

## **Electric Ferries Shoreside Infrastructure Work Plan**

Date: September 17, 2024

To: Executive Committee

From: City Manager

Wards: All

### **REASON FOR CONFIDENTIAL INFORMATION**

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The attachment to this report is about a plan to be applied to negotiations carried on or to be carried on by or on behalf of the City of Toronto.

### **SUMMARY**

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At its meeting on July 24, 2024, City Council approved the award of a contract to construct and deliver two new fully electric ferry vessels for operations to and from Toronto Island. This report in response to Council's request outlines the work plan to install shoreside infrastructure at Jack Layton Ferry Terminal ("Shoreside Infrastructure Project") to enable operation of new electric ferries, beginning with the vessels scheduled to arrive in Q4 2026 and Q2 2027 and including other electric replacement vessels to be added to the City's ferry fleet. No capital work is required at the Toronto Islands to enable operation of electric ferries. The work plan presents the tasks and associated timelines required to complete the shoreside infrastructure including the design, permits and approvals, procurement and construction phases.

The report also presents the roles and responsibilities within City divisions, CreateTO and Toronto Hydro to effectively advance the project and ensure oversight regarding project budget, timelines, quality control and integration with parallel projects and with ferry operations.

The shoreside infrastructure is scheduled to be installed by Q3 2026 in advance of the delivery of the first new ferry, the passenger and vehicle vessel, in Q4 (November) 2026 and the new passenger vessel in Q2 (April) 2027. The upgrades to Jack Layton Ferry Terminal will include charging and electrical infrastructure and modifications to the ferry berths to support the new ferries.

## **RECOMMENDATIONS**

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The City Manager recommends that:

1. City Council authorize the City Manager and their designate, as appropriate, to negotiate, enter into, and execute a delivery agreement with CreateTO or its managed corporations, Toronto Port Lands Company and Build Toronto, for the project management, design, build, and commissioning on the City's behalf of the City's Shoreside Infrastructure Project for a period of three years, for an amount not to exceed \$42,535,680, on terms and conditions acceptable to the City Manager and the General Manager, Parks, Forestry and Recreation and in a form satisfactory to the City Solicitor.
2. City Council direct that funding be provided to CreateTO and its managed corporations, Toronto Port Lands Company and Build Toronto, for the delivery of the project management, design, construction and commissioning on the City's behalf of the City's Shoreside Infrastructure Project from the Parks, Forestry and Recreation Capital Budget and Plan, to a maximum of \$42,535,680.
3. City Council authorize the public release of Confidential Attachment 1 to the report (dated September 17, 2024) from the City Manager once the purchase transactions related to the Shoreside Infrastructure Project have been completed.

## **FINANCIAL IMPACT**

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This report provides the work plan for the infrastructure associated with forthcoming electric ferries. The estimated capital and related costs, such as project management, to implement shoreside infrastructure is \$41,800,000 net of all applicable taxes and charges (\$42,535,680 net of Harmonized Sales Tax Recoveries) and is included in the 2024 Capital Budget and 2025-2033 Capital Plan for Parks, Forestry and Recreation. This will be funded through a combination of Debt and Development Charges. City Council approved the funding to support this component of the project through a budget adjustment at the July 24, 2024 meeting through the Capital Variance Report for the Four Months Ended April 30, 2024. This funding will be provided to CreateTO and its affiliate corporations, Toronto Port Lands Company and Build Toronto, to deliver the project.

The estimated cost to implement shoreside infrastructure excludes the incremental costs to be incurred by Toronto Hydro as a part of electrical connection work within the right-of-way that will be recoverable from the City for this project. Toronto Hydro is currently in the process of developing the scope and costing for this work and once that work is completed, those costs will be brought forward for approval. Any future financial implications resulting from electrical connection work within the right-of-way and other additional cost implications would be addressed through future budget processes, as needed.

Contract administration and design costs for the shoreside infrastructure are funded through the separate project budget for Ferry Fleet Replacement Project included in

Parks, Forestry and Recreation's approved 2024 Capital Budget and 2025-2033 Capital Plan. The value of Purchase Order Number 6044203 with Concept Naval Experts Maritimes Inc. is \$9,346,221 net of all applicable taxes and charges (\$9,510,715 net of Harmonized Sales Tax recoveries), including both the Shoreside Infrastructure and vessel construction and delivery.

The Chief Financial Officer and Treasurer has reviewed this report and agrees with the information as presented in the Financial Impact Section.

