



# Alexandra Bridge Replacement Project

## Initial Project Description

Submitted in accordance with the  
*IMPACT ASSESSMENT ACT*

Public Services and Procurement Canada  
in collaboration with  
National Capital Commission

PSPC Project No.: [R.103064]

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## List of Acronyms

ATRIS	Aboriginal and Treaty Rights Information System
ACPDR	NCC's Advisory Committee on Planning Design and Realty
ACUA	NCC's Advisory Committee on Universal Accessibility
AMSL	Above mean sea level
ARCDW	<i>Act respecting the conservation and development of wildlife (Quebec)</i>
ARTVS	<i>Act respecting threatened or vulnerable species (Quebec)</i>
BMP	Best Management Practices
CMA	Census Metropolitan Area
dba	Decibels
DFO	Fisheries and Oceans Canada
EASR	Environmental Activity and Sector Registry
ECCC	Environment and Climate Change Canada
EPP	Environmental Protection Plan
EQA	<i>Environmental Quality Act (Quebec)</i>
ESA	<i>Endangered Species Act, 2007 (Ontario)</i>
FLUDTA	Federal Land Use, Design and Transaction Approval
FTE	Full-time employee
FWCA	<i>Fish and Wildlife Conservation Act, 1997 (Ontario)</i>
GBA Plus	Gender-Based Analysis Plus
GDP	Gross Domestic Product
HIA	Heritage Impact Assessment
IAA	<i>Impact Assessment Act (Canada)</i>
IAAC	Impact Assessment Agency of Canada





IPD	Initial Project Description
IPT	Integrated Project Team
ISC	Indigenous Services Canada
LCCA	Lifecycle Cost Analysis
MBCA	<i>Migratory Birds Convention Act, 1994 (Canada)</i>
MCC	Ministry of Culture and Communications (Quebec)
MECP	Ministry of the Environment, Conservation and Parks (Ontario)
MEFCC	Ministry of the Environment and the Fight against Climate Change (Quebec)
MFWP	Ministry of Forests, Wildlife and Parks (Quebec)
MHSTCI	Ministry of Heritage, Sports, Tourism and Culture Industries (Ontario)
MKAT	Mobilizing Knowledge for Active Transportation
MNDMNRF	Ministry of Northern Development, Mines, Natural Resources and Forestry (Ontario formerly the MNRF)
MTO	Ministry of Transportation (Ontario)
MTQ	Ministry of Transportation (Québec)
NCC	National Capital Commission
NCR	National Capital Region
OHA	<i>Ontario Heritage Act</i>
PSPC	Public Services and Procurement Canada
PTTW	Permit to Take Water
SARA	<i>Species at Risk Act (Canada)</i>
SPI	Strategic Partnerships Initiative
SSPPS	Survey for Safety in Public and Private Spaces
STO	Société de transport de l'Outaouais
TC	Transport Canada



## Disclaimer

Stantec Inc. and Innovation 7 contributed to the preparation of parts of this document. Any errors or omissions in this document are the responsibility of PSPC and the NCC



## INTRODUCTION

The accompanying Initial Project Description (IPD) has been written in compliance with *the Impact Assessment Act, Schedule 1 of the Information and Management of Time Limits Regulations* and all other related legislations, policies and guidelines.

The IPD forms part of the preliminary planning stage of the Alexandra Bridge Replacement Project (the Project) and is required as part of the planning phase of the Impact Assessment Process. Content herein, represents information available at the time of writing.

Public Services and Procurement Canada (PSPC) is working in close collaboration with the National Capital Commission (NCC) (referred to herein as the Integrated Project Team) in leading the Alexandra Project. The Project comprises of the deconstruction and reconstruction of one of the National Capital Region's (NCR) Interprovincial Crossings, the Alexandra Bridge, which serves as an integral transportation link, essential to the mobility planning in both Ottawa and Gatineau.

As part of pre-planning the IPT has undertaken several studies and assessments, consultation with Indigenous Partners, key stakeholders and the public. This report provides a starting point for meaningful engagement with project stakeholders, summarizes preliminary findings, and identifies proposed mitigation measures that may be implemented to minimize the potential impacts of the project on the environment, Indigenous communities, health, social and economic conditions of the NCR.

Given that the Project is located within the NCR, the Project is also subject to the Federal Land Use, Design and Transaction Approval (FLUDTA) process, regulated by the NCC under the *National Capital Act*. In this region, work by federal departments, works on federal lands as well as the sale and/or transfer of federal lands are subject to the NCC's approval. The NCC evaluates applications based on the conformity with relevant legislation (including the *Impact Assessment Act, 2019*), federal plans, policies, public and stakeholder feedback, and discussions with Indigenous groups, as well as applicable design guidelines.

To date a federal approval has been granted for the Project's planning and design principles (June 2021 see Appendix H). The FLUDTA process will include multiple rounds of review and approval, corresponding to the various stages of planning as well as design and construction of the Project. All stages of the Alexandra Bridge Replacement Project will be classed as Level 3 Projects, the highest-level classification for Federal Approvals. Level 3 Projects are subject to a comprehensive land use and design review, with input from the NCC's Advisory Committee on Planning Design and Realty (ACPDR), as part of the federal approval process. Authorizations from other federal and provincial regulators will also be required for the Project. Mitigation strategies, including monitoring their implementation and effectiveness, will seek to achieve no significant negative long-term impacts from the Project.



## Part A: General Information

### 1 PROJECT DESCRIPTION

The *Alexandra Bridge Replacement Project* (the Project) is the proposed replacement of an existing interprovincial bridge structure crossing the Ottawa River between the provinces of Ontario and Quebec. The bridge is located at the heart of the National Capital Region (NCR) and is owned and managed by Public Services and Procurement Canada (PSPC). The existing bridge, sometimes also referred to as the Royal Alexandra Interprovincial Bridge, was first opened as a crossing in 1901. It is a true pin steel truss structure, supported by six piers composed of concrete and masonry. The bridge crosses the Ottawa River from Nepean Point, just west of Ottawa's Byward Market, to the Canadian Museum of History in the Hull district of Gatineau.

The Alexandra Bridge is a key piece of regional transportation infrastructure and is integral to mobility planning in both cities and the region. It also has a unique heritage and aesthetic value due to its location and history, as well as physical and visual connections to both sides of the river. Its position relative to the Parliamentary Precinct and Rideau Canal underscores its significance to the region's residents and visitors alike and makes the bridge a destination in its own right for special events such as ceremonies and races. Additionally, the Bridge forms an inherent part of Confederation Boulevard, the Capital's ceremonial and discovery route, which connects many sites and symbols of national significance and forms a loop that connects both sides of the Ottawa River, linking Ontario and Quebec.

A Lifecycle Cost Analysis (LCCA), produced by MMM Group Ltd in 2018 provides cost comparisons between maintaining the bridge or replacing it. The analysis concluded that its replacement would be more economical than continuing to maintain the existing structure indefinitely and that it would present less risk to public safety.

As directed by the federal government as part of Budget 2019, PSPC and the NCC are working to develop a holistic strategy to ensure that the five (5) interprovincial crossings in the NCR remain safe and open for use by residents and visitors. This strategy includes pre-planning for the replacement of the Alexandra Bridge.

Of note, as part of this stage, Indigenous Partners and the public were engaged early to identify values, issues, and concerns, as they relate to the Project. Engagement with Partners and stakeholders will continue for the life of the Project. Their input will inform key elements that will contribute to the Project's planning, design and construction.

In addition, the Project will align with the Federal Government's plans and priority, including the federal government's Greening Government Strategy (2020).

## 1.1 Regulatory and Project Terminology

The proposed Project is currently in the pre-planning identification stage. As part of this stage, the IPT has commenced required studies/assessment and other planning activities, to proceed with the Project. There are multiple regulatory processes, as well as planning and design aspects, of this Project progressing simultaneously. Within the accompanying IPD and for simplicity, the term “phases” will refer to the Impact Assessment process to align with the Impact Assessment Agency of Canada’s (IAAC) terminology. The term “stages” is used to refer to the unique pre-planning, planning, design and construction components of the Project.

Table 1-1 outlines the Impact Assessment phases as well as the project stages and the approval steps, in relation to the Federal Land Use, Design and Transaction Approval (FLUDTA) process at proposed timelines.



**Table 1-1: Alignment of IA and FLUDTA processes with design and construction of the bridge.**

Year	IA Phases (Phases)	Project Planning and Design (Stages)	FLUDTA Process
2021		Planning and Design Guidelines	Step 1 – Initiation Online Application FLUDTA – Approval of Planning and Design Principles
2022	1-Initial Project Description (IPD)/ Detailed Project Description (DPD)	Concept Design	FLUDTA – Approval of Concept Design
2023	Tailored Impact Statement Guidelines	Functional Design (33%)	FLUDTA – Approval of 33% Functional Design
2024	2- Impact Statement	Preliminary Design (66%)	
2025	3- Impact Assessment 4- Decision Making		FLUDTA – Approval of 66% Preliminary Design
2026	5- Post-Decision Monitoring and Adaptation (2026 – Onwards)	Detailed Design (100%) Completed/ Regulatory Approvals (Transport Canada, Fisheries Canada, Provincial Land Use Authorization)	FLUDTA – Approval of 100% Detailed Design, Includes IA’s Decision with conditions and other approvals
2027		Construction tender	
2028		Construction and deconstruction stage (2028-2032)	Monitoring and Adaptation to meet conditions of all approvals (2028-2032)
2029			
2030			
2031			
2032 - Onwards		Operation and Maintenance	

## 2 PROPONENT CONTACT INFORMATION

The Project Proponent is PSPC who is working in collaboration with the NCC, forming an Integrated Project team (IPT).

Note that the individuals identified below should be included in correspondence regarding this Project. Correspondence may be provided in either official language to the IPT, as identified in Table 2-1: Proponent contact information.

**Table 2-1: Proponent contact information**

<p><b>Public Services and Procurement Canada</b></p> <p>11 rue Laurier, phase III, Place du Portage Gatineau (Quebec) K1A 0S5 Tel: 1-800-926-9105 Email: <a href="mailto:questions@tpsgc-pwgsc.gc.ca">questions@tpsgc-pwgsc.gc.ca</a></p>	<p><b>National Capital Commission</b></p> <p>202 - 40 Elgin Street Ottawa (Ontario) K1P 1C7 Tel: 1-800-465-1867 Email: <a href="mailto:info@ncc-ccn.ca">info@ncc-ccn.ca</a></p>
<p><b>Keri-Lee Doré (Primary Representative)</b></p> <p>Senior Director – NCA Bridge Replacement Program and Corporate Support</p> <p>11 rue Laurier, phase III, Place du Portage Gatineau (Quebec) K1A 0S5 Tel: 343-551-4977 Email: <a href="mailto:Keri-Lee.Dore@tpsgc-pwgsc.gc.ca">Keri-Lee.Dore@tpsgc-pwgsc.gc.ca</a></p>	<p><b>Julie Lefebvre</b></p> <p>Project Leader Bridges, Senior Environmental Officer</p> <p>202 - 40 Elgin Street Ottawa (Ontario) K1P 1C7 Tel: 613-239-5678 ext. 5515 Email: <a href="mailto:Julie.Lefebvre@ncc-ccn.ca">Julie.Lefebvre@ncc-ccn.ca</a></p>
<p><b>Tina Hearty-Drummond</b></p> <p>Environmental Compliance</p> <p>2720 Riverside Drive Ottawa (Ontario) K1A 0K9 Tel: 613-808-9327 Email: <a href="mailto:tina.hearty-drummond@tpsgc-pwgsc.gc.ca">tina.hearty-drummond@tpsgc-pwgsc.gc.ca</a></p>	



## 3 SUMMARY OF PUBLIC ENGAGEMENT

The following section provides an overview of the public engagement process for the Project and its outcomes to date. It includes summaries of past public engagement activities, along with a description of public engagement initiatives that are scheduled to occur throughout the lifecycle of the Project.

### 3.1 Scope of Engagement

As part of the ongoing public engagement process, the IPT is seeking input on the following key considerations:

- Concerns related to potential health, social, economic, and environmental impacts
- Possible mitigation and enhancement measures
- Ways of commemorating the Alexandra Bridge after it is replaced
- The design of the new bridge
- The construction timelines for the new bridge
- The public engagement process (how, when, and with whom to consult)

### 3.2 Public Engagement Timeline

There will be several opportunities for members of the public to provide feedback on the Project throughout the different stages. In total, there will be a minimum of five (5) public consultations, per the proposed timeline and schedule highlighted below:

#### Pre-planning Stage (2020–2021)

- Develop vision and Planning and Design Principles
- Public consultation 1A: Planning and Design Principles, potential impacts and mitigation
- Adjacent landowner/neighbouring stakeholder consultation
- Public consultation 1B: What has been heard to date, updates on the Project, gather input on additional potential positive or negative impacts and potential solutions

#### Planning Stage (2022–2025)

- Development of design options
- Public consultation 2: Functional Design options
- Public consultation 3: Preliminary Design
- Public consultation 4: Detailed Design

#### Procurement and Implementation Stages (2025–2032)

- Procurement process to award design and construction contract
- Public consultation 5: final design and construction plan
- Deconstruction of existing structure and start of new bridge construction



How these different public consultations fit into the overall Impact Assessment process is outlined in section 3.6. The IPT will engage with stakeholder groups on an ongoing basis, for the life of the Project.

### 3.3 Who will be Engaged

In collaboration with PSPC, the NCC has identified and developed a list of 650+ stakeholder groups at the local, regional and national level who may be affected by or have an interest in the Project (refer to Appendix A for the list of stakeholders).

In applying a Gender-Based Analysis Plus (GBA+) lens to the development of the stakeholder list, the IPT made best efforts to include stakeholder groups that represent and/or whose membership reflects Canadians in all their diversity. As such, identified groups included in the list are various in type and vocation, and include community associations, local employers, women's organizations, cultural institutions, foreign missions, organizations that provide services to newcomers, tourism associations, sports clubs, business and industry groups, homeless shelters, environmental organizations, and active mobility advocacy groups, among others. The NCC Public Affairs team compiled contact information for all the groups included in the list so that they could be provided with updates on the Project and notified of public engagement opportunities. The list of stakeholder groups will be updated throughout the Project as the IPT broadens and refines their outreach initiatives.

In addition, the NCC and PSPC will also engage individuals and organizations subscribed to the NCC's Public Engagement newsletter. These approximately 3000 subscribers include a variety of interest and user groups, heritage organizations, and members of the general public.

All public consultations will be advertised in local newspapers and on a variety of digital platforms to raise awareness about the Project and ensure that bridge users, community members, and interested members of the public are given opportunities to participate in the public engagement process.

The NCC and PSPC will also be creating smaller targeted outreach opportunities with major institutions, commercial operators, client groups, and stakeholders in the immediate vicinity of the proposed Project to ensure that impacts from all aspects of the Project are understood and addressed to the extent possible.



## 3.4 Public Engagement and Outreach Methods

Public engagement initiatives conducted throughout the Project's lifecycle will leverage the following tools and approaches:

- **Project webpages** on the NCC and PSPC websites include the most up-to-date information on the Project and news about current and upcoming opportunities to provide feedback on the Project.
- **Online questionnaires** for the various stages of public consultation that provide participants with an opportunity to comment on different aspects of the Project.
- **Targeted stakeholder meetings** at various stages of the Project.
- **Public, in-person consultation events** (e.g., workshops, design charettes, open houses) once the COVID-19 pandemic restrictions have eased and public health officials advise that it is safe to resume indoor public events.
- **Blog posts** about the Project's status, proposed designs, and the history and built heritage of the Alexandra Bridge.
- **Drone footage** that showcases the Alexandra Bridge, current conditions on site, and construction once it has begun.
- **Social media messages** that provide updates on the Project's status, and responses to questions from members of the public, and that promote current and upcoming public engagement activities.
- **Community paper op-eds** that provide Project updates, discuss key design decisions, and showcase upcoming opportunities to provide feedback on the Project.
- **3D renderings** that illustrate proposed designs.
- **Advertising** across multiple online platforms.
- On-site **panels** with information about the Project and upcoming public engagement activities
- Project **newsletters** with updates on the Project's status.
- **News releases** to announce public engagement events.
- **Public consultation reports** that summarize the feedback provided during each stage of public consultation and indicate how the feedback was used by the Project team.

## 3.5 Summary of Past Engagement with the Public

### 3.5.1 Consultation 1A: meetings with stakeholders – Fall 2020

As part of the Project's pre-planning stage (2020-2021), the first round of public consultations was held on October 21 and 22, 2020. Consultations included two virtual meetings, as a result of COVID-19, with stakeholders, offered in both official languages.

The meetings featured a presentation about the Project, a Question & Answer (Q&A) period, and three (3) discussion sessions during which participants were invited to provide their input on potential impacts, mitigation measures, the proposed Planning and Design Principles (formerly referred to as the Design Guidelines during the first phase of consultations), and future opportunities for public engagement. Over 650 stakeholder groups were invited to attend the meeting of their choice (refer to the full list included in Appendix A).

Of those groups, a total of 15 participated in the meetings:

- Association des résidents et résidentes de l'Île-de-Hull
- Action vélo Outaouais
- Byward Market Business Improvement Area
- Club des ornithologues de l'Outaouais
- Chambre des commerces de Gatineau
- Envirocentre
- Federation of Community Associations
- Heritage Ottawa
- Ottawa-Gatineau Geoheritage
- Rideau Valley Conservation Authority
- Rockcliffe Park Residents' Association
- Rockcliffe Yacht Club
- Transport Action Canada
- Ville de Gatineau

A public consultation report summarizing the input provided by participants and indicating how this feedback was used has been published on the NCC website. This report is provided in Appendix B.

Table 3-1 provides a summary of the key issues raised by stakeholders during this session, along with proposed mitigation and enhancement measures.

**Table 3-1: Summary of the key issues raised by stakeholders**

Description of impact / enhancement	Proposed mitigation / enhancement measure(s)	Raised by*	Integrated Project Team's response
<b>The Alexandra Bridge is an important connection for active mobility, and its closure will be highly disruptive for these users. Detours are often long and poorly planned.</b>	Make the planning and implementation of active mobility detours a priority rather than an afterthought.	Environmental group	Alternative routes and services to support safe and connected active mobility will be considered in the bridge planning stage of the Project.  Concerns and proposed mitigations will be communicated to the
	Enhance ferry service while the bridge is closed.	Community association	

Description of impact / enhancement	Proposed mitigation / enhancement measure(s)	Raised by*	Integrated Project Team's response
<b>Certain other bridges that will be used as alternatives by active mobility users during construction are not safe.</b>	Make active mobility as big of a priority as vehicular traffic in your construction milestones. Do not neglect the active mobility lane in favour of vehicular lanes.	Active transportation group	design team for consideration.  Alternative routes will be well marked and easy to follow.
	Make documentation with analysis of decision to replace rather than rehabilitate the bridge publicly available.	Transportation group	Documentation supporting the decision (and updates) is provided on the PSPC website at:  <a href="https://www.tpsgc-pwgsc.gc.ca/biens-property/pdb-bdd/alexandra-eng.html">https://www.tpsgc-pwgsc.gc.ca/biens-property/pdb-bdd/alexandra-eng.html</a>
	In design of new bridge, provide separate lane for service and emergency vehicles.	Recreational group	Proposed measure will be communicated to the design team for consideration. Note that the functional requirements (including total # of lanes, see section 7.3) have already been established in collaboration with both municipalities.
<b>Other bridges have little capacity to absorb traffic that will have to be rerouted from the Alexandra Bridge during closure.</b>	Work closely with stakeholders to devise appropriate mitigation measures.	Local government	Communication with regional partners, including the City of Ottawa, the Ville de Gatineau, the Société de transport de l'Outaouais (STO), and OC Transpo will continue throughout the Project. Measures for traffic
<b>The closure will likely significantly disrupt the flow of vehicular, active, and commercial transportation.</b>	Work closely with stakeholders to devise appropriate mitigation measures.	Local government	

Description of impact / enhancement	Proposed mitigation / enhancement measure(s)	Raised by*	Integrated Project Team's response
<b>The closure will likely negatively affect tourism in the region by limiting circulation between tourist destinations.</b>		Active transportation group	control will be planned in conjunction.
<b>The new bridge could further minimize the effects of the vehicular lane on active mobility users.</b>	Design the new bridge in a manner that encourages vehicular users to reduce their speed.	Community association	The functional requirements include a separate active transportation lane (pedestrians and cyclists) on the upstream side of the bridge (west). The active transportation lane will be two-way and provide separation between pedestrians and cyclists. The active transportation route should include pedestrian benches as well as one or more improved observation points. The Planning and Design Principles (refer to Appendix H) emphasize the importance of ensuring the security and comfort of active transportation users and note the importance of controlling vehicular speed through design.  Proposed mitigation will be communicated to the design team for consideration.
	Design the bridge in a manner that discourages growth in vehicular traffic and instead promotes active mobility.	Active transportation group	
	Create a sound barrier between vehicular lanes and the active mobility lane.		
<b>Once the Project is complete, a return to the status quo in terms of vehicular traffic volume is undesirable.</b>	Consider designing the new bridge exclusively for active mobility	Active transportation group	Proposed mitigation will be communicated to the design team for consideration.

Description of impact / enhancement	Proposed mitigation / enhancement measure(s)	Raised by*	Integrated Project Team's response
	Limit the use of the new bridge to public transit and active mobility.	Environmental group	
<b>There are unique geological assets in the area that could be affected by the Project.</b>	Implement measures to identify and preserve geological assets.	Environmental group	<p>Environmental studies will be conducted to meet provincial (Ontario and Quebec) and federal regulatory requirements. Information from the studies will guide the Project planning and design along with any additional recommended measures to reduce impacts.</p> <p>The Planning and Design Principles require that sustainability and minimizing environmental impact be considered as an integral part of the design.</p>
<b>There is a risk that environmental impact studies will only be considered late in the planning process.</b>	Adopt an environmentally friendly approach to planning from the outset of the Project. Make it a part of the vision.	Environmental group	<p>The Planning and Design Principles provide direction for the bridge design to achieve excellence in terms of sustainability, and in particular protection and enhancement of natural features of the Ottawa river and its shoreline.</p> <p>Environmental studies examining potential impacts and mitigation are being undertaken in keeping with IA process and will inform the Project design.</p>

Description of impact / enhancement	Proposed mitigation / enhancement measure(s)	Raised by*	Integrated Project Team's response
<b>The length of time during which the bridge will be closed</b>	Build the new bridge alongside the original as it is being decommissioned so as to minimize the period during which the crossing would be closed.	Community association	Concern and proposed mitigation will be communicated to the design team for consideration.
<b>Some previous bridge Projects lacked transparency and resulted in sub-optimal outcomes for certain users.</b>	Make Project plans public and share them with stakeholders up front.	Active transportation group	A thorough, multi-stage public engagement approach which will carry through the Project planning and implementation stages will seek to engage stakeholders to identify key issues and concerns, validate and improve upon the design and identify mitigation measures throughout the Project life cycle.
<b>The new bridge could be better adapted for public transit.</b>	Include the potential integration of light rail in the Planning and Design Principles.	Transportation group	The functional requirements include the potential to adapt the structure for use by a tram or light rail system as part of a future upgrade.
<b>The only bridges used for transit are in the west end. There is an interprovincial public transit gap in the east end.</b>	Adapt new bridge for public transit.	Transportation group	Issue and proposed mitigation will be communicated to the design team for consideration.
<b>Many people view the existing bridge as a significant technological achievement and are very attached to it.</b>	Discuss heritage plans with the public as early as possible in the process.	Transportation group	Concern and proposed mitigation will be communicated to the team undertaking a Heritage Impact Assessment (HIA).

Description of impact / enhancement	Proposed mitigation / enhancement measure(s)	Raised by*	Integrated Project Team's response
	Make preserving the memory and significant elements of the bridge a priority.		The HIA and proposed bridge recording will inform options for commemoration, preservation and dissemination of bridge heritage and history.
<b>Current interpretation panels do not feature information about the natural environment that surrounds the bridge.</b>	Include interpretive panels about the local flora and fauna.	Environmental group	Concern and proposed mitigation will be communicated to the design team for consideration.
	Include digital interpretive panels that feature dynamic and interactive content.		
<b>Risk that new bridge's design does not adequately take winter into account.</b>	Ensure that snow is cleared in areas where users go to enjoy the new bridge, including around interpretive panels.	Environmental group	
	Include visuals of what the bridge would look like in the winter for future public consultations.		Proposed mitigation will be communicated to the public engagement team.
<b>From a tourism and iconic perspective, NCR bridges are very dark.</b>	Ensure new bridge follows NCC's Capital Illumination Plan ( <a href="#">NCC 2017-2027</a> ) as well as the Planning and Design Principles.	Business group	Concern and proposed mitigation will be communicated to the design team for consideration.





Description of impact / enhancement	Proposed mitigation / enhancement measure(s)	Raised by*	Integrated Project Team's response
	Consider designing the bridge so that users can enjoy views on both sides.	Community association	
	It is a great idea to integrate public art into the design, and to create connections with the National Art Gallery and Museum of Canadian History.	Environmental group	
	Find creative ways to engage during the pandemic (e.g., consultations in outdoor public spaces, or on site at the Alexandra Bridge).	Environmental group	Public engagement and outreach methods will be varied and include a project website page (PSPC and NCC), social media platform messaging project news releases bridge on-site information on-going engagement for feedback through questionnaires, targeted stakeholder meetings, and public in-person events (workshops, charettes, etc.) when permissible.  Proposed mitigation will be communicated to the public engagement team.
	Be proactive in your engagement. Don't wait for communities to come to you.		
	Continue holding online consultations after the pandemic is under control.		
<b>Potential effects of construction on Boulevard des Allumettières</b>		Business group	Communication with regional partners including the City of Ottawa, the Ville de Gatineau, the Société de transport de l'Outaouais (STO), and OC Transpo will continue throughout the Project to address potential

Description of impact / enhancement	Proposed mitigation / enhancement measure(s)	Raised by*	Integrated Project Team's response
			impacts to other infrastructure from the Project.
<b>Potential effects of construction on commercial traffic on the Macdonald-Cartier bridge</b>		Business group	Concern will be communicated to the design team for consideration.
	Look to the Pont Champlain Project in Montreal as an example from which to draw important lessons.	Environmental group	Suggestion is being actively pursued.
<b>The Alexandra Bridge is one of the most beautiful places in Canada.</b>	In designing the new bridge, look to international examples of design excellence, like the Banpo Bridge in South Korea, for inspiration.	Business group	Concern and proposed mitigation will be communicated to the design team for consideration.
	Consider holding a design competition for the new bridge.	Active transportation group	
<b>The Project will create business opportunities and jobs, which will hopefully benefit the local economy.</b>	Create opportunities for local contractors to contribute to the Project.	Business group	Concern and proposed mitigation will be communicated to decision makers for consideration.

\*As part of the initial public consultation, participants were not asked to self-identify. Only the name of the group is identified above. In all future public consultations, stakeholders will be asked to self-identify.

### 3.5.2 Consultation 1A: online public consultation – Fall 2020

The first round of online consultation for the Project was held between November 3 and 16, 2020. The online consultation for this Project was divided into two parts. Participants were first directed to a webpage on the NCC's website that provided information on the following:

- The Project's background, functional requirements, and timeline
- Possible impacts and mitigation measures
- Proposed vision and Planning and Design Principles for the new bridge
- Objectives of the first stage of public consultation

Participants were then invited to complete an online questionnaire about different aspects of the Project. This included a section devoted to potential impacts and mitigation measures in which participants were invited to share their concerns about the Project and propose ways to address those concerns.

Participants were also given the option of providing feedback via email or by calling the NCC's contact centre.

An email invitation to participate in the online consultation was sent to the NCC's Public Engagement newsletter subscriber list. The same invitation was sent to all stakeholder groups listed in Appendix C (provided as a separate document) to be shared with their members and clients.

Messages were posted on the NCC's social media accounts (Facebook and Twitter), soliciting the participation of all interested members of the public.



A paid digital advertising campaign was also launched on the platforms listed in Table 3-2 throughout the duration of the online consultation:

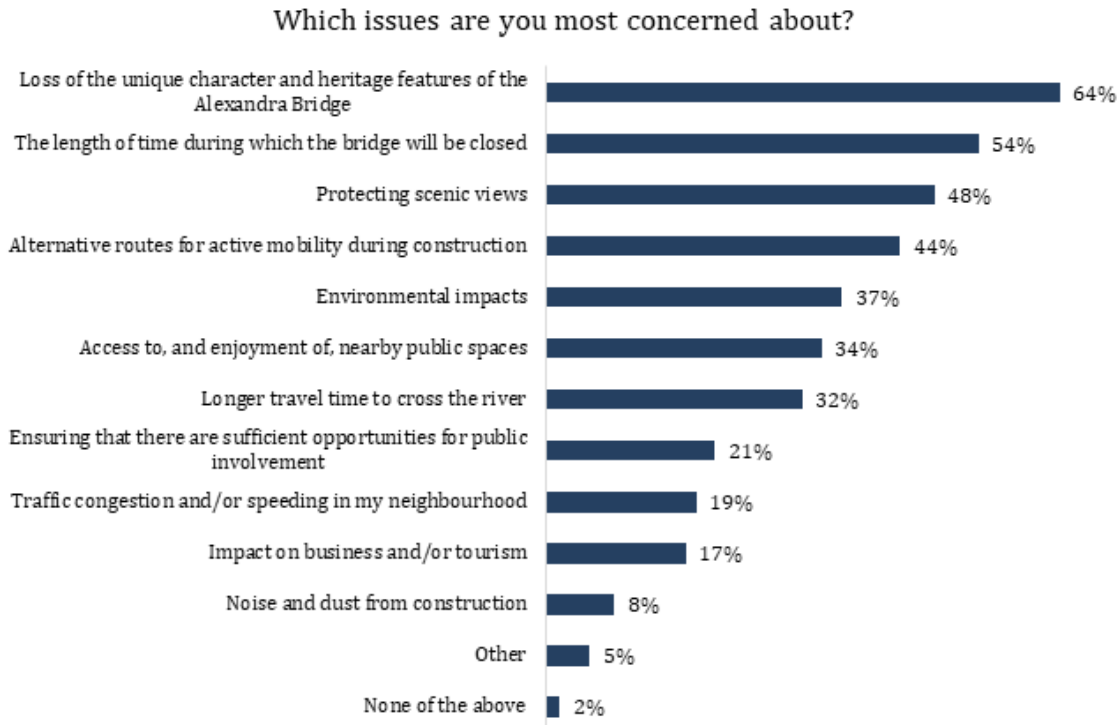
**Table 3-2: Paid digital advertising campaign platform**

Print	Digital
<b>LeDroit</b>	Google
<b>Ottawa Citizen</b>	Facebook
<b>Metroland Media (Arnprior, Carleton Place, Kemptville, Perth, Smith Falls)</b>	Twitter
<b>OCNA (Alexandria-Glengarry, Lanark, Morrisburg and Prescott-Russell)</b>	LinkedIn
<b>Réseau Sélect (La Petite Nation, Cornwall Express, L'Envol)</b>	LeDroit
<b>Vision Clarence Rockland</b>	Ottawa Citizen
<b>Le Reflet (Embrun)</b>	The Hill Times
<b>QCNA Fort Coulonge (Journal du Pontiac), Chelsea (Low Down to Hull &amp; Back), Buckingham (West Quebec Post)</b>	Ottawa Business Journal
<b>Bulletin d'Aylmer</b>	First Nations Drum East
<b>ParaSport Ontario Magazine</b>	Metroland Media
<b>Thrive Magazine</b>	INSIDE OTTAWA VALLEY (Arnprior, Carleton Place, Kemptville, Perth, Smith Falls)
<b>First Nations Drum East Newsprint</b>	Bulletin d'Aylmer
	Bell Media Network
	Pink Triangle Press - Daily Xtra

In total, 3,195 individuals participated in the online questionnaire, of whom 2295 completed it from start to finish.

The Public Consultation Report dated December 2020 (Appendix B), summarizes the input provided by participants. All feedback will be reviewed and where possible, used to inform subsequent consultation and the Project stages.

The following charts and tables provide a summary of the potential impacts raised by participants as part of the online public consultation, along with proposed mitigation and enhancement measures:



Note: This chart illustrates the share of 2,812 respondents who selected each of the answer options listed.

**Figure 3-1: Question: Which issues are you most concerned about?**

Table 3-3 to 3-9 summarize the potential impacts raised by participants as part of the online public consultation, along with proposed mitigation and enhancement measures.

**Table 3-3: Responses to survey question - Which issues are you most concerned about?**

Subject area	Description of issue or concern	Number of respondents who selected issue	Integrated Project Team's response
<b>Public Engagement</b>	Ensuring that there are sufficient opportunities for public involvement	591	The Project will include an additional four rounds of public consultation. The NCC and PSPC will continue to engage with the public and stakeholders on an ongoing basis.  Further details are provided in section 3.5.
	<b>Project Activities</b>	The length of time during which the bridge will be closed	1508
	Longer travel time to cross the river	897	Concern will be communicated to the design team for consideration. Further details are provided in sections 9,10, and 12.
	Access to, and enjoyment of, nearby public spaces	963	
	Alternative routes for active mobility during construction	1237	
	Traffic congestion and/or speeding in my neighbourhood	528	

Subject area	Description of issue or concern	Number of respondents who selected issue	Integrated Project Team's response
	Impact on business and/or tourism	487	<p>Communication with regional partners including the City of Ottawa, the Ville de Gatineau, the Société de transport de l'Outaouais (STO), and OC Transpo will continue throughout the Project. In addition, engagement with business and tourism groups as well as nearby institutions and tourism offices began in summer 2021.</p> <p>Concern will be communicated to the Project team for consideration. Further details are provided in Project Activities.</p>
<b>Environment</b>	Environmental impacts	1033	<p>Details on anticipated potential impacts and associated mitigation measures are provided in section 14, based on information known to date.</p> <p>Environmental studies will be conducted to meet provincial (Ontario and Quebec) and federal regulatory requirements.</p> <p>Information from the studies will guide the Project planning and design along with any additional recommended measures to reduce impacts.</p>
<b>Environment</b>	Noise and dust from construction	238	<p>An Environmental Protection Plan (EPP) will be prepared, which will stipulate the environmental protection measures and commitments to be carried out by the contractor during construction.</p> <p>Further details are provided in section 14.</p>
<b>Aesthetics and Heritage of Structure</b>	Loss of the unique character and heritage features of the Alexandra Bridge	1795	<p>Concern will be communicated to the team undertaking a Heritage Impact Assessment.</p> <p>Further details are provided in section 15.4.</p>

Subject area	Description of issue or concern	Number of respondents who selected issue	Integrated Project Team's response
	Protecting scenic views	1358	The NCC has commissioned a consultant to review potential impacts on scenic views, the findings of which will inform the design of the new bridge.



**Table 3-4: Responses to survey question - Please indicate which other impacts you are concerned about.**

Subject area	Description of impact of concern	Number of mentions	Proposed measure(s)
<b>Project Activities</b>	The cost to taxpayers	6	Cost estimates developed as part of the LCCA (MMM Group Ltd, 2018) determined that indefinite maintenance of the existing structure was more costly over the next 75 years compared to replacement.  Further details are provided in Section 7.
	The new bridge's design will be inferior to that of the Alexandra Bridge	5	The use of materials that have a lower environmental footprint and high durability, and that provide a service life of more than 100 years, are part of the design considerations to reduce the bridge's environmental impact. Further details are provided in Section 7.  Aesthetic considerations are integral to the Planning and Design Principles which will inform the planning process.  Further details are provided in Section 15.4.
	Construction will adversely affect public transportation	2	Communication with regional partners, including the City of Ottawa, the Ville de Gatineau, the Société de transport de l'Outaouais (STO), and OC Transpo will continue throughout the Project.  Concerns will be communicated to the design team for consideration.  Further details are provided in Section 10.
<b>Aesthetics and Heritage of Structure</b>	Loss of heritage and destruction of history	28	Concern will be communicated to the team undertaking a Heritage Impact Study.  Further details are provided in Section 15.4.
<b>Navigation and Waterway Activities</b>	Construction will adversely affect use of the river (e.g., navigability for boats)	13	Planning for the deconstruction of the old bridge and construction of the new one will take into consideration the need to maintain navigation access. Further details are provided in Section 15.6.

Table 3-5 highlights additional comments raised within the survey. Any/all additional comments will be reviewed by the IPT and will inform Project stages, where feasible.

**Table 3-5: Additional comments provided in survey responses.**

Subject area	Additional Comments	Number of mentions	Relevant Section
<b>Indigenous Peoples Engagement</b>	Consult and involve Indigenous Peoples in the Project	11	Section 4
<b>Project Activities</b>	Ensure superior design and construction standards	29	Section 7 Section 9
	Add a specific public transit lane or rail line to the bridge	15	Section 9
	Expand the bridge's carrying capacity in the new design	3	Section 9 POTENTIAL ALTERNATIVES
	Provide alternative routes during construction that avoid traffic congestion	7	Section 9 Section 10
	Rehabilitate the Alexandra Bridge rather than replace it	13	Section 7
	Convert the Alexandra bridge into an active mobility crossing	8	Section 7

**Table 3-6: What kind of measures would you like to see put in place to minimize any adverse effects the Project might have?**

Subject area	Suggested mitigation measure(s)	Number of mentions	Relevant section
<b>Public Engagement</b>	Ensure proactive, transparent and clear communications, as well as widely accessible and meaningful public consultation	88	Section 3 SUMMARY OF PUBLIC ENGAGEMENT
<b>Project Activities</b>	Rehabilitate rather than replace the Alexandra Bridge	117	Section 7
	Ensure adequate planning and oversight to guarantee that the Project is completed on time and within budget	39	Section 7
	Implement measures to minimize traffic congestion	204	Section 9
	Build a new crossing before decommissioning the Alexandra Bridge	163	Section 10
	Keep the Alexandra Bridge open for active mobility during construction	69	Section 10
	Hold the new bridge to a high standard and make sure that the job is done right	115	Section 10
	Provide adequate alternative routes for active transportation, including measures like expanding the carrying capacity and enhancing the safety of active mobility lanes on other interprovincial bridges	361	Section 10
	Offer ferry service during construction	90	Section 10
	Reduce by as much as possible the amount of time it takes to build a new bridge	81	Section 10
	Offer shuttle service during construction	47	Section 10
Clear pathways identified as alternative routes for active mobility during the winter	10	Section 10	

Subject area	Suggested mitigation measure(s)	Number of mentions	Relevant section
<b>Environment</b>	Carefully assess any potential environmental impacts and develop strategies to mitigate them	68	Section 14
	Implement measures to protect the river from pollution	10	Section 14

These suggested mitigation measures have been or will be considered by the Project team as part of the Project.

Table 3-7: What would you most want to see improved with the new bridge?

Proposed improvement	Number of mentions
<b>Better separation of cyclists and pedestrians</b>	615
<b>Enhance public transit services and integrate light rail or tram system</b>	331
<b>Guarantee the level of quality of design and construction befitting of an iconic landmark</b>	282
<b>Replace the metal surface in the northbound lane with something less unnerving to drive over</b>	264
<b>Increase the bridge's carrying capacity</b>	261
<b>Smoother surface for active mobility than that of the existing wooden boardwalk</b>	172
<b>Restore rather than replace the Alexandra Bridge</b>	161
<b>Design the new bridge to attract tourists, with space to take pictures, sit down, and enjoy the views</b>	131
<b>Enhance safety (better lighting, wider lanes, safety nets, better separation of traffic)</b>	70
<b>Make the new bridge beautiful and ensures that it blends in harmoniously with its surroundings</b>	59
<b>Have the design of the new bridge emulate that of the Alexandra Bridge</b>	44
<b>Install rest stops</b>	36
<b>Prioritize sustainability in design and construction</b>	35
<b>Cover the active mobility lane to shelter its users from the elements</b>	11
<b>Integrate nature into the design (trees, green strips)</b>	11
<b>Dedicate the bridge entirely to active mobility</b>	113
<b>Maintain the bridge for the exclusive use of active mobility</b>	54

The above proposed improvements and associated groups who made/mentioned these are outlined in the Public Consultation report (refer to Appendix B).

Documented comments listed in the tables above will be provided to the Design Team for consideration as part of the planning stages of the Project.

**Table 3-8: How would you like to see the history and built heritage of the Alexandra Bridge commemorated after it is replaced?**

Proposed heritage commemoration	Number of mentions
Install on-site placards and displays with information about the history of the bridge and the area where it is located	650
Repurpose the materials of the Alexandra Bridge in the construction of the new bridge and have its design emulate that of the original bridge	441
Create a museum exhibit about the bridge	250
Restore rather than replace the Alexandra Bridge	219
Display archival photographs of the bridge's construction and appearance over the years	127
Use segments of the bridge to create a model/replica to be displayed in an outdoor space or museum	94
Create artwork using pieces of the bridge	60
Support a publication on the bridge's history	35
Include information on the history of the region's Indigenous Peoples	31
Create an online archive with material related to the bridge	15
Recycle material from the bridge to create small commemorative pieces or collectibles	13
Transfer the name of the Alexandra Bridge to the new bridge	7

Documented comments listed in the table above will be provided to the team focusing on the Aesthetics and Heritage component of the Project.

### **Engagement with Adjacent landowners and neighbouring stakeholders**

Adjacent landowners and neighbouring stakeholders have also been engaged. The IPT consulted with the following businesses and organizations in targeted stakeholder sessions during the summer of 2021:

- Canadian Museum of History
- Canadian War Museum
- National Gallery of Canada
- Ottawa Tourism
- Tourisme Outaouais

From the summer adjacent landowners and neighbouring stakeholder consultations, a list (non-exhaustive) of concerns raised was compiled and is highlighted in the Table 3-9, along with proposed responses to mitigate potential impacts.

**Table 3-9: Engagement with Adjacent Landowner and neighbouring stakeholders**

Area of concern or interest	Raised by	Integrated Project Team's response
<p><b>Traffic impact/access</b></p> <p><b>Loss of Heritage</b></p>	<p>Ottawa Tourism</p>	<p>Access between some of the tourism nodes and the adjacent communities will be affected. Adequate detours and other means of transportation to tourist destinations are being explored (e.g., shuttle along Confederation Boulevard). Throughout the Project there will be ongoing engagement with stakeholders to discuss all options.</p> <p>Loss of the current bridge which represents a historically significant landmark in the Capital is a concern. The possibility of preserving some materials of the existing bridge is being assessed. Throughout the Project there will be ongoing engagement with the Canada Science and Technology Museum and the general public to explore options and ideas on how to protect the heritage of the bridge.</p>
<p><b>Loss of Link/Access between Ottawa and Gatineau</b></p>	<p>Tourism Outaouais</p>	<p>It is anticipated that there will be a loss of the short direct link that the bridge provides between Gatineau and Ottawa during the closure. To minimize the impact on users, PSPC is exploring various options, one being the addition of a de-icing system on the river to potentially incorporate a ferry.</p>
<p><b>Noise and Vibration Impacts</b></p> <p><b>Access to the Gallery</b></p>	<p>National Gallery of Canada</p>	<p>Varying pre-work, design work, impact assessments are being completed and there will be on-going discussions with the Gallery.</p> <p>The NCC and PSPC are working together to ensure a seamless access to the Gallery will be included in the design. Throughout the Project there will be ongoing engagement with stakeholders to discuss all options.</p>

Area of concern or interest	Raised by	Integrated Project Team's response
<p><b>Access to facility loading dock</b></p> <p><b>Public and employees' access to main entrance</b></p> <p><b>Closure of Alexandra Bridge at the same time as closure of Portage Bridge</b></p>	<p>Canadian Museum of History/ Canadian War Museum</p>	<p>If and/or when access to the loading dock needs to be constrained, timely communication and a strategy to ensure minimal disruption to operations will be put in place.</p> <p>A strategic communications plan will be developed to support the changes in access accompanied by the appropriate signage will also be displayed</p> <p>The IPT is collaborating with regional partners (cities and transpo authorities) to develop a traffic management plan for future works to the interprovincial crossings that may impact traffic volumes and travel times. Closure of multiple bridges will be avoided as part of this Project, should closure need to occur there will be adequate and/or sufficient detours put in place to minimize disturbance to the general public.</p>

**3.5.3 Consultation 1B: meetings with stakeholders – Fall 2021**

A second stage of public consultation was undertaken in Fall 2021, for the Project team to further engage stakeholders. The IPT gathered initial feedback on proposed mitigation measures, enhanced measures and other opportunities for solutions.

Consultation comprised of three (3) parts, including meetings with stakeholders, 1-pager to residents and an online survey.

All stakeholder session meetings occurred virtually, offered in both official languages, from November to January of 2022. Similar to consultation 1A – each session featured a presentation about the Project, a Question & Answer (Q&A) period, and discussion sessions during which participants were invited to provide their input on potential impacts and mitigation measures.

The IPT consulted with the following businesses and organizations in targeted stakeholder sessions:

- Au feel de l'eau
- Brigil
- Canada School of Public Service
- Capital Cruises
- Chateau Laurier
- Earl of Sussex Pub
- First Bite Eats (Tenant)
- Global Centre for Pluralism
- Lady Dive Tours
- Ottawa Boat Cruise
- Ottawa Rowing Club
- Passenger & Commercial Vessel Association
- Peacekeeping Monument
- Royal Canadian Mint
- Shepherds of Good Hope
- Tavern on the Hill
- Transport Action Canada

Table 3-10 provides a summary of the key issues raised by stakeholders during these sessions, along with proposed mitigation and enhancement measures. It is noted that similar concerns have been raised throughout the consultation sessions. A follow up strategy has been developed to continue to engage with stakeholders in order to provide updates as the Project becomes more defined and ensure that concerns are heard and appropriately mitigated.





**Table 3-10: Summary of the key issues raised by stakeholders**

Area of concern or interest	Details of impact/enhancement	Raised by	Integrated Project Team’s response
<b>Concerns related to the closure of the Alexandra Bridge</b>			
<b>Loss of link/access between Ottawa and Gatineau</b>	<p>Access between the tourism nodes in the vicinity of the Project and the adjacent communities will be affected.</p> <p>The shortest, direct link that the bridge provides between Gatineau and Ottawa during the closure will not be available during construction.</p> <p>Closure of the bridge could impact business operations (negatively for businesses that rely on access to the docking site by active transportation users). It could also provide business opportunities that would need to be evaluated.</p>	<p>Earl of Sussex Pub</p> <p>Au feel de l’eau</p>	<p>Adequate detours and other means of transportation to tourist destinations are being explored (e.g., shuttle along Confederation Boulevard).</p> <p>Throughout the Project there will be ongoing engagement with stakeholders to discuss all options.</p> <p>To minimize the impact on users, PSPC is exploring various options, such as a de-icing system on the river to lengthen the water taxi season.</p> <p>Water taxi services (with universal accessibility) could play an important role in providing crossing services to active transportation users. Understanding seasonal limitations will be essential to tailoring the appropriate mitigation.</p>
<b>Access to buildings – services such as loading docks</b>	<p>Access road to the service bays of the Canadian Museum of History crosses under the bridge from Jacques-Cartier Park.</p> <p>Advanced planning and communication for alternative access will be required during construction.</p> <p>Ability to receive shipments is critical.</p>	<p>Tavern on the Hill</p>	<p>If and/or when access to the loading dock needs to be constrained, timely communication and a strategy to ensure minimal disruption to operations will be put in place.</p>

Area of concern or interest	Details of impact/enhancement	Raised by	Integrated Project Team's response
<p><b>Access to buildings – public and employees' access to main entrance</b></p>	<p>Closure of the bridge could impact employees who use it to get to work or access buildings.</p> <p>The grounds of the museums are used for multiple public events including large-scale celebrations which could be impacted by road closures or construction.</p>	<p>Canada School of Public Service</p>	<p>The NCC and PSPC are working together to ensure a seamless access to the public spaces will be included in the design. Throughout the Project there will be ongoing engagement with stakeholders to discuss all options.</p> <p>A strategic communications plan will be developed to support the changes in access accompanied by the appropriate signage.</p> <p>Ensuring that information regarding planned public events is communicated between stakeholders and the Project team will assist in understanding needs and preparing appropriate mitigation strategies.</p>
<p><b>Wayfinding</b></p>	<p>Wayfinding and signage of pathways to facilities will be essential to ensure that the public can safely reach the museums.</p> <p>Some stakeholders are engaged in pilot projects that may contribute to enhanced wayfinding. Utilize the findings from these projects to inform development of tools.</p>		<p>Wayfinding to reach public facilities as well as general safety of the public in the construction zone will be important aspects of construction planning.</p> <p>Noted for the future planning and follow up conversations.</p>
<p><b>Concerns related to the closure of Alexandra Bridge at the same time as closure of Portage or other bridges</b></p>			
<p><b>General access to buildings or services within the area</b></p>	<p>Access to the buildings would be impacted by closure of multiple bridges at once.</p>	<p>Capital Cruises</p>	<p>The IPT is collaborating with regional partners (cities and transport authorities) to develop a traffic management plan for future works to the interprovincial crossings that may impact traffic volumes and</p>



Area of concern or interest	Details of impact/enhancement	Raised by	Integrated Project Team's response
		Ottawa Boat Cruise	<p>travel times. Closure of multiple bridges will be avoided as part of this Project, should closure need to occur, adequate and/or sufficient detours will be put in place to minimize disturbance to the general public.</p> <p>Detours and other changes to traffic patterns will be communicated to tour operators to ensure that clients know how to reach the dock.</p>
<b>Access to tourism nodes in the area</b>	<p>Access to tourism services (such as boat tour operators) must be considered when planning detours. For example, some river tour clients arrive at the dock at Jacques-Cartier Park by bus, while others come individually. Detours must be communicated so that clients can be informed ahead of time.</p> <p>Consider a shuttle to provide a link to tourism nodes.</p>	Ottawa Tourism	Suggestion is noted and will be considered as part of the mitigation strategies.

Area of concern or interest	Details of impact/enhancement	Raised by	Integrated Project Team's response
<b>Traffic congestion on other bridges</b>		Ottawa Tourism	The IPT anticipates more congestion on roads and bridges that provide access while the Alexandra Bridge is closed. Active modes and public transportation will be encouraged to ensure to mitigate for vehicular traffic. The IPT is exploring other options such as increased water taxi from the museum to the Rideau Canal locks. Coordination with OC Transpo and STO will also help to put in place access to public transportation.
<b>Active mobility detours</b>	Concerns about the length of the detours for active mobility users and options being considered during the closure of the bridge.	Transport Action Canada  Tavern on the Hill	Several options are being considered including water taxis and using technology to maintain the channel open in winter.
<b>Noise and Vibration Impacts</b>			
<b>Noise and vibration created by construction on bedrock</b>	<p>Vibration may affect artifacts housed in the museum.</p> <p>Vibration caused by construction activities may impact the museum structures.</p> <p>Noise may impact employees working on the river side of the facility.</p> <p>At 373 Sussex, vibrations related to the work could create a health and safety issue related to the</p>	Canada School of Public Service	<p>Varying pre-work, design work, impact assessments are being completed and there will be on-going discussions with stakeholders. Structural condition of the museums before the start of construction will be needed to address specific concerns.</p> <p>Concern is noted for consideration during construction planning.</p>

Area of concern or interest	Details of impact/enhancement	Raised by	Integrated Project Team's response
	presence of asbestos in the heritage buildings (Bloc A et B).		
<b>Addressing noise pollution from current bridge in the design of the new bridge</b>	Vehicle travel on the current steel bridge deck is very loud and impacts the enjoyment of tour boat clients. Interest in determining if the new structure will address the noise issue.	Ottawa Boat Cruise  Ottawa Rowing Club	The noise pollution is planned to be factored into the design of the new bridge. The new bridge is anticipated to have a solid deck that will contribute to reducing the noise from vehicular traffic.
<b>Concerns related to the Loss of Heritage</b>			
<b>Loss of Heritage</b>	Loss of the current bridge which represents a historically significant landmark in the Capital is a concern.  Concerns about preserving the heritage characteristics of the bridge.	Transport Action Canada	The possibility of preserving some materials of the existing bridge is being assessed. Throughout the Project there will be ongoing engagement with the Canada Science and Technology Museum and the general public to explore options and ideas on how to protect the heritage of the bridge.  Given the importance of the Alexandra Bridge's iconic heritage assets and impact of design, PSPC is working with the Royal Architectural Institute of Canada (RAIC) to establish a peer review panel, which will be engaged to provide independent advice to enable an appropriate response to the requirements for the preservation of heritage elements in the new build.

Area of concern or interest	Details of impact/enhancement	Raised by	Integrated Project Team's response
<b>Concerns related to Navigation</b>			
<b>Access to mooring/docking facilities</b>	<p>Operations rely on access to docking spaces on both sides of the river. Docking must have sufficient water depth to accommodate larger boats.</p> <p>Operation of tourism business rely on the use of several boat ramps including the one in Jacques-Cartier Park.</p>	<p>Capital Cruises</p> <p>Ottawa Boat Cruise</p> <p>Lady Dive Bus Tour</p>	<p>Opportunities for installation of a temporary wharf that can meet all the needs for stakeholders who operate or rely on the current wharf are being explored.</p>
<b>Access to the navigation routes under the bridge</b>	<p>Access to travel in the designated channel underneath the Alexandra Bridge is important to provide travel to important viewpoints such as Parliament Hill and other sites of national symbols. Concerns that construction over the main water channel may prevent safe passage under the bridge.</p> <p>Channel marking and other navigation aids will be essential to ensuring safety of boaters during construction, particularly if the channel is temporarily relocated (travel in the dark or early morning)</p>	<p>Capital Cruises</p> <p>Ottawa Boat Cruise</p> <p>Lady Dive Bus Tour</p> <p>Au feel de l'eau</p> <p>Ottawa Rowing Club</p>	<p>Concerns regarding public safety are shared and noted to be factored into the planning and construction considerations. Temporary interruptions and closures will be well coordinated in advance with the various stakeholders involved particularly during the high season to reduce potential impacts to businesses.</p> <p>Noted for planning purposes – the high season for tourism operations range from late March or early April to late November or early December depending on the weather conditions and client interest.</p> <p>Similar to road access changes, a strategic communications plan will be developed to ensure that the changes in navigation channels are communicated to river users and accompanied by the appropriate signage and markers.</p>

Area of concern or interest	Details of impact/enhancement	Raised by	Integrated Project Team's response
<p><b>Access to supporting infrastructure for tourism boats</b></p>	<p>Continued access to wharfs to pick up clients is important for tour operators. Continued access to the wharf in Jacques-Cartier Park and the dock at the Rideau Canal are needed to pick up clients.</p> <p>Facilities need to provide access to several support services such as electricity, pump out station as well ticketing and guest reception areas.</p> <p>Parking for guests would be required.</p>	<p>Capital Cruises</p>	<p>Noted for planning purposes. Supporting infrastructure will be considered as part of the development of temporary works, particularly in Jacques-Cartier Park.</p> <p>Need for parking is noted and will be considered as part of development of the temporary works.</p>
<p><b>Improvements to the river basin as a whole, that would enhance the experience on the water</b></p>	<p>The cross-sectional area of the water flow underneath the bridge and the bottom contours of the riverbed affects the surface river turbulence under the bridge. Smooth current is better than turbulent current, from a safety and utility perspective for small watercrafts.</p>	<p>Ottawa Rowing Club</p>	<p>Noted for consideration during the design process and in the design of alternate navigation channels during the construction period.</p>



Area of concern or interest	Details of impact/enhancement	Raised by	Integrated Project Team's response
<b>Opportunities to contribute to the development of viable mitigation strategies that utilize businesses operating in the area</b>	Boat operators may have knowledge or essential equipment (such as passenger boats) that can contribute to the development of mitigation strategies.	Ottawa Boat Cruise  Ottawa Rowing Club	Noted for future conversations with stakeholders as the project is better defined.
<b>Concerns related to the design of the new bridge</b>			
<b>Use this project to enhance connectivity in the neighbourhoods</b>	<p>There currently is a missing link along the south shore (National Gallery cuts off Lady Grey Dr.) for active transportation users. Would love to see that link improved - a connection to Nepean point.</p> <p>On the north shore – nicer connection so that active transportation users do not have to traverse the road network to get back down to the river.</p>	Global Centre for Pluralism  Ottawa Rowing Club	<p>In conjunction with the Alexandra Bridge project, the NCC has been undertaking the Adjacent Impacted Land study along with other planning initiatives to look for opportunities for that connection.</p> <p>The Planning and Design Principles provide direction for the new bridge. Of note, improvements in public access to the shorelines through pathway improvements for pedestrians and cyclists around the new bridge.</p>
<p><b>Highlight the importance of active modes of transportation on the new bridge</b></p> <p><b>Importance of the bridge as a destination not only a transportation link</b></p>	<p>Would love to see a prioritization of active modes of transportation.</p> <p>A lookout point on the bridge for pedestrians that provides a destination or event space.</p> <p>Concern regarding increased vehicular traffic.</p>	Global Centre for Pluralism	<p>The focus for the design of the new bridge is on improving the facilities for active transportation users. The vision for the new bridge is to have vehicular lanes that can be converted to public transit in the future and a separation of cyclists and pedestrians.</p> <p>The addition of observation points or seating areas where people can sit and contemplate the view is also part of the conceptual design. We</p>



Area of concern or interest	Details of impact/enhancement	Raised by	Integrated Project Team's response
			want to improve the over all experience for the active transportation users.
<p><b>Improvements to the bridge that would enhance the river experience, e.g., attachment on the piers to set up start docks for rowers.</b></p> <p><b>Improvements to the safety features of the bridge.</b></p>	<p>The bridge is used as a start line for races. Ability to set up temporary docks would be helpful.</p> <p>Consider the safety of the bridge users</p>	<p>Ottawa Rowing Club</p>	<p>Noted for consideration during the design process.</p> <p>The Planning and Design Principles provide direction for the new bridge. Priority must be given to the comfort, safety, and well-being of active mobility users.</p>

### 3.5.4 Consultation1B: mail drop and survey – Fall 2021

In addition to meetings with stakeholders, a 1 pager was mailed to approximately 23, 000 residents in the vicinity of L' Île de Hull, Lower town and Sandy hill, which provided general information about the Alexandra Bridge Replacement Project, its stages and timelines as well as potential impacts along with mitigation measures.

A survey also formed part of this consultation phase and residents were invited to participate from November 24 to December 12, 2021, via the NCC website.

More than 1,800 people took part in the engagement process. Input will inform the initial phase of the impact assessment process, as well as the next steps in the planning and design stages.

A summary report will be created following this round of consultation, with a section that showcases how the comments raised are being or will be addressed.

As of early December, approximately 759 surveys were completed, a total of 1846 responses were recorded. Participants were asked to self-identify - age, gender, language, and other(s) to ensure that the comments, questions and concerns gathered and documented represent those from a diverse population.

The demographics of the various characteristics of the survey population included:

- Age
- Gender
- Ethnicity
- Language
- Employment
- Salary
- Disability



**Table 3-11: The demographics of survey participants is summarized in the table below.**

Demographic Characteristic		Representation in percentage (%)
<b>Age</b>	Under 18	0.6
	18-24	2.5
	25-34	16
	35-44	16.6
	45-54	17.4
	55-64	17.2
	65+	25
	(Most respondents were 65 years of age or over. While only one respondent was under the age of 18, representing the lowest represented age category.)	Prefer not to share
<b>Gender Identity</b>	Man	57.2
	Woman	34.4
	Gender Diverse	1.4
	Prefer not to share	7
<b>Visible Minorities</b>	Non-Visible Minority	83
	Prefer not to say	9
	Visible Minorities	8
<b>Indigenous</b>	Non-Indigenous	89
	Prefer not to share	8
	<b>Indigenous</b>	<b>3</b>
	Métis	55
	First Nations	25
	Prefer not to share	20
<b>Language</b>	English	50
	French	40
	Prefer not to share	4
	Other	6

In addition to the demographic characteristics highlighted above, participants also identified education level, employment status, income as well as disability. A summary report, including survey data and takeaways from stakeholder meetings will be published in the Winter of 2022 and available to the public on the NCC's website.

Participants were also asked to identify whether they were part of the general public or an organization(s). Most participants (98%) identified as members of the public, with the remaining (2%) identified as an organization.

All participants were asked to rank topics of interest (e.g., cultural heritage) as part of the survey and answer a series of questions as it relates to:

- Anticipated benefits of the Bridge replacement
- Potential disruptions created by the Project
- Proposed mitigation measures

The tables below highlight and rank topic of interests that the participants identified.

**Table 3-12: Ranking of the topic of interest/concerns raised by survey participants who identified as members of the public.**

Topic of Interest	Ranking
Cultural Heritage	1
Transportation	2
Active Mobility	3
Construction	4
Sustainable development	5
History of the Bridge	6
Environmental concerns	7
Impact Assessment process	8

**Table 3-13: Ranking of the topic of interest/concerns raised by survey participants who identified as an organization.**

Topic of Interest	Ranking
Active mobility	1
Environmental concerns	2
Impact Assessment process	3
Construction	4
Transportation	5
History of the Bridge	6
Cultural heritage	7
Sustainable development	8

As part of the series of questions within the survey, participants were asked to identify opportunities or anticipated benefits in relation to the Project. The most frequently noted key opportunities /anticipated benefits included:

- Ensuring the safety of all travelers
- Improve existing structure to beautify the surrounding landscaping
- Provide better access for pedestrians and cyclists (increase active mobility)
- Additional traffic flow between Ottawa and Gatineau
- Adaptability to modern modes of transportation

As mentioned above, analysis of the data, responses and comments which derive from the meetings with stakeholders and the fall 2021 survey will be published in Winter of 2022 and will be used to continue to inform stages of the Project. The summary will be accessible via the NCC's website.

The IPT remains committed to engaging with the public and stakeholders. Future plans for engagement are highlighted in the section below.

### **3.6 Plans for Future Engagement**

Public engagement for the Project will include four (4) additional rounds of public consultation centered on design and construction milestones: conceptual design, functional design, preliminary design, detail design, and construction plans. These future consultations will also provide opportunities for the public to weigh in on potential mitigation and enhancement measures as the new bridge's design and the likely impacts of the Project, as a whole, become better defined. An overview of the objectives, activities, tools, and timelines for these future stages of public consultation is provided in Table 3-15.

In addition to formal stages of consultation articulated around Project milestones, the IPT will continue to engage with stakeholder groups and members of the public as the need arises throughout the Project life cycle.

#### **3.6.1 Ongoing, Inclusive Engagement**

Building on the momentum of the online public consultation and meetings with stakeholder groups held during the Project's first stage of public consultation, the NCC and PSPC are actively pursuing new opportunities for dialogue with a broad range of stakeholders and members of the public, including but not limited to heritage coalitions, disability support organizations and accessibility advocacy groups, as well as adjacent landowners. An exhaustive list of those who have been invited to participate in public consultations is identified in Appendix C.

The Project team is committed to remaining responsive to the needs of stakeholder groups and members of the public for deeper and more frequent engagement between and throughout the different stages of public consultation. In keeping with this commitment, members of the Project team have recently met with stakeholder groups and individuals who have expressed interest in following up on certain issues addressed during the first stage of public consultation.

This includes heritage organizations with specific concerns about the bridge’s replacement, and members of the public who want to share their ideas for the new bridge’s design.

With the first stage of formal consultation now completed, we are also taking stock of who has been “at the table” so far and assessing how we can make more room for those whose voices have not yet been heard. For example, after the first stage of the consultation process, a need for more thorough engagement with stakeholders adjacent to the proposed Project site was identified and carried out during the summer 2021. Consultations with the Museum of Canadian History and the National Gallery of Canada were held as part of this stage. Other stakeholders including, for example, the NCC tenants at the Hull Wharf have also been identified as requiring a more detailed exchange.

In addition, based on feedback from the NCC’s Advisory Committee on Universal Accessibility (ACUA), we are in the process of planning meetings with disability advocacy groups to ensure that the perspectives and experiences of persons with disabilities are better understood and considered. We are also creating opportunities for institutions and organizations located near the Alexandra Bridge, or whose membership or clients regularly use the bridge, to have more in-depth and frequent conversations with us about their specific needs and concerns in relations to the Project. Among these groups are local community associations, embassies, homeless shelters, hotels, sports and recreation clubs, and cultural institutions.

Moving forward, the NCC will allow participants to self-identify and continue to offer diverse approaches to facilitate participation in public consultation. Future consultations could include virtual town halls, surveys, and face-to-face consultation, if suitable. Efforts to ensure that all consultation is inclusive and considers diverse perspectives as part of the Project’s public engagement process will be ongoing. Such efforts are further outlined in the Table 3-14.



**Table 3-14: Plans for future public engagement**

What we plan to do	How we intend to do it
<p><b>Assess whether we are hearing from a representative cross-section of the local population and identify gaps in our outreach.</b></p> <p><b>Question our assumptions and biases about who is likely to be affected by this Project, and how they are likely to experience its effects.</b></p>	<ul style="list-style-type: none"> <li>• Compare the demographic makeup of our existing interlocutors to data on the demographic composition of the National Capital Region to identify gaps.</li> <li>• Be transparent about our outreach and engagement process. Invite scrutiny and feedback.</li> <li>• Make the question: “Who might we have left out of the conversation?” part of our engagement with new and existing stakeholder groups.</li> </ul>
<p><b>Reach out to those whose voices have not yet been heard and make meaningful efforts to remove barriers to their participation in the public engagement process.</b></p>	<ul style="list-style-type: none"> <li>• Develop outreach methods tailored to groups from whom we have not yet heard.</li> <li>• Make the question: “How would you prefer to be engaged?” a central part of public engagement strategies.</li> <li>• Adapt the means and logistics of engagement initiatives to the needs expressed by stakeholder groups and members of the public.</li> </ul>
<p><b>Create conditions in which public engagement participants can fully express themselves.</b></p>	<ul style="list-style-type: none"> <li>• Consider the need to hold separate consultation sessions to create a safe space where participants can raise their concerns and share their aspirations for the Project comfortably and without fear of exclusion or marginalization.</li> <li>• In online engagement initiatives, consistently include open-ended questions that allow participants to freely articulate their thoughts about the Project.</li> </ul>

### 3.6.2 Schedule of Past and Proposed Public Engagement Activities

Table 3-15 provides an overview of plans for public engagement during each phase of the Impact Assessment Process.

**Table 3-15: Overview of objectives and timelines for public engagement**

Stage(s)	Public engagement objectives	Expected activities	Public participation tools	Proposed Timelines
<b>Pre-Planning</b>	Build relationships with key stakeholder groups on a flexible basis during and between formal consultation events	Meetings and correspondence with stakeholder groups  Online public consultation	Microsoft Teams meetings  Phone calls  Social media  Email  Advertising  Project Webpage  Survey	Ongoing



Stage(s)	Public engagement objectives	Expected activities	Public participation tools	Proposed Timelines
<b>Planning</b>	Provide members of the public with an opportunity to: <ul style="list-style-type: none"> <li>• Share their thoughts and concerns about how they might be affected by the Project.</li> <li>• Share updates on the Project (e.g., timelines for alignment decision).</li> <li>• Propose additional ideas to minimize any adverse effects and identify other enhance any benefits.</li> <li>• Propose ideas as to how the history and built heritage of the Alexandra Bridge should be celebrated after its replacement.</li> </ul>	Meetings with stakeholder groups	Mail drop Microsoft Teams meetings Email Advertising	(commenced November 2021)  Ongoing
<b>Impact Statement</b>	Provide members of the public with an opportunity to: <ul style="list-style-type: none"> <li>• Learn about the conceptual design options</li> <li>• Provide feedback on conceptual design options</li> </ul>	Meetings with stakeholder groups	Microsoft Teams meetings Social media Email Advertising	Spring/Summer 2022

Stage(s)	Public engagement objectives	Expected activities	Public participation tools	Proposed Timelines
<b>Impact Assessment</b>		Online public consultation	Project webpage Online survey Social media Email Advertising	Summer 2022
	Provide members of the public with an opportunity to: <ul style="list-style-type: none"> <li>Learn about the preliminary design</li> <li>Provide feedback on the preliminary design</li> </ul>	Meetings with stakeholder groups	Microsoft Teams meetings Social media Email Advertising	TBD
		Online public consultation	Project webpage Online survey Social media Email Advertising	TBD
	Continue engaging with key stakeholder groups on a flexible basis during and between formal consultation events	Meetings and correspondence with stakeholder groups	Microsoft Teams meetings Email Phone calls	April 2021 to summer 2023

Stage(s)	Public engagement objectives	Expected activities	Public participation tools	Proposed Timelines
<b>Impact Assessment</b>	Provide members of the public with an opportunity to: <ul style="list-style-type: none"> <li>Learn about the final design</li> <li>Provide feedback on the final design</li> </ul>	Meetings with stakeholder groups	Microsoft Teams meetings  Social media  Email  Advertising	TBD
		Online public consultation	Project webpage  Online survey  Social media  Email  Advertising	TBD
	Continue engaging with key stakeholder groups on a flexible basis during and between formal consultation events	Meetings and correspondence with stakeholder groups		Summer 2023 to spring 2025
<b>Decision-making</b>	Provide members of the public with an opportunity to: <ul style="list-style-type: none"> <li>Learn about the final design and construction plan</li> </ul>	Meetings with stakeholder groups	Microsoft Teams meetings  Social media  Email  Advertising	TBD

Stage(s)	Public engagement objectives	Expected activities	Public participation tools	Proposed Timelines
	<ul style="list-style-type: none"> <li>Provide feedback on the final design and construction plan</li> </ul>	Online public consultation	Project webpage Online survey Social media Email Advertising	TBD
	Continue engaging with key stakeholder groups on a flexible basis during and between formal consultation events	Meetings and correspondence with stakeholder groups	Microsoft Teams meetings Email Phone calls	Spring 2025 to summer 2025
<b>Post-impact assessment decision phase</b>	Continue engaging with key stakeholder groups on a flexible basis during and between formal consultation events	Meetings and correspondence with stakeholder groups	Microsoft Teams meetings Email Phone calls	Winter 2025 to fall 2032

## 4 SUMMARY OF ENGAGEMENT WITH INDIGENOUS PARTNERS

The following section outlines the Crown's duty to consult, provides an overview and a summary of engagement (to date) and consultation with Indigenous Partners, communities and organizations for the Project. Also included is the plan for future engagement and initiatives which will occur throughout the life cycle of the Project.

Other sections of this document contain key considerations and information pertaining to Indigenous engagement and participation in the Project, including:

- Section 13.4 – Proximity to Indigenous Lands
- Section 18 – Potential environmental impacts on Indigenous Partners
- Section 19 – Potential impacts on the health, social and economic conditions of Indigenous Partners
- Appendix D – provides a record of engagement with Indigenous Partners, communities and organizations
- Appendix E – provides details of engagement with each specific Indigenous Partners' community and organization, including Initial comments on issues and concerns, requirements of the Indigenous partners for engagement, and a record of procedural and substantive engagement with each Indigenous Partner
- Figure 13-6 provides a map highlighting the location of each Indigenous Partners community and their distance to the Project

Meaningful engagement and consultation involve reaching a shared understanding of the potential impacts of the Project on:

- Physical and cultural heritage
- The current use of lands and resources for traditional purposes
- Any structure, site or thing that is of historical, archaeological, paleontological or architectural significance
- The health, social or economic conditions of Indigenous Peoples

The engagement activities will provide opportunities for each Indigenous Partner, community and organization to review Project-specific details, identify components of value, participate in studies, conduct their own studies, gather and provide Indigenous knowledge, identify issues and concerns, recommend enhancements or mitigation measures, and increase opportunities for economic benefits to be obtained by Indigenous Partners, businesses and communities as a result of the Project.

The approach to obtain disaggregated data for segments of the Indigenous Peoples will include consideration of the potential impacts on diverse groups resulting from changes to health, social, economic conditions, impacts on heritage, and the use of lands and resources for traditional purposes. The Indigenous communities will consider how to engage with subpopulations throughout the impact assessment process.

The small size of many of the communities and the personal nature of the issues require special considerations to gather and understand local perspectives and to protect sensitive information. Details will emerge as more engagement occurs during all stages of the Project. PSPC and the NCC will work with each Indigenous Partner(s), community and organization to seek participation from diverse groups and identify subpopulations that may experience the Project differently. The focus will be to understand how the Project might affect diverse groups of people differently, provide opportunities for a more equitable distribution of the Project's benefits and ensure that impacts are understood and effectively mitigated.

Economic benefits from the Project will flow mainly from participation by Indigenous people and businesses in the contracting and work opportunities stemming from every stage of the Project, from planning through design, construction and the long-term maintenance and operations of the new bridge.

## 4.1 Commitment to Reconciliation

Fulfilling the government's commitment to reconciliation requires a renewed, nation-to-nation, government-to-government relationship based on recognition of rights, respect, co-operation, and partnership. Canada's actions to advance reconciliation are deeply rooted in the Honour of the Crown—a constitutional principle requiring the Crown to act with honour and integrity in its dealings with Indigenous Peoples. In keeping with this, PSPC acknowledges and recognizes the duty to consult with Indigenous Partners and is committed to strengthening partnerships and advancing reconciliation efforts.

Indigenous Peoples have a long history in the NCR and must continue to be a defining aspect of the Capital. The IPT continues to seek ways to build strong relations with local Indigenous leaders and peoples, focusing on ensuring that their interests are truly reflected in the numerous Projects and initiatives being undertaken across the region.

As the department responsible for the Government of Canada's procurement services, PSPC has a pivotal role to play in rebuilding relationships between the federal government and Indigenous Partners, including:

- Creating more opportunities for Indigenous businesses to succeed and grow by ensuring a minimum of 5 per cent of the total value of federal contracts are held by Indigenous businesses\*
- Helping to advance self-determination, close socio-economic gaps and eliminate systemic barriers faced by Indigenous Peoples
- Ensuring Indigenous Peoples are represented in leadership positions within PSPC
- A commitment to skills-based training in intercultural competency, conflict resolution, human rights, and anti-racism for PSPC employees

\* Each contract awarded at every stage of the Project will include a requirement for private sector bidders to develop an Indigenous Participation Plan, detailing how the winning bidder will address human resources (hiring, support and retention), skills development, subcontracting, and other innovative measures that will support participation by Indigenous people and businesses.



Specific commitments to reconciliation linked to the Truth and Reconciliation Commission's (TRC) Calls to Actions and the National Inquiry into Missing and Murdered Indigenous Women (MMIW) and Girls' Calls for Justice include:

- TRC # 43 and 44 – engagement activities will ensure respect of Indigenous rights
- TRC #92 – requiring contractors to increase Indigenous economic participation
- MMIW 4.2 – education and training plans, and improved hiring, support and retention practices required in the Indigenous Benefits Plans will improve equity in economic opportunities

Barriers to economic participation of women will be identified and addressed.

## 4.2 Duty to Consult with Indigenous Groups

The Crown has a duty to consult aboriginal peoples when it acts in a manner that may adversely affect aboriginal or treaty rights guaranteed by section 35 of the *Constitution Act, 1982*. The existence of the rights need not be proven but only credibly asserted in order to trigger the duty.

Three (3) factors required to trigger the common law duty to consult are evident in the Project:

1. There is a proposed Crown conduct.
2. The proposed Crown conduct could potentially have an adverse impact on potential or established Aboriginal or Treaty rights.
3. There are potential or established Aboriginal or Treaty rights in the area.

The IPT, as Crown entities, have a Duty to Consult with Indigenous groups prior to the Impact Assessment (IA) process formally commencing and also after the decision, should an IA be required for the Project. To this end, the IPT initiated engagement early in the planning process, in March 2020.

## 4.3 Indigenous Partners Potentially Impacted

The identification of potentially impacted Indigenous Partners was determined by considering:

- The identification by Indigenous Partners of their traditional territories that intersect or overlap with the watershed of the Ottawa River.
- Whether the Project could have potential impacts on physical and cultural heritage, current land use and resources for traditional purposes.
- Whether the Project could potentially create changes to health, social or economic conditions of Indigenous Partners.

Information sources included the Aboriginal and Treaty Rights Information System (ATRIS), websites of Indigenous communities and organizations, the record of decisions of the Supreme Court of Canada, records from the Governments of Ontario and Quebec concerning land claims and modern treaty negotiations as well as recent experiences with Indigenous engagement by PSPC and the NCC concerning other federal Projects in the NCR and within the traditional territories of the Indigenous Peoples. After considering all these sources, the following list of Indigenous Partners, communities and organizations was identified for engagement:

#### 4.3.1 In Québec

- Algonquin Anishinabeg Nation Tribal Council (AANTC)
- Algonquin Nation Secretariat
- Le Conseil de la Première Nation Abitibiwinni
- Kebaowek First Nation
- Kitigan Zibi Anishinabeg First Nation
- Le Conseil de la Nation Anishnabe du Lac Simon
- Long Point First Nation
- La Communauté Anicinape de Kitcisakik
- Timiskaming First Nation
- Wolf Lake First Nation
- The Algonquins of Barriere Lake
- La Nation Huronne-Wendat
- The Mohawk Council of Kahnawake
- The Mohawk Council of Kanesatake

#### 4.3.2 In Ontario

- Algonquins of Pikwakanagan First Nation
- Wahgoshig First Nation
- Algonquins of Ontario (AOO), including the member communities of:
  - Antoine
  - Bonnechere
  - Greater Golden Lake
  - Kijicho Manito Madaouskarini (Bancroft)
  - Mattawa/North Bay
  - Ottawa
  - Whitney and Area
  - Shabot Obaadjiwan (Sharbot Lake)
  - Snimikobi (Ardoch)
- Métis Nation of Ontario
- The Mohawk Council of Akwesasne





## 4.4 Financial Support for Indigenous Engagement

### 4.4.1 The Crossings Program of Work

Indigenous engagement and consultation will be done specifically for the Project. At the same time, PSPC is engaging with the same Indigenous communities and organizations on other bridge-related Projects in the NCR and further upstream of the Ottawa River that are within the traditional territories of the communities and organizations described above. The other bridges are at various stages in their lifespans and are subject to frequent needs for repair and maintenance. There is also preliminary consideration of a sixth crossing in the NCR. PSPC and the NCC refer to the collective activities as the Crossings Program of Work and see the engagement activities as complementary to the engagement and consultation being done for the Project.

