

## **Amendment to Purchase Order Number 6044203 with Concept Naval Experts Maritimes Inc. for the Provision of Design and Construction Support Services for the Delivery of Two Electric Ferries and Associated Shore-side Infrastructure**

**Date:** December 8, 2021

**To:** General Government and Licensing Committee

**From:** General Manager, Parks, Forestry and Recreation and the Chief Procurement Officer, Purchasing and Materials Management Division

**Wards:** All

### **SUMMARY**

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The purpose of this report is to seek authority to amend Purchase Order Number 6044203 issued to Concept Naval Experts Maritimes Inc. ("Concept Naval") for the provision of Total Design and Construction Support Services for the Construction of a New City of Toronto Marine Services Passenger and Vehicle Vessel by an additional amount of \$2,689,565 net of applicable taxes and charges (\$2,736,901 net of Harmonized Sales Tax recoveries), resulting in a total revised purchase order value of \$4,540,721 net of all applicable taxes and charges (\$4,620,638 net of Harmonized Sales Tax recoveries), and to extend the term to December 31, 2025.

The requested amount is required to provide additional design and construction support services for the delivery of a new Toronto ferry or ferries, as part of the City's ferry replacement project. These additional design and construction support services are required to advance an electric version of the design, as well as shore-side infrastructure required to support full electrification of the vessels.

### **RECOMMENDATIONS**

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The General Manager, Parks, Forestry and Recreation and the Chief Procurement Officer recommend that:

1. The General Government and Licensing Committee, in accordance with Section 71-11.1C of the City of Toronto Municipal Code Chapter 71 (Financial Control By-law) authorize the General Manager, Parks, Forestry and Recreation to enter into the

necessary amending agreement on terms and conditions satisfactory to the General Manager, Parks, Forestry and Recreation and in a form satisfactory to the City Solicitor, to increase the value and term of Purchase Order No. 6044203 with Concept Naval Experts Maritimes Inc. for the provision of additional design and construction support services for the delivery of a new Toronto ferry or ferries, by an additional amount of \$2,689,565 net of applicable taxes and charges (\$2,736,901 net of Harmonized Sales Tax recoveries), increasing the current Purchase Order Value from \$1,851,156 net of applicable taxes and charges (\$1,883,736 net of Harmonized Sales Tax recoveries) to \$4,540,721 net of all applicable taxes and charges (\$4,620,638 net of Harmonized Sales Tax recoveries), and extending the term to December 31, 2025.

## **FINANCIAL IMPACT**

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The 2022-2031 Recommended PFR Capital Budget and Plan, subject to Council approval on February 17, 2022, includes \$63.150 million for the delivery of two electric ferries and electric shore-side infrastructure over 2022-2025, with funding from Debt, Development Charges and the Ferry Replacement Reserve Fund (XQ1206).

Funding for the requested Purchase Order Amendment amount of \$2,689,565 excluding all applicable taxes and charges (\$2,736,901 net of Harmonized Sales Tax recoveries) is included in the 2022-2031 Staff Recommended Capital Budget and Plan for Parks, Forestry and Recreation (PFR) as summarized in the table below.

WBS Element	Project Description	Date of Award to December 31, 2022	January 1, 2023 to December 31, 2023	January 1, 2024 to December 31, 2024	January 1, 2025 to December 31, 2025	Total (Net HST Recoveries)
CPR126-45-08	Ferry Fleet Replacement	\$1,148,174	\$860,165	\$538,024	\$190,538	\$2,736,901

The Chief Financial Officer and Treasurer has reviewed this report which has multi-year financial implications and agrees with the information as presented in the Financial Impact Section.

## **DECISION HISTORY**

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At its meeting of March 5, 2019, General Government and Licensing Committee approved a Purchase Order Amendment of \$767,364 net of applicable taxes and charges (\$780,870 net of Harmonized Sales Tax recoveries), revising the Purchase Order value to \$2,041,720 excluding all applicable taxes and charges (\$2,077,654 net of Harmonized Sales Tax recoveries). This allowed for the inclusion of a number of design modifications resulting from a ferry fleet replacement study, including a passenger only design option.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.GL2.7>

At its meeting of February 12, 2018, City Council approved the 2018 Capital Budget for Parks, Forestry and Recreation through item EX31.2 (20a.i.) and additional funds of

\$1,500,000 for Replacement of Ferry Boat #1.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2018.EX31.2>

At its meeting of August 3, 2016, Bid Committee adopted item BD94.11 to award Request for Proposal No. 9117-15-0142 for the total design and construction support services for the construction of a new City of Toronto Marine Services passenger and vehicle vessel, with the option to retain the construction support and post construction services during the construction and delivery of a second Vessel at the sole discretion of the General Manager and subject to budget approval(s), for completion on a date to be determined by the General Manager, at a cost of \$1,083,792 for one ferry and an additional \$190,564 for the optional second ferry, for a total potential contract award, including all options, of \$1,274,356 net of all applicable taxes and charges (\$1,296,785 net of HST recoveries) to Concept Naval Experts Maritimes Inc., set out in the report (July 21, 2016) from the Director, Purchasing and Materials Management.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2016.BD94.11>

City Council, at its meeting of March 10 and 11, 2015, adopted Parks, Forestry and Recreation's 2015 Capital Budget through item EX3.4 (23a.i.) and \$11,000,000 for the Replacement of Ferry Boat #1.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.EX3.4>

## **COMMENTS**

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### **Background**

The City maintains a ferry fleet of four primary vessels (the Ongiara, the William Inglis, the Sam McBride, and the Thomas Rennie) and one heritage vessel (the Trillium). Together, this fleet transports approximately 1.4 million passengers and over 5000 vehicles annually. While ferry service is maintained year round, more than 80 per cent of passenger volume takes place from May-September.

