

Amendment to Purchase Order Number 6045900 with Morrison Hershfield Limited for Professional Services for the Overlea Boulevard Bridge Rehabilitation

Date: September 18, 2023

To: General Government Committee

From: Chief Engineer and Executive Director, Engineering and Construction Services Division and Chief Procurement Officer, Purchasing and Materials Management

Wards: 15 (Don Valley West) and 16 (Don Valley East)

SUMMARY

This report is to request authority from the General Government Committee to amend Purchase Order Number 6045900 with Morrison Hershfield Limited for professional engineering services associated with design services for the rehabilitation of the Overlea Boulevard Bridge over West Don River.

The amendment is being requested for additional design services for foundation work associated with deck widening to accommodate cycling infrastructure; enhanced safety barriers; and watermain relocation works required for the bridge rehabilitation project. Completion of this work under this assignment is critical to align the timing of the bridge rehabilitation with adjacent Metrolinx's Ontario Line work, and City roadway reconstruction.

The total value of the Purchase Order Amendment being requested is \$1,823,301 net of all taxes and charges (\$1,855,391 net of Harmonized Sales Tax recoveries), revising the current purchase order value from \$1,702,120 net of all taxes and charges (\$1,732,077 net of Harmonized Sales Tax recoveries) to \$3,525,421 net of all taxes and charges (\$3,587,468 net of Harmonized Sale Tax recoveries) net of Harmonized Sale Tax recoveries).

The General Management Committee approval is required in accordance with Municipal Code Chapter 195, Purchasing, where the current request exceeds the Chief Procurement Officer's authority of the cumulative five-year commitment limit for each vendor under Article 7, Section 195-7.3(D) of the Purchasing By-law or exceeds the threshold of \$500,000 net of Harmonized Sales Tax allowed under staff authority as per the Toronto Municipal Code Chapter 71, Financial Control, Section 71-11.1.

RECOMMENDATIONS

The Chief Engineer and Executive Director, Engineering and Construction Services Division and the Chief Procurement Officer, Purchasing and Materials Management recommend that:

1. The General Government Committee, in accordance with Section 71-11.1.C of the City of Toronto Municipal Code Chapter 71 (Financial Control By-Law), grant authority to amend Purchase Order Number 6045900 with Morrison Hershfield Limited for the provision of professional services associated with design services for the rehabilitation of the Overlea Boulevard Bridge over West Don River in the amount of \$1,823,301 net of all taxes and charges (\$1,855,391 net of Harmonized Sales Tax recoveries), revising the current purchase order value from \$1,702,120 net of all taxes and charges (\$1,732,077 net of Harmonized Sales Tax recoveries) to \$3,525,421 net of all taxes and charges (\$3,587,468 net of Harmonized Sale Tax recoveries) net of Harmonized Sale Tax recoveries).

FINANCIAL IMPACT

The Purchase Order Amendment request included in this report will increase the total value of the professional services assignment by \$1,823,301 net of all taxes and charges (\$1,855,391 net of Harmonized Sales Tax recoveries). This revises the current purchase order value from \$1,702,120 net of all taxes and charges (\$1,732,077 net of Harmonized Sales Tax recoveries) to \$3,525,421 net of all taxes and charges (\$3,587,468 net of Harmonized Sale Tax recoveries). This professional services assignment is a capital project categorized under “Health and Safety” to support the City's infrastructure state of good repair.

Funding for the purchase order amendment is available in the 2023 Approved Capital Budget and the 2024-2032 Approved Capital Plan for Transportation Services and Toronto Water, as summarized in Table 1 below (net of Harmonized Sales Tax recoveries):

Table 1: Financial Impact Summary for Purchase Order Number 6045900

WBS Element	Description	2023	2024	2025	Total (net of HST recoveries)	Category
CTP515-01-69	City Bridge Rehabilitation - Design	\$75,734	\$672,926	\$149,732	\$898,392	State of Good Repair

WBS Element	Description	2023	2024	2025	Total (net of HST recoveries)	Category
CPW542-02	Watermain Replacement - Design	\$101,760	\$385,243	\$469,996	\$956,999	State of Good Repair

During the 2024 budget submission, Transportation Services and Toronto Water will provide an update on the financial impacts of the City Bridge Rehabilitation Program and the Watermain Replacement Program, respectively.