### 4.4.2 Financial Support for the Project

Funding is being made available by the IPT to ensure the Indigenous Partners, communities and organizations have the capacity to participate throughout the IA process. Budget funds have been allocated over a multi-year period. PSPC and the NCC are working with the Indigenous Partners, communities and organizations to develop five (5) year budgets and work plans that will allow Indigenous Partners to plan ahead and make commitments to staff that will ensure continuity of participation. It is understood that the funding and work plans are not final once approved and will be revisited as the IA process evolves. The activities eligible for funding are extensive and not prescribed by list, giving the Indigenous Partners flexibility to determine what they need to participate. Examples of activities identified to date by Indigenous Partners include:

- Increasing staff capacity (recruiting), including hiring external consulting expertise
- Training staff and community volunteers
- Purchasing equipment to improve the ability to communicate with community members, attending meetings with community members, and undertaking studies of importance to the communities

PSPC does not have financial authority to enter into contribution agreements directly with Indigenous communities and organizations. Rather, PSPC will be using an existing relationship with Indigenous Services Canada (ISC) to flow funding through the Strategic Partnerships Initiative (SPI). The SPI process, which is used by several Government of Canada departments and agencies, allows PSPC to transfer funds to ISC, which uses its program authority to then execute contribution agreements with the Indigenous communities and organizations.

The amount of funding to be made available to each community and organization will be determined through a collaborative planning process whereby the Indigenous parties will identify their funding requirements.

## 4.5 Procedural Engagement with Indigenous Communities and Organizations

Initial correspondence was sent to communities between March and August 2020. The letters sent to le Conseil de la Première Nation Abitibiwinni, la Nation Anishnabe du Lac Simon, and la communauté Anicinape de Kitcisakik were in French. The letters to the other Indigenous communities and organizations were in English.

The letters to the Indigenous communities and organizations requested opportunities to meet or otherwise communicate to understand their requirements for engagement, including:

- How they would like to be engaged and consulted
- What information they will need about the proposed Project
- How they would like to share Indigenous knowledge
- Initial issues and concerns they may have about the Project
- Their views on possible economic benefits of the Project
- Opportunities for employment and contracting for Indigenous businesses and workers

Follow up letters were sent by the IPT to all Indigenous Partners, communities and organizations in November 2020 for the formal commencement of engagement. The letters reaffirmed the interests of the IPT to understand the groups' requirements for engagement and confirm the availability of funding to support engagement requirements of the communities and organizations. Engagement is on going and a record of communication is captured in appendix D and E ; which provides a chronological record of the procedural aspects of engagement, including a record of the discussions about engagement procedures expressed by the Indigenous communities and organizations to date.

Where Indigenous communities and organizations, PSPC and NCC were able to partake in an initial meeting about the Project. The presentations and discussions have focused on:

- Information from the communities and organizations about their situations and interests in the Project
- Background on the current Alexandra Bridge including its location and the need to replace it
- Project timelines
- The IPT's initial overview of potential impacts
- Examples of mitigation and enhancement measures
- Anticipated studies to be conducted for the Impact Assessment
- Discussion of the Indigenous views of potential effects
- Availability of funding to support Indigenous participation in the process
- How the Indigenous communities or organizations wish to be engaged
- Indigenous community or organization's views of appropriate next steps

This early engagement with Indigenous communities and organizations has provided initial considerations of how Project impacts and benefits affect people differently.

For example, the engagement summary of social and economic impacts with the Algonquins of Pikwakanagan First Nation describes barriers to employment related to the lack of access to training and education, the cost and scarcity of childcare, lack of support on job sites for Indigenous people, and the lack of transportation to job sites. The engagement summary of social and economic impacts with the Kebaowek First Nation describes the need for additional support for young people interested in education and careers in science, technology, and engineering.

The initial communications with Indigenous communities and organizations in March 2020 coincided with measures enacted by all government levels, including Indigenous governments, to address the COVID-19 pandemic. Most Indigenous communities and organizations closed their administrative offices for an indefinite period in response to the pandemic. Addressing more pressing issues and responding to the pandemic limited opportunities for engagement.

Due to the COVID-19 lock-down orders and travel restrictions, PSPC and NCC staff could not attend in-person meetings in communities and restricted the Councils and staff of Indigenous communities and organizations from working in the same location.

Where communities had the opportunity and technical capacity to meet with PSPC and the NCC through telephone or video conferencing, engagement meetings commenced. PSPC and the NCC informed Indigenous communities and organizations that funding was available to purchase equipment to improve their communications capacity with external parties and within their communities with their own members. The Algonquins of Pikwakanagan First Nation was able to use PSPC funding to purchase equipment and technical support services to implement new ways of connecting with community members.

PSPC and NCC will continue to reach out to all Indigenous communities and organizations identified for engagement through emails and telephone to determine when engagement will occur or to receive notification that a community/organization chooses not to be engaged at this time. Initial discussions resulted in preliminary questions and concerns that are summarized in Table 4-1. Project updates and procurement activities will be shared with all communities and organizations. Should a community or organization state its readiness to proceed with engagement, all efforts will be made through contact and the provision of funding to expedite their participation.



Table 4-1 summaries the key area of concerns and/or interests raised by the following communities:

- Algonquin of Pikwakanagan First Nation
- Algonquins of Ontario
- Algonquin Anishinabeg Nation Tribal Council
- Kebaowek First Nation
- Timiskaming First Nation
- Wolf Lake First Nation
- Long Point First Nation
- Kitigan Zibi Anishinabeg First Nation
- Algonquins of Barriere Lake
- Wahgoshig First Nation
- Le Conseil de la Nation Anishnabe du Lac Simon
- La Communauté Anicinape de Kitcisakik
- Le Conseil de la Première Nation Abitibiwinni
- Mohawk Council of Kanesatake
- Mohawk Council of Kahnawake
- Mohawk Council of Akwesasne
- La Nation Huronne-Wendat
- Métis Nation of Ontario

**Table 4-1: Summary of the key concerns/interest raised by select Indigenous Communities**

Indigenous Community	Area of Concern or Interest	Integrated Project Team's response
<b>Algonquins of Pikwakanagan First Nation</b>	Participation in project studies: community will conduct its own studies and will determine later how it will participate in studies led by the proponent.	Funding has been provided by the proponent according to a work plan and budget provided by Algonquins of Pikwakanagan First Nation.  Additional work items identified by Algonquins of Pikwakanagan First Nation during the impact assessment will be discussed by a joint working group.
	Participation/requirement to guide and develop environmental management and restoration plans, including environmental enhancements.	Early and continuous engagement will occur with all potentially impacted Indigenous groups.
	Protective and enhancement for wildlife, and habitat restoration	The IPT will provide opportunities for Indigenous Communities to be involved in the creation of protective

Indigenous Community	Area of Concern or Interest	Integrated Project Team's response
	plans must be developed with Indigenous involvement.	and enhancement wildlife and habitat restoration plans.
	Algonquins of Pikwakanagan First Nation members and businesses must benefit from economic opportunities.	Engagement with Algonquins of Pikwakanagan First Nation is ongoing regarding identification of economic barriers and opportunities, further details are not available at this time.
<b>Algonquins of Ontario</b>	Damage to spawning grounds and fish habitat, harming fish populations throughout the Ottawa River watershed.	<p>The bridge will be designed and constructed to not impede or restrict the movement of aquatic species throughout the Ottawa River watershed.</p> <p>Through the implementation of habitat creation, restoration and other offsetting measures, impacts from this Project on fish and fish habitat to achieve net environmental benefits may be positive over the long-term.</p>
	Need for fish habitat restoration and monitoring after completion of construction.	<p>The effectiveness of mitigation measures will be monitored to ensure that there is no long-term harm to fish and other aquatic species.</p> <p>Areas affected by construction that can be rehabilitated will be restored.</p> <p>Habitat creation, restoration and other offsetting measures will be considered to achieve positive net environmental benefits over the long-term.</p>
	Need for financial support for AOO engagement activities and environmental monitoring.	AOO has submitted a work plan and budget that is under review by the IPT.

Indigenous Community	Area of Concern or Interest	Integrated Project Team's response
<b>Algonquin Anishinabeg Nation Tribal Council</b>	Need for financial support for engagement activities and to support members to share in economic benefits.	Funding has been provided for staff positions and AANTC is developing a work plan and budget for expanded activities.
<b>Kebaowek First Nation</b>	Impediments to the movement of aquatic species and damage to spawning grounds and fish habitat.	The bridge will be designed and constructed to not impede or restrict the movement of aquatic species throughout the Ottawa River watershed.
	Need for fish habitat restoration and monitoring after completion of construction.	<p>The effectiveness of mitigation measures will be monitored to ensure that there is no long-term harm to fish and other aquatic species.</p> <p>Areas affected by construction that can be rehabilitated will be restored.</p> <p>Habitat creation, restoration and other offsetting measures will be considered to achieve positive net environmental benefits over the long-term.</p>
	Need for financial support for engagement activities and to support members to share in economic benefits.	Discussions are underway about the Nation's needs for financial support.
<b>Timiskaming First Nation</b>	Involvement in reviewing terms of reference for project studies	The IPT will provide the opportunities for Indigenous communities to participate in the development of terms of reference for studies.
	Studies should include a cumulative effects study considering historical use of the Ottawa River and how the next seven generations will be affected.	Agreed.

Indigenous Community	Area of Concern or Interest	Integrated Project Team's response
<b>Wolf Lake First Nation</b>	The Nation needs financial support for engagement.	Funds have been offered to support staff participation and the hiring of external experts.
<b>Long Point First Nation</b>	No issues have been identified yet.	The IPT will continue to communicate with the Nation and provide funding support when requested.
<b>Kitigan Zibi Anishinabeg First Nation</b>	Engagement and consultation should occur with rights-holding Algonquin Nations.	Engagement will occur with all potentially impacted Indigenous groups.
<b>Algonquins of Barriere Lake</b>	No issues have been identified yet.	The IPT will continue to communicate with the Nation.
<b>Wahgoshig First Nation</b>	No issues have been identified yet.	The IPT will continue to communicate with the Nation.
<b>La Nation Anishnabe du Lac Simon</b>	Interest has been expressed in economic opportunities.	The IPT will work with the Nation on an Indigenous Participation Plan to ensure economic opportunities are available.  The IPT will continue to communicate with the Nation and provide funding support when requested.
<b>La Communauté Anicinape de Kitcisakik</b>	The quality of the environment within the Ottawa River watershed.	Habitat creation, restoration and other offsetting measures will be considered to achieve positive net environmental benefits over the long-term.
<b>Le Conseil de la Première Nation Abitibiwinni</b>	Interest has been expressed in economic opportunities.	The IPT will work with the Nation on an Indigenous Participation Plan to ensure economic opportunities are available.
<b>Mohawk Council of Kanesatake</b>	No issues have been identified yet.	The IPT will continue to communicate with the Nation.

Indigenous Community	Area of Concern or Interest	Integrated Project Team's response
<b>Mohawk Council of Kahnawake</b>	No issues have been identified yet.	The IPT will continue to communicate with the Nation.
<b>Mohawk Council of Akwesasne</b>	No issues have been identified yet.	The IPT will continue to communicate with the Nation.
<b>La Nation Huronne-Wendat</b>	Intention to participate in the assessment environment, social and economic impacts.	The IPT will continue to communicate with the Nation and provide funding support when requested.
<b>Métis Nation of Ontario</b>	No issues have been identified yet.	The IPT will continue to communicate with the Nation.

The IPT has reached out to all Indigenous communities, as identified in 4.3. Note that not all of the communities have submitted comments to the IPT, nor have we had the opportunity for an initial meeting. More concerns/impacts are expected to be raised as engagement and discussions are ongoing.

## 4.6 Economic Benefits – Indigenous Participation Plans

The significant amount of contracting and employment associated with the bridge planning, construction and operations will offer many opportunities for Indigenous workers and companies to obtain economic benefits from the Project.

PSPC and the NCC will utilize an approach to creating Indigenous benefits through Indigenous Participation Plans (IPP), to leverage training opportunities, employment, sub-contracting and capacity building for Indigenous businesses and people.

PSPC will be engaging private sector contractors to plan, build and operate the bridge through formal procurement processes and legal contracts. Each bidder will be required to submit an Indigenous Participation Plan with its bid, with a clear statement of the minimum amount of Indigenous benefits that the bidder proposes to provide, expressed in dollars and as a percentage of the total contract value. There will be a number of contracting opportunities throughout the life of the Project for example, there will be different contracts issued to undertake scientific studies, to design the bridge, to remove the existing bridge and build its replacement, and to maintain the bridge. Each contract will bring an opportunity for a unique IPP.

PSPC will work with potential bidders and Indigenous communities to support collaboration between the parties for the development of IPPs, especially concerning the identification of existing community capacity and desired areas of investment for future capacity. Following the signing of contracts with the successful bidders, PSPC will convene regular meetings with Indigenous communities and the contractor to monitor progress, address any issues or changing conditions that arise, and adjust the IPPs if necessary.



Each bidder will be required to provide information on how it will address key aspects of the IPP, including:

**Human Resources Plan** - how employment of Indigenous people will be managed:

- Details on the work to be carried out for each position proposed to be filled by an Indigenous person
- Strategies for recruitment of Indigenous persons
- Strategies for retention of Indigenous persons
- Succession planning
- Staff management

**Skills Development Plan** - how the Contractor or its subcontractor(s) intends to maximize the training and skills development of Indigenous persons through:

- Apprenticeship programs
- Pre-professional programs
- College programs
- On the job training
- In-house training programs

**Indigenous Business Plan** – how the Contractor intends to maximize the use of Indigenous firms, including:

- Identifying the work intended to be carried out by Indigenous firms, as well as the dollar value of the work
- Detailing how business with Indigenous firms will be managed, from developing sources of supply to administration
- Detailing any development of new sources of supply, or new capabilities

**Innovative Approaches and Other Measures** - any measures that produce Indigenous benefits and are not covered by previously listed categories. These include, but are not limited to:

- Specialized training or programs required for employment onsite
- Other activities related to but not specifically detailed in the Statement of Work
- Participation in careers events, such as high school visits, career presentations and scholarships
- Community outreach Projects to create a positive image
- Innovative approaches that could stimulate economic development of Indigenous communities and contribute to capacity building for Indigenous Businesses and Peoples

## 4.7 Plans for Future Engagement

PSPC and the NCC will continue to engage with Indigenous communities and organizations according to the pace and scope of engagement that the Indigenous groups desire.

Table 4-2 summarizes each phase of the Project’s proposed engagement activities for each phase of the impact assessment process.

**Table 4-2: Past and Proposed engagement activities during the impact assessment process.**

Year	Phase	Engagement Activities
2020 and 2021	Pre-planning	<p>PSPC and the NCC will engage with all interested and potentially impacted Indigenous communities and organizations to introduce the Project.</p> <p>PSPC and the NCC will engage Indigenous communities and organizations to create work plans and execute agreements to provide funding to support their engagement in the planning and impact assessment processes.</p> <p>Seek information from Indigenous communities and organizations on values of importance, potential effects and impacts related to changes in health, social, economic and environmental conditions due to the Project.</p> <p>Seek direction from the communities concerning:</p> <ul style="list-style-type: none"> <li>• cultural practices to be followed</li> <li>• expectations for time allotted for review, dialogue and collaboration</li> <li>• language or format of information shared</li> <li>• how Indigenous governments require to be kept informed</li> <li>• working committees to be formed</li> <li>• specific studies that an Indigenous group may lead or participate in</li> <li>• how various Indigenous groups choose to work together in relation to the IA process</li> <li>• how Indigenous knowledge will be used and protected</li> </ul> <p>Share the draft Initial Project Description with Indigenous communities and organizations and incorporate their comments and requirements prior to official submission to the IAAC.</p>

Year	Phase	Engagement Activities
<b>2021</b>	Pre-Planning	<p>PSPC and the NCC will engage with the Indigenous communities and organizations to carry out studies and address issues, including exploring mitigation measures and enhancements.</p> <p>PSPC and the NCC will address concerns from the IAAC’s summary of issues stemming from posting of the IPD to the registry, which may require additional engagement to understand the potential impacts of the Project on Indigenous communities and organizations.</p> <p>PSPC and the NCC will consider how to establish funding agreements and consultation protocols with the Indigenous communities and organizations.</p> <p>PSPC and the NCC will work with Indigenous communities and organizations to create and carry out Indigenous Participation Plans to generate socio-economic benefits for their members, including identifying obstacles and barriers to education and employment and working together to address the problems.</p>
<b>2022 to 2024</b>	Planning  (Impact Assessment Process - Phase 1)  Impact Statement  (Impact Assessment Process - Phase 2)	<p>PSPC and the NCC will collect and validate information from Indigenous groups and communities on matters such as baseline conditions, technical expertise including Indigenous Knowledge, potential effects and impacts on health, social, economic and environmental conditions, enhancement measures, and mitigation and follow-up measures to address potential adverse effects or impacts of the Project.</p> <p>PSPC and the NCC will engage with the Indigenous communities and organizations to address any gaps in the proposed studies.</p> <p>PSPC and the NCC will engage with Indigenous communities and organizations on the design of the replacement bridge.</p> <p>PSPC and the NCC will work with the Indigenous communities and organizations to carry out the Indigenous Participation Plans, including liaison with potential private sector contractors for a mutual understanding of challenges and opportunities, and with parties that can assist with training, education, apprenticeship, job site support and other factors critical to the success of Indigenous workers and contractors.</p>
<b>2025</b>	Planning	<p>PSPC and the NCC will continue to consult with the Indigenous communities and organizations throughout the life of the Project.</p>

Year	Phase	Engagement Activities
	Impact Assessment  (Impact Assessment - Phase 3) (Decision Making – Phase 4)	PSPC and the NCC will also participate in IAAC-led consultations with Indigenous groups.  PSPC and the NCC will provide comments and follow-up program measures outlined in the IAAC's draft Impact Assessment Report and potential conditions.
	Planning  (Decision Making – Phase 4)	PSPC and the NCC will continue to consult with Indigenous communities and organizations throughout the life of the Project.
<b>2025 to 2027</b>	Planning  (Post-Decision - Phase 5)  Procurement and Detailed Design	PSPC and the NCC will engage with Indigenous communities and organizations on the design of the replacement bridge.  PSPC and the NCC will work with Indigenous communities and organizations to carry out the Indigenous Participation Plans.
<b>2028-2031</b>	Construction  Monitoring and adaptation	PSPC and the NCC will work with Indigenous communities and organizations on monitoring and enforcement of contractual provisions to prevent the occurrence of negative impacts and effects.  PSPC and the NCC will work with Indigenous communities and organizations to ensure the provisions of the Indigenous Participation Plans are being realized.
<b>2032 and beyond</b>	Operations	PSPC and the NCC will work with Indigenous communities and organizations on monitoring and to adapt mitigation measures as required.  PSPC and the NCC will work with Indigenous communities and organizations to ensure the provisions of the Indigenous Participation Plans are being realized.  Annual reports will be shared and discussed with Indigenous groups.

## 5 ENGAGEMENT WITH GOVERNMENT ENTITIES

### 5.1 Summary of Past Engagement with Government Entities

#### 5.1.1 Municipal and Public Transportation Engagement

As part of the LCCA (MMM Group Ltd, 2018) a limited consultation process with five (5) stakeholders occurred in December 2016. These stakeholders, also considered regional transportation partners, included the City of Ottawa, the Ville de Gatineau, the Société de transport de l'Outaouais (STO), OC Transpo, and the NCC. The purpose of the consultation was to obtain stakeholder input and comments on the expected and desired functionality of the Alexandra Bridge crossing. In general, it was agreed that the functional requirements of the existing crossing should be maintained as a minimum, although all parties expressed interest in improving the functionality of the crossing for pedestrians and cyclists.

The consultation revealed that there were not any major conflicting views between the stakeholders, several common points were established and are summarized below:

- There is no inclination towards providing additional vehicular capacity towards or across the Alexandra Bridge
- Active and sustainable transportation are a priority with pedestrians and cyclists at the crossing being important in the active transportation network
- It would be desirable to increase the person capacity without increasing the vehicular capacity but rather increasing the transit ridership and promoting active modes of transportation and
- Maintaining the multi-use pathway (boardwalk) is a must with priority to providing increased/sufficient widths and separation between pedestrian and cyclists

#### 5.1.2 Engineering Partners Engagement and Collaboration

Engagement and collaboration of Engineering and Transportation Agencies related to Interprovincial Bridges and the Project was established among Federal, Provincial, Municipal Transportation Partners and other stakeholders.

The NCC, PSPC, Ministry of Transportation Ontario (MTO), Ministère des Transports (Québec) (MTQ), City of Gatineau and Ottawa, STO, OC Transpo, and Zibi (which is a waterfront community that is currently under development in close proximity to the Project area) began meeting during the flood in 2019 to coordinate transportation concerns given that the Chaudière Crossing was closed due to unprecedented water levels and threatened to close the downstream Portage Bridge. The partners lead jointly by NCC and PSPC coordinated the revision of transportation routes during the flood.

This partnership continues with the Partners sharing upcoming construction Projects to ensure that the travelling public is not adversely affected by adjusting scheduled works when possible. This includes planning for when the Alexandra Bridge is no longer in service, and reconstruction begins in 2028.

This partnership has also served to discuss the functional requirements of the replacement Alexandra Bridge as well as the future design of the at the North approach of the bridge (corner of rue Laurier and boulevard des Allumettières in Gatineau) that is under additional study.

As recently as December 2020, PSPC benefited from this partnership to communicate the possible closure of the Alexandra Bridge from January 2, 2021, to June 14, 2021, as urgent repairs were required. The bridge was closed to enable repairs during this period.

### 5.1.3 Spring 2020 Partner Engagement

A Feasibility Study completed by Parsons in July 2019 assessed options for an interprovincial transit loop between Ottawa and Gatineau. A virtual meeting was held on March 26, 2020, between the NCC and PSPC to discuss the study findings. Part of the study involved the replacement of the Alexandra Bridge, and the following is a summary of the meeting findings with respect to the Alexandra Bridge replacement:

- A double-decker bridge option was discussed but was found to present a number of challenges.
- It was agreed that a 2-vehicle lane option appeared to be the most favourable compared to 3 and 4 vehicle lane options that were under consideration. The two lanes could potentially be shared between trams and traffic or converted to tram-only in the future.
- The City of Ottawa and Ville de Gatineau have previously requested that traffic capacity not be added to the bridge design.
- It was recommended that the existing 2.4 m Bikeway and 0.6 m buffer be reconstructed to at least meet the current standard minimum widths of 3.0 m and 1.0 m, respectively.

### 5.1.4 Federal Agencies Engagement

Engagement has also taken place with federal government agencies to coordinate early design considerations and opportunities for enhancements as the Project details are developed. Specifically, information sessions have been held by the NCC and PSPC with Transport Canada (TC) and Fisheries and Oceans Canada (DFO) in December 2020 and January 2021.

These preliminary meetings were an opportunity for NCC and PSPC to present the early details of the Project, as well as potential impacts and mitigation measures documented to date. For TC and DFO, the meetings were a chance to explain in further detail the requirements and timelines associated with their respective permit application processes, in addition to sharing any best practices or enhancements used for past similar bridge related projects.

Fisheries and Oceans Canada has a particular interest in the placement of the new structure footprints, as well as approaches to be used to protect fish and mussel species at risk. The DFO Request for Review and Project Authorization can be completed collaboratively in the early stages of the Project, and the DFO team from the Ontario region will be in contact with the associated Quebec region. This process will involve a review of the proposed Project to identify the potential impacts to fish and fish habitat. The IPT will work with DFO to ensure that impacts are managed in the best way possible.

Transport Canada discussed the importance of maintaining vessel passage and advance notice of any short-term interruptions to navigation. The TC authorization has a pre-submission service and will aid in achieving the requirements defined under the Navigable Waters Act.

### 5.1.5 Provincial Impact Assessment Agencies Engagement

Engagement of Provincial Environmental Assessment Agencies was initiated in early summer 2021 to understand their regulatory requirements and explore ways to harmonize these. The contacts will be provided once established, along with information such as timelines, consultation plans, and issues/effects that the regulatory oversight would manage.

Ontario Environmental Assessment Services will be engaged through the Impact Assessment Agency's standard process. Once they receive the Initial Project Description from the Agency, they will coordinate the distribution to various Ontario Ministries for comments.

Ontario Environmental Assessment Services does not anticipate that the Project will trigger the need for a provincial assessment but recommended that the specific Ministries be contacted to ensure that Class Environmental Assessments are not triggered, particularly for alteration of the bed and shore of the river under the Lakes and Rivers Improvement Act.

Engagement with the following Ministries was recommended:

Ministry of Northern Development and Mines, Natural Resources and Forestry (MNDMNRF)

- A disposition may be required for the footprint of the bridge
- Possible permit for Waterworks/impacts to riverbed

Ministry of Heritage, Sport, Tourism and Culture (archaeological interest)

- To engage in discussions related to archaeological interests
- Permit maybe required if archaeological artifacts are found during the Project

PSPC and NCC will continue to engage the Province of Ontario as the Project progresses to apprise them of conversations with other Ministries or stakeholders.

The Gouvernement du Québec, Ministère de l'Environnement et de la Lutte contre les changements climatiques indicated that details regarding water encroachment will be needed to determine how the Project qualifies under environmental impact assessment legislation. A Project that encroaches within the 2-year flood limit, over a distance of 500 m or an area of 5000 m<sup>2</sup> or more is subject to the province's environmental impact assessment procedure. This applies to both temporary and permanent encroachments. Should the Project require an impact assessment under provincial legislation, the IPT will work with the IAAC to harmonize the processes and coordinate with the Quebec Environmental Assessment office. Details of the design for the new bridge as well as temporary structures will be provided as they become available.

## 5.2 Plans for Future Engagement with Government Entities

The IPT has engaged with planning and engineering teams of the City of Gatineau, Ministère des Transport (Québec) (MTQ), City of Ottawa, and the Ministry of Transportation Ontario (MTO) to explore potential functional alignments and designs, in keeping with approved plans and guidelines such as the NCC's Confederation Boulevard Planning and Design Principles (refer to Appendix H) and the Ottawa River North Shore Parklands Plan ([NCC, 2018b](#)). Additional meetings with both municipalities and other government entities will be held as needed to discuss matters related to design issues, planning and coordination.





## 6 ENVIRONMENTAL STUDIES, REGIONAL PLANNING AND STRATEGIC ASSESSMENT

No regional studies, as defined under Section 93 of the *Impact Assessment Act*, have been or are currently being conducted in the Project area.

Similarly, no strategic assessment, as defined under section 95 of *the Act* has been completed to date.

Assessments, scans and studies have been undertaken in the past for other purposes and Projects. This information will be referred to and used, as applicable, to support the current Project. Table 6-1 provides an outline of the documents that will be referenced.

**Table 6-1: Outline of scans and assessments that were completed in 2003, and 2018 respectively.**

Scans, Studies and/or Plans	Completion Date	Details/Objectives of the Scans, Studies and/or Plans
Environment Assessment Screening (produced by DST Consulting Engineers Inc.)	2003	<ul style="list-style-type: none"> <li>An Environmental Assessment Screening (EAS) of the Bridges: The Chaudière Crossing, the Macdonald Cartier, and <i>the Alexandra Bridge</i>.</li> <li>The EAS, highlighted areas of concern such as: the impacts on the Ottawa River, Cumulative effects, forestry waste, impacts on oil, and gas.</li> <li>Highlighted individual mitigation measures for impact on biology, soil quality, water Groundwater quality and socioeconomic</li> </ul>
Preliminary Scan	2018	<ul style="list-style-type: none"> <li>A preliminary scan was conducted to gather early environmental considerations for three (3) interprovincial bridges: The Chaudière Crossing, the Macdonald Cartier, and <i>the Alexandra Bridge</i>.</li> </ul>

In addition to the existing scans and assessments, the NCC has Plans and Guidelines that form the basis of the proposed Project's evaluation under the FLUDTA process. A few of the most critical documents which will impact the analysis of Project alternatives include:

- The Plan for Canada's Capital 2017-2067 (2017)
- Canada's Capital Core Area Sector Plan (2005), currently under review
- Confederation Boulevard Guidelines, Management and Stewardship of Our Capital Legacy (2011)
- Ottawa River North Shore Parklands Plan (2018)
- Canada's Capital Views Protection Plan (2007)
- Capital Illumination Plan, 2017-2027 (2017)
- Capital Pathway Strategic Plan (2020)
- NCC Sustainable Development Strategy, 2018-2023 (2018)

These plans and guidelines will also be used to support the Project, as applicable.

As part of the Project plan development, the requirements of the Impact Statement Phase, and to address any information gaps, there are several studies to be conducted within the next two (2) years. Anticipated studies and assessments are further enumerated in Section 14.3 and will focus on the biophysical environment, cumulative effects, benefits/ impacts to Human health, heritage, economics, and Indigenous Partners (conditions related to their rights).

#### **Strategic Assessment (Climate Change)**

Under the Federal Sustainable Development Strategy ([FSDS](#)) ECCC 2019, the Government of Canada has made a commitment to "take action to understand the wide range of climate change impacts that could potentially affect federal assets, services and operations across the country." In addition, as stated in the FSDS, "All major real property projects will integrate climate change adaptation into the design, construction and operation aspects." In addition, a [Greening Government Strategy: A Government of Canada Directive](#) states that "Departments will ensure that all new buildings and major building retrofits prioritize low-carbon and climate resilience. Investment decisions will be based on total cost of ownership: [...] all new federal buildings, infrastructure and major building retrofits, including significant energy performance contracts, require a climate change risk assessment that incorporates both current and future climate conditions in the analysis".

As such and in keeping with section 95 of the Act and the FSDS, a Climate Risk Vulnerability Assessment (CRIVA) on Potential Climate and Weather Impacts will be conducted as part of the Project (see section 14.3.1). This assessment will provide a clear picture of the main threats, including nature and severity of the vulnerability of the infrastructure (the bridge), the level of risk, and the strategies for mitigating the impacts of climate change. Recommendations of the assessment will be considered in the design of the new bridge to enable the reconstruction of a new asset that is more resilient to sudden and protracted climatic events and conditions.

## Part B: Project Information

### 7 PROJECT PURPOSE AND NEED

#### 7.1 Purpose of Project

As part of a broader effort to improve interprovincial transportation in the NCR, the government mandated the replacement of the Alexandra Bridge in Budget 2019. The existing steel superstructure of the Alexandra Bridge has been demonstrating signs of on-going and accelerated deterioration since the last 2009-2010 rehabilitation contract. The deteriorating steel condition combined with the need to replace the existing east and west side cantilever decks as well as the cost to maintain the structure in a safe operating condition led PSPC to study alternatives. In 2016, PSPC commissioned a LCCA to compare rehabilitation of the existing bridge against its replacement. The bridge has had a long history of repairs and modifications over its life with the last major rehabilitation completed in 2009-2010 and additional work at the trestle spans completed in 2014. In 2016-2017, local replacement of deteriorated steel members and recoating work was also completed.

The LCCA concluded that it will be more reliable and economical, as well as posing lower risk for public safety over the long-term to replace the bridge rather than continuing to maintain it over the next 75 years. The replacement would involve the closure and decommissioning of the existing bridge prior to or in parallel with (twinning) building the new bridge and integrating it with existing and/or new approaches. The general route of the bridge would be unchanged, and the new bridge would be designed to remain an integral part of the National Capital Region's Confederation Boulevard. Changes to existing land and river infrastructure would be kept to a minimum except where improvements are necessary and/or desirable. This could include ecosystem enhancements where appropriate and applicable. Motor vehicle capacities will be maintained at existing levels, while the total available capacity for active transport will increase as the lanes are expected to be wider than the existing boardwalk. Provision for adaptation to accommodate a tram or light rail system will also be included as part of the new bridge design.

#### 7.2 Need for the Project

The Alexandra Bridge is an integral part of Confederation Boulevard's Ceremonial Route and links together the heart of Canada's National Capital Region (NCR) from Major's Hill Park to Jacques-Cartier Park, to the Voyageurs Pathway and the Ottawa River Pathway. Given its deteriorating condition and the potential loss of this vital structure, options that take into account future needs including active mobility transportation, transit (e. g. tram) and private vehicles must be considered.

The Alexandra Bridge is one of only five interprovincial bridges open to vehicular traffic in the NCR linking the cities of Ottawa, Ontario and Gatineau, Quebec. According to a 2017 City of Ottawa traffic study, the bridge carries about 13,300 vehicles per day, which amounts to approximately 9% of the average daily interprovincial vehicular traffic in the NCR (IBI Group, 2020). Table 7-1 provides the volume and direction of vehicular traffic during morning and evening peak hours. The bridge is also used by about 33% of all pedestrians and cyclists crossing the Ottawa River (City of Ottawa, 2013), making it a key piece of active transportation infrastructure in the region.

**Table 7-1: Volume and direction of vehicular traffic during morning and evening peak hours.**

Direction of traffic flow	Morning peak	Evening peak
Ottawa to Gatineau	550 vehicles/hour	850 vehicles/hour
Gatineau to Ottawa	700 vehicles/hour	750 vehicles/hour

Source: IBI Group, 2020

All existing interprovincial bridges are currently functioning at capacity during peak times from a motor vehicle perspective. However, encouraging active mobility transportation by creating a high quality and meaningful experience for all users could help relieve this situation. In addition, vehicular capacity is affected by construction activities, collisions, disabled vehicles, inclement weather, and a variety of other factors. If the Alexandra Bridge is not available for vehicular use, the increase in travel demand will exacerbate the current capacity constraint over the Ottawa River. Some of the key impacts of the transportation network congestion on the NCR and its residents may include:

- Lower quality of life due to additional time spent on congested roadways
- Increased fuel consumption and auto emissions due to lower travelling speeds and increased idling
- Delays to persons or movement of goods, equating to an economic loss for both Ottawa and Gatineau
- Impacts to tourism, which is normally a major contributor to the NCR economy and for which the Alexandra Bridge is an important piece of infrastructure
- Impacts to navigation along the river during all construction related activities

Additionally, PSPC’s standards for bridges are to maintain them to a level of service consistent with accepted industry practices which is described as a minimum condition of ‘Fair’. This equates to a rating of four (4) out of six (6) as per the PSPC Bridge Inspection Manual. In 2017 PSPC commissioned a Comprehensive Detailed Inspection (CDI) (WSP, 2017), which classified the Alexandra Bridge as “inadequate” and rated its condition as two (2), meaning that the minimum established standards are not met. From a reliability of service standpoint, the interventions planned in the next 25 years would result in ongoing and unforeseen closures and disruptions to traffic with the rehabilitation approach compared to a replacement Project. A 2018, Asset Condition Risk Assessment (KPMG 2018), completed for PSPC determined that after completing the 10-year program of work, the bridge's risk level would remain high in terms of safety and structural integrity.

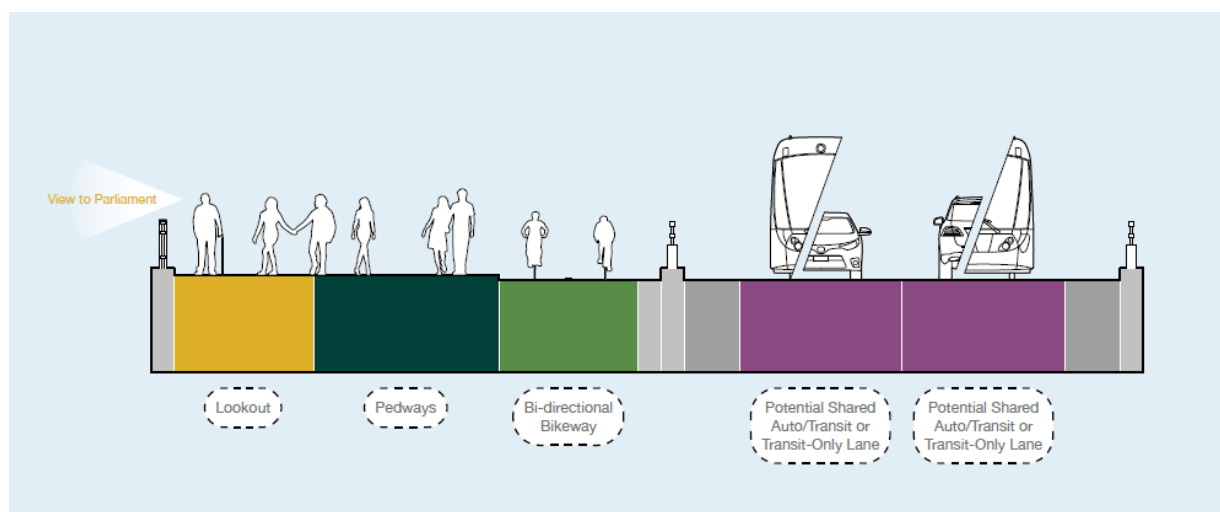
Based on the aforementioned factors, in December 2018 the IPT was directed, by government policy, to address repairs, replacement and operations for all five crossings in the NCR. The replacement of the Alexandra Bridge is a component of this holistic strategy. Funding was provided to PSPC in Budget 2019 to plan and implement this Project. The replacement of the Alexandra Bridge was also cited in the Minister of PSPC’s Mandate Letter in December 2019.

## 7.3 Functional Requirements

Through development of the Project Planning and Design Principles and engagement with key stakeholders, the following minimum functional requirements for the replacement of the Alexandra Bridge have been identified:

Below are the basic requirements for the bridge (refer to Figure 7-1):

1. Two lanes for vehicle traffic (one in each direction) designed to be adapted in the future for public transit via a tram or light rail system.
2. One lane for active mobility (e.g., pedestrians, cyclists, users with mobility aids, etc.) on the upstream (west) side of the bridge. The active mobility lane will be bidirectional, with separation of pedestrians and cyclists. The active mobility lane should include seating and viewing locations that provide rest points without compromising safety or obstructing users.
3. The traffic lanes and the active mobility lane will have a solid surface that will protect the bridge from the elements, de-icing products and dirt. This will allow for a longer-lasting structure.



Source: Planning and Design Principles (refer to Appendix H)

**Figure 7-1: Section of the potential future traffic lanes**

The new bridge is expected to retain its orientation, as well as a suitable alignment and adequate proportions to fit harmoniously into the urban fabric and to pay homage to the history of the National Capital. It must highlight the predominant usage characteristics of the current bridge, which acts as the main pedestrian link between the Ontario and Quebec shores. The bridge must also act as a landmark in the landscape without dominating the area.

With regard to Confederation Boulevard, the vision is to create:

- A Memorable Image that is dignified, unique and lasting, and that is reflective of Canadian values, heritage and achievements
- A Vibrant Public Place that presents Canadians with a range of opportunities for enhanced community, intellectual and emotional experience
- Pedestrians First Boulevard that gives priority to the comfort, safety and enjoyment of pedestrians, as well as the accommodation of cyclists, public transit and other vehicles
- Universal Accessibility to all persons, and shall extend accessibility to those beyond and the National Capital through a range of communication media and
- Sustainability demonstrated through leadership in environmental sustainability and stewardship.



## 8 PROVISIONS DESCRIBING THE DESIGNATED PROJECT

This Project involves the replacement of an existing interprovincial bridge which connects the provinces of Ontario and Québec. This constitutes a designated Project under Section 48 (a) of Schedule 2 of the *Physical Activities Regulations* (SOR 2019-285) under the Transport subsection:

48 The construction, operation, decommissioning and abandonment of either of the following:

- (a) a new international or interprovincial bridge or tunnel

This section does not require the meeting of a threshold in terms of size or other specifications. The Project is thereby designated as the construction of an interprovincial bridge.

## 9 POTENTIAL ALTERNATIVES

From the Project's inception, alternatives and methods of carrying out the Project have been under consideration within the planning team and with external stakeholders.

### 9.1 Alternatives to the Project

In the LCCA report (2018) prepared for PSPC, two alternatives to the Project were assessed using conceptual designs that were developed as part of the report. The two major alternatives assessed were:

- Rehabilitation and continual maintenance
- Replacement of the bridge

#### 9.1.1 Rehabilitation and Continual Maintenance

As highlighted in the 2018 study (MMM Group Ltd, 2018) "the alternative of rehabilitating the existing structure was assessed. A key assumption was that the bridge condition rating would be raised from "inadequate" (rating of 2 on a scale of 1 to 6, with one being the lowest possible rating) to fair (rating of 4) within 5 years, with fair being the minimal rating at which PSPC bridges are to be maintained. At the time, the most notable items of work to be addressed within 5 years included: east and west side deck immediate repairs and replacement, steel repairs, bearing replacement and complete bridge recoating. In the medium to longer term (about 10 to 25 years), work required to maintain the structure in a fair condition was projected to include: pin/eye bar retrofit, steel repairs, recoating work, substructure masonry rehabilitation and pier erosion protection." There are also additional financial risks associated with future rehabilitations as the extent of work required in the future is not fully known. Over the long term, the scope of work and costs associated with maintaining the bridge at a fair condition rating were found to be difficult to predict.

Initial capital cost estimates were developed for each of the rehabilitation and replacement options (see section 10.1) utilizing estimates obtained from historical information on other similar bridge projects and then compared with parametric costs (i.e., costs per unit area).

Cost estimates factored in the location and significance of the Alexandra Bridge as a landmark and important element in the downtown core of the nation’s capital and also included specific requirements to meet Confederation Boulevard’s standards for streetscape amenities for pedestrians, bicycles and vehicular traffic standards. Cost estimates also included those associated with contingencies for costs, project management, engineering design, and risk.

Based on the cost estimates developed, indefinite maintenance of the existing structure was determined to be more costly over the next 75 years.

### **Current Condition of the bridge**

The bridge has already experienced significant deterioration that will only accelerate over time. The lifecycle analysis concluded that the Alexandra Bridge is at the end of its life cycle, with replacement warranted as the most cost-effective alternative, given the bridge’s advanced age and accelerating rate of decay.

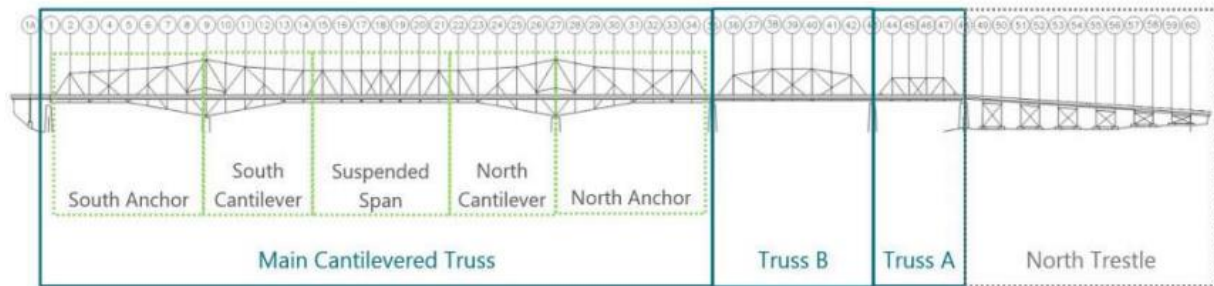
A Technical Memorandum report completed in December 2020 summarizes the findings of the Comprehensive Detailed Inspection (CDI) completed in fall 2020 and focuses primarily on the truss members of the Main Span, Truss B and Truss A (refer to Figure 9-1). The CDI of the North Trestle was completed in early fall 2021.

Overall, the structure is currently in “inadequate” condition (rating 2). This rating is based on the critically “inadequate” condition of the Boardwalk steel grating and stringers, the presence of crack indications on primary tension members of Truss B and Truss A, the structural articulation concerns present on this structure, and the remaining component buckling concerns.

Given the “inadequate” condition of the structure, PSPC has implemented several risk mitigation measures for the short and medium term in anticipation of replacing the structure within 10 years, as directed by the federal government through Budget 2019.

The Alexandra Bridge is in an advanced state of deterioration and has several significant structural concerns which have resulted in the current reduced level of service and several mitigation measures implemented by PSPC. At this time, the mitigation measures, and reduced level of service are precautions considered appropriate for the Alexandra Bridge to remain safe and in service until its replacement. Both major options identified will cause disruption to transportation and active users. Multi-year shutdowns are expected. Information surrounding the anticipated disruptions to vehicles and active transportation users are further discussed in section 15.





**Figure 9-1: Diagram showing main components of the bridge under assessment.**

### 9.1.2 Removal of Crossing

The deconstruction of the Alexandra Bridge without replacing it wasn't an option that the Federal Government of Canada deemed viable, especially in light of the bridge's significance, heritage value and integral role in interprovincial transportation and link between Ottawa and Gatineau.

The Alexandra Bridge is one of five interprovincial crossings in the NCR, where all the crossings are already at capacity during peak hours for motor vehicles. The Alexandra Bridge is also a key active mobility transportation corridor. If it were to be removed, not only would there be an increase in congestion for motor vehicles on the other four crossings, but impacts would be significant for active mobility transportation users (e.g., pedestrians and cyclists) who would lose a key route for crossing the Ottawa River. As a result, active mobility transportation users would be impacted by additional time for commutes (up to 30 minutes detour for pedestrians, as heard from stakeholders in fall 2020 public consultation).

### 9.1.3 Replacement of Bridge

Within the LCCA, several replacement alternative concepts were compared for new contemporary and signature bridges. The alternatives were evaluated and screened considering several criteria using a weighted approach. This led to the selection of a contemporary alternative (slab-on-steel girder) and signature alternative (tied-arch structure), as well as a replacement-in-kind alternative (steel truss) being retained for concept development at a functional design level and for cost-estimating purposes. The retained alternatives are not meant for detail design and implementation at this stage but rather only to evaluate both the significance of the Alexandra Bridge within the nation's capital and the surrounding urban fabric and the merits of replacing the structure and to place future capital decisions in the context of a range of potential costs to the Crown.

With input from key stakeholders, namely the NCC, City of Ottawa, City of Gatineau, OC Transpo, the Société de Transport de l'Outaouais (STO) and PSPC representatives, conceptual design criteria and functional plans were developed for the alternatives of replacement in kind, contemporary and signature alternatives. Considerations included the context and fit with the surrounding urban fabric of the nation's capital, the approach roadways on the Ottawa and Gatineau sides, existing foundation and geotechnical conditions, local land ownership and usage as well as marine traffic. Functional needs for the Alexandra Bridge were decided to be maintained at existing levels and it was recommended to separate pedestrians and cyclists.

The LCCA provided cost comparisons between maintaining the bridge or replacing it. The analysis concluded that its replacement would be more economical than continuing to maintain the existing structure indefinitely and that it would present less risk to public safety.

## 9.2 Alternative Means to Project Execution

Alternative means to carrying out the Project are currently being discussed, investigated and considered by the IPT and key stakeholders/partners. At the time of writing, many high-level design decisions relating to the alignment as well as the number and length of spans are still to be determined, which have a direct impact on the means of executing the Project.

### 9.2.1 Alternative Bridge Alignment

An important aspect under review is how to deconstruct the existing bridge and rebuild a new one. Design, engineering, environmental, social, and economic impacts will affect the selection of the approach. There are also constraints that need to be considered in the analysis including reducing the amount of time that the bridge will be offline to all users, managing the complexity and time associated with deconstruction and construction activities occurring simultaneously. In addition, views protection, including views of the Parliamentary and Judicial precincts from the bridge and the shorelines, as well as maintaining public spaces and navigation opportunities will be important considerations. Planning and Design Principles were developed to establish a framework for future design development (refer to Appendix H). Stantec was retained to complete schematic analysis (Stantec 2021a) to initiate concept work. These, along with planned Decision Criteria will provide a structured approach to the decision-making process.

A proposed approach, which is under consideration, is to possibly “partially-twin” the new bridge during construction (refer to Figure 9-2). This would involve starting construction of the new bridge while the existing Alexandra Bridge is still in operation to some degree. A complete twinning is not feasible due to existing infrastructure or abrupt land features in Ottawa and Gatineau that prevent construction of new distinct approaches. Potential impacts of this approach would include longer project timelines, increase in project costs, and possible different alignment for the new bridge (“curved alignment” as opposed to “straight alignment”). Potential benefits might include less impacts to commuters if the crossing was out of service for a shorter period since the existing bridge could remain in service longer at the start of construction activities.



**Figure 9-2: Conceptual drawing of a bridge following a curved alignment.**



**Figure 9-3: Conceptual drawing of a new bridge in the same location as existing (straight alignment).**

A different approach, required if the existing “straight” alignment is used for the new bridge shown in Figure 9-3, would be to partially or completely deconstruct the existing bridge before starting construction on the new one. Potential impacts would include the length of time that the crossing is not available to any of its current users. Potential benefits of this approach would be that the new structure would use nearly the same alignment as the existing bridge which would reduce the overall footprint of the Project (“straight” alignment) and lessen the overall construction time and cost.

## 9.3 Planning and Design Principles

Technical and background studies undertaken in 2019 and 2020 led to the development of a set of preliminary Planning and Design Principles for the Project.

In May and November 2020, the preliminary Planning and Design Principles for the Project were presented for consideration and comment to NCC's Advisory Committee on Planning, Design and Realty (ACPDR) as part of the regulatory approval process under FLUDTA. The Planning and Design Principles were developed to articulate the Vision for a "signature" bridge in the Nation's capital and to establish a framework for future design development. This included the preliminary development of several concepts for consideration by the Project team for further investigation and study.

In June 2021, the Planning and Design Principles were presented to the Board of Directors of the NCC where they received Approval. Recommendations that were Approved included:

- *That the Federal Design Approval for the document entitled Planning and Design Principles for the Alexandra Bridge Replacement be granted, pursuant to Section 12 of the National Capital Act, subject to the following conditions:*
  - *That future stages of the ABR Project be subject to separate federal review and approval processes (Level 3).*
  - *That minor amendments to the document, if required, be delegated to NCC staff for review and approval.*
  - *That the preparation and signature of the Federal Design Approval document for the Planning and Design Principles for the Alexandra Bridge Replacement be delegated to the Vice President, Capital Planning Branch.*

The Planning and Design Principles for the Project (see Appendix H) have been developed to provide future bridge designers and engineers with concrete considerations and directives to integrate within new bridge designs. These site-specific guidelines consider applicable federal and municipal plans, policies and guidelines given that the bridge is a national landmark and a significant connection between the municipalities of Ottawa and Gatineau.

The Planning and Design Principles set the foundation for bridge and urban design considerations given the complexity of the surrounding cultural and heritage context. Nearby sites of historical and cultural significance include National Historic Sites of Canada (the Parliamentary Precinct and Rideau Canal, which is also a UNESCO World Heritage Site), the National Gallery of Canada, the Canadian Museum of History, Nepean Point, Major's Hill Park, Jacques-Cartier Park, as well as the natural elements of the Ottawa River shoreline. The site-specific Planning and Design Principles will focus possibilities by providing a concise set of parameters that may also be used for the purposes of evaluation of future new bridge designs.

The Mission Statement that underlay the development of the Planning and Design Principles for the replacement of the Alexandra Bridge was defined as:

*To create a sustainable interprovincial transportation connection that will prioritize active mobility and highlight the symbolic importance of the site to all Canadians for many generations to come.*

Some of the key considerations of the Planning and Design Principles include the functional design requirements of the bridge, applicable NCC Plans and policies, and the protection and honouring of national values and interests, such as the Central Capital Landscape and Confederation Boulevard.

The vision for the Project recognizes that, just as the existing bridge has for the past 120 years, the new bridge will strongly become a representation of the identity of its place defined by its architectural, urban and structural character.

Based on this Mission Statement, the overall Vision that will be used to guide the design process throughout the Project is as follows:

*Creating an emblematic bridge in the form of an exceptional civic site that reflects Canada's national identity and values, while respecting the integrity of the cultural landscape of the capital.*

The Planning and Design Principles are organized under six broad categories including:

*(1) Mobility and Continuity of the Urban Fabric*

- This set of guidelines provides direction for the integration of the replacement bridge within the Confederation Boulevard ceremonial route and the importance of creating better active mobility network connections both across the river, but also between the new bridge and the shorelines. It emphasizes the importance of safe and comfortable active mobility, with pedestrians having priority, in line with the NCC's Confederation Boulevard design guidelines.

*(2) Public Spaces and Civic Experiences*

- These guidelines support the consideration of the function of the bridge as a key part of the core area sector of the capital, connecting major urban parks but also being a civic space in its own right for residents and visitors alike to appreciate views of the national symbols.

*(3) Structure, Height, Proportions and Lighting*

- This set of guidelines necessitate the integration of the bridge within the cultural landscape and the overall design of the core area sector, through consideration of the bridge's structural composition and lighting. The intent is for the bridge to complement and be sensitively inserted into the landscape, so as to be an iconic structure without overpowering the landscape's natural features and the pre-eminence of the national symbols, such as the Parliamentary triad.

#### *(4) Preserve Views and Celebrating the Legacy*

- These guidelines highlight the importance of the cultural and historical context the new bridge must reflect, including enabling indigenous participation in the Project and design, honouring the legacy of the existing Alexandra Bridge, and ensuring appropriate integration into the cultural landscape. Special attention is given to the question of views protection, including views of the Parliamentary and Judicial precincts from the bridge and the shorelines.

#### *(5) Sustainability and Materiality*

- These guidelines call for the bridge design to achieve excellence in terms of sustainability, and in particular, protection and enhancement of natural features of the Ottawa river and its shoreline. Materials selection, ensuring ease of operations and maintenance, and designing for the local climate are also highlighted as key features of importance for a sustainable bridge.

#### *(6) Universal Accessibility, Legibility and Wayfinding*

- This section highlights the importance of considering accessibility right from the outset in designing the bridge, and of integrating detailed elements such as road signs and supports for interpretive features within the bridge design, while also being compatible with the system used for Confederation Boulevard and the capital pathway network.

### **9.3.1 Design Elements to be Considered for Sustainability**

The Project shall aim for the highest certifications and standards in terms of sustainable development, including following the directions of the NCC's [Sustainable Development Strategy, 2018-2023](#) and future revised strategies. Long-term sustainability of the new bridge is a key consideration in the future assessment of alternative means to complete the replacement Project, with the Planning and Design Principles recommending the use of active and passive sustainability strategies, as well as ensuring a response to the sustainable development goals of the 2030 United Nations Agenda for Sustainable Development. Emphasis will be placed on low carbon material choices and the total cost of the materials (economic and environmental).

Additional guiding principles that will need to be considered in the design specifications to ensure sustainability are listed below:

#### **9.3.1.1 Choice of Materials**

**Concrete:** Changes to the concrete mixing formula, addition of adjuvants and cement additives, addition of trained air, choice of concrete constituents to avoid alkali-aggregate reaction formation, laboratory tests to ensure flaking resistance, etc.

**Steel:** Three-layer paint system should be considered: a zinc-based primer, a second base layer with epoxide resin and a urethane finish layer. All layers must be applied in the factory. Each layer must have a different color and the last layer should be a light color to make it easier to inspect the surfaces.



### 9.3.1.2 *Replaceable Elements*

The structure consists of replaceable and non-replaceable elements. Examples of non-replaceable elements are foundations, stakes, piers, rafters, abutments, retaining walls, pylon and mats, main arches. The other elements of the bridge are replaceable elements, with a minimum lifespan per element to be defined. The overall lifespan of the structure will be defined by the choice of materials for the irreplaceable elements with a perspective of 100 years or more.

### 9.3.1.3 *Drainage and Waterproofing*

Considerations will include: Requirements for the drainage system (pipes, accessibility for cleaning, location of sumps) requirements for the waterproofing membrane of the deck and the protective coatings of the elements exposed to de-icing salts requirements for waterproofing of the apron expansion joints and requirements for de-icing agents and products.

### 9.3.1.4 *Access and Inspection*

Considerations will include: Structure design requirements for access to be taken into account for inspection and maintenance special requirements for access to batteries, pylons, casings and braces special requirements for lifting and replacing support devices special requirements for the removal and replacement of cables, anchors and shock absorbers, and expansion joints and requirements for space, lighting, evacuation, ramps and evacuation and communication systems inside enclosed spaces.

### 9.3.1.5 *Instrumentation and Monitoring*

Considerations will include Installing an instrumentation system on the structure which could be comprised of deformation and movement sensors, accelerometers, inclinometers, anemometers, temperature sensors, hygrometers and acquisition of instrumentation data, analysis and interpretation of data for bridge maintenance management.

### 9.3.1.6 *Additional Measures to be Considered*

The following measures will also be considered in the replacement bridge design:

**Anti-vandalism protection:** Iconic bridges are often the target of vandalism. To protect sensitive elements, it will be necessary to consider protection systems and block access to these elements.

**Cables and Cable Technology:** Consider several emblematic bridges, for example bow-string bridges, extra-dosed, suspended or a variation of these types. In all these cases, cable carriers and cables are needed to transport the loads to the supporting elements of the structure. Over the past several decades, cable technology has evolved to take into account problems observed in several cable bridges: fatigue failure, excessive vibration, low fire resistance, vulnerability to attacks, corrosion of cables and anchors, among others.

**Ice and ice charges on cables:** Cable bridges in winter climates are exposed to bad weather and the action of very low temperatures, ice and snow, and strong winds combined with freezing rain. The new bridge design must be resilient towards exceptional climate events to be faced in years to come, as well as the unique microclimate of the Ottawa River Valley.

## 9.3.2 Significant Influence on Design Alternatives

Five (5) Projects near the Alexandra Bridge that are under study, planning or under construction are described below. These Projects could provide opportunities to fit with the vision for the new bridge.

### 9.3.2.1 *Ecological Demolition Project at Nepean Point and Site Redevelopment*

One of the first initiatives of the Nepean Point redevelopment Project is the removal of the outdoor amphitheater, which began in 2019. The redevelopment of the site itself is to be completed by 2023 and follows a national design competition launched by the NCC. The Project aims to enhance the landscape experience of the capital while enhancing the link with the Ottawa River and facilitating universal accessibility to the site. No real impact on the bridge replacement Project is anticipated other than its planned connection to Major's Hill Park.

### 9.3.2.2 *Pedestrian Bridge between Major's Hill Park and Nepean Point*

The proposed bridge between Major's Hill Park and the Nepean Point site is part of the overall vision of the Nepean Point redevelopment Project. This bridge is intended to facilitate pedestrian access between these two (2) public spaces and to make this highly sought-after link safer. This proposed pedestrian link has a direct impact on the redevelopment of the Ottawa approach. A free height of 5.3 m is proposed under the bridge, and its construction is planned for spring 2022.

### 9.3.2.3 *Study for a Rail Transit Loop System*

A recent study to assess the feasibility and appropriateness of a looped rail transit system that uses the Portage and Alexandra Bridges is under consideration. It should be noted that the future route of a Light Rail System (LRT) or tram could have an impact on road geometry in terms of approaches on both (2) banks.

### 9.3.2.4 *Rideau Canal to Rideau Falls Waterfront Promenade*

The proposed development of a new trail along the south shore of the Ottawa River between Rideau Falls and the Rideau Canal is being planned by the NCC. The long-term vision is to create a multi-use connection between the Ottawa River pathway at the Rideau Canal locks eastward toward Rideau Falls via Lady Grey Drive, connecting existing public spaces overlooking the Ottawa River to the east of the canal. This future pathway (Rideau to Rideau Trail) will need to be coordinated with the bridge replacement Project.

### 9.3.2.5 *Ottawa River North Shore Parklands Plan*

The Plan guides future development decisions based on a long-term vision and initiatives for federal lands in the Capital core area that run along the periphery of Hull Island in Gatineau. To achieve the vision, it proposes land uses and Planning and Design Principles for federal lands that run along the periphery of Hull Island in Gatineau, between the Ottawa River and Laurier Street and those along Ruisseau de la Brasserie (Brewery Creek) including site-specific directions for Jacques-Cartier Park and the National Museum of History. The plan will also serve as a decision-making tool for federal approvals regarding land use, design, and real estate transactions.



## 10 PROJECT ACTIVITIES

This section provides an overview of all activities, infrastructure, permanent or temporary structures and physical works associated with the deconstruction, construction and operation as part of the Project.

A Project of this scope and size requires a minimum practical construction area as well as several staging or mobilization sites. Specific construction conditions are not known at this stage of the Project. Generally expected activities associated with the Project include the organization of the site, the deconstruction of the existing bridge, and the construction of the new bridge. Many factors will be considered in the development of associated infrastructure and the selection of temporary facilities to support construction and deconstruction activities.

Criteria to support the decision-making process may include such categories as:

- **Technical considerations** such as the limited available options for staging areas near the bridge, the general vicinity of staging areas to reduce transportation and barging of materials or conditions of use of certain areas to mitigate potential impacts (such as contamination)
- **Socio-economic considerations** such as impact to key partners and stakeholders operating in the area (e. g. wharf tenants, small businesses, museum, municipalities, park users, etc.)
- **Environmental considerations** such as proximity to the river and impact to other resources such as heritage or archeological features
- Level of reversibility of all impacts

Areas immediately adjacent to the bridge which could be impacted by construction activities include Jacques-Cartier Park and the Museum of History on the Gatineau side as well as Nepean Point and Majors' Hill Park on the Ottawa side. These public spaces support activities of social and economic importance that may be displaced during construction and deconstruction activities to ensure public safety. Consideration for temporary relocation of the infrastructure associated with these activities are included in this section.



## 10.1 Organization of Sites for Deconstruction and Construction

Temporary facilities will be required to properly organize the site for the Project. Given the urban setting of the Project and limited availability of staging areas near the bridge, several sites are likely to be required in the general vicinity to provide sufficient space for trailers, laydown area and parking for construction equipment.

Staging locations have not yet been confirmed, as they will be carefully evaluated to avoid, limit, or reduce any impacts on areas proposed.

### Staging or Laydown Site Preparation

The first steps in the organization of the site (s) may include:

- The delimitation of the sites, involving the installation of security fences around their perimeter
- Installation of vegetation protection and environmental protection measures
- The installation of a geotextile and granular pad over grassed areas, and construction of access roads
- Installation of construction trailers, mobilization of tools and equipment
- Temporary connection to the electrical grid, installation of exterior site lighting
- Construction of a temporary causeway if required
- Installation of temporary toilets and supply of water

### Types of Staging and Laydown Areas

Operationally, there are three (3) types of staging areas required to build a bridge over a river and if possible, they would be located on both approaches as the construction could simultaneously progress from both approaches towards the middle of bridge to reduce the time that the structure is closed to public use.

1. **River Staging Area:** River Staging Areas front directly on the river, have adequate draft for barges moving back and forth to dock(s), staging and laydown areas. The principal function is to provide temporary storage and preparation of bridge components that may have been fabricated elsewhere prior to installation. They also provide a base for vessels, while in-river crews and associated engineering as well as management oversight functions can be located there as well.
2. **Bridge Staging Areas:** Bridge Staging Areas are docks to support the transfer of crews and material (concrete particularly) to the work vessels supporting the in-river construction. They are work site for preparation of construction elements, such as rebar cages, and are areas to provide vehicle circulation and fabrication at each shore.



3. **Inland Staging Areas:** Inland Staging Areas are large enough to accommodate the supporting services and operations necessary to construct the bridge. These include concrete batch plants, materials storage including petroleum products, tool containers and the deconstruction materials, and laydown areas. Construction trailers could be required to accommodate the crew and contractor's facilities, administrative and support facilities, construction supervision teams, the owner's engineer and parking. A significant workforce could be working at times on the Project, requiring transportation arrangements such as shuttle services, to access the site.

Just as it is more practical for some components to arrive and move by water, it is also more practical for other components to be trucked in, stored, prepared and then brought to the site either by way of transfer at the Bridge Staging Areas, or directly to the point of construction by way of already completed superstructure. This may include concrete from an on-site batch plant, roadway deck for long span structures, and conceivably even short span superstructure segments for gantry erection. The Inland Staging Areas will be used to house the following five types of temporary construction and administrative facilities:

- Concrete batch plant
- Temporary storage otherwise referred to as a laydown area
- Office space for administration and engineering staff
- Parking for all office and construction staff for all required heavy machinery and equipment
- Site services including fueling, waste management, utilities and security

These laydown and staging facilities will be dismantled at the end of the Project at which time the sites will be restored. This may include cleaning, disposal of granular materials, placement of fill, levelling, and landscaping as well as any other necessary reinstatement measures.

The Project will require the mobilization of heavy machinery. The main equipment likely to be required for the work are excavators, backhoes, bulldozers, cranes, skyjacks, boats, barges, caisson installation equipment, concrete pump, trucks, sheet pile installation equipment, generators, and dewatering pumps.

## 10.2 Deconstruction of the Existing Alexandra Bridge

During the execution of this Project, the existing Alexandra Bridge will be deconstructed. It will be the responsibility of the selected contractor to define the deconstruction methodology. General process steps include:

- Removal of east and west cantilevered decks
- Removal of concrete deck on main span
- Deconstruction of main span
- Removal of deck on Trusses A&B
- Deconstruction of Trusses A&B
- Removal of deck on Hull and Ottawa Trestles
- Deconstruction of trestles
- Deconstruction of in-water piers down to 1m above riverbed
- Deconstruction of piers on ground to 1m below ground level, placement of fill
- Deconstruction of Gatineau abutment to 1m below ground level, placement of fill
- Deconstruction of Ottawa abutment to bedrock
- Removal of Gatineau approach material, as required
- Separation of materials: steel, concrete, rock, fill, pavement, electrical components
- Recuperation / salvage of components for possible repurposing (universities, museums, monuments, etc.)
- Shipment of materials to recovery or disposal sites

The method will have to comply with the specified mitigation measures and will be validated by the contract administration and construction supervision teams.

### 10.2.1 Alternative Deconstruction and Construction Activity Sequencing

The two alignments, straight and curved, were considered in the development of deconstruction scenarios for the existing bridge. The deconstruction sequence for each case attempts to minimize:

- the traffic disruption time and the total duration of the work
- complexity of the deconstruction process
- the ease of constructing the new approaches
- accessibility to the navigation channel

This is based on the areas of overlap between the deconstruction activities and the conceptual construction of the new bridge.

Unlike the curved alignment, the overlap area for the straight alignment completely covers the existing bridge. Given the geometry of the two proposed alignments, the overlapping areas will need to be cleared:

- So that construction of the new bridge can start in the straight alignment
- So that construction of the new bridge can progress in the curved alignment

These are conceptual scenarios for consideration by designers in developing a feasible and efficient deconstruction sequence which will be essential to facilitate the new construction. Other deconstruction options may be explored and or implemented.

### 10.2.1.1 Deconstruction Options – Curved Alignment

#### 10.2.1.1.1 Step “0” deconstruction

The existing Alexandra Bridge was originally built-in sequence which suggests an approach for the deconstruction. While developing potential deconstruction alternatives, it was found that the east and west cantilever tracks can be dismantled as required to reduce the weight of the structure itself. In addition, the concrete deck and parapet walls in the central lane can also be removed, if necessary. This part of the removal, shown in the Figure 10-1, is proposed as step “0” of the deconstruction for both alignment options.

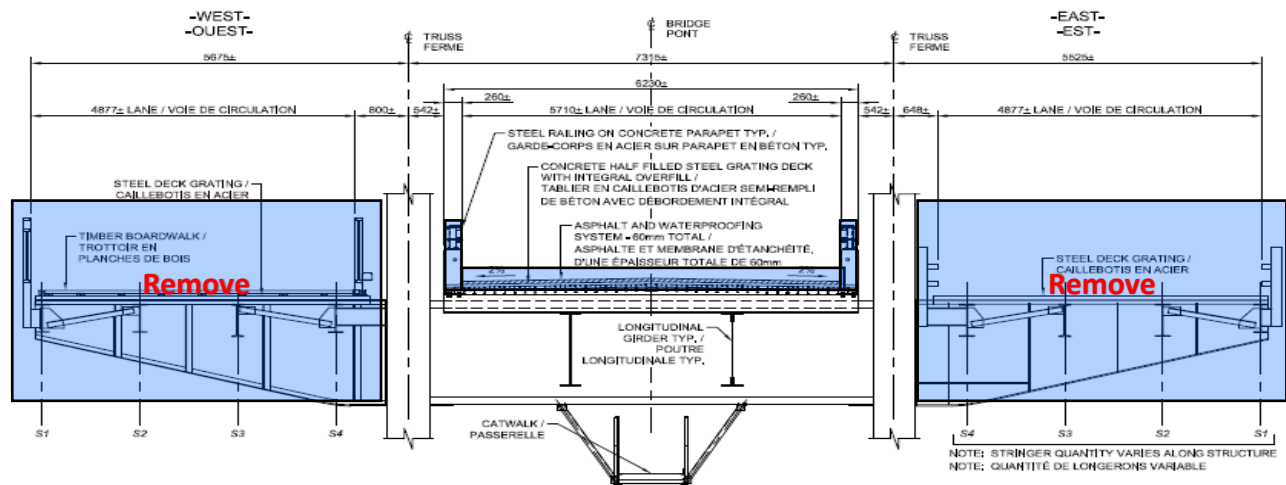


Figure 10-1: Step “0” of deconstruction – curved and straight alignments

#### 10.2.1.1.2 Step 1 Deconstruction

The North and South trestle spans and the 'A' truss can be removed by crane from ground level or from a temporary platform without the use of barges. The removal of these spans can take place prior to the deconstruction of the main truss span as illustrated in Figure 10-2.

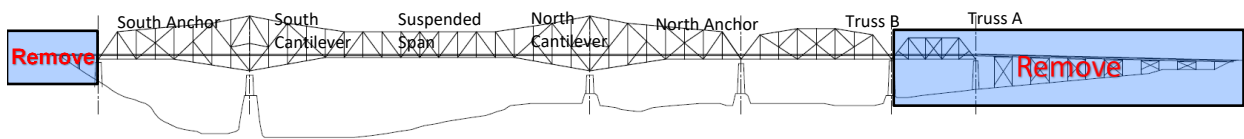


Figure 10-2: Step 1 deconstruction– curved alignment

### 10.2.1.1.3 Step 2 Deconstruction

Removal of the remaining main truss spans is proposed as the step 2 deconstruction. There are options related to the order in which the sequence of deconstruction is completed, each have different impacts on timing, cost, and navigation. Table 10-1 provides a comparison of the advantages and disadvantages of four separate options for this Step.

**Table 10-1: Comparison of options for deconstruction – curved alignment**

Option	Deconstruction Sequence	Advantages	Disadvantages
<b>Option 1</b>	<ol style="list-style-type: none"> <li>1. Suspended span</li> <li>2. B-truss</li> <li>3. North and South cantilever spans</li> <li>4. North and South anchor spans</li> </ol>	<ul style="list-style-type: none"> <li>• The original construction sequence of the Alexandra Bridge is reversed.</li> <li>• Least complex deconstruction.</li> <li>• Less impact on navigation. The navigation channel could remain under the suspended span with a clearance of 60 m x 11 m.</li> </ul>	<ul style="list-style-type: none"> <li>• Longest period of traffic closure.</li> <li>• Construction of new bridge approaches delayed.</li> <li>• Slightly higher deconstruction cost than option 2.</li> </ul>
<b>Option 2</b>	<ol style="list-style-type: none"> <li>1. Suspended span</li> <li>2. South anchor span, South cantilever span, B-truss</li> <li>3. North cantilever span, North anchor span</li> </ol>	<ul style="list-style-type: none"> <li>• Moderate deconstruction complexity.</li> <li>• Most efficient construction of new bridge approaches.</li> <li>• Shortest traffic closure time.</li> <li>• Lowest deconstruction cost.</li> </ul>	<ul style="list-style-type: none"> <li>• Navigation channel more difficult to maintain than option 1.</li> </ul>
<b>Option 3</b>	<ol style="list-style-type: none"> <li>1. South anchor span partially</li> <li>2. South cantilever span, B-truss</li> <li>3. South anchor span remaining portion</li> <li>4. South cantilever span</li> <li>5. North cantilever span North anchor span</li> </ol>	<ul style="list-style-type: none"> <li>• Moderate deconstruction complexity.</li> <li>• Shortest time for traffic closure.</li> <li>• Less impact on navigation.</li> </ul>	<ul style="list-style-type: none"> <li>• Highest deconstruction cost.</li> <li>• Construction of new bridge approaches less efficient than option 2.</li> </ul>

Option	Deconstruction Sequence	Advantages	Disadvantages
<b>Option 4</b>	<ol style="list-style-type: none"> <li>1. South anchor span</li> <li>2. Suspended span</li> <li>3. South cantilever span</li> <li>4. B-truss</li> <li>5. North cantilever span</li> <li>6. North anchor span</li> </ol>	<ul style="list-style-type: none"> <li>• Construction of new bridge approaches can begin early.</li> <li>• Shorter duration of traffic closure.</li> </ul>	<ul style="list-style-type: none"> <li>• The most complex deconstruction.</li> <li>• Most difficult to maintain navigation options.</li> <li>• Slightly higher deconstruction cost than option 2.</li> </ul>

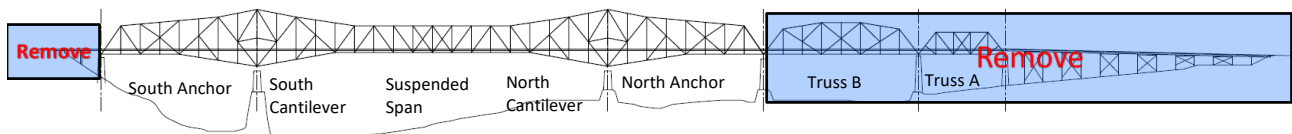
### 10.2.1.2 Deconstruction options – straight alignment

#### 10.2.1.2.1 Step “0” deconstruction

Step 0 of deconstruction for the straight alignment is the same as that proposed for the curved alignment and consists in the proposed removal of the east and west cantilevers, as well as the deck and parapet walls in the central lane.

#### 10.2.1.2.2 Step 1 Deconstruction

In Step 1, the removal is similar to that proposed for the curved alignment, but the 'B' truss is also included in this phase of deconstruction, in addition to the 'A' truss, as well as the north and south trestle spans as illustrated in the Figure 10-3.



**Figure 10-3: Step 1 deconstruction– straight alignment**

#### 10.2.1.2.3 Step 2 Deconstruction

Removal of the remaining main truss spans is proposed as the step 2 deconstruction. There are options related to the order in which the sequence of deconstruction is completed, each have different impacts on timing, cost, and navigation. Table 10-2 provides a comparison of the advantages and disadvantages of two separate options for this Step.

**Table 10-2: Comparison of options for deconstruction – straight alignment**

Option	Deconstruction Sequence	Advantages	Disadvantages
<b>Option 1</b>	<ul style="list-style-type: none"> <li>• Suspended span</li> <li>• North and South cantilever spans</li> <li>• North and South anchor spans</li> </ul>	<ul style="list-style-type: none"> <li>• Lower deconstruction complexity than option 2.</li> <li>• Easier to maintain a navigation channel than option 2.</li> <li>• Slightly lower deconstruction cost than option 2.</li> </ul>	<ul style="list-style-type: none"> <li>• Longer deconstruction time than option 2.</li> </ul>
<b>Option 2</b>	<ul style="list-style-type: none"> <li>• South anchor span</li> <li>• Suspended span and South cantilever span</li> <li>• North cantilever span</li> <li>• North anchor span</li> </ul>	<ul style="list-style-type: none"> <li>• Shorter deconstruction time than option 1.</li> </ul>	<ul style="list-style-type: none"> <li>• Higher deconstruction complexity than option 1.</li> <li>• Slightly higher deconstruction cost than option 1.</li> <li>• More complex to maintain a navigation channel than option 1.</li> </ul>

### 10.3 Construction Stage

The new bridge will be designed in accordance with the current standards and best practices for highway bridge design in Canada, listed below, and in particular, in accordance with MTO and MTQ regulations:

- Canadian Standards Association (CSA). 2019. Canadian Highway Bridge Design Code, CSA S6-19
- MTQ. 2020. Manuel de Conception des Structures
- MTQ. 2019, (revised 2020). Manuel de Construction et Réparation des Structures
- MTQ. 2021. Ouvrages Routiers, Tome III – Ouvrages d’Art
- MTQ. 2020. Ouvrages Routiers, Tome VII – Matériaux
- MTQ. 2021. Ouvrages Routiers, Tome VIII – Dispositifs de Retenue
- Transportation Association of Canada (TAC). 2001. Guide to Bridge Hydraulics
- MTO. 2016. Structural Manual
- MTO. 2007. Structure Rehabilitation Manual
- CSA. 2018. G40.20-13/G40.21-13 (R2018) - General requirements for rolled or welded structural quality steel / Structural quality steel.



The construction work may potentially be divided into four (4) Construction sub-stages. Construction activities will be further defined when technical components of the new bridge are developed and as the deconstruction process for the existing bridge is further developed.

However, some sub- stages might be overlapped or completed simultaneously with other construction activities to reduce the overall construction time. Potential general activities for each sub-stage are listed below.

