Project Report

# City of Kingston - Third Crossing of the Cataraqui River
# Parks Canada Environmental Impact Analysis

## Detailed Impact Analysis Report - Executive Summary

H357883-83-240-0001, Rev. E

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## Background Information

The City of Kingston - Third Crossing of the Cataraqui River Project (hereinafter referred to as “the Third Crossing” or “the Project”) involves the construction of a new bridge spanning the Cataraqui River, which forms part of the historic Rideau Canal. At this location, the Cataraqui River forms part of the Rideau Canal, a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site, National Historic Site of Canada, Canadian Heritage River, and a Federally regulated navigable waterway.

The Project consists of two lanes for vehicle traffic that extend over the Cataraqui River and continue on John Counter Boulevard on the west shore and Gore Road on the east shore; widening of roadway approaches to connect the bridge with the land, accommodate active transportation and provide appropriate turning lanes that connect Montreal Street with Highway 15. Approximately 800 m of roadway, intersection and shoreland improvements will form the roadway component of the Project.

After a thorough Request for Proposals and evaluation phase, the City chose an Integrated Project Delivery model (IPD). This model is similar to a design-build model with the exception that all partners work within the defined $180M budget and share the risk and reward to deliver the best possible bridge. The IPD project team develops shared goals and accept responsibilities as equal partners.

In September 2018, the City of Kingston brought on Peter Kiewit Sons ULC (Kiewit), Hatch Engineering Ltd. (Hatch) and SYSTRA International Bridge Technologies (SYSTRA) to be part of the IPD team. The IPD team is also supported by industry experts Brownlie Ernst and Marks (BEaM), Vertechs Designs, Moon-Matz, Tulloch and Bergmann. The Project team has developed the full Detailed Impact Assessment (DIA) report which was released for public comment on September 1, 2019.

From September through to December 2018 the IPD team also performed early site preparation and conducted additional environmental and geotechnical investigations to inform the work with Parks Canada.

Environmental consideration of the natural and cultural landscape surrounding the bridge is a critical priority for the project team. This summary is intended to provide residents with a high-level overview of the DIA, the technical and environmental considerations in designing and building the bridge and how the Project team intends to mitigate any potentially adverse effects as a result of the construction or operation of the



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Project.

Parks Canada Agency has been identified as the lead agency in the federal Environmental Impact Analysis, and their directive has been used to guide this process. Accordingly, a Detailed Impact Analysis is required for the Project. Transport Canada and Fisheries and Oceans Canada will jointly review and approve the DIA while Environment and Climate Change Canada will provide expert advice.

## Project Description – what are we intending to build?

The Third Crossing involves the construction of a new, two-lane bridge spanning 1.2 km over the Cataraqui River and extending approximately 750 meters on land to the east and west. The bridge includes shared and active transportation links such as:

- A multi-use pedestrian and bike pathway with rest areas;

Sidewalks and cycle lanes on the road approaches;

- And connections to waterfront trails on either side of the Cataraqui River, providing increased opportunities for walking and cycling for residents and visitors to Kingston.

The Project consists of two 3.2 m lanes and 2 m shoulders for vehicle traffic that extend over the Cataraqui River and continue on John Counter Boulevard on the west shore and Gore Road on the east shore; widening of roadway approaches to connect the bridge with the land, accommodate active transportation and provide appropriate turning lanes that connect Montreal Street with Highway 15. Approximately 800 meters of roadway, intersection and shoreland improvements will form the roadway component of the Project. Those include:

- Approximately 350 m of roadway from the bridge abutment on the west shore to the intersection at John Counter Boulevard and Montreal Street.
- Approximately 400 m of roadway from the bridge abutment on the east shore to the intersection at Gore Road and Highway 15.
- 4 m multi-use pathway(s) provided along the south side of the bridge deck for active transportation and look-out and interpretive areas. These pathways will span the bridge deck and end at the intersections of John



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Counter Boulevard and Montreal Street to the west and Gore Road and Highway 15 to the east.