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

DECISION HISTORY

On September 13, 2017, by authority of the Bid Award Panel, the City retained Morrison Hershfield Limited for the provision of professional engineering services associated with Request for Proposal Number 9117-17-5033 for the design, contract administration and post-construction services for the Overlea Boulevard Bridge, DVP/Leeway Glenway Noise Wall, Suicide Barrier Study and Watermain Relocation Study. The total fee for this professional engineering services assignment was \$3,313,385 (net of all taxes and charges). Purchase Order Number 6045900 for design services was subsequently issued to Morrison Hershfield Limited on November 8, 2017, in the amount of \$1,702,120, excluding all taxes. A copy of the Bid Award Panel Decision Document can be found at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.BA40.3>

COMMENTS

The Overlea Boulevard Bridge, also known as the Charles H. Hiscott Bridge, was constructed in 1960. The structure is a 5-span slab-on-steel girder bridge with a total length of 207 metres. The bridge deck is 19.05 metres wide. It carries four lanes of traffic on Overlea Boulevard, over a tributary of the Don River, west of Don Mills Road. There is a 1.61 metre-wide sidewalk on each side and no cycling infrastructure. The structure underwent rehabilitation work in 1994, to repair the deck. In August 2015, MMM Group Limited was retained by the City to complete a detailed visual inspection, condition survey, structural evaluation, and fatigue evaluation for the Overlea Boulevard Bridge under City Work Assignment No. ECS-BE-C07-15-002. The structural inspection and evaluation found minor to severe section loss and fatigue-prone details in the structural steel components of the superstructure.

In April 2017, the City retained Morrison Hershfield Limited through a Request for Proposal for the design, contract administration and post-construction services for the

rehabilitation of the Overlea Boulevard Bridge. The Request for Proposal included professional engineering services for preliminary design for bridge rehabilitation, enhanced safety barriers, relocation of a 300 millimetre diameter watermain suspended from the bridge deck, and the addition of cycling infrastructure. Preliminary design was completed by Morrison Hershfield Limited in April 2019.

During preliminary design, it was identified that a separated cycle track in each direction is the most suitable alternative for cycling infrastructure at this location, which would require the bridge deck to be widened to 24.8 metres to accommodate a 2.5 metre sidewalk and a 2.4 metre bike lane in each direction. The new deck width would increase by 5.75 metres which would substantially increase the loading on the bridge resulting in a need to also widen the substructure components.

The inclusion of cycling infrastructure in the Overlea Boulevard Bridge is an important component of the planned bridge rehabilitation. In 2019, when the preliminary design was completed City staff believed that a Class Environmental Assessment may be required under the current requirements. However, at this time, there were also proposed amendments by the Government of Ontario to change the requirements of the Municipal Class Environmental Assessment process, which made it unclear if an environmental assessment for the bridge widening and installation of cycling infrastructure would in fact be required. As a result, the detailed design was put on pause in April 2019, pending clarification on whether a Municipal Class Environmental Assessment was required.

In 2020, due to the deteriorating condition of the deck, interim repairs were initiated to extend the service life of the bridge. Construction commenced in October 2021 and was substantially completed in September 2022. The interim repairs were limited to critical defects of the concrete deck and did not address fatigue-prone details in the structural steel components of the superstructure.

In November 2022, as the Government of Ontario was finalizing amendments to the Municipal Class Environmental Assessment, it was determined that a Municipal Class Environmental Assessment would only be necessary if the proposed bridge had heritage impacts. A Heritage Impact Assessment was conducted and found that the proposed replacement and enhancements for the Overlea Boulevard bridge would only have minor heritage impacts that could be adequately mitigated, and the overall project was found to have a positive effect on the historical context. As a result, a Municipal Class Environmental Assessment was not required. Subsequently, in January 2023, the City requested Morrison Hershfield Limited restart the detailed design work.

In addition, in October 2022, Metrolinx advised the City that the Overlea Boulevard bridge would be used as part of the hauling route to transport materials to and from Metrolinx's Ontario Line project site at Thorncliffe Park. As the current structure is nearing the end of its life cycle, it is important to accelerate the detailed design of the recommended superstructure replacement to minimize the time it is used by heavy construction vehicles. The City has worked with Metrolinx to align the bridge project with the Ontario Line work to reduce the amount of time the current structure will be used by heavy equipment vehicles.

Furthermore, on-street bikeway work is proposed to be delivered along Overlea Boulevard between Don Mills Road and Thorncliffe Park Drive between 2024 and 2026. The roadway design project as well as the bridge design project will be delivered under a single construction contract to minimize disruptions to the community.

To achieve coordination with Metrolinx's Ontario Line and the on-street bikeway work, detailed design of the bridge, including the additional design work outlined below, must proceed under the currently awarded consulting assignment.

In April 2023, Morrison Hershfield Limited submitted a request to the City for additional funds to complete the detailed design including the following:

1) Additional Geotechnical Investigation for Substructure Widening and Slope Stability Analysis

Widening the existing bridge deck to accommodate cycling infrastructure will increase the foundation loads by over 15%. As per structural design standards, when foundation loads are increased by more than 10%, a detailed geotechnical investigation is required to provide comments and recommendations for the structural design. As a result, additional geotechnical investigations, including assessment of the stability of the valley slopes, are required.