### 10.3.1 Construction Sub-Stage 1 (Estimated 2028 -2029)

The first sub-stage of construction activities may potentially include:

- Organization of the construction site
- Closure of Voyageur Pathway and detour towards Laurier Street
- Relocation of utilities
- Construction of a temporary dock for barges
- Installation of coffer dams in the river at location of new piers
- Installation of steel caissons through riverbed down to bedrock
- Removal of sediments within the caissons, down to bedrock
- Disposal of sediments off site
- Drilling into bedrock and removal of bedrock material
- Disposal of bedrock material
- Dewatering of caissons
- Installation of reinforced concrete within caissons
- Dewatering of coffer dam
- Construction of concrete footings
- Construction of new reinforced concrete piers
- Removal of cofferdams

### 10.3.2 Construction Sub-Stage 2 (Estimated 2030)

The second sub-stage of construction activities may potentially include:

- Installation of bridge bearings on piers
- Assembly of superstructure over piers
- Construction of traffic deck and boardwalk deck

### 10.3.3 Construction Sub-Stage 3 (Estimated 2031/32)

The third sub-stage of construction activities may potentially include:

- Excavation for new abutments
- Disposal of excavated materials
- Construction of reinforced concrete abutments, installation of bearings
- Rearrangement of Boulevard des Allumettières and Laurier Street intersection (if required)
- Construction of Gatineau approach embankment retaining wall (if required)
- Construction of Ottawa approach to new abutment
- Assembly of superstructure from piers to abutments
- Construction of traffic deck and boardwalk deck from piers to abutments
- Waterproofing, paving, roadway/boardwalk markings on bridge and approaches
- Finishing of leisure areas
- Installation of lighting and Confederation Boulevard signage
- Connection of utilities
- Opening of Voyageur Pathway
- Opening of bridge to the public

### 10.3.4 Construction Sub-Stage 4 (Estimated 2032)

The fourth sub-stage of construction activities may potentially include:

- Removal of barges and the causeway
- Creation of fish habitat as compensation for in-water work/causeway
- Clean up of staging areas, removal of access roads, restoration of sites, removal of fencing, removal of temporary utilities, removal of vegetation protection, etc.
- Landscaping of disturbed areas as required by mitigation measures

## 10.4 Operations Stage

Maintenance and repair activities will be carried out throughout the life of the structure. The bridge design is not yet at a stage where maintenance and operating plans can be fully articulated; however, maintenance activities for a new bridge would typically include:

- Monthly and annual scheduled inspections as required
- Comprehensive detailed inspections scheduled every 3-5 years or as required
- Regular maintenance and minor repairs or interventions in case of an accident
- Cleaning above and below the deck, of the inside box girders (if required), of the waterway banks and around the foundation units
- Cleaning of drains
- Patching/re-paving, painting, snow removal, expansion joints replacement
- Cracks repair to the asphalt and crack sealing of concrete surfaces
- Major rehabilitations which typically include deck replacement, concrete repairs, waterproofing, structural steel repairs and painting, etc.

## 10.5 Associated Infrastructure and Activities

### 10.5.1 Minimum Practical Work Area

To ensure public safety and provide sufficient area to allow construction activities to take place, a minimum construction area surrounding the bridge is required.

The areas to be used for construction activities might impact NCC-owned land around the approaches to the existing bridge. Initial options have been identified in Jacques-Cartier Park, the grounds of the Canadian Museum of History and the Kruger Industrial plant located next to the museum. Areas on the Ottawa side of the river will also need to be identified for worker access. Technical considerations include the proximity of available options for staging areas near the bridge the general vicinity of staging areas to reduce transportation and barging of materials and conditions of use of certain areas to mitigate potential impacts (such as contamination). In addition, socio-economic factors that influence the final decisions such as impact to key partners and stakeholders operating in the area (e. g. wharf tenants, small businesses, museum, municipality) and environmental considerations such as proximity to the river, impact to other resources such as heritage or archeological features are all considerations in the final decisions.

Sites located immediately adjacent to the bridge include the existing parking area, marina building, and wharf, as well as an area actively used within Jacques-Cartier Park. These sites are highly valuable for the assembly of larger components for the bridge. While the wharf would be too close to the construction area for public use, this would give the contractor an excellent access for launching and parking service boats, as well as receiving deliveries of bridge components by barge. Its close proximity makes it an excellent candidate for temporary storage of key materials and could also be used for site trailers. The sites are likely to also be partially used as a small parking area for site visitors (e.g., NCC and PSPC staff) and would require coordination with adjacent museum deliveries. In addition, the sites could also accommodate trucks waiting to be unloaded so they don't have to park on the curbside lane of public roads, which would have traffic impacts.

Transportation related impacts would also be minimized as these sites are directly connected to work zone. Circulation between the construction area and staging area could be accommodated on-site and not use adjacent road network.

Use of Jacques-Cartier Park for staging is subject to NCC approval and requirements as a landowner. Depending on methods selected, deconstruction and construction activities may require use of docking or mooring structures within the park area to load and unload materials. There is also a concurrent need to maintain safe public access to the river to support commercial tourism operations and recreation activities. Options for infrastructure required to support ongoing operations while anticipating construction needs and the future use of the park are being evaluated. Impacted stakeholders will be engaged in the development of appropriate mitigation options.

### 10.5.2 Intersection Alignment

Construction of the new bridge provides an opportunity to make needed changes to the Gatineau approach and intersection of rue Laurier and Boulevard des Allumettières to address concerns related to vehicular accidents and safety for active mobility users. Changes to the intersection, which is owned by the City of Gatineau, may result in modifications to the bridge approach compared to its current location.

A study of traffic accidents at the intersection shows that 29 accidents have occurred in the last 3 years with no fatal accidents observed. However, 5 accidents resulted in minor injuries and 3 accidents involved cyclists, which represents 10% of the accidents. Moreover, the accidents involving cyclists all occurred when crossing the bridge approach.

Based on analysis using the Highway Safety Manual (AASHTO 2010), the capacity of the intersection, the deflection angle of the road coming from the bridge to the intersection with Boulevard des Allumettières and the presence of the right turn island from rue Laurier onto the road leading to the bridge combined with lane merging just before the bridge are considered important factors contributing to the high number of collisions. The reconfiguration of the bridge approach to eliminate the deflection angle between the bridge approach and Boulevard des Allumettières, will provide an adequate configuration according to road design standards and in accordance with user expectations. Concepts reflecting changes to the approach and surrounding lands are being analyzed as part of the design process, but a preferred design has not yet been confirmed. Coordination with the City of Gatineau has been established. A number of factors are proposed to assess potential alternatives including impact of intersection on the bridge alignment, safety for motorists and active mobility users, cost, traffic flow, views analysis on specific protected primary and secondary points, land use impacts, compatibility with future transit loop, alignment with approved plans, and implementation of design.

Major alignment change to the Ottawa approach is not being considered at this time to support the new bridge alignment. If changes to the road alignment are required to support other initiatives occurring in the area, they will be guided by decisions associated with those initiatives and impacts to existing parks and infrastructure will be addressed through the approval process for those Projects.

## 11 PROJECT CAPACITY

The existing Alexandra Bridge consists of the main cantilevered steel truss bridge with five spans, truss A, Truss B and the north trestle (refer to Figure 9-1). Its overall length is 563.27 metres (1,848 feet) and its width is 18.89 metres (62 feet). Its main cantilever span is 172.21 metres (556 feet). Due to the current condition of the bridge, its loading capacity was reduced to 27 T for the traffic lanes and 5 T for the active transportation lane. This capacity is expected to be maintained until the replacement date.

The dimensions of the replacement bridge being proposed are not yet available, however the general location of the approaches will remain the same and therefore the size of the bridge is expected to be of the same order of magnitude.

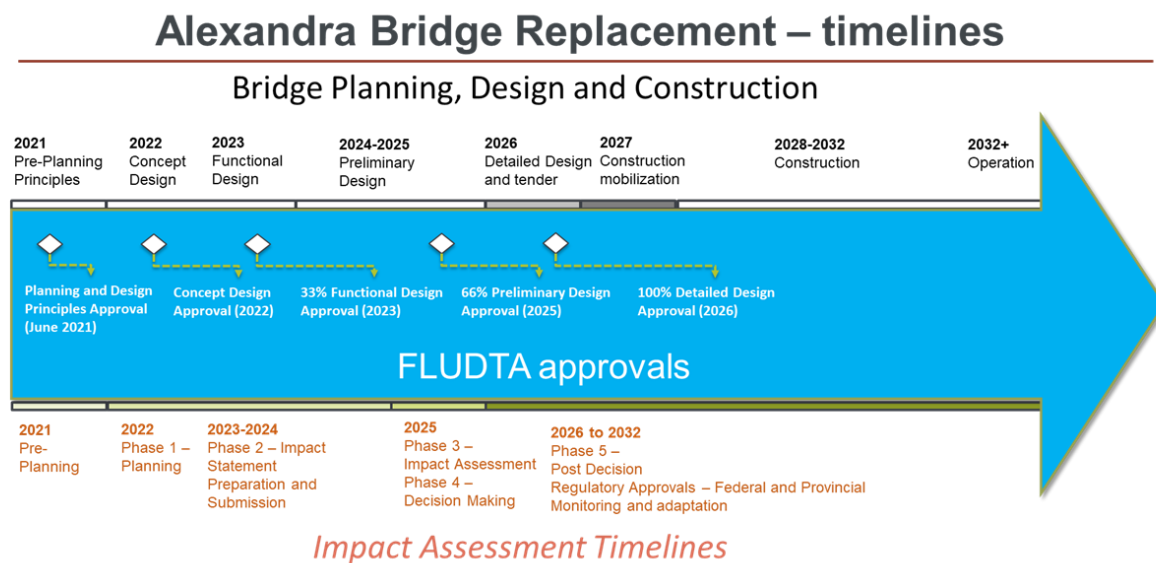
The loading capacity of new bridge will be in keeping with the Canadian Highway Bridge Design Code (CHBDC) and applicable design standards. The theoretical capacity of active transportation is expected to increase, as this lane will be wider and better separated than the existing boardwalk to meet current standards. The exact increase is still to be determined as part of the detailed design stage of the Project.



## 12 SUMMARY SCHEDULE

The proposed Project is currently in the planning and design stages, with construction estimated to begin in 2028. Construction is currently estimated to be completed in 2032. The new bridge is expected to be in use for at least 100 years, as such there is no defined timeline for its decommissioning and abandonment.

Figure 12-1 and Table 12-1 provide a summary of key planning milestones and the overall Project timeline based on information currently available.



**Figure 12-1: Alignment between construction stages, Impact Assessment Phases and FLUDTA Milestones**

**Table 12-1: Project milestones**

<b>Project Milestone / Task</b>	<b>Estimated Completion</b>
<b>PSPC/NCC submit the final Initial Project Description to IAAC</b>	Winter 2022
<b>Impact Assessment Phase 1 - IAAC posts Initial Project Description</b>	Winter 2022
<b>Impact Assessment Phase 1 – Submission of Detailed Project Description and Response to Summary of Issues</b>	Spring 2022
<b>Impact Assessment Phase 1 - IAAC Issues Tailored Impact Statement Guidelines</b>	Fall 2022
<b>Impact Assessment Phase 2 - Impact Statement submittal</b>	Fall 2024
<b>Impact Assessment Phase 2 - IS review including public comment period</b>	Fall 2024
<b>Impact Assessment Phase 3 – Submission of IA Report to Minister</b>	Fall 2025
<b>Impact Assessment Phase 4 – Minister Issues IA Decision</b>	Fall 2025
<b>Impact Assessment Phase 5 – Post Decision follow up to obtain required regulatory approvals</b>	Winter 2025
<b>Development and Approval of Final Bridge Design</b>	Summer 2028
<b>New Crossing Construction Activities Start</b>	Summer 2028
<b>Decommissioning of Alexandra Bridge</b>	Schedule to be confirmed
<b>Sub-Stage 1 Construction Activities</b>	Summer 2029
<b>Sub-Stage 2 Construction Activities</b>	Summer 2030
<b>Sub-Stage 3 Construction Activities</b>	Summer 2031
<b>Sub-Stage 4 Construction Activities: Project Completion</b>	Summer 2032



## Part C: Location Information and Context

### 13 PROJECT LOCATION

#### 13.1 Geographic Coordinates

The Alexandra Bridge is located at coordinates 45°25'49"N 75°42'16"W. The new bridge will make use of the existing approaches. The total length of the existing bridge is 563.27 m (1,848 ft).

##### 13.1.1 Site Map

Figure 13-3 provides a site map that shows the position of the bridge on the Ottawa River relative to the approaches in Gatineau and Ottawa. The yellow box represents the conceptual Project footprint that encompasses all potential alternative alignments. The red line is the current bridge right-of-way, the black shows the potential curved bridge design alignment, and the pink line shows the potential straight bridge design alignment.

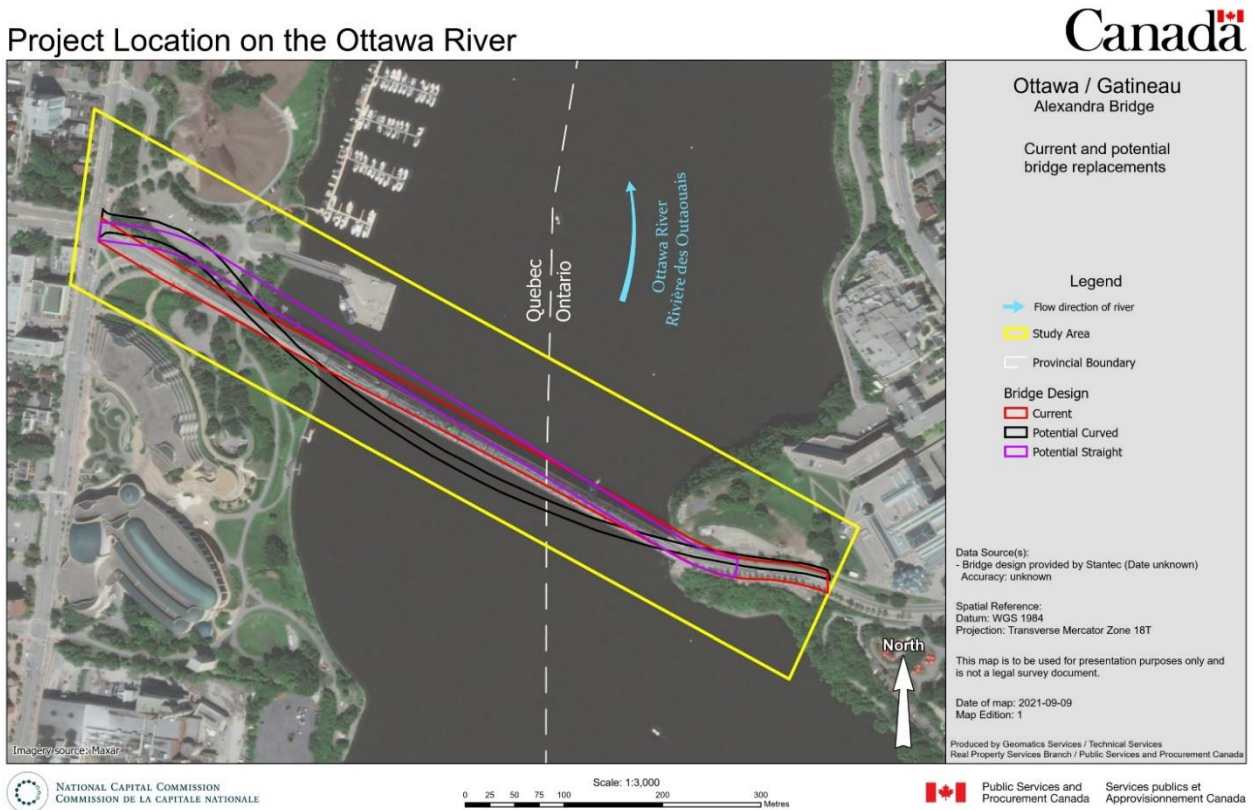


Figure 13-1: Project location on the Ottawa River



### 13.1.2 Legal Description of Land

To understand the ownership of land surrounding the bridge, refer to Figure 13-2. Most of the lands surrounding the bridge are Federally owned, with the exception of the approach on the Gatineau side, owned by the MTQ. There are also areas of Jacques-Cartier Park adjacent to the bridge which are in the flood zone of the river and are owned by the Province of Québec. The bed of the river is owned by both the Provinces of Québec and Ontario.

On the Québec side, the bridge and its approaches are located on or above lots 3 119 497, 3 119 498, 1 739 499, 1 739 500 and 6 267 073 of the cadasters of Québec.

On the Ontario side, the bridge and its approaches are located on PINs 04280-0011 and 04280-0035.

PSPC intends to acquire the water lots from the provinces under the new crossing once its alignment is confirmed. Additionally, the easements noted on Figure 13-2 may be regularized as part of the Project planning.

#### Land Ownership

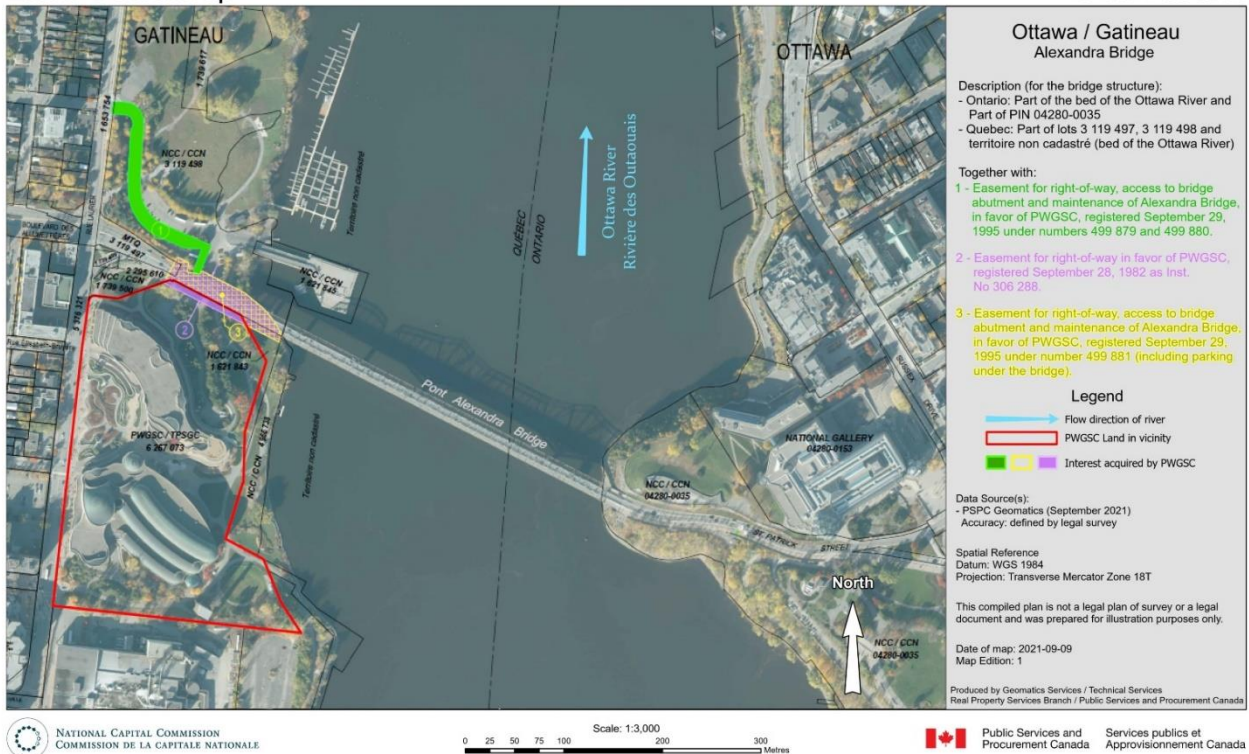


Figure 13-2: Land ownership

## 13.2 Proximity to Federal Lands

The Project is located on federal lands and is close to several federal properties and buildings. Table 13-1 lists the name and location of federal lands, as well as the approximate distance to the Project at the Alexandra Bridge. The distances indicated in the table are relative to the nearest end of the Alexandra Bridge structure.

Areas to be affected by planned work will include NCC-owned land around the approaches to the existing bridge in both provinces. Some areas are yet to be confirmed, will be dependent on final design selection and there could also be sites identified on the Ottawa side. Proposed federal locations that may be affected for the purpose of carrying out the Project include lots 145244 and 25139 of the Directory of Federal Real Property. These lots are Jacques-Cartier Park and the Canadian Museum of History, respectively. For the legal description of land, refer to Section 13.1.2.

**Table 13-1: Federal properties near the Alexandra Bridge**

Property Name	DFRP	Province	Approximate Distance to Alexandra Bridge (m)
Hull Wharf (in Jacques-Cartier Park)	23767	QC	180
Jacques-Cartier Park	145244	QC	0
Canadian Museum of History	25139	QC	180
Nepean Point	02751	ON	60
Access Road, 1 Rideau St	23797	ON	250
National Gallery of Canada	72001	ON	350
Land (War Museum)	09411	ON	270
Global Centre for Pluralism	144713	ON	310
Major's Hill Park	4127	ON	0

For additional reference, the location of the nearby Federal Properties are shown on the Figure 13-3 and Figure 13-4.

### Federal Properties near Alexandra Bridge - Ottawa

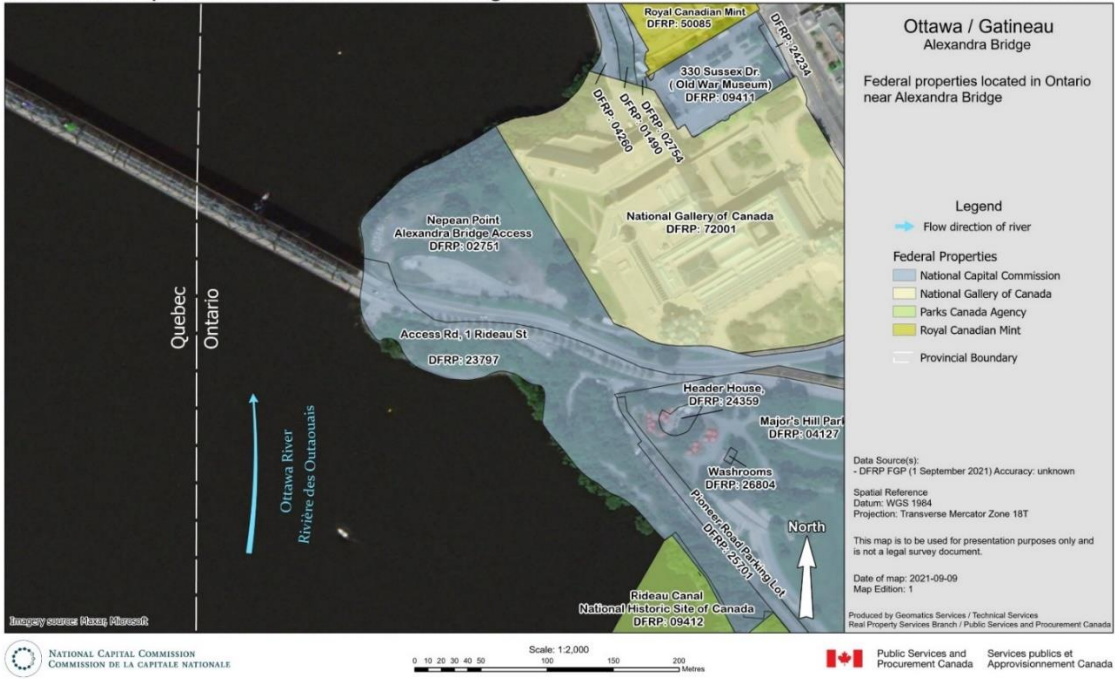


Figure 13-3: Federal properties near the Alexandra Bridge – Ottawa

### Federal Properties near Alexandra Bridge - Gatineau

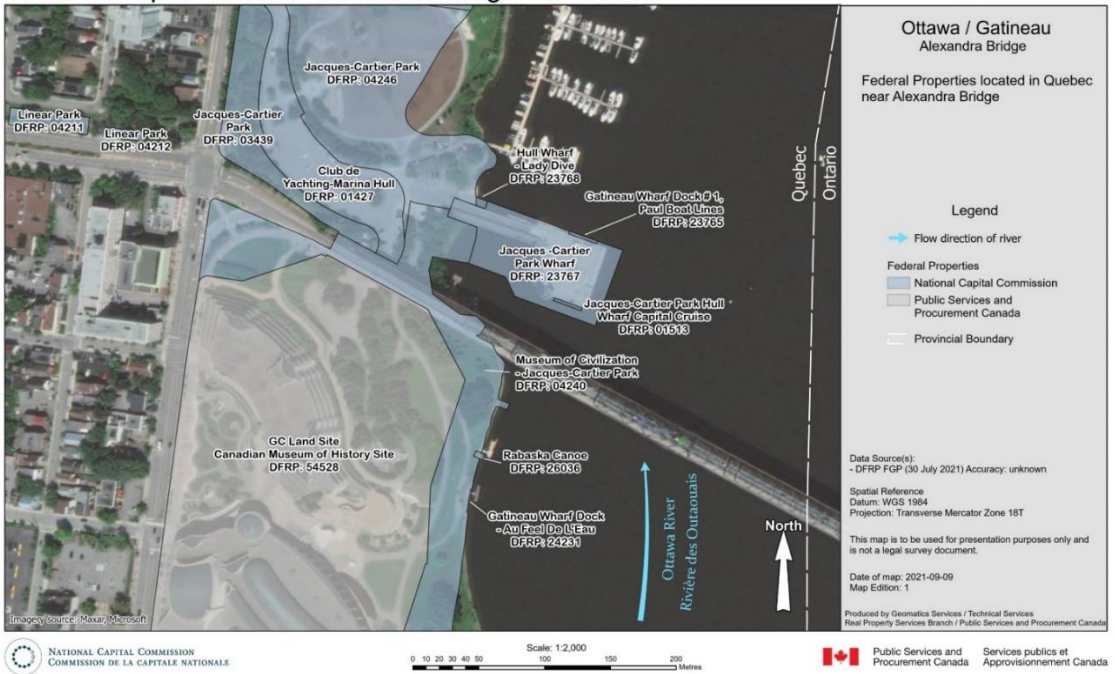


Figure 13-4: Federal properties near the Alexandra Bridge – Gatineau



### 13.3 Nearby Communities and Residences

The Project connects two cities and two provinces. As such, there are many surrounding communities that can access and benefit from their proximity to the structure. On the Ontario side of the bridge, neighbourhoods include Lowertown, Byward Market, Centretown, Parliament, and the Golden Triangle. On the Québec side, the nearest community is l'Île-de-Hull in the city of Gatineau. These communities will be engaged throughout the Project's lifecycle. The first stages of public consultation for the Project included two workshops with local stakeholder groups, an online consultation widely advertised in local media, and follow-up meetings with local community and business associations. Four additional stages of public consultation are planned, all of which will involve targeted engagement with nearby communities (see Section 3.6). The NCC and PSPC are also committed to engaging with nearby communities on an ongoing basis during and between formal stages of public consultation.

Both ends of the bridge are bordered by major public national landscape spaces and national cultural institutions that form part of Canada's Capital. In Québec, the bridge is adjacent to the Canadian Museum of History, as well as NCC's Jacques-Cartier Park. The Ontario side is lined with the Capital's first park, Major's Hill Park and the nationally significant landmark, Nepean Point, as well as the National Gallery of Canada.

Table 13-2 provides a list of the nearest affected communities in terms of their land use profiles.

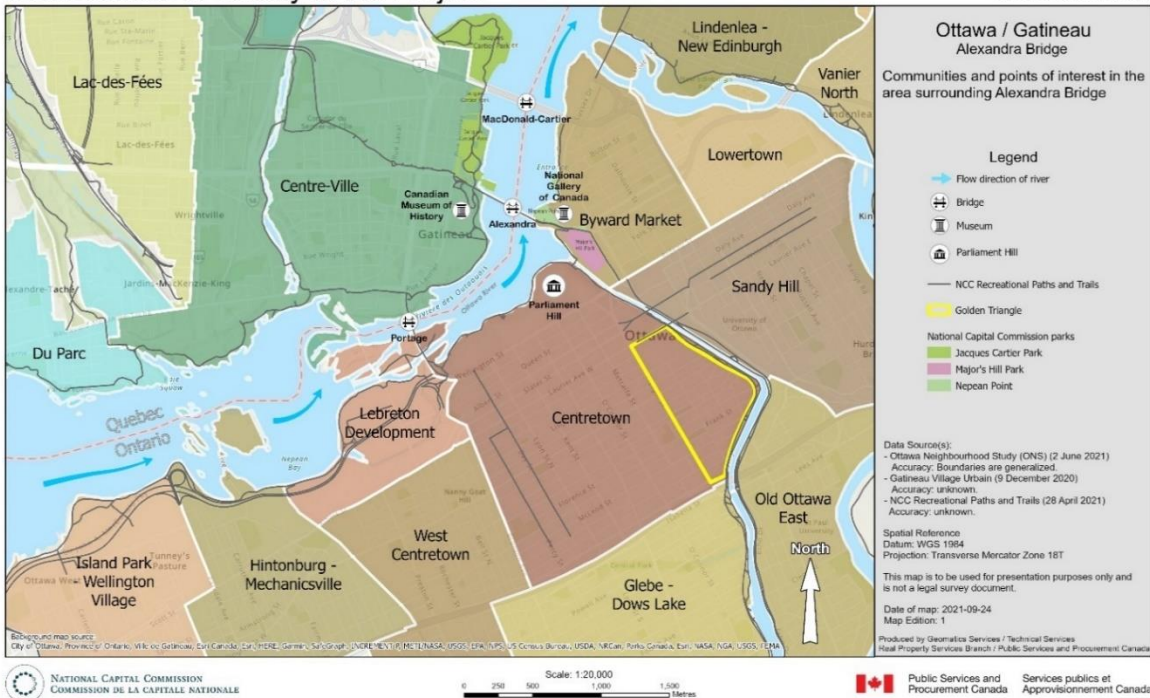
**Table 13-2: Affected communities in Project vicinity**

Community	Province	Residential	Commercial	Government Sector	Approximate distance to Alexandra Bridge (km)
<b>Byward Market / Lowertown</b>	ON	✓	✓		0
<b>Centretown</b>	ON	✓	✓	✓	1.2
<b>Golden Triangle</b>	ON	✓	✓	✓	1.7
<b>l'Île-de-Hull (part of Centre Ville)</b>	QC	✓	✓	✓	0
<b>Lowertown</b>	ON	✓	✓		1.4
<b>Parliament</b>	ON			✓	1.2

The communities listed in the table 13-2 are shown in the Figure 13-5 below, for reference.



## Communities in Vicinity to the Project



**Figure 13-5: Communities in vicinity to the Project**

### 13.4 Proximity to Indigenous Lands

The area in the vicinity of the Project has been a place of gathering, trade, harvesting and transportation for Indigenous Peoples for thousands of years (Walker, 2018).

All of the Indigenous communities and organizations listed in Section 4.3 consider that the Alexandra Bridge is within their traditional territories or have expressed interest in engaging with the IPT.

The location of the Alexandra Bridge and the watershed of the Ottawa River and its tributaries have been identified by Indigenous groups as subject to land claims, assertions of title, modern treaty negotiations and court cases to establish the existence of Indigenous rights.

There are fifteen First Nations (twelve in Québec and three in Ontario) including lands in a reserve as defined in subsection 2(1) of the Indian Act or subsection 2(1) of the First Nations Land Management Act that consider the Alexandra Bridge location to be within their traditional territories. They are described in Section 13.4.1 and Section 13.4.2 below and shown in Figure 13-6. Population figures for First Nations are from Indigenous Services Canada, First Nation profiles, as of November 2021.

The Métis Nation of Ontario has also stated the interest of the members of its Region 6, which includes Eastern Ontario and the location of the Project.

## 13.4.1 Indigenous Communities within Québec

### **Kitigan Zibi Anishinabeg First Nation**

Kitigan Zibi was established in 1853 and is the largest Algonquin Nation in Canada in both area and population. There are 1,618 people in the community and another 1,745 members living in other areas. The First Nation is 106 km from the Project and is the closest First Nation to the location of the Alexandra Bridge.

### **La Première Nation Abitibiwinni**

Abitibiwinni is near the town of Amos in Northwest Québec, with 591 members living on-reserve in the community of Pikogan, and 492 members living off-reserve. It is 397 km from the Project, and French is the primary language.

### **Kebaowek First Nation**

Kebaowek is located 10 km west of Témiscamingue, on Lake Kipawa, 295 km from the Project. There are 295 members living on-reserve and 722 members off-reserve.

### **Wolf Lake First Nation**

The 244 members of the Wolf Lake First Nation live in the community of Hunter's Point, near Témiscamingue, 296 km from the Project. The First Nation does not have a land base and the community leadership is seeking to secure title to reserve lands.

### **Le Conseil de la Nation Anishnabe du Lac Simon**

Lac Simon is near the town of Val d'or in Northwest Québec, with 1,787 members living on-reserve and 479 members living off-reserve. It is 318 km from the Project, and French is the primary language.

### **La Communauté Anicinape de Kitcisakik**

Kitcisakik is an Algonquin settlement on provincial Crown lands in la réserve faunique La Vérendrye, 269 km from the Project. There are 378 members living on-reserve and 138 off-reserve, and French is the primary language.

### **Algonquins of The Algonquins of Barriere Lake**

Barriere Lake is located 134 kilometres north of Maniwaki, on the shores of the Cabonga reservoir and is 217 km from the Project. There are 585 members living on-reserve and 210 living off-reserve.

### **Long Point First Nation**

Long Point, also known as Winneway, is located 116 km east of Ville-Marie in Western Québec and is 324 km from the Project. There are 505 members living on-reserve and 430 off-reserve.

### **Timiskaming First Nation**

Timiskaming First Nation adjoins the municipality of Notre-Dame-du-Nord in Western Québec and is 377 km from the Project. There are 647 members living on-reserve and 1,701 off-reserve.

### **La Nation Huronne-Wendat\***

The Huronne-Wendat First Nation has two communities and reserves (Wendak 7 and Wendak 7A) within Quebec City and is located 370 km away from the Project. La Nation Huronne-Wendat comprises of slightly over 1,477 members living on reserve, and 2,757 members off-reserve.

**Mohawk Council of Kahnawake\***The Mohawks of Kahnawake e are located 157 km from the Project. The Mohawks of Kahnawake comprise of approximately 7,940 members living on-reserve and 3,270 members off reserve.

**Mohawk Council of Kanesatake\***The Mohawks of Kanesatake are located 156 km from the Project. The Mohawks of Kanesatake comprise 1,374 members living on-reserve and 1,292 members off-reserve.

## **13.4.2 Indigenous Communities within Ontario**

### **Algonquins of Pikwakanagan First Nation**

Algonquins of Pikwakanagan First Nation was created as a First Nation under the Indian Act in 1873 and was known at the time as the Golden Lake Reserve. It has an on-reserve population of 453 members and another 2,833 members live off-reserve. The First Nation is 122 km from the Project.

### **Wahgoshig First Nation**

Wahgoshig was created in 1906 as the Abitibi-Ontario Band of Abitibi Indians #70, which was part of a reserve situated in both Ontario and Québec. Wahgoshig was created as a distinct First Nation in Ontario with its new name in 1986. It has a population of 144 members on-reserve and 242 members off-reserve. The First Nation is about 484 km from the Project.

### **Mohawk Council of Akwesasne\***

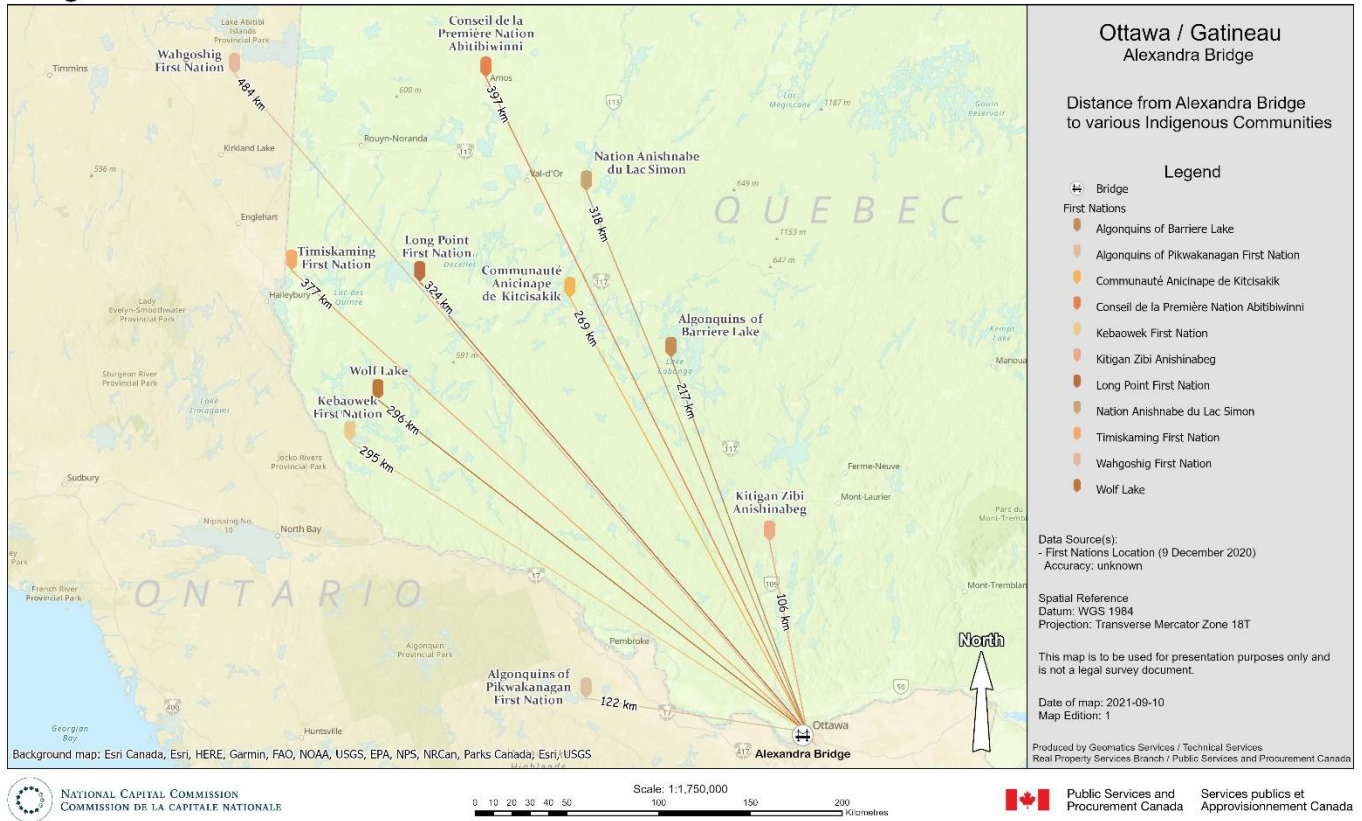
The Mohawks of Akwesasne are located 111 km from the Project. The Mohawks of Akwesasne comprises 10,099 members living on-reserve and 2,985 members off-reserve.

### **Métis Nation of Ontario – Region 6\***

The Métis Nation of Ontario Region 6 council represents members of Métis Nation of Ontario living in Eastern Ontario.



# Indigenous Communities



**Figure 13-6: Distance of Indigenous communities to the Project**

\*Figure 13-6 was produced in the early stages of engagement, and the proponent recognizes that not all communities listed in sections 13.4.1 and 13.4.2 are identified on the map. Notwithstanding, engagement with all Indigenous Partners are ongoing and they will be provided with the opportunity to partake in the project and receive financial support and economic benefits.



## 14 BIOPHYSICAL ENVIRONMENT AND POTENTIAL IMPACTS

To identify potential environmental considerations relevant to the Project, a desktop review of available information in the form of reports, maps and publicly available databases has been conducted (refer to Appendix G). Applicable information is provided throughout this section. Potential adverse environmental impacts of the Project were evaluated through consideration of the interactions between the Project and the natural (physical and biological) environment. Mitigation measures that could avoid or reduce potential adverse environmental impacts are also identified. A preliminary characterization of potential residual Project-related impacts is provided. Residual impacts would be further evaluated and confirmed at the Impact Statement phase of the IA process, as would cumulative effects where appropriate, along with expected residual effects, and recommended follow-up program measures. Regulatory oversight (federal, provincial or municipal authorizations) is indicated throughout the text below.

The spatial boundaries for assessing Project impacts include:

- Project Development Area (PDA) - Encompasses the anticipated area of physical disturbance associated with the construction and operation of the Project. The Conceptual Project Footprint was used as the basis for the preliminary assessments conducted during the IPD stage. As the Project progresses, the PDA will be refined, as more detailed information becomes available.
- Local Assessment Area (LAA) - Encompasses the area in which Project-related impacts (direct or indirect) are predicted to occur. The LAA encompasses the PDA and a buffer around it (Valued Component specific).

For each valued component, specific spatial boundaries have been defined based on the anticipated area of impacts, as summarized in Table 14-1.

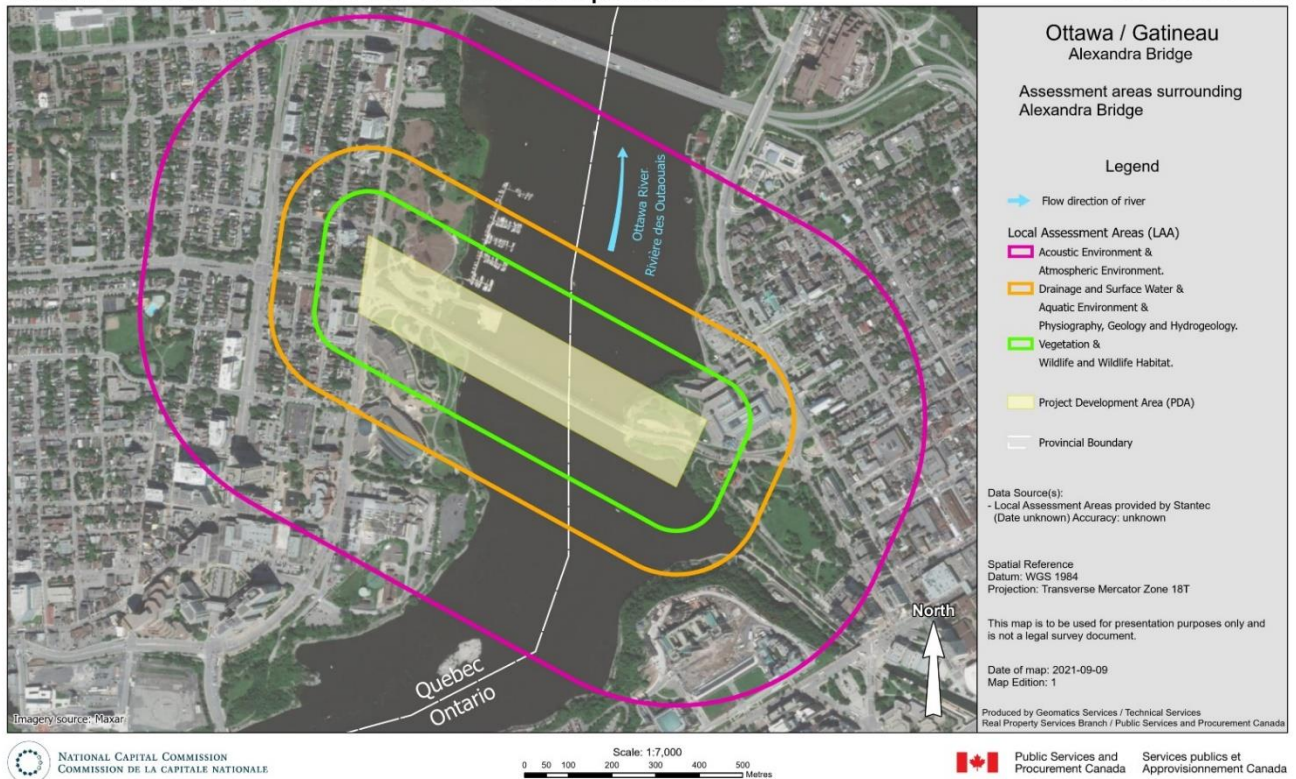
**Table 14-1: Summary of local assessment areas**

Valued Component	Local Assessment Area
<b>Atmospheric Environment</b>	500-m buffer around PDA
<b>Acoustic Environment</b>	500-m buffer around PDA
<b>Physiography, Geology and Hydrogeology</b>	200-m buffer around PDA
<b>Drainage and Surface Water</b>	200-m buffer around PDA
<b>Vegetation</b>	100-m buffer around PDA
<b>Wildlife and Wildlife Habitat</b>	100-m buffer around PDA
<b>Aquatic Environment</b>	200-m buffer around PDA

The proposed new bridge will meet the riverbank at roughly the same location as the existing bridge. For the purpose of this preliminary assessment, the PDA includes the footprint of the Project as required during decommissioning of the existing bridge and the construction and operation of the new bridge, including the area immediately surrounding the bridge and the approaches on both sides. In Figure 14-1, the circled areas represent the Local Assessment Areas for the following Valued Components:

- Green line - Vegetation, Wildlife and Wildlife Habitat
- Gold line - Drainage, Surface Water, Aquatic Environment, Physiography, Geology and Hydrogeology
- Pink line - Acoustic, and Atmospheric Environment

### Local Assessment Areas for Valued Components



**Figure 14-1: Local assessment areas for valued components**

The following sections describe the existing physical and biological conditions potentially impacted by the Project and identify mitigation and enhancement measures proposed to address potential impacts.

## 14.1 Physical Setting

The Ottawa River is the primary physical feature within the PDA, which divides the communities of Gatineau and Ottawa and necessitates the need for a bridge crossing. The Ottawa River supports many different species of wildlife and provides drinking water to communities in its surrounding area. As such, many conservation efforts have taken place to protect the Ottawa River.

In 2016, a 590-km section of the Ottawa River along the Ontario-Québec border was designated part of the Canadian Heritage Rivers System (CHRS). The CHRS is a federal-provincial-territorial partnership that works to protect and monitor rivers of natural, cultural and recreational importance (The Canadian Encyclopedia, 2018). In addition, municipal initiatives to protect the Ottawa River have also been implemented by the City of Ottawa through its Ottawa River Action Plan, consisting of 17 individual Projects aimed at enhancing the health of the Ottawa River and protecting Ottawa's water environment for future generations (City of Ottawa, 2020a).

### 14.1.1 Atmospheric Environment

For the purpose of this document, the atmospheric environment includes climate and air quality. See Section 23 for estimated GHG emissions associated with the Project.

The Ottawa-Gatineau area is in northern temperature zones characterized by short warm summers and long cold winters, with average temperatures ranging from -10.3 °C during the winter to 21 °C during the summer (ECCC, 2020). In the winter, the area experiences average precipitation ranging from 54.3 to 76.4 mm and in the summer from 85.5 to 92.8 mm. The nearest Environment and Climate Change Canada weather station located at the Ottawa MacDonald-Cartier International Airport is approximately 12 km away from the Project. Climate data at this station is available from 1981 to 2010 (ECCC 2020).

Existing air quality conditions are determined by both regional and local sources. Regional air quality is affected mainly by a combination of industrial activities (e.g., Industrial Park in Ottawa 5 km away from PDA, paper factory in Gatineau 300 m from PDA) and transportation. Apart from emissions related to traffic and idling, local air quality influences are similar to regional influences.

#### 14.1.1.1 *Potential Impacts*

##### 14.1.1.1.1 Deconstruction and Construction

Intermittent air emissions from equipment and vehicles will occur during the deconstruction of the existing bridge and during the construction stage of the new bridge, including the following sources: on-road mobile equipment (trucks), construction equipment (e.g., excavators, graders, concrete cutting). Deconstruction and construction activities associated with the Project will also have the potential to generate dust. The quantity of dust emissions depends on the area of land being worked, type of equipment on-site and level of construction activities. These emissions will be localized and of relatively short duration (i.e., 4 years of construction where not all equipment will be operating at the same time) and are unlikely to have any long-lasting impacts on the surrounding area. Potential impacts to human health at this stage of the Project will be confirmed in future steps of Project analysis.

Construction activities and an inventory of all potential air contaminants of concern will be further defined when technical components of the new bridge are developed. Based on similar projects, potential contaminants of concern that would likely be emitted during deconstruction and construction likely include those associated with the operation of construction equipment and dust generated by equipment moving across the site. Potential air pollutants that may be released as a result of the Project include:

- nitrogen dioxide (NO<sub>2</sub>)
- sulphur dioxide (SO<sub>2</sub>)
- carbon monoxide (CO)
- ozone (O<sub>3</sub>)
- fine particulate matter (PM<sub>2.5</sub>)
- coarse particulate matter (PM<sub>10</sub>)
- polycyclic organic compounds (PAHs)
- volatile organic compounds (VOCs)
- diesel particulate matter (DPM)
- dust (total suspended particles)
- metals and other substances

#### 14.1.1.1.2 Operation

During operation, traffic is predicted to be similar to existing conditions, which will result in similar or reduced emissions in the future in anticipation of regulatory reductions (greater emission controls on new vehicles) and advancements in engine technology (i.e., reduced emissions, zero-emission vehicles). At this stage of the Project, impacts to human health are anticipated to be positive, based on enhancements planned to support use of active transportation modes and advancements in vehicle technology that contribute to air quality.



Table 14-2 identifies, for each potential impact, the physical activities that might interact with the Atmospheric Environment and result in the identified environmental impact.

**Table 14-2: Project interactions with atmospheric environment**

Project Stage	Physical Activities	Potential Impacts Change in ambient air quality
<b>Deconstruction</b>	Deconstruction of infrastructures	✓
<b>Construction</b>	Site mobilization and construction of temporary facilities	✓
	Land clearing and soil stripping	-
	Excavation, earthwork	✓
	Construction of infrastructure	✓
	Work in aquatic environments	-
	Deconstruction of temporary structures	✓
	Demobilization of construction site	-
<b>Operation</b>	Use of infrastructure	✓
	Maintenance and repair of infrastructure	✓
<b>NOTES:</b>		
✓ = Potential interaction		
- = No interaction		

#### 14.1.1.2 Mitigation and Protective Measures

Applicable air quality standards that would be considered in the assessment include the National Ambient Air Quality Objectives (NAAQOs) and Canadian Ambient Air Quality Standards (CAAQS). Where applicable federal standards do not exist for some contaminants, provincial standards would be used, such as Ontario’s Ambient Air Quality Criteria (AAQC) set by the Ministry of the Environment, Conservation and Parks or the Atmospheric Quality Standards (Sections 197 and 198 and Schedule K of the Clean Air Regulation) and criteria (Environment Quality Act) administered by the Ministère de l’Environnement et de la Lutte contre les changements climatiques in Quebec.

Air pollution can have significant human health impacts. Poor air quality has been linked to respiratory and cardiovascular illnesses, hospitalizations and mortality. The reaction of an individual to air pollutants depends on the type of pollutant to which a person is exposed, the degree of exposure and the individual’s health status and genetics (Health Canada, 2017). An assessment on the implications to human health would be conducted (see Table 14-9) to evaluate potential impacts to human health from any air quality changes resulting from the Project.

An Air Quality Impact Assessment may be required to predict concentrations of pollutants emitted during all project stages (see Table 14-9 for planned future studies). The study methodology is not yet finalized, but the assessment of air quality effects related to the Project would include the following elements:

- Assessment of baseline ambient air quality conditions for the Project area from the existing published sources of air quality data
- Compilation of emissions inventories of all equipment and modelling to predict emissions from Project activities
- Dispersion modelling to predict any changes in the ambient concentrations of air contaminants of concern
- Comparison of dispersion model predictions to regulatory standards and ambient air quality criteria

Best Management Practices will be implemented where applicable, such as reducing vehicle idling time, shutting down equipment when not in use, stabilizing disturbed areas through the use of water for dust control, and providing proper maintenance of equipment and vehicles operating in work areas.

Mitigation measures may include the following:

- Implementation of protection and mitigation measures for dust control, such as stabilizing disturbed areas through the use of water, chemical stabilization methods or use of vegetation or the use of physical barriers
- Implementation of a policy which will support green power use in order to control mobile equipment emissions
- Maintenance of emission systems, providing proper maintenance of equipment and vehicles operating in work areas
- Reduction of vehicular traffic on exposed soils and stabilizing high-traffic areas with suitable cover material
- Avoidance of excavation and other construction activities during windy and prolonged dry periods
- Stabilization of any stockpiled excavated soil in areas upwind of sensitive receptors
- Restoration of disturbed areas as soon as possible to reduce the duration of soil exposure

The methodology and approach for tracking and mitigating potential air pollutants will be determined based on the results of baseline studies as level of certainty about potential impacts increases, and a determination on residual impacts can be completed. Any follow-up and monitoring plans will be developed for Valued Components (VCs) where residual adverse effects are predicted or uncertain. The need for and extent for air quality studies will be confirmed and developed as the Project progresses. If required, a follow-up and monitoring plan would be implemented during relevant Project stages to verify the accuracy of predictions and determine the effectiveness of proposed air quality mitigation measures at representative sensitive receptors.

Additional information regarding air quality mitigation and protection measures during deconstruction and construction will be determined and confirmed as the Project is further defined.



Project contributions to ambient air emissions during construction are predicted to be limited, temporary, and localized. With the implementation of mitigation measures, residual impacts may occur, but are anticipated to be low in magnitude and short term in duration.

#### 14.1.1.3 *Enhancement Measures*

The inclusion of a separate and protected laneway for mixed-use active transportation methods is proposed to increase the use of alternate modes of transportation, such as biking or walking. An increase in active transportation methods and a decrease in vehicular transportation could contribute to an overall decreased level of vehicular emissions in the local area. The design of the bridge is also expected to include the potential to adapt the structure for use by a tram or light rail system as part of a future upgrade.

### 14.1.2 Acoustic Environment

Noise sources in the Project area arise from a combination of urban city noises from surrounding areas. The Project area, being an interprovincial bridge, is primarily used for day-to-day transportation by personal vehicles and active transportation modes (i.e., biking and walking) year-round. Commercial trucks are not permitted to use the bridge. With the exception of the Kruger Product plant, the bridge is located in an area dominated by commercial and tourism uses, including docks located along the Ontario and Québec shores of the river. The docks are widely used for recreational boating, tourism and commercial purposes.

As noted in the NCC's Ottawa River North Shore Parklands Plan (2018), the noise generated by vehicles travelling on the northbound steel deck of the bridge hinders the attractiveness of the Jacques-Cartier Park particularly in areas surrounding the wharf, marina and the lower section of the Jacques-Cartier Park South.

To date, field studies for the acoustic environment have not been completed, however an Acoustic Impact Assessment could be completed in 2022/2023 if required (see Table 14-9 for details). A protocol is planned for future development to address noise-related complaints and the communication plan for complaints resolution.

#### 14.1.2.1 *Potential Impacts*

##### 14.1.2.1.1 *Deconstruction and Construction*

Construction noise is expected to be present from initial site preparation to completion of construction. Construction related sound levels might vary as construction activities change in location and intensity. Typically, construction noise impacts are temporary in nature and largely unavoidable. Construction noise impacts will be calculated for the Project following Detailed Design once specific details of construction of the new and deconstruction of the existing bridge are determined. Noise associated with decommissioning of the existing bridge could include the use of pneumatic hammers and blunted chisel tools and will be confirmed during the Detailed Design stage. It is recommended that the detailed construction noise evaluation include deconstruction of the existing bridge and construction of the new bridge.

Project deconstruction and construction will require equipment whose operation may involve a temporary increase in noise levels. The most common noises associated with this stage will be from mobile equipment including trucks, cranes, excavators, bulldozers, compactors, tub boats, water pumps, generators, and drilling machines.

Residential areas in the District of Hull and the City of Ottawa that are located near the work area would potentially be affected by noise. The contractor will be required to ensure that the noise period and maximum possible noise level requirements for both cities of Gatineau and Ottawa are met.

In the City of Gatineau, By-law 44-2003 respecting noise in the territory sets out the following requirements with respect to construction sites and the use of motorized equipment:

- Work on a construction, renovation or demolition site located within 150 m of a building used as a dwelling may only be carried out from Monday to Saturday between 7 a.m. and 9 p.m., except in the case of emergency work on public infrastructures.
- It is also forbidden to use engines or machinery whose noise level perceived by an occupant of a building serving as accommodation is greater than 60 dBA during the day and 55 dBA at night.
- If the equipment (motors and compressors) are not used continuously, the levels are increased to 65 dBA during the day and 60 dBA at night.

In the City of Ottawa, the Noise By-law Number 2017 -255 gives the following requirements for construction sites:

- Construction work is prohibited from Monday to Saturday between 10:00 p.m. and 7:00 a.m., and on Sundays and holidays between 10:00 p.m. and 9:00 a.m.

Noise exposure associated with the Project has the potential to impact human health in terms of noise-induced sleep disturbance, noise complaints and annoyance. Sleep disturbance as a result of night-time noise includes difficulty falling asleep, awakenings, curtailed sleep duration, alterations of sleep stages or depth, and increased body movements during sleep, all of which can result in increased fatigue, irritability, and decreased concentration and performance (Health Canada (2017)). Health Canada (2017) notes that when project sound levels are greater than 75 dBA, complaints to authorities to stop noise can be expected. An indicator of potential noise-induced human health effects from exposure to long-term construction noise (i.e., > 1 year) is the calculated change in the percentage of highly annoyed (%HA) in an average community (Health Canada, 2017). Any changes in noise due to the Project and implications of such changes on human health would be determined in accordance with Health Canada's Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise (2017).

The deconstruction and construction activities will respect Municipal Noise By-Laws, which restrict construction activities during the night. Sleep disturbance should not be a concern as a result of the Project. High Annoyance (HA) has been widely used as one way to estimate a community response to noise levels. Although individual reaction varies greatly, the reported change in %HA rates among an average community in reaction to certain sound levels provides usable exposure-response relationships. Health Canada (2017) uses the change in %HA as an appropriate indicator of noise-induced human health effects from exposure to long-term construction noise (greater than 1 year) exposure.



#### 14.1.2.1.2 Operation

Once operational, bridge-related noise will be similar to existing conditions generated by vehicles travelling on the existing bridge. As the new bridge will have 2 lanes for vehicles (same as existing bridge), noise levels during operation are not anticipated to change from existing conditions. There could be a reduction in the overall noise generated because the steel deck of the bridge will be replaced with a new surface material.

Traffic volumes and use are anticipated to be similar to existing conditions, and as such, it is not anticipated that the Project will result in increased levels of noise compared to existing conditions.

Table 14-3 identifies, for each potential impact, the physical activities that might interact with the Acoustic Environment and result in the identified environmental impact.

**Table 14-3: Project interactions with acoustic environment**

Project Stage	Physical Activities	Potential Impacts
		Change in ambient noise
<b>Deconstruction</b>	Deconstruction of infrastructures	✓
<b>Construction</b>	Site mobilization and construction of temporary facilities	✓
	Land clearing and soil stripping	-
	Excavation, earthwork	✓
	Construction of infrastructure	✓
	Work in aquatic environments	-
	Deconstruction of temporary structures	✓
	Demobilization of construction site	-
	<b>Operation</b>	Use of infrastructure
Maintenance and repair of infrastructure		-
<b>NOTES:</b>		
✓ = Potential interaction		
- = No interaction		

#### 14.1.2.2 Mitigation and Protective Measures

Mitigation measures will be implemented (e.g., muffler systems, restrict construction activities to daytime hours (7 am to 9 pm)) to avoid / reduce the impacts of construction noise. Municipal noise by-laws will be followed as applicable during construction. Any noise impacts resulting from construction are considered reversible and are expected to cease once construction activities are completed. The frequency of individual noise-generating activities (e.g., grading) is expected to be sporadic in nature. Additional information regarding noise mitigation and protection measures during construction and deconstruction will be determined and confirmed during the Detailed Design stage.

An Acoustic Impact Assessment is anticipated to be needed as part of the project planning (see Table 14-9) to identify existing receptors, establish baseline (ambient) noise conditions, and predict construction noise lasting longer than 1 year, including the magnitude of such changes and an evaluation of the change in percent highly annoyed (%HA) at each sensitive receptor. Where potential exceedances are predicted, appropriate noise mitigation measures will be employed.

During the deconstruction and construction stages, the Contractor will be required to comply with the bylaws and any other noise mitigation requirements. This may be addressed prior to the construction/deconstruction period through workshops or meetings with the community to address this issue and implement required mitigation measures.

Indicators of potential human health effects associated with noise include complaints and annoyance. A communication plan and complaints resolution process will be developed prior to construction to provide potentially affected individuals with information to address noise-related and other complaints during all construction activities.

Follow-up and monitoring plans will be developed for VCs where residual adverse effects are predicted or uncertain. If required, a follow-up and monitoring plan will be established to verify the accuracy of predictions and determine the effectiveness of proposed noise mitigation measures at representative sensitive receptors.

Project contributions to noise emissions during construction are predicted to be limited, temporary and localized. With the implementation of mitigation measures, residual impacts may occur, but are anticipated to be low in magnitude and short term in duration. Municipal noise by-laws will be followed as applicable during deconstruction and construction.

#### 14.1.2.3 *Enhancement measures*

The inclusion of a separate and protected laneway for mixed-use active transportation methods is proposed to increase the use of alternate modes of transportation, such as biking or walking. An increase in active transportation trips and a decrease in vehicular transportation use could contribute to an overall decreased level of vehicular noise. The creation of a closed deck system should also contribute to an overall reduction of the vehicular noise experienced by visitors and users of Jacques-Cartier Park.

Temporary noise barriers will be considered during construction where the noise assessment indicates sensitive receptors may be affected.

### 14.1.3 Physiography, Geology, and Hydrogeology

The following section provides a high-level description of the physiographical region, an overview of the geology and hydrogeology of the Project area.

The Alexandra Bridge is located in the **physiographic region** classified as the Ottawa Valley Clay Plains. Near the Project and along the Ottawa River, limestone plains are the dominant physiographic landform (Chapman and Putnam, 2007). Surficial geology mapping suggests that the Project area is located within an area of Paleozoic bedrock (OGS, 2010). Bedrock in the area is described as limestone and shale of the Verulam Formation (Armstrong and Dodge, 2007).

Topography slopes steeply on the banks of the Ottawa River, where the elevation ranges from 70m relative to datum (RTD) at the eastern extent of the Project to 40m RTD at the edge of the River.

As **bedrock** in the area is composed of limestone and shale, acid generation and/or metal leaching would only be a concern for the rock mass that will be disturbed and/or exposed during construction over the long term. The relatively small footprint of any rock disturbance anticipated from the Project suggests that any surface water or groundwater effects would be limited. Further geochemical analysis may be required to assess the potential for acid generation and metal leaching from the disturbed rock mass as the design of the new structure progresses. This characterization of the bedrock geochemistry would be used to develop appropriate strategies to manage excavation spoil and mitigation measures to address potential adverse changes to water quality.

The Project is in the **Western Quebec Seismic Zone**, which is a seismically active area in the Ottawa Valley in Eastern Ontario and Western Quebec. Historical seismic activity recorded by the Canadian seismograph network shows the earthquakes concentrating in two sub-zones: along the Ottawa River and along a more active Montreal-Maniwaki axis. On average, an earthquake occurs in this Zone every five days (NRCan 2021), with earthquakes of > 4.5 on the Richter scale occurring several times per decade (Ma & Eaton, 2007). The largest historical event in this seismic zone is the 1935 Temiskaming earthquake at a magnitude of 6.2 on the Richter scale (Ma & Eaton, 2007). Therefore, there is potential for earthquakes to affect the Project.

WSP (2021) carried out a seismic study on the Ottawa side of the Royal Alexandra Interprovincial Bridge on November 6, 2020. The purpose of this study was to investigate the subsurface, including depth to bedrock, provide a seismic site classification, as well as any additional information which is relevant to the geotechnical design of the bridge. The two (2) seismic methodologies used to characterize the subsurface were the seismic refraction method and the multi-channel analysis of surface wave method (MASW). These methodologies, survey design, procedure implemented to conduct the data analysis and the results are summarized in the report. The seismic study performed at the Royal Alexandra Interprovincial Bridge produced both a 2-D P-wave and a 2-D S-wave velocity profile.

A P-wave velocity profile calculated using the seismic refraction method has good vertical resolution and provides information regarding the lithological changes that occur within the first 14 meters of the subsurface. The P-wave velocity cross-section was broken up into four (4) layers. The layer nearest the surface is a low-velocity layer that consists primarily of topsoil, native material and/or backfill. This layer has a maximum P-wave velocity of 400 m/s and has a thickness of less than 1.0 m for the 45 m closest to the bridge. Past 45 m, the low velocity layer thickens to a maximum of approximately 2.0 m. The second layer has a maximum velocity of 2400 m/s and has been interpreted to be a weathered limestone that is approximately 3 m to 6 m thick. The competent limestone and/or dolostone bedrock has a velocity of greater than 2400 m/s.

The limestone with a velocity of greater than 3800 m/s shows limestone, which is more consolidated, has fewer fractures or a lower relative porosity. The S-wave velocity profile provides a larger vertical resolution than the P-wave profile in the near-surface. The first two (2) to three (3) meters of S-wave data is less reliable due to the high frequencies required to properly characterize the very near-surface however, this method allows for characterization at depths of greater than 30 meters.

For the purposes of this project, the maximum depth of investigation was 30 meters in accordance with the regulations for seismic site classification in Canada. S-wave velocities were determined to be in the range of 760 m/s to greater than 2100 m/s across the area investigated. The resulting S-wave profile shows that most of the cross-section exhibits S-wave velocities greater than 1500 m/s, indicating that the site, below three (3) meters, is comprised of bedrock which is also confirmed through analysis of the P-wave profile. The area showing S-wave velocities below 1500 m/s corresponds with the thicker overburden seen in the P-wave profile. At a depth of 10 m, the easternmost and westernmost portions of the line exhibit S-wave velocities between 1500 m/s and 1900 m/s (green). This decrease in S-wave velocity is likely due to a change in lithology or an increase in porosity due to a higher fracture density in these locations. The P-wave and S-wave sections both show that in between 35 m and 50 m there is a higher velocity zone that reaches up to a depth of six (6) meters suggesting an increased level of competency of the bedrock here.

Based on the Vs30 value of 1892 m/s (calculated as the average of the Vs30 from each line) determined using the Multi-channel Analysis of Surface Waves (MASW) method outlined in this report, and table 4.8.1.4.A of the National Building Code of Canada, 2015 Edition, a site class of "A" could be considered for the Ottawa approach. The above seismic site classification is based solely on the average Vs value derived from this seismic study and can be superseded by other geotechnical information including, but not limited to, the presence of sensitive soils, liquefiable soils, peat, more than 3 m of soft clays, high water saturation, etc. The reader should refer to section 4.1.8.4 of the National Building Code of Canada, 2015 Edition for more information regarding the requirements for seismic site classification. Section 6.4 shall provide seismic class based on the shear velocity measurements and the geotechnical findings.

The site of the Alexandra Interprovincial Bridge in Ottawa side, Ontario, has a very thin overburden between one (1) and two (2) meters thick, which sits directly on limestone bedrock. The bedrock is of sufficient quality along the entire profile that a seismic site classification of "A" could be considered using solely the S-wave velocity information from this seismic investigation. It should also be noted that there is an area where the bedrock is of relatively higher quality, in terms of P-wave and S-wave velocity, between 35 meters and 50 meters along the profile.

For the Ontario Approach, it has been assumed that the abutment footings for the new bridge will be placed directly on the bedrock surface. For a foundation placed on bedrock, a site class of "A" can be considered, based on the Vs30 value of 1892 m/s.

For the Ottawa River, based on the rock core retrieved during the geotechnical investigation, the proximity of the MASW conducted in Ottawa side to the river and the fact that the same rock formation is extended from Ottawa side to the riverbed as per the geological maps a site classification of A can be considered, based on "Site Classification for seismic site response" in the CHBDC 2014 (see table 4.1). A further geophysical investigation in the river would be required to confirm this determination.

For the Quebec approach, no characterization of the Vs30 values has been carried out, and the seismic classification has been carried out based on the requirements of the CHBDC. This table allows for seismic classification based on the average standard penetration resistance values. For a foundation placed on compact to dense glacial till a site class of "D" can be considered.

In case the proposed foundation is piling system sitting on rock end bearing type, a site class of “D” can be considered. If the piling system to be properly socketed in rock formation and considering the same rock formation continues from Ottawa across the river to Gatineau according to geological maps, a site class of “A” can be considered provided that MASW to be carried out to confirm the shear wave velocity.

A query submitted through the Ministry of the Environment and the Fight against Climate Change (Quebec) (MEFCC) **Hydrogeological Information** System indicated that there is one well located within 500 m of the western (Québec) side of the Alexandra Bridge (MEFCC, 2020). The phase II ESA completed for this project suggest bedrock around 6.1 mBGS. Surficial soil consist of fill material underlain by glacial till. Analytical results of the soil show exceedances of CCME guidelines for metals/inorganics, PAHs, PHC F2-F3 and VOCs. Groundwater was observed in the an unconfined aquifer in the native glacial till deposit or in the fill material. Groundwater analytical results show exceedances of metals/inorganics (WSP 2021).

This phase II ESA indicates bedrock between 1 and 3.4 mBGS, surface soil is fill material. Analytical results of the soil show exceedances of CCME guidelines for inorganics, PAHs Groundwater was observed in an unconfined aquifer in the limestone bedrock. Groundwater analytical results show exceedance of metal/inorganics and VOCs (WSP 2021).

Ottawa river site Geology: the upper 0.5 meters of the riverbed consisted of silty gravel with some sand. In several location a significant stratum of wood chips was encountered ranging in thickness from 5 to 13.1 meters. Wood chip material was underlain by sand gravel and silt sediment. Below this layer limestone bedrock was encountered. Sediment analytical results show exceedances of PAHs and wood chips show exceedances of metals and PAHs (WSP 2021).

The east side of the Project is located within the Rideau Valley Source Protection Area. The nearest Ontario-regulated municipal drinking water supply is approximately 1.8 km upstream of the Project and is located at the Lemieux Island surface water intake (Mississippi-Rideau Source Protection Committee, 2020). The nearest downstream surface water intake is approximately 30 km from the Project and is associated with the Rockland water supply system (MECP, 2020a). There are no groundwater municipal source water supplies near the Project. The nearest Québec-regulated municipal drinking water supply system is the Hull Water Treatment Plant located approximately 800 m upstream of the Project.

The Project is located within a **Highly Vulnerable Aquifer**, as is much of the City of Ottawa. The area has a vulnerability score of 6, under the Clean Water Act (2006) list of prescribed drinking water threats. Mitigation measures will be required should listed activities that could result in a considerable chemical and/or pathogen threat to the surface water supply (MECP, 2018) occur in the Project area. Based on current understanding of the proposed construction, activities are not anticipated to include any of these prescribed threats and the Project is not considered a threat to drinking water supply systems.

#### 14.1.3.1 *Potential Impacts*

##### 14.1.3.1.1 *Deconstruction and Construction*

Specific construction details for the Project are not yet available. However, it is anticipated based on the above review that anchors will be installed in bedrock and that bedrock is shallow or exposed at the Project area. Excavations are not expected to affect the nearby surface water intake at Lemieux Island or in Hull, both of which are located over 800 m upstream of the Project area.

During dewatering, discharge water may be released to the environment. An uncontrolled discharge of water during dewatering could cause localized downstream flooding, erosion or sedimentation.

If shallow overburden is encountered, disturbance to overburden during bridge construction may cause soil erosion and slumping during construction that may require rehabilitation, specifically in the steep area adjacent to the river.

#### 14.1.3.1.2 Operation

No impacts to physiography, geology or hydrogeology are anticipated as a result of Project operations.

Table 14-4 identifies, for each potential impact, the physical activities that might interact with Physiography, Geology and Hydrogeology and result in the identified environmental impact.

**Table 14-4: Project interactions with physiography, geology and hydrogeology**

Project Stage	Physical Activities	Potential Impacts	
		Change in groundwater quality and quantity	Change in soil quality and quantity
<b>Deconstruction</b>	Deconstruction of infrastructures	✓	✓
<b>Construction</b>	Site mobilization and construction of temporary facilities	✓	✓
	Land clearing and soil stripping	-	✓
	Excavation, earthwork	✓	✓
	Construction of infrastructure	✓	-
	Work in aquatic environments	✓	✓
	Deconstruction of temporary structures	-	-
	Demobilization of construction site	✓	✓
	<b>Operation</b>	Use of infrastructure	-
Maintenance and repair of infrastructure		-	-
<b>NOTES:</b> ✓ = Potential interaction - = No interaction			



#### 14.1.3.2 *Mitigation and Protective Measures*

A geochemical analysis may be required to determine the acid rock drainage (ARD) potential and potential mitigation measures. The analysis will commence with static laboratory testing of rock samples including acid-base-accounting to assess the acid generation potential. Shake flask extraction and total metals testing will be conducted to assess the metal leaching potential. The analysis may be progressed to kinetic testing based on the results of the static tests. The MEND Prediction Manual (Price, 2009) will be used as a guide to evaluate the ARD risks.

Follow-up and monitoring plans will be developed for VCs where residual adverse effects are predicted or uncertain. If required, a follow-up and monitoring plan related to potential acid rock drainage would include water quality testing during construction and static testing of samples of excavated bedrock. Background and downstream samples would be taken upstream prior to commencement of works to assess the ongoing impact of construction.

To mitigate this potential effect of seismic activity, the new bridge will be designed and constructed in accordance with the seismic requirements of the National Building Code of Canada (NRC, 2015) and the Canadian Highway Bridge Design Code (CSA, 2019).

For groundwater dewatering, the Ministry of the Environment, Conservation and Parks (MECP) allows registration under the Environmental Activity and Sector Registry (EASR) for construction dewatering Projects where groundwater takings will be greater than 50,000 L/day and less than 400,000 L/day, however, should groundwater takings exceed 400,000 L/day, a Permit to Take Water (PTTW) may be required from the MECP. Dewatering may be necessary to construct the bridge piers and abutments however, the extent of which would be determined through further study. Appropriate mitigation measures would be installed during isolation and dewatering activities to manage discharge water, including appropriate erosion and sediment controls and ensuring that discharge water is properly filtered (i.e., filter bags, discharge across grassed areas, check dams) prior to discharge to the Ottawa River. Groundwater dewatering is not anticipated to affect any groundwater drinking water supply sources in the LAA.

The bed of the Ottawa River represents a groundwater discharge zone, which could be encountered while installing and dewatering the caissons for bridge piers. This potential would be investigated through geotechnical investigations and hydrogeological conditions within the Project footprint would be confirmed through field studies, which may include measures such as geophysical profiling of the riverbed, drilling of pilot boreholes ahead of caisson installation, and grouting of bedrock to investigate if high conductivity features are present (faults or karst structures) to avoid uncontrolled groundwater inflow to the caissons. The results of the investigation will guide mitigation measures should they be required.

Existing conditions and predicted effects on water quality will be compared against the Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the protection of freshwater aquatic life (CWQG-FAL) (Canadian Council of the Ministers of the Environment (CCME, 2012).



Based on this preliminary assessment, residual impacts on physiography, geology and hydrogeology as a result of construction activities, following the implementation of mitigation measures, are likely to occur, but are predicted to be low in magnitude, localized to the areas of potential dewatering activities, (i.e., within 200 m buffer around PDA), and be short-term and reversible following dewatering activities.

#### 14.1.4 Drainage and Surface Water

The existing Alexandra Bridge is supported by six solid piers (concrete and masonry) erected on the bed of the river (wetted perimeter). Much of the existing bridge deck is an open-grate deck and precipitation passes through the bridge deck unmanaged and untreated. The banks of the Ottawa River are generally steep in nature due to the natural bedrock formations and outcrops. Some of the banks are lined with armour stone and large boulders providing protection against erosive forces and ice formations.

In the vicinity of the Project, notable local in-water structures include the Jacques-Cartier Park (Hull) Wharf and pedestrian look-out immediately north (downstream) of the Alexandra Bridge, as well as the Portage Champlain Yacht Club with dozens of boat slips and timber jetties located downstream of the Marina. Multiple commercial and tourism docks are also located along the Ontario and Québec shores of the river. As such, the river is widely used for recreational boating and tourism.

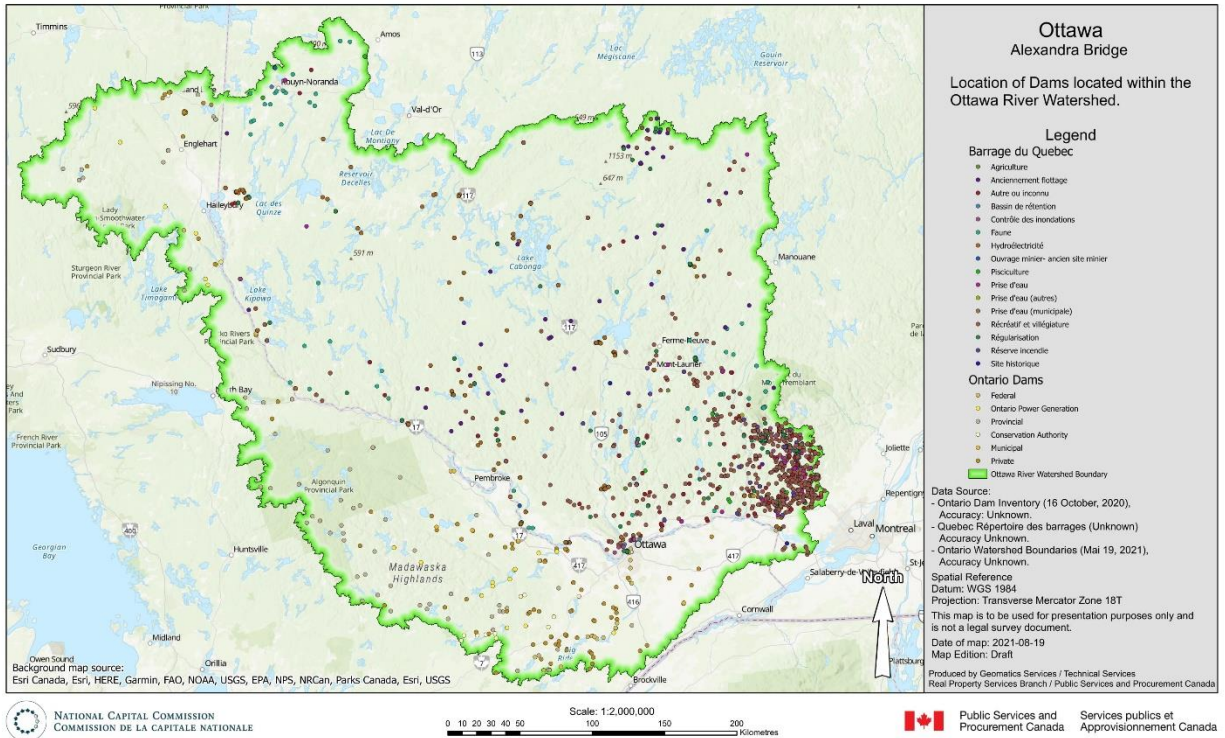
From the headwaters, the Ottawa River flows generally from the northwest to the southeast draining into Lake of Two Mountains west of Montreal before converging with the St. Lawrence River ultimately into the Gulf of St. Lawrence. Due to the meandering nature of the river, the flow orientation at the Alexandra Bridge is from south to north, with Québec on the left (west) bank and Ontario on the right (east) bank. Upstream of the Alexandra Bridge there are two main watersheds that make up the Ottawa River, the Upper Ottawa Watershed and the Central Ottawa Watershed, with a total catchment area of approximately 91,400 km<sup>2</sup>.

