which would cover this area. This will

ensure that we can effectively manage access to the right-of-way with an emphasis on Vision Zero principles, while developing traffic management and communications plans to help mitigate the congestion-related impacts associated with unavoidable road closures.

Construction Phasing and Administration

Waterfront Toronto's construction management consultant is currently finalizing a proposed construction phasing plan that incorporates the following construction milestones:

Description	Date
Construction Start	July 2021
Logan Ramp Demolition	September 2021
Lake Shore Bridge Demo - Eastbound	December 2021
Rail Bridge Closure	March 2022
Relocation of Enbridge Gas Main completion	May 2022
Opening Lake Shore Bridge - Eastbound	May 2023
Lake Shore Boulevard Closure - Westbound	May 2023
Lake Shore Bridge Demo - Westbound	July 2023
Rail Bridge Construction Complete	May 2024
Opening Lake Shore Bridge - Westbound	September 2024
Flood Protection achieved	March 2024
Construction Finish	December 2024

The start of construction in the third quarter of 2021 would allow time for the current ongoing phase of the Gardiner Rehabilitation project from Jarvis Street to Cherry Street (deck replacement) to conclude in the spring of 2021. Waterfront Toronto's construction management consultant is also developing a specific phasing strategy within the area of construction itself over the three year term of the project. The goal of this effort is to ensure the construction process is managed in an as efficient manner as possible, as well as to accommodate the proposed transportation management and mitigation measures that will be implemented in the area. Key elements of this phasing strategy includes the phased removal of the Gardiner East ramps to Logan Avenue, as well as the concurrent phased reconstruction of the Lake Shore Boulevard Bridge and the timing of key streetscaping elements.

The construction work described in this report will be carried out by the contractors that will be procured by Waterfront Toronto to execute the Port Lands Flood Protection project. Waterfront Toronto will enter into contracts and agreements that are consistent with the Contribution Agreement that has been executed between Waterfront Toronto and the three government partners. As such, the terms of the Project Delivery Agreement will have to be consistent with the terms of the Port Lands Flood Protection Contribution Agreement, as considered by City Council in 2018 as part of EX31.2w (see link above).

Public Outreach and Information

Waterfront Toronto in coordination with City of Toronto staff and in consultation with staff from the local Councillors' offices, will develop and implement a public outreach and information program that includes affected stakeholders and members of the public. As with other major capital projects undertaken by the City, various levels and types of public and stakeholder outreach may be required over the projected three year period of construction. City and Waterfront Toronto staff will assess and monitor requirements over the course of construction and modify the proposed program accordingly. Highlights of the current proposed outreach program include the following:

- Outreach regarding traffic impacts and proposed mitigation in the zone of impact;
- City-wide communications regarding traffic impacts;
- Adherence to the Provincially approved Complaints Protocols for both the Port Lands Flood Protection and Gardiner East EA projects, including potential expansion of the existing Port Lands Flood Protection Construction Liaison Committee; and
- Regular construction and traffic notices circulated to the Port Lands Flood Protection contact list and, as needed, via City networks.

Beginning in November of 2020, Waterfront Toronto will consult with the public and stakeholders, including land owners and businesses, on the design aspects of the project. Given the scope and scale of the proposed project, outreach to businesses and residents is required over a broad geographical area.

Conclusion and Next Steps

It is recommended that Council authorize the General Manager, Transportation Services to enter into a Project Delivery Agreement with Waterfront Toronto for the construction of Lake Shore Boulevard East, consistent with the approved EAs for Port Lands Flood Protection and the Gardiner East. City staff will continue to work in consultation with Waterfront Toronto to finalize the project's design, and traffic mitigation and construction phasing options, as well as project risks and financial claims. Public outreach and information will also continue as required throughout the duration of the project.

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SIGNATURE

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