## **DECISION HISTORY**

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At its meeting on July 24 and 25, 2024, City Council directed the City Manager, in consultation with the Executive Director, Corporate Real Estate Management, the Chief Executive Officer, CreateTO, the General Manager, Parks, Forestry and Recreation, and other City Divisions and Agencies as needed, to report to the October 1, 2024 Executive Committee meeting with a comprehensive work plan for the infrastructure works required at Jack Layton Ferry Terminal and Toronto Islands.

At the same meeting, Council authorized the General Manager, Parks, Forestry and Recreation, to negotiate and enter into an agreement with Damen Shipbuilding for the construction, delivery, commissioning and warranty of two new fully electric ferry vessels.

<https://secure.toronto.ca/council/agenda-item.do?item=2024.GG14.8>

At its meeting on July 24 and 25, 2024, through the Capital Variance Report for the Fourth Months Ended April 30, 2024, City Council approved \$41,800,000 net of all applicable taxes and charges (\$42,535,680 net of Harmonized Sales Tax Recoveries) for capital costs to implement shoreside infrastructure for the electric ferries.

<https://secure.toronto.ca/council/agenda-item.do?item=2024.EX16.12>

At its meeting on July 2, 2024, General Government Committee approved an amendment to Purchase Order Number 6044203 with Concept Naval Experts Maritimes Inc. of \$3,503,000 net of applicable taxes and charges (\$3,564,653 net of Harmonized Sales Tax recoveries), revising the current purchase order from \$5,843,221 net of all applicable taxes and charges (\$5,946,062 net of Harmonized Sales Tax recoveries) to \$9,346,221 net of all applicable taxes and charges (\$9,510,715 net of Harmonized Sales Tax recoveries) to provide contract administration services for the construction of two new ferry vessels and support services for associated shoreside infrastructure work.

<https://secure.toronto.ca/council/agenda-item.do?item=2024.GG14.7>

At its meeting on February 17, 2022, City Council approved the 2022-2031 Capital Budget and Plan for Parks, Forestry and Recreation through item EX30.2 (177), \$10,950,000 to invest in shoreside infrastructure and \$28,942,000 added to the cost of the first two fully electric replacement vessels.

<https://secure.toronto.ca/council/agenda-item.do?item=2022.EX30.2>

At its meeting on March 10, 2015, City Council 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 Number 1. \$10,150,000 was included in the 10-year Capital Plan for Replacement of Ferry Boat Number 2.

<https://secure.toronto.ca/council/agenda-item.do?item=2015.EX3.4>

## COMMENTS

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### 1. Project Objectives and Work Plan Summary

#### 1.1 Objectives

Shoreside infrastructure work at the Jack Layton Ferry Terminal (JLFT) will establish supportive electrical infrastructure and modify four docking berths for the operation of electric ferries. The shoreside project will be completed in Q3 2026 in advance of the arrival of the first electric ferry vessel targeted for Q4 2026, in order to provide time for commissioning, trials and operations.

Every effort will be made during site preparation and construction to minimize disruptions to existing ferry schedules and passengers' experience getting to and from the Toronto Islands. Where unavoidable disruptions must occur, they will be mitigated to the greatest extent possible and the City will communicate these disruptions with passengers' and stakeholders early and clearly.