The Ottawa River is highly regulated with many dams scattered throughout the watershed that provide flood control, power generation and recreation opportunities (refer to Figure 14-2). The nearest dam to the Alexandra Bridge is the Chaudière Dam, a hydroelectric power plant located approximately 2 km upstream of the Alexandra Bridge. The crescent shaped dam is located where the Ottawa River naturally narrows between the rocky escarpment creating a series of cascades. The dam is owned and operated by Portage Power, a subsidiary of Hydro Ottawa.





## Locations of Dams



**Figure 14-2: Location of dams**

The Ottawa River is a main waterway artery within eastern Ontario and Western Québec and contains multiple Water Survey of Canada (WSC) gauges as well as dams and associated hydroelectric power generation stations. WSC has continued to operate a water level gauge at the Jacques-Cartier Marina in Hull, Québec immediately downstream of the Alexandra Bridge since 1964 (Station ID: 02LA015). Daily historical water levels observed at the gauge range from 40.909 m above mean sea level (amsl) to 45.168 m amsl with a mean of 41.80178 m amsl based on the records from the WSC Station for the period from August 1964 to October 2019 (WSC, 2020). The range between the lowest and highest water levels in the river for the last 55 years is 4.26 m. The maximum water levels recorded correlates with the extreme flooding the Ottawa and Gatineau Regions experienced in April and May 2019. Water levels at this monitoring location are not thought to be significantly influenced by downstream dams. Flow rates within the river are not monitored at this gauge, but rather can be calculated as a function of the water level.

Approximately 13 km upstream of the Alexandra Bridge, WSC Station ID 02KF005 (Ottawa River at Britannia) has monitored flow rates from 1960 to the present day. Flow rates at the gauge are calculated as a function of the water level. Daily historical flow rates calculated at this gauge range from 165 m<sup>3</sup>/s to 5,980 m<sup>3</sup>/s with a mean annual flow rate of 1,224 m<sup>3</sup>/s based on the records from the WSC Station for the period from July 1960 to December 2019 (WSC, 2020). Annual flow within the Ottawa River is typically observed to be lowest from July to October and highest from April to May (WSC, 2020).

The highest recorded flow rate of 5,980 m<sup>3</sup>/s was in May 2019 during an extreme flooding event. Although in relatively close proximity to the Alexandra Bridge, these flow rates should not be directly compared to those exhibited at the Alexandra Bridge because of the Chaudière Dam which is located 11 km downstream of this WSC gauge and 2 km upstream of the existing Alexandra Bridge. Water levels for the Alexandra Bridge are represented by WSC gauge 02LA015 immediately downstream of the bridge.

The City of Ottawa has three water quality stations (ORS-410.10, ORS-410.40, and ORS-410.70) along the Ottawa River at the MacDonald-Cartier Bridge which is located about 750 m downstream of the Alexandra Bridge. Based on 2008-2017 data, field pH ranged from 6.78 to 8.48 with an average of 7.54 and field dissolved oxygen ranged from 7.53 to 12.39 mg/L with an average 9.65 mg/L. Total Kjeldahl Nitrogen (TKN) ranged from 0.23 to 0.52 mg/L with an average of 0.32 mg/L. Water temperature varies in a broad range based on the season, summer maximum is 26 degrees C and an average water temperature for spring, summer and autumn is 19.1 degrees C. No data for total dissolved solids exists in this data set. Data for selected metals (aluminum, antimony, arsenic, cadmium, chromium, cobalt, copper, iron, lead, molybdenum, nickel, silver, tin, and zinc) are also available for City of Ottawa monitoring stations at MacDonald-Cartier Bridge. The Canadian Water Quality Index (CWQI) at these stations is “good” and ranged from 89.02 to 90.98.

Due to the proximity to dense urbanization, the Ottawa River is susceptible to water quality impacts caused by common sources of anthropogenic pollution. Water quality records for the Ottawa River and local tributaries are available from the City of Ottawa’s Stormwater Management Services department. Water quality data for the Ottawa River collected at three different sites on the upstream side of the Macdonald-Cartier Bridge (740 m downstream (north) of the Alexandra Bridge) is available for the period of 2008-2017. This data indicates that the total suspended solids (TSS) concentration at the sampling sites ranges from 1 mg/L to 7 mg/L with an average of 2.71 mg/L and the total phosphorus concentrations range from 0.005 mg/L to 0.036 mg/L with an average of 0.013 mg/L (City of Ottawa, 2020b). There are no Ontario MECP Provincial (Stream) Water Quality Monitoring Network (PWQMN) stations on the Ottawa River within proximity to the Alexandra Bridge.

#### 14.1.4.1 *Potential Impacts*

##### 14.1.4.1.1 *Deconstruction and Construction*

Construction activities have the potential to impact water quality within the Ottawa River. Water quality during construction is regulated through Section 34 of the *Fisheries Act* with respect to deleterious substances which have the potential to degrade or alter the quality of the water. The construction stage of the Project has the potential to result in bed and bank disturbance/erosion, which may result in potential turbidity spikes, TSS loading and overall sedimentation. During operation, changes in water quality because of the Project are not anticipated to be any different from existing conditions.

The main potential contaminant of concern for construction dewatering activities is turbidity arising from elevated total suspended solids (TSS). The geotextile filter bags (or equivalent) will be used as mitigation measures. Additionally, visual and olfactory inspections of the discharge location shall be completed. The water being discharged would not contain hydrocarbons or other substances in amounts sufficient to create a visible film, sheen, foam, or discoloration in the discharge water.

The fluvial geomorphology, flow conveyance and water velocity of the river have the potential to be impacted by the removal of the existing bridge piers and design/installation of the new piers.

As such, both long-term and short-term erosion and sedimentation rates within the river can also be influenced by the design of the bridge piers. Similarly, bridge piers have a large potential impact on ice jam formation and separation and, therefore, need to be designed to combat these forces to reduce the risk of spring flooding.

The design of the bridge will consider potential impacts that may occur during a regional flood event, such that capacity is maintained to convey flows during a regional storm event without adversely affecting upstream flood elevations.

#### 14.1.4.1.2 Operation

The new bridge is anticipated to have a solid deck with appropriate stormwater management systems that will contribute to reducing the potential for release of contaminants to the river. Operation of the new bridge is not expected to have significant adverse impacts.

Table 14-5 identifies, for each potential impact, the physical activities that might interact with Drainage and Surface Water and result in the identified environmental impact.

**Table 14-5: Project interactions with drainage and surface water**

Project Stage	Physical Activities	Potential Impacts Change in surface water quality and quality
<b>Deconstruction</b>	Deconstruction of infrastructures	✓
<b>Construction</b>	Site mobilization and construction of temporary facilities	✓
	Land clearing and soil stripping	✓
	Excavation, earthwork	✓
	Construction of infrastructure	-
	Work in aquatic environments	✓
	Deconstruction of temporary structures	✓
	Demobilization of construction site	✓
<b>Operation</b>	Use of infrastructure	-
	Maintenance and repair of infrastructure	-
<b>NOTES:</b> ✓ = Potential interaction - = No interaction		

#### 14.1.4.2 Mitigation and Protective Measures

Working in and around watercourses requires adequate planning, design and environmental mitigation. Improper measures can result in harmful effects to aquatic habitats, fish populations, wildlife (e.g., mammals, amphibians, waterfowl, etc.), water quality and watercourse dynamics.

An Environmental Protection Plan (EPP) will be developed by the construction team for the Project. The EPP will outline the proposed environmental protection measures and commitments to be carried out by the contractor during construction to avoid or reduce potential effects. Components of the EPP may include, but are not limited to, various plans identified that will provide information and guidance on reducing potential impacts on surface water. Anticipated Plans include:

- Erosion and Sediment Control Plan
- Waste Management Plan
- Spill Response Plan
- Heritage Conservation and Mitigation Plan
- Heritage Interpretation Plan
- Tree Protection and Compensation Plan
- Soil Management Plan
- Invasive Species Management Plan
- Construction Air Pollutant Emissions Reduction Plan
- Accident and Malfunction Response Plan
- Isolation and Dewatering Plan
- Environmental Protection Plan for Construction
- Site Restoration Plan
- Communications Plan
- Fish and Fish Habitat Protection and Offsetting Plan
- Wildlife Management Plan
- Navigation Management Plan

As listed above, an Erosion and Sediment Control (ESC) Plan will be developed, implemented and enforced during construction to reduce potential impacts on water quality. The ESC Plan will include a multi-barrier approach defining the location and design of control mechanisms such as silt fencing, rock check dams, straw bale filters, drain covers, filter fabric under catch basins frame and gates and mud mats, as required.

Environmental monitoring will be implemented to confirm appropriate mitigation measures are in place, maintained and functioning during the construction stage. A qualified Environmental Inspector will be present during site set-up, in-water works, site restoration and during sensitive activities or immediately following major runoff events.

The qualified inspector will have the skills, knowledge and experience to assess conditions at the site that have the potential to impact water quality and the environment. This includes being knowledgeable in the principles and practice of ESC and pollution prevention. The Environmental Inspector will undertake the following:

- Visually inspect ESC measures, cofferdams, turbidity curtains, stockpiles, dewatering, and restoration activities for compliance with environmental monitoring plans and criteria. Photographs will be taken to document observations.
- Monitor turbidity upstream and downstream of the work zone(s) and compare against monitoring criteria to confirm there are no increases as a result of Project construction. Turbidity monitoring will occur if there is dewatering discharge entering the river or during active in-water works construction. The monitoring should be carried out at a minimum frequency of twice per day during these activities.
- Provide recommendations to the site representative should potential issues be noted.
- Complete a daily inspection report at the conclusion of inspection duties.

ESC measures will be implemented and maintained throughout all stages of construction to protect the receiving waters and surrounding environment. ESC measures should be installed around the extent of the construction work zone(s) as well as around the perimeter of stockpiles required for construction. ESC structures should be monitored to maintain their effectiveness through the life of construction and post-construction rehabilitation. If the erosion is resulting from a construction related activity, the activity should be halted immediately until the situation is rectified. All activities, including maintenance procedures, should be controlled to prevent the entry of petroleum products, debris, rubble, concrete or other deleterious (harmful) substances into the water. Even with ESC measures, extreme precipitation events could result in collapse of silt fencing, overflow or bypass of barriers, and other situations which could lead to erosion. Work should be limited or stopped during and immediately following significant precipitation events (i.e., 100-year storm event), and the measures should be inspected, at the discretion of on-site environmental personnel.

Surface soil erosion can occur in the absence of vegetative cover. Slope stability should be reviewed at watercourse edges. ESC and stabilization measures should be maintained during construction, restoration, and rehabilitation until vegetative cover is established. Where evidence of erosion exists, corrective control measures should be implemented as soon as conditions permit.

During construction, another risk to surface water quality is the potential for a contaminant spill during a large storm event. To address this concern, the following mitigation measures are proposed:

- Refueling of equipment should be undertaken at a minimum distance of 50 m from the Ottawa River to reduce potential impacts to surface water in the event that an accidental spill occurs.
- If a 50 m refueling minimum distance is not possible, under approval from on-site environmental personnel, special refueling procedures for sensitive areas should be undertaken that include, at a minimum, using a two-person refueling system with one worker at each end of the hose.



To reduce the impact of potential contaminant spills, the contractor will implement spill management protocols such as secondary containment of any temporary fuel storage and preparation of a spill response plan. This will include providing spill containment kits on site in designated locations where risk of spill is deemed the greatest (e.g., refueling areas). Mitigation measures for spill response are preliminarily described in Section 21. These measures will be further developed at the detailed Project description stage.

Discharge from dewatering/unwatering activities should be treated and released to the environment at least 30 m from local watercourses or wetlands and allowed to drain through a well-vegetated area. If this is not possible based on site layout constraints, additional implementation of ESC measures will be considered. This consideration will be further reviewed during the development of the EPP and ESC plans to establish conditions and mechanisms where such exceptions may be considered. Where feasible, dewatering effluent should not be sent directly to any watercourse, wetland or waterbody, or allowed to drain onto disturbed soils within the work area. These control measures should be monitored for effectiveness and maintained or revised to meet the objective of preventing the release of sediment-laden water.

In the case of dewatering a cofferdam (i.e., surrounding bridge piers where direct discharge to the Ottawa River cannot be avoided), a turbidity curtain would be installed around the perimeter of the in-water work zone and water could be pumped from the dry work zone into this cordoned area within the confines of the turbidity curtain. Turbidity monitoring would be implemented to confirm the turbidity curtain is functioning as intended and not releasing turbid water to the Ottawa River.

Prior to being deconstructed, the existing concrete piers should be isolated from the stream flow. Pier deconstruction and removal will require the use of cofferdams and/or turbidity curtains to contain the construction waste. Similarly, cofferdams or equivalent will be required when installing the new bridge piers to create a dry work zone for curing the concrete.

Although not yet finalized, the design of the bridge deck will also take into consideration the use of salt and sand as road de-icers in winter months. Although paved decks increase the imperviousness of the structure, they are able to better capture, and control bridge runoff compared to the existing steel-grate deck. The proposed bridge deck will also incorporate stormwater management features to direct runoff from the bridge surface to limit the potential contaminants from directly entering the Ottawa River. The location of the near shore piers and overall bridge footprint will not decrease the width of the river at the bridge crossing. If the bridge design narrows/contracts the river, this can cause changes in flow patterns possibly leading to increased erosion and scour within the vicinity of the bridge.

The stormwater management system will be developed in later stages of the Project. This will include details on stormwater discharge monitoring, including location, frequency, duration, and volume, among other measures. The details of the bridge stormwater management (SWM) system will be developed and discussed during the preliminary design phase and refined during the detailed design phase. As is done in typical bridge SWM systems, it is recommended that the bridge SWM system include catch basins distributed along the length of the bridge built into the road deck. These catch basins will collect surface runoff from the bridge deck. The catch basin design could consider the use of Goss traps at the outlet of each catch basin.

This style of inverted outlet design will create a permanent pool within each basin that is able to collect sediments in the bottom of the basin and trap potential floatables (such as hydrocarbons) on the surface of the permanent pool. Bridge catch basins are typically drained directly to the watercourse below. Bridge stormwater discharge is a very small volume in relation to the flow of the Ottawa River. As such, any resulting water quality effect from stormwater discharge is expected to be negligible.

Post-construction (operational) bridge stormwater discharge monitoring is not proposed as it is not a typical practice for the construction of bridges. The proponent plans to conduct construction-based water quality monitoring in the form of receiver monitoring for turbidity (monitor upstream baseline and downstream turbidity) to assess stormwater quality affects during ground disturbance and in-water works. During construction, disturbed area runoff will be contained within an ESC area(s). Construction based stormwater runoff will be captured, detained and released through sedimentation features such as filter bags, sedimentation basins/traps and perimeter silt/sediment fencing.

Similar to roadways, bridge decks can contain an array of contaminants due to their exposure to a variety of sources of contamination including but not limited to motorized sources, roadway substances, atmospheric inputs, construction activities, and maintenance activities (Bakr et al., 2020). As such, bridge contamination is a non-point source of contamination to receiving waterbodies. Review literature has identified common bridge and highway stormwater runoff contaminants to include heavy metals, inorganic salts, aromatic hydrocarbons, suspended solids, and vehicle-based compounds like oil, grease, rust, and rubber particles (Bakr et al., 2020). These contaminants are commonly produced or are by-products of the above sources. The concentrations and distribution of bridge contaminants can be affected by seasonality and rainfall frequency and intensity. (Bakr et al., 2020). There are potential SWM design considerations that can be implemented such as goss traps that can reduce the release of common containments such as metals in particulate form and suspended solids as well as light non-aqueous phase liquids (LNAPL) hydrocarbons. Mitigation of any salt effects would be limited to the road authority's application of salt, sand and other road de-icers in winter months, which should be in keeping with the Salt Management Plans of both Ottawa and Gatineau.

In developing the Accidents and Malfunctions Response Plan (see Table 14-9: Planned studies), the risks of environmental effects associated with potential accidents and malfunctions will be assessed. The focus of this assessment will be on identifying plausible accidental events or malfunctions (i.e., spills resulting from fueling or an accidental release during construction) that could occur as a result of the deconstruction of the existing bridge and the construction of the new bridge. As part of this assessment, potential scenarios will be described based on Project, potential interactions with VCs will be identified, and potential environmental effects will be assessed. Although the potential exists that a small volume of fuel or other contaminant could be accidentally released to the environment, it is anticipated that construction best practices (i.e., fueling locations setback from drainage / watercourse) and mitigation measures (i.e., spill containment) will limit the likelihood and potential for serious accidents or events causing significant negative environmental effects from the Project. Any follow-up and monitoring plans will be developed for VCs where residual adverse effects are predicted or uncertain. If required, follow-up and monitoring plans will be developed in conjunction with the hazmat response team within the City of Ottawa and Ville de Gatineau, during relevant Project phases.

Where the likelihood or sensitivity of an accident scenario is high, trajectory and/or dispersion modeling for accidental releases would be considered, depending on the results of the risk assessment.

For the Project, it is anticipated that spill response measures and proposed mitigation measures will reduce potential residual effects to be not significant. This will be further evaluated and confirmed during detailed design.

Sensitive areas around the Project include the Ottawa River and its associated fish habitat, wildlife habitat and downstream drinking water in-takes. Protecting these features from the effects of a potential spill during construction will be the focus of the Accidents and Malfunctions Response Plan, including development of a response strategy to potential spill incidents and setting priorities for protection and clean-up.

While a spill or accidental release of hazardous substances during deconstruction of the existing bridge and construction of the new bridge is possible, such an event is expected to be a small or low impact release (i.e., isolated spill of fuel or broken hydraulic line). Prevention measures include regular inspection / maintenance of construction equipment and implementing designated re-fueling areas with appropriate containment. If an accidental release does occur, measures to control, contain, recover and clean up the release are to be implemented in a timely manner to minimize the potential for adverse environmental and human health effects. Effective containment of spills onto land or into a waterbody or watercourse depends on a variety of factors including: the composition of the release material, duration and extent of the release, topography, solubility of the material, viscosity of the liquid, water currents, and soil permeability.

The following measures are examples of measures to be implemented to recover and remediate an accidental release adjacent to, or into, a watercourse or waterbody.

- Recover the released materials from the containment area using equipment suitable to the nature and extent of the release
- Deploy booms, skimmers, sorbent pads or a functionally equivalent containment structure to contain releases in or near a watercourse or waterbody
- Recover spilled product
- Cleanup the release and containment areas. Consult with a qualified remediation specialist, where required
- Dispose of containment materials, and contaminated soil, vegetation and water at an approved facility

In addition, during the critical phases of work in water, emergency environmental response teams will be pre-deployed for high-risk operations.

Based on this preliminary assessment, residual impacts on surface water as a result of construction activities, following the implementation of mitigation measures, are likely to occur, but are predicted to be low in magnitude, extend to the LAA (200-m buffer around PDA), and short-term and reversible following construction activities.



#### 14.1.4.3 *Enhancement measures*

Bridge replacement over a waterbody allows for potential creation of improved riverine habitat and shoreline restoration. A thorough assessment of the proposed bridge abutment design should be conducted to enhance the design so that riverbed scour around the abutments is decreased to the extent possible. Further, considering natural channel design principles and best practices during the design stages of the Project may provide potential to enhance the existing river shoreline and associated aquatic habitat. PSPC and NCC will consider enhancement measures in consultation with internal experts and experts from DFO.

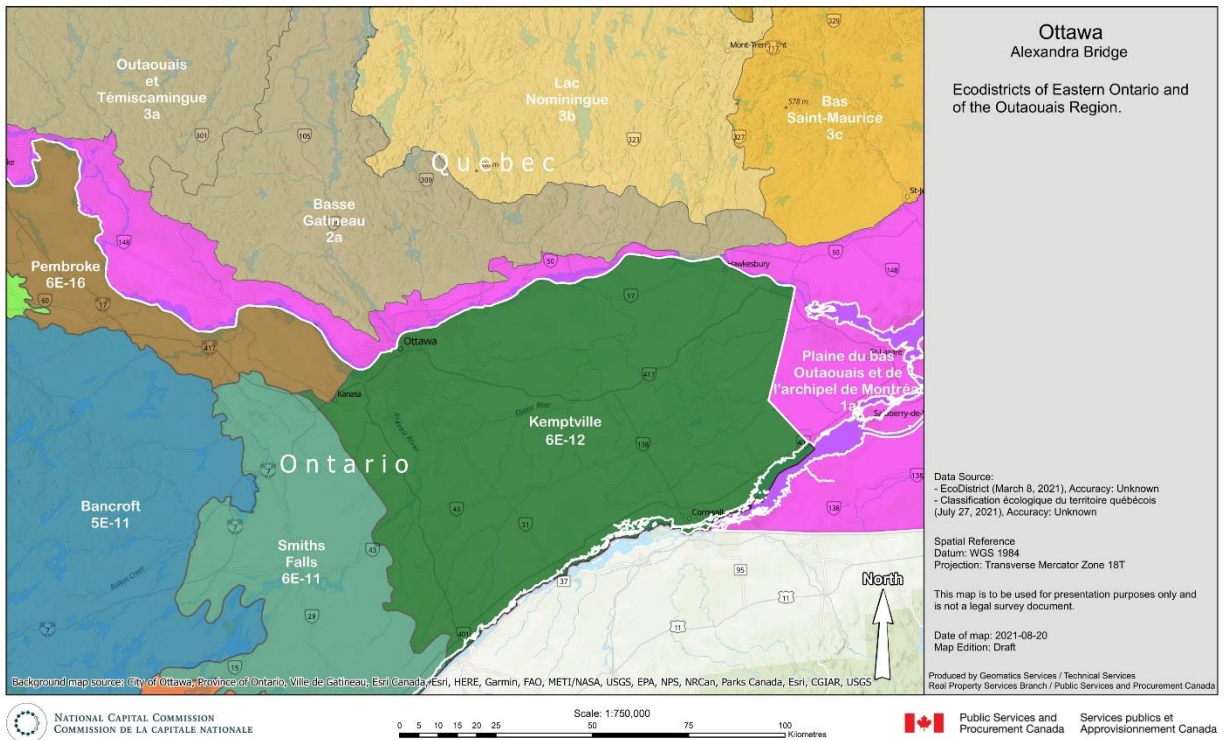
## 14.2 Biological Setting

### 14.2.1 Vegetation

#### **Ecodistricts, regional ecosystem and general vegetation of the PDA**

The PDA is located in the Upper St. Lawrence section of the Great Lakes-St. Lawrence Forest Region and the ecodistricts of the Basse Gatineau in Québec and Kemptville in Ontario (refer to Figure 14-3). The area is characterized by predominantly deciduous forests, dominated by sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), red maple (*Acer rubrum*), yellow birch (*Betula alleghaniensis*), basswood (*Tilia americana*), white ash (*Fraxinus americana*), largetooth aspen (*Populus grandidentata*), red oak (*Quercus rubra*), and bur oak (*Quercus macrocarpa*). Other tree species occurring in the Upper St. Lawrence section include white oak (*Quercus alba*), green ash (*Fraxinus pennsylvanica*), grey birch (*Betula populifolia*), rock elm (*Ulmus thomasii*), blue-beech (*Carpinus caroliniana*), and bitternut hickory (*Carya cordiformis*). White elm (*Ulmus americana*) is typically prominent in contemporary settled landscapes. Less frequent species in this section include butternut (*Juglans cinerea*), eastern cottonwood (*Populus deltoides*), slippery elm (*Ulmus rubra*), black maple (*Acer nigrum*), silver maple (*Acer saccharinum*), and black ash (*Fraxinus nigra*). Coniferous trees such as eastern hemlock (*Tsuga canadensis*), white spruce (*Picea glauca*), and balsam fir (*Abies balsamea*) occur frequently on shallow, acidic, or eroding materials. Eastern white pine (*Pinus strobus*), red pine (*Pinus resinosa*), black spruce (*Picea mariana*), and eastern white cedar (*Thuja occidentalis*) may be found where soil conditions are favorable (Rowe, 1972 Henson & Brodibb, 2005).





**Figure 14-3: Ecodistricts**

The riverfront lands and shoreline vegetation within the PDA are an integral part of the Ottawa River’s vast ecosystem, which runs through Canada’s Capital Region. The river serves as an ecological corridor, particularly for fish habitat and shoreline wildlife, linking the riverfront lands within the PDA to the natural habitats located upstream and downstream of the Alexandra Bridge, including Leamy Lake Park, Gatineau Park, the river islands, the Deschênes Lake Important Bird Area (IBA) and several of the NCC’s Valued Natural Ecosystems and Habitats. The wooded areas along the riverfront are therefore part of a network of vegetation areas that are critical to wildlife, and these riverfront lands affect water quality and aquatic habitats. Thus, the natural components of the lands in the PDA support the region’s resilience, promote biodiversity, provide natural habitats for many species, including potentially species at risk, and serve several ecological functions that are highly beneficial. These natural habitats must be protected and expanded, and their status improved, for example through planting to enhance the urban forest cover and strengthen the riparian strip. Management of these riverfront lands is part of the government’s efforts to support sustainable development and reduce the adverse environmental impacts of activities conducted on its properties (NCC, 2018b).

The lands within the proposed development footprint adjacent to the bridge are primarily cultural areas. The lands on the east side of the bridge on the Ontario side are described as parkland associated with Nepean Point, the National Gallery of Canada and Major’s Hill Park. Steep slopes to the Ottawa River are densely vegetated with early succession communities including ash and sumac to the south of the road and deciduous and conifer communities along the embankment at the periphery of the grounds of the National Gallery of Canada. There are no nearby wetlands (Google, 2020).

The Quebec side of the PDA includes the Canadian Museum of History's lands, the NCC's Voyageur Pathway and Jacques-Cartier Park, which consists of clusters of manicured vegetation patches, trees, shrubs, gardens and pathways. Some invasive species were observed on the shoreline in Jacques-Cartier Park, approximately 350 meters north of the Alexandra bridge. These species include Manitoba maple (*Acer negundo*), purple loosestrife (*Lythrum salicaria*), reed canarygrass (*Phalaris arundinacea*), creeping yellow loosestrife (*Lysimachia nummularia*) and garlic mustard (*Alliaria petiolata*) (WSP, 2015).

### Plant Species at Risk

Plant species at risk are defined as species that are protected under federal or provincial legislation, including species

- Listed under Schedule 1 of the *Species at Risk Act, (S.C. 2002, c.29)* (SARA) as endangered or threatened (GOC 2020)
- Listed under the Ontario *Endangered Species Act, 2007, (S.O. 2007, c.6)* (ESA) as endangered or threatened (MECP 2020b)
- Listed under the Québec *Act respecting threatened or vulnerable species, (c. E-12.01)*. (ARTVS) as threatened or vulnerable (MEFCC, 2019 MFWP, 2019)

A wider group of species of management concern is also considered, which includes species:

- Listed under Schedule 1 of SARA as special concern (GOC 2020)
- Assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as endangered, threatened or special concern (GOC 2020) but not yet listed under SARA
- Listed under the ESA as special concern (MECP 2020b)
- Listed under the ARTVS as likely to be designated as threatened or vulnerable (MEFCC 2019, MFWP 2019)
- Ranked as S1 (Critically Imperiled), S2 (Imperiled) and S3 (Vulnerable) by Ontario's Natural Heritage Information Centre (MNR, 2019)

Although there are many plant species at risk and of management concern in the Ottawa River area, there are relatively few occurrences in the Alexandra Bridge area, most likely as a result of the limited natural habitats and urban nature of the area. However, the following SAR have been observed within a 2 km radius of the PDA (NCC, 2021c):

- Butternut – Endangered status federally and in Ontario likely to be designated as threatened or vulnerable in Quebec.
- Fragrant sumac (*Rhus aromatica var. aromatica*) - Vulnerable status in Quebec.
- Ostrich fern (*Matteucia struthiopteris*) - Vulnerable status in Quebec<sup>1</sup>.

The most likely SAR plant species that may be found in the vegetated areas of the PDA are Butternut and Rock Elm (*Ulmus thomasii*). The area affected by construction will be surveyed to identify the potential presence of Butternut and Rock Elm trees, as well as any other SAR plants.

#### 14.2.1.1 *Potential Impacts*

##### 14.2.1.1.1 *Deconstruction and Construction*

Potential impacts on vegetation and ecological communities resulting from the deconstruction of the existing bridge and construction of the new bridge include changes to community diversity (including community loss), changes to species diversity, and introduction or spread of invasive species through vehicle and equipment movement. These potential impacts would be localized in nature. Given that there are no wetlands in proximity to the PDA, no impacts on wetlands are anticipated as a result of the Project.

Activities related to construction, including vegetation clearing, stockpiling of materials, laydown areas, and excavation, may result in the removal and degradation of vegetation along the shoreline of the Ottawa River. While direct (i.e., due to removal) and indirect (i.e., due to erosion or spills) disturbance of existing vegetation communities in the vicinity of the bridge abutments and staging/stockpiling areas are possible during construction, indirect disturbance to vegetation during operation are not anticipated. Given that this Project is a replacement of an existing structure, fragmentation of vegetation communities is not anticipated to be any greater than under existing conditions.

Construction activities that may encroach on species at risk plants will require site specific review prior to construction to confirm presence / absence, such as Butternut trees.

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<sup>1</sup> The prohibitions referred to in Section 16 of the *Act respecting threatened or vulnerable species* do not apply to Ostrich fern, except as regards the annual harvesting from a wild population of more than 5 specimens. The prohibitions also do not apply if the specimens of a wild population are situated in a habitat that is to be irretrievably altered as a result of the carrying out of a project authorized under the *Environment Quality Act* (see Section 5 of the *Regulation respecting threatened or vulnerable plant species and their habitats*).

In addition, construction activities and machinery may also introduce invasive species to the Project area during construction (i.e., seed transfer) or contribute to the spread of invasives already located within the PDA.

#### 14.2.1.1.2 Operation

It is not anticipated that vegetation will be affected by the Project during operations.

Table 14-6 identifies, for each project stage, the physical activities that might interact with Vegetation and result in the identified environmental impact.

**Table 14-6: Project interactions with vegetation**

Project Stage	Physical Activities	Potential Impacts
		Change in vegetation communities and species
<b>Deconstruction</b>	Deconstruction of infrastructures	✓
<b>Construction</b>	Site mobilization and construction of temporary facilities	✓
	Land clearing and soil stripping	✓
	Excavation, earthwork	✓
	Construction of infrastructure	-
	Work in aquatic environments	-
	Deconstruction of temporary structures	-
	Demobilization of construction site	-
	<b>Operation</b>	Use of infrastructure
Maintenance and repair of infrastructure		-
<b>NOTES:</b>		
✓ = Potential interaction		
- = No interaction		

#### 14.2.1.2 Mitigation and Protective Measures

A pre-construction survey of the development footprint of the Project and adjacent impacted lands will be undertaken to confirm the presence or absence of SAR plants. Mitigation will include avoidance and protection of any SAR observed during these surveys through protection design and construction separation, where feasible. If it is determined that SAR plants are present and will be impacted, appropriate SAR permitting and mitigation plans will be developed for the specific species, including exploring opportunities to transplant individual SAR from within the footprint of construction (where feasible).

The limits of the construction footprint will be identified in the field, to allow for the protection of off-site natural areas and vegetation and to avoid incidental encroachment into adjacent areas. Limited clearing of vegetation may be required to facilitate construction activities. A detailed inventory of vegetation within the construction footprint and other impacted sites will be completed, and adequate compensation through replanting and/or financial contributions to various enhancement measures such as habitat restoration will be required, in accordance with the NCC Forest Strategy (NCC, 2021b).

Storage of construction materials or equipment should not occur within the critical root zone<sup>2</sup> of any tree species in the PDA in order to avoid impacting potential habitat areas not directly affected by the Project footprint. Any emissions from machinery should be directed away from foliage and vegetation.

A pre-construction survey of the development footprint of the Project and adjacent impacted lands will be undertaken to confirm the presence or absence of invasive plants. An invasive species management plan will be developed as part of the EPP to mitigate the spread of invasive species. All equipment, including mats, must arrive at the Project site clean and free of soil or vegetative debris. Any equipment, including mats, which do not arrive in appropriate condition shall not be allowed on the construction footprint until it has been cleaned, and deemed suitable for use. Any granular material being used on-site must be free from contamination from invasive plants (seeds, plant fragments), and all plant material must be native and non-invasive. Removal and disposal of invasive species that may be present within the limits of the construction footprint or adjacent impact lands will follow current best-management practices to minimize the risk of spreading these species to new areas. Any follow-up and monitoring plans will be developed for VCs where residual adverse effects are predicted or uncertain. The IPD provides a preliminary assessment that is based on publicly available information that will need to be confirmed with vegetation studies and as the Project design progresses and more detailed information becomes available, improving the level of certainty associated with impact assessment predictions. The need for and extent of this program will be confirmed and developed through the IA process. If required, a follow-up and monitoring plan will be implemented during relevant Project phases to verify the accuracy of predictions and determine the effectiveness of proposed vegetation mitigation measures at representative sensitive receptors.

Based on this preliminary assessment, residual impacts of the Project on vegetation, following the implementation of mitigation measures, are likely to occur and may extend to the LAA (100 m buffer around PDA) but are predicted to be low in magnitude, localized, short-term and reversible following post-construction reclamation.

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<sup>2</sup> The critical root zone (CRZ) extends to the dripline of the tree canopy or 12 times the diameter at breast height (DBH in cm) of the tree, whichever is greater.



### 14.2.1.3 *Enhancement measures*

Determining appropriate compensation measures for vegetation removal is complex and depends on many factors including the size of the trees, the context of the site and the potential impacts on ecological functions (NCC, 2021b). Any trees to be removed will be compensated at a minimum ratio of 2:1, however a higher ratio or a monetary value may be required to compensate for the loss of larger trees. Compensation for the loss of vegetation other than trees may also be required. Tree planting and habitat restoration plans will be developed using only native, non-invasive species.

## 14.2.2 Wildlife and Wildlife Habitat

### 14.2.2.1 *General Wildlife and Wildlife Habitat*

The Alexandra Bridge is located in an urban area and, as such, wildlife in the area is represented by species typical of urban zones. These include mammals such as bats, rabbits, hares, squirrels, beavers, muskrats and raccoons (DST, 2003). Various bird species may nest on the bridge structure (see section below for more details on specific species). The urban landscape with limited vegetation communities does not support a high diversity or abundance of wildlife. Surveys are planned for this assessment where methodology and results will be detailed, however the information provided in this report is based on publicly available information for the area.

The Ottawa River provides important habitat for waterbirds (e.g., Black Duck [*Anas rubripes*], Northern Pintail [*Anas acuta*], American Wigeon [*Mareca americana*]) and supports large numbers of migrating species in the spring and fall, including Canada Geese (*Branta canadensis*), Hooded Mergansers (*Lophodytes cucullatus*), Common Goldeneye (*Bucephala clangula*), and Northern Shoveler (*Spatula clypeata*) (Haxton & Chubbuck, 2002).

### 14.2.2.2 *Species at Risk*

Wildlife species at risk (SAR) are defined as species that are protected under federal or provincial legislation, including species:

- Listed under Schedule 1 of SARA as endangered or threatened (GOC, 2020)
- Listed under the ESA as endangered or threatened (MECP, 2019)
- Listed under the ARTV as threatened or vulnerable (MEFCC, 2019 MFWP, 2019)

A wider group of species of management concern (SOMC) is also considered, which includes species:

- Listed under Schedule 1 of SARA as special concern (GOC, 2020)
- Assessed by COSEWIC as endangered or threatened, or special concern (GOC, 2020) but not yet listed under SARA
- Listed under the ESA as special concern (MECP, 2020b)
- Listed under the ARTVS as likely to be designated as threatened or vulnerable (MEFCC 2019 MFWP 2019)
- Ranked as S1 (Critically Imperiled), S2 (Imperiled) and S3 (Vulnerable) by Ontario's Natural Heritage Information Centre (MNR, 2019)

As part of the desktop screening, the following background documentation and provincial/federal information sources were reviewed to identify SAR and SOMC near the Project area:

- Natural Heritage Information Centre (NHIC Ministry of Natural Resources and Forestry [MNRF] 2020b)
- Land Information Ontario (LIO MNRF, 2020a)
- Satellite Imagery (Google, 2020)
- Species at Risk Public Registry (GOC, 2020)
- Fisheries and Oceans Canada (DFO) Aquatic Species at Risk Map (DFO, 2019a)
- Species at Risk in Ontario (SARO MECP, 2020b)
- Ontario Breeding Bird Atlas (OBBA Cadman et al., 2007)
- Atlas of Mammals of Ontario (AMO Dobbyn, 1994)
- Ontario Reptile and Amphibian Atlas (ORAA Ontario Nature, 2019)
- Ontario Butterfly Atlas (OBAO Toronto Entomologists' Association 2020)
- iNaturalist (2020)
- eBird (2021)
- Ministère de Forêts, de la Faune et des Parcs (MFWP CDPNQ, 2020)
- Quebec Breeding Bird Atlas (Robert et al., 2019)
- Report titled "Review of the historical and existing natural environment and resource uses on the Ottawa River" (Haxton & Chubbuck, 2002)
- City of Ottawa Species List (City of Ottawa, 2021b)
- Club des ornithologues de l'Outaouais (COO, 2021)

Some of these sources provide data at a scale as large as 10 x 10 km (i.e., OBBA, ORAA, OBAO). Results were therefore screened to assess if there was the potential for suitable habitat within the Project area based on satellite imagery. If no suitable habitat was observed on the satellite imagery, the species were not considered as potentially present in the Project area (i.e., grassland species were removed).

A request for information for SAR and SOMC records near the Project area was returned from the MFWP September 22, 2020 and included records for three species within 1 km of the Alexandra Bridge: the Northern Map Turtle (*Graptemys geographica*), the Silver-haired Bat (*Lasionycteris noctivagans*) (historical occurrence) and the Spiny Softshell Turtle (*Apalone spinifera*) (historical occurrence) (CDPNQ, 2020). Agency consultation in Ontario has moved to a proponent-driven process for the provincial agency responsible for SAR (i.e., MECP) and proponents are directed to review the background documentation and related information sources outlined above. As such, specific information request packages were not submitted at this time for provincially designated features and/or SAR in Ontario.



As with the plant species at risk, although there are wildlife SAR and SOMC in the Ottawa River area, there are relatively few occurrences in the Alexandra Bridge area, most likely a result of the limited vegetation communities and associated wildlife habitat. However, several SAR and SOMC have been observed within a 2 km radius of the PDA, including (NCC, 2021c):

- Bank Swallow (*Riparia riparia*) - Threatened status federally and in Ontario
- Barn Swallow (*Hirundo rustica*) - Threatened status federally and in Ontario
- Chimney Swift (*Chaetura pelagica*) - Threatened status federally and in Ontario likely to be designated as threatened or vulnerable in Quebec
- Eastern Wood-pewee (*Contopus virens*) - Special concern status federally and in Ontario
- Monarch (*Danaus plexippus*) - Special concern status federally and in Ontario
- Northern Map Turtle - Special concern status federally and in Ontario vulnerable status in Quebec
- Northern Watersnake (*Nerodia sipedon*) - Likely to be designated as threatened or vulnerable in Quebec
- Snapping Turtle (*Chelydra serpentina*) - Special concern status federally and in Ontario

SAR and SOMC could therefore potentially be present near the Alexandra Bridge if there is suitable habitat.

Various bird species may nest on or adjacent to the bridge structure, including bird SAR (e.g., Barn Swallow, Bank Swallow, Chimney Swift, Common Nighthawk [*Chordeiles minor*], and Peregrine Falcon [*Falco peregrinus*]), and other migratory birds (e.g., Eastern Phoebe [*Sayornis phoebe*], Cliff Swallow [*Petrochelidon pyrrhonota*]). The nearby vegetation may also support nesting birds.

Although not anticipated, bat SAR roost habitat may be present in trees in the development footprint. Further assessment of those trees that may be scheduled for removal will be required. SAR bats may use trees as small as 10 cm diameter at breast height (DBH) with cavities, loose bark, and leaves to nest and day roost as well as for maternity roosting purposes, usually >10 metres high on trees exhibiting early stages of decay (ECCC, 2018b MNRF, 2015). Additionally, these species are known to use anthropogenic structures for roosting as well (e.g., buildings, crevices under bridges (such as expansion joints, hinge joints, stress cracks, etc.) (Fraser, 2019)). SAR bats, in particular the Small-footed Myotis (*Myotis leibii*), the Little Brown Myotis (*Myotis lucifugus*), the Northern Myotis (*Myotis septentrionalis*) and the Tri-coloured Myotis (*Perimyotis subflavus*), may roost during the summer months under the bridge or in rock outcrops associated with the Nepean Point. Bat exit surveys during the month of June are proposed to confirm presence/absence of the SAR species (see Table 14-9).

The PDA contains suitable habitat for SAR turtles and snakes. The Quebec Ministère des Forêts, de la Faune et des Parcs (MFWP) has identified this reach of the Ottawa River as potential habitat for the Spiny Softshell due to historical occurrences, with potential habitat for the Northern Map Turtle found approximately 1 km downstream and 2 km upstream of the Alexandra Bridge. Critical habitat for the Blanding's Turtle has been identified by ECCC approximately 1.5 km to the south of the PDA. SAR and SOMC turtles, such as the Northern Map Turtle, Spiny Softshell (*Apalone spinifera*), Snapping Turtle and Eastern Painted Turtle (*Chrysemys picta marginata*) may be encountered basking along the shoreline, on exposed rocks or trees, and/or at the base of the bridge. The Ottawa River may also be used as foraging and overwintering habitat and/or as a movement corridor.

Turtles may be encountered as they migrate across upland habitats to search for breeding ponds and are at increased risk of mortality from vehicles and predators as they travel overland to nesting habitats (MNR 2013). SAR snakes such as Eastern Milksnake (*Lampropeltis triangulum*) and Northern Watersnake (*Nerodia sipedon sipedon*) may be encountered basking along the shoreline, on exposed rocks or trees, and/or at the base of the bridge. The Project area may also be used as foraging habitat with Eastern Milksnake hunting for small rodents and amphibians along the forest edge and Northern Watersnake hunting for fish and amphibians in the river (Ontario Nature, 2019).

### 14.2.2.3 Potential Impacts

#### 14.2.2.3.1 Deconstruction and Construction

Bird SAR and migratory birds are vulnerable to disturbances during the breeding season (between April 8 and August 28 for the PDA, although nesting also infrequently occurs outside of this period (ECCC 2018a). Bridge deconstruction and construction may disrupt nesting opportunities for some migratory birds and bird species at risk either through removal of existing nests or disturbance of nesting habitat. Direct disturbances include vegetation removal (i.e., tree clearing) and construction activities (i.e., deconstruction of the bridge), which may result in the destruction of nests and/or eggs. Indirect disturbances include sensory disturbances associated with construction activities (i.e., noise, vibrations, and light) which may lead to nest abandonment. Disturbance impacts may be temporary (i.e., noise, vibrations and lighting during deconstruction and construction) or permanent (i.e., due to vegetation removal, bridge lighting and/or if the design of the replacement structure does not provide nesting habitat). Birds (including SAR) nesting on the bridge structure, such as Barn Swallow and Eastern Phoebe, and in nearby vegetation may be impacted.

The same is true for any SAR bats that may be using the existing bridge or nearby vegetation for roosting (from April 1 up to September 30 to be confirmed with federal and provincial agencies), with deconstruction and tree removal disrupting or removing suitable habitat (either temporarily or permanently, depending on the future bridge design).

Activities during deconstruction and construction have the potential to result in direct and indirect effects on turtles as a result of construction noise and disturbance (i.e., increased turbidity in the water, increased human activity causing turtles to abandon the area, alteration to nesting or basking sites), or direct mortality through contact with construction equipment and/or the loss of habitat. Excavation activities also have the potential to result in the destruction of nests and/or overwintering habitat. Turtle nesting typically takes place between mid-May and late July, with eggs remaining in the nest until September or October (or in some cases, overwinter).

Construction activity can also result in direct mortality to snakes, which are vulnerable during emergence from a hibernaculum, re-entrance, and basking periods, and may seek out construction materials to bask under. Potential impacts will be further assessed and confirmed as Project design progresses.

Wildlife potentially present adjacent to the active construction site are species that are already acclimatized to the disturbed urban environment and impacts to these species from increased noise and lighting are expected to be low.

Limited vegetation clearing may be required to facilitate construction activities, which may also affect nests or habitat of migratory birds, potential SAR bat maternity roost tree habitat and habitat for common urban wildlife species.

#### 14.2.2.3.2 Operation

During operation, changes in wildlife habitat as a result of the Project may occur as a result of use of the infrastructure and maintenance/repair activities. Noise levels are expected to be similar to those under current conditions and any vegetation or habitat removal resulting from the Project will have occurred during construction.

Table 14-7 identifies, for each potential impact, the physical activities that might interact with Wildlife and Wildlife Habitat and result in the identified environmental impact.

**Table 14-7: Project interactions with wildlife and wildlife habitat**

Project Stage	Physical Activities	Potential Impacts	
		Change in habitat	Change in mortality risk
<b>Deconstruction</b>	Deconstruction of infrastructures	✓	✓
<b>Construction</b>	Site mobilization and construction of temporary facilities	✓	✓
	Land clearing and soil stripping	✓	✓
	Excavation, earthwork	-	-
	Construction of infrastructure	-	-
	Work in aquatic environments	-	-
	Deconstruction of temporary structures	✓	✓
	Demobilization of construction site	-	-
	<b>Operation</b>	Use of infrastructure	✓
Maintenance and repair of infrastructure		✓	✓
<b>NOTES:</b> ✓ = Potential interaction - = No interaction			

#### 14.2.2.4 Mitigation and Protective Measures

Wildlife and wildlife habitat protection and mitigation measures will be included as a component of the EPP to identify specific wildlife protection measures to be implemented during construction. This plan will include a variety of measures to be implemented during design and construction of the Project, such as adherence to wildlife timing windows, species monitoring, and wildlife handling protocols.

Field surveys will be conducted prior to the detailed design stage in order to identify the presence of wildlife and wildlife habitat (including SAR) within the PDA and any adjacent impacted lands. After field surveys are conducted and a list of migratory birds and SAR is identified, species specific mitigation measures and permit requirements would be confirmed. The need for and extent of any follow-up program would be confirmed and developed through the IA process.

Detailed design of the construction area will be reviewed to avoid and reduce impacts on wildlife habitat and vegetated areas to the extent possible. Where possible, wildlife timing windows will be respected in order to avoid disturbance to wildlife during the breeding season. If work during critical timing windows is unavoidable, appropriate exclusion measures will be implemented. If necessary, alternative nesting/roosting structures may be constructed. Long-term impacts to wildlife will also be considered in the design of the new bridge.

If work is scheduled to take place during the bird breeding season, which is generally from April 8 – August 28 in the Ottawa area (ECCC, 2018a), a breeding bird survey will be completed. A qualified avian biologist will conduct a pre-construction survey to identify the presence of migratory or SAR bird nests on the bridge and in areas identified for vegetation removal. If migratory birds or SAR are found nesting in the Project area, consultation will be undertaken with ECCC and/or MECP/MNDMNRF and/or MFWP prior to commencing work. If migratory or SAR bird nests are identified in proximity to construction/rehabilitation activities within the work area, construction activities near the nest will cease until ECCC/MECP/MNDMNRF/MFWP can be contacted for advice. Nests will not be removed from the bridge without consulting an avian biologist and issuance of a SARA and/or *Migratory Birds Convention Act, 1994* (MBCA) permit and/or relevant provincial permit, if required, from the ECCC/MECP/MNDMNRF/MFWP.

Construction activities with the potential to remove migratory bird habitat, such as bridge deconstruction and vegetation clearing, will be avoided to the extent possible during the breeding season. If under-bridge work is proposed during this period, exclusionary measures (e.g., netting, bioacoustic deterrence) will be installed prior to April 1 to deter nesting on the bridge following guidance outlined in *Best Management Practices for Excluding Barn Swallows and Chimney Swifts from Buildings and Structures* (MNRF, 2017a). The exclusion netting would be regularly inspected and maintained in good repair. Geese may be temporarily deterred from the Project area during construction using measures identified in section 7 of the *Canada and Cackling Geese: Management and Population Control in Southern Canada Handbook* (CWS 2010). Some of the deterrent measures may require a permit from ECCC, which will be the responsibility of the contractor and will be secured prior to implementation. If vegetation clearing is required during this period, an avian biologist will be retained to search suitable areas prior to work. The biologist will search for nests to manage risks to active nests protected by the MBCA, the SARA, the ESA, the ARTVS, the Ontario *Fish and Wildlife Conservation Act, 1997* (FWCA) and the Quebec *Act respecting the conservation and development of wildlife* (ARCDW). Nest searches must be completed within 48 hours before commencement of the proposed works. If work is not completed within 48 hours following the nest search, the search will be repeated to search for new nests that may have been established during that period.

If Barn Swallow nests are observed on the bridge, and deconstruction activities cannot be completed outside the breeding season, Barn Swallow nesting structures would be installed near the PDA prior to deconstruction of the existing bridge to compensate for the loss of nesting habitat under the bridge (see Creating Nesting Habitat for Barn Swallows MNRF, 2016b). These structures would be installed before the onset of the active nesting season.

As many birds migrate at night, navigating by the moon and stars, artificial light can cause disorienting and confusing signals, drawing birds into the lights. Given that the Ottawa River is designated as a dark sky zone as per the National Capital Illumination Plan (NCC, 2017a), any lighting for the replacement bridge will consider this designation, as well as the NCC Bird-Safe Design Guidelines (NCC, 2021a) and the City of Ottawa's Bird-friendly Design Guidelines (City of Ottawa 2021a).

Although not anticipated, bat SAR roost habitat may be present in trees in the development footprint. Further assessment of those trees that may be scheduled for removal will be required. SAR bats may use trees as small as 10 cm diameter at breast height (DBH) with cavities, loose bark, and leaves to nest and day roost as well as for maternity roosting purposes, usually >10 metres high on trees exhibiting early stages of decay (ECCC 2018b, MNRF 2015). These species are known to use anthropogenic structures for roosting as well (e.g., buildings, crevices under bridges such as expansion joints, etc.). SAR bats, in particular the Small-footed Myotis (*Myotis leibii*), the Little Brown Myotis (*Myotis lucifugus*), the Northern Myotis (*Myotis septentrionalis*) and the Tri-coloured Myotis (*Perimyotis subflavus*), may roost during the summer months under the bridge or in rock outcrops associated with the Nepean Point. Bat roost/maternity exit surveys are proposed to confirm presence/absence of SAR species<sup>3</sup> (see Table 14-9). Maternity exit surveys are conducted during evening hours and include visual and acoustic surveys following industry standard, accepted protocols as outlined by MNRF (2014, 2017b) and MFWP (2021). Surveys are conducted during the maternity roost season in June and July and begin at sunset and continue for 90 minutes. A handheld recorder is used to identify the bat species by their calls. If bats are observed entering or exiting a tree or the bridge it is assumed that the habitat is being used for roosting. If work is anticipated to impact SAR bats, a permit under SARA/ESA/ARTVS may be required. In the event that a SAR bat maternity roost is identified (i.e., within a tree or in/around the bridge structure) during the baseline studies, ECCC/MECP/MFWP will be contacted for further guidance.

To mitigate disturbance or potential harm to any roosting bats confirmed through the proposed bat surveys, any tree clearing and construction/deconstruction activities on the bridge would be completed outside the roosting timing window for bats (from April 1 up to September 30 to be confirmed with federal and provincial agencies). If avoidance is not possible during bridge deconstruction, the installation of 3/8" netting prior to the roosting season would be required to prevent bats from roosting on the bridge structure (Fraser, 2019). This exclusion netting would also serve to exclude migratory birds from the structure and would be regularly inspected and maintained in good repair.

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<sup>3</sup> While it is relatively easy to determine the presence of bats in trees or an anthropogenic structure, it can be difficult to prove the absence of use.

If bat roosting is observed on the bridge, and deconstruction activities cannot be completed outside the summer roosting, alternative roosting structures as recommended by ECCC/MECP/MFWP would be installed near the PDA prior to deconstruction of the existing bridge to compensate for the loss of roosting habitat under the bridge. These structures would also be installed before the onset of the active roosting season.

Where SAR turtle habitat is confirmed during site investigations, mitigation measures would be developed in consultation with ECCC, MECP and MFWP. Examples of standard mitigation to keep turtles out of construction areas include the installation of a turtle exclusion fence designed in accordance with the *Best Practices Technical Note – Reptile and Amphibian Exclusion Fencing* (MNRF, 2013). The exclusion fencing would need to be installed prior to the beginning of the nesting season (by end of April at the latest) and be maintained around the work area for the duration of the turtle active season (mid-April to end of October).

If construction occurs during the spring, summer or fall (i.e., peak active season for herptiles: April 1 through October 31), potential snake cover (i.e., old boards, logs, construction debris) would be removed by hand and any snakes found underneath given the chance to leave without being harassed. Additionally, drivers and equipment operators should watch for basking snakes on the road.

Visual searches during deconstruction and construction will include inspection of structures, machinery and equipment, prior to starting equipment. If any wildlife is encountered during construction, work at that location will stop until the wildlife leaves the Project area of their own accord. Standard environmental protection measures for erosion and sediment control will be modified to serve as wildlife barriers where construction borders areas of natural vegetation (see the *Best Practices Technical Note – Reptile and Amphibian Exclusion Fencing* (MNRF, 2013)).

Any wildlife incidentally encountered during construction will not be knowingly harmed. Work will be conducted to not disturb habitat and/or individual SAR and migratory birds. Project activities will be planned to protect SARs and their habitats, which will include training workers in the identification of potential SAR they may encounter, and a protocol developed if a species is encountered.

Any follow-up and monitoring plans will be developed for VCs where residual adverse effects are predicted or uncertain. If required, a follow-up and monitoring plan would be implemented during relevant Project phases to verify the accuracy of predictions and determine the effectiveness of proposed wildlife and wildlife habitat mitigation measures at representative sensitive receptors.

Based on this preliminary assessment, residual impacts on wildlife habitat as a result of construction activities, potentially including SAR, following the implementation of mitigation measures, are possible (i.e., depends on the species and habitat present in the LAA), but are predicted to be low in magnitude (given the urbanized nature of the area), extend to the LAA (100 m buffer around PDA), are short-term in duration and reversible following post-construction reclamation. Through the implementation of habitat creation, restoration and other offsetting measures, impacts from this Project on wildlife and wildlife habitat to achieve net environmental benefits may be positive over the long-term.



#### 14.2.2.5 *Enhancement measures*

Compensation for removal of SAR habitat may be required (e.g., with the installation of Barn Swallow nesting structures, bat boxes, etc.) and will be determined in consultation with ECCC/MECP/MFWP. There are also opportunities to implement these wildlife habitat structures or other habitat restoration and enhancement measures to offset some of the past impacts of urban developments in this region. Finally, it may be possible to design the new bridge in a way that maintains or improves the conditions required for successful nesting and roosting on the structure. PSPC and NCC will work with the study team and with agency experts from ECCC, MECP, MNR/MNRF and MFWP to consider options to improve habitat for wildlife in the area.

#### 14.2.2.6 *Potential changes to Migratory birds, as defined in subsection 2(1) of the Migratory Birds Convention Act, 1994*

Project implementation could result in changes to migratory birds, as defined in subsection 2(1) of the *Migratory Birds Convention Act*. There is a small amount of vegetated habitat within the anticipated Project Development Area. There is also potential for migratory birds to nest on the bridge structure. Clearing of vegetation and bridge deconstruction will preferentially be conducted outside of the breeding bird season (April 8 – August 28). Through the implementation of mitigation measures (see Section 14.2.2.4) the Project is not expected to adversely affect migratory birds, as defined under the *Migratory Birds Convention Act*. Potential effects of construction noise on migratory birds are also not anticipated due to the temporary nature of construction noise. Timing windows for valued components are currently based on existing studies, however these will be confirmed after field studies elucidate the presence or absence of specific species.

The bird species identified in the draft IPD are those most likely to be nesting on the bridge structure or adjacent areas based on existing information regarding habitat features. For a full list of migratory birds potentially using the PDA (including breeding birds, spring/fall migrants and overwintering species), see Appendix I that includes the complete list of birds from the Ontario Breeding Bird Atlas for the grid square (18VR43) (where this Project is located), the Quebec Breeding Bird Atlas, the City of Ottawa Bird Species List and the Club des ornithologues de l'Outaouais. These documents list all the species that have been observed in the area, and it is not expected that suitable habitat exists within the PDA to support all these species. Confirmation of any migratory birds potentially affected by the Project would be subject to the completion of more detailed breeding and habitat surveys during the IA process.

Based on a preliminary assessment, effects on migratory birds, nests and eggs, after the implementation of mitigation measures, are not anticipated due to the temporary nature of construction and the urbanized nature of the area. However, residual effects, including likelihood of effects, will be properly characterized after field surveys are conducted and as the project design progresses.

### 14.2.3 Aquatic Environment

#### 14.2.3.1 *Fish and Fish Habitat*

Fisheries resources in the Project area were identified through a desktop review of numerous background reports and data sources as outlined in Appendix G.

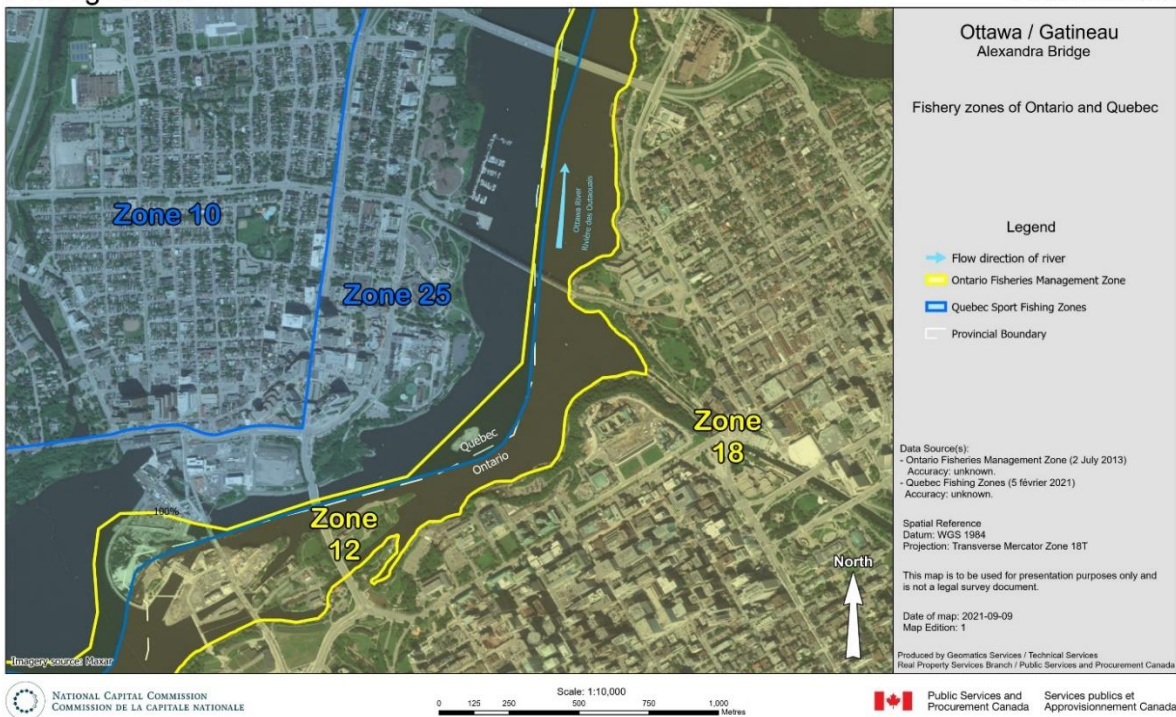
A diverse fish community is present in the Ottawa River, including a mix of cold and warm water fish species, with over 85 fish species recorded from its waters (MNRF & MFWP, 2018).



Fish species include important sportfish, such as Walleye (*Sander vitreus*), Muskellunge (*Esox masquinongy*), Largemouth Bass (*Micropterus salmoides*), Smallmouth Bass (*Micropterus dolomieu*), Sauger (*Sander canadense*) and Northern Pike (*Esox Lucius*). Species at risk such as Lake Sturgeon (*Acipenser fulvescens*), American Eel (*Anguilla rostrata*) and River Redhorse (*Moxostoma carinatum*) are also known from the river. Electrofishing performed by Kilgour and Associates in 2013 behind the Parliament Buildings found that Eastern Silvery Minnow (*Hybognathus regius*), Silver Redhorse Sucker (*Moxostoma anisurum*) and Shorthead Redhorse Sucker (*Moxostoma macrolepidotum*) were the most common abundant fish species utilizing the immediate shoreline area.

For the purpose of fisheries management and harvest regulation, the entire river from Lake Timiskaming to the St. Lawrence River is identified as Fisheries Management Zone (FMZ) 12 under *Ontario Fishing Regulations*, and correspondingly Fishing Zone 25 under the *Quebec Fishing Regulations* (see Figure 14-4). Details regarding fisheries management approaches taken by both Ontario and Québec governments are provided in greater detail in the Fisheries Management Plan for the Ottawa River (MNRF & MFWPQ, 2018) and Background Information to the Fisheries Management Plan for the Ottawa River – Fisheries Management Zone 12 in Ontario, Fisheries Management Zone 25 in Québec (MNRF, 2016a).

### Fishing Zones



**Figure 14-4: Fisheries Management Zones**

Both of these reports break FMZ 12 down into ten different reaches for the purpose of reach-specific analysis and development of management approaches for resident fish.

The delineation of reaches was originally developed in the report review of the historical and existing natural environment and resource uses on the Ottawa River (Haxton & Chubbuck, 2002). Reach 10 is known as Lac Dollard-des-Ormeaux, which extends from the Chaudière Falls Generating Station (approximately 1.7 km upstream of Alexandra Bridge) to the Carillon Generating Station located approximately 18 km downstream of Hawkesbury. The Alexandra Bridge crosses the Ottawa River at the upstream end of Reach 10.

The Lac Dollard-des-Ormeaux reach supports the highest number of native fish species of all ten Zone 12 reaches, with 73 of the 89 species from the Ottawa River represented. The reach tends to support species that are more affiliated with warmwater habitats. Within the area of the reach around Alexandra Bridge, Walleye and Smallmouth Bass are the most commonly caught sport fish however, Muskellunge have also been reportedly caught by anglers in the stretch behind Parliament Hill and up the Rideau Canal. Other warmwater species, such as Northern Pike, Sauger, Black Crappie (*Pomoxis nigromaculatus*) and Yellow Perch (*Perca flavescens*), are present in the area. In the vicinity of the downtown core, the Ottawa River supports at least 64 species of fish (Kilgour & Associates Limited, 2013).

Walleye are known to spawn below dams in tributaries and below the control structures at Chaudière Falls (Haxton & Chubbuck, 2002). Lake Sturgeon spawn immediately downstream of Chaudière Falls, at the tail end of Victoria Island (Haxton & Chubbuck, 2002 Kilgour & Associates Limited, 2013). American Eel were reportedly caught in 2012 by City of Ottawa staff during a dewatering activity at the base of the Fleet Street Pumping Station, which is located on a side channel downstream of Chaudière Falls (Kilgour & Associates Limited, 2013).

Given that the Alexandra Bridge crosses the interprovincial boundary and touches both the Ontario and Quebec sides of the Ottawa River, the restrictions on in-water work to protect fish during spawning and other critical life stages established by the two provinces, as well as those identified by Fisheries and Oceans Canada (DFO), must be respected. Timing restrictions are particularly important and are based on a waterbody's thermal regime and the presence of spring and/or fall spawning species. DFO provides timing window guidance (DFO, 2019b) for individual species based on broadly categorized Regions but defers to provincial agencies if those timing windows differ from provincial guidance provided by local agency offices. The Lac Dollard-des-Ormeaux reach is part of the MNMNR's FMZ 12, where timing restrictions for in-water works apply from January 1 to July 15 therefore, work is only authorized between July 16 and December 31. The Lac Dollard-des-Ormeaux reach is also part of the Quebec MFWP's fisheries region 7, where timing restrictions apply from April 1 to July 15 (work is therefore authorized between July 16 and March 31) (Annex L). However, if fall-spawning species are potentially present, the timing window is further restricted to July 16 – September 30.

Since two different timing windows exist for the same area, the most conservative work restriction period should be considered for the site under study. However, this may turn out to be too restrictive and unrealistic in practice for the Project. Both the Ontario and Quebec government note that standard timing restrictions are preliminary and that additional timing guidelines may apply depending on further review and fish species found during surveys. Therefore, through the IA process, appropriate timing windows as well as authorization requirements will be confirmed through discussions with both the Ontario MNRF, the Quebec MFWP and DFO based on the site-specific fisheries and fish habitat data to be collected for the areas potentially affected by the Project.

#### 14.2.3.2 Aquatic Species at Risk

Aquatic species at risk are defined as species that are protected under federal or provincial legislation, including species:

- Listed under Schedule 1 of SARA as endangered or threatened (GOC,2020)
- Listed under the ESA as endangered or threatened (MECP 2020b)
- Listed under the ARTVS as threatened or vulnerable (MEFCC, 2019 MFWP,2019)

A wider group of species of management concern is also considered, which includes species:

- Listed under Schedule 1 of SARA as special concern (GOC, 2020)
- Assessed by COSEWIC as endangered or threatened, or special concern (GOC, 2020) but not yet listed under SARA
- Listed under the ESA as special concern (MECP, 2020)
- Listed under the ARTVS as likely to be designated as threatened or vulnerable (MEFCC, 2019 MFWP, 2019)
- Ranked as S1 (Critically Imperiled), S2 (Imperiled) and S3 (Vulnerable) by Ontario's Natural Heritage Information Centre (MNRF, 2019)

A review of the DFO Aquatic Species at Risk online mapping tool ([DFO, 2019a](#)) identified the following aquatic species at risk as occurring or potentially occurring within the area of the Alexandra Bridge (within a 1 km radius):

- Channel darter (*Percina copelandi*) – Special Concern status (St. Lawrence populations) federally and in Ontario Vulnerable status in Quebec.
- Northern Brook Lamprey (*Ichthyomyzon fossor*) – Special Concern status federally and in Ontario Threatened status in Quebec.
- River redhorse – Special Concern status federally and in Ontario Vulnerable status in Quebec.
- Silver Lamprey (*Ichthyomyzon unicuspis*) – Special Concern status federally and in Ontario under review in Quebec.
- Northern Sunfish (*Lepomis peltastes*) – Special Concern status federally and in Ontario likely to be designated as threatened or vulnerable in Quebec.
- Hickorynut (*Obovaria olivaria*) – Endangered status federally and in Ontario anticipated for listing in Quebec.

A request for information for aquatic SAR and SOMC records near the Project area was returned from the MFWP September 22, 2020 and included records for two species within 1 km of the Alexandra Bridge: Lake Sturgeon (possible spawning site between the Portage and Alexandra Bridges) and River Redhorse (historical occurrence) (CDPNQ, 2020). In addition to the possible spawning site near the Portage Bridge, Lake Sturgeon also reportedly spawn in the area of Victoria Island upstream of the bridge (Haxton & Chubbuck, 2002). This species is listed as endangered in Ontario and likely to be designated as threatened or vulnerable in Quebec. Although it has no status under the federal SARA, it has been assessed as threatened by COSEWIC and is under consideration for addition to *Schedule 1 of the Act*.

The Cutlip Minnow (*Exoglossum maxillingua*), while not identified specifically in the area of the Alexandra Bridge, is known from the Lac Dollard-des-Ormeaux reach and is listed as special concern federally and as threatened in Ontario (MNR, 2016a); it currently has no status in Quebec.

American Eel have been noted both upstream and downstream of the Alexandra Bridge (NCC, 2021c). They are considered very rare and are a provincially endangered species in Ontario and likely to be designated as threatened or vulnerable in Quebec (under review in Quebec) however, they currently have no status under the federal SARA (this species has been assessed as threatened by COSEWIC and is under consideration for addition to *Schedule 1 of the SARA*). The species' life cycle is impressive, as it hatches from spawning grounds in the Sargasso Sea of the Atlantic Ocean, with young eels migrating along ocean currents to many freshwater streams and rivers along the North American east coast. They live in these rivers for a number of years before returning to the ocean and ultimately to the spawning grounds of the Sargasso Sea. The species was once extremely abundant throughout the Ottawa River and its tributaries. The rapid decline of the species can be attributed to a number of factors including over-fishing, pollution and habitat degradation however, there is a prevailing belief that hydroelectric dams have had the most substantial impact by creating barriers to upstream and downstream migration of the species (Ottawa Riverkeeper, 2020).

The Ottawa River is also home to a considerable variety of freshwater mussels. At least 16 species of native mussels are found in the Ottawa River drainage, which represents over 25% of Canada's 55 species of mussel fauna. The Hickorynut mussel is identified by DFO SARA mapping in the area of the bridge and is listed as Endangered federally and in Ontario and is considered likely to be designated as threatened or vulnerable in Quebec.

If any interactions with aquatic species at risk are identified during the detailed design, mitigation could include scheduling of work to avoid fish migration and spawning windows, restrictions on construction methods to reduce noise/vibration levels and/or compensation if and as required by DFO.

#### 14.2.3.3 *Potential Impacts*

The existing Alexandra Bridge structure is supported beneath by six piers constructed of concrete and masonry. While the specific design of the new bridge has not yet been determined, a structure that will result in a reduction of the number of supporting piers required will decrease the footprint of impact on physical fish habitat in the river. Such an approach would allow for rehabilitation and restoration of fish habitat in areas where piers are removed, which could potentially be viewed as a positive impact.

##### 14.2.3.3.1 *Deconstruction and Construction*

Potential changes that may affect fish, fish habitat, and aquatic species would occur primarily during the construction stage of the Project. Construction activities and work carried out in the water and on land adjacent to the water have the potential to impact fish and fish habitat. The Project area provides general habitat for a number of fish species and likely acts as a seasonal migration corridor for species that are moving into potential spawning grounds, such as Walleye and Lake Sturgeon that spawn below Chaudière Falls and Victoria Island, respectively.

Fish habitat may be temporarily affected during the deconstruction of old piers and construction of new piers. During deconstruction, equipment operation and deconstruction activities have the potential to directly interfere with existing habitat in the vicinity of the piers, and debris generated during deconstruction may enter the water column and rest on the riverbed. During construction of new piers, there will be a requirement for excavation or other disturbance of the riverbed and existing habitat features to facilitate the construction of footings to support the pier.

As noted previously, deconstruction and construction activities have the potential to impact water quality through contaminant spills as well as the introduction of debris, dust and sediment. The construction stage of the Project has the potential to result in bed and bank disturbance/erosion which can result in turbidity spikes, TSS loading and overall sedimentation, all of which can be detrimental to physical habitat structure (e.g., spawning beds) as well as to the physiological processes of fish. Increased sediment loading can cause gill abrasion and may force fish to avoid the area, which can be interpreted as a disruption to fish habitat use.

The deconstruction of the existing piers and in particular, the construction of new piers, will require review by the Department of Fisheries and Oceans Canada (DFO) and possibly by the provincial authorities (MNDMNRF/MFWP). DFO authorization can only be provided after the Impact Assessment Agency determination is issued, and provincial authorizations will require a detailed design. As a preferred design is determined and detailed design is in progress, DFO and the provincial authorities will be engaged through the submission of a Request for Review and follow-up consultation.

#### 14.2.3.3.2 Operation

During operation, changes in fish habitat as a result of the Project are not anticipated from existing conditions. During operation, water quality may be affected by the introduction of suspended solids (e.g., during works in-water on the riverbank), petroleum hydrocarbons (e.g., accidental spills) and de-icing salts into the receiving environment.

Table 14-8 identifies, for each potential impact, the physical activities that might interact with the Aquatic Environment and result in the identified environmental impact.



**Table 14-8: Project interactions with aquatic environment**

Project Stage	Physical Activities	Potential Impacts
		Change in fish habitat
<b>Deconstruction</b>	Deconstruction of infrastructures	✓
<b>Construction</b>	Site mobilization and construction of temporary facilities	✓
	Land clearing and soil stripping	✓
	Excavation, earthwork	✓
	Construction of infrastructure	-
	Work in aquatic environments	✓
	Deconstruction of temporary structures	✓
	Demobilization of construction site	-
<b>Operation</b>	Use of infrastructure	-
	Maintenance and repair of infrastructure	-
<b>NOTES:</b> ✓ = Potential interaction - = No interaction		

**14.2.3.4 Mitigation and Protective Measures**

Field surveys will be conducted prior to the detailed design stage in order to identify the presence of fish and fish habitat (including SAR/SOMC) within the PDA. After field surveys are conducted, species specific mitigation measures and permit requirements will be confirmed. The need for and extent of any follow-up program would be confirmed and developed through the IA process.

Mitigation measures for in-water works can include passive approaches, such as respecting timing windows and other avoidance mechanisms, as well as physical measures to reduce the area of potential effect to the immediate work area.

Appropriate and reasonable timing windows for in-water works will be determined with the appropriate federal and provincial authorities during the detailed design stage. Provincially established timing windows are available for the Lac Dollard-des-Ormeaux reach of the Ottawa River from both Ontario and Quebec natural resource management agencies. The appropriate timing window for the Alexandra Bridge Project will be discussed with approval agencies and will be scientifically based on the species present in the area, and their likelihood of using habitat in the area for specific sensitive life periods (e.g., spawning and incubation of eggs, spawning migration, etc.).

During construction, the use of cofferdams to isolate in-river work areas will reduce the impacts noted above. However, there will be temporary impacts associated with the coffer dams, including loss of water cover within the dammed area, drying of the riverbed in the dammed area and some bed disturbance associated with the installation and removal of the dams. Mitigation measures include fish and mussel rescues from the dammed area prior to complete dewatering, and the use of low impact dam materials such as Aqua-Barrier or Aqua Dam coffer dams.



A turbidity curtain will be installed around the perimeter of the in-water work zone to further promote isolation of the construction zone, as well as reduce water quality impacts and the downstream migration of silt and sediment from dewatering activities (as described in Section 14.1.4). Turbidity will be monitored daily during in-water construction activities to confirm there are no increases as a result of Project construction.

Mitigation measures for the prevention of excessive sedimentation and debris encroachment are similar to those employed to minimize water quality impacts. Erosion and sedimentation control (ESC) measures will be implemented and maintained throughout all stages of construction to protect the receiving waters and surrounding environment. ESC measures will be installed around the extent of the construction work zone(s) as well as around the perimeter of stockpiles required for construction. All activities, including maintenance procedures, will be controlled to prevent the entry of petroleum products, debris, rubble, concrete or other deleterious substances into the water. A spill prevention and management plan will also be developed for the Project. For the deconstruction of old piers and the construction of new piers, the work area in the vicinity of the piers will be isolated.

By incorporating best management practices such as those discussed above and in previous sections pertaining to water quality, the overall impact of the bridge replacement on aquatic habitat and resident fish species will be reduced.

The Project will require review by DFO and is expected to require a *Fisheries Act* authorization. A typical condition of a *Fisheries Act* authorization is the requirement for post-construction monitoring over a period of up to three years, or for another period of duration to be discussed with DFO. Typical monitoring components include examining the construction zone and downstream environments for stability, habitat restoration success and function as per the intent of the design. Monitoring may also be required during deconstruction and construction, such as turbidity monitoring as mentioned previously, and continuous supervision by qualified inspectors during in-water construction activities to report on the installation and performance of recommended mitigation measures.

Based on this preliminary assessment, residual impacts to fish and fish habitat, potentially including aquatic SAR, as a result of construction activities are likely to occur following the implementation of mitigation measures. However, they are predicted to be low in magnitude, and localized to the construction zone. At a maximum, they may extend to the LAA (200 m buffer around the PDA) and will be short-term. Impacts are expected to be reversible following the implementation of habitat restoration and enhancement measures.

#### 14.2.3.5 *Enhancement measures*

While the specific design of the new bridge has not yet been determined, a structure that will result in a reduction of the number of supporting piers required will decrease the footprint of impact on physical fish habitat in the river. Such an approach would allow for rehabilitation and restoration of fish habitat in areas where piers are removed. Through the implementation of habitat creation, restoration and other offsetting measures, impacts from this Project on fish and fish habitat to achieve net environmental benefits may be positive over the long-term. In addition, there may be an opportunity for works with environmental benefits to be completed as part of this Project to offset some of the cumulative impacts of urban developments in this region.



PSPC and NCC will work with the study team as well as agency experts from DFO/MNDMNRF/MFWP and will consider enhancement measures or compensation measures (if required) during the design of shoreline restoration works that could improve general fish habitat and spawning habitat during shoreline restoration works for fish in the Ottawa River, including the American Eel.

#### 14.2.3.6 *Potential Changes to Fish and Fish habitat, as defined in subsection 2(1) of the Fisheries Act*

Project implementation could result in changes to fish and fish habitat, as defined in subsection 2(1) of the *Fisheries Act*. The Project is likely to result in the Harmful Alteration, Disruption or Destruction (HADD) of fish habitat and will likely require Authorization under the *Fisheries Act*. The destruction of fish habitat that is likely to occur as a result of new pier construction might be partially offset by the restoration of habitat in the area of removal of old piers. However, the details of habitat offsetting will require further analysis and calculation of habitat impacts at the detailed design stage.