- Barriers for public safety to separate the vehicle traffic and the multi-use path.
- Public viewing areas on the east and west alignments of the bridge.

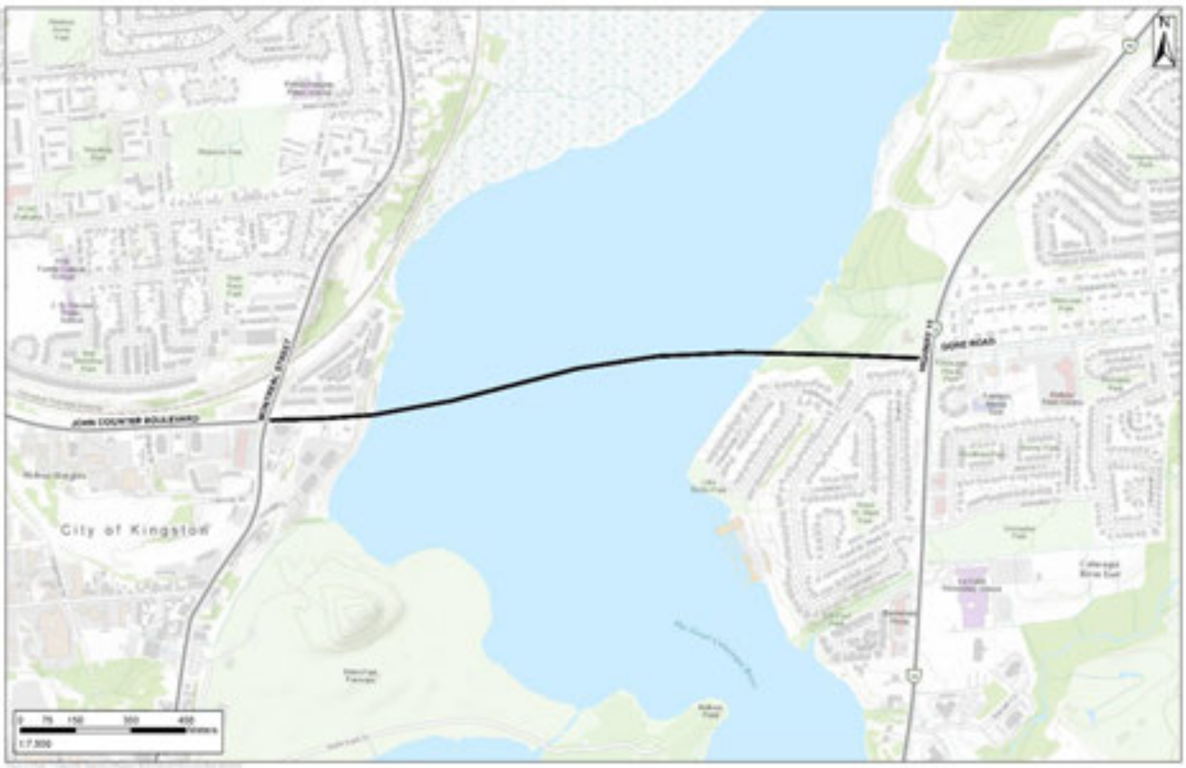


**Figure 1: View of Project area**

## Background – how did we get here?

The concept of a Third Crossing has a long history that dates back more than 50 years with discussions and early studies for a new bridge crossing on the Cataraqui River between Highway 401 and the LaSalle Causeway dating back to the early 1960s. A transportation study completed by the City in 1980 made a recommendation for a new transportation link across the River that would join Elliott Avenue and Gore Road. As a



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result, a proposed crossing was incorporated in the Official Plans for both the City of Kingston and Pittsburgh Township.