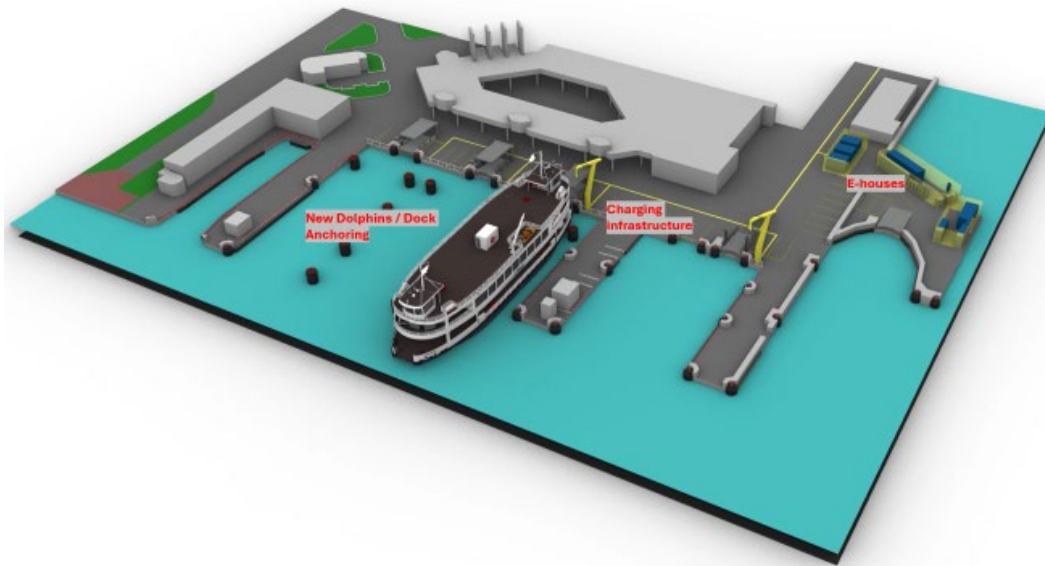
No modifications are required to infrastructure at the landings on Toronto Island in order to accommodate the new electric ferries. The ferries will be able to berth using the existing shoreside infrastructure. Charging will exclusively occur at JLFT.

#### 1.2 Project Scope

The Shoreside Infrastructure Project will include the fabrication, construction and installation of mechanical, civil and electrical/charging infrastructure required to support the operations of electric ferries at JLFT. The infrastructure and assets will be owned by the City of Toronto. The scope of works includes the following (illustrated in Figures 1 and 2):

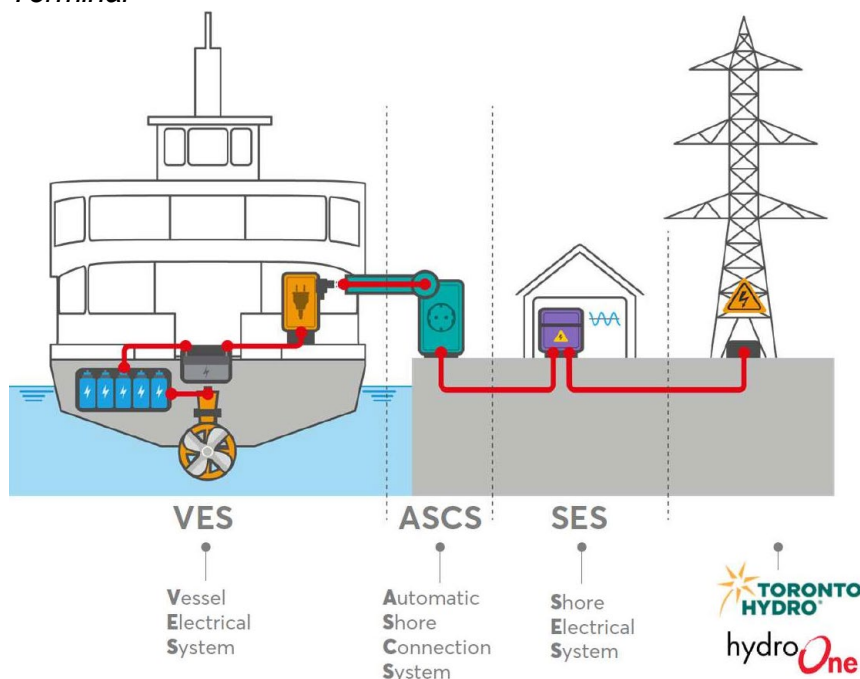
- Automatic Shore Charging Systems ("ACSC") (a.k.a., charging towers) at two berthing areas.
- Subgrade duct banks and conduits at four berthing areas to enable the operation of the two new charging towers, as well as to enable the future installation of charging towers for additional replacement ferries procured as part of the City's Ferry Fleet Replacement Strategy;
- Electric houses (or "e-houses") (Shoreside Electrical System "SES") that will contain electrical equipment and systems, including a battery energy storage system;
- Modified docks and locking mechanisms at four berthing areas to accommodate the specifications of the new vessels; and
- New in-water vessel stabilization measures at three berthing areas (e.g., protective pilings or "dolphins"). The JLFT layout only requires these modifications at three berthing areas to enable operation of electric ferries at four berths.

*Figure 1: Illustrative Bird's Eye View of Shoreside Infrastructure Upgrades to Jack Layton Ferry Terminal*



\*Upgrades noted in red text

*Figure 2: Cross-Section View of Shoreside Infrastructure Upgrades to Jack Layton Ferry Terminal\**



\*Note: The Vessel Electric System is not part of the Shoreside Infrastructure Project scope. It is being developed through the separate project for the construction and delivery of the new electric ferries.