DFO was contacted in November 2020 by the Project team to engage in their role as both a regulator under the *Fisheries Act*, and an Expert Department on potential enhancement measures. In response, DFO clarified the submission requirements for the Request for Review. The following information should form part of the Request for Review application:

- A description of aquatic habitat at the site (substrate type, aquatic vegetation, riparian vegetation) and a description of the existing structure
- The calculated footprint (m<sup>2</sup>) of both temporary and permanent in-water works
- Consideration of any aquatic species at risk that may be present in the vicinity of the Project
- A determination of whether any works are likely to cause the death of fish or the harmful alteration, disruption or destruction of fish habitat (HADD)
- Identification of any measures used to avoid or mitigate impacts to fish and fish habitat, and any residual impacts that may occur after the incorporation of these measures

A meeting will be held to discuss the Project and potential for enhancement measures during the detailed design stage.

Any required permits and approvals will be obtained from applicable provincial and federal agencies, and any impacts to fish and fish habitat will be compensated if required as per the current *Fisheries Act*.

#### 14.2.3.7 *Potential Changes to Aquatic Species, as defined in subsection 2(1) of the Species at Risk Act (marine plants)*

There are no anticipated interactions with marine plants since the Project is in a freshwater environment. As mentioned above, DFO has been engaged and will participate in the review of Project details and measures used to avoid or mitigate impacts related to aquatic species at risk.

#### 14.2.3.8 *Environmental Changes That May Occur on Federal Lands, In Other Provinces or Outside of Canada*

The Alexandra Bridge crosses the Ottawa River between the cities of Ottawa, in the province of Ontario, and Gatineau, in the province of Québec. No direct environmental changes to other provinces or on lands outside of Canada are anticipated.



Depending on the final bridge design, the Project footprint may extend beyond the existing Alexandra Bridge footprint. There is potential for temporary environmental changes (for example, vegetation loss) to federal lands during construction due to equipment and material storage and movement. These changes will be minimized wherever possible, such as staging on paved areas and protecting trees, and the site will be reinstated at the end of the construction stage.

The potential for minor temporary adverse impacts (such as erosion, etc.) during construction will be addressed through appropriate mitigation measures such as the use of erosion and sediment control measures and cutting of vegetation outside of the breeding bird season. The loss of vegetation will be adequately compensated (e.g., trees will be replaced at a minimum ratio of 2:1), as will impacted shorelines and/or fish habitat (e.g., through habitat restoration). In addition to the potential impacts on the environment and related mitigation measures outlined throughout Section 14, additional mitigation measures will be developed during detailed design to address potential environmental impacts on federal lands.

### 14.3 Future Studies

To address the data gaps identified in this section, there are a number of studies that are being scheduled within the next two years in order to inform the Project plan development and Impact Statement. Table 14-9 provides a summary of these planned studies. It should be noted that the timing may change depending on expert recommendations and Project progress.

**Table 14-9: Planned studies**

Alexandra Bridge Replacement Project Studies potentially needed to complete the Impact Statement Phase (Phase 2) of the IAAC (Section Titles of the Tailored Impact Statement Guidelines are in bold)	
Studies and plans	Estimated Timeline
<b>Baseline Condition: Biophysical Environment</b>	
<b>Atmospheric, acoustic, and visual environment</b> <i>Air quality</i> (Deconstruction and Construction) <i>Greenhouse Gas Analysis</i> (Deconstruction and Construction) <i>Acoustic Impact</i> (Deconstruction and Construction period)	If additional or updated information is required once details of the Project are known, desktop review or monitoring station data and analysis 2023/2024
<b>Meteorological Environment</b> (Temperature, Precipitation, Wind, Visibility)	Update information if required based on climate risk assessment, desktop review or monitoring station data and analysis 2023/2024
<b>Climate Change</b> - Asset Risk and Vulnerability Assessment Terms of reference under development- available spring/summer 2022	2023/spring 2024
<b>Geology, geochemistry and geological hazards</b>	Geotech Report completed by WSP, 2021
<b>Topography, soil and sediment</b> <i>Topographic Survey of the PDA, including bathymetric survey of the Ottawa River</i>	Geotech Analysis completed by WSP, 2021 Phase II ESA analysis completed by WSP, 2021
<b>Riparian and wetland environments</b>	Field work will be part of surface water studies

**Alexandra Bridge Replacement Project**  
**Studies potentially needed to complete the Impact Statement Phase (Phase 2) of the IAAC**  
**(Section Titles of the Tailored Impact Statement Guidelines are in bold)**

Studies and plans	Estimated Timeline
<b>Groundwater and surface water</b> Hydrogeological information?	Phase II ESA analysis completed by WSP, 2021 Surface water quality sampling and assessment Summer/fall 2023
<b>Hydrology assessment</b> (if required based on climate change assessment)	Summer 2023
<i>Ecological characterization of terrestrial and aquatic Project area (both shores, including staging areas and other potentially impacted lands), including ecological land classification (ELC), vegetation surveys, tree inventories, wetlands, terrestrial fauna, and fish and fish habitat, including species at risk.</i> Breakdown of specific studies are provided below.	
<b>Vegetation</b> <b><i>Inventory for potential plant SAR and invasives.</i></b>	Spring/Summer/Fall 2023
<b><i>Detailed vegetation surveys (including tree inventories, within the proposed development footprint and other impacted sites.</i></b>	Once the adjacent impacted lands have been confirmed
<b>Birds, migratory birds and their habitat</b> <i>Inventory of breeding birds, including migratory birds and surveys for SAR</i>  <i>Bird nest searches prior to vegetation removal</i>	May/June 2023  Within 48 hours of vegetation clearing if occurring during the breeding bird season
<b>Migrating birds/birds of prey</b> Scans for migrant birds using the area as a stop over	Spring and Fall 2023 if required
<b>Terrestrial wildlife and their habitat</b> (mammals and herpetofauna) <i>SAR bat colony/maternity roost surveys, including a tree bat habitat maternity roost assessment and bat exit survey at the bridge.</i>  <i>Turtle emergence and basking surveys</i>  <i>Turtle nesting site characterization and surveys</i> <i>Snake emergence surveys</i>  <i>General mammal surveys (not including bats)</i>	June/July 2023  May/June 2023  June 2023  May/June 2023  Spring/Summer/Fall 2023 (during other surveys and inventories)
<b>Fish and fish habitat assessment</b> <i>Description of the aquatic habitat (substrate type, aquatic vegetation, riparian vegetation), DFO Species at Risk mapping, electrofishing survey and SAR mussel inventory (to support the DFO Request for Review).</i> <i>Potential additional areas of study to assess alternative temporary wharf locations and other impacted lands if required.</i>	Spring/Summer/Fall 2023
Other VCs specific to Project	
<b>Cumulative Effects Assessment</b>	Summer/Fall 2022
<b>Baseline Condition: Human Health</b>	

**Alexandra Bridge Replacement Project**  
**Studies potentially needed to complete the Impact Statement Phase (Phase 2) of the IAAC**  
**(Section Titles of the Tailored Impact Statement Guidelines are in bold)**

Studies and plans	Estimated Timeline
Assessment of benefits/impacts to human health of new structure	Completed by PwC in 2021
<b>Baseline Condition: Social</b>	
<i>Heritage Impact Study</i> <i>Bridge Recording and other mitigation work</i> Terms of Reference under development	Summer/Fall 2022
<i>Land-based Archeological inventories (for defined areas if required)</i>	Summer/Fall 2023
<i>Underwater archaeological survey of the riverbed near the shoreline (for defined areas as required)</i>	Summer/Fall 2023
Adjacent Impacted Lands Study	Report expected Fall 2022
<b>Baseline Condition: Economic</b>	
Cost/Benefits analysis of new structure	Completed by PwC in 2021
<b>Baseline Conditions: Indigenous Peoples</b>	
<i>Physical and Cultural Heritage</i>	All information will be gathered through ongoing engagement and will vary for each Indigenous Partner.
<i>Current Use of Lands and Resources for Traditional Uses</i>	
<i>Health, social and economic conditions</i>	
<i>Conditions related to the Rights of Indigenous Peoples</i>	
Predicted Changes to the Physical Environment	Discussed based on results of studies completed
Predicted Changes to Valued Components	Discussed based on results of studies completed

Additional studies may be added as the Project moves forward.



### 14.3.1 Climate Change Assessment

A climate risk and vulnerability assessment study of the Alexandra Bridge will be performed in order to identify and assess potential site vulnerabilities to climate change and extreme weather and to make recommendations on adaptation measures that can be incorporated into the infrastructure engineering design to address the risks and vulnerabilities.

This study addresses commitments in the Federal Sustainable Development Strategy for Canada, 2019-2022 (ECCC, 2019) and the Greening Government Strategy: A Government of Canada Directive (TBS, 2020). The Federal Sustainable Development Strategy outlines a commitment for the Government of Canada to:

*“...take action to understand a wide range of climate change impacts that could potentially affect federal assets, services and operations across the country.”*

In addition,

*“All major real property Projects will integrate climate change adaptation into the design, construction and operation aspects.”*

The Greening Government Strategy: A Government of Canada Directive states that:

*“Departments will ensure that all new buildings and major building retrofits prioritize low-carbon and climate resilience. Investment decisions will be based on total cost of ownership:*

*all new federal buildings, infrastructure and major building retrofits, including significant energy performance contracts, require a climate risk assessment that incorporates both current and future climate conditions in the analysis.”*

To this end, a study of the crown-owned properties (Directory of Real Property sites 23280, 23287 and 04260) will be conducted to clarify the main climate hazards (nature and severity) to the new bridge, the vulnerability of the site, the level of risk, and strategies for mitigating the impacts of climate change.

The study will be conducted in accordance with the Public Infrastructure Engineering Vulnerability Committee (PIEVC) protocol, or equivalent that meets ISO 31000 Risk Management. The study will involve a review of available documentation for the Project site from the National Capital Commission (NCC) and Public Services and Procurement Canada (PSPC) sources, including previous studies on the climate projections and climate hazards for the region. A gap analysis will be done to obtain any relevant climate parameters that are not available from the previous studies or detailed hydraulic modeling of the Ottawa River in the area of study, if required. In addition, infrastructure elements that may present vulnerabilities to climate hazards will be analyzed to estimate the likelihood of an interaction, effects, and risks associated with the identified climate events. Finally, recommendations for the design will be presented based on the findings of the study.

## 15 SOCIO-ECONOMIC SETTING

To identify potential social, economic, and human health considerations relevant to the Project, a desktop review of available information in the form of reports, maps and publicly available databases has been conducted (see Appendix G). Applicable information is provided throughout this section. It is to be noted that the IPT continues to work with the Indigenous Partners to identify socio-economic benefits as a result of the Project along with impacts and appropriate mitigation measures.

Potential adverse impacts of the Project were evaluated through consideration of the interactions between the Project and the social, economic, and human health environment. Mitigation measures that could avoid or reduce potential adverse social impacts are also identified. Residual impacts along with cumulative effects (where applicable) will be further evaluated and confirmed at the Impact Statement phase.

### 15.1 Social Context

This Section provides baseline information on the existing social conditions and activities for communities potentially affected by the Project. The community profile information provides a basis for a qualitative analysis of the potential socio-economic impacts associated with how diverse groups of people may experience all stages of the Project in different ways. Beyond a better understanding of potential impacts, a socio-economic analysis can help in identifying ways to manage and/or mitigate said impacts.

The Alexandra Bridge is the thread tying together the heart of Canada's National Capital Region (NCR) from Major's Hill Park to Jacques-Cartier Park, to the Voyageurs Pathway and the Ottawa River Pathway. The bridge serves a function, but its splendor lies in the convergence of its site and place in the Nation's Capital. The NCR covers an area of 4,715 km<sup>2</sup> in both Québec and Ontario along the Ottawa River. The region is located within the traditional territory of the Algonquin people. This area is composed of several jurisdictions, including the City of Ottawa, Ville de Gatineau, and the Municipalité régionale de comté (MRC) des Collines-de-l'Outaouais (and its member municipalities of Chelsea, La Pêche and Pontiac). Transportation to the NCR is served by multiple airports, railways, and interprovincial highways. There are two rapid-transit public transport networks in the NCR: the Rapibus system (SRB) operated by the Société de transport de l'Outaouais (STO) in Gatineau and the O-Train Light Rail Transit system (LRT) and city bus system operated by OC Transpo in Ottawa.

The Alexandra Bridge, along with the Portage Bridge, are integral parts of Confederation Boulevard's Ceremonial Route. Confederation Boulevard, owned and managed by the NCC, is a key feature of the Capital Core that is not only closely identified with the National Symbols, but also widely recognized as a destination in its own right. Alexandra Bridge is a national asset, integral to Confederation Boulevard and its replacement must complement its role as part of the Confederation Boulevard Ceremonial route. The primary components of the ceremonial route include the Grand Esplanade (pedestrian promenade), Links, Nodes and Gateways. Full description of these components and a map are provided in the Planning and Design Principles (refer to Appendix H). The NCC's Confederation Boulevard Guidelines, Management and Stewardship of Our Capital Legacy report (NCC, 2011) defines major components that reinforce the image of a continuous circuit around the Capital Realm.



Alexandra Bridge is a unique place that offers an important vantage point affording significant views, drawing visitors and residents to experience the panoramic views of the Parliament Buildings, as well as national cultural symbols such as the Rideau Canal locks, Nepean Point, Major's Hill Park, Lady Grey Drive, Jacques-Cartier Park and the Ottawa River. As per the NCC's Canada's Capital Views Protection Plan (2007), preserving the visual integrity of these symbols for future generations is of the utmost importance in planning for the NCR. This includes not only the symbols from key viewpoints located on and around the bridge itself, but also in protecting the views of foreground areas (including central and lateral foreground areas), when considered from points along Confederation Boulevard and from the public parklands and pathways along the Ottawa River shoreline.

Moreover, the existing bridge is vital to creating and maintaining social links between Ottawa and Gatineau and provides a major symbolic connection between the two provinces and their unique histories, languages, cultures and other social characteristics. The Alexandra Bridge is a key element of the multi-use pathway system that connects the NCC's Capital Pathways in downtown Ottawa to Gatineau's Voyageurs Pathway. This pathway passes under the bridge connecting Jacques-Cartier Park South with the Canadian Museum of History lands. It also connects to the De l'île Pathway which links Jacques-Cartier Park through Laurier Street to the Ruisseau de la Brasserie Pathway, running through the heart of old Hull. These are important links to support key planning direction expressed by both Ottawa and Gatineau.

One of Ottawa's key mobility policy directions is to actively work with the federal government, the provinces and the City of Gatineau to improve inter-city rail, high-speed rail, and a stronger regional transit network. This includes improving pedestrian and cycling networks and connections to transit, creating a multimodal transportation network that supports the image and stature of Ottawa-Gatineau as an important metropolitan region, where it is possible to live a car-light and car-free lifestyle.

Part of Gatineau's overall vision seeks to prioritize an urban fabric based on sustainability and mobility, including intensification of the urban core and transit-oriented development to connect residential and employment lands. The plan also emphasizes the protection of cultural and natural heritage resources, such as the Quartier du Musée and Jacques-Cartier Park – both of which are located on Hull Island and flank the Québec-side portion of the Alexandra Bridge.

In Ottawa, the Project is located adjacent to the historic Byward Market district which is a major local tourism hub with retail, agricultural and entertainment attractions (refer to Figure 13-5). The Alexandra Bridge is also located near to the entrance to the Rideau Canal, a National Historic Site of Canada, a Canadian Heritage River and a UNESCO World Heritage Site. To the East, the neighbourhood of Lowertown is a vibrant urban residential area and a Heritage Conservation District. To the West, is the core of the downtown business district. The Parliamentary Precinct, the seat of Canadian federal politics directly overlooks the Alexandra Bridge.

In Gatineau, the Project is located within the Hull sector which is the central business district as well as the oldest neighborhood of the city. Within the urban hub of the city, there is a large concentration of federal government offices (e. g. Place du Portage, Terrasse de la Chaudière and others). The bridge approach is directly adjacent to both the Museum of Canadian History and Jacques-Cartier Park.



Population data obtained from the 2016 census (Statistics Canada, 2017) covers the Census Metropolitan Area (CMA) which is the area nearest to the bridge but represents a smaller area than the one encompassed by the NCR. A broader segment of the population will consequently be potentially impacted by the Project and will be considered during the planning, design and construction stages.

The population of the Ottawa-Gatineau Census Metropolitan Area (CMA) is estimated to be over 1.3 million. Between the 2011 and 2016 census, the population increased by 5.5%, which is above the national average. In the CMA, approximately 992,000 people resided in Ontario and 332,000 people resided in Québec according to the 2016 census. In Ontario, 482,320 (48.6%) individuals were recorded as male and 509,405 (51.4%) were recorded as female, while in Québec, these were 162,730 (49.0%) and 169,325 (51.0%) respectively. Between 1996 and 2016, the population of the CMA increased by 32% and it was Projected to add roughly 200,000 residents by 2031.

The NCR is home to a culturally and ethnically diverse population. The languages spoken in the area are predominantly English (51.4%) and French (32.5%). The 2016 census documented notable geographic differences, where 79.9 % of Ontario residents (782,875 individuals) reported English as the first official language spoken and 80.3% of Québec residents (263,970 individuals) reported French as the first official language spoken. In 2016, approximately 18% of census respondents listed their mother-tongue as a non-official language of the Ottawa-Gatineau CMA, the most common being Arabic, Spanish and Mandarin.

In Ottawa, the 2016 census showed that 219,705 (22.6%) were foreign-born residents and visible minorities accounted for 25%. In Gatineau, nearly 36,000 (11%) foreign-born residents and visible minorities accounted for 13.5% of the Gatineau population. Women also make up a slightly higher proportion of the foreign-born and visible minorities than the city-wide average (53% vs 51% for the CMA).

In the 2016 census, residents of Indigenous ancestry numbered over 22,000 living in Gatineau and over 40,000 in Ottawa.

These cultural differences between Gatineau and Ottawa are important factors to consider during the planning, design and construction stages to help ensure that the needs of diverse groups and communities are identified and that as many of these needs are met through the development of innovative solutions to complex social challenges associated with the Project.

The IPT is sensitive to a noteworthy historical event which will be considered when engaging in stakeholder consultations with members of the LGBTQ2+ community. On August 21, 1989, a notable murder was committed on the bridge due to the murderer's assumption that the victim was homosexual. This tragedy and its causes led to widespread shock in the city, mobilization of the LGBTQ2+ community (which had long been the target of violence in the area) and the introduction of unprecedented police reforms. In its wake, the Ottawa Police Service would pioneer diversity training and become the first in the country to establish a hate crimes unit (Duffy & Smith, 2014). Stakeholders belonging to and representing the LGBTQ2+ community have been invited to engage on this Project (see Public Engagement Section 3 and stakeholder list provided in Appendix A and C).

As the planning and design of the new structure progresses, the IPT will be forward thinking in anticipating how the Project could potentially impact this particular segment of the population and how these impacts can be mitigated.

According to the 2016 census, 75% of the working age population from 25 to 64 in Ottawa and 67% in Gatineau have a post-secondary education of some kind. Working age population who have a postsecondary certificate, diploma or degree, often employed in the construction industries, represent 63.2% of the population in Ontario (62.3% men and 64.0% women) while in Québec, it represents 58.0% of the population (56.7% for men and 59.3% for women). Workers with university certificates, diplomas or degrees at bachelor level or above represent 36.5% of the Ontario population (36.2% men and 36.8% women) and 23.8% of the Québec population (22.1% men and 25.2% women).

The average personal income, according to the 2016 census is \$52,798 in Ontario (\$60,064 for male and \$45,437 for female respondents) while it was \$44,632 in Québec (\$48,162 for male and \$41,031 for female respondents). Income alone is not a suitably complex measure to determine the social vulnerability of communities. Using the 2016 census, a new Geographic Information System (GIS) dataset that maps the socioeconomic status of the communities on and adjacent to NCC lands was completed to fulfill a commitment under the NCC's Sustainable Development Strategy (SDS) principle of social equity. The following seven census datasets were identified as the best indicators of social and economic vulnerability:

- Residents living in low income according to the low-income measure after taxes (LIM-AT)
- Labour force participation rate
- Lone-parent families
- Unemployment rate
- Residents aged 25-64 with no high school diploma
- Median market income before taxes
- Core housing need (averaged rate of unaffordable, unsuitable, and "inadequate" housing)

These seven indicators were combined to create the socioeconomic status (SES) index within dissemination areas. These are small areas composed of one or more neighbouring blocks, typically with 400 to 700 persons, and are the smallest standard geographic area for which all census data are calculated. A score of 1 to 5 is assigned to each dissemination area indicating the degree of socioeconomic vulnerability, with a score of 1 representing the least vulnerable and a score of 5 representing the most vulnerable.

Lowertown, Byward Market and l'Île-de-Hull are communities nearest the Project shown in the Figure 13-5. Lowertown and the Byward Market areas have a mix of areas where the SES index for the communities' ranges from moderately vulnerable to most vulnerable. The SES index for l'Île-de-Hull on the other hand predominantly ranks as most vulnerable. This will be an important consideration when evaluating options to mitigate impacts from the closure of the bridge during deconstruction and construction activities. The differences across communities, particularly considering those most vulnerable ones, will be taken into consideration during the design stages. Understanding potential impacts from bridge closures and other deconstruction and construction activities on vulnerable communities will assist in the development of appropriate mitigation measures.

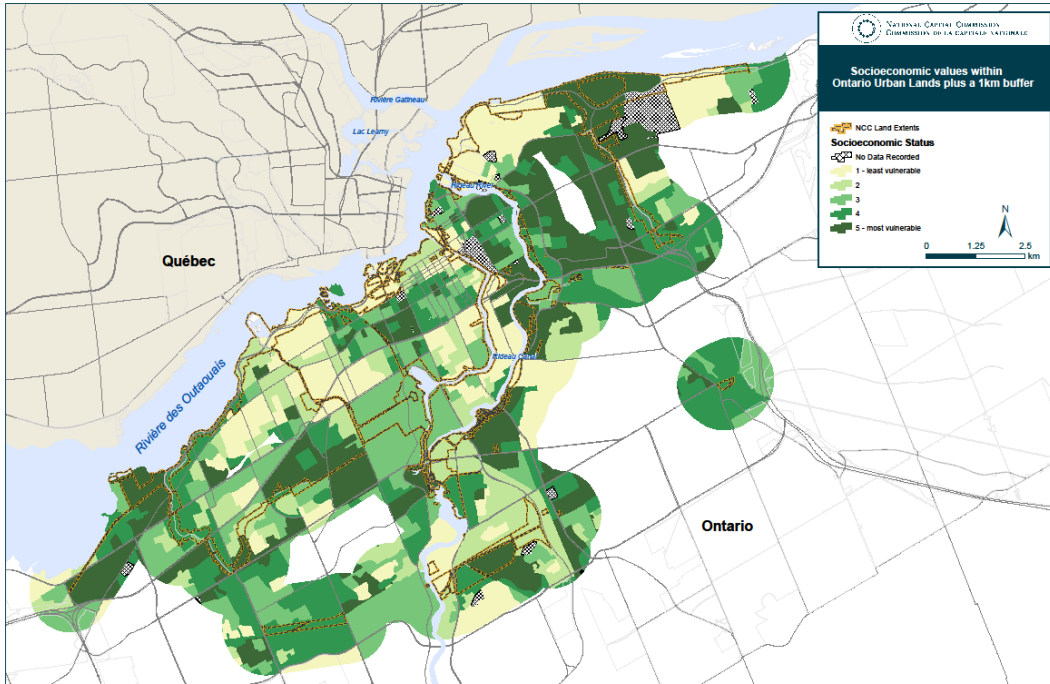


Figure 15-1: Socio-economic status of communities near the bridge – Ottawa

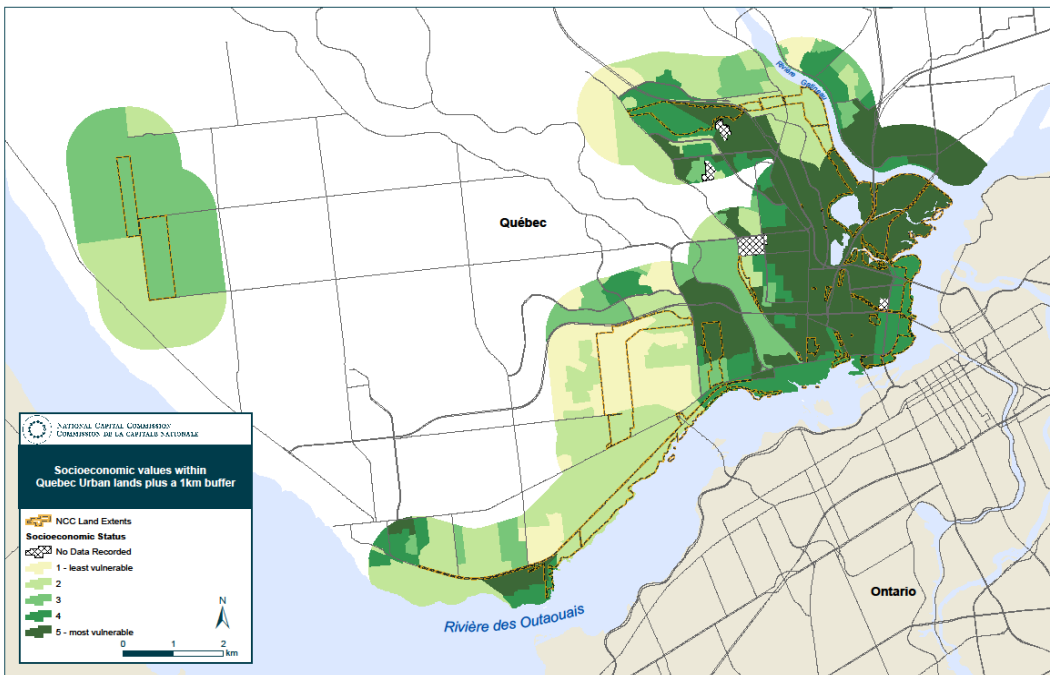


Figure 15-2: Socio-economic status of communities near the bridge - Gatineau

## 15.1.1 Potential Impacts

Potential impacts and the mitigation measures discussed in this section are those anticipated from the Project as defined to date and include the comments received from respondents to public consultation outreach. Additional potential impacts will be identified as planning and design for the new structure progresses. These will be addressed as they are documented to ensure that the Project remains responsive to changes.

The enhancement measures described in Section 15.1.1.3 are drawn from the Planning and Design Principles (full text provided in Appendix H) because they provide a cohesive vision for the replacement of the bridge including its integration with the surrounding transportation network and public spaces.

### 15.1.1.1.1 Deconstruction and Construction

#### Impacts on Mobility

During the deconstruction and construction stage of the Project, it is anticipated that the crossing will be closed to traffic, including active mobility transportation, for approximately three to four years between 2028 and 2032. Disruptions will be different for those who own their own vehicle and are able to change their commuting or travel habits compared to individuals who rely on public transit or active modes of transportation.

Based on initial public consultation, widely shared concerns about the Project involved the effects of deconstruction and construction activities including the duration of the bridge's closure and the adequacy of alternative transportation routes particularly for active mobility users. The Public Consultation Report is provided in Appendix B for reference to additional details.

Concerns expressed by participants in public consultation events included that the closure will likely significantly disrupt the flow of vehicular, active mobility, and commercial transportation. In addition, concerns were expressed that the closure will likely negatively affect tourism in the region by limiting circulation between tourist destinations.

Concerns related to travel across the river were also widely shared by respondents. Fifty-four percent indicated that the length of time during which the bridge would be closed was one of the issues they were most concerned about. The effects of the closure on active mobility in particular weighed heavily on the minds of many participants. Alternative routes for active mobility during construction was the fourth-most widely shared concern, with many respondents specifying in their comments that they considered the Alexandra Bridge to be the safest crossing for active mobility. Its loss, they contended, would make it not only more inconvenient to cross the river, but also more daunting and dangerous. Longer travel times and increased traffic congestion were also identified as significant concerns by respondents.

Careful consideration must be given to the impact that construction activities will have on all bridge users and relevant stakeholders, including general traffic, traffic management operations in communities on either side of the river, public and private transit operators, emergency services, police departments, cyclists, pedestrians, and other institutional and commercial operators in the vicinity of the bridge.

Disadvantaged or vulnerable individuals who predominantly use active modes of transportation may be more significantly impacted by the closure of the bridge and may require special mitigation measures tailored to their needs.

### **Impacts to Views and Public Spaces**

Concerns were expressed regarding the potential loss of the bridge's defining role in maintaining the area's visual identity, and in connecting residents and visitors to the past. For many respondents to initial public consultation outreach in October 2020, the most appealing features of the Alexandra Bridge are tied to the sense of place it creates and the enjoyable, sensory experiences it facilitates. Respondents also spoke of the bridge's simple emotional and aesthetic appeal – its beauty, charm, elegance, timelessness, among other qualities. In this perspective, the Alexandra Bridge is not just a way to get from point A to B, but a destination in its own right whose use is associated by many with strong and pleasant memories. Access to, and enjoyment of, nearby public spaces was an issue of concern for 34% of respondents to public consultation outreach.

Given the location of the bridge, significant changes to the structure, height or proportions of the new bridge could have impacts on this key feature of the Confederation Boulevard's Ceremonial Route. Concerns were expressed that the replacement bridge would, in sharp contrast with the Alexandra Bridge, end up being utilitarian and visually uninspiring. Loss of the charm of the bridge was expressed as a concern.

A new bridge set within the Capital's cultural and natural landscape will require consideration of its impacts on views to ensure that existing protected views and viewsheds are not dominated by a future bridge design and that the openness of the Ottawa River corridor is maintained. Creating alternative active mobility routes and connections, protecting views and potentially enhancing the experience of the bridge for diverse groups of users are important aspects that can contribute to increasing the sense of place and quality of life for all residents and visitors of the capital.

### **Impacts to Landmark and Scenic Heritage**

Initial public consultation also revealed widely shared concerns about broader implications and risks tied to the bridge's role as a landmark and destination, the loss of the unique character and heritage of the bridge and loss of scenic views. Due to the bridge's heritage values and importance, the design and heritage aspects related to this Project are addressed in more substantive details in Section 15.4.

Not all improvements recommended by participants in public consultation outreach were of a functional nature. Some thought that the new bridge should be designed to attract tourists, with space to take pictures, sit down, and enjoy the views (131 mentions).

#### **15.1.1.1.2 Operation**

With the Planning and Design Principles in hand, future bridge designers and engineers are invited to introduce a world-class, signature bridge befitting the setting of our national symbols. The minimum functional requirements for the new bridge are not anticipated to increase vehicular capacity and may significantly enhance opportunities for active modes of transportation, and potentially transit.

### 15.1.1.2 *Mitigation and Protective Measures*

The Planning and Design Principles define the new bridge as functioning as both a link between vital public spaces along Confederation Boulevard and as a dynamic public space in its own right. The Alexandra Bridge offers a unique platform from which residents, tourists and visitors can stop and take in views of emblematic and symbolic elements, and ponder while observing the national treasures of the Capital and panoramic views of the River. It must continue to be the cornerstone of connection between parts of the Capital that are dominated by the National Capital function or presence, with those parts of Ottawa and Gatineau that are more local and civic in nature.

The bridge has multiple entry points and must be designed to accommodate a multitude of uses both in motion and stationary including utilitarian travel, recreation and tourist travel, sightseeing and resting. At special celebratory times, the bridge may also function as a gathering place, accommodating and supporting active uses during year-round special events such as the Capital's Winterlude Festival or Canada Day celebrations.

Whether as a crossing, a landmark, or a public space, public consultation participants made it clear that the Alexandra Bridge cannot be thought of as just any other bridge. The concerns and aspirations articulated by participants regarding the replacement Project are closely tied to what, in their eyes, makes the Alexandra Bridge unique. Depending on who you ask, the Alexandra Bridge is:

- A nationally significant heritage structure that represents a link to the past
- The safest active mobility crossing between Ottawa and Gatineau
- The most picturesque and interesting Bridge in the area
- An iconic landmark and defining feature of the Ottawa-Gatineau skyline
- Not just a crossing, but a destination in its own right for residents and visitors alike
- The shortest and most conveniently located route between the downtown cores of Ottawa and Gatineau

Together, these elements contribute to the creation of a sense of place that enriches the overall users' memorable experience of the current bridge. The Planning and Design Principles provide direction to the design team to ensure that these elements are considered in the design of the new bridge, while measures are also being considered to mitigate for the potential impacts from the deconstruction of the current bridge.

#### **Mobility Mitigation Measures**

In response to expressed concerns, development of appropriate mitigation measures to support active mobility users during the deconstruction and construction period are key considerations in the planning process. Ideas for potential mitigation provided by participants in public consultation events included:

- Make the planning and implementation of active mobility detours a priority rather than an afterthought
- Enhance ferry service while the bridge is closed
- Add shuttles on other interprovincial bridge crossings to reduce added congestion
- Make active mobility as big of a priority as vehicular traffic in your construction milestones. Do not neglect the active mobility lane in favour of vehicular lanes
- Work collaboratively with the community to develop mitigation measures



Most of the measures proposed by respondents aim to mitigate disruptions to the flow of traffic across the river during deconstruction and construction years. In keeping with the widely shared concerns related to active mobility, the most frequently mentioned of these proposed measures was to provide adequate alternative routes for active transportation (361 mentions), including measures like expanding the carrying capacity and enhancing the safety of active mobility lanes on other interprovincial bridges. In a similar vein, some respondents proposed keeping the Alexandra Bridge open for active mobility during construction (69 mentions) and clearing pathways identified as alternative routes for active mobility during the winter (10 mentions).

IPT is working to assess viable options and determine required supporting infrastructure or services needed to implement suitable mitigation measures. Ideas being evaluated include enhancement to existing pathways to improve usability and serviceability including in winter and development of temporary structures to remove potential barriers for all users including those with reduced mobility. Conditions on the bridge may be especially difficult during winter months for those who use assistive devices and/or technology that could be impacted by snow. Preparing for additional costs or design features that can facilitate snow removal and equipping the structure for winter conditions will help ensure the infrastructure and active transportation routes are accessible to all groups year-round. Potential costs to users associated with alternatives such as ferry or shuttle services, and length of detours are factors under consideration particularly considering potential financial burden on individuals from disadvantaged communities.

During the deconstruction and construction years, the other interprovincial crossings are expected to be able to compensate for re-routed traffic outside peak hours. Length of detours will be considered to manage the volume of additional emissions created by longer trips. During peak hours, special traffic management measures may need to be implemented to reduce congestion and reduce idling. IPT will work with both the Cities of Ottawa and the City of Gatineau to develop appropriate traffic management strategies. Strategies will also take into consideration specific needs to support circulation between tourist destinations to mitigate potential impacts to business operations on both sides of the river. Different user groups will also be engaged to find workable solutions to transportation challenges.

In the design of the new bridge, active mobility was again the focus of many proposals. Suggestions to improve safety and mobility on the bridge included:

- Better separation of cyclists and pedestrians (615 mentions)
- A smoother surface for active mobility than that of the existing wooden boardwalk (172 mentions)
- Dedicating the bridge entirely to active mobility (113 mentions)
- Installing rest stops (36 mentions)
- Covering the active mobility lane to shelter its users from the elements (11 mentions)



The existing segregated pathway is a highly prized feature that many public consultation participants hope will be enhanced for the experience and safety of active mobility users and to promote sustainable transportation throughout the region. The things that participants would most like to see improved in the new bridge are primarily functional in nature:

- Separation of pedestrians and cyclists
- Better surfaces
- Enhanced public transit integration
- Expanded carrying capacity
- Overall, ensuring that the bridge meets the highest design and construction standards

The inclusion of a separate and protected laneway for mixed-use active transportation methods is suggested to increase the use of alternate modes of transportation, such as biking or walking. The Planning and Design Principles for the bridge will require the pedestrian area of the bridge to meet the highest standards of accessibility in the bridge's function as both an active transportation connection and as a contemplative space, such that all Canadians and visitors can benefit from a full and equitable experience of the bridge. This includes requirements regarding travel lanes, rest areas and interpretive elements to be installed on the bridge. Refer to Figure 7-1, which provides a conceptual section of the potential future traffic lanes.

The new bridge will be designed to accommodate all vehicles, including trucks and tour buses. However, as it is part of Confederation Boulevard, commercial trucks would be rerouted to other bridges, such as the Macdonald-Cartier Bridge. Notwithstanding any future changes, it is unlikely that commercial trucks would use the new bridge. The current approaches limit the amount of traffic that can flow across the bridge. Traffic volumes on the new bridge are not expected to increase greatly given the network to which it is connected, and the Functional Requirements (see Section 7.3) established for the new bridge.

The replacement bridge design is expected to ensure the physical continuity of its unique and symbolic character, connectivity for pedestrians, cyclists and drivers and a seamless connection between two cities and two provinces in Canada's Capital.

#### **Mitigation Options for Loss of Public Spaces**

During the deconstruction and construction years when the bridge and adjacent areas are not safely accessible to the public, there will be a loss of the public space currently provided by the bridge. Other nearby public venues such as Nepean Point, Jacques-Cartier Park and the grounds of the Canadian Museum of History will play key roles in providing temporary venues for celebrations and events.

Measures to mitigate the loss of aesthetic and heritage values related to this Project are further discussed in more substantive details in Section 15.4.

The Planning and Design Principles describe concepts that will help to mitigate for the potential loss of the bridge's defining role in maintaining the area's visual identity and provide guidance as to the design of the new bridge in hopes of addressing concerns regarding its physical and aesthetic characteristics.

In keeping with recommendations for improvements provided by public consultation respondents, the new bridge should be designed to attract tourists, with space to take pictures, sit down, and enjoy the views (131 mentions). Respondents also emphasized the importance of beauty in the bridge’s design, of a kind that would blend in harmoniously with the architecture of nearby historic sites (59 mentions). A small number of respondents recommended integrating nature into the design, including trees and green strips (11 mentions). These recommendations along with additional public comments will be used to direct mitigation efforts during deconstruction and construction and will influence the design of the new bridge.

### **Protection of Landmark and Scenic Heritage**

The bridge boardwalk offers spectacular panoramic views towards the River shorelines and upriver, with these views encompassing the Chateau Laurier, the Rideau Canal, Parliament Hill and the whole Parliamentary Precinct, the Supreme Court, Library and Archives Canada, and beyond to the Islands and the Portage Bridge.

Protection of scenic views is directed by the NCC’s Canada’s Capital Views Protection Plan, (NCC, 2007), which mandates that views from key viewpoints shall be preserved and enhanced to ensure the visual integrity and symbolic primacy of the Parliament buildings (Centre Block, Parliamentary Library, Peace Tower) within the setting of the Ottawa River corridor.

Of these key Viewpoints, Viewpoint #6 located on the existing Alexandra Bridge boardwalk close to the Québec approach, is a “Control Viewpoint” that is used to establish maximum background heights within the City of Ottawa’s Core area, west of the Canal, to ensure that no background buildings impact views of the silhouette of the Centre Block and Peace Tower. Future bridge design development will be required, through views analysis, to ensure that this viewpoint is maintained for the full enjoyment of Canadians and visitors of the Capital.

#### **15.1.1.3 Enhancement Measures**

The six guiding principles described in Planning and Design Principles are based on the Project mission statement:

*“To create a sustainable interprovincial transportation connection that will prioritize active mobility and highlight the symbolic importance of the site to all Canadians for many generations to come.”*

They will guide the design development of the replacement bridge and are based on Federal plans, policies and studies prepared for the areas in and around Alexandra Bridge and Confederation Boulevard within the Capital Region. The Principles incorporate feedback received through the first phase of the stakeholder and public consultations conducted in 2020 and through a peer review exercise internal to PSPC and NCC, including review by the NCC’s advisory committees, ACPDR and ACUA, which respectively provide recommendations on design excellence as well as inclusive and universal accessibility.

The Planning and Design Principles, provided in Appendix H, offer a vision for the future operation and enhancement measures of the new bridge.

*Principle (1): Mobility and Continuity of the Urban Fabric*

**The new bridge must provide better connections for pedestrians and cyclists at the Gatineau approach to the riverbank, Jacques-Cartier Park, and the grounds of the Canadian Museum of History.**

Improvements in public access to the shorelines through pathway improvements for pedestrians and cyclists around the new bridge must increase permeability and unification of the shoreline areas and the adjacent urban fabric to increase use of these spaces.

- A bridge design must facilitate connectivity by providing safe, direct, visible links (i.e., indications marking sites and distances between them) that are usable throughout the year, including during winter months.
- Design solutions must resolve elevation differences between the bridge and shorelines, and the diagonal crossing pattern at the Laurier Avenue and des Allumettières Boulevard intersection to access De L'île pathway.
- Bridge design must accommodate proposed municipal road network configurations at the intersection at Laurier Street/des Allumettières Boulevard which reclaims space from the roadway (i.e., removal of right-hand turn lane onto Alexandra Bridge), simplifies pedestrian crossings and integrates with the bikeway along Laurier Street.
- Design concepts should consider the public realm and prioritize active users by visually shielding and better integrating the existing marina parking and museum service vehicle requirements.

**The design of the new bridge must provide direct pedestrian connections to other important urban elements in its immediate context taking into consideration challenges due to the steep, vegetated rock escarpments of the Ottawa River shoreline.**

- The design of the new bridge must consider and complement the design proposal for Nepean Point, which includes a pedestrian bridge (vertical clearance height of 5.3 metres) over St. Patrick's Street, linking Nepean Point to Major's Hill Park.
- A new bridge design must review and ensure integration with the NCC's redesign plan for Major's Hill Park, which includes reclaiming spaces along Pioneer way (the former rail corridor),
- improved universal accessibility between the park plateau and the shoreline, as well as improvements to interfaces and connections along Confederation Boulevard.
- Pedestrian connectivity from the bridge must include safe, universal accessible linkages to locations below the embankment on the southern approach of the existing Alexandra Bridge to provide access to the Rideau Canal Locks and the Ottawa River Pathway. These linkages must be consistent with the NCC's vision for a long-term Waterfront Promenade between the Rideau Canal Locks and Rideau Falls.

**Alexandra Bridge replacement offers the opportunity to accommodate a multitude of active uses such as sightseeing, resting, strolling, jogging and cycling, as well as lookout points for viewing scenic features.**

- The design of the new bridge must provide generous pedestrian and cycling spaces, with streetscape elements that should be custom designed to ensure integration of the Grand Esplanade, reflective and well-coordinated with Confederation Boulevard designs.
- Priority must be given to the comfort, safety, and well-being of pedestrians, as well as to the movement of cyclists (tourists and commuters), ensuring fluidity throughout the year through well-defined exclusive corridors free of elements that impede movement, with adequate buffers where appropriate.
- A thoughtful and cohesive design of the pedestrian esplanade on the interprovincial bridge must meet the guidelines of the Capital Pathway Strategic Plan (NCC, 2020a), as well as the Confederation Boulevard Guidelines, Management and Stewardship of Our Capital Legacy (NCC, 2011). A minimum width of four metres and a separation of pedestrians from bidirectional bikeways with a focus on the esplanade's quality for user experience (sights and sounds) must be incorporated.
- Cycling slowdown zones at the bridge's approaches should be provided.

*Principle (2): Public Spaces and Civic Experiences*

The visual integrity of the cultural landscape shall be preserved with a seamless integration of the new bridge into the existing and evolving urban and natural environment context. The new design must provide continuity with the existing urban fabric, with materials and scale appropriateness contributing to the seamless visual integration. Landscape integration along the shorelines and approaches shall maintain the green cohesiveness of the Ottawa River corridor.

**Beyond being a civic space in its own right, the new bridge must function as a multimodal transportation connection and a connector of major civic and public spaces.**

- The new bridge must continue to serve as a vital link between communities, as a public space to move-through and go-to.
- In keeping with the bridge's role and purpose of linkage between entry gateways and nodes of Confederation Boulevard, the new bridge design must integrate with the future design of the Gatineau node at the intersection of des Allumettières Boulevard and Laurier Avenue.
- As a vessel, the bridge must visually and structurally support the vitality of the Capital Realm.
- Lookouts, rest areas, and programmable areas outside the travel lanes should be flexible and safe to allow for gatherings and circulation of various sized groups, including the infrequent large public gatherings that may occur on the bridge.

**The Bridge should be designed as an urban agora and reminders of the Indigenous community should be incorporated into the development of public space. The outcomes of ongoing discussions with the Algonquin Nation will play a key role.**

#### *Principle (4): Preserve Views and Celebrating the Legacy*

The Algonquin Nations have been stewards of the Ottawa Valley since their ancient oral history records their stories of creation in the territories and waterways of the land. The design process of the bridge will provide opportunities for Indigenous engagement and dialogue throughout all development phases. Designers must seek to understand traditional knowledge and incorporate the Algonquin Nation's perspectives and values.

#### *Principle (6): Universal Accessibility, Legibility and Wayfinding*

In keeping with the principle of creating an interprovincial transportation connection that prioritizes active mobility, accessibility must be intrinsic to the bridge design of all pedestrian and cycling accesses at the approaches and along the length of the bridge, as well as in connections to other surrounding urban features and structures (parks, museums, etc.). Accessible and inclusive design must follow the recommendations of the Best Practices Guide to the Accessible Design of the NCC's Outdoor Spaces, as a minimum, as well as requirements of the Accessible Canada Act and any applicable regulations.

**In addition, any spaces dedicated to pedestrian usage (including lanes and lookout spaces) on the bridge should be accessible to all users by following the Universal Design principles. Universal Design encompasses seven general principles:**

- Equitable Use
- Flexibility in Use
- Simple and Intuitive Use
- Perceptible Information
- Tolerance for Error
- Low Physical Effort
- Size and Space for Approach and Use

Bridge design features must ensure inclusive, safe, equitable and universally accessible gathering public space(s), exemplified through attention to lighting, interfaces that include pathways or railings, viewing areas, visual sightlines, furnishings, structural features and impacts of inclement weather, amongst others.

Designing the bridge in parallel with a universally accessible wayfinding system would allow ease of access to important information whether it be to historical facts on an interpretation panel, orientating signs or security information.

Current redevelopment plans are underway to enhance the landscape experience and observation points, including universal accessibility and the reestablishment of a pedestrian connection between Nepean Point and Major's Hill Park. The "Big River Landscape" concept plan for Nepean Point (Janet Rosenberg & Studio) began construction in 2019 following an international design competition in 2017. It is anticipated that this project will be completed in late spring 2023 – several years prior to the start of the Project.

**Signage on the new bridge structure (site identification, wayfinding, operational, regulatory, interpretative) is required to be developed through an integrated design approach, providing specific locations for implementation during the design process to avoid after-thought solutions.**

- Signage should contain clear and easy-to-understand information for all, and text must be provided in both English and French. The Algonquin language may be incorporated in pedestrian-focused signage to raise awareness, encourage, and strengthen its revival.



## 15.2 Economic Context

The following information provides a brief overview of the Canadian economic system as a whole and highlights economic activity within the NCR (the Project footprint) and where applicable, identifies potential impacts on the labour force and the Gross Domestic Product (GDP) growth, as they relate to the Project. This section also includes a summary of proposed mitigation and enhanced measures.

### Canadian Economy

Canada is one of the largest economies in the world, forming part of the globe's wealthiest nations. In 2020, the country's population was reported at 38 million. Canada's labor force is relatively small, in comparison to larger economic powers, slightly under 19 million. The economy is largely influenced by foreign trade and the service industry, which employs approximately  $\frac{3}{4}$  of Canadians. Overall, the economy is healthy, with the GDP reported at 1.647 trillion (Canadian dollars) in 2020. It is expected to remain stable over the coming years.

There are several indicators that can be attributed to a healthy economy. For the purposes of the accompanying IPD, a brief overview of the Gross Domestic Product (GDP) and the labour force (employment) is highlighted below.

It is noted that the Project will have an indirect impact on Canada's economy as a whole, and a direct impact on the NCR.

### Gross Domestic Product

Amidst the pandemic, the Canadian economy has experienced a sharp decline (2020), reported at **-5.4%** (refer to Figure 15-3). Currently, the economy remains steady (healthy), with growth reported at 5.05% in 2021 and forecasted at 4.65% in 2022.

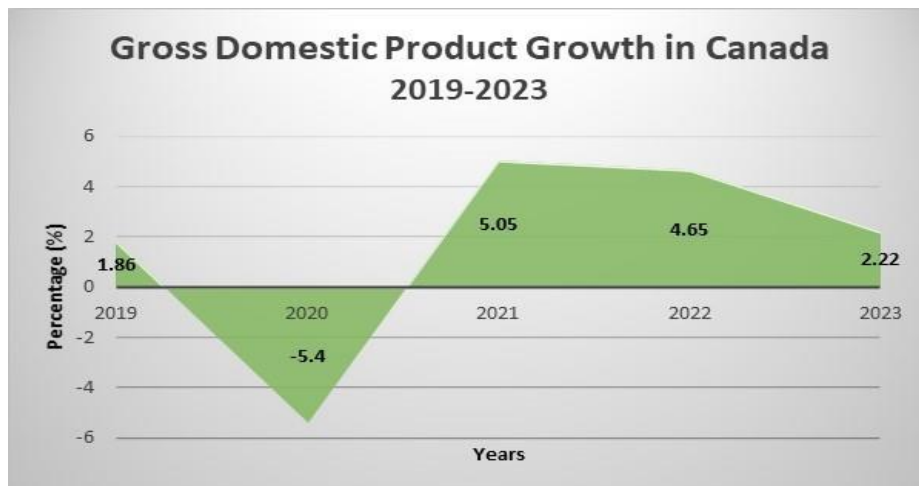


Figure 15-3: Gross Domestic Product Growth in Canada (2019-2023)



Within the province of Ontario – the GDP (2019) was reported at \$798 billion. At the onset of the pandemic, the GDP experienced a significant decline, decreasing by \$41.4 billion.

The GDP in the NCR also experienced a decline during this time (2020), reported at **-3.2%**. In 2017-18, the GDP growth within the NCR was reported as the seventh (7) highest amongst twenty (20) major cities in Canada. Major contributors to the GDP are High Technology and the Federal Government sectors, which account for about \$25 billion or slightly over 37% of the total GDP (in the NCR). As of 2019, Ottawa-Gatineau’s real GDP was reported at approximately \$67.24 billion.

Table 15-1 highlights the current main drivers of the economy with the NCR.

**Table 15-1: Industry Sectors that Contribute to the NCR’s GDP (in \$ billions)**

Industrial Sectors (in decreasing contribution)	Contribution in Millions (~\$)	Percentage (%) of GDP
High Technology	12.71	18.9
Federal Government	12.23	18.2
Finance, Insurance, real estate	6.99	10.4
Trade	6.32	9.4
Health and Education	5.04	7.5
Construction	2.69	4.0
Tourism	1.35	2.1
Others	19.83	29.5
<b>TOTAL</b>	<b>\$67.2B</b>	<b>100</b>

Source: Conference Board of Canada, Metropolitan Outlook (accessible online at: [City of Ottawa Webpage](#)).

Notably, the NCR experiences minimal economic flux (aside from during the current pandemic), contrary to other municipalities, due primarily to the Federal Government sector which has been stable over the years.

### Labour Force in Canada and Ontario

The COVID-19 pandemic has severely affected the labour market, with millions of Canadian workers experiencing either loss of employment or reduced working hours (Statistics Canada, 2021).

Prior to the pandemic, the labour force in Canada grew by +1.1% in 2018-19 from the previous year (\$19.7M) all provinces during this time reported moderate growth. Notably, Ontario experienced the largest increase, during this year at +1.8%, with the total labour force was reported at 7.3M. (2019)

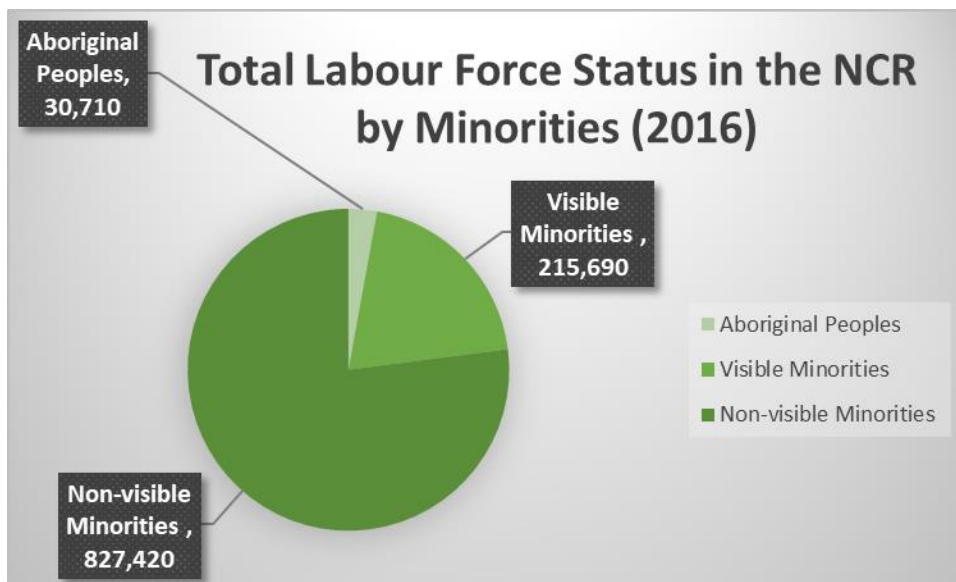
As reported in 2020, the labour market experienced a significant decline across the world.



## National Capital Region

Within Ottawa-Gatineau (NCR), the labour force reflects the diversity of the region, which includes Aboriginal peoples, visible and non-visible minorities, male, female, transgender and non-binary workers (refer to Figure 15-4: Total Labour Force Status in the NCR by Minorities). In 2016 the total labour force comprised of approximately 1.1million workers, whereby females formed slightly higher than 51% of the overall force. Males accounted for a higher percentage of those employed – 51% vs female at 49.2%.

Of the 1.1 million people, Aboriginal peoples accounted for approximately 30,710 or 2.85%, visible minorities accounted for 215,690 individuals or 20%, and non-visible minorities 827,420 individuals or 77%. Of note, data on non-binary and transgender status within the labour force was not reported (2016).



Source: Statistics Canada, 2016 Census of Population.

**Figure 15-4: Total Labour Force Status in the NCR by Minorities.**

From January 2016 to March of 2016 unemployment rates remained relatively stable. There was a slight increase in unemployment from April to October of 2016. During this time, it was reported that women were unemployed at rate marginally higher than men. Table 15-2 below highlights the total labour force status in 2016 (Census Metropolitan Area (CMA)) by gender.

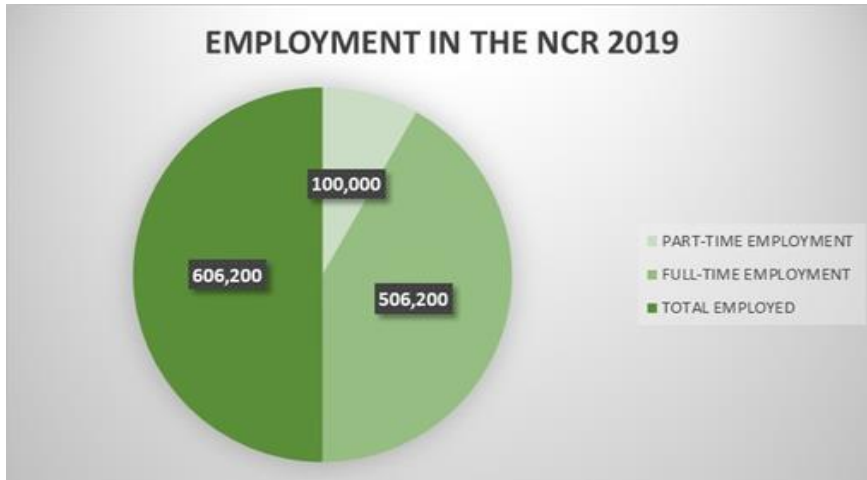
**Table 15-2: Ottawa-Ontario Census Metropolitan Area Labour Force Breakdown by Gender**

Labour force Status 2016	Ottawa - Gatineau / Ontario - Quebec Census Metropolitan Area		
	Total	Male	Female
<b>Total - Population aged 15 years and over by labour force status</b>	1,073,820	519,960	553,860
<b>In the Labor Force</b>	727,050	370,620	356,425
<b>Employed</b>	676,480	343,175	333,300
<b>Unemployed</b>	50,570	27,445	23,125
<b>Not in the labor force</b>	346,770	149,340	197,430
<b>Participation rate</b>	67.7	71.3	64.4
<b>Employment rate</b>	63	66	60.2
<b>Unemployment rate</b>	7.0	7.4	6.5

Source: Statistics Canada, 2016 Census of Population.

In the first reporting quarter of 2017, both the employment and unemployment rate remained relatively stable. As of the last reporting quarter, the unemployment rate experienced a slight increase in comparison to the unemployment in 2018 at approximately 4.5%.

As reported in Ottawa's employment business journal, (2019), the employment rate (Ottawa-Gatineau) remained stable. In the third reporting quarter of 2018, approximately 558,000 people were employed - 79% identified as female and 88% identified as male. In 2019, pre-pandemic, the total number employed increased by 48,200 or about 9%, as highlighted in the adjacent graph. The total employed during 2019 was reported at 606,200 people (refer to Source: Statistics Canada, 2016 Census of Population.)



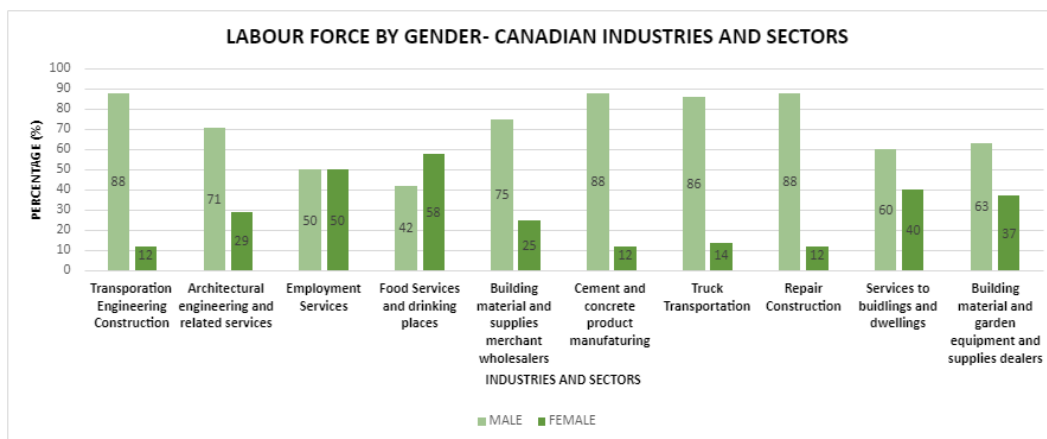
Source: Statistics Canada, 2016 Census of Population.

Figure 15-5: Employment in the NCR (2019)

The labour force experienced a sharp decline in 2020, as a result of the pandemic.

Statistics highlight that there is a disparity within the labour force amongst male and female. Figure 15-6 captures the ratio of male to female in select industries and sectors. Primarily, the largest disparity evidenced by the data below is within the following industries/sectors:

- Transportation Engineering Construction
- Cement and concrete product manufacturing
- Repair Construction
- Building material and garden equipment and supplies dealers



Source: PwC, 2021

Figure 15-6: Labour force by gender

An important aspect of the pandemic is its disproportional impact between genders (Statistics Canada, 2021). Gender employment gaps are evident in various industrial sectors - women being more affected than men.

The potential impacts on employment and the labour force, including the real GDP, within the NCR, are further described in Section 15.2.1.1. These impacts and how they may affect women, men and gender diverse people are important conversations within the accompanying IPD and as part of the Project. Significant efforts will be made to minimize potential impacts on all marginalized groups.

#### 15.2.1.1 *Potential Impacts*

As part of the Project, a socio-economic study was commissioned by PSPC. The study (produced by Price Waterhouse Cooper (PwC, 2021), assessed the economic footprint of the Project (and surrounding areas) and provided a quantitative assessment on the GDP, and employment indicators within the NCR.

- **Employment:** The Project will primarily influence the construction industry and its specialized sub-industries. It is expected that there will be a greater demand for labour and raw materials (at the start of construction in 2028), which in turn generates additional demand for the workers within this employment sector. The potential impact on employment is further elaborated upon in the deconstruction/construction and Operation stages.
- **GDP:** It is expected that the economic activity generated by the Project will significantly impact the Ottawa-Gatineau GDP. As of 2019, the construction sector accounted for approximately \$2.69 million or 4% of Ottawa-Gatineau's GDP (\$67.24 billion).

The economic impact of the Project has been analyzed using the Input-Output approach. How various economic indicators, such as employment and GDP, are affected directly, indirectly and at an induced level is captured below. For the purposes of assessment, direct, indirect and induced are defined as follows:

- **Direct:** Generated from firms' expenditure on employees and suppliers
- **Indirect:** Generated from business-to-business expenditure associated to the Project
- **Induced:** Generated from household spending (or employees within business' supply chain spending)
- The sum of the direct, indirect and induced impacts yields the total economic impact

The Project will encompass the deconstruction of the existing bridge followed by the construction of the new bridge. Deconstruction and Construction timeline is anticipated to be approximately four (4) years (2028-2032). Once the deconstruction/construction is completed, the operation and maintenance stage will commence (2032). Both stages are expected to create some economic activity as explained in the sections below.

It is recognized that the construction and deconstruction as well as the operation and maintenance of the bridge will require capital expenditures.

Such expenditures may be viewed as negative impacts however, economic activity including GDP growth and the creation of employment is expected to off-set costs related to deconstruction and construction.

#### 15.2.1.1.1 Deconstruction and Construction

### Impact on Employment

The deconstruction and construction of the bridge is anticipated to generate economic activity within the industries identified below. Approximately 45% or 2,990 full time equivalent (FTE) employment opportunities will be created by this Project in the transportation engineering construction within the Ottawa- Gatineau area.

In addition to the above, approximately 43% or 2,571 employment opportunities will also be created by this project within other industries such as cement and concrete product manufacturing, truck transportation, and banking.

Table 15-3 highlights the potential impacts on employment within the Ottawa – Gatineau area, by industry.

**Table 15-3: Annual employment impact of Alexandra Bridge Replacement Project construction for Quebec, Ontario and Canada in FTE per year, by industry**

Industry	Employment (FTE, person-years)				Percentage of generated Employment by Industry
	Quebec	Ontario	Rest of Canada	Total (FTE)	
<b>Transportation engineering construction</b>	1,679	1,311	1	2,991	45%
<b>Architectural, engineering and related services</b>	115	114	16	245	4%
<b>Food services and drinking places</b>	69	66	17	152	3%
<b>Building material and supplies merchant wholesalers</b>	57	75	6	138	2%
<b>Cement and concrete product manufacturing</b>	56	79	1	136	2%
<b>Truck transportation</b>	62	43	8	113	1%
<b>All other industries*</b>	1,167	1,404	243	2,814	43%
<b>Total</b>	3,205	3,092	292	6,589	100%

Source: PwC, 2021

\* Other top industries include cement and concrete product manufacturing (2%), truck transportation (2%) and banking and other depository credit intermediation (1%).

## Direct, Indirect and Induced Impact on GDP

In addition to the impact on employment, it is anticipated that the Project will contribute to the growth of the GDP within the Ottawa-Gatineau area. The demand for supplies and construction/trade workers is expected to rise significantly during the deconstruction and construction stage along with the operation and maintenance, which will be further discussed below.

Table 15-4 summarizes the direct, indirect and induced impact on the GDP (construction industry) within Ontario, Quebec and Canada as a whole. As highlighted the project will inject, over a period of four (4) years, about \$675 million into the Ottawa – Gatineau GDP.

**Table 15-4: Alexandra Bridge Replacement Project Impact on GDP (\$ millions)**

Industry		Ontario	Quebec	Rest of Canada	Total (Millions)
<b>Construction (Cumulative, 4 years)</b>	<b>Direct</b>	124.9	148.8		273.7
	<b>Indirect</b>	142.3	107.7	26.4	276.4
	<b>Induced</b>	84.4	66.7	16.6	167.8
<b>Total construction</b>		351.6	323.2	43.0	717.9

**Source:** PwC, 2021

Given the scale and significance of the Project, the total deconstruction and construction of the bridge will fundamentally require strategic planning and sound capital expenditures (estimated at \$350M year (1) one). Cost associated to this stage of the Project will be off-set by the positive economic activity generated through GDP growth (approximately \$675 million in the Ottawa-Gatineau area) and the creation of employment (approximately 6,297 FTE). The IPT will ensure that all stages of the Project align with Treasury Board Secretariat’s directives and policies. Throughout the life of the Project, PSPC and NCC will demonstrate sound stewardship and implement financially responsible management practices that maximize the long-term economic advantage to the Crown and provides best value to the Canadian taxpayer.

### 15.2.1.1.2 Operation and Maintenance

#### Impact on Employment

The operation and maintenance of the bridge may generate economic activity within the Ottawa – Gatineau area. Table 15-5 highlights a total of about 6 FTE opportunities will be created within the repair construction industry and about 3 FTE opportunities in other related industries.



**Table 15-5: Annual employment impact of Alexandra Bridge Replacement Project – Operating and Maintenance for Quebec, Ontario and Canada, in FTE per year\***

Industry	Quebec	Ontario	Rest of Canada	Total (FTE)
Repair construction	2	4	1	7
All other industries	2	1	0	3
<b>Total</b>	<b>4</b>	<b>6</b>	<b>1</b>	<b>11</b>

Source: PwC, 2021

\*Due to rounding, total impact value may not equal the sum of direct, indirect and induced footprints.

### Direct, Indirect and Induced Impact on GDP

The operation and maintenance of the bridge is also anticipated to create a certain economic activity throughout the years of operation. It is worth noting that the economic activity created by this stage will not yield the same activity created by the construction stage. Notwithstanding, it is important and will be discussed accordingly. Operations and maintenance impacts are calculated based on the annual average impacts over the life of the Replacement Bridge. The average Direct, Indirect, and Induced economic impacts of the Project on the GDP are outlined in millions in Table 15-6.

**Table 15-6: Alexandra Bridge Replacement Project Impact on GDP (\$ millions) \***

Industry		Ontario	Quebec	Rest of Canada	Total (Millions)
Operations and maintenance (average annual)	Direct	0.4	0.3		0.6
	Indirect	0.1	0.1	0.2	0.2
	Induced	0.2	0.1	0.2	0.3
<b>Total annual operations and maintenance</b>		<b>0.6</b>	<b>0.5</b>	<b>0.4</b>	<b>1.1</b>

Source: PwC, 2021

\*Due to rounding, total FTEs and total impact value may not equal the sum of direct, indirect and induced footprints.

In summary, the Project will impact the NCR's economy and Canada, as a whole. Impacts specific to infrastructure investment and the construction sector (increased employment and activity) are expected. The total contribution to the GDP during construction (2028 to 2032) is estimated at \$718 million, generating 6,589 jobs in Ottawa and Gatineau and Canada. In addition to these positive impacts, it is anticipated that there will be lower operation and maintenance costs.

#### 15.2.1.2 Mitigation and Protective Measures

It is important to note that the bridge closure will affect the NCR's population, the active users, and businesses within proximity to the bridge including the wharf and the boat launch. The active users such as cyclists and pedestrians who utilize the bridge will be required to use detours that have been put in place and rely on the availability of other means of transportation to cross the river.

The bridge closure has the potential to reduce tourism (contributor to the NCR's GDP) in the area which will affect some of the businesses operating within proximity to the bridge. This includes NCC tenants as well as the wharf, boat launch and marina in Jacques-Cartier Park.

All NCC commercial leases are expected to continue during the construction period. The IPT is dedicated to working with all small business owners, including NCC tenants, to develop strategic plans to mitigate impacts.

To mitigate the negative impacts of the bridge closure on the active users and on affected businesses, the IPT will explore a few different measures including:

- Alternative temporary relocation option for important infrastructure such as the wharf, boat launch, marina and parking areas to support continued operations during the construction period will be assessed as part of the Project
- The implementation of water taxis or ferry services
- The planification of rerouting strategies and detours
- The implementation of a comprehensive bypass system
- The development of a Construction and Traffic Management Plan

The project has the potential to have a positive economic impact on the Crown's Indigenous Partners. In fact, and as mentioned in Section 4.6, the significant amount of contracting and employment associated with the bridge planning, construction and operations will offer many opportunities for Indigenous workers and companies to obtain economic benefits from the Project. Please refer to Section 19.3 for further discussion on the potential economic impacts of the project on Indigenous Partners, Communities and Organizations.

#### 15.2.1.3 *Enhancement Measures*

As identified in the above-mentioned PwC socio-economic study (PwC, 2021), this Project has the potential to generate wider socio-economic impacts not captured in the assessment above. The wider socio-economic benefits have been highlighted throughout the IPD, specifically in Section 19.3 as it relates to Indigenous partnership and in Section 15.1 as it relates to social benefits.

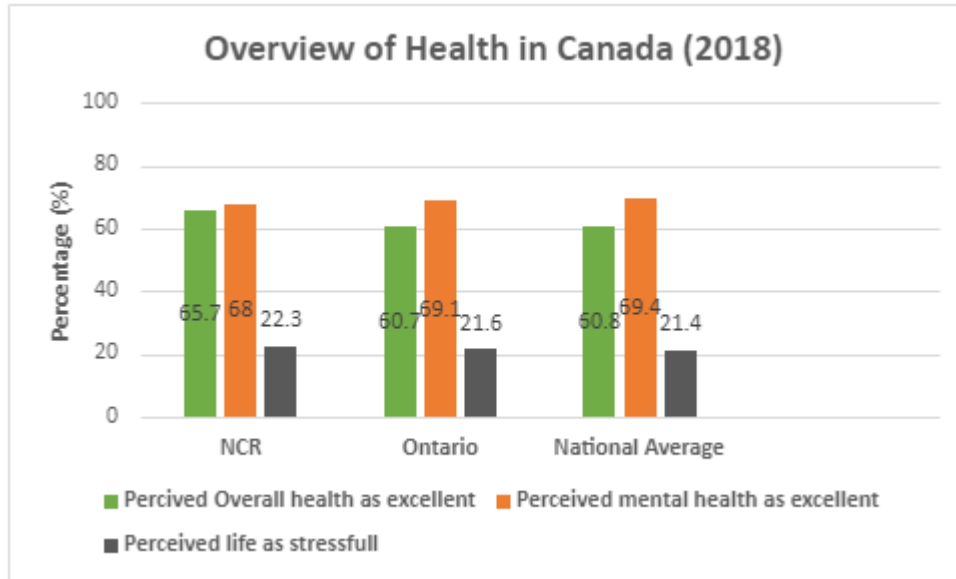
## 15.3 Human Health Context

This section provides a brief overview of the human health of residents in the NCR, including physical and mental, as well as how these may be impacted by the Project. Potential mitigation measures to minimize such impacts have also been highlighted. Note that the Project is in the planning stage and the full extent of impacts on such things as human health, socio-economic conditions and in some cases environmental are unknown. Extensive studies and assessments are underway to better understand potential impacts and the direct/indirect affects these will have on residents. Findings of these studies and assessment along with public consultation and stakeholder input will be utilized to form and implement sound mitigation measures.

There are various aspects which influence the health and well-being of a community and its residents. It is largely dependent not only upon the genetics of the population, but also upon the environment within which those individuals live. Health is also based on what people eat, their employment status and working environment, housing, access to healthcare, and the quality of both air and water.

As identified in Sections 15.1 and 15.2, the NCR provides a healthy stable environment for residents. Overall, the quality of life in the region is regarded as being very high. Ottawa is frequently rated as one of the top cities to live in, not just in Canada, but globally (Mercer, 2019).

Figure 15-7, highlights the percentage of Canadian residents perceived overall health in the NCR, in comparison to Ontario and the National average.



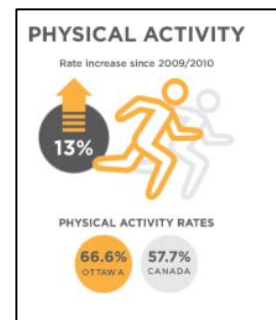
Source: Statistics Canada. 2017

**Figure 15-7: Overview of Health in Canada (2018)**

Residents have year-round access to a wide range of activities, events and spaces that help promote healthy lifestyles and choices such as multi-use pathways, rowing clubs, marathons, ski resorts, cross-country trails and greenspace, etc. The Alexandra Bridge supports various activities and closure of this will affect active transportation (cyclists, pedestrians, and others), access to public realm and greenspace in the Region which is often used for physical activity purposes.

The west deck of the bridge provides scenic views of the Ottawa-Gatineau skyline, the Ottawa River and Parliament Buildings. It is used by pedestrians, cyclists and others and notably is on the official route of the Trans Canada Trail. Its central location in the heart of both the Ottawa and Gatineau downtown core, coupled with its scale make it a key active-transit corridor for local residents and workers. The Alexandra Bridge attracts 32% of daily interprovincial bike trips while simultaneously providing one of the more scenic and low-stress routes for cyclists (City of Ottawa, 2013). Each day the bridge carries approximately 2000 pedestrians and 1300 cyclists, as of 2009.

In 2009, within the NCR, it was reported that physical activity rates had increased by approximately 13%, with 67% of Ottawa residents reporting that they are physically active during leisure time, as highlighted in the adjacent image. (Physical Activity diagram, Ottawa Community Foundation (2009))



Physical activity is an essential part of daily life, supporting good health, both physical and mental. The bridge provides access to greenspace, the National Gallery of Canada, the Canadian Museum of History and the Mint Museum as well as two major parks: Major's Hill Park (Ottawa) and Jacques-Cartier Park (Gatineau) which are venues for celebrations such as the Canadian Tulip Festival and the Canada Day festivities.

Academic scholars report that the reduction of various chronic diseases and associated symptoms, including anxiety, obesity and cardiovascular disease, has been associated with the presence of and access to green space. Such space also provides a number of environmental health benefits and has been shown to minimize the likelihood of flooding, improve air quality, reduce traffic noise and provide cooling and shade. Additionally, studies have shown that greenspace(s) reduces stress and also bolsters good mental and physical health. Most communities encompass green space, for the reasons identified above.

The Alexandra Bridge and surrounding areas were built to support and promote active transportation. Many communities are being built in keeping with the Government of Canada's commitment to support and facilitate active healthy living. Mobilizing Knowledge for Active Transportation (MKAT) is one of the collaborative projects that aims to gather and share knowledge that accelerates effective approaches to active transportation across Canada. MKAT recognizes that designing communities to support active transportation is key to fostering physical activity and producing a variety of public health benefits. The bridge plays a fundamental role in this.

It is worth noting that the population of Ottawa is projected to grow by 43.7% from ~1.3 million in 2020 to 1.50 million in 2046. This growth will have a direct impact on the region's overall population and specifically on the densification of the city, impacting human health. With the expected rise in the population there is a heightened requirement to focus on increasing active transportation that identifies multi-sectoral benefits (e.g., economy, health and environment).

The newly constructed bridge will comprise of additional and wider laneways which will further support physical activity for cyclists and pedestrians alike.

#### 15.3.1.1 *Potential Impacts*

As mentioned, the Project is centered in the heart of Canada's NCR, which means its closure and replacement will have impacts on the various commuters, communities, and surroundings. During deconstruction and construction stages, some of the main concerns related to the residents' health and overall well-being are Noise/vibration, Air quality/Dust, loss and/or decreased access to public realm and green space and longer commute times. These impacts are further discussed under the deconstruction and construction section as they form part of concerns expressed by residents.

In addition to the impacts highlighted above, during the operation stage, one of the main concerns is for residents' safety and overall well-being including their protection from violence or specifically gender-based violence in public spaces. This is further discussed under the operation section as it is one of the main concerns during that stage.

#### 15.3.1.1.1 Deconstruction and Construction

The deconstruction of the Alexandra Bridge will affect the following in relation to the health of residents and their communities:

- Noise and Vibration
- Air Quality/Dust
- Loss and/or decreased access to public realm and greenspace within the area
- Longer commute times

#### **Noise and Vibration**

The construction process is expected to marginally increase noise levels above existing conditions. Varied construction activities are expected to create isolated and short-term noise, and potential vibration impacts on the environment. These have the potential to induce adverse health effects. Health Canada reports that exposure to noise for long durations can contribute and cause such things as:

- Sleep disturbance
- Lack of concentration
- Low tolerance/high annoyance

The effects of the above have been linked to increased fatigue irritability, which have been linked to broader health effects – namely, mental health, cardiovascular effect and in some cases accidents.

#### **Air Quality/Dust**

The construction process is expected to marginally increase air pollution and dust in the region. Residents with underlying breathing conditions and or heart conditions are more susceptible to experiencing short term health effects from air pollution and/or dust. Health Canada and the Public Health Agency (Health Canada, 2021) report that air pollution can cause and/or contribute to:

##### **Breathing and lung conditions, such as:**

- asthma
- allergies
- chronic obstructive pulmonary disease (COPD)

##### **Heart conditions, such as:**

- angina
- Arrhythmia
- heart attack
- heart failure
- hypertension

As a result of these impacts, individuals affected by the Project may experience

- Tiredness
- Headache or dizziness
- Coughing and sneezing
- Wheezing or difficulty breathing
- More mucous in the nose or throat
- Dry or irritated eyes, nose, throat and skin

Overall, these are expected to be short term impacts nevertheless, will affect the well-being and health of those living in proximity to the bridge, and regular users of the bridge.