In recent years, growing passenger numbers and pressure on Toronto Island Park has stretched the fleet to its operating limits. While all the vessels are well maintained, they are significantly beyond the 20-year industry average lifespan for similar fresh water ferries (Toronto ferries are between 50 and 100 years old).

As vessels age, both reliability and safety naturally decrease and can increase the risk of unexpected failure and substantial and unexpected repair costs. Additionally, while the marine industry has made significant advancements in areas such as accessibility and energy efficiency, the age of the vessels has limited the City's ability to benefit.

Increasing the capacity and reliability of the fleet over the long-term is key to improving customer experience and outcomes. The City plans to replace the four primary vessels over a 15-year period. The Trillium will continue to be operated as a heritage vessel when possible.

To advance replacement, staff worked with KPMG to validate and strengthen the existing case for replacement through extensive stakeholder engagement coupled with

robust qualitative and quantitative analysis. This led to a pivot of design intention in 2019, moving toward a passenger focused fleet inclusive of hybrid diesel-electric technologies. At the time it was noted that the full electrification of the fleet was the long term goal, but that a number of challenges existed which precluded proceeding with full electric at the time, including financial constraint.

In 2020, as part of due diligence before tendering the vessels for construction, detailed cost estimates were provided by Concept Naval which resulted in a pause of the project for further analysis to ensure the City was investing efficiently and effectively in the fleet replacement.

This temporary pause also allowed staff to revisit the potential for electrification of the vessels.

## **Electrification**

Working closely with the Energy and Environment Division and naval architect Concept Naval, an additional financial and procurement forecasting was completed which indicated that an upfront transition to fully electric vessels was prudent. This was underpinned by a number of considerations, including:

- Environmental improvements aligned with TransformTO and Climate Emergency objectives (Elimination of fossil fuel and decrease in GHG)
- Comparable construction estimates for both electric and hybrid ferry options
- Long term operational savings and elimination of maintenance for engine and emission equipment
- Recent industry trends and available technologies
- Projected payback within 20-year period
- Shore-side infrastructure required for electrification was deemed feasible
- Future electrification deemed prohibitive due to retrofit costs and required time out of service
- Supports the proposed accelerated strategy to reduce greenhouse gas (GHG) emissions in Toronto by 2040 (10 years earlier than initially proposed)
- The evolution in technology and the implementation of electrification in comparable scenarios, including an Infrastructure Ontario fleet replacement in Kingston, Ontario, and PortsToronto's recent conversion of the 'Marilyn Bell' to a 100 per cent electric lithium-ion powered ferry
- The opportunity to explore synergies with initiatives already underway, such as the agreement the TTC has with PowerON (a subsidiary of Ontario Power Generation) to deliver charging infrastructure.

Initial projections undertaken by the Energy and Environment Divisions (and consultant team) suggest the following GHG and fuel cost savings by switching to a fully electric fleet over hybrid diesel starting in early 2030s (assuming all electric ferries in-service at that point):

<b>Based on current ferry schedule 19600 trips/yr</b>	<b>GHG reduction (tonnes)</b>	<b>Fuel cost savings (including escalation of carbon tax, fuel prices)</b>
Annual (from 2030)	2,800	\$ 1,100,000 (Class A) \$ 642,000 (Class B)
20 years cumulative total (2030s-2050s)	50,600	\$ 21,000,000 (Class A) \$ 12,000,000 (Class B)

\*Class A includes an on-shore battery while Class B does not

A number of factors have shifted since the inception of the replacement projects which require response from the City. This is a generational opportunity and provides a chance for the City to lead by example regarding green and environmentally responsible transportation.

### **Amendment to Purchase Order No 6044203 for Total Design and Construction Support Services for the Construction of a New City of Toronto Marine Services Passenger and Vehicle Vessel or Vessels**

The original scope of work covered by Purchase Order No. 6044203 only included design and construction support services costs for a hybrid diesel-electric powered passenger/vehicle vessel and a hybrid diesel-electric passenger vessel design.

Additional design work is required to advance electrification and support shore-side infrastructure, and to deliver a modern environmentally friendly ferry replacement to serve the long term needs of a growing Toronto. The additional design services and change in replacement strategy will deliver improved environmental results, long-term value for money to the City and improved customer outcomes.

To allow for fully electric vessels, the shore-side infrastructure portion is critical as it ensures that the necessary electrical supports are in place to allow for seamless charging of the new vessels.

Amending to fully electric vessels and incorporating the infrastructure requirement under this contract ensures all related design and construction oversight for the overall alignment of vessel and the shore-side infrastructure under a single Consultant team.

The 2022-2031 Recommended Capital Budget and Plan for PFR, subject to Council approval on February 17, 2022, includes \$63.150 M in funding over 2022-2025 to support the delivery of two electric ferries and electric shore-side infrastructure. Funding consists of Debt, Development Charges and the Ferry Replacement Reserve Fund (XQ1206).

Given that the recommended additional design and construction support services work is built off of the design work completed to date, expanding the existing contract with

Concept Naval is the cost-effective, timely, and logical procurement option for the additional work needed for fully electric vessels and its shore-side requirements.

## **CONTACT**

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## **SIGNATURE**

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