Engineering drawings for shoreside infrastructure are currently being finalized by the project team. Toronto Hydro is providing comment and approvals to ensure that all infrastructure meets required specifications and complies with all regulations before engineering drawings are finalized in preparation for project tender.

The project is planned to occur within the existing footprint of JLFT and is not anticipated to include major earthworks, dock wall rehabilitation/reconstruction or dredging.

The Shoreside Infrastructure Project will be closely coordinated with advancement of the fabrication and delivery of the two new ferry vessels by PFR and its vendor Damen, as approved by City Council in July 2024. The design for the shoreside infrastructure and its integration at JLFT have been developed in parallel with design and negotiation of the construction of the new electric ferry vessels. The shoreside infrastructure will support the operation of the new vessels planned to arrive in 2026 and 2027 as well as additional replacement ferries procured as part of the City's Ferry Fleet Replacement Strategy.

The Shoreside Infrastructure Project will be coordinated with the installation of a new power supply service in the Queen's Quay West right-of-way adjacent to the terminal property to be undertaken by Toronto Hydro. The scope of work to be performed by Toronto Hydro in the public right-of-way is being confirmed to match the requirements of the new electrical system at JLFT.

State-of-good repair work and visitor experience-oriented improvements at JLFT included in PFR's 10-year capital plan are separate from this Shoreside Infrastructure scope of work. Any further upgrades to the terminal would be subject to a separate design and budget approval process to be led by PFR.

### 1.3. Work Plan Summary

The proposed work plan for delivery of the Shoreside Infrastructure is presented below. Details specific to phases of the work, as well as the recommended project management approach, are described in subsequent sections of this report and the associated confidential attachment.

*Figure 3 - Work Plan Timeline*

| Shoreside Infrastructure Items     | Q4 2024 | Q1 2025 | Q2 2025 | Q3 2025 | Q4 2025 | Q1 2026 | Q2 2026 | Q3 2026 | Q4 2026 |
|------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Design                             | >       |         |         |         |         |         |         |         |         |
| Project Tendered                   | >       | >       |         |         |         |         |         |         |         |
| Vendor Selection                   |         |         | >       |         |         |         |         |         |         |
| Site Preparation                   |         |         | >       | >       |         |         |         |         |         |
| Structural/Civil Works             |         |         | >       | >       | >       | >       |         |         |         |
| Electrical Works                   |         |         |         | >       | >       | >       | >       |         |         |
| Quality Control and Staff Training |         |         | >       | >       | >       | >       | >       | >       |         |
| Project Close Out                  |         |         |         |         |         |         |         |         | >       |

## 2. Project Management

### 2.1 Governance

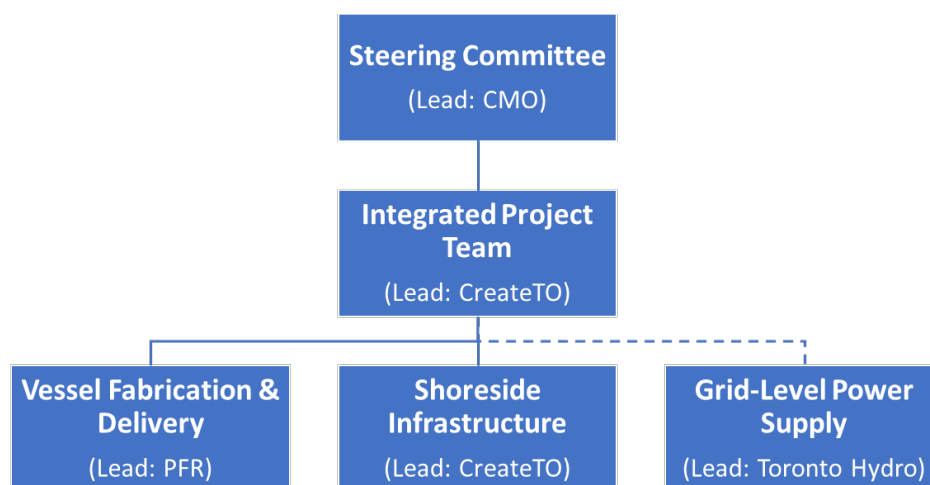
The proposed structure for advancing the shoreside infrastructure work and related electric ferry integration projects includes individual projects tasked to CreateTO, Parks, Forestry and Recreation and Toronto Hydro and integration at the project team and senior leadership levels (See Figure 4).