#### **Temporary decrease in access to public realm and green space**

The construction stage, including the requirement for staging areas, will result in and contribute to the loss and/or decrease of access to public realm and green spaces within the Project footprint and other areas in close proximity. Such loss, is directly linked to a potential decrease in physical activity amongst residents, such as biking or outdoor sports (e.g., soccer, yoga), which can be attributed to the following:

- Obesity
- Change in energy levels
- Depression
- Cardio-vascular diseases

#### 15.3.1.1.2 Operation

Once the construction phase is complete and the bridge is operational it will be considered a public space. The behavior Survey for Safety in Public and Private Spaces (Statistics Canada, 2019) defines public spaces as anywhere the public is able to access with little or no restriction (e.g., coffee shops, the street, shopping malls, public transportation, bars and restaurants). In some instances, public spaces can become unsafe spaces, especially if/when any violence or unwanted comments or behaviors are displayed. There are sensitivities towards a historical event which occurred on the bridge in 1989 (see Section 15.1).

It is worth noting that, *“unwelcome comments, actions or advances while in public may cause individuals to withdraw or to not otherwise fully engage in their daily activities or access spaces in which they have the right to freely use and enjoy.”* (Bastomski & Smith, 2017). Additionally, residents of the NCR (and any and all Canadian cities) have the right to live free from violence in general, and Gender-Based violence in particular. Gender-Based violence is defined as violence that is committed against someone based on their gender identity, gender expression or perceived gender. In fact, this kind of violence can have serious long-term physical, economic and emotional consequences for victims, their families, and for society more broadly (Statistics Canada, 2019).



The data below (extracted from Statistics Canada, 2019) highlights the percentage of unwanted sexual behavior, unwanted physical contact and unwanted comments in women, men, LGBTQ+ community, and Aboriginal women occurring in public spaces.

- 32% of women 15 years of age or older in Canada, experienced some form of unwanted sexual behavior while they were in a public place in the past 12 months
- For men, 6% of men reported experiencing at least one unwanted physical contact, unwanted comments about their sex or gender, or unwanted sexual attention
- Unwanted behaviors were experienced by the majority of bisexual women (76%), women 15 to 24 years of age (61%), women currently attending school (57%), women who were single and never married (54%), lesbian women (51%), and half of 25-to-34-year-olds (50%)
- Compared to women overall, the prevalence was also higher among women who were First Nations (40%), Métis (40%), had a disability (39%), or who were currently employed (37%)
- Finally, four in ten gay (38%) or bisexual (41%) men experienced one or more types of unwanted sexual behavior in the past 12 months, three times the proportion of heterosexual men (12%)
- Men who were attending school (25%), those who were 15 to 24-years-old (24%), and those who were single (22%) reported a higher prevalence of unwanted sexual behavior than men overall, similar to the findings among women

#### 15.3.1.2 *Mitigation and Protective Measures*

As mentioned above, the implementation of the Project will have an impact on the air quality of the region, increased noise and vibration, and the loss of public realm and green spaces. To that effect, the IPT is exploring and developing a strategy for mitigating the effects according to the Best Management Practices (BMPs) intended to satisfy safety thresholds by limiting dust, and vibrations as specified in any applicable regulating standards, health Canada's regulations and by-laws.

Below are some mitigation measures that the IPT will be exploring in order to address the impacts of the Project on the residents.

#### **Noise Vibration**

Some of the proposed mitigation measures to minimize the impacts that noise and/or vibration will have on the residents' health include:

- Limiting the speeds of heavy vehicles within and around the site
- Providing compacted smooth surfaces and avoiding abrupt steps and ditches
- Utilizing movable noise barriers and/or temporary enclosures
- Keeping equipment and maintained as per manufacture's recommendation

Mitigation measures will align with best management practices (BMPs), and health Canada's guidance as well as any other applicable regulations and by-law.



## Air Emissions and Dust

Some of the proposed mitigation measures to minimize the impacts that air emissions and dust will have on the residents' health include:

- Monitoring wind conditions, and planning operations accordingly
- Minimizing storage of any granular material in heights and/or un-covered on site
- Ensure movable wind breaks are available on site
- Use water spray and suppression techniques to control fugitive dust
- Cover haul trucks and keep access routes to the construction site clean of debris

Mitigation measures will align with best management practices (BMPs), and Environment and Climate Change Canada's guidance as well as any other applicable regulations and by-law.

## Loss and/or Decreased access to Public Realm and green Space

It is acknowledged that temporary loss and or decreased access to green space will have an impact on residents' health. The IPT will work with the public and key stakeholders, during public consultations and other engagements, to develop a strategic action plan to address concerns related to the loss of such space. Specific mitigation measures will be made public and/or available as part of the Impact Statement phase.

## Gender-Based Violence:

In an effort to discourage any gender-based violence, which can affect victims on an economic, emotional and mental health level, the IPT will explore the following options to ensure the real and perceived safety of individuals crossing or using the bridge:

- Consider incorporating into the bridge design panic buttons and camera surveillance
- Illumination/ lighting of the bridge and surrounding area(s) will follow the principles and guidelines described in the Capital Illumination Plan (NCC, 2017a), particularly to address safety concerns
- Include in the design a segregated pathways/ boardwalk: The functional requirements (see Section 7.3) provide for both a cycling lane and pedestrian boardwalk. The new design will provide enhanced opportunities to support active mobility, providing segregated safe lanes for cyclists, pedestrians, and motorists
- Accessibility: To ensure that active mobility users have access to the bridge and can use it as a safe connection across the river, the Planning and Design Principles for the bridge require that the highest standards of accessibility be met, and that safe and segregated travel lanes be provided for pedestrians and cyclists respectively

### 15.3.1.3 *Enhancement Measures*

The construction and operation of the new bridge will have a positive impact on the community. This Project will be designed to support active mobility and enhance the bridge's walkability compared to the current structure. Widened and segregated cyclist and pedestrian lanes are expected to promote use of active transportation modes and enhance the overall community's health condition.

In addition, the new bridge will be designed, as per the six Planning and Design Principles, to create a sustainable interprovincial transportation connection that will prioritize active mobility and highlight the symbolic importance of the site to all Canadians for many generations to come. The six planning and design principles are further described in Section 9.3.

## 15.4 Design and Heritage of Structure

### A short history of the Alexandra Bridge

In a time when shipping still reigned supreme, it was not without its drawbacks – most notably, the challenging and unpredictable Canadian winters. As the provinces of Ontario and Québec were developing rail networks of their own, the same waters that served as borders and a crucial shipping link in the early development of Canada now posed a new challenge for industry and nation-building alike. Stimulated by the desire for regional railway linkages as rail became increasingly important, the Alexandra Bridge was initiated as the second rail link across the river (the Prince of Wales Bridge, now William Commanda Bridge, opened in 1880 was the only one until then). Local support for the new bridge, including a cost-sharing arrangement with the city, led to an altered bridge design consisting of a widened deck to accommodate two electric streetcar tracks, two carriageways and ample pedestrian pathways, in addition to the planned railway. The bridge became the second crossing for people – only the Chaudière Bridge existed at the time to allow people/goods to travel across the river.

While the bridge was upgraded in the 1950s to carry pedestrian and vehicular traffic alongside the existing rail service, the development of a new, suburban train station in 1966 ushered in the end of rail for the Alexandra Bridge. In 1970, as part of the implementation of the Gréber Plan, the Canadian Pacific Railway ceased rail service on the bridge and the rails were removed. The Alexandra Bridge, about 70 years after becoming the first interprovincial rail bridge, was fully modernized for the age of the automobile and the expectations for the 21st century. Over 50 years after the last conversion of the bridge, the conversation has once again shifted to the future of the bridge and its role as a national symbol and vital piece of infrastructure.

### Heritage significance

The Alexandra Bridge is a unique and nationally significant engineering structure, a heritage and historical landmark, and a key element of some of the Capital's most iconic views. The bridge is an important example of a significant engineering work conceived by Canadian interests, designed by Canadian engineers and built by Canadian companies at a time when American and British expertise was dominant. It represents a major innovative engineering achievement for the era in which it was built, using leading-edge technology including all steel construction and the use of a through truss cantilever system with the deck carried mid-truss through the anchor and cantilever spans. It was the fourth largest span in the world in 1900.

The Alexandra Bridge has been designated as a National Historic Civil Engineering Site by the Canadian Society for Civil Engineering. The plaque mounted on the bridge reads as follows:

*Constructed using the most advanced technology available at the time, the Alexandra Bridge stands today as evidence of the outstanding ingenuity and foresight of Canadian engineers. G.Dunn Chief Railway Engineer, H.J. Beemer General Contractor, C.H. Deans Contractor Piers, Start of construction, February 1898, Inauguration March 1901, Commemoration, June 1995.*

### **Bridge design**

The setting for the bridge was a challenge from the outset, as construction was hampered by ice conditions, and the riverbed offered an unusual, unstable surface of saturated sawdust and other by-products of the lumbering industry to a depth of up to 60ft. (18.3m). The choice of a cantilever design for this location was in part to reduce the number of piers that would be exposed to extreme ice conditions, particularly in the deepest part of the channel, and to minimize the challenges associated with the construction conditions. Other factors influencing the choice of structural system were the government requirement for a clearance of 45ft (13.71m) above the average water line, and the restrictions on the grade imposed by the railway (Sherwood, 1901).

A specific innovation associated with the Alexandra Bridge that was also employed previously on the Forth Rail Bridge in Scotland (today a UNESCO World Heritage Site), is the placement of the deck “mid truss” within the structure. By this it is meant that the deck sits neither at the top nor at bottom of the truss. Rather the deck traverses the truss at a point above the lower chords. This placement effectively lifts the deck off of the piers and allows for greater clearance below the deck and suspended truss for the passage of large vessels. It also reduces the overall height of the bridge and requires less massive piers while maintaining the required clearance (Sherwood, 1901).

The bridge has a PSPC Rated “Level II” heritage rating (National Historic Importance) as it was deemed an outstanding example of the work of the Dominion Bridge Company, an internationally significant Canadian company that was responsible for the design and/or construction of some of the most important works of engineering in Canada from the 1880s through the 20th century.

As such, careful consideration must be given to the documentation and recording of the existing bridge, the preservation and enhancement of current views to and from the bridge, as well as to the use of materials (such as local stone in piers, steel in the structure) that take inspiration from and/or reuse of materials from the structure.

### **The cultural landscape context**

In addition to its design and aesthetic values, the Alexandra Bridge also forms part of a broader cultural landscape that includes the Parliamentary Precinct, numerous national cultural institutions, the Rideau Canal Locks (part of a UNESCO designated World Heritage Site and a National Historic Site of Canada: Rideau Canal WHS and NHSC) and the Ottawa River itself (which has been designated a Canadian Heritage River).

The Heritage Value Assessment Report (URS, 2010) identifies the following significant views from the bridge:

- The ascending ramp of the boardwalk along the bridge, just east of Laurier Street in Hull
- The high point of the ramp of the bridge's boardwalk, where a pedestrian obtains the first panoramic view of the Parliament Buildings and other national symbols
- Approximately mid-point on the bridge
- The viewing platform at the bridge's south end

The bridge has become integrated as an important part of the waterfront and river panorama and has had a powerful impact on the character of the city skyline. The bridge is highly visible from the Portage and Macdonald Cartier Bridges, the Rideau Canal, Jacques-Cartier Park, the Canadian Museum of History, Parliament Hill, the Supreme Court of Canada, Nepean Point and from along the Ottawa River. It also graces the cover of the NCC's Plan for Canada's Capital (NCC, 2017b). For both residents and visitors alike, the Alexandra Bridge has become a much-appreciated landmark and amenity from which to enjoy exemplary views from its wide promenade, including the entrance valley of the Rideau Canal World Heritage Site, the Parliament Buildings/Parliament Hill, the Supreme Court, the Chaudière District, and the Canadian Museum of History.

#### 15.4.1.1 *Potential Impacts*

Potential impacts and the mitigation measures discussed in this section are those anticipated from the project as defined to date. Comments received from initial public consultation outreach are used to inform next steps. Additional potential impacts will be identified as planning and design for the new structure progresses. These will be addressed as they are documented to ensure that the project remains responsive to changes.

The enhancement measures described in the following section are drawn from the Planning and Design Principles (full text provided in Appendix H).

##### 15.4.1.1.1 *Deconstruction and Construction*

#### **Heritage**

Based on initial public consultation, commemoration of the Alexandra bridge's history and built heritage were an important consideration. A strong message was received that the project represents a "loss of heritage" that will be felt in the Capital and beyond for this nationally significant bridge. A widely shared concern about the project involved the broader implications and risks tied to the bridge's role as a landmark and destination, as well as the loss of the unique character and heritage of the bridge and loss of scenic views.

The Project's implications for the bridge's-built heritage and history loomed especially large in the feedback provided by participants. Its loss was the most widely shared concern among respondents to the online questionnaire (identified by 64% of respondents), and a majority (50%) consider its commemoration to be very important.

As some respondents expressed throughout the survey, the Alexandra Bridge is, in their eyes, a national treasure and an iconic landmark whose replacement would constitute a significant loss. This was articulated both in terms of the bridge's intrinsic historical value, and the way it shapes the appearance and experience of the space it occupies.

Some respondents consistently expressed their opposition to the decision to replace the bridge and advocated instead for its restoration. A number of respondents were surprised by the decision to replace rather than rehabilitate the bridge and questioned the basis on which this decision had been made.

Respondents noted the important role that the Alexandra Bridge plays by providing beautiful views of important national landmarks, and by itself contributing to the beauty and patrimonial character of the area. Concern about the loss of these views and of the effects of replacement on the integrity of the surrounding landscape was widely shared by respondents.

History and heritage were also among the elements participants most frequently suggested that the new bridge's design should evoke, along with the surrounding landscape, sustainability, and design excellence.

## **Views**

Key observation points have been identified by the NCC along Confederation Boulevard, where exceptional views of the federal heritage buildings and cultural landscape of Parliament Hill can be experienced. Of these, five observation points could be affected by the project. These are the views from the approach to the Gatineau side bridge to the center of the bridge, as well as the views from the lookout near the approach to the Ottawa side.

A new bridge may impact the view protection strategy as identified in the document Visual Protection of the National Symbols in the National Capital Region, by changing the documented viewpoints and thus risking a change in the underlying premise of the view protection model. This is a very negative and serious impact that must be avoided.

### [15.4.1.1.2 Operation](#)

Design features and alignment alternatives are important considerations to ensure that the new bridge reflects the history of the site and commemorates the Alexandra Bridge. The choice of alignment will also impact the quality of views from different points.

### [15.4.1.2 Mitigation and Protective Measures](#)

## **Heritage**

Based on initial consultation outreach, a number of respondents thought that the design of the bridge should reflect the different histories that overlay the land on which it will be built within that region (309 mentions), of Indigenous Peoples (210 mentions), and of Canada (28 mentions).

Other suggestions in this vein focused instead on the bonds that have shaped collective histories, including the relationship between Quebec and Ontario (68 mentions) and the ties that contribute to unity at a national level (26 mentions). For many respondents, there is no better way to highlight local history and heritage than by having the new bridge emulate the Alexandra Bridge's design (368 mentions).

As part of the project, the IPT will document and record all elements of the existing bridge, preserve and enhance existing views to and from the bridge, and will use materials (such as local stone in piers, steel in the structure) that take inspiration from and/or reuse materials from the existing structure. Where deemed appropriate (and possible) interpretive panels and other items that preserve the memory, significance of the bridge as well as the heritage of surrounding areas, will be incorporated. The IPT will collaborate with museums to explore the possibility of a museum exhibit about the bridge.

Work has begun with the Royal Architectural Institute of Canada to establish a peer review panel, which will be engaged to provide independent advice to enable an appropriate response to the requirements for the preservation of heritage elements in the new build.

Other ideas brought forward by participants in outreach opportunities included the reuse of material as part of the new bridge, which the IPT intends to explore. Opportunities to retain existing materials and incorporate them into the design of the new bridge is an idea also being assessed. The broader use of such material will also be explored, where possible.

Heritage subject matter experts (SMEs) form part of the IPT and will provide advice and guidance on best practices/measures to respect and preserve the heritage value of the bridge. A Heritage Impact Analysis (HIA) is planned to help inform the conservation decision-making process by assessing the value of the Alexandra Bridge within its broader cultural landscape setting, and providing a comprehensive understanding of the heritage value and character-defining elements unique to the structure and its cultural landscape setting.

The HIA is anticipated to provide the following:

- An analysis and articulation of the Heritage Values and Character Defining Elements, including:
  - the existing Alexandra Bridge, from a local/community, National Capital Region, and national and international perspective
  - how the cultural resources within the study area contribute to the unique character of the cultural landscape within which the bridge sits
- Identification of the heritage impacts of the three main options to address the bridge condition, including:
  - Rehabilitation
  - replacement in kind
  - replacement with a new alternative signature bridge
- Proposed approaches to ensure that these values and elements are protected with any future intervention, including, among others:
  - material retention/reuse
  - design considerations, (including alignment considerations)
  - interpretation/commemoration opportunities, etc.

The HIA will endeavour to highlight additional specific considerations for this cultural landscape in providing a comprehensive analysis and corresponding recommendations, reflecting the full narrative of this iconic setting. An objective list of screening criteria, specific to the context and location of the bridge, will serve to evaluate alternative options and will include important considerations, such as: functional, economic, construction, maintenance and operations, environment, aesthetics, urban design, social and cultural significance, etc. The bridge's long service life and history of repair works is to be captured in the review and analysis of background documentation.

## Views

Contemplated changes in the alignment and the height of the bridge must consider the protection of the viewpoints as much as possible.

### 15.4.1.3 *Enhancement Measures*

The design of the new Bridge must preserve the visual integrity and symbolic importance of national treasures by protecting views to the Canadian Parliament and Parliament Hill. Existing views will be preserved and enhanced.

The visual integrity of cultural landscapes will be preserved by a harmonious integration of the new bridge with the urban and natural environment. This integration requires an appropriate mesh to the urban fabric, its scale and materiality, and underscoring the importance of the Indigenous community in this place.

The design of the new bridge will be geared towards preserving and celebrating the history of the current Alexandra Bridge, which was recognized worldwide for its innovative design at the beginning of the last century. This commemoration will be done, both by the design of an exceptional world-class new bridge, as well as by its architectural form. The bridge will also allow the installation of interpretive elements along the pedestrian route.

Building on and continuing the legacy of our national icons, the bridge will work both as foreground and a background, a sculpture and a setting to the experience of the nation's capital. Guiding Principle 4, Preserve Views and Celebrating the Legacy, of the Planning and Design Principles provide further guidance to the concepts that will be used in the development of the new bridge.

**The relationship between the bridge and its existing urban and natural environment context has been shaped by its place within the history of the capital landscape and the iconic bridge has emerged with a compatible and cohesive presentation unique to its setting.**

- Bridge designers should review heritage reports completed for Alexandra Bridge to understand the character-defining elements of the existing bridge and their collective contribution to the cultural landscape to ensure forthcoming designs do not introduce incompatible features to the setting in terms of size, scale or design.
- The visual integrity of the cultural landscape shall be preserved with a seamless integration of the new bridge into the existing and evolving urban and natural environment context.





**The new design, that will replace the existing steel structure, must build on its legacy and important historical context through a state-of-the-art world-class architectural and structural bridge design that is both a statement of the present time and reflective of the past.**

- The potential to reuse stones and other materials salvaged from the existing structure's deconstruction to create walls, staircases, benches, interpretive elements or to create a memory wall are encouraged to build on the memory and distinctiveness of the place.
- Opportunities to pay tribute to the surrounding heritage could be expressed in aspects such as materials, form, spatial organization, and interpretation offering visitors a rich experience aimed at expanding their understanding of the region's evolution.
- Future bridge construction activities must protect the rich archaeological resources of the river and shoreline, with archaeological sites to be managed in collaboration with the Algonquin Nation and in accordance with the Protocol for the Co-management of Archaeological Resources (2017) and Parks Canada's Cultural Resource Management Policy. (Parks Canada, 2017).
- An underwater archaeological survey of the riverbed within 30 to 50 metres of the two shorelines, along with a survey of the submerged concrete piers of the bridge, is recommended.
- A detailed archaeological study will be undertaken to identify all known archaeological resources and areas of pre-contact and historical archaeological potential to be avoided by project work as well as to determine remediation measures (e.g., rescue excavation and monitoring) for zones of archaeological sensitivity that cannot be avoided.

There is also an opportunity to develop a legacy public history initiative in the form of a book and/or online publication, to assemble, commemorate and celebrate the history of the Alexandra Bridge:

- The project could highlight why the bridge was built, its innovative design, the challenges in its construction, etc.
- Such an initiative could build upon innovative approaches that have been compiled from elsewhere, such as the Tacoma Narrows Bridges in Seattle (<https://www.wsdot.wa.gov/TNBhistory/Connections/entry.htm>). It could include a digital (web-based) component, as well as a published book.
- It could also solicit public inputs, such as memories, photos or artworks germane to the story. This would engage the public who had expressed their concerns about the bridge as an important heritage resource.

## 15.5 Archaeological Potential

The Alexandra Bridge is located within lands identified as ancestral territory of the Algonquin Nation, with the Ottawa region considered traditional territory. Long before French explorer Samuel de Champlain arrived in the area that is now known as Ottawa in the early 1600s, the region was inhabited by Indigenous Peoples. These Peoples were the region's first residents, often teaching skills to early newcomers such as how to navigate the mighty Ottawa River, survive the region's harsh winters and how to harvest the natural and seasonal food sources.



The Algonquin Nation has stewarded the Ottawa River Valley for thousands of years. The river is a defining feature of the Algonquin Nation territory and was historically fundamental for trading between nations. It is also considered a meeting and gathering place, with important sacred sites located within a short distance of the bridge.

Archaeologists have found pre-contact Indigenous campsites in this area dating as far back as 8,500 years, but the ancestors of the present-day Algonquin Nation have been here much longer. Strategically located at the confluence of the Ottawa, Rideau and Gatineau rivers, the region lies at the heart of a vast pre-contact communications and trade network spanning northeastern North America. Beginning about 6,000 years ago, goods, raw materials and ideas flowed into the region over long distances for 5 millennia, with indigenous groups from geographically widespread areas continuing to frequent the region well after the arrival of European settlers.

Although a considerable amount of information has been recovered from archaeological sites, our knowledge of the long history of occupation of the Ottawa Valley by Indigenous Peoples prior to the arrival of Europeans remains incomplete. Permanent settlement of the Capital region by Euro-Canadians began with the arrival in 1800 of Philemon Wright and his pioneers, who founded Wright's Ville on the Quebec side of the Chaudière Falls.

A major transportation route for the fur trade, missionaries and explorers during the 17<sup>th</sup> and 18<sup>th</sup> centuries, the Ottawa River also served as a principal artery for the 19<sup>th</sup> century lumber industry, fostering the construction of numerous sawmills, pulp-and-paper mills and later hydro-electric and other industrial developments with numerous docks and wharves extending into the river to support the enterprises that lined its shores in the Capital region.

The NCC's pre-contact archaeological potential map (refer to figure 15-8) indicates that this site is situated in an area ranging from medium to high potential for pre-contact archaeological resources. In Gatineau, the registered pre-contact site closest to the study area is the BiFw-23 site, located near the Maison Charron, in Jacques-Cartier Park South, about 250 metres north of the bridge (refer to Figure 15-8). BiFw-23 is part of a complex of 18 pre-contact sites extending north to the mouth of the Gatineau River. A pre-contact ossuary is also known to have been located on the southern edge of the Canadian Museum of History grounds, roughly 325 metres south of the bridge, on an ancient portage trail around the Chaudière Falls. It is thus likely that the land crossed by the Gatineau section of the Alexandra Bridge was repeatedly occupied during that pre-contact period, but any evidence of those occupations would have been destroyed by the long history of industrial development in the area, including the construction of the bridge. An archaeological salvage excavation carried out in 1983 on the site of the Canadian Museum of Man (now the Canadian Museum of History) revealed the foundations of buildings associated with the early lumber and later pulp industries (cf., *Archéologie des sites du Musée de l'Homme et de la Galerie nationale, Les recherches Arkhis, 1984, MCH Archives, Ms. 2455*). The subsequent construction of the museum, the Hull Marina and its parking lot would have severely disturbed or destroyed any historical archaeological resources of heritage value remaining on this parcel of land.

The City of Ottawa archaeological potential map shows the land around the Ottawa approach to the Alexandra Bridge as having archaeological potential, without distinguishing pre-contact from historical potential.

The NCC's analysis of past land use and occupancy of this area does not, however, support this interpretation. The NCC's pre-contact archaeological potential map shows this area as having a low potential for pre-contact archaeological resources. As well, The History of Major's Hill Park and Nepean Point (Manuscript Report No. 101, 1975), mentions that the Ottawa Improvement Commission's conversion of Nepean Point into a park between 1909 and 1912 involved grading and sodding the entire area. This work probably removed all pre-contact archaeological resources and almost all evidence of 19th century use of the point. The exception is the basement and four heating boilers of the Government Printing Bureau building, unearthed in 1983 by an archaeological salvage excavation of the proposed site of the National Gallery of Canada (see MCH Archives, Ms. 2455 cited above). Features, structures and pathways dating to the first half of the 20th century would also have been severely damaged or destroyed by later work on Nepean Point, such as landscaping around the Champlain monument and the construction of the Astrolabe Theatre. These features included an oriental fountain constructed in Osaka, Japan. Erected in the park in 1909, this fountain was dismantled and stored in 1925, reinstated sometime afterwards and removed again in 1961. The NCC's 2017 archaeological recommendations for the Nepean Point Revitalization Project consist of monitoring excavation work and landscaping around the second location of the fountain (its original location was destroyed by the construction of the National Gallery of Canada) and documentation of a lookout, latrine and associated stairs on the escarpment. However, monitoring of Project excavation work at the fountain's former location in 2021 revealed that this structure had been completely removed, thereby eliminating this area from further archaeological concern. No other locations of potential historical archaeological interest are identified on Nepean Point.

The City of Ottawa archaeological potential map suggests that remnants of historical shoreline structures as well as other archaeological remains may be present on the riverbed in the vicinity of the Alexandra bridge and Entrance Bay, leading to the Rideau Canal locks. The NCC supports this suggestion and considers the riverbed in the Gatineau portion of the study area to have similar archaeological potential. The submerged concrete piers of the bridge are also considered to be of archaeological interest.

To lay the piers directly on bedrock, special techniques were required to remove the refuse from the mills deposited on the riverbed. These deposits consisted mainly of sawdust, mixed with wood slabs and logs, and measured from 8 to 20 feet in thickness. An underwater archaeological survey of the inshore riverbed adjacent to the bridge's approaches and around its submerged concrete piers should be carried out prior to the initiation of the Project construction work.

The archaeological potential information will be validated as part of the Indigenous Community engagement process.



Although the NCC's pre-contact archaeological potential map shows the land around the Québec and Ontario ends of the Alexandra Bridge as having a low potential for pre-contact archaeological resources, several places of potential and known historical archaeological importance are located near the Ottawa approach to the bridge. These include:

- Steam ferry landing on the north shore of Entrance Bay. Ferry service between Bédard's Landing (now the site of the Canadian Museum of History), which began in the early 1820s and continued into the early 20th century. The location remained in use until at least the mid-1960s, with various structures being built along the shoreline over time.
- Lieutenant-Colonel John By's Estate. This estate included By's residence, separate quarters for his servants, a stable, latrines and several other outbuildings. Built in 1826, the house was occupied by Major Bolton after By's return to England in 1832 and was the home of Captain Ford when it burnt in 1848. In 1972 and 1973, the NCC and Parks Canada excavated the house ruins and a nearby midden, recovering 95,000 artifacts. The collection, though catalogued and well curated, has not been analyzed and no report of the excavations has ever been produced. The collection and original fieldnotes and drawings are currently housed at the NCC. Brief test pitting carried out by the NCC in 2016 indicate that the remains of the servants' quarters and the stable still exist.
- Artificial pond. A stone-lined pond was constructed over a natural spring in a ravine in the northeastern part of the park in 1876. The portion of the ravine in which the pond was built appears to have undergone little prior disturbance during the 19th century. Disturbance has been minor following the pond's infilling in 1945 and generally limited to the fill layer (e.g., installation of the sprinkler system). The edge of the former pond may, then, be surrounded by intact natural soils. The section of the ravine extending to the northwest from the pond has undergone considerable disturbance since the first quarter of the 19th century.

Should these or other locations of historical importance be threatened by work related to the Project, appropriate measures for the mitigation of the adverse effects of this work on these resources will need to be put in place.

In some cases, archaeological salvage excavations to recover artifacts may be necessary. Areas along the shoreline within Jacques-Cartier Park, shown in the Figure 13-2 are within the flood zone of the river and are owned by the Province of Québec. The bed of the river is owned by both the Provinces of Québec and Ontario. Should artifacts be threatened by construction activities on these lands, regulatory application for permits from the Ontario Ministry of Heritage, Sports, Tourism and Culture Industries (MHSTCI) under the *Cultural Heritage Law, Archaeological Research Regulation* or the Ministry of Culture and Communications (Quebec) (MCC) under the *Cultural Heritage Act* will be required. For archaeological resources within the river, the IPT will work with Parks Canada and both provinces to collaborate on recovery initiatives.



## Archaeological Map



**Figure 15-8: High potential for pre-contact archeological map**

### 15.5.1.1 Potential Impacts

#### 15.5.1.1.1 Deconstruction and Construction

Aside from the BiFw-23 site, the remainder of Jacques-Cartier Park South, including the Hull Marina, and the adjoining grounds of the Canadian Museum of History have a low potential for pre-contact and historical archaeological resources. No further archaeological investigation or monitoring of Project work in this area is recommended.

In the unlikely event that bridge replacement work extends onto Nepean Point, the NCC’s recommendations for the Nepean Point Revitalization Project will, if necessary, be implemented. As monitoring of excavation work around the former location of the oriental fountain has already been carried out, the remaining recommendations comprise documenting the lookout and associated structures on the escarpment. This activity will be carried out by a professional archaeologist.

The location of the former artificial pond retains medium potential for pre-contact and historical archaeological resources. It is recommended that any excavation work in this area related to the Project be monitored by a professional archaeologist.

Lieutenant-Colonel John By’s Estate is considered to have national, regional and local heritage value. To protect this site from the potential impacts of the Project, no excavation work or other activities related to the Project that may cause soil disturbance will be permitted within the limits of the site.



The shoreline of Entrance Bay bordering Major's Hill Park retains medium potential for historical archaeological resources, in spite of extensive landscaping in this area over the years. It is thus recommended that any excavation work or other activities, such as the installation of moorings, in this area related to the Project be monitored by a professional archaeologist.

The northernmost portion of Major's Hill Park has a low potential for pre-contact and historical archaeological resources. No further archaeological investigation or monitoring of Project work in this area is recommended.

The inshore portions of the Ottawa Riverbed on the Quebec and Ontario sides of the Alexandra Bridge are evaluated as having historical archaeological potential. An underwater archaeological survey of the riverbed within 30 to 50 metres of the shoreline on Entrance Bay, Nepean point and the northern end of the Canadian Museum of History grounds is therefore recommended. The submerged concrete piers of the bridge are also considered to be of historical interest and will be included in this survey.

As the Project becomes better defined, the IPT will continue to work with Indigenous partners to determine potential impacts on archeological resources and develop suitable recovery strategies.

#### 15.5.1.1.2 Operation

Once commissioned, operation of the bridge is not anticipated to have ongoing impacts to archaeological resources. The shoreline component may undergo active erosion particularly after significant flooding events. Annual monitoring by the NCC's Assessment and Rescue of Archaeological Legacy (ARAL) Project may be required. Any reinstatement and shoreline erosion measures proposed should be coordinated closely with ARAL rescue activities.

#### 15.5.1.2 Mitigation and Protective Measures

In accordance with federal, provincial and municipal regulatory requirements, mitigation and follow-up program measures to minimize the effects on archaeological resources may include:

##### **Protect and showcase archaeological artifacts and resources.**

- Develop a strategy that places priority on managing sites that are prone to erosion and may contain archaeological resources
- Conduct research to more accurately determine the extent of known archaeological sites
- Manage known archaeological sites in collaboration with the Algonquin people and in accordance with the Protocol for the Co-management of Archaeological Resources (2017) and the Parks Canada's Cultural Resource Management Policy (2013)
- Recognize and promote the educational value of archaeology and heritage

To protect the BiFw-23 site and zone of high pre-contact archaeological potential in Jacques-Cartier Park South from the impacts of the Project, no construction work or other activities, such as staging areas and fence installation, related to the Project that may cause soil disturbance will be permitted within the area outlined in the Figure 15-8. Access to the shoreline of this area for the purposes of the Project will also be prohibited.

The immediate surroundings of the Alexandra Bridge share the rich and unique history of the Capital Region's core sector. The preparation of an overview detailing the prehistory, historical developments and the past archaeological investigations undertaken within those surroundings is another recommendation to be taken into consideration. A document of this nature would be a fitting contribution to the legacy of the Alexandra Bridge.

#### 15.5.1.3 *Enhancement Measures*

Future bridge construction activities must protect the rich archaeological resources of the river and shoreline, with archaeological sites to be managed in collaboration with the Algonquin Nation and in accordance with the Protocol for the Co-management of Archaeological Resources, (2017) and Parks Canada's Cultural Resource Management Policy (Parks Canada, 2017).

An underwater archaeological survey of the riverbed within 30 to 50 metres of the two shorelines, along with a survey of the submerged concrete piers of the bridge, is recommended.

A detailed archaeological study will be undertaken to identify all known archaeological resources and areas of pre-contact and historical archaeological potential to be avoided by Project work as well as to determine remediation measures (e.g., rescue excavation and monitoring) for zones of archaeological sensitivity that cannot be avoided.





## 15.6 Navigation and Waterway Activities

In addition to its historical importance, the Ottawa River portion from Lake Timiskaming to East Hawkesbury was designated as a Canadian Heritage River in 2016 for its cultural heritage values. Boaters can reach Kingston via the Rideau Canal and Rideau River waterways which provide opportunities to enjoy unique heritage sites, discover the beauty of the cultural landscape and the charm of the locks while travelling through various small municipalities south of Ottawa. Boaters can also continue down the Ottawa River to reach Montreal.

As discussed in Section 15.5, for thousands of years, the Ottawa River Valley has been a meeting and gathering place as well as a trading route for the Algonquin Nation. There are many important sacred sites located within a short distance of the bridge, contributing to the Ottawa River continued significant cultural importance today. The IPT is sensitive to the potential impacts on Indigenous rights from the Project as a result of alterations to the riverbed, effects on the water quality and quantity as well as modifications to the shoreline. As the Project progresses through the planning and design stages, Indigenous partners will continue to be engaged to ensure that knowledge and information needed contribute to avoidance of impacts, if possible, or determination of acceptable approaches to mitigate them.

As a navigable waterway, a minimum clearance for a navigation channel is required with dimensions of 90 metres x 11 metres clearance from the river. Past study reviews of normal Ottawa River water levels, 100-year flood levels and predicted river level increases due to climate change have indicated that an elevation of 57.2 metres is required to ensure clearance over the river at the location of the navigation channel. The deepest channel is closest to the Ottawa shoreline under the suspended span of the bridge as shown in the Figure 9-1. The level for minimal clearance elsewhere is 46.2 metres.

### Conceptual bridge alignment

The two alternative bridge alignments presented in Section 10.2.1, curved and straight designs, show that the conceptual bridge could potentially have the same number of piers within the channel of the river as the current bridge. This will be confirmed as the design becomes further defined. The principal distinction between the two concepts is that the piers in the curved alignment would be in a different location compared to the straight alignment which uses the same alignment as the current bridge.

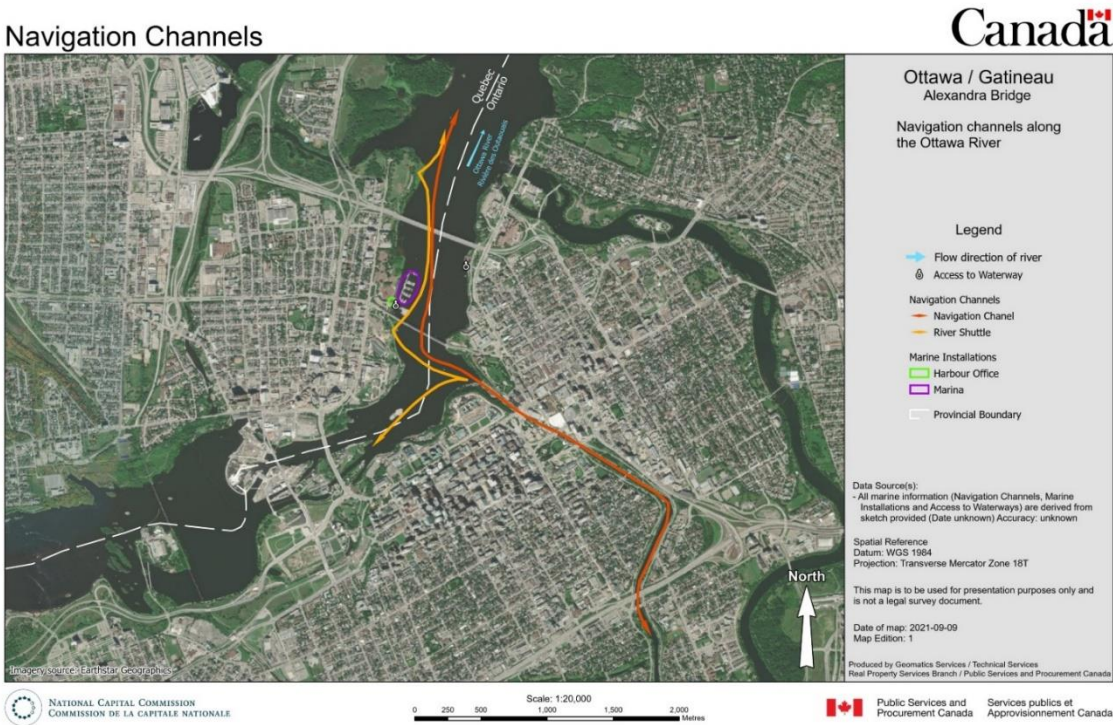
### Commercial and recreational users

The river shuttles and Aqua-Taxi act as an alternative mode of transportation between the shores of Ottawa and Gatineau. Figure 15-9 illustrates the waterway and the route of the river shuttle between the Canadian Museum of History, Jacques-Cartier Park and the locks.

In addition, boat trips are offered on the Ottawa River to discover and appreciate the capital's landscape from a different perspective. Tours normally depart at the bottom of the locks as well as from Hull Marina in Jacques-Cartier Park.

There are also several launch ramps and marinas that provide access to the river for diverse recreation activities including fishing and other aquatic activities.

## Navigation Channels



**Figure 15-9: Navigation channels along the Ottawa River**

### 15.6.1.1 *Potential Impacts*

#### 15.6.1.1.1 Deconstruction and Construction

Planning for the deconstruction and construction activities will take into consideration the need to maintain navigation opportunities. An adequate access route under the bridge will be provided for vessels that could be reasonably expected to navigate in the area.

Because of the complexity of the Project and the potential for a portion of the work to be completed from barges, heavy traffic along the river during the work to move materials and workers could occur. Short-term restrictions or closures have the possibility to temporarily disrupt commercial, tourism and recreational boating. Since the area around the bridge will be a construction zone, work in the water will require restrictions to public access for health and safety reasons which will limit recreational boating, fishing and other aquatic activities in the area.

A navigation management plan will be developed if required based on the construction approach and methods. Proposed temporary interruptions and closures will be well coordinated in advance with the various stakeholders involved including considerations such as:

- During the high season, navigation could be interrupted and accommodated with night closures on any day from 10 pm to 5 am
- During the off-season, temporary closures to navigation could be required and accommodated with weekend closures from Friday 10 pm to Monday 5 am

Commercial, tourist and recreational activities are anticipated to be affected during the construction process by the following activities:

- Site mobilization and construction of temporary facilities including selection of mobilization and laydown areas which will restrict access to the wharf in Jacques-Cartier Park
- Traffic and navigation maintenance, installation of signage
- Relocation and protection of public utility infrastructures
- Land clearing and soil stripping
- Construction of infrastructure
- Work in aquatic environments (during and post construction)
- Deconstruction of existing bridge
- Transportation, operation, and maintenance of machinery (during and post construction)

The wharf, boat launch and marina in Jacques-Cartier Park are within a space that could form part of the practical work area to support construction activities (see Section 10.5.1 for additional information). Public access to these facilities may not be possible due to public safety concerns. The NCC has agreements with tenants for those facilities which support local tourism businesses. These businesses may be impacted by construction activities. Engagement with affected stakeholders will be key to understanding potential impacts to existing commitments and businesses that are dependent on the Park's facilities to reconcile challenges and limitations and minimize potential impacts. Stakeholder engagement will also seek to determine alternative temporary or permanent relocation options for important infrastructure such as the wharf, boat launch, marina and parking areas to support continued operations during the construction period to inform the Project.

The Project may also impact the traditional travel routes of Indigenous groups and their use of waterways. Information will be sought from each of Indigenous Partners to understand the potential impacts and seek acceptable mitigation strategies.

#### 15.6.1.1.2 Operation

Following construction, impacts to navigation are anticipated to be similar to conditions that currently exist. The new design is expected to have taken into consideration navigation requirements to minimize the number of piers, and to locate them to maintain the minimum required clearance for a navigation channel. Current piers will also be deconstructed to a depth that will minimize the potential hazard to navigation outside the primary channel.

#### 15.6.1.2 Mitigation and Protective Measures

Documentation of the sizes and types of vessels stationed in the Ottawa area and/or likely to come into the area may be undertaken during the planning stages. In part, current ship traffic on the river will help to identify the fleet that uses the river and ensure that clearance requirements are considered during all stages of the Project.

If short-term interruptions to navigation are expected during any stage of the Project (deconstruction or construction), information will be provided regarding the length of time anticipated and how vessels will be informed or notified.



Mitigation measures will be implemented during the Project, in particular:

- When possible, keep a channel open for recreational boating, provide one or more marked channels to ensure safe passage and have the required notices to users of marinas and other anchoring facilities
- Communications with marinas in the vicinity of the work
- Issue notices to boaters regarding temporary and permanent obstructions
- Deconstruction of the piers of the present bridge will be completed to a depth required to ensure that the navigation channel is not obstructed and address potential hazards across the river
- Signage will be required during the Project to advise mariners of changes to navigation

#### 15.6.1.3 *Enhancement Measures*

A website and a telephone line will be available to provide information and record complaints from users. Any adjustments required as work progresses will be published.

Transport Canada's Navigation Protection Program will enforce conditions attached to authorizations under the *Canadian Navigable Waters Act*. Worksite visits could be carried out to ensure compliance with temporary mitigation measures and, if necessary, adjustments will be required to ensure the safety of recreational boating and commercial navigation.

During deconstruction of the existing bridge, bathymetric surveys could be required to ensure that the remains of the piers do not cause obstacles to navigation.

Guiding Principle 1, Mobility and Continuity of the Urban Fabric, of the Planning and Design Principles also provide direction for the conceptual design of the new bridge.

**The Bridge designs must accommodate vertical profiles that meet the minimum navigation channel requirements.**

- Special consideration must be given to the existing topographical changes and differences between the Ottawa and Gatineau shorelines. The layout of the bridge must consider the unique characteristics of the topography, riverbed, and geological conditions of the site.
- The new bridge design must allow for the navigability of the river to be maintained, comparable to current standards. A navigation channel of 90 metres (horizontal) by 11 metres (vertical), measured from the high-water mark, must be provided.

The NCC's Ottawa River North Shore Parklands Plan (NCC, 2018b) describes a site concept where the waterfront experience will be enhanced by nautical activities and the creation of spaces where users can come in contact with the Ottawa River and enjoy its natural features. This Plan describes a vision where the current business operating at the wharf and marina are engaged with the NCC in developing new facilities and services that support the creation of a port of call to receive recreational boaters from outside the region and offer recreational services and activities that are compatible with river boat-tour operations.

## Part D: Federal, Provincial, Territorial, and Municipal Involvement and Effects

### 16 FEDERAL FINANCIAL SUPPORT

This Project is being entirely funded via internal financing from Public Services and Procurement Canada.

Government policy direction for a holistic strategy to address repairs, replacement and operations for all five crossings in the NCR was provided to PSPC and the NCC in December 2018. The replacement of the Alexandra Bridge is a component of this holistic strategy and funding was provided to PSPC in Budget 2019 to plan and implement this Project.

### 17 REGULATORY REQUIREMENTS

If and when applicable, all permits, licenses, approvals and monitoring requirements under environmental laws and planning and heritage will be reviewed, confirmed and obtained prior to the construction of the Project. An outline of key federal, provincial and municipal legislation and regulations that are anticipated to apply to the proposed Project are outlined below.

The Project is following federal Impact Assessment requirements (and related federal requirements) and applicable requirements for Ontario and Québec, as described in the tables below. Under the *National Capital Act*, the Project is also following the requirements under the Federal Land Use, Design and Transaction Approvals (FLUDTA) as a Level 3 Project.

#### 17.1 Federal

The *Impact Assessment Act* (IAA) applies to Projects described in the Physical Activities Regulations, or as designated by the Minister. Section 48(a) of the *Physical Activities Regulations* includes the construction, operation, decommissioning and abandonment of a new international or interprovincial bridge or tunnel. Accordingly, this Initial Project Description is being submitted to fulfill the requirements for a designated Project to enable the Impact Assessment Agency of Canada (IAAC) to determine if the designated Project requires an impact assessment under the IAA.





Key federal permits and approvals potentially required for the Project are listed in Table 17-1.

**Table 17-1: Federal permits and approvals**

Permit / Act	Agency	Regulation	Project Activities	Stage of the Project
<b>Impact Assessment Act</b>	IAAC	Physical Activities Regulations SOR/2019-285	<p>The Project is a designated Project under the <i>IAA</i>. Section 48(a) of the Physical Activities Regulations includes the construction, operation, decommissioning and abandonment of a new international or interprovincial bridge or tunnel. The IAAC will determine if the proposed Project will require an impact assessment under the <i>IAA</i>, after submission of the Initial Project Description and Detailed Project Description.</p> <p>If the Project is not deemed to require a full Impact Assessment, the federal lands provisions of the <i>IAA</i> (Sections 81-91 of the Act) will apply. The IPT (and other applicable authorities) will be required to make a determination under these sections of the Act and propose measures to reduce and limit adverse impacts.</p>	Planning
<b>Federal Land Use, Design and Transaction Approvals (FLUDTA), National Capital Act</b>	NCC	<i>National Capital Act</i> (R.S.C, 1985, c. N-4), Section 12	<p>Before undertaking any works in the National Capital Region, PSPC, as a federal department and proponent for the Project, must receive approval from the NCC, per section 12 of the National Capital Act. The Alexandra Bridge Project is a level 3 Project under the Federal Land Use, Design and Transaction Approvals (FLUDTA) process. Level 3 Projects are major Projects with high symbolic value for the Capital and typically of higher complexity. Level 3 Projects are typically presented to the Advisory Committee on Planning, Design and Realty for review, and are</p>	Pre-Planning Planning, Detailed Design

Permit / Act	Agency	Regulation	Project Activities	Stage of the Project
			<p>submitted to the NCC Board of Directors for approval. Level 3 Projects also typically involve significant public and stakeholder consultation and Indigenous engagement, which is considered by the NCC in its review.</p> <p>The Alexandra Bridge replacement project will require approval by the NCC's Board of Directors at key stages of the project (refer to Figure 12-1). The 1st approval was provided in June 2021 for the Planning and Design Principles, and the next anticipated approval will be for a Conceptual Design option (still to be developed).</p>	
<b>Fisheries Act Authorizations</b>	DFO	<i>Fisheries Act</i> (R.S.C., 1985, c. F-14) Sections 35(1), 35(2)(b)	Depending on final design plans, and whether Project activities may adversely affect fish or fish habitat, an Authorization under the <i>Fisheries Act</i> may be required. In the event that Project activities will result in the harmful alteration, disruption or destruction of fish habitat, prior Authorization from the DFO will be required.	Planning, Detailed Design
<b>Canadian Navigable Waters Act Authorizations</b>	TC	<i>Canadian Navigable Waters Act</i> (R.S.C., 1985, c. N-22)	<p>This Act applies to work in, on, over, under, through or across any navigable water that is listed on the list of Navigable Waters.</p> <p>The Project takes place over and in the Ottawa River, which is a listed Navigable Water. A multiple span bridge over a Navigable Water is defined as a Major Works under the Major Works Order: SOR/2019-320.</p>	Planning, Detailed Design
<b>Species at Risk Act (SARA) Permit</b>	ECCC DFO	<i>Species at Risk Act</i> (S.C. 2002, c.29)	If the proposed Project destroys, harms or removes a species at risk (SAR) listed under the SARA (2002),	Detailed Design



Permit / Act	Agency	Regulation	Project Activities	Stage of the Project
			<p>or its habitat on federal lands, a SARA permit is required from ECCC.</p> <p>If the proposed Project destroys, harms or removes an aquatic SAR listed under the SARA (2002), or its habitat, a SARA permit is required from DFO.</p>	
<b><i>Migratory Birds Convention Act (S.C. 1994, c.22)</i></b>	ECCC – Canadian Wildlife Service	<i>Migratory Birds Convention Act (S.C. 1994, c.22)</i>	<p>Vegetation clearing or other work (such as removal of bridge structures that are home to nesting birds) that may result in the destruction or disturbance of a bird nest must occur outside of the active breeding window (i.e., April 15 to August 15). In the event that vegetation clearing, or other affecting activities must occur during the migratory bird breeding period, a certified avian biologist must complete a nesting survey within 24 hours of commencement of work to document the presence or absence of active nesting habitats. Where active nests are observed, protection in the form of setbacks and activity restrictions would be identified. There is no permitting process under the MBCA (i.e., destruction of nests is not permitted).</p>	Detailed Design

In addition to the above, it is important to note that:

- Through the Federal Heritage Buildings Review Office (FHBRO), Parks Canada provides:
  - criteria and a process for evaluating and designating heritage character
  - provides advice and recommendations to other departments
  - maintains a register of federal heritage buildings



Federal built heritage comprises the places, buildings and monuments that have been recognized as having heritage value. Parks Canada establishes national goals to protect federal heritage buildings and national historic sites.

- Parks Canada Agency is the federal government expert on the archaeological work that takes place on federal lands and federal lands underwater. As such, Parks may have a role in providing policy advice and joint preparation with the NCC of the Statement of Work for the archaeological consultant. An Archaeological Overview is the first step in identifying potential archaeological resources in the study area and will determine whether an Archaeological Inventory will be required.
- The Project will also account for and comply with the policies, regulations and obligations of federal departments that may exist under other applicable federal legislation, such as the *Accessible Canada Act (2019)*.
- Commemoration or interpretive features (e.g., panels, virtual site experiences, etc.) require review and sign off from Canadian Heritage.

## 17.2 Provincial

Since this Project straddles both Quebec and Ontario, both provincial permitting and approvals regimes are applicable, as discussed below.

The Project team will consult and work with all provincial regulators prior to submission of the Initial Project Description. The contact information will be provided once established, along with information such as timelines, required approvals, required consultation, and issues/effects that the regulatory oversight would manage.

### Québec

Based on preliminary design considerations, it is not anticipated that the Project will require a provincial Environmental Assessment (EA). However, divesting of provincial land may be required, which may trigger the need for an EA. This will be confirmed upon outreach, and if needed, requirements will be harmonized. For road infrastructure, Part II of the Environmental Quality Act (EQA) states that:

(3) the construction of a road designed for 4 lanes or more or whose planned right of way has a width equal to or greater than 35 m over a minimum length of 1 km situated within an urbanization perimeter indicated in the land use planning and development plan applicable to the territory concerned or to an Indian reserve.

The Project is designed for 2 lanes of vehicular traffic, right of way will be less than 35 m, and the length of the bridge will be less than 1 km therefore, the EQA does not apply.

In addition, for work in wetlands and bodies of water, Part II of the EQA states that:

(1) dredging, clearing, filling, or levelling off work, for any purpose whatsoever, within the 2-year flood line of a river or lake, over a cumulative distance equal to or greater than 500 m or over a cumulative area equal to or greater than 5,000 m<sup>2</sup>, for a same river or lake.

The Project is not anticipated to affect an area equal to or greater than 5,000 m<sup>2</sup>. Therefore, none of the thresholds above trigger the EQA, it is not anticipated that a provincial EA will be required.

Table 17-2 provides a summary of potentially applicable provincial permits/approvals for this Project within the province of Québec that may apply to this Project. As design progresses, this list may be modified accordingly.

**Table 17-2: Québec permits and authorizations**

Permit / Act	Agency	Regulation	Project Activities	Stage of the Project
<b>Environmental Quality Act Authorizations</b>	MEFCC	<i>Environmental Quality Act</i> (CQLR c Q-2), Section 20 and 22	On lands other than federal lands, a ministerial authorization under Section 22 of the EQA is required for certain activities. Section 20 states no one may release or allow the release into the environment of a contaminant in a quantity or concentration greater than that determined in accordance with this Act.  For federal lands, the Impact Assessment process is considered an equivalent process. The MEFCC will be invited to join the subject matter expert group to review and comment on the Impact Assessment.	Detailed Design
<b>Archaeological research permit, Cultural Heritage Law</b>	Ministry of Culture and Communications (Quebec) (MCC)	<i>Cultural Heritage Law</i> (P-9.002) Archaeological Research Regulations (P-9.002, r. 2.1)	Applicable to provincial lands, which in the present study area including shoreline and riverbed. To protect the cultural and archaeological heritage, a permit is necessary before undertaking any archaeological work in	Detailed Design / Pre-Construction

Permit / Act	Agency	Regulation	Project Activities	Stage of the Project
			<p>the field, anticipated to be required prior to construction commencement.</p> <p>For federal lands, NCC will rely on Parks Canada's federal archaeological process, replacing the provincial process with an Archaeological Overview and, if deemed necessary, an Archaeological Inventory.</p>	
<b>Act Respecting Threatened or Vulnerable Species Authorizations</b>	MEFCC, Ministry of Forests, Wildlife and Parks (Quebec) (MFWP)	<p><i>Endangered or Vulnerable Species Act</i> (E-12.01) Regulation respecting threatened or vulnerable wildlife species and their habitats (E-12.01, r. 2)</p> <p>Regulation respecting threatened or vulnerable plant species and their habitats (E-12.01, r. 3)</p> <p>List of plant and wildlife species which are likely to be designated as threatened or vulnerable (E-12.01, r. 5)</p>	An authorization would be required if the Project were to kill, damage, harass or capture designated species or damage or destroy their habitat. In case of work outside federal lands, the contractor must comply with it.	Detailed Design / Pre-Construction
<b>Act Respecting the Conservation</b>	MFWP	Act respecting the conservation and development of	No person may, in a wildlife habitat, carry on an activity that may alter	Detailed Design / Pre-Construction

Permit / Act	Agency	Regulation	Project Activities	Stage of the Project
<b>and Development of Wildlife Authorization</b>		wildlife (C-61.1), Section 128.6.	any biological, physical or chemical component peculiar to the habitat of the animal or fish concerned. A 'SEG' permit may be required for electrofishing.	
<b>Act Governing use of Public Lands</b>	MFWP	<i>Act Respecting the Lands in the Domain of the State</i> (c T-8.1)	This Act applies to all lands that form part of the domain of the State, including the beds of watercourses and lakes. The Minister may gratuitously transfer land or grant a servitude to a local municipality where it is required for the development of roads or public transport	Detailed Design / Pre-Construction

## Ontario

Based on preliminary design considerations, it is not anticipated that the Project will require a provincial EA under the Ontario *Environmental Assessment Act* (EA Act). Since the proponent of this Project is PSPC and the NCC, the bridge replacement would not be considered an undertaking to which the EA Act would apply. The Project team has reached out to the Ontario Environmental Assessment Program to notify them of the Project and confirm the team's understanding of applicable provincial requirements.

It should be noted that the Ontario government has recently amended the EA Act (July 2020), and with the recent changes, a "Project List" will be developed through future regulations that would identify Projects subject to the EA Act. At this time, a draft "Proposed Comprehensive Environmental Assessment Project List" has been released for public comment on the Environmental Registry of Ontario (ERO# 019- 2377). While not yet in force, this Project is not a listed Project on the draft Project List and therefore is not anticipated to trigger the need for a comprehensive EA (although any updates should be monitored and application of the Project to the EA Act confirmed with the MECP). It should be noted that the EA Act contains measures to harmonize and align with the *Impact Assessment Act* in an effort to reduce duplication (i.e., with federal approvals) and allow for substitution where both Ontario and federal IA requirements apply (i.e., one harmonized process that requires two decisions). If this Act applies to the Project, efforts to coordinate with the federal process would be encouraged.

Table 17-3 provides a summary of potentially applicable provincial permits/approvals for this Project within the province of Ontario that may apply to this Project. As design progresses, this list may be modified accordingly.

**Table 17-3: Ontario permits and authorizations**

Permit / Act	Agency	Regulation	Project Activities	Stage of the Project
<b>Endangered Species Act Letter of Advice or Overall Benefit Permit</b>	Ministry of the Environment, Conservation and Parks (MECP)	<i>Endangered Species Act</i> , 2007 (S.O. 2007, c.6) Sections 16 to 20 O. Reg. 230/08 O. Reg. 4/12	Letter of Advice or Permit under the <i>Endangered Species Act</i> if the Project affects a species that is listed on the Ontario SAR list and is listed as an extirpated, endangered, or threatened species.	Detailed Design / Pre-Construction
<b>Ontario Water Resources Act Permit to Take Water or (PTTW)</b>	MECP	<i>Ontario Water Resources Act</i> Ontario Regulation 387/04 - Permit to Take Water (PTTW)	The nature and extent of dewatering activities for this Project are not yet known, though temporary dewatering may reasonably be anticipated during construction of bridge piers. It is anticipated that a Permit to Take Water (PTTW) will be required for construction activities but will be confirmed during detailed design.  Where Project construction requires water takings (pumping, draining, dewatering), up to 50,000 L/day require no permit/registration, takings between 50,000 and 400,000 L/day require registration (EASR), takings over 400,000 L/day require a permit (PTTW)	Detailed Design / Pre-Construction
<b>Environmental Protection Act Environmental Compliance Approvals</b>	MECP	<i>Environmental Protection Act</i> (R.S.O., 1990, c.E.19) – Part II, Section 9	Environmental Compliance Approval under the <i>Environmental Protection Act</i> may be required for the	Detailed Design / Pre-Construction

Permit / Act	Agency	Regulation	Project Activities	Stage of the Project
<b>(ECA) for Wastewater, Waste, Air, and Noise</b>		O. Reg. 255/11 O. Reg. 419/05	following activities: to facilitate stormwater management and to facilitate temporary on-site sewage and water treatment facilities.	
<b>Environmental Protection Act ECA, Water Treatment,</b>	MECP	<i>Environmental Protection Act</i> (R.S.O., 1990, c.E.19) Part II.1, Section 20.2 Ontario Water Resources Act (R.S.O. 1990, c.O.40) Section 53(1)	If a temporary sedimentation basin is used outside federal land, an ECA for the sanitation works will be required from the MECP to authorize the construction, operation and discharge of the temporary settling basin.	Detailed Design / Pre-Construction
<b>Archaeological clearance under the Ontario Heritage Act (OHA)</b>	Ministry of Heritage, Sports, Tourism and Culture Industries (MHSTCI)	<i>Ontario Heritage Act</i> (R.S.O. 1990, c. O.18)	On lands other than federal lands: disturbance of land that possesses archaeological potential requires the prior completion of appropriate archaeological assessments prior to disturbance. This applies in the present study area to the riverbed. On federal lands, NCC will rely on Parks Canada's federal archaeological process, replacing the provincial process with an Archaeological Overview and, if deemed necessary, an Archaeological Inventory.	Detailed Design / Pre-Construction
<b>Review of Built Heritage and Cultural Landscape under the OHA</b>	MHSTCI	<i>Ontario Heritage Act</i> (R.S.O. 1990, c. O.18)	In case of work outside federal lands, a Heritage Overview may be required to determine the presence of built	Detailed Design / Pre-Construction



Permit / Act	Agency	Regulation	Project Activities	Stage of the Project
			heritage and cultural landscapes, If identified, a Cultural Heritage Assessment Report is required to determine the effects of the Project on heritage resources and recommend mitigation measures, if necessary.	
<b>Occupy Public Lands</b>	Ministry of Natural Resources and Forestry (MNRF)	<i>Public Lands Act (R.S.O. 1990, c. P.43)</i>	The Province of Ontario owns the bed of the Ottawa River within its jurisdictional boundary. Bridges are prescribed structures under this legislation. An authorization to occupy public lands under section 21.1 of the Act will be needed for piers and other permanent infrastructure located on the bed of the river.	Detailed Design / Pre-Construction

The contractor will be required to abide by all applicable municipal, provincial and federal regulations, including, but not limited to:

- Soils and excavated material disposal to licensed facilities
- All applicable health and safety regulations
- Obtain materials from authorized facilities, such as aggregates from sources duly authorized under the applicable regulations (*Aggregate Resources Act*)
- Respect all applicable municipal by-Laws

### 17.3 Municipal

Given the Project’s footprint, ongoing discussions are occurring with the City of Ottawa and the City of Gatineau.

All applicable Acts, By-laws, Zoning By-laws, licenses, permits and regulations will be adhered to, where applicable.

The IPT will continue to consult and engage with both Cities, Ottawa and Gatineau, including their respective Committees (e.g., Built Heritage Sub-Committee, Planning Committee and other committees as required) throughout the life of the Project. It is recognized that heritage planning is of importance to all levels of government and as such, is a fundamental part of the Project.



## Part E: Potential Effects of the Project

### 18 POTENTIAL ENVIRONMENTAL IMPACTS ON INDIGENOUS PEOPLES

The following potential impacts to Indigenous Peoples have been identified along with possible mitigation measures. These impacts have been compiled based on:

- The IPT's experience where engagement with Indigenous communities for such Projects as the LeBreton Flats redevelopment, Nepean Point, Pangishmo Park, Victoria Island, Chaudières Falls, the Energy Services Acquisition Program, increasing public access to the Ottawa River shoreline, and the Timiskaming Dam-Bridge of Quebec Replacement Project yielded valuable understanding
- Reviews of literature and other Project reports
- Knowledge of relevant federal legislation
- Engagement with the Indigenous communities and organizations identified in Section 4.3

As a starting point, the IPT considered the potential impacts, mitigations and enhancements listed in Section 15 of this report and considered which might affect the identified Indigenous communities and organizations. Engagement meetings and correspondence with the identified Indigenous communities and organizations provided perspectives on the areas highlighted and summarized in Table 18-1.

The potential environmental impacts listed within this section are reflective of the input during engagement with the Indigenous Communities identified in sections 18.2 and 18.5. Although the IPT has initiated engagement with various communities, as highlighted in section 4.3, detailed discussions have taken place with those listed (herein). Engagement with all communities is ongoing and it is anticipated that other impacts, along with mitigation measures will form part of future discussions.

PSPC and the NCC recognize that the potential impacts, mitigations and enhancements identified to date from Indigenous engagement and their own planning are preliminary. The studies to be undertaken during the Impact Statement phase, especially the studies led by the Indigenous communities and organizations, will identify more issues and require exploration of more mitigation and follow-up measures.



## 18.1 Proponent’s Initial Assessment of Impacts on Indigenous Peoples – Changes in the Environment

Table 18-1: Overall changes

Subject	Potential Impacts on Environment	Potential Impacts on Indigenous People	Mitigation	Enhancement Measures
<b>Physiography, Geology, and Hydrogeology</b>  <b>Physiography, Geology, and Hydrogeology</b>  <b>14.1.3</b>	<p>An uncontrolled discharge of water during dewatering could cause localized downstream flooding, erosion or sedimentation.</p> <p>If shallow overburden is encountered, disturbance to overburden during bridge deconstruction or construction may cause soil erosion and slumping during construction that may require rehabilitation, specifically in the steep area adjacent to the river.</p>	<p>Flooding and erosion may affect water quality downstream which could result in adverse impacts to fish and fish habitat. This would have impacts on fishing.</p>	<p>Installation of erosion and sediment controls and ensuring that discharge water is properly filtered (i.e., filter bags, discharge across grassed areas, check dams) prior to discharge to the Ottawa River</p>	
<b>Drainage and Surface Water</b>  <b>14.1.4</b>	<p>The construction stage of the Project has the potential to result in bed and bank disturbance/erosion, which may result in potential turbidity</p>	<p>Flooding and erosion may affect water quality downstream which could result in adverse impacts to fish</p>	<p>An Environmental Protection Plan (EPP) will be developed for the Project. The EPP will outline the proposed environmental protection measures</p>	<p>The proposed bridge deck will incorporate stormwater management features to direct runoff from the bridge</p>

Subject	Potential Impacts on Environment	Potential Impacts on Indigenous People	Mitigation	Enhancement Measures
	<p>spikes, TSS loading and overall sedimentation.</p> <p>The fluvial geomorphology, flow conveyance and water velocity of the river may be impacted by the removal of the existing bridge piers and design/installation of the new piers, with possible impacts on erosion and sedimentation rates, and on ice jam formation and separation.</p> <p>Potential for a contaminant spill during a large storm event.</p>	<p>and fish habitat. This would have impacts on fishing.</p> <p>Discharge of contamination in the water could be absorbed by fish, making them unfit for human consumption. This would impact the ability of communities to harvest fish.</p>	<p>and commitments to be carried out by the contractor during construction to avoid or reduce potential effects.</p> <p>An Erosion and Sediment Control (ESC) Plan will be developed, implemented and enforced during construction.</p> <p>Discharge from dewatering/unwatering activities should be treated and released to the environment at least 30 m from local watercourses or wetlands and allowed to drain through a well-vegetated area.</p> <p>Environmental monitoring will be implemented to confirm appropriate mitigation measures are in place, maintained and functioning during the construction stage.</p> <p>Implement spill management protocols such as secondary containment of any temporary fuel storage</p>	<p>surface to limit the potential contaminants from directly entering the Ottawa River.</p> <p>Bridge replacement allows for potential creation of improved riverine habitat and shoreline restoration. A thorough assessment of the proposed bridge abutment design should be conducted to enhance the design so that riverbed scour around the abutments is decreased to the extent possible. Considering natural channel design principles and best practices during the design stage of the Project may provide</p>



Subject	Potential Impacts on Environment	Potential Impacts on Indigenous People	Mitigation	Enhancement Measures
			<p>and preparation of a spill response plan.</p> <p>Installation and monitoring of turbidity curtains to prevent the release of turbid water.</p> <p>Prior to being demolished, the existing concrete piers should be isolated from the stream flow. Pier deconstruction and removal will require the use of cofferdams and/or turbidity curtains to contain the construction waste. Similarly, cofferdams or equivalent will be required when installing the new bridge piers to create a dry work zone for curing the concrete.</p>	<p>potential to enhance the existing river shoreline and associated aquatic habitat.</p>
<p><b>Vegetation</b></p> <p><b>Section 14.2.1</b></p>	<p>Potential impacts on vegetation and ecological communities resulting from the deconstruction of the existing bridge and construction of the new bridge include changes to community diversity, species diversity, and introduction or</p>	<p>Changes to riparian vegetation communities along the shoreline may affect water quality downstream which could result in adverse impacts to fish and fish habitat. This would have</p>	<p>A pre-construction survey of the development footprint of the Project will be undertaken to confirm the presence or absence of vegetation species at risk.</p> <p>Avoidance and protection of any species at risk through protection design and</p>	<p>Any trees to be removed will be compensated at a minimum ratio of 2:1</p>



Subject	Potential Impacts on Environment	Potential Impacts on Indigenous People	Mitigation	Enhancement Measures
	<p>spread of invasive species.</p> <p>Activities related to construction may result in the removal and degradation of vegetation along the shoreline of the Ottawa River.</p> <p>Construction activities may encroach on species at risk plants.</p>	<p>impacts on fishing.</p>	<p>construction separation.</p> <p>If it is determined that SAR plants are present and will be impacted, appropriate SAR permitting and mitigation plans will be developed for the specific species, including exploring opportunities to transplant individual SAR.</p> <p>An invasive species management plan will be developed as part of the EPP to mitigate the spread of invasive species.</p>	
<p><b>Wildlife and Wildlife Habitat – Migratory Birds and Species at Risk</b></p> <p><b>Section 14.2.2</b></p>	<p>Bridge deconstruction may disrupt nesting opportunities of some migratory birds or bird species at risk</p>	<p>Loss of habitat or nesting opportunities for species that can be harvested for food may impact hunting opportunities.</p>	<p>Wildlife and wildlife habitat protection and mitigation measures will be included as a component of the EPP to identify specific wildlife protection measures to be implemented during construction.</p> <p>Detailed design of the construction area will be reviewed to avoid and reduce impacts on wildlife habitat and</p>	<p>Compensation for removal of SAR habitat may be required.</p>





Subject	Potential Impacts on Environment	Potential Impacts on Indigenous People	Mitigation	Enhancement Measures
			<p>vegetated areas to the extent possible.</p> <p>Construction activities with the potential to remove migratory bird habitat, such as vegetation clearing, will be avoided to the extent possible during the breeding season.</p>	
<p><b>Fish and Fish Habitat</b></p> <p><b>Section 14.2.3</b></p>	<p>During deconstruction, equipment operation and deconstruction activities may interfere with existing habitat in the vicinity of the piers.</p> <p>Debris generated during deconstruction may enter the water column and rest on the riverbed.</p> <p>Construction of new piers may disturb the riverbed and existing habitat.</p> <p>Construction may result in bed and bank disturbance/erosion which can result in turbidity spikes, TSS</p>	<p>Flooding and erosion may affect water quality downstream which could result in adverse impacts to fish and fish habitat. This would have impacts on fishing.</p>	<p>Timing windows for in-water works will be determined with approval authorities during the detailed design stage.</p> <p>During in-water construction activities, turbidity will be monitored daily to confirm there are no increases as a result of Project construction. A spill prevention and management plan will also be developed for the Project.</p> <p>Fish and mussel rescues from the dammed area prior to complete dewatering, and the use of low impact dam materials such as Aqua-Barrier or Aqua Dam coffer dams.</p>	<p>A structure that will result in a reduction of the number of supporting piers will decrease the footprint of impact on physical fish habitat and allow for rehabilitation and restoration of fish habitat in areas where piers are removed.</p> <p>Through the implementation of habitat creation, restoration and other offsetting measures, impacts from this Project on fish and fish</p>



Subject	Potential Impacts on Environment	Potential Impacts on Indigenous People	Mitigation	Enhancement Measures
	<p>loading and overall sedimentation, all of which can be detrimental to physical habitat structure (e.g., spawning beds) as well as to the physiological processes of fish. Increased sediment loading can cause gill abrasion and may force fish to avoid the area.</p>		<p>A turbidity curtain would be installed around the perimeter of the in-water work zone to further promote isolation of the construction zone, as well as reduce water quality impacts and the downstream migration of silt and sediment from dewatering activities.</p> <p>Mitigation measures for the prevention of excessive sedimentation and debris encroachment are similar to those employed to consider water quality impacts.</p>	<p>habitat to achieve net environmental benefits may be positive over the long-term.</p> <p>There may be an opportunity for works with environmental benefits to be completed as part of this Project to offset some of the cumulative impacts of urban developments in this region.</p>
<p><b>Archaeological Resources</b> <b>Section 15.5</b></p>	<p>Construction activity could damage evidence of the activity of Indigenous Peoples that is of historical and cultural significance</p>	<p>Damage to historical and cultural Indigenous archaeological resources would represent a significant loss.</p>	<p>If Indigenous archaeological resources are discovered during deconstruction or construction, work in the area will be halted and not resumed until measures for the protection and management of the resources have been put into place.</p> <p>Indigenous communities will be informed and included in archaeological</p>	



Subject	Potential Impacts on Environment	Potential Impacts on Indigenous People	Mitigation	Enhancement Measures
			<p>reviews, determination of measures for protection and management, the review of reports, the disposition of artifact collections recovered from the site.</p> <p>Human remains will be managed according to the Protocol for the Co-Management of Archaeological Resources, signed in 2017 by the NCC, Kitigan Zibi Anishinabeg First Nation and the Algonquins of Pikwakanagan First Nation.</p>	



## 18.2 Identification of Potential Impacts on the Environment – Kebaowek First Nation

As part of the Indigenous Engagement process, the Kebaowek First Nation, identified valued components and concerns based on information shared to date. The information below will serve to assist in the development of appropriate and suitable mitigation measures to address the potential impacts of the Project.

### **Project Activity: Concept Design Stage**

#### **Valued Component: Indigenous rights – fish harvesting**

**Concern:** The design of the replacement bridge could impede the movement of aquatic species throughout the Ottawa River watershed.

#### **Initial Responses:**

- The bridge design will consider the impacts to fish and fish habitat. A reduction in the number of supporting piers will decrease the footprint of impact on physical fish habitat in the river.
- The bridge will be designed to not, at any point, impede or restrict the movement of aquatic species throughout the Ottawa River watershed, (such as a dam might). Construction methods to be used will not impede movement of species, neither will the design and long-term operations.
- The Project will be reviewed in detail by the Department of Fisheries and Oceans (DFO) and is expected to require a Fisheries Act authorization. This Act and authorizations under it will ensure all potential impacts to fish and fish habitat activities are thoroughly evaluated, and that any impacts will then be reduced and mitigated.

**Concern:** First Nation must have the right to review and approve mitigation measures.

#### **Initial Responses:**

- Throughout the process, the IPT will engage and discuss with Indigenous groups about the proposed mitigation and enhancement measures to ensure these are adequate and to reasonably meet all concerns, and informed by indigenous knowledge, perspective and advice.

### **Project Activity: Construction Stage**

#### **Valued Component: Indigenous rights – fish harvesting**

**Concern:** Construction activities could damage spawning grounds and fish habitat in the vicinity of the bridge, harming fish populations throughout the Ottawa River watershed.

### Initial Responses:

- Given the nature and scope of this Project, it is probable that as a result of construction activities, there could be some damage to spawning grounds and fish habitat in the vicinity of the bridge, along with aquatic species, throughout the Ottawa River watershed
- The Project will be reviewed in detail by DFO and is expected to require a *Fisheries Act* authorization. This Act and authorizations under it will ensure all potential impacts to fish and fish habitat for all construction activities are thoroughly evaluated, and that impacts are reduced and mitigated. If impacts cannot be adequately reduced or mitigated, we will work with DFO and our interested partners to propose compensation and/or habitat offset measures, as required
- An Environmental Protection Plan (EPP) will be prepared, which will stipulate the environmental protection measures and commitments to be carried out by the contractor during construction.
- Once bridge design is advanced and construction activities and methods are determined, potential significant negative impacts on water temperature and flow levels in the vicinity of the bridge will be further evaluated, along with linkages to other potential impacts (disturbances to aquatic species, erosion of riverbank, etc.)
- Wherever possible, in-water construction activities will be timed to avoid sensitive fish-spawning windows to reduce harm to fish populations. Timing windows for in-water works will be determined with approval authorities during the detailed design stage. (Section 15.2.3.4)
- Fish and mussels will be removed and/or rescued from the coffer-dammed area prior to complete dewatering, and the use of low impact dam materials such as Aqua-Barrier or Aqua Dam coffer dams will be preferred. (Section 14.1.4)
- A turbidity curtain (or other equivalent measure) around the perimeter of the in-water work zone will isolate the construction zone, reducing water quality impacts and the downstream migration of silt and sediment from dewatering activities. (Section 14.1.4)
- During in-water construction activities, turbidity will be monitored daily to confirm there are no increases as a result of construction. A spill prevention and management plan will also be developed for the Project. (Section 14.1.4)
- See Section 14 of the IPD for additional details on the Bio-Physical environment and proposed mitigation and enhancement measures

**Concern:** Construction activities could have negative impacts on water temperature and flow levels in the vicinity of the bridge, affecting fish spawning in the area.

### Initial Responses:

- Once bridge design is advanced and construction activities and methods are determined, potential significant negative impacts on water temperature and flow levels in the vicinity of the bridge will be further evaluated, along with linkages to other potential impacts (disturbances to aquatic species, erosion of riverbank, etc.). Appropriate mitigation measures will be established to address the impacts.



**Project Activity: Operations Stage**

**Valued Component: Indigenous rights – fish harvesting**

**Concern:** Need for fish habitat restoration and monitoring after completion of construction.

**Initial Responses:**

- Once further information is known on impacts, and if required, the IPT will be proposing a monitoring plan to monitor the effectiveness of mitigation measures and ensure that there is no long-term harm to fish (and other aquatic species) throughout the Ottawa River watershed.
- After completion of pier construction, areas affected by construction that can be rehabilitated will be restored. PSPC will consider enhancing fish habitat taking into account advice and recommendations from partners, DFO, and experts.
- Through the implementation of habitat creation, restoration and other offsetting measures, impacts from this Project on fish and fish habitat to achieve net environmental benefits may be positive over the long-term.

### **18.3 Identification of Potential Impacts on the Environment – Algonquins of Pikwakanagan First Nation**

Valued components and concerns identified by Algonquins of Pikwakanagan First Nation based on meetings held to date are described below.

**Project Activity: Concept Design Stage**

**Valued Component: Indigenous rights**

**Concerns:** Algonquins of Pikwakanagan First Nation will consider a full range of environmental studies that it may undertake, including a cumulative effects study on the legacy of the effects from all structures built in the Ottawa River needs to create a position to manage the environmental assessment activities for five years.

Algonquins of Pikwakanagan First Nation will assess its budget needs and bring the information forward. Specific comments about potential impacts cannot be made until more information about the bridge replacement is available.

Specific comments about potential impacts cannot be made until more information about the bridge replacement is available.

**Initial Response:**

- Agreed. Funding will be made available from PSPC and the NCC for the studies to be led by Algonquins of Pikwakanagan First Nation and for the new position. Information about the replacement bridge will be shared as it is developed.

**Concern:** The Ottawa River is of great importance to Algonquins of Pikwakanagan First Nation, from its historic role in transportation, commerce and harvesting, to its significance today for sustainable living. The current community location was not chosen by them they were forced to move there. The relocation has had historic impacts on health and social traditions, and the community is trying to reclaim its traditions.