The Kingston Transportation Study, completed in 1992, considered the need and proposed route for a new bridge crossing of the Cataraqui River, and was undertaken as a transportation route and functional design study. The study reconfirmed the need for additional transportation capacity across the Cataraqui River as well as the preferred solution. In January 2009, the City started the Municipal Class EA process for the Third Crossing in accordance with Ontario's Environmental Assessment Act. The Class EA was divided into two stages:

**Stage 1** focused on the need and justification for additional transportation capacity across the Cataraqui River as well as the preferred structure and location. This work reconfirmed the need and justification for the Project and continued to show the preferred location for a new bridge that would link John Counter Boulevard and Gore Road.

1. **Stage 2** focused on the conceptual design for the new bridge crossing, including the road approaches and other shore land improvements. Stage 2 also considered various environmental effects and recommended measures to eliminate or mitigate potentially adverse effects.

The Environmental Study Report prepared as part of the Class EA process was approved in 2013 by the Province of Ontario. Following the provincial EA approval, the City developed the *Third Crossing Action Plan* in February 2015 to provide direction on the next steps of the Project, specifically:

- **Phase 1**: The completion of the Development Charges By-Law update and the 2015 Kingston Transportation Master Plan (KTMP).
- **Phase 2:** The completion of the Preliminary Design Project phase.
- **Phase 3:** The completion of a Business Plan with a cost-benefit and economic impact analysis of the Project; Project funding sources; and a preferred Project delivery model.
- **Phase 4:** The preparation of the final design for the Project and the securing of requisite permits and approvals prior to construction.



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## Relationship with the Federal Government

The riverbed within and next to the Project Location is owned by the Federal Government and managed by Parks Canada. They are required to make a determination on whether the Project is likely to cause significant adverse environmental effects. Parks Canada's 'Directive on Impact Assessment' outlines the legislative and policy requirements and accountabilities for the assessment of impacts of proposed Projects within Parks Canada protected heritage places, which includes the Rideau Canal. The Parks Canada's Environmental Impact Assessment process examines how a Project may lead to adverse effects on:

- Natural resources, including Species at Risk, air, ground and surface water, soils, habitat features, as well as plants and animals found in the vicinity of a Project or otherwise potentially affected by the Project.
- Cultural resources, including potential adverse effects to heritage value and character defining elements of known cultural resources, and risks to areas with high potential to contain cultural resources where no inventory has yet been completed.
- Adverse effects to characteristics of the environment important to key visitor experience (how the Project is anticipated to affect activities and/or visitors' enjoyment and connection to place, in relation to defined objectives for the protected heritage place).
- Adverse effects to health and socio-economic conditions of Indigenous peoples and non-Indigenous communities.
- Adverse effects to Indigenous peoples' current use of lands and resources for traditional purposes.

The description of the environmental components of the Project is based on extensive background research, engagement with Indigenous communities, members of the public and various regulatory bodies as well as fieldwork conducted by subject matter experts both prior to and during the provincial Environmental Assessment, the Preliminary Design, and the Validation Project phases.

## Bridge Construction – how are we building it?

In terms of construction methodology, the provincial Environment Assessment (EA) considered three central options to provide Construction Access to the Bridge:



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- Dredging of a channel to facilitate in-water construction barge access
- Construction of a temporary earthen berm; and
- Construction of a temporary work bridge (commonly referred to as a trestle).

Although dredging of a channel was selected as the preferred option during the provincial EA process, based on the invasive nature of the works and high cost of this construction method the Project team has considered and engineered additional options to better protect the rich diversity of wildlife and the vegetation in the Rideau Canal and a fourth option was added for analysis in the DIA.

**The Causeway-Trestle Solution – preferred construction access option**

The hybrid construction approach (termed the Causeway-Trestle Solution (CTS)) analyzed within the DIA has been found to be the most viable solution to construct the bridge in consideration of the natural environment, the wildlife that inhabit the area, and in providing the best possibility for eliminating or reducing potentially adverse effects.