A Steering Committee has been formed to oversee and support the project from the management level. The Steering Committee is chaired by the City Manager's Office (CMO) and comprised of the: Deputy City Manager, Community and Social Services; Deputy City Manager, Corporate Services; Chief of Staff, City Manager's Office; Chief Executive Officer, CreateTO; General Manager, Parks, Forestry and Recreation; Executive Director and Chief Engineer, Engineering and Construction Services; and, Executive Director, Environment and Climate. Toronto Hydro has been engaged to join the Steering Committee as needed to provide oversight of electrical integration activities.

An Integrated Project Team has been established to coordinate and align all work streams related to the delivery and operation of the new ferry vessels, including the shoreside infrastructure work itself as well as the contract to deliver the two new ferry vessels, and to ensure coordination with ongoing ferry operations and other projects and operational activities in the vicinity of JLFT.

The Integrated Project Team will be chaired by CreateTO and will include participation from PFR, Toronto Hydro, Engineering and Construction Services, Environment & Climate, City Manager's Office, Deputy City Manager's Office, Community and Social Services, Deputy City Manager's Office, Corporate Services, and other divisions as appropriate.

*Figure 4: Governance Structure and Works Streams*



## **2.2 Shoreside Infrastructure Project Team**

CreateTO will be responsible for overall project management and construction delivery of the Shoreside Infrastructure Project. CreateTO has experience delivering capital projects in coordination with and/on behalf of the City, including marine based infrastructure and other civil projects such as the Fort York Bridge/Garrison Crossing and dock wall reconstruction projects in the Port Lands. CreateTO will leverage its capacity and expertise in procurement, design and construction management to deliver the Shoreside Infrastructure Project as a part of the Integrated Project Team. CreateTO will be engaged through a Delivery Agreement with the City which will define the scope of work, performance requirements, controls and resource allocation.

PFR staff will have a central and ongoing role in the Shoreside Infrastructure Project, with primary responsibility for ensuring coordination with the vessel fabrication and delivery. PFR is also responsible for ongoing management and operations at JLFT and will work collaboratively with CreateTO and the General Contractor to balance construction requirements with the objective of minimizing disruptions during the construction program.

The City staff team will be supported by consultants and contractors providing requisite expertise in the design, construction and commissioning of the infrastructure upgrades. This support includes experts already contracted to the City, such as Concept Naval and AKA Energy Systems, as well services that will be retained, namely the Shoreside General Contractor.

Concept Naval Experts Maritimes Inc., the City's naval architecture and marine engineering consultant, will be responsible for design services and contract administration for both the vessel design and fabrication and the Shoreside Infrastructure Project. By engaging a single lead design and contract administrator for both work streams, it is expected that this will mitigate any potential risks related to dependencies and coordination of specifications, timelines, and resource allocation.

AKA Energy Systems, the electrical integrator contracted to the City, has a role to design and supply a complete electrical system and provide solutions for both the new vessels and the shoreside infrastructure. This is being achieved through various project phases in collaboration with Concept Naval and Damen. Throughout the duration of the project, they will provide required technical support to ensure electrical system components meet or exceed performance requirements.

## **2.3 Budget and Resources**

Through a detailed design led by PFR and Concept Naval, the project cost for the delivery of the Shoreside Infrastructure Project -- including all capital work and related work such as project management -- is estimated at \$42.5M.

This amount excludes the incremental costs to be incurred by Toronto Hydro as a part of electrical connection work within the right-of-way that will be recoverable from the City for this project. Toronto Hydro is currently in the process of developing the scope and costing for this work and once that work is completed, those costs will be brought forward for approval.



The cost of Concept Naval's design and contract administration services for the Shoreside Infrastructure Project are included as part of the Ferry Vessel Replacement capital project approved by Council under a separate budget (see [2024.GG14.7](#)). Concept Naval is providing design and contract administration services for the fabrication of the electric ferries.

### **3. Permitting and Approvals**

All properties currently planned for the Shoreside Infrastructure Project staging and construction, including lands, dock walls and water lots, are under title to the City of Toronto and therefore no additional real estate permissions are currently anticipated to be necessary to advance the Project.