**Initial Response:**

- Understood. PSPC and the NCC are committed to supporting reconciliation between the Crown and Indigenous communities and will work with Algonquins of Pikwakanagan First Nation to ensure the replacement bridge and other crossings Projects have positive benefits for Indigenous people.

**Valued Component: Cumulative effects assessment**

**Concern:** The cumulative effects assessment is linked to recognition and support for Indigenous rights and could be vital in providing recommendations concerning mitigation and compensation related to the Project and the NCA crossings program of work.

**Initial Response:**

- Agreed that Algonquins of Pikwakanagan First Nation should commence the cumulative effects assessment and that funding will be provided by PSPC and the NCC.

**Concern:** Algonquins of Pikwakanagan First Nation’s intention is to undertake its cumulative effects assessment before the IPT does one to fulfill its impact statement responsibilities, as well as provide information early in the assessment process, whereby the results can inform future assessments undertaken by the IPT.

Algonquins of Pikwakanagan First Nation is prepared to commence the work to select a consultant and begin the assessment.

**Initial Response:**

- Agreed.
- Funding will be provided by the IPT.

## **18.4 Identification of Potential Impacts on the Environment – Algonquins of Ontario**

Valued components and concerns identified by Algonquins of Ontario based on meetings held to date are described below.

**All Stages:**

**Valued Component: Indigenous rights – aquatic environment**



**Concerns:** Need for funding to support the Kichi-Sibi Guardians Contract to assist with baseline, construction, post-construction and follow-up monitoring activities for the Project.

**Initial Response:** Agreed. Funding will be made available from PSPC and the NCC for this purpose.

**Planning and Design, Detailed Design:**

**Valued Component:** Indigenous rights – aquatic environment

**Concerns:** The design of the replacement bridge could impede the movement of aquatic species throughout the Ottawa River watershed

**Initial Response:** The bridge design will consider the impacts to fish and fish habitat. A reduction in the number of supporting piers will decrease the footprint of impact on physical fish habitat in the river.

The bridge will be designed to not, at any point, impede or restrict the movement of aquatic species throughout the Ottawa River watershed, (such as a dam might). Construction methods to be used will not impede movement of species, neither will the design and long-term operations.

The Project will be reviewed in detail by the Department of Fisheries and Oceans (DFO) and is expected to require a Fisheries Act authorization. This Act and authorizations under it will ensure all potential impacts to fish and fish habitat activities are thoroughly evaluated, and that any impacts will then be reduced and mitigated.

**Construction Stage:**

**Valued Component:** Indigenous rights – aquatic environment

**Concerns:** Construction activities could damage spawning grounds and fish habitat in the vicinity of the bridge, harming fish populations throughout the Ottawa River watershed

**Initial Response:** Given the nature and scope of this Project, it is probable that as a result of construction activities, there will be some damage to spawning grounds and fish habitat in the vicinity of the bridge, along with aquatic species, throughout the Ottawa River watershed.

The Project will be reviewed in detail by DFO and is expected to require a *Fisheries Act authorization*. This Act and authorizations under it will ensure all potential impacts to fish and fish habitat for all construction activities are thoroughly evaluated, and that impacts are reduced and mitigated. If impacts cannot be adequately reduced or mitigated, we will work with DFO and our interested partners to propose compensation and/or habitat offset measures, as required. (Section 14.2.3)

An Environmental Protection Plan (EPP) will be prepared, which will stipulate the environmental protection measures and commitments to be carried out by the contractor during construction. (Section 14.1.4)

Once bridge design is advanced and construction activities and methods are determined, potential significant negative impacts on water temperature and flow levels in the vicinity of the bridge will be further evaluated, along with linkages to other potential impacts (disturbances to aquatic species, erosion of riverbank, etc.). Appropriate mitigation measures will be established to address the impacts.

Wherever possible, in-water construction activities will be timed to avoid sensitive fish-spawning windows to reduce harm to fish populations. Timing windows for in-water works will be determined with approval authorities during the detailed design stage. (Section 14.2.3)

Fish and mussels will be removed and/or rescued from the coffer-dammed area prior to complete dewatering, and the use of low impact dam materials such as Aqua-Barrier or Aqua Dam coffer dams will be preferred. (Section 14.1.4)

A turbidity curtain (or other equivalent measure) around the perimeter of the in-water work zone will isolate the construction zone, reducing water quality impacts and the downstream migration of silt and sediment from dewatering activities. (Section 14.1.4)

During in-water construction activities, turbidity will be monitored daily to confirm there are no increases as a result of construction. A spill prevention and management plan will also be developed for the Project. (Section 14.1.4)

#### **Operations:**

**Valued Component:** Indigenous rights – fish harvesting

**Concerns:** Need for fish habitat restoration and monitoring after completion of construction

**Initial Response:** Once further information is known on impacts, and if required, the IPT will be proposing a monitoring plan to monitor the effectiveness of mitigation measures and ensure that there is no long-term harm to fish (and other aquatic species) throughout the Ottawa River watershed.

After completion of pier construction, areas affected by construction that can be rehabilitated will be restored. PSPC will consider enhancing fish habitat taking into account advice and recommendations from partners, DFO, and experts.

Through the implementation of habitat creation, restoration and other offsetting measures, impacts from this Project on fish and fish habitat to achieve net environmental benefits may be positive over the long-term.

## 18.5 Identification of Potential Impacts on the Environment – Timiskaming First Nation

Valued components and concerns identified by Algonquins of Ontario based on meetings held to date are described below.

### All Stages:

**Valued Component:** Indigenous rights – aquatic environment

**Concerns:** The First Nation will be involved in establishing protocols to review the terms of reference for studies and for Timiskaming First Nation’s participation in the studies. Species studies are of particular importance.

**Initial Response:** Agreed.

### Planning and Design, Detailed Design:

**Valued Component:** Indigenous rights – aquatic environment

**Concerns:** Environmental studies should include a cumulative effects study, historical use of the Ottawa River and effects, and where and how the next seven generations will be affected.

**Initial Response:** Agreed.



## 19 POTENTIAL IMPACTS ON HEALTH, SOCIAL AND ECONOMIC CONDITIONS OF INDIGENOUS PEOPLES

### 19.1 Health Impacts

The comments to date in engagement with Indigenous communities and organizations about health impacts of the Project have been at a high level.

The Algonquins of Pikwakanagan First Nation identified on August 12, 2020 (Record #78) that the Ottawa River and its tributaries are significant to the community members for sustainable living. The work plan proposed by Algonquins of Pikwakanagan First Nation will use Indigenous Knowledge and technical studies to gather baseline information about what elements of the Ottawa River contribute to sustainable living and how they may be impacted by the Project.

Kebaowek First Nation expressed concerns in a meeting on July 3, 2020 (Record #45) that bridge design, construction and operations may have negative effects on fish populations, which will have negative health effects on community members who rely on the fishery for their food requirements.

The Algonquins of Ontario indicated in a meeting on November 5, 2020 (Record #141) that the design, construction and operations of the bridge may have negative effects on fish habitat and the movement of species, which will have negative effects on community members who rely on the fishery for their food requirements. The work plan developed by the AOO will use Indigenous Knowledge and technical studies, including enhanced monitoring activities by AOO members, to mitigate against negative effects on the health of their members.

The IPT's mitigation and enhancement measures to address these potential impacts are detailed in Section 15.3 of this report.

### 19.2 Sites of Historical and Archaeological Significance

The NCC's pre-contact archaeological potential map indicates that the lands immediately around the Alexandra Bridge in both Gatineau and Ottawa have a low potential for pre-contact archaeological resources. There is a pre-contact archaeological site in Jacques-Cartier Park South (BiFw-23) and a pre-contact ossuary on the southern limit of the Canadian Museum of History. It is also known that the shoreline of the Ottawa River between the museum and the mouth of the Gatineau River was densely occupied seasonally from at least 5,000 years ago until up to about 500 years ago.

A protocol between the NCC, Kitigan Zibi Anishinabeg First Nation and the Algonquins of Pikwakanagan First Nation was signed on August 22, 2012, and updated on March 13, 2017, that provides a framework for the engagement of Kitigan Zibi Anishinabeg First Nation and the Algonquins of Pikwakanagan First Nation in all stages of archaeological investigations undertaken on NCC land. It ensures that Kitigan Zibi Anishinabeg First Nation and the Algonquins of Pikwakanagan First Nation are fully informed of such investigations and fully involved in the decision-making process regarding the co-management of archaeological resources discovered through investigations or construction and development work.

Kitigan Zibi Anishinabeg First Nation agrees in the protocol to inform members of the Algonquin Anishinabeg Nation Tribal Council and other Algonquin Anishinabeg communities in Quebec about activities and issues.

Kitigan Zibi Anishinabeg Council stated in a letter of August 6, 2020 (Record #69) that it is interested in any/all potential archaeological digs that may take place as a result of working being carried out.

Timiskaming First Nation stated in a video conference of February 17, 2021 (Record #232) that the historical impacts of structures built on and beside the Ottawa River must be considered in terms of the long-term impacts on the heritage of Algonquin peoples.

### **19.3 Social and Economic Impacts**

The Indigenous communities and organizations engaged to date have indicated a strong interest in potential economic benefits from the planning, construction and operation of the Project, as shown in the summary of records below. Engagement is ongoing and through these discussions the IPT will further discuss Indigenous communities' concerns on social impacts as well as appropriate mitigation measures.

The tools available to PSPC and the NCC to be able to provide economic benefits to Indigenous people and businesses include:

- promoting and ensuring their participation in increased numbers in contracting, as per the Minister's mandate to ensure that at least 5% of federal contracts are awarded to businesses managed and led by Indigenous Peoples
- funding for community-based economic development strategies to assist people and businesses to increase their skills and capacities
- the human resource capabilities of PSPC and the NCC to hire and train Indigenous people for skilled careers and
- creating comprehensive Indigenous Benefits Plans.

#### **19.3.1 Indigenous Participation Plans**

The Request for Proposals for the removal of the existing bridge, the design and construction of the replacement bridge and for long-term operations will include a requirement for bidders to submit Indigenous Participation Plans (IPP) stating how they intend to generate socio-economic benefits for the people and/or business community of targeted Indigenous communities and organizations. The IBP must address employment, training, skills development, apprenticeship programs, sub-contracting, equitability.

PSPC, as the contracting authority, will determine a target as a percentage of the total value of the contract for participation of Indigenous workers and businesses.

The Indigenous Participation Plans shall include a Human Resources Plan detailing how the Contractor or its subcontractor(s) intends to maximize the use of Indigenous employment.

The Human Resources Plan shall address how employment of Indigenous people will be managed and must provide details on the work to be carried out for each position proposed to be filled by an Indigenous person strategies for recruitment of Indigenous persons strategies for retention of Indigenous persons succession planning and staff management.

The IPP must describe how the contractor intends to address the utilization and/or sub-contracting of Indigenous businesses and must describe how the contractor currently or intends to engage the local Indigenous business communities.

The IPP can include a provision for bidders to identify other benefits of value to Indigenous communities, with flexibility for the bidders to put forward innovative ideas.

### **19.3.2 Community-Based Economic Development Plans**

Indigenous communities have stated during engagement meetings (see records below) that IPPs and other targeting approaches will not result in increased economic participation for their members without work being done to:

- Identify the current skills and capacities of community members and businesses
- Compare the current capacity with the opportunities resulting from future bridge work
- Prioritizing the development of skills and capacities for members in areas of potential
- Increase access to training, development and apprenticeships
- Foster relations with private sector industry representatives to promote more understanding between the non-Indigenous business world and Indigenous Peoples
- Promote joint ventures between non-Indigenous and Indigenous businesses
- Identify and eliminate barriers that prevent Indigenous businesses from winning Government of Canada contracts
- Identify and eliminate barriers that prevent Indigenous people from accessing training, obtaining certifications, getting hired, and being successful and respected in their places of work

PSPC and the NCC will provide funding for Indigenous communities and organizations to create community economic development strategies that address the issues above and other concerns. The funding can include salaries for staff positions within the Indigenous government to manage the strategic work.

PSPC and the NCC will also support Indigenous communities and organizations as they seek funding, collaboration and other forms of support from other Government of Canada departments and agencies, other levels of government, training and educational institutes, unions, and contractors to increase the economic participation of their members.

### **19.3.3 Human Resource Capacities of PSPC and the NCC**

PSPC and the NCC will hire and provide training for Indigenous people in all aspects of their work associated with planning and administration of crossings.

### 19.3.4 Engagement on Economic Impacts – Algonquins of Pikwakanagan First Nation

Table 19-1: Economic Impacts – Algonquins of Pikwakanagan First Nation

Record #	*Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
N/A	N/A	Economic impacts – training, apprenticeships, employment and contracting	Planning and Design, Procurement	Engagement with Algonquins of Pikwakanagan First Nation is ongoing regarding identification of economic barriers and opportunities, further details are not available at this time.	Underdevelopment.

\*Appendix E highlights dates and methods of communication.



### 19.3.5 Engagement on Economic Impacts – Kebaowek First Nation

Table 19-2: Economic Impacts – Kebaowek First Nation

Record #	Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
45	2020-07-03  Video conference	Economic impacts – training, apprenticeships, employment and contracting	Planning and Design, Procurement	The importance of short-, medium- and long-term employment opportunities for Indigenous people.	<p>An Indigenous Participation Plan will be created in partnership with the First Nation addressing the most effective ways to increase access to employment, contracting, training and apprenticeships, and to identify and overcome barriers to Indigenous participation.</p> <p>The procurement process for the Project will require bidders to submit Indigenous Participation Plans that increase access to employment, contracting, training and apprenticeships.</p> <p>The IPT will work with Indigenous communities to obtain the appropriate assistance and changes from</p>

Record #	Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
					other Government of Canada departments and agencies and other parties that can help increase Indigenous participation in the economy.
45	2020-07-03 Video conference	Economic impacts – training, apprenticeships, employment and contracting	Planning and Design, Procurement	The need for opportunities for students in science, technology and engineering fields to obtain education and employment	<p>Work with the First Nation to identify current students and those with interests in becoming students in these fields. Use the human resources capacity of PSPC and the NCC to offer summer employment and full-time employment, job shadowing and other measures that will encourage students and provide opportunities.</p> <p>The procurement process for the Project will require bidders to submit Indigenous Participation Plans that increase access to employment, contracting,</p>

Record #	Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
					training and apprenticeships.
45	2020-07-03 Video conference	Economic impacts – training, apprenticeships, employment and contracting	Planning and Design, Procurement	Improved access to training and apprenticeships	<p>Work with the First Nation to identify candidates for training and apprenticeships. Connect the candidates to Government of Canada assistance programs for training and apprenticeships.</p> <p>The procurement process for the Project will require bidders to submit Indigenous Participation Plans that increase access to employment, contracting, training and apprenticeships.</p>
45	2020-07-03 Video conference	Economic impacts – training, apprenticeships, employment and contracting	Planning and Design, Procurement	Identify and eliminate barriers to economic participation for Indigenous people and businesses.	Work with the First Nation to understand the barriers and resolve them if they are within the authorities of PSPC and the NCC. For other barriers, work with the First Nation with other

Record #	Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
					Government of Canada departments and agencies, other governments and the private sector on solutions.
45	2020-07-03 Video conference	Economic impacts – training, apprenticeships, employment and contracting	Planning and Design, Procurement	The Indigenous benefits aspect of the contracting should address improvements to living conditions in First Nations.	The Indigenous Participation Plans required of bidders could include a provision for addressing other community needs as a scored item in the review process. PSPC and the NCC could assist bidders to communicate with the First Nation to understand community needs.
82	2020-08-19 Video conference	Economic impacts	Planning and Design, Procurement	The procurement processes for the Project and the other crossings must state the requirements to include Indigenous people and Indigenous benefits up front in the procurement processes, and that Indigenous engagement and hiring commitments be built into the contracts.	The procurement process for the Project will require bidders to implement Indigenous Participation Plans to increase access to employment, contracting, training and apprenticeships.  PSPC will collaborate with the Indigenous communities being engaged to develop

Record #	Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
					the procurement documents, and to address needs and barriers that have prevented Indigenous participation in the past.
<b>82</b>	2020-08-19 Video conference	Socio-economic conditions	Project implementation	Other critical success factors must be in place if members of Algonquin Nations are to work in Ottawa-Gatineau, especially access to affordable housing.	PSPC and NCC will work with other Government of Canada partners and Indigenous organizations to address the critical success factors.

### 19.3.6 Engagement on Economic Impacts - Algonquins of Ontario

Table 19-3: Economic Impacts - Algonquins of Ontario

Record #	Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
13	2020-05-01 Telephone conference	Economic impacts	Planning and Design, Procurement, Construction	AOO is interested in economic development opportunities as crucial for long-term sustainability	An Indigenous Participation Plan will be created in partnership with the First AOO addressing its interest in long-term sustainability.
109	2020-11-05 Video conference	Economic impacts	Planning and Design, Procurement, Construction	AOO does not have information about the business capacity of its members	Funding from PSPC and the NCC can be used for skills assessments and business inventories in support of economic participation
148	2020-11-16 Video conference	Economic impacts – benefits	Planning and Design, Procurement, Construction	An umbrella agreement with PSPC and the NCC should be established, followed by specific agreements for Indigenous Participation Plans for each crossing procurement activity, including the Alexandra Bridge replacement.	Agreed
195	2021-01-07 Email	Economic impacts – benefits	Planning and Design,	Submission by AOO of revised work plans and budgets for the Alexandra Bridge replacement impact assessment, and for a Long-	Under review

Record #	Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
			Procurement, Construction	Term Relationship Agreement concerning the National Capital Region crossings program of work.	
288	2021-04-23 Video conference	Economic impacts – benefits	Planning and Design, Procurement, Construction	AOO described a budget need at to support the planning and coordination of economic development opportunities.	AOO was encouraged to include a staff position in its budget to deal with economic opportunities and Indigenous Participation Plans.

### 19.3.7 Engagement on Economic Impacts – Kitigan Zibi Anishinabeg First Nation

Table 19-4: Economic Impacts – Kitigan Zibi Anishinabeg First Nation

Record #	Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
69	2020-08-06 Letter from Council	Economic impacts	Planning and Design, Procurement, Construction	Kitigan Zibi is interested in any potential employment, training, and contract opportunities for its people.	An Indigenous Participation Plan will be created in partnership with the First Nation addressing the most effective ways to increase access to employment, contracting, training and apprenticeships, and to identify and overcome barriers to Indigenous participation.



Record #	Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
					The procurement process for the Project will require bidders to submit Indigenous Participation Plans that increase access to employment, contracting, training and apprenticeships.
<b>250</b>	2021-03-15 Video conference	Economic impacts	Planning and Design, Procurement, Construction	PSPC described the Indigenous Participation Plan approach that will be used in procurements to increase the benefits available to Indigenous workers, businesses, and communities. The Chief would like PSPC/NCC to make a complete presentation to the Kitigan Zibi Anishinabeg First Nation Council on the procurements and on the Alexandra Bridge replacement.	Agreed. Will await direction from the Chief on timing of the meeting with Council.

### 19.3.8 Engagement on Economic Impacts – Timiskaming First Nation

Table 19-5: Economic Impacts – Timiskaming First Nation

Record #	Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
63	2020-07-23 Video conference	Economic impacts	Planning and Design, Procurement	Opportunity for recent graduates and other young people to find work in the National Capital Area	PSPC and the NCC will work with the First Nation to help match its young members with employment and training in the private sector and the Government of Canada.

### 19.3.9 Engagement on Economic Impacts – Wahgoshig First Nation

Table 19-6: Economic Impacts – Wahgoshig First Nation

Record #	Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
174	2020-12-11 Video conference	Economic impacts	Planning and Design, Procurement, Construction	The First Nation would like to create an Impact Benefit Agreement with PSPC and the NCC	Agreed. Work can begin at the First Nation’s convenience. Funding is available from PSPC and the NCC for this purpose.

### 19.3.10 Engagement on Economic Impacts – Algonquin Anishinabeg Nation Tribal Council

**Table 19-7: Economic Impacts – Algonquin Anishinabeg Nation Tribal Council**

Record #	Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
266	2021-04-12 Telephone	Economic impacts	Planning and Design, Procurement, Construction	The AANTC stated its desire for discussions with PSPC and the NCC about engagement and economic opportunities to commence with staff.	Agreed. Background information provided to staff and dates for discussions were requested.
281	2021-04-16 Telephone	Economic impacts	Planning and Design, Procurement, Construction	Discussion of the Indigenous engagement process to date and the involvement of Quebec Algonquin Nations discussed options for collaboration between the AANTC, PSPC, and the NCC to engage with communities.	Await direction on preferred approach by AANTC.
300	2021-05-04 Email	Economic impacts	Planning and Design, Procurement, Construction	AANTC asked for a meeting to discuss Indigenous Participation Plans and how Algonquin people can benefit from the bridge replacement.	Agreed – requested preferred meeting dates for AANTC.
342	2021-06-24 Video conference	Economic impacts	Planning and Design, Procurement, Construction	Meeting of AANTC’s procurement coordinator and PSPC to talk about best ways to plan for Algonquin economic participation in coming bridge Projects.	Awaiting AANTC consideration to as whether it will represent all AANTC Nations in promoting economic opportunities.

Record #	Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
363	2021-07-14 Video conference	Economic impacts	Planning and Design, Procurement, Construction	Discussion of options for AANTC roles in engagement and consultation, including possibly taking a lead role in assisting PSPC/NCC to communicate with the member Nations. The matter will be discussed at a Chiefs' leadership meeting in mid-August. AANTC requested that IPPs be called Algonquin Participation Plans.	Awaiting the results of the Chiefs' review. Name of IPPs will be discussed further.
378	2021-08-12 Video conference	Economic impacts	Planning and Design, Procurement, Construction	AANTC wants to put a resource in place to help develop / coordinate economic participation in Projects, specifically develop the list of Projects, set up strategic meetings with PSPC senior officials and AANTC leadership to discuss Project status, information exchange and other strategic information.	PSPC encouraged AANTC to create a draft work plan and budget for consideration.

Record #	Date and Method	Valued Component	Project Activity	Potential Impact or Concerns Raised	Initial Response
385	2021-08-20 Video conference	Economic impacts	Planning and Design, Procurement, Construction	AANTC reported on sharing of information with its member Nations about economic opportunities associated with the bridge replacement. PSPC encouraged AANTC to submit a plan as to how it will engage its member Nations.	PSPC encouraged AANTC to submit a plan as to how it will engage its member Nations.
389	2021-08-30 Email	Economic impacts	Planning and Design, Procurement, Construction	AANTC asked for a meeting with PSPC to discuss a broader approach to participation by Algonquin people and businesses in procurement opportunities associated with the bridges in the National Capital.	Agreed. Awaiting AANTC availability to meet.

## 20 ESTIMATED GREENHOUSE GAS EMISSIONS

Stantec consulting Ltd. was retained to complete a planning stage estimate of greenhouse gas (GHG) emissions for the Initial Project Description. This estimate follows the guidance provided in “Strategic Assessment of Climate Change” (ECCC 2020) (herein referred to as the Guidance). The GHGs included in this assessment are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O), grouped and reported as total carbon dioxide equivalents (CO<sub>2</sub>e) (using the Global Warming Potential (GWP) of 1, 25, 298 for CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O, respectively). Other GHGs, i.e., hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF<sub>6</sub>), and nitrogen trifluoride (NF<sub>3</sub>), are not included because the applicable emission sources (related to fossil fuel combustion) do not release those gases.

The geographical boundary for the Project for this GHG emission estimate is described in Sections 13.1 and 13.2. The temporal boundary for the Project is related to the increase in GHG emissions due to the Project from existing GHG emissions regionally and globally.

The net GHG emissions were estimated using the following equation as per the Guidance:

- *Net GHG emissions = Direct GHG emissions + Acquired energy GHG emissions - CO<sub>2</sub> captured and stored - Avoided domestic GHG emissions - Offset credits*

*Note: Under direction from the Treasury Board of Canada, the offset credits in the calculation above are strategically purchased at the portfolio level, rather than for each individual Project.*

The direct GHG emissions are those GHGs associated with direct fuel combustion which occurs in construction and operation stages of the Project.

The acquired energy GHG emissions are emissions associated with electricity or steam consumption during the Project. In the initial Project description stage, there is no Project specific information available. Further, it is unlikely for the Project to have steam consumption or external electricity consumption. The electricity usage onsite would be obtained through portable generators where fuel consumption would be accounted for under direct GHG emissions. Thus, the acquired energy GHG emissions are assumed to be negligible and not considered further in this planning stage estimate.

There is no Project specific information available on CO<sub>2</sub> captured and stored, avoided domestic GHG emissions, and Offset credits at this initial Project description stage. Therefore, those terms were assumed to be zero for this planning stage estimate.

As per the above assumptions, net GHG emissions is therefore equal to the direct GHG emissions.

A high-level estimate of the upstream GHG emissions associated with production of materials used in typical major bridge construction as well as the production of fuels used in construction and operation is also provided. A GHG emissions estimation for the construction and operation stages will be revised, as Project design progresses, and updated results will be presented in the Impact Statement phase. Estimation was organized according to “scope streams”, as per the GHG Protocol developed by the World Resources Institute.

As such, Scope 1 emissions include direct emissions from the activities, including fuel combustion on site. Scope 2 emissions include indirect emissions from grid electricity purchased and used for the Project. Scope 3 emissions include other indirect emissions occurring from sources that the IPT does not own or control, such as construction material production and fuel production.

The Greening Government Strategy (GGS) requires that the embodied carbon in the structural materials used in major construction projects be disclosed by 2022. The requirement corresponds to Scope 3 emissions associated with the extraction of raw materials, transportation of raw materials and manufacturing of structural materials. Furthermore, the GGS requires that the embodied carbon from structural materials in major construction projects be reduced by 30%, starting in 2025. Finally, the GGS requires that whole building life-cycle assessments be done for major infrastructure projects by 2025. These GGS requirements will be taken into account in the Alexandra Bridge project as it progresses.

## 20.1 Construction and Deconstruction Stages

During the construction stage of the Project, there will be a release of GHGs to the atmosphere associated with fuel combustion in heavy/construction equipment, off-road mobile equipment, and on-road vehicles used. This section provides the estimate of GHGs for the following activities:

- Deconstruction of the old bridge and construction of the new bridge the GHG emissions are from the use of heavy/construction equipment, generators, and off-road equipment
- Transportation of old bridge debris for disposal the GHG emissions are from on-road truck and trailers used to transport the debris to disposal locations
- Transportation of construction materials for the new bridge the GHG emissions are from on-road trucks/trailers used to transport construction materials from manufacturers to the construction site
- Worker transportation: the GHG emissions associated with on-road vehicles used for workers' commute to and from Project location during bridge deconstruction /construction activities

The following activities are currently not included in this GHG estimate because information was not available during this assessment.

- Emissions associated with traffic delays/disruption and road detour due to construction/deconstruction activities.
- GHG emissions related to transportation of heavy/construction equipment to site for bridge deconstruction and construction.
- Specific details pertaining to on and off-road vehicles, as these estimates were made based on previous studies.

These activities will be incorporated in the GHG assessment at the Impact Statement stage once Project specific information is available.



### 20.1.1 Bridge Deconstruction /Construction (Scope 1 – Direct Fossil Fuel Emissions)

Since the Project/site specific data are currently not available, a high-level estimate of GHG emissions for this Project's bridge deconstruction and construction was derived from the average emissions per bridge area ( $m^2$ ) from 4 previous studies on bridge construction and operation. The average emission intensity ( $tCO_2e/m^2$ ) was then applied to the existing Alexandra Bridge area. The four studies include:

1. Madawaska/Edmundston International Bridge Replacement Project (New Brunswick Department of Transportation and Infrastructure, 2018)
2. Baudette/Rainy River International Bridge Replacement Project (Stantec, 2017)
3. Tappan Zee Hudson River Crossing Project (U.S. Federal Highway Administration, 2012)
4. 5<sup>th</sup> Street Bridge Replacement Project (Dokken Engineering, 2011)

The GHG emissions were estimated to be 13,938  $tCO_2e$  for the bridge deconstruction and 22,025  $tCO_2e$  for the bridge construction.

The following assumptions were made:

- The specific bridge design(s) or configuration(s) are not factored in this estimate.
- Emissions associated with deconstruction of the old bridge were derived from the Baudette/Rainy River Bridge study only as other studies do not clearly identify emissions from bridge deconstruction.
- The Tappan Zee Hudson River Bridge study presented several cases. The construction emissions estimate from Tappan Zee Hudson River Bridge study was taken from Short Span design case because it is the most conservative. Further, the upstream emissions from the Tappan Zee study for materials and worker transportation were excluded because they are estimated separately for the Alexandra Bridge.

The example calculation is provided below.

Example calculation:

$$\begin{aligned} \text{Deconstruction Emissions } -tCO_2e \\ = \text{Demolition Emission Intensity } \left( \frac{tCO_2e}{m^2} \right) \times \text{Alexandra Bridge Area } (m^2) \end{aligned}$$

$$\text{Deconstruction Emissions } (tCO_2e) = 1.31 \left( \frac{tCO_2e}{m^2} \right) \times 10,640 (m^2) = 13,938 (tCO_2e)$$

Where,

Deconstruction Emission Intensity is from the Baudette/Rainy River Bridge study only due to limited information as noted above.

$$\begin{aligned} \text{Construction Emissions } (tCO_2e) \\ = \text{Construction Emission Intensity } \left( \frac{tCO_2e}{m^2} \right) \times \text{Alexandra Bridge Area } (m^2) \end{aligned}$$

$$\text{Construction Emissions } (tCO_2e) = 2.07 \left( \frac{tCO_2e}{m^2} \right) \times 10,640 (m^2) = 22,025 (tCO_2e)$$

Where,

Construction Emission Intensity is from the average of the above four studies.

There is a high level of uncertainty for this GHG estimate because Project/site specific information was not available at the time of the estimate. Fuel usage for activities such as land clearing, site preparation, and landscaping are site specific in nature and generally independent of a size of bridge being constructed therefore, emissions intensity in the other Projects varied widely. The Project specific GHG assessment will consider the detailed Project description when site specific data are available (e.g., if the replacement of the bridge involved new areas that may require vegetation clearing and/or land use change, it will be factored in GHG emissions assessment. However, tree removal will be reduced. Any tree to be removed will be compensated by replanting at a minimum ratio of 2:1.

### 20.1.2 Transportation of Debris for Disposal (Scope 1 – Direct Fossil Fuel Emissions)

The GHG emissions for transport of debris are associated with fuel consumption in trucks/trailers used for transporting debris from deconstruction of the old bridge to disposal/recycling locations. The emissions were estimated using published emission factors for on-road mobile vehicles (NIR 2020) and estimated distance travelled.

The estimated GHG emissions from transportation of debris for disposal were 46.5 tCO<sub>2</sub>e. The example calculation is provided below.

Example calculation:

$$\text{Emissions (tCO}_2\text{e)} = \text{Diesel Consumption (L)} \times \text{EF}_{\text{HDDVs}} \left( \frac{\text{tCO}_2\text{e}}{\text{L}} \right)$$

$$\text{Emissions (tCO}_2\text{e)} = 17,040 \text{ (L)} \times 0.002729 \left( \frac{\text{tCO}_2\text{e}}{\text{L}} \right) = 46.5 \text{ (tCO}_2\text{e)}$$

Where,

Estimated debris was 6,916 tonnes of steel and 1,596 tonnes of cement concrete therefore, there are 426 round-trips for debris disposal, with 100 km per a round-trip. Total distance driven is 42,600 km.

Total diesel consumption = Truck fuel efficiency (40 L/100km) \* 42,600 km = 17,040 L

The  $\text{EF}_{\text{HDDVs}}$  is the emission factor for Heavy-duty Diesel Vehicles (HDDVs) - Advanced Control, derived from CO<sub>2</sub> emission factor of 2681 g/L, CH<sub>4</sub> emission factor of 0.11 g/L, and N<sub>2</sub>O emission factor of 0.151 g/L (NIR, 2020) and GWPs.

The following assumptions were made:

- Amount of debris was calculated using the existing Alexandra Bridge's dimension and typical materials for major steel bridge (with an average span of 125 m) was assumed (World Bank 2011) this is assumed because Project specific information is not available at the time of the assessment
- The average commercial transport fuel efficiency of 40 L/100 km was applied to all trucks for material transport
- The Heavy-duty Diesel Vehicles (HDDVs) - Advanced Control emission factors were applied to all trucks
- Debris can be disposed/recycled locally within 50 km one way (100 km per trip)
- A dump truck has a carrying capacity of 20 tonnes per trip<sup>4</sup>

### 20.1.3 Transportation of Construction Materials (Scope 1 – Direct Fossil Fuel Emissions)

The GHG emissions associated with fuel consumption in trucks/trailers used for transporting construction materials from manufacturing locations to the construction site were estimated to be 139.5 tCO<sub>2</sub>e. The emissions were estimated using the same method as described above. The example calculation is provided below.

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<sup>4</sup> based on a typical 18-wheel, semi-tractor trailer carrying capacity in Canada/US (<https://www.tcsfuel.com/blog/truck-weight-classification/#:~:text=A%20semi%2Dtruck%20hooked%20up,pounds%2C%20depending%20on%20the%20size>) and Task Force on Vehicle Weights and Dimensions Policy, Heavy Truck Weight and Dimension Limits for Interprovincial Operations in Canada, December 2016

Example calculation:

$$\text{Emissions (tCO}_2\text{e)} = \text{Diesel Consumption (L)} \times \text{EF}_{\text{HDDVs}} \left( \frac{\text{tCO}_2\text{e}}{\text{L}} \right)$$

$$\text{Emissions (tCO}_2\text{e)} = 51,120 \text{ (L)} \times 0.002729 \left( \frac{\text{tCO}_2\text{e}}{\text{L}} \right) = 139.5 \text{ (tCO}_2\text{e)}$$

Where,

Total distance driven is 127,800 km, estimated from 426 round-trips for material transport, with 300 km per round-trip.

Total diesel consumption = Truck fuel efficiency (40 L/100km) \* 127,800 km = 51,120 L

The  $\text{EF}_{\text{HDDVs}}$  is the emission factor for Heavy-duty Diesel Vehicles (HDDVs) - Advanced Control, as shown above.

The following assumptions were made:

- Amount of materials were calculated using the existing Alexandra Bridge's dimension and typical materials for major steel bridge (with an average span of 125 m) was assumed (World Bank 2011). This is because the design of the new bridge is currently not available.
- The average commercial transport fuel efficiency of 40 L/100 km was applied to all trucks for material transport.
- The Heavy-duty Diesel Vehicles (HDDVs) - Advanced Control emission factors were applied to all trucks.
- Construction materials can be obtained within 150 km one way (300 km per trip).
- Only truck/trailers were used as a mean for transportation and marine/barge was not used.
- A transport truck/trailer has a carrying capacity of 20 tonnes per trip.



#### 20.1.4 Worker Transportation (Scope 1 – Direct Fossil Fuel Emissions)

The GHG emissions are related to fuel consumption in on-road vehicles for worker transportation to/from site. The emissions were estimated to be 2,825 tCO<sub>2</sub>e, based on published emission factors for on-road mobile vehicles (NIR, 2020) and estimated distance travelled. The example calculation is provided below.

Example calculation:

$$\text{Emissions (tCO}_2\text{e)} = \text{Gasoline Consumption (L)} \times \text{EF}_{\text{LDGVs}} \left( \frac{\text{tCO}_2\text{e}}{\text{L}} \right)$$

$$\text{Emissions (tCO}_2\text{e)} = 1,125,600 \text{ (L)} \times 0.00251 \left( \frac{\text{tCO}_2\text{e}}{\text{L}} \right) = 2,825 \text{ (tCO}_2\text{e)}$$

Where,

Total gasoline consumption = Pickup truck average fuel efficiency (13.4 L/100 km) \* 10,000 km/day \* 840 days = 1,125,600 L.

EF<sub>LDGVs</sub> is the emission factor for Light-duty Gasoline Vehicles (LDGVs) – Tier 0, derived from CO<sub>2</sub> emission factor of 2307 g/L, CH<sub>4</sub> emission factor of 0.32 g/L, and N<sub>2</sub>O emission factor of 0.66 g/L (NIR, 2020) and GWPs.

The following assumptions were made:

- Vehicles are assumed to be Light-duty Gasoline Vehicles (LDGVs), e.g., a pickup truck.
- An average fuel efficiency from 4x4 Ford F-150 and 4x4 Ford F-250 was used. The data are sourced from NRCAN 2020 Fuel Consumption Guide.
- The Light-duty Diesel Vehicles (LDGVs) - Tier 0 emission factors were applied to all personnel transportation trucks.
- Deconstruction of the old bridge is assumed to occur 7 days a week for 4 months.
- Construction of the new bridge is assumed to occur 7 days a week for 8 months of a year and the construction lasts for 3 years.
- There are 50 people/vehicles travel to/from site per day and 100 km one-way commute for each vehicle.

#### 20.1.5 Electricity Usage During Deconstruction /Construction (Scope 2 - Indirect Fossil Fuel Emissions from Grid Electricity Usage)

As stated above, it is assumed that there would be no grid electricity usage during deconstruction and construction of the Alexandra Bridge because electricity would be obtained through portable generators, and the fuel consumption would be accounted for under direct GHG emissions (Section 20.1).

## 20.2 Operation Stage

During operation of the existing and new Bridge, the following GHG emission sources are Bridge inspection, maintenance, and repair activities which include, but not limited to, the following emission sources:

- Heavy equipment and fuel used in maintenance and repair work.
- Transportation of equipment and materials used in maintenance and repair work.
- Transportation of workers for inspection, maintenance, and repair work.
- Electricity consumption from grid for bridge and sign lighting.

The new Bridge would have a functional equivalent to the old Bridge, and it is assumed no substantial change to traffic volumes on the new Bridge (i.e., there would be net zero increase from transport emissions related to vehicles crossing the bridge).

### 20.2.1 Bridge Inspection, Maintenance, and Repair (Scope 1 - Direct Fossil Fuel Emissions)

For bridge inspection, maintenance and repair (I&M), the GHG emissions are estimated to be 63 tCO<sub>2</sub>e/year from the following inspection and maintenance work, heavy equipment used, and staff/worker commute to/from the bridge.

**Table 20-1: Bridge inspection, maintenance and repair assumptions**

I&M Project Work	Heavy Equipment for I&M Work	Number of Staff for I&M Work (vehicles/day)	Duration of I&M Work (day/year)
<b>Annual cleaning</b>	2 Cleaning Trucks with Water Reservoir 1 Air Compressor	7	4
<b>Steel grating repair</b>	-	13	2
<b>Bearing bar repair</b>	-	13	8
<b>Weekly O&amp;M patrol (pot hole patching, graffiti removal, minor repair)</b>	1 Pressure washer	3	52
<b>Commissionaire patrol</b>	-	2	1
<b>Load test, Monthly</b>	1 Bako truck	3	12
<b>Annual inspection or Comprehensive Detailed Inspections (CDI)</b>	-	2	1

The following assumptions were made:

- All heavy equipment uses diesel fuel and operates 12 hours/day.
- All staff/worker vehicles are light duty gasoline vehicles (LDGV) and commuting 100 km, one-way to/from site.
- Insignificant bridge construction materials (e.g., steel, concrete) used in the maintenance and repair work.

NCC expects that there is no major maintenance and repair work for the first 5 years of operation. In addition, the GHG emissions over the following 70 years are much smaller, compared to emissions from bridge construction. There would be zero increase of emission from the existing bridge based on the year of bridge operation and maintenance intervals/cycles. The emissions from the new bridge's operation will be re-assessed once Project specific information is available.

### 20.2.2 Grid Electricity Usage for Lighting during Bridge Operation (Scope 2 - Indirect Fossil Fuel Emissions from Grid Electricity Usage)

There will be electricity usage for bridge and sign lighting during the bridge operation. However, since it is assumed no substantial change to the length of the bridge, it is expected that no considerable increase for electricity usage compared to existing conditions. There could be a reduction in electricity usage if the new bridge design uses energy efficient lighting system or renewable energy (e.g., solar cells). This will be re-assessed once Project specific information is available.

## 20.3 Future Decommissioning of the New Bridge

To estimate the GHG emissions for Decommissioning phase of the new bridge, the emissions were based on decommissioning of the existing bridge, which includes bridge deconstruction (based on literature review of similar projects), transportation of debris, and worker transportation activities. These emissions are associated with the combustion of diesel in heavy equipment and gasoline for worker transportation. The inputs to the emission calculation of the deconstruction associated with the proposed bridge were assumed to be identical emissions associated with the deconstruction of the existing bridge. The same methodologies and emission factors were used. Table 20-2 provides estimated emissions for decommissioning of the new bridge.

**Table 20-2: Estimated emissions for decommissioning of new bridge**

Phase	Sources/Activities	Total Emissions Increase (tCO <sub>2</sub> e)	Annual Emissions (tCO <sub>2</sub> e/year) *
<b>Decommissioning Phase</b>	deconstruction of new bridge - Heavy equipment	13,938	13,938
<b>Decommissioning Phase</b>	Transportation of debris for disposal (new bridge)	46.5	46.5
<b>Decommissioning Phase</b>	Worker transportation – deconstruction only (new bridge)	404	404
<b>Total</b>		<b>14,389</b>	<b>14,389</b>

\* Assumed that all activities for decommissioning occur in one year.



The inputs to the emission calculation of the deconstruction associated with the proposed bridge were assumed to be identical emissions associated with the deconstruction of the existing bridge. The following methodologies, emission factors, and assumptions were used in the emission estimation.

- Deconstruction of new bridge - Heavy equipment:
  - The specific bridge design(s) or configuration(s) are not factored in this estimate.
  - Emissions associated with deconstruction of the new bridge were derived from the Baudette/Rainy River Bridge International Bridge Replacement Project (Stantec 2017), using the emission intensity ( $\text{tCO}_2\text{e}/\text{m}^2$ ) which was then applied to the existing Alexandra Bridge area to obtain the emission estimate.
- Transportation of debris for disposal (new bridge)
  - Amount of debris was calculated using the existing Alexandra Bridge's dimension and typical materials for major steel bridge (with an average span of 125 m) was assumed (World Bank 2011) this is assumed because Project specific information is not available at the time of this preliminary assessment.
  - The average commercial transport fuel efficiency of 40 L/100 km was applied to all trucks for material transport.
  - The NIR Heavy-duty Diesel Vehicles (HDDVs) - Advanced Control emission factors were applied to all trucks (0.002729  $\text{tCO}_2\text{e}/\text{L}$ ).
  - Debris can be disposed/recycled locally within 50 km one way (100 km per trip)
  - A dump truck has a carrying capacity of 20 tonnes per trip.
- Worker transportation – deconstruction only (new bridge).
  - Vehicles are assumed to be Light-duty Gasoline Vehicles (LDGVs), e.g., a pickup truck.
  - An average fuel efficiency from 4x4 Ford F-150 and 4x4 Ford F-250 was used. The data are sourced from NRCAN 2020 Fuel Consumption Guide.
  - The NIR Light-duty Diesel Vehicles (LDGVs) - Tier 0 emission factors were applied to all personnel transportation trucks (0.002729  $\text{tCO}_2\text{e}/\text{L}$ ).
  - Deconstruction of the old bridge is assumed to occur 7 days a week for 4 months.
  - There are 50 people/vehicles travel to/from site per day and 100 km one-way commute for each vehicle.

## 20.4 Total Direct GHG Emissions (Scope 1 – Direct Fossil Fuel Emissions)

Direct emission increase due to the Project (from construction, operation, and decommissioning) are summarized in the Table 20-3. Total estimated direct GHG emission increase is 53,363  $\text{tCO}_2\text{e}$ , which is the net GHG emissions. The annual direct emissions are also provided.

**Table 20-3: Estimated direct GHG emissions (Increase) and annual direct emissions due to the Project at planning stage**

Stage	Sources/Activities	Total Emissions (Increase) (tCO <sub>2</sub> e)	Annual Emissions (Increase) (tCO <sub>2</sub> e/year) **
<b>Construction</b>	Deconstruction of the old bridge	13,938	4,646
<b>Construction</b>	Construction of the new bridge	22,025	7,342
<b>Construction</b>	Transportation of debris for disposal (old bridge)	46.5	16
<b>Construction</b>	Transportation of construction materials (new bridge)	139.5	47
<b>Construction</b>	Worker transportation (deconstruction and construction)	2,825	942
<b>Operation</b>	Traffic crossing the new bridge*	0	0
<b>Operation</b>	Annual maintenance*	0**	63
<b>Decommission (new bridge)</b>	Deconstruction of new bridge - Heavy equipment	13,938	13,938
<b>Decommission (new bridge)</b>	Transportation of debris for disposal (new bridge)	46.5	46.5
<b>Decommission (new bridge)</b>	Worker transportation – Deconstruction only (new bridge)	404	404
<b>Total Direct Emissions</b>		<b>53,363</b>	<b>27,444</b>

\*assumed 3 years for construction Stage and 75 years for operation stage.

\*\* based on the assumption provided in Section 20.3.

The annual net GHG emissions (increase) for each phase can be present in each term of equation 1 (*Net GHG emissions = Direct GHG emissions + Acquired energy GHG emissions - CO<sub>2</sub> captured and stored - Avoided domestic GHG emissions - Offset credits*), are presented in Table 20-4.

**Table 20-4: Estimated annual net GHG emissions (increase) for each phase**

Phase	Net GHG emissions	Direct GHG emissions	Acquired energy GHG emissions	CO <sub>2</sub> captured and stored	Avoided domestic GHG emissions	Offset credits
<b>Deconstruction / Construction</b>	12,993	12,993	0	0	0	0
<b>Operation</b>	63	63	0	0	0	0
<b>Decommissioning</b>	14,389	14,389	0	0	0	0
<b>Total</b>	<b>27,444</b>	<b>27,444</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Note: Emissions presented are on annual basis.

The following assumptions were made:

- It is assumed that deconstruction / construction occurs in 3 years, operation occurs in 75 years, and decommissioning occurs in 1 year.
- No grid electricity usage during deconstruction/construction and decommissioning of the bridge because electricity would be obtained through portable generators, and the fuel consumption would be accounted for under direct GHG emissions.
- Grid electricity usage during the operation of the new bridge is assumed to be zero because the new bridge would have a functional equivalent to the old bridge.
- The CO2 captured and stored, avoided domestic GHG emissions, and offset credits are assumed to be zero at this initial stage. Emissions from those categories will be estimated when more information becomes available.

## 20.5 Total Indirect GHG Emissions (Scope 2 - Indirect Fossil Fuel Emissions from Grid Electricity Usage)

Indirect emission increase due to the Project (from construction and operation) are summarized in the Table 20-7. Total estimated indirect GHG emission increase is zero. The annual indirect emissions will be estimated once data are available.

**Table 20-5: Estimated indirect GHG emissions (Increase) and annual indirect emissions due to the Project at planning stage**

Stage	Sources/Activities	Total Emissions (Increase) (tCO <sub>2</sub> e) *	Annual Emissions (tCO <sub>2</sub> e/year)
<b>Construction</b>	Grid electricity usage during construction and deconstruction	0**	0**
<b>Operation</b>	Grid electricity usage for lighting during operation	0**	NA
<b>Total Indirect Emissions</b>		<b>0</b>	<b>NA</b>

\*assumed 3 years for construction stage and 75 years for operation stage.

\*\* based on the assumption provided in Sections 20.1 and 20.2.

NA: Data are not available at this stage.

## 20.6 Upstream Emissions (Scope 3 – Other Emissions)

Upstream emissions were indirect GHG emissions associated with the following activities as per the Guidance:

- Production of materials used in bridge construction. The emissions were estimated based on published emission intensity (tCO<sub>2</sub>e per tonnes of material) from the World Bank (World Bank, 2011) and amount of materials used. The amount of materials was calculated using the existing Alexandra Bridge’s dimension and typical materials for major steel bridge (with an average span of 125 m) was assumed (World Bank 2011) as the actual new bridge design is not available.

Production of fuels used in construction and operation stages of the Project. The quantification method is based on estimated fuel volumes and published emission factors (AEP, 2019), as shown in the example calculations below.

The estimated upstream emissions are presented in the Table 20-6.

**Table 20-6: Estimated upstream GHG emissions for the Project at planning stage**

Stage	Parameter	Emissions (tCO <sub>2</sub> e)
Construction	Construction Material Production	30,023
Construction and Operation	Fuel Production	5,818
Decommission	Fuel Production	2,148
<b>Total Upstream Emissions</b>		<b>37,989</b>

The example calculation is provided below.

Example calculation:

*Emissions from Production of Steel (tCO<sub>2</sub>e)*

$$= \text{Amount of Steel (tonnes)} \times EF_{\text{steel production}} \left( \frac{\text{tCO}_2\text{e}}{\text{tonne}} \right)$$

$$\begin{aligned} \text{Emissions from Production of Steel (tCO}_2\text{e)} &= 6,916 \text{ (tonnes)} \times 4.081 \left( \frac{\text{tCO}_2\text{e}}{\text{tonne}} \right) \\ &= 28,224 \text{ (tCO}_2\text{e)} \end{aligned}$$

*Emissions from Production of Cement Concrete (tCO<sub>2</sub>e)*

$$= \text{Amount of Cement Concrete (tonnes)} \times EF_{\text{cement-concrete production}} \left( \frac{\text{tCO}_2\text{e}}{\text{tonne}} \right)$$

$$\begin{aligned} \text{Emissions from Production of Cement Concrete (tCO}_2\text{e)} &= 1,596 \text{ (tonnes)} \times 1.127 \left( \frac{\text{tCO}_2\text{e}}{\text{tonne}} \right) \\ &= 1,799 \text{ (tCO}_2\text{e)} \end{aligned}$$

*Emissions from Production of Diesel and Gasoline (tCO<sub>2</sub>e)*

$$= \text{Total Fuels (L) in all activities} \times EF_{\text{diesel-gasoline production}} \left( \frac{\text{tCO}_2\text{e}}{\text{L}} \right)$$

$$\begin{aligned} \text{Emissions from Production of Diesel and Gasoline (tCO}_2\text{e)} \\ &= 14,121,014 \text{ (L)} \times 4.12 \times 10^{-4} \left( \frac{\text{tCO}_2\text{e}}{\text{L}} \right) = 5,818 \text{ (tCO}_2\text{e)} \end{aligned}$$

Where,

$EF_{\text{steel production}}$  and  $EF_{\text{cement-concrete production}}$  are emission intensities related to production of steel and cement concrete, respectively (World Bank, 2011)

$EF_{\text{diesel-gasoline production}}$  is the emission intensity from production of diesel and gasoline fuels, derived from CO<sub>2</sub> emission intensity of 0.138 kg/L, CH<sub>4</sub> emission intensity of 0.0109 kg/L, and N<sub>2</sub>O emission intensity of 0.000004 kg/L (AEP, 2019) and GWPs.

Liters of fuels in the calculation of fuel production emissions include fuels associated with all activities, i.e., deconstruction, construction, debris disposal, construction material transport, worker transportation, and bridge maintenance. It was estimated using total direct emissions (tCO<sub>2</sub>e) and diesel emission factor of 0.00276 tCO<sub>2</sub>e/L (assuming diesel fuels). For example, total liters = 38,974 tCO<sub>2</sub>e/0.00276 tCO<sub>2</sub>e/L = 14,121,014 L.

## 20.7 Comparison with Existing GHG Emissions

The GHG emissions due to the Project is assessed by comparing annual Project emissions with the existing annual total and transportation sector GHG emissions in Ontario, Quebec, Canada, and Global. The most recent data available for existing GHG emissions were used: 2018 data for Ontario, Quebec, and Canada (NIR 2020) and 2014 data for global (CAIT 2020).

The annual Project emissions from the construction stage and the operation stage were calculated by assuming a 3-year period of construction and 75-year period of operation, respectively. The GHG emissions from construction stage of this Project are 0.02% (or less) of GHG emissions from all sectors in Quebec, Ontario, Canada and global. The operation of the Project is not expected to result in a net increase in GHG emissions when compared to the GHG emissions from the existing bridge because the traffic volumes are not expected to change (i.e., the existing and new bridge would have the same or less quantity of emissions from traffic given advancements in regulatory emission controls and increased zero-emission vehicles expected over time). A comparison of the GHG emissions from Project's construction and operation with the existing GHG emissions (all sectors emissions) is provided in the Table 20-7 and Table 20-8.

**Table 20-7: Comparison to existing GHG emissions – all sectors**

Parameter	Emissions (tCO <sub>2</sub> e/year)	% of Ontario	% of Quebec	% of Canada	% of Global
<b>Construction</b>	12,991	0.008%	0.02%	0.002%	0.00003%
<b>Operation*</b>	63	0.001%	0.001%	0.0002%	0.000003%
<b>Total</b>	13,054	0.01%	0.02%	0.002%	0.00003%

\* assumed to have same emissions as the existing bridge's operation which is zero net increase.

**Table 20-8: Comparison to existing GHG emissions – transportation sector**

Parameter	Emissions (tCO <sub>2</sub> e/year)	% of Ontario	% of Quebec	% of Canada	% of Global
<b>Construction</b>	12,991	0.006%	0.03%	0.006%	0.0002%
<b>Operation*</b>	63	0.001%	0.003%	0.001%	0.00002%
<b>Total</b>	13,054	0.01%	0.04%	0.01%	0.0002%

\* assumed to have same emissions as the existing bridge's operation which is zero net increase.

The IPT currently does not have available information about the various alternatives in a level of detail needed to describe potential impacts of the alternatives on GHG emissions, and alternatives selection has not taken place at this stage.

Once the location and design of each alternative are finalized, GHG emissions associated with land clearing emissions can be estimated based on the ECCC's "Overview of methodology to develop deforestation parameters for modelling projected GHG emissions". The following, but not limited to, estimated data inputs will be used:

- Ecoregion of the land being cleared
- Type of vegetation in the land clearing area (e.g., forests, cropland, grassland, wetlands, built-up land)
- Size/area of the land clearing
- Practice for land clearing, e.g., uproot and burn, decay, etc.
- Any estimates of % footprint reductions from business as usual

The activities that would result in an impact on carbon sinks as well as, land areas expected to be impacted by the Project are not known at this point. Specific factors from each alternative that could influence GHG emissions include bridge design and footprint (i.e., land clearing, length of the bridge), construction schedule (i.e., which alternative that takes longer to be built), level of complexity of construction (i.e., number of heavy/construction equipment required during construction and deconstruction, and for how long). However, the IPT currently does not have available information to estimate GHG emissions associated with each alternative. As the project progresses, the IPT will be able to estimate GHG emissions from each alternative under consideration.

The IPT currently does not have available information to estimate GHG emission reductions from each proposed mitigation measure. To quantify the reductions for each of these on an ongoing basis, more information is required such as fuel savings associated with each measure, biofuels usage in lieu of fossil fuels, traffic patterns and flow during construction and deconstruction.

Once the inputs to emission reductions quantification from each of the proposed measures above are provided, GHG emission reductions and the impact to the overall emissions can be estimated. For example, for every 10 liters of diesel consumption reduction, the GHG emissions would reduce by 27 kg-CO<sub>2</sub>e. For every 10 liters of gasoline consumption reduction, the GHG emissions would reduce by 25 kgCO<sub>2</sub>e. Every liter of biodiesel (B100) used instead of lean diesel would reduce GHG emissions approximately 7% and every liter of ethanol (E100) used would reduce approximately 30% of GHG emissions. For lighting systems, the ENERGY STAR-qualified LEDs would reduce energy approximately 75%–80% (US Dept of Energy) compared to the traditional incandescent bulbs they replaced.

If required, the IPT will consider offsetting GHG emissions generated by machinery during the work to make this site "carbon neutral". During the construction stage, annual emissions will be calculated based on the number of kilometres travelled by the machinery and transportation of materials and excavations. Compensation may take the form of buying carbon credits or of carrying out independent projects.



## 20.8 Mitigation Measures

The following mitigation measures will be applied to reduce GHG emissions.

- Limit changes to existing land and river infrastructure to a minimum to reduce fuel usage related to land clearing and earthwork.
- Implement traffic planning to avoid traffic delays/vehicle idling and substantial detour during bridge deconstruction and construction activities.
- Provide mass transportation for workers from/to site (e.g., shuttles).
- Properly maintain heavy equipment and vehicles to reduce fuel consumption.
- Consider using local materials, bridge materials with the least environmental and carbon impact based on a life cycle assessment, or the specific manufacturing technology that involved recycled steel.
- Incentivize active transportation via bridge design, and ensure readiness for future public transit links.
- Divert construction waste from landfills (aim for 90% diversion rate).
- Consider using biofuels in heavy/construction equipment where feasible.
- Consider using energy efficiency lighting systems or renewable energy (e.g., solar cells) for signs and bridge lighting.
- During the construction stage, annual emissions will be calculated based on the number of kilometers travelled by the machinery and transportation of materials and excavations. Compensation may take the form of buying carbon credits or of carrying out independent Projects.

## 20.9 The Project and Canada's Efforts to Reduce Greenhouse Gas Emissions

The Project will release GHG emissions during the construction and operation stages. These emissions will be accounted for in annual provincial and federal GHG totals. As presented above, annual emissions from the Project during operation are not anticipated to increase from existing conditions (see Table 20-8). With advancements in regulatory emission controls and increased zero-emission vehicles expected over time, annual emissions during operation are expected to decrease. Furthermore, with the implementation of mitigation measures during construction, the Project is not anticipated to hinder the Government of Canada's efforts to reduce GHG emissions.



## 21 GENERATED WASTE AND EMISSIONS

The following emissions, discharges and waste are anticipated during the various stages of the Project:

- **Solid waste generated during construction:** It is anticipated that a substantial amount of non-hazardous solid waste will be generated throughout this Project, primarily during deconstruction of the existing bridge
- **Waste materials generated during construction of the new bridge and deconstruction of the existing bridge** will be appropriately sorted, transported and disposed of in accordance with applicable provincial and federal laws and regulations , and in accordance with PSPC and waste management practices for Projects of this scope a waste management plan will be implemented for this Project as much of the waste generated from the steel replacement portion of the Project can and should be reused or recycled. The best practice set out by PSPC is to achieve a minimum of 90% diversion rate, however a higher diversion rate will be considered during the creation of the waste management plan. Where reusing or recycling is not possible, solid waste will be disposed of through licensed waste disposal companies at licensed facilities. The decommissioning of the existing bridge will result in removal of designated substances, specifically Asbestos-Containing Materials (ACMs), Lead, Mercury, PCBs, and Silica (DST Consulting Engineers Inc. 2013)). Therefore, a Designated Substances Assessment may be required to meet the requirements of O. Reg. 278/05 (Designated Substances – Asbestos on Construction Projects and in Buildings and Repair Operations) under the *Occupational Health and Safety Act*. The need for a Designated Substances Assessment will be confirmed during the detailed design stage.
- **Liquid discharges:** Potential sources of liquid discharges during construction include runoff arising from precipitation events. Standard ESC measures will be implemented to reduce potential suspended solids in runoff and other related environmental impacts. These measures will include a requirement that hazardous wastes (if any) shall be handled in a safe manner. Hazardous materials include chemical waste, oil, paint and contaminated soil. Examples of hazardous materials used in construction work include bitumen, gasoline, diesel, oil and grease, as well as any empty containers and waste associated with these materials. Contractors will be required to transport, store and handle all such substances as recommended by the suppliers/manufacturers and in compliance with all applicable provincial and federal regulations. If hazardous waste is generated or found to be present, this material must be managed in compliance with the *Environmental Quality Act, Regulation Respecting Hazardous Materials*. Additionally, subsequent shipments of hazardous waste must be conducted in compliance with the *Transportation of Dangerous Goods Act and Regulations*.
- **Air emissions during construction and deconstruction:** Intermittent air emissions from equipment and vehicles will occur during the construction stage of the Project. Best Management Practices will be implemented where applicable, such as reducing vehicle idling time, shutting down equipment when not in use, stabilizing disturbed areas through the use of water for dust control, provide proper maintenance of equipment and vehicles operating in work areas, etc.



- **Air emissions during operation:** Air emissions will occur during operation, but are not expected to change from existing conditions, since the new bridge will continue to have 2 lanes and it is not expected that the new bridge will attract more vehicles in comparison with existing conditions.
- **Surface water drainage:** Bridge drains will also be installed on the new bridge. The number and location of drainage outlets and bridge drains will be established as part of detailed design. No other liquid discharges are anticipated as part of this Project.
- **Accidental Spills:** Chemicals or liquids with the potential to result in a spill must be stored in a manner to reduce spill potential. In the case of an accidental spill, the appropriate agencies will be notified as required. Specific mitigation measures targeting an accidental spill and preparation of an accidental spill response plan will be developed during detailed design, but the following provides examples of measures that will be used to reduce potential spills:
  - double walled containers or spill containment are required for storage containers larger than 100 L
  - containers of 100 L or less must be stored on drip trays
  - maintaining containers closed when not in use
  - establishing storage locations at least 30 metres from environmentally sensitive areas or surface water bodies, and wherever possible at least 10 metres from the boundary of the PDA
  - establishing storage locations away from high traffic areas and/or protecting the storage containers from vehicular impact

In addition, the following ESC measures will be applied during construction:

- No equipment will be permitted to enter any natural areas beyond the sediment fencing during construction.
- Materials requiring stockpiling (fill, topsoil, etc.) will be stabilized and kept a safe distance from any sensitive natural features.
- Exposed soil areas will be stabilized and re-vegetated, as appropriate. Seed and mulching, or seed and an erosion control blanket will be applied to disturbed sites promptly upon completion of construction activities.
- Refueling of equipment will be carried out away from any sensitive natural features to avoid potential impacts as a result of accidental spill.
- In addition to any specified requirements, additional sediment fence will be available on site, prior to grading operations, to provide a contingency supply in the event of an emergency.
- Potential impacts on groundwater resulting from the construction, decommissioning and operation of the bridge will be reduced through the implementation of mitigation measures such as fueling vehicles, and other construction equipment in designated areas.

## 21.1 Non-Hazardous Solid Waste

Pursuant to PSPC's Real Property Sustainability Framework (v2015) and the Real Property Sustainable Development and Environmental Strategy (PSPC 2018) and in response to the FSDS 2019-2022 and the Treasury Board's Greening Government Strategy (TBS 2020), all Projects greater than \$1 million must implement Construction, Renovation and Demolition (CRD) waste management practices. These practices are comprised of reduction, reuse and recycling initiatives to achieve a minimum non-hazardous waste diversion rate of 90%, striving to achieve 100% diversion by 2030, and reduce the Project's waste intensity (tonnes/m<sup>2</sup>) by 5%, where feasible.

CRD waste should not include any hazardous materials (i.e., waste generated from asbestos, mold, lead abatements, PCB ballasts, fuels, or other chemicals). Therefore, a clear distinction must be established between CRD non-hazardous and hazardous waste.

In addition, the following sections detail an overview of the basic steps for the Non-Hazardous Solid Waste (NHSW) management planning process. These steps are echoed in further detail in section 01 74 19 of the National Management System and should be considered when the Project specifications are being prepared.

The Project team must develop a Non-Hazardous CRD Waste Management Program for the Project, which must include the following key deliverables:

### 21.1.1 Prior to deconstruction and construction

**Waste audit:** determines the types and volumes of construction materials that will be produced as surplus to the Project, as well as the preliminary options and diversion potentials for waste reduction, reuse and recycling. Although PSPC has committed to a diversion target of 90%, all efforts should be made to maximize waste avoidance and diversion, setting a revised target based on the results of the waste audit. The Consolidated Waste Inventory will be used to inform the Waste Audit in full consultation and coordination with the Consultant based on the deconstruction and construction scope.

**Waste Reduction Work Plan:** identifies the overall waste diversion goal and material specific targets. It describes Project specific procedures to maximize the recovery of those materials identified in the Waste Audit. This also includes the Material Source Separation Program that details on-site sorting and labelling practices, tracking and reporting procedures and destinations for the materials recovered to be implemented during the construction stages of the Project.

Due to environmental concerns about hazardous substances reaching the Ottawa River, the deconstruction of the existing bridge and removal process will require a controlled deconstruction approach instead of using explosives. Containment procedures (for example, tarpaulin stretched under the work area) at superstructure cutting locations will be required as components are removed.



## 21.1.2 During and post-construction

**Training:** discuss the procedures and challenges of the Waste Reduction Work plan.

**Waste Diversion Report:** Documents the recovered construction materials to ensure that the results anticipated in the Waste Audit and Waste Reduction Work plan are realized to the highest degree possible. It records the results at the end of the Project, including overall Project diversion rate using hauling and tracking records to confirm the quantities (percent and tonnage) and final destinations of the materials diverted/landfilled.

## 21.2 Hazardous Solid Waste

If subject hazardous waste is generated or found to be present as defined by provincial regulations (i.e. Environmental Protection Act, for Ontario Regulation 347, General – Waste Management or Quebec Environment Quality Act, Land Protection and Rehabilitation Regulation Q-2, r. 37), this material must be managed in compliance with respective regulation. Additionally, subsequent shipments of hazardous waste deemed to be a dangerous good in accordance with the Transportation of Dangerous Goods Act and Regulations must be conducted in compliance with the Act and Regulation.

Identify, label and properly store all hazardous waste and/or hazardous materials (e.g., fuels, oil, lubricants, etc.) respecting the National Fire Code, occupational health and safety regulations or as otherwise prescribe in law, best practices or by relevant guidelines.

Hazardous waste and/or hazardous materials will be stored in cabinets or containers having secondary spill containment in such a manner that prevents releases to the natural environment.

Ensure all construction equipment is well maintained and free of leaks of fuels and other products.

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## Appendix A – List of Stakeholders, Partners and Groups

417 Bus Lines	Alliance to end Homelessness	Association des résidents de Deschênes
ABLE2	Alta Vista Community Association	Association des résidents de la Terrasse Lakeview
AbleTo / David C. Onley Initiative	Ambleside Three CCC #91	Association des résidents de l'Île-de-Hull
ACCUEIL-PARRAINAGE OUTAOUAIS	Ambleside Two CCC #43	Association des résidents de l'Île-de-Hull
Action Canada for Sexual Health & Rights	APHVO	Association des résidents de l'Île-de-Hull (Representative)
Action Sandy Hill	Arcadia Community Association	Association des résidents des Jardins Taché
Action vélo Outaouais	Archives Lanark	Association des résidents du Plateau
Action vélo Outaouais (Representative)	Ashbury College (Private School)	Association des résidents du quartier de Connaught
Active Living Alliance	Association de la construction du Québec	Association des résidents du quartier Wright
Advantage Boating	Association des architectes paysagistes du Québec	Association des riverains de la rue Jacques-Cartier Ouest
Aéroport de Gatineau (Gatineau-Ottawa Executive Airport)	Association des constructeurs de routes et grands travaux du Québec	Association du Camionnage du Quebec
AIDS committee of Ottawa	Association des constructeurs de routes et grands travaux du Québec	Association récréative et culturelle de Templeton
Algonquin College - General Info Line	Association des femmes immigrantes de l'Outaouais AFIO	Astolot Educational Center (Private School)
Algonquin College - Government relations	Association des groupes en arts visuels francophones	Au Feel de L'Eau / Aqua Taxi
Algonquin College - Student Association	Association des neurotraumatisés de l'Outaouais	Avenue des Jeunes
Algonquin College - Student Experience Office		
Allegiance Transportation Services		



Bank of Canada Museum	Blyth Academy (Private School)	Campus3/Centre des aînés de Gatineau
Bank Street	Bradley Estates Community Association	Canada Army Run
Barrhaven	Briarbrook and Morgan's Grant Community Association	Canada Aviation and Space Museum
Barrhaven East Community Association	Bridlewood Community Association	Canada Green Building Council
Bayshore Community Association	Brigil	Canada Lands Company
Bayshore Mall	Brigil (Representative)	Canada Mortgage and Housing Corporation (CMHC)
Beacon Hill Community Association	Britannia Community Gardens	Canada Science and Technology Museum (CSTM)
BeetBox Co-op Farm	Britannia Village Community Association	Canadian Biodiversity Institute
Bel-Air Community Association	Britannia Woods Community House	Canadian Construction Association
Bells Corners	Britannia Yacht Club	Canadian Council of the blind
Belltown Neighbours Association	British High Commission	Canadian Cycling Association
Best Western Plus	Bryanston Gate Community Association	Canadian Hard of Hearing Association
BGIS - National Heritage Conservation Manager (Representative)	Bureau Régional d'Action sida BRAS	Canadian Institute of Planners
Bike Ottawa	Burritt's Rapids Community Association	Canadian Museum of History
Billing Bridge Mall	Bytown Museum	Canadian Parks and Wilderness Society - Ottawa Chapter
Billing Estate	Bytown Museum (Representative 1)	Canadian Society of Civil Engineers
Black History Ottawa	Bytown Museum (Representative 2)	Canadian Society of Landscape Architects
Blackburn Community Association	Byward Market BIA	Canadian Trucking Alliance (provincial alliance)
Blue Line Taxi	Byward Market BIA (Representative)	

Canadian War Museum	Carleton University - Dep. Of Civil and Environmental Engineering - Architectural Conservation and Sustainability	Centraide Outaouais
Canadian Wildlife Federation		Centre alimentaire Aylmer
Canterbury Community Association	Carleton University - Dep. Of Civil and Environmental Engineering - Architectural Conservation and Sustainability	Centre Asticou
Capital Cruises		Centre d'entraide aux aînés
Capital Heritage Connection	Carleton University - Executive Assistant	Centre des jeunes de Wakefield
Capital Pride	Carleton University - Experiential Learning and Operations Coordinator	Centre Mino Madji8in (La Cité)
Capital Taxi	Carleton University - Faculty of Science	Centretown Citizens Community Association
Cardinal Creek Community Association	Carleton University - READ initiative	Centretown Community Healthcentre
Cardinal Glen Community Association	Carleton University - Student Association	Chambre de commerce de Gatineau
Carleton - Paul Menton Centre	Carlington Community Association	Chambre de commerce de Gatineau (Representative)
Carleton Golf and Yacht Homeowners Association	Carlingwood Community Association	Champlain Park Community Association
Carleton Heights & Area Residents Association	Carlingwood Mall	Chapel Hill North Community Association
Carleton Place and Beckwith Heritage Museum	Carlsbad Springs Community Association	Chapel Hill South Community Association
Carleton University - Corporate Relations Officer	Carp	Chateau Laurier
Carleton University - David C. Onley Initiative	Carp Village	CHEO
Carleton University - Dean - Arts and Social Sciences	Catholic Centre for Immigrants	CISSS de l'Outaouais
Carleton University - Dean - Public Affairs	Cégep de l'Outaouais, Felix-Leclerc campus - Director General	City Centre Coalition
Carleton University - Dean - Sprott School of Business	Cégep de l'Outaouais, Felix-Leclerc campus - Student Life	City of Ottawa
		City of Ottawa - Inspector, Traffic Management

City of Ottawa (Representative 1)	Commission scolaire au Cœur-des-Vallées	Corkery Community Association
City of Ottawa (Representative 2)	Commission scolaire des Draveurs	Cornerstone Housing for Women
City View Community Association	Commission scolaire des Portages-de-l'Outaouais	Council of Construction Associations
Civic Hospital Neighbourhood Association	Commission scolaire Western Québec	Country Place Community Association
Civil Engineer - Member of the coalition to save the Alexandra Bridge	Community Living Association Lanark County (1)	Crossing Bridge Residents' Association
Classic Alliance Motorcoach	Conseil des écoles catholiques de langue française du Centre-Est (CECLFCE)	Crystal Beach/Lakeview Community Association
Climate Action Network	Conseil des Écoles Publiques de l'est de l'Ontario (CEPEO) - Board of Trustee	Cumberland Community Association
Clinique santé sexualité du plateau	Conseil des Écoles Publiques de l'est de l'Ontario (CEPEO) - General	Cumberland Heritage Village
Club de voile Grande rivière	Conseil Économique et Social D'Ottawa-Carleton	Cumberland Township Historical Society
Club de voile Grande-Rivière	Conseil régional de l'environnement et du développement durable de l'Outaouais	Cycling Vision Ottawa - L'Avenir du cyclisme à Ottawa
Club Vélo Plaisirs	Conseil scolaire de district catholique de l'Est Ontarien (CSDCEO) - Board of Trustees and general	Dalhousie Community Association
Coalition to save the Alexandra Bridge - Heritage Ottawa, Société d'histoire de l'Outaouais, National Trust Canada, Association des résidents de l'Île-de-Hull, an architect and a civil engineer.	Conservation de la Nature Canada	David C. Onley Initiative
Collège Saint-Joseph de Hull	Constance and Bucham's Bay Community Association	Delaney Bus Lines
College Square	Convent Glen Orleans Wood Community Association	Developmental Services Ottawa
Comité de vie de quartier du Vieux-Gatineau		Diefenbunker
Comité de vie quartier Pointe-Gatineau		Disabled Women's Network Canada
Comité Solidarité Gatineau-Ouest		Downtown Rideau
		Ducks Unlimited Canada
		Dunrobin Community Association

Earl of Sussex	Embassy of Mexico	Enviro Educ-Action
Eastway Gardens Community Association	Embassy of Mongolia	Envirocentre
Ecology Ottawa	Embassy of Qatar	Envirocentre (Cycling)
Elizabeth Fry Society	Embassy of Republic of Korea	Envirocentre (Cycling) (Representative)
Elmvale Acres Community Association	Embassy of Romania	Environmental Stewardship Committee (City of Ottawa)
Elmvale Acres Shopping Centre	Embassy of Russia	Épilepsie Outaouais
Elmwood School (Private School)	Embassy of State of Kuwait	Evans
Embassy of Austria	Embassy of Sudan	Executive Cab
Embassy of Brazil	Embassy of Sweden	Fairwinds Poole Creek Community Association
Embassy of Denmark	Embassy of Switzerland	Fallingbrook Community Association
Embassy of Ethiopia	Embassy of the Argentine Republic	Families LGBTQ
Embassy of Finland	Embassy of the Czech Republic	Family Matters co-op
Embassy of France	Embassy of the Kingdom of the Netherlands	Family Services Ottawa
Embassy of Greece	Embassy of the People's Republic of China	Federation de voile du Québec
Embassy of Iceland	Embassy of the Philippines	Fédération de voile du Québec
Embassy of Ireland	Embassy of the Republic of Estonia	Federation of Canadian Municipalities - Green Municipal Fund
Embassy of Israel	Embassy of the Republic of Turkey	Federation of Citizens Association
Embassy of Italy	Embassy of the United States of America	Federation of Community Associations
Embassy of Japan	Embassy of Ukraine	
Embassy of Latvia	Embassy of Vietnam	

Federation of Community Associations (Representative)	General Burns Community Association	Greater Ottawa Homebuilders Association (GOHBA)
Fern Hill School (Private School)	GIGC Transport QC	Greely Community Association
Findlay Creek Community Association	Gignul non-profit housing	Greenspace Alliance
First Nations Child & Family Caring Society	Gîte Ami	Greyhound
Fisher Heights and Area Community Association	Glabar Park Community Alliance	Groupe Entre Femmes de l'Outaouais
Fitzroy Harbour Community Association	Glebe	Habitation partagée
Forêts Ottawa - Forest Ottawa	Glebe Annex Community Association	Habitation Partagées
Foster Farm Family House	Glen Cairn Community Association	Half Moon Bay Community Association
Four Points Sheraton	Glengarry Historical Society	Hampton Iona Community Group
Friends of Mer Bleue	Glens Community Association	Hazeldean Mall
Friends of Petrie Island and the Petrie Island Advisory Committee	Global Affairs Canada	Healthy Transportation Coalition
Friends of the Gatineau River	Global Centre for Pluralism	Heart of Orleans BIA President
Friends of the Rideau River	Gloucester Historical Society	Heritage Advocate
Frontrunners Ottawa	Gloucester Historical Society	Heritage College - Director general
Gatineau River Yacht club	Goulbourn Museum	Heritage College - General Info Line
Gay Ottawa Volleyball	Goulbourn Township Historical Society	Heritage College - Student Council
Gaytineau Pinecast	Grands-Frères et Grandes-Sœurs de l'Outaouais inc.	Heritage Ottawa
Gender Mosaic	Greater Ashton Community Association	Heritage Ottawa (Representative 1)
	Greater Avalon Community Association	Heritage Ottawa (Representative 1)

Heritage Ottawa (Representative 2)	Intégration communautaire	Kagita Mikam
Heritage Ottawa (Representative 2)	Interested individual	Kanata Academy (Private School)
Heritage Ottawa (Representative 2)	Interested individual	Kanata Beaverbrook Community Association
Heron Park Community Association	Interested individual - former architect with a special interest in the Alexandra Bridge	Kanata Central
Hidden Harvest		Kanata Lakes Community Association
Hintonburg Community Association	Interested individual - Former PSPC employee who acted as a custodian for the Alexandra Bridge and was responsible for engineering assets across the crown.	Kanata North
Historical Society of Ottawa		Kanata Sailing Club
Hôpital de Gatineau/Hôpital de Hull	Interested individual - Ottawa Citizen letter	Kanata Spectrum
Hôpital Montfort Hospital	International Society of Aborigiculture	Katimavik-Hazeldean Community Association
Howard Travel	Inuit Tapiriit Kanatami	Kinburn Community Association
Hull Marina (Portage Champlain Yacht Club)	Inuuqatigiit	Kriska Transportation
Hunt Club Community Association	Invest Ottawa	L'Arche Ottawa
Hunt Club Park Community Association	Iskotew Lodge	l'École nationale d'administration publique (ÉNAP) à Québec
Huntley Community Association	Island Park Community Association	La Cité - David C. Onley Initiative
Huntley Township Historical Society	Island Park Towers Residents' Association	La Cité - General Info Line
Immigrant Women Services Ottawa	Jack Purcell Recreation Association	La Cité - Student Council
Indigenous Action Circle	Jeunesse Idem	Lac Deschenes Sailing Club
Indigenous Clean Energy (ICE) network	Jewish Family Services	Lafarge
Indigenous Experiences	Joan of Arc Academy (Private School)	L'Amicale des personnes handicapées physiques de l'Outaouais
Ingenium Canada	Jubilee Area Residents Association (JARA)	