The CTS involves a combination of temporary causeways and a temporary bridge (trestle) to access the piers and superstructure. A ferry barge or lifting span bridge will be used to transport equipment and material over the navigable channel.

The Causeway-Trestle Solution addresses a number of Project challenges presented by the depth to bedrock and shallow water, while minimizing in-water work duration. The Causeway-Trestle Solution will also reduce the adverse effects to the Canal. Mitigation measures in the Causeway-Trestle Solution are proposed to include the following:

- The causeway will use locally sourced screened quarry rock which may be reused for the east approach embankment after removal from the river.
- A turbidity curtain will be installed and maintained during causeway construction and removal to exclude fish from the construction area as well as to maintain turbidity levels below acceptable limits.
- Upon removal of the causeway material, a 100 mm trough or depression below the existing river bed level will be created to allow deposition of sediment and accelerate the re-establishment of different types of aquatic vegetation.



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- Trestle will be employed in the areas adjacent to the navigation channel where water levels are deeper and bedrock depth is shallower, to provide reliable construction access while maintaining public access to the navigation channel (as opposed to a span of causeway which would require sloped embankments affecting the navigation channel).

**Figure 2 View of Proposed Third Crossing Navigation Channel Span (North)**



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**Figure 3 Example of Construction Method (A25 – Quebec)**

## Environmental Considerations and Proposed Mitigation Measures

Protecting wildlife and their habitat is a key part of conserving Kingston's biodiversity and the Project Team is dedicated to protecting the ecosystem within the Project Area. Experts have and will continue to conduct surveys of plants and wildlife around the Third Crossing Project area.

To determine the potential for adverse effects to Species at Risk and their habitat; the Study Area has been extensively investigated. The full DIA provides a list of Species at Risk species potentially occurring within the Study Area. The following provides a summary of environmental considerations and mitigation measures proposed to eliminate or reduce potentially adverse effects to the environment, including to Species at Risk.

### Blandings, Snapping, Map, Painted and other Turtles

To protect against adverse effects to turtles who may utilize the Project Area, in-water construction activities have been scheduled to take place outside of sensitive timing windows such as October through March when overwintering takes place,



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and from late May through early July, during nesting. The IPD team is currently working with regulatory authorities to ensure that design criteria, construction methods and adequate mitigation measures, are agreed upon to ensure the protection of these sensitive species.

Turtle exclusion fencing has been installed along the terrestrial portion of the proposed construction footprint as of early June to prevent turtles from nesting within areas which will be disturbed. Further, turtle exclusion fencing will be installed along the causeway in advance of the 2020 nesting season. Daily visual surveys will be conducted by on site personnel to ensure that fencing is effective, and turtles are protected from harm from construction activities and equipment on shorelines and causeway surface. The Project team will also have a plan in place to relocate turtles if necessary.

To prevent turtles from overwintering within the area of the proposed causeway, an Aquatic Exclusion and Turbidity Curtain (AETC) will be installed. A turbidity curtain is a flexible, impermeable barrier to contain sediment in water. These curtains are generally weighted at the bottom to ensure sediment doesn't travel under the curtain and is supported at the top through a floatation system. A turtle fence has been specially designed to attach to the turbidity curtain to prevent turtles from entering the construction areas. This AETC will be installed surrounding the entire Project Location with ends tied to five causeway eco-passages opening to direct aquatic wildlife and fish towards the openings or the main causeway opening and provide connectivity upstream/downstream.

The Project team continues to hear and learn from community groups and residents about the importance of this work.

### Bats

In considering the potential for adverse effects to bats as a result of tree clearing, four bat houses have been installed on the east shore in the north side of the meadow on the Pittsburgh Library property. Another 18 bat houses are planned to be installed to offset the removal of snag trees within the east approach. The location of these houses will be determined as part of the landscape planning for the bridge. A portion of the additional bat houses may be installed in other locations in Kingston where space onsite does not accommodate them.