The Project Team and the Shoreside General Contractor will be responsible for ensuring regulatory compliance for the Project, including securing necessary permits and regulatory approvals required for construction of landside and in-water construction.

In-water infrastructure work is subject to additional review and approval processes, including by Fisheries and Oceans Canada, to assess the potential impact to marine life and marine habitats. These requirements, and the potential for work restrictions, have been accounted for in the Project schedule.

### **4. Construction**

Construction activities for the Shoreside Infrastructure Project will begin in Q2 2025 with site preparation required for structural and electrical work. Structural work will also begin in Q2 2025 and will include modifications to docks, locking mechanisms, and in-water stabilization measures at the berthing areas to enable charging infrastructure for the new vessels. Electrical work will commence in Q3 2025 and include installation of Automatic Shore Charging Systems (ASCS) (a.k.a. charging towers), subgrade duct banks and conduits, the Shoreside Electrical System (SES) with associated e-houses and battery energy storage systems. Structural work is scheduled to be completed by the end of Q1 2026. Electrical work is scheduled to be complete by the end of Q2 2026. (Please refer to Figure 3 for a visual summary.)

### **5. Quality Management and Control**

A comprehensive quality management and control plan will be in place to ensure that all activities meet the City's specifications, requirements and industry standards. Quality management and control will include regular inspections, testing, and compliance checks at each phase of the project. This approach will involve continuous monitoring of materials, workmanship, and adherence to specifications, as well as rigorous documentation and reporting. Key milestones, such as site preparation, structural work, and electrical installations, will undergo systematic reviews to ensure they meet predefined quality benchmarks. Any deviations will be promptly addressed through corrective actions, and a final inspection will certify the project's compliance with regulatory requirements and project standards before completion. This proactive

approach will enable the delivery of safe, reliable, and high-quality shoreside infrastructure.

Electrical work associated with the construction and integration of shoreside infrastructure will require significant coordination with multiple activities on-site and with the vessel manufacturer to ensure schedules are clear and deliverable. System testing will take place during installation, and before project completion, and will include:

- Comprehensive testing of the electrical and charging systems to ensure functionality
- Each of the three (3) E-Houses will go through a Pre-Commissioning phase prior to final commissioning with Toronto Hydro
- Load testing to verify the system can handle the required power demand
- Other system testing will involve the ASCS Towers

## **6. Business Continuity During Construction**

Under the 1993 Toronto Islands Residential Community Stewardship Act, the City of Toronto is mandated to provide year-round transportation to and from Toronto Island.

The construction phase will be organized to minimize disruptions to ferry operations and the visitor experience at JLFT. This will include arranging construction schedules to minimize activities during peak hours and peak seasons as much as possible, coordination of the docking location of operating ferries and management of vehicle parking and vehicle movements at the ferry terminal. Temporary fencing and signage will be used to maintain safe construction sites and safe passenger areas.

## **7. Risk Management**

The shoreside infrastructure project will be overseen by a Steering Committee made up of senior leaders at the City and accountable to both City Council and the CreateTO Board. The Integrated Project Team will provide regular updates to the Steering Committee and Council members. If risk mitigation actions require Council's authority or warrant an update to Council, staff will bring forward reports to Committee or Council.

The project team has developed a risk register identifying potential risks, dependencies and decision points within the work plan. This risk register has been developed based on the team's experience with other complex waterfront projects, input from the experienced consultant team and lessons shared from electrification projects elsewhere in Canada. The project team will review progress against this risk register with senior leaders throughout the course of the project.

The project has been scoped to the essentials of delivering charging infrastructure and in-water stabilization features at the berths. Distinct from the electric ferry infrastructure works undertaken in and around Kingston, for example, the City's shoreside project is limited to one terminal (one construction site), does not include major lakefill or new docks and is planned to be tendered to one general contractor.

## 8. Stakeholder Engagement and Communications

Ferry passengers, including Toronto Island residents and organizations reliant on vehicle travel to Toronto Island (e.g. emergency services, Island-based employers, Island Public Natural Science School), will be proactively engaged in planning and communications regarding changes at the ferry terminal during construction. Information regarding the proposed project and the construction schedule and impacts will also be proactively communicated with local stakeholders, including nearby residents, neighbouring properties and local businesses and Business Improvement Area.

### CONTACT

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### SIGNATURE

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Paul Johnson  
City Manager

### ATTACHMENTS

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Confidential Attachment 1 - Procurement and Contracting