The total additional cost to perform the geotechnical investigation is \$243,550 (net of all taxes and charges).

2) Substructure Widening Design

The original design scope included design for a new bridge deck to accommodate two traffic lanes, a 2.1 metre wide sidewalk and a separated bike lane in each direction as well as repair of the existing substructure. Following the preliminary assessment of alternatives, the recommended cross-section includes a 2.5 metre wide sidewalk and a 2.4 metre wide bike lane in each direction resulting in a need to widen the existing substructure. Additional effort is required to perform structural design and analysis for the widening of the abutments, piers, and footings.

The total additional cost to perform the additional bridge widening design is \$142,150 (net of all taxes and charges).

3) Enhanced Safety Barrier Design

As part of the original assignment scope, Morrison Hershfield Limited completed a feasibility study and preliminary design for enhanced safety barriers on the bridge. The purpose of is to compare several feasible options of enhanced safety barriers based on costs, design and constructability, operation and maintenance, and aesthetics, and identify the alternative that is the most suitable for this location. The feasibility of adding enhanced safety barriers to the bridge was unknown at the time of the request for proposal, and detailed design of was not included in the original scope of work. Instead, a provisional amount of \$25,000 was included for the detailed design of the barrier.

During the development of the preliminary design the City identified a preferred enhanced safety barrier. However, public consultation undertaken by the City in 2021, identified a need to revisit the aesthetics of the preferred option. Further review of aesthetics, and detailed structural and architectural design of the enhanced safety barrier are beyond the original project scope and cannot be accommodated within the provisional amount. Detailed design of the enhanced safety barrier must be completed in combination with the new bridge deck to ensure that loading and connection details are seamlessly integrated.

The total additional cost to perform the design, review and consultation for the enhanced safety barrier is \$178,707 (net of all taxes and charges).

4) Watermain Relocation Design

As part of the original assignment scope, Morrison Hershfield Limited completed a feasibility study and preliminary design for the 300 millimetre watermain that is currently suspended from the underside of the bridge deck. The preferred solution, accepted by Toronto Water and Transportation Services, is to relocate the watermain underground in advance of the bridge rehabilitation. The original provisional amount of \$50,000 included in the consulting assignment is insufficient to cover the detailed design for the preferred option for the watermain relocation.

As the watermain is affixed to the underside of the bridge deck, its relocation is critical to facilitate the bridge rehabilitation project. Due to the coordination requirements with adjacent Metrolinx Ontario Line works, and the Overlea Boulevard and Don Mills Road project, the delivery schedule for the bridge rehabilitation has been condensed requiring that the watermain relocation occur concurrently with bridgework, as part of a single tendered contract. Completion of the watermain design by Morrison Hershfield Limited is required to meet the planned schedule, including evaluation of various trenchless installation methods, refinement of the watermain alignment, preliminary design, detailed design, sequencing, constructability review, cost estimation, and coordination with permitting agencies for the relocation.

The total additional cost to perform preliminary and detailed design for the watermain relocation is \$817,780 (net of all taxes and charges).

5) Delayed Start of the Detailed Design Phase

Due to the extended pause of the consulting assignment between 2019 and 2023, Morrison Hershfield Limited requested a rate adjustment to the staff hourly rate on the project. In the Request for Proposal, a rate adjustment is allowed when the duration of the project extends beyond the proposed schedule due to delays beyond the Consultant's control. The rate increase is calculated based on the current consumer price index plus two percent, as per the terms of reference in the Request for Proposal. The total additional fee for the rate adjustment is \$171,304 (net of all taxes and charges).

A 20% contingency for the bridge rehabilitation design and a 15% contingency for the watermain relocation design, in a total amount of \$310,698 (net of all taxes and charges), are included to allow for additional unforeseen project requirements in advance of tendering the contract.

An amendment to the purchase order with Morrison Hershfield Limited for additional professional services is required to complete the detailed design of the superstructure replacement of the Overlea Boulevard Bridge. Additional funds, in the amount of \$1,823,301 net of all taxes and charges (\$1,855,391 net of Harmonized Sales Tax recoveries) net of Harmonized Sales Tax recoveries) will revise the current purchase order value from \$1,702,120 net of all taxes and charges (\$1,732,077 net of Harmonized Sales Tax recoveries) to \$3,525,421 net of all taxes and charges (\$3,587,468 net of Harmonized Sale Tax recoveries) net of Harmonized Sale Tax recoveries).

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SIGNATURE

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