In total, 22 standard and maternity bat houses are planned to be installed to offset



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the potential effects to bats as a result of 2.2 ha of tree clearing; a ratio of 10 bat houses per hectare of tree clearing within the woodlands.

### Migratory Birds

The active season for many migratory birds is April 15 through August 15. Accordingly, no Project works which may disturb these species or their habitat will take place in vegetated areas unless a biologist searches the areas for active nests prior to the commencement of the works. If active nests are identified, those areas will be buffered and left undisturbed until the nest is no longer active. Nest searches will take place within 24-hours prior to the works.

### Vegetation

Removal of some vegetation will be required during the construction of the Project. To accommodate this vegetation removal the following measures will be undertaken:

- Surveys will be done in advance of excavation activities to assess for any sensitive vegetation and tree species, which if identified, will then be avoided or relocated to other suitable locations;
- As feasible and appropriate; the removal of shoreline vegetation will be minimized to the extent possible;
- The landscape improvement works will be seen as an opportunity for a degree of ecological restoration on the west side lands and ecological compensation on the east side lands;
- A Natural Heritage Protection and Enhancement Plan will be prepared and include detailed design measures related to wetland restoration, aquatic habitat enhancements  as well as stabilizing and rehabilitating the shoreline shallows.

### Fish Habitat

The primary mitigation measure to prevent disturbance of fish during critical reproductive periods is to constrain the timing of in-water disturbance to avoid the critical fish reproductive periods. To address this no in-water work will be done between April 1 and June 30 of each year. The team will also implement additional mitigation measures during the construction phase to prevent or reduce the potential



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for adverse effects to aquatic habitat. These measures will include erosion and sedimentation control and spill prevention and response.

**Monitoring**

Ongoing monitoring will be conducted to confirm effectiveness of mitigation measures.

Following construction, proposed offsetting measures will be implemented to compensate for permanent loss of and alteration to fish habitat, namely shoreland and in-water restoration as well as habitat creation. Following construction of the Project the former Music Marina seawall area will be naturalized to provide compensation for the portion of the bridge structure that is in-water. In addition, a vegetation monitoring program will be proposed, aimed at the recolonization of the area affected by temporary in-water works. The goal will be to achieve 50-70% coverage of the affected area within six years.

The potential for adverse effects to the natural and social environment, have been thoroughly evaluated by subject matter experts working on the project and those federal officials reviewing the studies and environmental work associated with the DIA. The team has heard from the public in previous phases of the project on the importance of environmental protection and the team is proposing these mitigation measures to either eliminate or reduce the negative effects the bridge may have. Below is a look at the proposed mitigation measures.

## Pre-construction and Construction Mitigation Measures

The Project Team is committed to being environmental stewards during the pre-construction and construction of the Project, including implementing a series of plans and procedures to ensure the proposed activities are reflective of the City's responsibility to protect and preserve lands and waters within the Project Area.

The following mitigation measures are proposed to be implemented, which will help reduce the potential negative effects from Project activities on identified natural and cultural heritage resources:

- Dust and emissions management.
- Development and implementation of an Erosion and Sediment Control Plan and Materials Management Plan.
- Scheduling of activities to avoid confirmed or assumed habitats as well as breeding/spawning seasons and over-wintering.



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- Minimizing tree and vegetation removal.
- Monitoring surface water upstream and downstream of the project.
- Installation of a 15 m buffer around Archeological Site BbGc-127 on the east side lands to mitigate the risk of damaging this resource.
- Conducting an analysis for potentially contaminated sediment in the vicinity of the causeways.

The following studies are proposed to be undertaken prior to completion of the Project:

- A Scour Study will be undertaken to determine the effects of scour on the bridge piers based on local bed conditions as well as refinements to the proposed pier design, pier construction and riverbed restoration techniques.
- An Ice Loading Study will be undertaken to identify mitigation measures to minimize the effects of ice loading on the pier footing.
- The City and Point St. Mark residents will continue to explore traffic calming options.
- As part of the Project's geotechnical program, riverbed sediments within the area of disturbance will be sampled prior to construction.
- The team will also continue coordinating near neighbour meetings with residents on the east and west approaches to keep them informed of construction related activities.

During construction, the following mitigation measures will be employed to eliminate or reduce the potential for adverse environmental effects as a result of Project activities on identified natural and cultural heritage resources:

- Implementation of Operations and Maintenance procedures to maintain the Third Crossing through its lifespan.

## Communications and Public Engagement

The Third Crossing has been a topic of discussion, debate and examination within the Kingston community dating back to the 1960s. Consistent communication and engagement with the public and other stakeholders has and will continue to be a vital component of the DIA and construction process.



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During the Preliminary Design phase, a comprehensive consultation plan was implemented to facilitate meaningful input from the public, Indigenous Peoples and various agencies; receive and consider input in the Project design; and document what was heard from communities and how this information was considered.

Extensive consultation and engagement with members of the public, stakeholders and Rights holders has occurred as part of the Project since the start of the Municipal Class EA. This will continue into the final design and construction phases of the Project.

The team continues to meet regularly with near neighbours on the east and west shores of the Project. Parks Canada requires the Project team to post the DIA for 30 days of public review and comment. Given the importance of the environmental considerations of the project the team is also hosting two public open houses on September 25 and 26 to walk residents through the environmental work conducted to date, as well as the results of the DIA.

After the 30 day review period, the Project team will be compiling all the comments and feedback and how they were considered and addressed into a public feedback report attached to the DIA document. Residents are also encouraged to connect with the team at thirdcrossing@cityofkingston.ca.

## Indigenous Peoples' Consultation and Engagement

The City will continue to take the Duty to Consult with Indigenous communities as a serious obligation due in no small part to the City's interest in understanding the rich and complex historic and continuing experience of Indigenous peoples as part of its overall cultural awareness and growth. Guided by both federal and provincial directives in fulfillment of this Duty, the City will continue to engage Indigenous communities as an integral component of this Project.

City of Kingston seeks to ensure that its discussions with the appropriate Indigenous groups reflect the both depth of consultation and meaningfulness in accommodations. The City is undertaking these processes also in harmonization with Indigenous interests in nearby Belle Park Master Plan development as well as protection and management of Belle Island, site of late woodland burials co-owned with Mohawk Nation Council of Chiefs.

Consultation and engagement was initiated during the provincial environmental assessment process, which commenced in 2009. Over the course of approximately 10



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years, the Project team has been working to understand and evaluate any concerns raised by Indigenous communities to determine the potential effect of the Project on the environment and to develop and incorporate mitigation measures to reduce or limit adverse environmental effects.

Over the course of the last 10 years (with the exception of a period from Dec 2013 to Sept 2015), staff of the City of Kingston have consulted with a number of Indigenous communities regarding this Project via email, mail outs, face-to-face meetings, and telephone conversations. First Nations, Indigenous communities and other interested parties/stakeholders that have been consulted to date either though meetings or regular mailings include the following:

- . Algonquins of Ontario,
- . Algonquins of Pikwàkanagàn
- . Ardoch Algonquin First Nation
- . Huron-Wendat Nation
- . Métis Nation of Ontario
- . Mississaugas of Alderville First Nation
- . Mohawks of the Bay of Quinte
- . Mohawk Council of Akwesansne
- . Mohawk Nation Council of Chiefs
- . Shabot Obaadjiwan First Nation

The Project team has also retained Indigenous consultant Amber Adams, PhD, with expertise in eastern Great Lakes botany on naturalization and native planting.

## Conclusion

The Project team has been working on the DIA submission to Parks Canada for close to a year to provide the necessary data from subject matter experts, engineers, biologists, and many others involved with the Project. The  team looks forward to the public engagement on this phase of the Project and answering questions on the environmental approach and considerations for the critical importance of protecting the natural and cultural landscape of this part of our city.



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