Lanark Community Transit (LCT)	Library and Archives Canada	Manotick Culture, Parks and Recreation Association
Landscape Ontario	Ligue des voisins du Manoir des Trembles	Manotick Village and Community Association
LaSalle Academy	Lincoln-Heights Parkway Community Association	March Rural Community Association
L'Association de l'ouïe de l'Outaouais	Lindenlea Community Association	Marina Kitchissippi
L'association des entrepreneurs en construction du Québec (AECQ)	LiveWorkPlay	Marina LeBlanc et fils.
L'Autre Chez Soi	Loisir sport Outaouais	Mashkawaziwogamig (University of Ottawa)
Le Centre Actu-Elle	Lowertown Community Association	MAX Ottawa
Le Centre d'aide 24/7	Lowertown Community Association (Resident)	McKellar Park Community Association
Le club des ornithologues de l'Outaouais	Lowertown Community Association (President)	Mechanicsville Community Association
Le club des ornithologues de l'Outaouais (Representative)	Loyal Taxi	Metcalf Community Association
Le CRIO - Collectif régional de lutte à l'itinérance en Outaouais	Lycée Claudel (Private School)	Michele Heights Community House
Le Regroupement des gens d'affaires de la Capitale nationale (RGA)	Lynwood Village Community Association	Minwaashin Lodge
Lebanese and Arab Social Services Agency of Ottawa-Carleton	Main Street Community Service	Mississippi Valley Conservation Authority
Leduc	Maison d'hébergement pour Elles Des Deux Vallées MHPEDDV	Mobi-o
Les Galeries de Hull	Maison de la famille de Gatineau	Moisson Outaouais
Les Promenades Gatineau	Maison du vélo	MRC des Collines-de-l'Outaouais
Leslie Park Community Association (LPCA)	Mamidosewin Centre (algonquin College)	MRC des Collines-de-l'Outaouais
	Manor Park Community Association	Munster Community Association
	Manor Park Community Council	Musée de la Société d'histoire de Buckingham



National Art Centre	Old Ottawa East Community Association	Ordre des architectes du Québec
National Capital Commission - External Relations	Old Ottawa South Community Association	Ordre des ingénieurs du Québec
National Capital Concert Band	Ontario Association of Architects	Ordre des urbanistes du Québec
National Gallery of Canada	Ontario Association of Landscape Architects (OALA)	Osgood Township Museum
National Trust Canada	Ontario Association on Developmental Disabilities	Osgoode Village Community Association
National Trust for Canada	Ontario Courthouse	Ottawa Aboriginal Coalition
National Trust for Canada (Representative)	Ontario Cycling Association	Ottawa Architect - Member of the coalition to save the Alexandra Bridge
Natural Resources Canada - Canada's Climate Change Adaptation Platform	Ontario Federation of Indigenous Friendship Centres	Ottawa Art Gallery
Natural Resources Canada - Office of energy efficiency	Ontario General Contractor Association	Ottawa Bicycle Club
Nature Canada	Ontario Invasive Plants Council	Ottawa Board of Trade
Nature Conservancy of Canada	Ontario Kitesurfing society	Ottawa Booth Centre
Nautism Quebec	Ontario Nature	Ottawa Catholic School Board (OCSB) - General
Navan Community Association	Ontario Northland	Ottawa Catholic School Board Trustee (OCSB) - Board of Trustees
Nepean Museum & Pinhey's Point Historic Site	Ontario Professional Planner's Institute - Eastern District Leadership Team	Ottawa Central Park Community Association
Nepean Sailing club	Ontario Restaurant Hotel & Motel Association	Ottawa Centre EcoDistrict
New Edinburgh Community Alliance	Ontario Sailing Association	Ottawa Chinese Community Service Centre
Notre Dame Basilica	Ontario's Expert Panel on Climate Change Adaptation	Ottawa Coalition of Business Improvement areas
Ojigkwanong Indigenous Student Centre (Carleton)		

Ottawa Coalition to End Violence Against Women	Ottawa Regional Society of Architects (ORSA)	Outaouais CJE
Ottawa Community Foundation - Low Carbon Cities Canada (Ottawa's Centre)	Ottawa Renewable Energy Co-op	Overbrook Community Association
Ottawa Community Immigrant Services Organization	Ottawa River Regulatory Planning Board	Paramedic Services
Ottawa Construction Association	Ottawa Riverkeeper	Paramedic Services
Ottawa Disability Coalition	Ottawa Rowing Club	Parkinson Canada
Ottawa Field Naturalists' Club	Ottawa Safety Council	Paul's Boat Lines
Ottawa Fire Dispatch	Ottawa Senior Pride Network	Perth & District Historical Society
Ottawa Gatineau Hotel Association	Ottawa Tourism	PFLAG Canada
Ottawa Gatineau Hotel Association (President)	Ottawa Transit Riders	Pinecrest-Queensway Community Health Centre
Ottawa Independent Living Resource Centre	Ottawa Wolves Rugby	Pineview Community Association
Ottawa Inline Skating Club	Ottawa Youth Engagement Committee	Place d'Orléans
Ottawa Inner City Health	Ottawa-Carleton Association for Persons with Developmental Disabilities	Polytechnique de Montréal.- Expert en mobilité
Ottawa International Airport	Ottawa-Carleton District School Board (OCDSB) - Board of Trustees	Positive Space Initiative
Ottawa Museum Network	Ottawa-Carleton District School Board (OCDSB) - General	Preston Street
Ottawa Native Friendship Centre	Ottawa-Carleton Wildlife Centre	Produits forestiers Résolu
Ottawa New Edinburgh Club	Ottawa-Gatineau Geoheritage Project	Protégeons le Quartier du Musée
Ottawa Police	Ottawa-Gatineau Geoheritage Project (Representative)	Public Works and Government Services Canada (PWGSC) (Representative 1)
Ottawa Police	OTTAWA'S LGBTQ+ SOFTBALL LEAGUE	Public Works and Government Services Canada (PWGSC) (Representative 2)

Qualicum/Graham Park Community Association	Rideau Speedeaus	Sail Canada
Quartier Vanier	Rideau Township Historical Society	Salus Ottawa
Queensway Carleton Hospital	Rideau Valley Conservation Authority	Sandy Hill Community Health Centre
Queensway Terrace North Community Association	Rio Can Gatineau (640 Maloney) & RioCan La Gappe (51 boulevard de la Gappe)	Sarsfield Community Association
Queensway Terrace South Ridgeview Community Association	Riverside Park Community and Recreation Association	Service Coordination Support
Queenswood Heights Community Association	Riverside South Community Association	Service Intégration Travail Outaouais
Rainbow Health Ontario	Riverview Park Community Association	Service régional d'interprétation visuelle de l'Outaouais
Rainbow Rockers Curling	Rockcliffe Airport (CYRO) and Sea Plane Base	Shepherds of Good Hope
RCMP Headquarters (Representative 1)	Rockcliffe Flying Club (RFC)-CTR7	Sierra Club Canada
RCMP Headquarters (Representative 2)	Rockcliffe Flying Club(RFC)-CTR7	Silver City Hull
RCMP Headquarters (Representative 3)	Rockcliffe Park Residents Association	SLOE (Sustainable Living Ottawa East)
RCMP Headquarters (Representative 4)	Rockcliffe Park Residents Association (Representative)	SmartCentres Kanata South (Terry Fox @ Fernbank)
Reach Canada	Rockcliffe Yacht Club	SmartCentres Orleans I (Innes & Mer Bleue)
REENA (Ontario Partnership on Aging and Developmental Disabilities) (X2)	Rockcliffe Yacht Club (Representative)	SmartCentres Orleans II (Innes & Mer Bleue)
Refugee613	Roll Scooters	SmartCentres Ottawa South
Responsible Cycling Coalition (RCC)	Royal Architectural Institute of Canada	SmartCentres Ottawa SouthWest
Richmond Village Association Inc.	Run Ottawa (Tamarack Race Weekend)	Snow Pride
Rideau Centre	Safe Wings Ottawa	Société Alzheimer de l'Outaouais québécois
		Société canadienne de la sclérose en plaques

Société de Transport de l'Outaouais (STO)	Spinal Cord Injury Ontario	Tavern on the Hill
Société d'histoire de l'Outaouais	Stonebridge Community Association	Tecumseh Area Residents Association
Société d'histoire de l'Outaouais (Representative)	St Joe's Women Centre	Ten Oaks Project
Société franco-ontarienne de l'autisme	St John Ambulance	Tewegan Housing for Aboriginal Youth
Société franco-ontarienne du patrimoine et de l'histoire d'Orléans	St Laurent Mall	The Canadian Centre for Gender and Sexual Diversity
Somali Centre for Family Services	St Paul University - Dean - Canon Law	The Council of Ontario Construction Associations (COCA)
Somerset Street Chinatown	St Paul University - Dean - Human Sciences	The Door Youth Centre
Somerset Village	St Paul University - Dean - Theology	The Greater Ottawa Truckers Association(GOTA)
Sonshine	St Paul University - Rector	The Ontario Federation for Cerebral Palsy
Soupe populaire de Hull inc.	St Paul University - Student Association	The Ottawa Hospital
Soupière de l'Amitié de Gatineau inc.	Stittsville Village Association	The Ottawa Mission
Source des jeunes	St-Laurent Academy (Private School)	The Petrie Island Marina (Oziles)
South African High Commission	Suites Victoria	Thorncliffe Village Community Association
South Keys	Sureté Québec	Tourism Industry Association of Ontario
South Keys Greenboro Community Association	Sustainable Eastern Ontario	Tourisme Outaouais
South Nation Conservation Authority	Symmes Inn Museum	Trans Canada Trail/The Great Trail
South West Stittsville Community Association	Table de concertation des aînés et retraités de l'Outaouais	Trans Outaouais
Southgate Shopping Centre	Tamir	Transport Action Canada
Sparks Street	Tanglewood Hillsdale Community Association	

Transportation Association of Canada	University of Ottawa - Dean - Telfer	Ville de Gatineau - Info line
Traversiers Bourbonnais (le traversier Masson-Cumberland)	University of Ottawa - General info line	Ville de Gatineau (Representative)
Tree Canada	University of Ottawa - President and Vice-Chancellor	Vision Centre-Ville Gatineau
Trend Arlington Community Association	University of Ottawa - Student Union & Pride Centre	Vivre en Ville
tungasuvvingat Inuit	UQO - Association Étudiante	Voice for deaf kids
Turnbull School (Private School)	UQO - Communications	Wabano Centre
UFWC Canada	UQO - Doyen - Gestion Académique	Walk Ottawa
Unions for bus drivers (Amalgamated Transit Union 279 Ottawa)	UQO - Doyenne - Études	Wellington Village Community Association
United Way Eastern Ontario	UQO - Doyenne - Recherche et Création	Wellington West
University of Ottawa	UQO - Rectrice	West Barrhaven Community Association
University of Ottawa - Professor Geography, Environment and Geomatics	UQO - Secrétaire Général	West Way
University of Ottawa - Professor Ph.D. Associate Professor, Public and international Affairs. Faculty of Social Sciences. Research.	Valleystream Community Association	Westboro Academy
University of Ottawa - Professor - Environmental Science	Vanier Community Association	Westboro Community Association
University of Ottawa – Deans of the Faculties - of Arts, Education, Engineering, Health Sciences, Law - Civil Law Section, Law - Common Law Section, Medicine, Science and Social Sciences	Vars Community Association	Westboro Village
	Vélo Canada Bikes	Westcliffe Estates Community Association
	Vélo-Services	Whitehaven Community Association
	VIA Rail	Winthrop Court Community House
	Ville de Gatineau - Gestion de Circulation (Representative)	Wisteria Park Community Association
		Women's Business Network of Ottawa

Women's Initiatives for Safer Environments  
(WISE)

Women's Shelters Canada / Hébergement  
femmes Canada

Woodpark Community Association

Woodroffe North Community Association

Y newcomer information centre

Youth Ottawa

Youth Services Bureau of Ottawa

Youthline

Y's Owl Maclure Co-operative Centre

## Appendix B – Public Consultation Reports

Consultation 1A - October to December 2020 - Report is provided as a separate document. Available online at: <https://ncc-website-2.s3.amazonaws.com/documents/Alex-phase-1-Consultation-Report-EN-FINAL.pdf>

Consultation 1B – November to December 2021 – will be available online Winter 2022.





## Appendix C – Registry of Stakeholder groups and method of engagement (provided as a separate document)

The Appendix is provided as a separate document.



## Appendix D – Indigenous Engagement Registry

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
1	2020-02-27	Algonquins of Pikwakanagan First Nation	Meeting	PSPC and NCC introduced Algonquins of Pikwakanagan First Nation to the entire National Capital Area program of work, including bridges and land redevelopment Projects.
2	2020-03-09	Algonquins of Ontario (AOO)	Video conference	PSPC and NCC introduced AOO to the entire National Capital Area program of work, including bridges and land redevelopment Projects. Interest expressed by AOO in economic opportunities.
3	2020-03-17	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Letter from Innovation Seven, sent by email to Grand Chief	Requesting opportunity to begin discussing Indigenous engagement on the bridges program of work. Information provided on the specific crossings and the planned program of work requesting an opportunity to communicate about the Tribal Council's requirements for engagement.
4	2020-03-17	Algonquins of Pikwakanagan First Nation	Letter from Innovation Seven, sent by email to Executive Assistant to Chief and Council	Requesting opportunity to begin discussing Indigenous engagement on the bridges program of work. Information provided on the specific crossings and the planned program of work requesting an opportunity to communicate about the First Nation's requirements for engagement.
5	2020-03-17	Kitigan Zibi Anishinabeg First Nation	Letter from Innovation Seven, sent by email to Councillor	Requesting opportunity to begin discussing Indigenous engagement on the bridges program of work. Information provided on the specific crossings and the planned program of work requesting an opportunity to communicate about the First Nation's requirements for engagement.
6	2020-03-17	Algonquins of Ontario (AOO)	Letter from Innovation Seven, sent by email to	Requesting opportunity to begin discussing Indigenous engagement on the bridges program of work. Information provided on the specific crossings and the planned

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			Executive Director	program of work requesting an opportunity to communicate about the AOO's requirements for engagement.
7	2020-03-17	Algonquins of Pikwakanagan First Nation	Email reply from Executive Assistant, Chief and Council to Innovation Seven	Direction from senior First Nation management official to begin communications with the First Nation's consultation coordinator
8	2020-03-18	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to consultation coordinator	Requesting an opportunity for a telephone conversation
9	2020-03-18	Algonquins of Pikwakanagan First Nation	Email from consultation coordinator to Innovation Seven	Confirming availability of consultation coordinator for a telephone conversation on 2020-03-19
10	2020-03-19	Algonquins of Pikwakanagan First Nation	Telephone call with Innovation Seven and consultation coordinator	Algonquins of Pikwakanagan First Nation indicated engagement cannot occur at present due to the pandemic. Mentioned that many community members live in Ottawa and will want to be engaged. Emphasized that Algonquins of Pikwakanagan First Nation must be engaged by the Crown separately from Algonquins of Ontario.
11	2020-04-29	Algonquins of Pikwakanagan First Nation	Email from consultation coordinator to Innovation Seven	Algonquins of Pikwakanagan First Nation indicated that discussions about the Project and possible engagement approaches can occur after May 18.
12	2020-04-30	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Video conference	AANTC directed the Project team to work with AANTC staff to share Project information A Chiefs' discussion of engagement cannot be held for at least a month Formal engagement cannot occur until June 2020.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
13	2020-05-01	Algonquins of Ontario (AOO)	Telephone conference	Key issues will include Indigenous participation in bridge design the aquatic ecosystem protection of cultural and archaeological heritage and resources public art celebrating Indigenous culture and values. AOO is interested in economic development opportunities as crucial for long-term sustainability.
14	2020-05-11	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to consultation coordinator	Requesting a meeting date to talk with the consultation coordinator about engagement.
15	2020-05-19	Algonquins of Pikwakanagan First Nation	Email from consultation coordinator to Innovation Seven	Confirmation that a video conference can occur with PSPC, NCC and I7 on May 28.
16	2020-05-22	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to consultation coordinator	In advance of the video conference of May 28, a powerpoint deck was shared containing the meeting objectives, topics of discussion, and background on the crossing Projects and studies to be done for the Alexandra Bridge replacement.
17	2020-05-27	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from Innovation Seven to AANTC consultation coordinator	Follow-up from video conference of April 30, asking if the AANTC has any timeline on next steps in the engagement discussion. Provided background on the crossing Projects and studies to be done for Alexandra Bridge replacement.
18	2020-05-27	Algonquins of Ontario (AOO)	Email from Innovation Seven to AOO Executive Director and Shared Value Solutions	Follow-up from phone conversation of May 1, asking if the AOO has any timeline on next steps in the engagement discussion. Provided background on the crossing Projects and studies to be done for Alexandra Bridge replacement.
19	2020-05-27	Algonquins of Ontario (AOO)	Email from Shared Value Solutions	Indicating they hope to have a better idea of timing the week of June 1 about initiating engagement.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
20	2020-05-28	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from AANTC consultation coordinator to Innovation Seven	Confirmation that AANTC staff will communicate with the Grand Chief and General Manager and provide an update as soon as possible about engagement requirements.
21	2020-05-28	Algonquins of Pikwakanagan First Nation	Video conference	Algonquins of Pikwakanagan First Nation's consultation coordinator will facilitate engagement between the Crown and Algonquins of Pikwakanagan First Nation. The community will employ the firm Firelight Group for technical and Indigenous knowledge studies. The community will bring forward a budget to support its participation once it knows more about the bridges program of work and has spoken to its consultants. The IPT will be expected to attend a series of community meetings in Pikwakanagan and possibly in other communities where their members reside. There is strong interest in business opportunities, but funding will be required to develop and maintain an inventory of businesses and skills. At this time, no comments can be made by Algonquins of Pikwakanagan First Nation about the potential impacts of the Alexandra Bridge replacement Project. As for next steps, Algonquins of Pikwakanagan First Nation will send its engagement protocol and will work with Innovation Seven and its own advisors on a draft work plan.
22	2020-05-01	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from AANTC consultation coordinator to Innovation Seven	AANTC indicated that it had recently hired an Algonquin Procurement Coordinator, who would be getting started soon.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
23	2020-06-08	Algonquins of Ontario (AOO)	Email from Innovation Seven to AOO Executive Director and Shared Value Solutions	Innovation Seven provided the AOO with the power point deck used by PSPC and NCC for the NCC's Advisory Committee on Planning, Design and Realty with more information on the design of the Alexandra Bridge replacement and the interest in representing Algonquin culture and values in the bridge design.
24	2020-06-08	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to consultation coordinator	Innovation Seven provided the Algonquins of Pikwakanagan First Nation with the power point deck used by PSPC and NCC for the NCC's Advisory Committee on Planning, Design and Realty with more information on the design of the Alexandra Bridge replacement and the interest in representing Algonquin culture and values in the bridge design.
25	2020-06-08	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from Innovation Seven to consultation coordinator	Innovation Seven provided the AANTC with the power point deck used by PSPC and NCC for the NCC's Advisory Committee on Planning, Design and Realty with more information on the design of the Alexandra Bridge replacement and the interest in representing Algonquin culture and values in the bridge design.
26	2020-06-08	Algonquins of Pikwakanagan First Nation	Email from consultation coordinator to Innovation Seven	Algonquins of Pikwakanagan First Nation requested a draft of the meeting notes from the May 28, 2020, video conference with Algonquins of Pikwakanagan First Nation, PSPC, NCC and Innovation Seven
27	2020-06-08	Timiskaming First Nation	Letter from Innovation Seven, sent by email to the Chief of Timiskaming First Nation	Requesting opportunity to begin discussing Indigenous engagement on the bridges program of work. Information provided on the specific crossings and the planned program of work requesting an opportunity to communicate about the First Nation's requirements for engagement.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
28	2020-06-08	Kebaowek First Nation	Letter from Innovation Seven, sent by email to the Chief of Kebaowek First Nation and a Councillor	Requesting opportunity to begin discussing Indigenous engagement on the bridges program of work. Information provided on the specific crossings and the planned program of work requesting an opportunity to communicate about the First Nation's requirements for engagement.
29	2020-06-08	The Algonquins of Barriere Lake	Letter from Innovation Seven, sent by email to the Chief of The Algonquins of Barriere Lake	Requesting opportunity to begin discussing Indigenous engagement on the bridges program of work. Information provided on the specific crossings and the planned program of work requesting an opportunity to communicate about the First Nation's requirements for engagement.
30	2020-06-08	Wolf Lake First Nation	Letter from Innovation Seven, sent by email to Chief Lisa Robinson	Requesting opportunity to begin discussing Indigenous engagement on the bridges program of work. Information provided on the specific crossings and the planned program of work requesting an opportunity to communicate about the First Nation's requirements for engagement.
31	2020-06-09	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to consultation coordinator	Provided a draft of the meeting notes from the May 28, 2020 video conference with Algonquins of Pikwakanagan First Nation, PSPC, NCC and Innovation Seven
32	2020-06-10	Wolf Lake First Nation	Phone Call from Innovation Seven to the Chief of Wolf Lake First Nation to confirm receipt of email and discussions regarding engagement process next steps	The Chief confirmed receipt of the email of June 8, 2020, and will be responding soon about engagement plans.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
33	2020-06-11	Algonquins of Ontario (AOO)	Email from AOO Executive Director to Innovation Seven	Indication that AOO will begin preparing a draft work plan and budget for Alexandra Bridge replacement, Sixth Crossing, and Chaudière Crossing.
34	2020-06-23	Kebaowek First Nation	Phone call from Innovation Seven to the Chief	Discussed next steps in engagement process and agreed to an engagement kick-off meeting on July 3
35	2020-06-23	Kitigan Zibi Anishinabeg First Nation	Email from Innovation Seven to Councillor	Resending initial email from March 18, 2020
36	2020-06-23	Algonquins of Pikwakanagan First Nation	Phone call from Innovation Seven to Algonquins of Pikwakanagan First Nation consultation coordinator	Discussed progress on draft work plan and budget. First Nation is working on the budget and work plan and hopes to have something within two weeks.
37	2020-06-25	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from AANTC consultation coordinator to Innovation Seven	AANTC asked for clarification from Innovation Seven on its role and whether PSPC and NCC wish to engage individual Nations or collectively through the AANTC
38	2020-06-25	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Reply email from Innovation Seven to AANTC consultation coordinator	Confirmed role of Innovation Seven in assisting PSPC and NCC to engage with Indigenous communities, including assistance with community meetings, Indigenous engagement portions of Initial Project Description for the impact assessment. Confirmed that it is up to the Algonquin Nations as to whether they wish to be consulted individually or via the AANTC and confirmed that budget funds are available for the Nations to carry out workplans.
39	2020-06-28	Ottawa Aboriginal Coalition	Email from Innovation Seven to the co-chair of the OAC	Requested opportunity to communicate with the Ottawa Aboriginal Coalition to discuss engagement for Urban Indigenous people on the NCA crossings program of work, and about



Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				possible interest in affordable housing in the region for future Indigenous workers.
40	2020-06-30	Kebaowek First Nation	Email from Innovation Seven to the Chief	Provided two power point decks with background information on the Alexandra Bridge replacement and the crossings program of work for a video conference on July 3, 2020
41	2020-06-30	Timiskaming First Nation	Phone call from Innovation Seven to the Chief.	Discussed possible Zoom communication on July 23 for Chief and Council to receive initial information about the crossings program of work, the impact assessments, and the engagement processes. Followed up with an email from Innovation to the Chief with power point decks describing the crossings program of work and the engagement process. July 23, 2020, confirmed for a Zoom communication
42	2020-07-01	Kitigan Zibi Anishinabeg First Nation	Email from Innovation Seven to Councillor	Follow-up to email as no reply had been received from Innovation Seven's March 17, 2020, introductory email
43	2020-07-02	Ottawa Aboriginal Coalition	Email from Innovation Seven to Ottawa Aboriginal Coalition's web mailbox	Follow-up web email via the Ottawa Aboriginal Coalition's web site, with the same text as the June 28, 2020, email
44	2020-07-03	Algonquins of Pikwakanagan First Nation	Email from consultation coordinator to Innovation Seven	Requested a meeting with the IPT to confirm their engagement expectations for all Projects in the NCR Bridge crossings with Algonquins of Pikwakanagan First Nation.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
45	2020-07-03	Kebaowek First Nation	Video conference	<p>Potential impacts and issues include protection of the watershed upstream and downstream from the bridge location, restrictions to the movement of aquatic species, impacts on fish habitat and spawning sites, impact on water temperature and flow levels during construction, the use of coffer dams during construction that will create dry spots, the need for fish habitat restoration and monitoring after completion of construction.</p> <p>Economic impacts must address the immediate and long-term employment opportunities for Indigenous people, access to training and apprenticeships, and career paths for students in science, technology and engineering.</p> <p>The community believes the framework agreement being finalized for the Timiskaming Quebec Dam Replacement Project is a good model. Once it is finalized, work can be begin on a similar framework agreement for the Alexandra Bridge replacement and bridges program of work.</p>
46	2020-07-06	Kebaowek First Nation	Email from Innovation Seven to Chief and Councillor	Requesting opportunity to speak with Chiefs of Kebaowek, Timiskaming and Wolf Lake
47	2020-07-08	Algonquins of Ontario (AOO)	Email from Innovation Seven to AOO Executive Director	Update on progress of hiring advisors for the Alexandra Bridge replacement and the drafting of the Initial Project Description and asking AOO for an update on the preparation of a workplan and budget, and about potential impacts and mitigation measures.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
48	2020-07-08	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from Innovation Seven to AANTC's policy and consultation coordinators	Requesting update on interest in participation in Indigenous engagement for the crossings program of work
49	2020-07-09	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from AANTC procurement officer to Innovation Seven	Requesting opportunity for a Skype meeting to discuss contracting opportunities from crossings program of work.
50	2020-07-10	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Skype conference with procurement coordinator and Innovation Seven	AANTC has a strong interest in economic opportunities. The procurement coordinator and I7 discussed approaches that would help Algonquin Nations and businesses understand the upcoming opportunities from the crossings program of work.
51	2020-07-10	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from Innovation Seven to procurement coordinator	Follow-up and thanks for video conference of July 10, 2020
52	2020-07-13	Algonquins of Pikwakanagan First Nation	Phone call from Innovation Seven to consultation coordinator	Discussed potential dates and participants for a work planning meeting for Algonquins of Pikwakanagan First Nation to learn more from PSPC and NCC about the crossings program of work and to understand Algonquins of Pikwakanagan First Nation's requirements for participation in engagement and studies.
53	2020-07-14	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from procurement coordinator to Innovation Seven	Confirming follow-up actions to be taken by the procurement coordinator concerning communication with communities.
54	2020-07-16	Wolf Lake First Nation	Email from Innovation Seven to Chief	Asking for an update on possible times for communication about engagement
55	2020-07-16	Kitigan Zibi Anishinabeg First Nation	Email from Innovation	Trying to establish initial communication, as none of the

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			Seven to Councillor	previous emails or calls prompted a response.
56	2020-07-17	Timiskaming First Nation	Email from Innovation to Chief	Seeking a meeting date for a video conference
57	2020-07-18	Kebaowek First Nation	Email from Innovation Seven to Chief and Councillor	Provided the draft notes of the July 3 Zoom call for comment.
58	2020-07-20	Algonquins of Ontario (AOO)	Email from Innovation Seven to Shared Value Solutions	Requesting status of work plan and budget for AOO Indigenous engagement
59	2020-07-20	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to Innovation Seven	Confirmation provided by AOO's representatives that a work plan and budget are being prepared
60	2020-07-23	Algonquins of Pikwakanagan First Nation	Email from Consultation Coordinator to Innovation Seven	Confirming date of August 12 for video conference with Algonquins of Pikwakanagan First Nation councillors, staff, I7, NCC and PSPC
61	2020-07-23	Kitigan Zibi Anishinabeg First Nation	Email from Innovation Seven to Councillor	Requesting opportunity to speak about Indigenous engagement for crossings program of work
62	2020-07-23	Kitigan Zibi Anishinabeg First Nation	Phone call between Innovation Seven and Councillor	Introduction to crossings program of work and PSPC/NCC intentions for Indigenous engagement
63	2020-07-23	Timiskaming First Nation	Video conference	Introduced the Chief to the crossing program of work and PSPC/NCC intentions for Indigenous engagement. Chief will connect Innovation Seven to the band's General Director and the manager of the band-owned construction company
64	2020-07-24	Timiskaming First Nation	Email from Innovation Seven to the Chief	Notes from July 23 video conference for the Chief's comments

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
65	2020-07-27	Kitigan Zibi Anishinabeg First Nation	Email from Councillor to Innovation Seven	Acknowledgement of receipt of the email from Innovation Seven of July 23 and that the email will be shared with the other members of Council. Indicated that an election for Chief is being held August 29 and that interaction with the Council may be limited before then.
66	2020-07-29	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Telephone call with Innovation Seven and procurement officer	Update from procurement officer on discussions with Algonquin construction contractors
67	2020-08-04	Wolf Lake First Nation	Email from Innovation Seven to the Chief	Follow up with the Chief to request an opportunity to present to Chief and Council about the crossings program of work and the impact statement for Alexandra Bridge replacement
68	2020-08-04	Timiskaming First Nation	Email from Innovation Seven to General Director of the band administration	Follow up from the Chief's invitation for Innovation Seven to communicate directly with band staff
69	2020-08-06	Kitigan Zibi Anishinabeg First Nation	Letter, sent by email, from Council to Innovation Seven	Formal confirmation of Kitigan Zibi's interest in the crossings program of work, particularly the environmental assessment, archaeological protocols, and employment, training and contracting opportunities. Restated the fact that discussions with Council will not occur until after the election for Chief on August 29.
70	2020-08-06	Algonquins of Ontario (AOO)	Email from Innovation Seven to Shared Value Solutions	Requesting an update from Shared Value Solutions email of July 20 concerning progress on a work plan and budget.
71	2020-08-10	Wahgoshig First Nation	Letter, sent by email, from Innovation Seven to the Chief of	Requesting opportunity to begin discussing Indigenous engagement on the bridges program of work. Information provided on the specific crossings and the planned

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			Wahgoshig First Nation	program of work requesting an opportunity to communicate about the First Nation's requirements for engagement.
72	2020-08-10	Long Point First Nation	Letter, sent by email, from Innovation Seven to the Chief of Long Point First Nation	Requesting opportunity to begin discussing Indigenous engagement on the bridges program of work. Information provided on the specific crossings and the planned program of work requesting an opportunity to communicate about the First Nation's requirements for engagement.
73	2020-08-10	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from Innovation Seven to procurement coordinator	Requesting a telephone conversation about a draft plan for increased economic participation
74	2020-08-11	Le Conseil de la Première Nation Abitibiwinni	Letter from Innovation Seven to the Cheffe of Le Conseil de la Première Nation Abitibiwinni	Requesting opportunity to begin discussing Indigenous engagement on the bridges program of work. Information provided on the specific crossings and the planned program of work requesting an opportunity to communicate about the First Nation's requirements for engagement.
75	2020-08-11	Le Conseil de la Nation Anishnabe du Lac Simon	Letter, sent by email, from Innovation Seven to the Cheffe of Le Conseil de la Nation Anishnabe du Lac Simon	Requesting opportunity to begin discussing Indigenous engagement on the bridges program of work. Information provided on the specific crossings and the planned program of work requesting an opportunity to communicate about the First Nation's requirements for engagement.
76	2020-08-11	La Communauté Anicinape de Kitcisakik	Letter, sent by email, from Innovation Seven to the Chef of La Communauté Anicinape de Kitcisakik	Requesting opportunity to begin discussing Indigenous engagement on the bridges program of work. Information provided on the specific crossings and the planned program of work requesting an opportunity to communicate about the First Nation's requirements for engagement.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
77	2020-08-11	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Consultation Coordinator	Planning the agenda for the video conference of August 12
78	2020-08-12	Algonquins of Pikwakanagan First Nation	Video conference	<p>Sharing of background information on the Alexandra Bridge replacement and the crossings program of work.</p> <p>Discussion on partnership approaches to engagement on environmental issues and Traditional Knowledge and Land Use.</p> <p>Discussion of economic opportunities, Algonquins of Pikwakanagan First Nation's interest in collecting and managing information on community economic capacity.</p> <p>Presentation by Algonquins of Pikwakanagan First Nation about the community, its membership, challenges, engagement instructions, and next steps.</p>
79	2020-08-14	Kebaowek First Nation	Email from Innovation Seven to Councillor	Requesting an introduction to the First Nation's environmental consultant
80	2020-08-17	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Telephone call with Innovation Seven and procurement officer	The procurement coordinator reported on conversations with Indigenous businesses on obstacles to obtaining contracts, including qualifications and competencies that are not realistic.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
81	2020-08-19	Kebaowek First Nation	Video conference	<p>The Chief and Councillor provided advice on the best ways to maximize the economic benefits for Indigenous people on the crossings program of work, emphasizing the importance of identifying requirements to include Indigenous people and Indigenous benefits up front in the procurement process, and that engagement and hiring commitments be built into the contracts.</p> <p>The Chief will talk with the Chiefs of Timiskaming and Wolf Lake First Nations about collaborating on the Alexandra Bridge engagement and appointing a technical team to oversee the work of their environmental consultant. Councillor Roy will connect PSPC and I7 with the consultant when she returns from vacation. A work plan and budget will follow.</p>
82	2020-08-23	Kebaowek First Nation	Email from Innovation Seven to the Chief and Councillor	Provided the notes from the August 19 video conference
83	2020-09-09	Wolf Lake First Nation	Email from Innovation Seven to the Chief	Follow-up email to express a willingness to provide Project information and discuss the start of engagement.
84	2020-09-09	The Algonquins of Barriere Lake	Email from Innovation Seven to the Chief	Follow-up email to express a willingness to provide Project information and discuss the start of engagement.
85	2020-09-09	Timiskaming First Nation	Email from Innovation Seven to senior band official	Follow-up from communication from the Chief indicating that the senior band official will be the initial contact.
86	2020-09-10	Timiskaming First Nation	Email from senior band official to Innovation Seven	Request for more Project information



Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
87	2020-09-10	Timiskaming First Nation	Email from Innovation Seven to senior band official	Provision of Project information.
88	2020-09-11	Algonquins of Pikwakanagan First Nation	Telephone conference with consultation coordination and Innovation Seven	Discussion of draft work plan and budget, and the approach to the September 17 joint team meeting with PSPC and NCC
89	2020-09-15	Kebaowek First Nation	Email from Innovation Seven to Councillor Roy	Follow-up from August 18 engagement meeting, asking for an opportunity to meet the First Nation's technical consultant
90	2020-09-16	Kitigan Zibi Anishinabeg First Nation	Email exchange between Innovation Seven and Councillor Twenish	Follow-up request about status of engagement after the August 29 elections Alexandra Bridge will not be an immediate priority as the issue of protecting the moose population is taking precedence.
91	2020-09-17	Algonquins of Pikwakanagan First Nation	Video conference	<p>Presentation by Algonquins of Pikwakanagan First Nation of work plan and budget for Alexandra Bridge replacement and other crossings in the National Capital Area program of work. Key program elements include:</p> <ul style="list-style-type: none"> <li>• Financial support for safe community engagement under Covid-19</li> <li>• Funds to support the hiring of an Algonquins of Pikwakanagan First Nation program coordinator for five years to oversee both the environmental assessment and the employment and business development</li> <li>• Funding for ongoing operation and maintenance of the Algonquins of Pikwakanagan First Nation Proficiency Collection system and data base</li> <li>• Funding for a Cumulative Effects Assessment of AOP member rights and practices in the Ottawa River.</li> </ul>

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
92	2020-09-21	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to consultation coordinator	Provision of September 17 meeting notes.
93	2020-09-21	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation environmental consultant	Request for details on previous cumulative effects assessments mentioned at the September 17 meeting.
94	2020-09-21	Métis Nation of Ontario	Email from Innovation Seven to Métis Nation of Ontario consultation email address	Requesting opportunity to begin discussing Indigenous engagement on the bridges program of work. Information provided on the specific crossings and the planned program of work requesting an opportunity to communicate about the Métis Nation of Ontario's requirements for engagement.
95	2020-09-21	Métis Nation of Ontario	Acknowledgement email from Métis Nation of Ontario to Innovation Seven	Automatic response from the Métis Nation of Ontario consultation email box.
96	2020-09-22	Algonquins of Pikwakanagan First Nation and Algonquin Anishinabeg Nation Tribal Council	Meeting of Innovation Seven, the Algonquins of Pikwakanagan First Nation consultation coordinator and the AANTC procurement coordinator	Meeting to discuss shared interests and experiences in Indigenous procurement and economic development.
97	2020-09-24	Long Point First Nation	Telephone call from Innovation Seven to the Chief, with follow-up email	Intergovernmental relations person advised the Chief was not available and that our contact needs to be directly with the Chief.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
98	2020-09-24	Timiskaming First Nation	Telephone call from Innovation Seven to senior band official	No answer, left voice message about discussing engagement with band staff.
99	2020-09-24	The Algonquins of Barriere Lake	Telephone call from Innovation Seven to the Chief	No answer, community is occupied with the moose moratorium crisis.
100	2020-09-24	Wolf Lake First Nation	Telephone call from Innovation Seven to Band office	Receptionist advised that the Chief and staff are not in the office and to call again later.
101	2020-09-24	Wahgoshig First Nation	Telephone call from Innovation Seven to the Chief, with follow-up email	Message left with receptionist, trying to contact Chief about commencement of engagement
102	2020-09-24	Kebaowek First Nation	Telephone call from Innovation Seven to Councillor	Following up from email of September 15 requesting an introduction to the community's environmental consultant, voice message left.
103	2020-09-25	Le Conseil de la Première Nation Abitibiwinni	Email from Innovation Seven to consultation coordinator	Forwarded the letter of August 11 sent to the Cheffe and invited the consultation coordinator to contact Innovation Seven to discuss the commencement of engagement.
104	2020-09-25	Le Conseil de la Nation Anishnabe du Lac Simon	Email from Innovation Seven to Director, Natural Resources	Forwarded the letter of August 11 sent to the Cheffe and invited the Director to contact Innovation Seven to discuss the commencement of engagement.
105	2020-09-25	Algonquins of Pikwakanagan First Nation	Email from Algonquins of Pikwakanagan First Nation consultation coordinator to Innovation Seven	Provision by Algonquins of Pikwakanagan First Nation of draft Initial Partnership Agreement related to engagement and support for Algonquins of Pikwakanagan First Nation activities for the crossings program of work
106	2020-09-28	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan	Suggested agenda for September 29 engagement meeting

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			First Nation consultation coordinator	
107	2020-09-29	Algonquins of Pikwakanagan First Nation	Video conference	Engagement meeting to discuss the draft Initial Partnership Agreement from Algonquins of Pikwakanagan First Nation roles of PSPC and NCC throughout engagement and subsequent procurement, construction and management Algonquins of Pikwakanagan First Nation's proposal to conduct a cumulative effects assessment.
108	2020-09-29	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation consultation coordinator	Provision of September 29 meeting notes.
109	2020-10-05	Algonquins of Ontario (AOO)	Email from AOO Executive Director to PSPC	Submission by AOO of initial work plan and budget for engagement and studies. Activities necessary for participation in the engagement include: <ul style="list-style-type: none"> <li>-process agreement development and negotiation</li> <li>-community engagement meetings</li> <li>-Algonquin Knowledge and land use study</li> <li>-impact statement document review</li> <li>-development of an Indigenous Benefits Plan</li> <li>-participation in the selection of the IPT's technical advisors</li> <li>-a long-term relationship agreement</li> <li>-financial support for the Kichi-Sibi Guardians initiative</li> </ul>
110	2020-10-06	Timiskaming First Nation	Telephone call from Innovation Seven to senior band official	Left voice message about trying to schedule a discussion on engagement with band staff

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
111	2020-10-06	Long Point First Nation	Telephone call from Innovation Seven to the Chief or staff	Receptionist advised that the Chief and staff are not in the office and to call again later.
112	2020-10-07	Kebaowek First Nation, Wolf Lake First Nation, Timiskaming First Nation	Exchange of emails between a Councillor of Kebaowek First Nation and Innovation Seven	Attempting to arrange a meeting the week of October 19 with the three First Nations and their consultant, PSPC, NCC and I7
113	2020-10-08	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from Innovation Seven to consultation coordinator	Asking AANTC's intentions about engagement provided update on engagement with member Nations asked for advice about contact with Nations that have not responded to our outreach
114	2020-10-08	Le Conseil de la Nation Anishnabe du Lac Simon	Telephone call from Innovation Seven to Director, Natural Resources	Left voice message
115	2020-10-09	Algonquins of Pikwakanagan First Nation	Meeting of NCC and PSPC with Algonquins of Pikwakanagan First Nation elected officials	Senior NCC and PSPC staff met with the Algonquins of Pikwakanagan First Nation representatives on-site at Nepean Point. Discussion indicated satisfaction from Algonquins of Pikwakanagan First Nation on engagement to date and progress in developing the work plan and budget.
116	2020-10-09	Algonquins of Ontario (AOO)	Email from PSPC to AOO Executive Director	Acknowledgement of receipt of the initial work plan and budget
117	2020-10-19	Algonquins of Ontario (AOO)	Email from PSPC to AOO Executive Director	Requesting an opportunity for a kick-off meeting to discuss engagement and studies
118	2020-10-19	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation	Requesting change in date of next engagement meeting of Algonquins of Pikwakanagan First Nation, NCC and PSPC from October 21 to November 4

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			consultation coordinator	
119	2020-10-20	Algonquins of Pikwakanagan First Nation	Email from Algonquins of Pikwakanagan First Nation consultation coordinator to Innovation Seven	Confirming agreement to change date of next meeting to November 4
120	2020-10-22	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to PSPC	Confirmation of interest in scheduling a kick-off meeting
121	2020-10-22	Algonquins of Ontario (AOO)	Email from PSPC to Shared Value Solutions	Proposing dates for kick-off meeting
122	2020-10-23	Wahgoshig First Nation	Email and voice mail from Innovation Seven to Lands Director	Attempting to make contact to begin discussions on engagement
123	2020-10-23	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from Innovation Seven to consultation coordinator	Requesting an update on the AANTC's role in engagement with its member Nations
124	2020-10-23	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from consultation coordinator to Innovation Seven	Confirmation that at this time AANTC will not lead the engagement with member Nations as it considers that to be the role of Innovation Seven. AANTC will assist with communications to member Nations.
125	2020-10-23	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from Innovation Seven to consultation coordinator	Acknowledgement of the AANTC position. Reminded AANTC of the availability of funding to assist with the engagement.
126	2020-10-23	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from consultation coordinator to Innovation Seven	AANTC will consider budget needs, and asked for clarification of the Alexandra Bridge replacement Project schedule. Consultation coordinator will provide regular updates to the Grand Chief and will inform us of any change in AANTC's role.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
127	2020-10-23	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from Innovation Seven to consultation coordinator	Provided details on current dates for submission of draft IPD in early 2021, including circulation to Indigenous partners at the same time the draft is provided to the IAAC.
128	2020-10-26	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from Innovation Seven to consultation coordinator	Asking if AANTC would write to its member Nations to inform them that Innovation Seven is attempting to contact them on behalf of PSPC and NCC about engagement
129	2020-10-27	Algonquins of Ontario (AOO)	Email from Innovation Seven to Shared Value Solutions	Proposing agenda items for the kick-off meeting and requesting confirmation about budget amounts in the proposed work plan
130	2020-10-28	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to Innovation Seven	Clarification provided by AOO of the budget amount requested in the proposed work plan
131	2020-10-28	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to PSPC	Confirming preferred date of November 5 for the kick-off meeting
132	2020-10-28	Algonquins of Ontario (AOO)	Email from PSPC to Shared Value Solutions	Acknowledgement of meeting date preference
133	2020-10-29	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from Innovation Seven to consultation coordinator	Forwarded the " Guide to Effective Indigenous Involvement in Federal Impact Assessment" produced by the First Nations Major Projects Coalition to AANTC
134	2020-10-29	Kitigan Zibi Anishinabeg First Nation	Telephone call between Innovation Seven and Councillor	Confirmation from Kitigan Zibi that the Council is ready to have an introductory meeting with PSPC and NCC
135	2020-10-29	Kebaowek First Nation	Telephone voice message and email from Innovation Seven to Councillor	Requesting news about setting up a meeting with Kebaowek, Timiskaming and Wolf Lake and their technical consultant

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
136	2020-11-02	Kebaowek First Nation	Email from Councillor to Innovation Seven	Confirmation of video conference on Nov 3
137	2020-11-02	All Algonquin Nations in Ontario and Quebec, AANTC, AOO and Métis Nation of Ontario	Email from PSPC and NCC to all Indigenous communities and organizations being engaged	Formal confirmation of the commencement of engagement, with information on the process, background on the crossings program of work, and an invitation to engage.
138	2020-11-03	All Algonquin Nations in Ontario and Quebec, AANTC, AOO and Métis Nation of Ontario	Email from Innovation Seven to all Indigenous communities and organizations being engaged	Provided the links to the public engagement process that began Nov 3, encouraged those who have not commenced Indigenous engagement yet to contact Innovation Seven
139	2020-11-03	Kebaowek First Nation	Video conference with Chief, Councillor and consultant with PSPC and Innovation Seven	Update on the draft IPD and the commitment to share the draft with Indigenous communities in spring 2021 statement from Kebaowek that it wishes to finalize the framework with PSPC for the Timiskaming Dam deck replacement Project before engaging on the NCA crossings that Kebaowek intends to use a process similar to that undertaken for the Timiskaming Dam Project that Timiskaming FN and Wolf Lake FN will be on the team with Kebaowek, and that Long Point FN may also join the team. The First Nations have created a Statement of Asserted Rights team, which is planning a meeting in coming weeks with the IAAC and would like PSPC/NCC to participate.



Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
140	2020-11-04	Algonquins of Pikwakanagan First Nation	Video conference	Discussion of draft Partnership Agreement. Consensus reached on changes to the draft Agreement concerning cash flow and work plan structure. PSPC and NCC agreed to the work schedules concerning hiring a Project coordinator for a 5-year term, the costs of communication equipment to help address Covid restrictions, support for the maintenance of data gathered in the Skills Proficiency Collection program, the Algonquins of Pikwakanagan First Nation cumulative effects study, and engagement activities to date. The Agreement and budget will be revisited regularly to address new work items and changing conditions.
141	2020-11-05	Algonquins of Ontario (AOO)	Video conference	Kick off meeting to begin formal engagement process. PSPC and NCC described their working relationship and roles in the engagement and bridge work, the IPD process for the Alexandra Bridge replacement, the longer term aspects of the National Capital Areas crossings program of work, and budget support for Indigenous engagement. Shared Value Solutions has been authorized by the AOO to act on its behalf in the Indigenous engagement, reporting to the AOO's Planning and Environment Working Group comprised of the elected Algonquin Nation Representatives. Shared Value Solutions indicated strong interest on the part of AOO in baseline assessments and impacts on the aquatic environment. Discussions will occur with the AOO about the extent and scope of work that it



Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				may wish to lead versus other forms of participation in the scientific studies. Economic benefits are of great interest, but little is known about the capacity of Indigenous businesses. Shared Value Solutions will take the information gained in today's engagement meeting and seek the advice of the Planning and Environment Working Group on the work plan, budget and form of agreement with PSPC/NCC.
142	2020-11-05	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to consultation coordinator	Draft notes from the October 4 engagement meeting
143	2020-11-06	Kitigan Zibi Anishinabeg First Nation	Meeting of NCC and PSPC with Kitigan Zibi Anishinabeg First Nation elected official	Discussion of timetable for engagement concerning Alexandra Bridge replacement and the other crossings. The Councillor mentioned the communications to date with Innovation Seven and Councillor and indicated that the full Council will commence engagement soon. He also indicated that the volume of engagement requests is affecting the Council's ability to address other priorities.
144	2020-11-09	Kitigan Zibi Anishinabeg First Nation	Email from PSPC to Councillor	Expressing thanks to the councillor for the November 6 meeting and indicating the NCC will be in contact to schedule an engagement kick-off meeting.
145	2020-11-09	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to	Acknowledging receipt of the draft meeting notes of November 5

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			Innovation Seven	
146	2020-11-10	Algonquins of Pikwakanagan First Nation	Emails between consultation coordinator and Innovation Seven	Discussion of progress on work items from the November 4 meeting
147	2020-11-13	Algonquins of Pikwakanagan First Nation	Emails between consultation coordinator and Innovation Seven	Discussion of agenda items and participation in the next engagement meeting of December 2
148	2020-11-16	Algonquins of Ontario (AOO)	Video conference	Detailed discussion of the content and format of a Relationship Agreement between AOO, PSPC and the NCC, including AOO input into the selection of contractors for the bridge replacement, development of an Indigenous benefits plan, creation of an "umbrella agreement" to fund AOO capacity, with sub-agreements for each specific crossings program of work, and the process for reviewing documents from the impact statement. Encouragement was provided by PSPC to identify increased capacity needs within AOO that could be funded through the Relationship Agreement.
149	2020-11-17	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to the consultation coordinator	Provision of a revised initial Partnership Agreement to Algonquins of Pikwakanagan First Nation with the edits requested by PSPC and the NCC.
150	2020-11-18	Algonquins of Ontario (AOO)	Email from Innovation Seven to Shared Value Solutions	Provision of the draft notes from the November 16 engagement meeting
151	2020-11-23	Algonquins of Ontario (AOO)	Emails between Shared Value Solutions and Innovation Seven	Update provided by Shared Value Solutions indicating that changes have been made to the draft work plan and budget in line with the discussions at the November 16 engagement meeting, but that consideration of creating new staff

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				capacity within AOO was under review by the organization.
152	2020-11-24	Algonquins of Pikwakanagan First Nation	Email from consultation coordinator to Innovation Seven	Provision by Algonquins of Pikwakanagan First Nation of an updated Partnership Agreement, work plan and budget to show activities and planned expenditures by year for five years.
153	2020-11-24	Kebaowek First Nation	Letter from the Chief to PSPC and the NCC, copied to the Chiefs of the individual member Nations of the AANTC and to the Chief of the Algonquins of Pikwakanagan	Response from First Nation to the letter of October 30, 2020 from PSPC and the NCC about the formal initiation of engagement. Stated that considerable consultation and relationship development has been made with PSPC on planning of the Timiskaming Quebec Dam Replacement Project, and that Kebaowek, Timiskaming and Wolf Lake First Nations wish to use the process agreement used for the Timiskaming Project as the model for an agreement concerning the Alexander Bridge replacement and the NCA crossings program of work. The Chief requested that a Letter of Intent be developed to guide the creation of the process agreement.
154	2020-11-25	Wahgoshig First Nation	Telephone call from NCC to the Chief	Chief was not available for the call.
155	2020-11-25	Le Conseil de la Première Nation Abitibiwinni	Telephone call from NCC to the Cheffe	Cheffe was not available spoke with the consultation coordinator who said he would refer the matter to the Cheffe. Doubt expressed that the Nation would be interested in engagement on the Alexandra Bridge replacement and would rely on the AANTC if any issues arose.

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156	2020-11-25	La Communauté Anicinape de Kitcisakik	Telephone call from NCC to the Chef	No answer.
157	2020-11-26	Le Conseil de la Nation Anishnabe du Lac Simon	Telephone calls from NCC to the Cheffe and the Director, Natural Resources	Left voice messages for the Cheffe and Director
158	2020-11-26	The Algonquins of Barriere Lake	Telephone call from NCC to the Chief	Left voice message.
159	2020-12-01	Algonquins of Pikwakanagan First Nation	Emails between Innovation Seven and consultation coordinator	Created the agenda for the Dec. 2 engagement meeting with PSPC and the NCC
160	2020-12-02	Algonquins of Pikwakanagan First Nation	Video conference	Agreement reached on how funding approved for Algonquins of Pikwakanagan First Nation for information technology for the Timiskaming Dam Quebec Replacement engagement could also apply to communications needs for the Alexandra Bridge replacement. Discussion of timing and scope options for Algonquins of Pikwakanagan First Nation's undertaking of a cumulative effects study that is relevant to the Timiskaming and Alexandra Bridge Projects. Updates that the legal reviews of the Partnership Agreement are in process at PSPC and the NCC. Request by Algonquins of Pikwakanagan First Nation that the next meeting on December 14 focus on procurement for the repairs and upgrades to the Chaudière Crossing.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
161	2020-12-02	Wahgoshig First Nation, Le Conseil de la Première Nation Abitibiwinni, La Communauté Anicinape de Kitcisakik, Le Conseil de la Nation Anishnabe du Lac Simon, The Algonquins of Barriere Lake	Emails were sent from the NCC to each Chief and their file holder contact people	Requesting the opportunity to communicate about engagement requirements
162	2020-12-03	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to consultation coordinator	Provision of the draft notes from the December 2 engagement meeting
163	2020-12-04	Algonquins of Pikwakanagan First Nation	Emails between Innovation Seven and consultation coordinator	Setting the time and date for the next engagement meeting on December 14.
164	2020-12-07	Algonquins of Pikwakanagan First Nation	Email from PSPC to consultation coordinator	Confirmation from PSPC to proceed with drafting and issuing an RFP for a Cumulative Effects Study for the portion of the Ottawa River flowing through Algonquins of Pikwakanagan First Nation traditional territory
165	2020-12-07	Wahgoshig First Nation	Telephone call from NCC with the Director of Lands and Resources	The Director requested a follow-up conversation with innovation Seven to obtain more detail about the Project
166	2020-12-08	Wahgoshig First Nation	Telephone call from Innovation Seven with the Director of Lands and Resources	Scheduled an MS Teams meeting for December 11
167	2020-12-08	La Communauté Anicinape de Kitcisakik	Telephone call from NCC to the Chef	No answer.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
168	2020-12-08	Le Conseil de la Nation Anishnabe du Lac Simon	Telephone call from NCC to the Cheffe	Left voice message
169	2020-12-08	The Algonquins of Barriere Lake	Telephone call from NCC with the Chief	Chief indicated he has questions about the Project and would like more information.
170	2020-12-09	The Algonquins of Barriere Lake	Telephone call and email from Innovation Seven to the Chief	Left voice message and follow-up email further to the call with NCC on December 8.
171	2020-12-09	Le Conseil de la Première Nation Abitibiwinni	Telephone call from Innovation Seven to the consultation coordinator	Left voice message.
172	2020-12-09	Métis Nation of Ontario	Telephone call from Innovation Seven with Manager of Lands, Resources and Consultations Branch	Confirmation from Métis Nation of Ontario that it received the email consultation requests sent to its consultation in-box, which were forwarded to the Ottawa Regional Metis Council. Confirmation that the Métis Nation of Ontario has no comments but would like to receive information and updates. Confirmation that the Mattawa Regional Metis Council has no comments.
173	2020-12-09	Métis Nation of Ontario	Email from Manager of Lands, Resources and Consultations Branch, to Innovation Seven	Written confirmation that the Métis Nation of Ontario has no comments on the Alexandra Bridge replacement but would like to receive information and updates.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
174	2020-12-11	Wahgoshig First Nation	Video conference	Introductory meeting of senior band officials and I7 staff. An election for Chief is underway and it may be possible to schedule a meeting of the new Chief and PSPC/NCC in the second or third week of January 2021. The First Nation will likely be interested in engagement concerning possible impacts to the community and an Impact Benefit Agreement. I7 provided Project information including the need for the Project, the planning process and the impact assessment timeline, and the availability of funding from PSPC/NCC for capacity and engagement activities. The First Nation would like more information about the technical aspects of the Alexandra Bridge replacement I7 will provide the information shortly.
175	2020-12-11	Wahgoshig First Nation	Exchange of emails between Director of Lands and Resources, and Innovation Seven	Message of thanks from Wahgoshig FN for that morning's video meeting provision of background information from NCC/PSPC by I7 concerning the Alexandra Bridge replacement.
176	2020-12-11	Algonquins of Pikwakanagan First Nation	Emails between Innovation Seven and consultation coordinator	Created the agenda for the Dec. 14 engagement meeting with PSPC and the NCC
177	2020-12-14	Algonquins of Pikwakanagan First Nation	Video conference	The meeting was requested by Algonquins of Pikwakanagan First Nation to discuss the co-development of Indigenous Benefits Plans with PSPC for each crossing procurement opportunity, starting small with the Chaudière Crossing and building towards the larger opportunities. PSPC shares the vision of using each opportunity to build Indigenous participation and benefits.



Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				<p>PSPC provided detailed information on the timing of procurements for the Chaudière Crossing and the Alexandra Bridge boardwalk repairs, and the Alexandra Bridge replacement.</p> <p>Algonquins of Pikwakanagan First Nation articulated its information needs and interests, and described the barriers that prevent Indigenous businesses and people from obtaining government contracts. PSPC expressed its commitment to work with Indigenous communities to improve how procurement opportunities create benefits for Indigenous people.</p> <p>PSPC will require bidders to create Indigenous Benefits Plans to identify, recruit, train, support and retain Indigenous workers, and to procure goods and services from Indigenous suppliers. Algonquins of Pikwakanagan First Nation will make recommendations by early January for the Chaudière Crossing RFP.</p>
178	2020-12-14	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation participants in the Dec. 14 meeting with PSPC	Provided the RFP from the Timiskaming Dam deck replacement, so Algonquins of Pikwakanagan First Nation can review how Indigenous Benefits Plans were required of bidders for that Project and make recommendations to PSPC on the requirements for the Chaudière Crossing RFP.
179	2020-12-14	Kitigan Zibi Anishinabeg First Nation	Two phone calls from NCC staff to Councillor	Councillor indicated he is the file holder for the Kitigan Zibi Anishinabeg First Nation Council for the Alexandra Bridge replacement and will try to identify

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				a time for a briefing with the PSPC/NCC/I7 team.
180	2020-12-15	Kitigan Zibi Anishinabeg First Nation	Email from Innovation Seven to Councillor	Requested an opportunity for PSPC/NCC/I7 to provide a briefing. Provided information on Indigenous engagement and the impact assessment of the Alexandra Bridge replacement, procurement opportunities for Indigenous businesses and workers, and the availability of funding from PSPC/NCC for capacity and engagement.
181	2020-12-15	Long Point First Nation	Email from Innovation Seven to the Chief	Provided information on Indigenous engagement and the impact assessment of the Alexandra Bridge replacement, procurement opportunities for Indigenous businesses and workers, and the availability of funding from PSPC/NCC for capacity and engagement. Asked if Long Point FN will be working with Timiskaming FN, Wolf Lake FN and Kebaowek FN on the engagement for the Alexandra Bridge replacement.
182	2020-12-15	Wahgoshig First Nation	Email from Innovation Seven to the Director of Lands and Resources and the Band negotiator	Provided a power point deck with information about the Alexandra Bridge replacement and the crossings program of work.
183	2020-12-16	Algonquin Nation Programs and Services Secretariat	Email and voice message to Acting Director	Introductory approach, asking for an opportunity to communicate about the organization's interests and requirements for Indigenous engagement for the Alexandra Bridge replacement. Email could not be delivered.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
184	2020-12-16	Timiskaming First Nation	Email from Innovation Seven to Sustainable Development Manager, Timiskaming FN	Provided information about the introductory video conference with the Chief on July 23, 2020 and attached the power point deck that was presented at that meeting. Requested an opportunity to meet about Timiskaming First Nation's requirements for engagement, the funding available from PSPC and the NCC to support engagement, and interests in an Indigenous Benefits Plan. Asked if Timiskaming FN had decided about collaborating on the Alexandra Bridge engagement with Kebaowek FN and Wolf Lake FN.
185	2020-12-17	Timiskaming First Nation	Email from Sustainable Development Manager to Innovation Seven	Response to 17's email of Dec 16. Follow-up discussion to occur in the New Year.
186	2020-12-17	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation participants in the Dec. 14 meeting with PSPC	Provided the meeting notes from the December 14 meeting with PSPC about procurement.
187	2020-12-18	Kitigan Zibi Anishinabeg First Nation	Phone call between NCC and the Chief	NCC staff mentioned the recent communications with Councillor Cote about arranging a briefing meeting concerning engagement about the Alexandra Bridge replacement. The Chief described economic development as a priority for the community.
188	2020-12-18	The Algonquins of Barriere Lake	Phone call from NCC to the Chief	

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
189	2020-12-20	Kebaowek First Nation	Letter from PSPC and NCC to the Chief, copied to the Chiefs of the individual member Nations of the AANTC and to the Chief of the Algonquins of Pikwakanagan	Expressed appreciation for the Chief's comments in his letter of November 24, 2020 about progress in the consultation and relationship development agreement with PSPC. Suggested to the Chief that discussions begin on the format and content of a Letter of Intent concerning Indigenous engagement on the Alexandra Bridge replacement and the other crossings Projects.
190	2020-12-21	Kebaowek First Nation	Email from Innovation Seven to the Chief and Councillor	Requesting information and advice from the Chief and Councillor about the possible collaboration of Kebaowek, Timiskaming, Wolf Lake and Long Point FN's on the Alexandra Bridge engagement.
191	2021-01-04	Algonquins of Pikwakanagan First Nation	Telephone call between Innovation Seven and Algonquins of Pikwakanagan First Nation consultant	Planning discussion for the January 6 engagement meeting with Algonquins of Pikwakanagan First Nation and PSPC about procurement and Indigenous engagement. An agenda was developed.
192	2021-01-05	Algonquins of Ontario (AOO)	Email exchange between Shared Value Solutions and Innovation Seven	SVS asked about the status of the IPD and AOO's opportunity for review I7 replied the draft is expected to be shared with Indigenous communities by the spring 2021
193	2021-01-05	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation and the Firelight Group	Sent the agenda for the January 6 engagement meeting

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
194	2021-01-06	Algonquins of Pikwakanagan First Nation	Video conference	<p>Algonquins of Pikwakanagan First Nation is drafting a document describing the principles and values that should guide the creation of Indigenous Benefit Plans for each procurement opportunity concerning the National Capital Region crossings, including the Alexandra Bridge replacement. Key considerations are:</p> <ol style="list-style-type: none"> <li>1. Governance</li> <li>2. Communication</li> <li>3. Contracting</li> <li>4. Employment</li> <li>5. Education</li> <li>6. Training and Development</li> <li>7. Culture</li> <li>8. Monitoring</li> </ol> <p>Algonquins of Pikwakanagan First Nation provided comments on the Indigenous Participation Component of the Timiskaming Quebec Traffic Deck Replacement RFP, indicating that the four parts (business plan, Indigenous business participation plan, human resource plan, training and skills development plan) are excellent. Questions and suggestions for future RFPs included how performance will be monitored and evaluated, and how the requirements will be applied to the contractors.</p>
195	2021-01-07	Algonquins of Ontario (AOO)	Email exchange between Shared Value Solutions to Innovation Seven	<p>Submission of revised work plans and budgets for the Alexandra Bridge replacement impact assessment, and for a Long Term Relationship Agreement concerning the National Capital Region crossings program of work. Acknowledgement of receipt of the information from Innovation Seven.</p>

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
196	2021-01-08	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation participants in the Jan. 6 meeting with PSPC	Provided the meeting notes from the January 6 meeting with PSPC about procurement and Indigenous Benefit Plans.
197	2021-01-11	Algonquins of Pikwakanagan First Nation	Email from Algonquins of Pikwakanagan First Nation consultant to Innovation Seven and PSPC	Provision by Algonquins of Pikwakanagan First Nation of a draft Chaudière Crossing work plan concerning Indigenous and community benefits in collaboration with PSPC.
198	2021-01-12	Algonquins of Pikwakanagan First Nation	Telephone call between Innovation Seven and Algonquins of Pikwakanagan First Nation consultant	Informed Algonquins of Pikwakanagan First Nation that the draft Chaudière Crossing work plan is under review. More detailed discussion and an update on the Chaudière Crossing procurement will occur at the January 20 meeting of Algonquins of Pikwakanagan First Nation and PSPC.
199	2021-01-15	Kitigan Zibi Anishinabeg First Nation	Telephone call between the Chief and Councillor and the NCC	Provided a reminder to the Chief and Councillor of the willingness of PSPC and the NCC to engage with Kitigan Zibi Anishinabeg First Nation
200	2021-01-18	Kitigan Zibi Anishinabeg First Nation	Email from Innovation Seven to Councillor	Follow-up email from the telephone conversation of January 15, asking for an opportunity to discuss engagement and mentioning upcoming procurement opportunities for crossings Projects.
201	2021-01-19	Algonquins of Pikwakanagan First Nation	Telephone call between Innovation Seven and Algonquins of Pikwakanagan First Nation consultant	Planning discussion for the January 20 engagement meeting with Algonquins of Pikwakanagan First Nation and PSPC about procurement and Indigenous engagement. An agenda was developed.

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202	2021-01-19	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation and the Firelight Group	Sent the agenda for the January 20 engagement meeting
203	2021-01-20	Algonquins of Pikwakanagan First Nation	Video conference	PSPC provided updated information on the preparation of an RFP to hire a construction manager for the Chaudière Crossing Project. Algonquins of Pikwakanagan First Nation will help PSPC prepare and undertake the Chaudière Crossing RFP to maximize Indigenous participation, including identifying barriers to Indigenous participation and providing examples of furthering Indigenous participation from other procurements.
204	2021-01-21	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation and the Firelight Group	Provided a link to a Project agreement for an NWT road Project that involved significant Indigenous participation and benefits
205	2021-01-22	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation and the Firelight Group	Provided the meeting notes from the January 20 meeting with PSPC about procurement and Indigenous Benefit Plans.
206	2021-01-22	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation and the Firelight Group	Provided Algonquins of Pikwakanagan First Nation and the Firelight Group with a power point deck from PSPC concerning procurement and Indigenous benefits plans

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
207	2021-01-23	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation consultation coordinator and the Firelight Group	Indicating that the legal review of the draft Partnership Agreement is almost complete, and asking Algonquins of Pikwakanagan First Nation for assistance on a definition of Indigenous Knowledge, and for a discussion about protecting the confidentiality of Indigenous Knowledge in the context of the Access to Information and Privacy Act.
208	2021-01-25	Algonquins of Pikwakanagan First Nation	Email exchange between Algonquins of Pikwakanagan First Nation consultation coordinator and Innovation Seven	Algonquins of Pikwakanagan First Nation asked when the legal comments will be provided, and if a meeting can be scheduled. Innovation Seven responded the comments should be available January 26 and a meeting can be considered at Algonquins of Pikwakanagan First Nation's convenience.
209	2021-01-25	Wahgoshig First Nation	Email from Wahgoshig FN Director of Lands and Resources to IAAC	PSPC was copied on an email indicating engagement cannot begin until after the election of a new Council on February 16.
210	2021-01-26	Timiskaming First Nation	Email exchange between Timiskaming FN sustainable development manager and Innovation Seven	First Nation requested clarification about the funding that is available for engagement. Innovation Seven outlined the possible uses and offered to arrange a meeting with PSPC.
211	2021-01-26	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to consultation coordinator and the Firelight Group	Provided suggested revisions from PSPC to the initial agreement, based on a legal review.
212	2021-01-28	Algonquins of Pikwakanagan First Nation	Email exchange between Innovation Seven and	Arranging a meeting for February 3 to discuss Impact Benefits Plans



Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			Algonquins of Pikwakanagan First Nation	
213	2021-02-01	Algonquins of Ontario	Email exchange between Shared Value Solutions and Innovation Seven	PSPC/NCC asked AOO to provide a summary of its budget request by fiscal year. AOO asked for information on the Project schedule, which was provided by Innovation Seven.
214	2021-02-01	Kebaowek First Nation	Email from the First Nation to PSPC and NCC	The First Nation provided a Non-Disclosure Agreement and asked that it be signed by PSPC and NCC prior to the First Nation sharing a previous Letter of Intent and a Process Agreement used for the Timiskaming Dam replacement Project.
215	2021-02-02	Algonquins of Ontario	Email exchange between Shared Value Solutions and Innovation Seven	AOO requested clarification as to why one of the AOO communities received a request to participate in the socio-economic study of the replacement of the Alexandra Bridge. Innovation Seven indicated it would discuss the matter with PSPC/NCC and respond shortly.
216	2021-02-02	Algonquins of Pikwakanagan First Nation	Email exchange between Innovation Seven and Algonquins of Pikwakanagan First Nation	Developed the agenda for the February 5 meeting with PSPC, NCC and IAAC
217	2021-02-03	Algonquins of Pikwakanagan First Nation	Email exchange between Innovation Seven and Algonquins of Pikwakanagan First Nation	Innovation Seven provided the power point deck for the February 5 meeting with PSPC, NCC and IAAC.
218	2021-02-03	Algonquins of Pikwakanagan First Nation	Email exchange between Innovation Seven and Algonquins of Pikwakanagan First Nation	Algonquins of Pikwakanagan First Nation received comments from its legal team on the latest draft of the collaboration agreement and will send a revised version to PSPC/NCC soon.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
219	2021-02-03	Algonquins of Pikwakanagan First Nation	Video conference	A PSPC procurement specialist described how Indigenous Benefit Plans have been co-developed with Indigenous communities on other federal Project, creating comprehensive approaches that increase participation by Indigenous people and businesses. Algonquins of Pikwakanagan First Nation and the Firelight Group will discuss the approach described by PSPC and another meeting will be held February 17.
220	2021-02-04	Algonquins of Pikwakanagan First Nation	Telephone call between Innovation Seven and Algonquins of Pikwakanagan First Nation	Confirmation of meeting arrangements for the February 5 session with PSPC, NCC and IAAC. Direction from Algonquins of Pikwakanagan First Nation for edits to the power point deck.
221	2021-02-04	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation	Provided the revised power point deck with the edits requested by Algonquins of Pikwakanagan First Nation.
222	2021-02-05	Timiskaming First Nation	Email from Innovation Seven to Manager of Sustainable Development	Provided draft deck and agenda for the February 17 meeting of Timiskaming First Nation , PSPC, NCC and IAAC, and requested any comments and suggestions.
223	2021-02-05	Algonquins of Pikwakanagan First Nation	Video conference	Meeting with Algonquins of Pikwakanagan First Nation Chief, Council members, staff and consultants, and PSPC, NCC, IAAC and Innovation Seven. Reviewed the description and timing of the Project, and issues and concerns that have been identified by Algonquins of Pikwakanagan First Nation and possible mitigation measures discussed the agreement between Algonquins of Pikwakanagan First Nation and PSPC/NCC on a program of work and studies to be undertaken by

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				Algonquins of Pikwakanagan First Nation with funding support from PSPC/NCC reviewed the progress to date in co-developing an Indigenous Benefits Plan discussed protocols for the management of archaeological resources Council asked for more information about employment and union membership.
224	2121-02-06	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation	Thanking the consultation coordinator for the meeting of February 5.
225	2021-02-08	Algonquins of Ontario	Email from Innovation Seven to Shared Value Solutions	Confirming the agreement that AOO is responsible for the conducting the socio-economic assessment with its members, and requesting a meeting of AOO and PSPC to clarify what is being done in the broader socio-economic assessment.
226	2021-02-10	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation	Provided the draft notes of the February 5 meeting of Algonquins of Pikwakanagan First Nation, PSPC, NCC and IAAC for comment
227	2021-02-10	Kitigan Zibi Anishinabeg First Nation	Email from Innovation Seven	Connecting Innovation Seven to the band's economic development officer
228	2021-02-11	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation	Provided the draft notes of the February 3 meeting of Algonquins of Pikwakanagan First Nation and PSPC about Indigenous Benefits Plans
229	2021-02-11	Algonquins of Pikwakanagan First Nation	Email exchange between Innovation Seven and Algonquins of Pikwakanagan First Nation	Algonquins of Pikwakanagan First Nation indicated it had no changes to suggest to the minutes of the February 5 meeting of Algonquins of Pikwakanagan First Nation, PSPC, NCC and IAAC. Innovation Seven asked Algonquins of Pikwakanagan First Nation about

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				next steps to discuss more detail on possible Project impacts and mitigations.
230	2021-02-16	Algonquins of Pikwakanagan First Nation	Email exchange between Innovation Seven and Algonquins of Pikwakanagan First Nation	Discussing the approach to the meeting of February 17 about Impact Benefits Plans.
231	2021-02-17	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation and the Firelight Group	Providing the information requested by Algonquins of Pikwakanagan First Nation about the list of studies to be undertaken during the impact statement
232	2021-02-17	Timiskaming First Nation	Video conference	Introductory meeting with Timiskaming First Nation staff and PSPC, NCC, and IAAC. Reviewed the description and timing of the Project and the availability of funding to support Timiskaming First Nation's participation. Primary Timiskaming First Nation contact will be the Manager of Sustainable Development, communicating directly with PSPC/NCC. Timiskaming First Nation interests include a cumulative effects study, historical use of the Ottawa River and effects, and where and how the next seven generations will be affected. Species studies are of particular importance. The First Nation will be involved in establishing protocols to review the terms of reference for studies and for Timiskaming First Nation's participation in the studies. Timiskaming First Nation will consider its needs for funding and will meet with PSPC/NCC in March 2021.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
233	2021-02-17	Algonquins of Pikwakanagan First Nation	Video conference	Algonquins of Pikwakanagan First Nation and the Firelight Group met with PSPC and Innovation Seven to begin the co-development of an Indigenous Business Plan connected to upcoming PSPC contracting opportunities.
234	2021-02-17	Algonquins of Pikwakanagan First Nation	Email from consultation coordinator to Innovation Seven	Algonquins of Pikwakanagan First Nation needs the opportunity to identify the core values with the Algonquins of Pikwakanagan First Nation Advisory Committee through a “what matters most” session and have the opportunity to review the draft IPD before any preliminary concerns can be identified.
235	2021-02-18	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation and the Firelight Group	Provided the draft notes of the February 17 meeting with PSPC about Indigenous Business Plans.
236	2021-02-19	Algonquins of Pikwakanagan First Nation	Email from Algonquins of Pikwakanagan First Nation to PSPC and Innovation Seven	Provision by Algonquins of Pikwakanagan First Nation of a revised budget for its participation in the creation of Indigenous Benefits Plans
237	2021-02-22	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation consultation coordinator	Asking for any update on timing of Algonquins of Pikwakanagan First Nation to send a revised collaboration agreement to PSPC
38	2021-02-22	Algonquins of Pikwakanagan First Nation	Telephone call between Algonquins of Pikwakanagan First Nation consultation	Algonquins of Pikwakanagan First Nation will be sending the revised collaboration agreement shortly.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			coordinator and Innovation Seven	
239	2021-02-22	Algonquins of Pikwakanagan First Nation	Telephone call between Algonquins of Pikwakanagan First Nation and Innovation Seven	Planning the agenda for the February 25 meeting of PSPC and Algonquins of Pikwakanagan First Nation about Indigenous Participation Plans
240	2021-02-22	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to Innovation Seven	AOO provided an updated cash flow by fiscal year to support consultation and engagement
241	2021-02-25	Algonquins of Pikwakanagan First Nation	Video conference	Algonquins of Pikwakanagan First Nation and the Firelight Group met with PSPC to discuss the precise content of Indigenous Participation Plans. Algonquins of Pikwakanagan First Nation will send its requirements for the IPP document to be included in bridge Requests for Proposals.
242	2021-03-01	Algonquins of Pikwakanagan First Nation	Email from Algonquins of Pikwakanagan First Nation consultation coordinator to Innovation Seven	Algonquins of Pikwakanagan First Nation provided its redraft of the collaboration agreement, for review by PSPC and NCC.
243	2021-03-01	Algonquins of Pikwakanagan First Nation	Email from Algonquins of Pikwakanagan First Nation to	Algonquins of Pikwakanagan First Nation provided a redraft of the IPP template to be included in Requests for Proposals.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			Innovation Seven	
244	2021-03-03	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Algonquins of Pikwakanagan First Nation	Provided the notes of the February 25 meeting of Algonquins of Pikwakanagan First Nation and PSPC about Indigenous Participation Plans
245	2021-03-03	Timiskaming First Nation	Email from PSPC to Timiskaming First Nation Sustainable Development Manager	Provided the notes of the February 17 meeting of Algonquins of Pikwakanagan First Nation, PSPC, NCC and IAAC for comment
246	2021-03-08	Timiskaming First Nation	Email exchange between PSPC and Timiskaming First Nation Sustainable Development Manager	PSPC asked about timing of a follow-up meeting, as discussed during the engagement of February 25. Timiskaming First Nation will consider potential dates and contact PSPC when ready.
247	2021-03-10	Algonquins of Ontario (AOO)	Email and phone call between Shared Value Solutions and Innovation Seven	AOO asked about the status of the draft IPD and the PSPC/NCC review of the draft agreement, work plan and budget. AOO will propose dates for a meeting with PSPC/NCC.
248	2021-03-12	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to Innovation Seven	AOO offered suggested dates to meet with PSPC/NCC.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
249	2021-03-15	Algonquins of Ontario (AOO)	Meeting invitation from Innovation Seven to Algonquins of Ontario	Confirming a date of March 24 for a meeting with PSPC/NCC.
250	2021-03-15	Kitigan Zibi Anishinabeg	Video conference	The Chief and Economic Development Officer asked for this meeting to discuss economic participation in the Alexandra Bridge replacement and the other crossings in the National Capital Region. PSPC described the Indigenous Participation Plan approach that will be used in procurements to increase the benefits available to Indigenous workers, businesses, and communities. The Chief would like PSPC/NCC to make a complete presentation to the Kitigan Zibi Anishinabeg First Nation Council on the procurements and on the Alexandra Bridge replacement other priorities with Council mean that the meeting cannot occur within the next six weeks and Kitigan Zibi Anishinabeg First Nation will be in contact to schedule a meeting.
251	2021-03-15	Wolf Lake, Kebaowek, and Temiskaming First Nations	Letter from Kebaowek First Nation on behalf of the three First Nations	Request from the three First Nations for PSPC and NCC concerning a confidentiality agreement
252	2021-03-16	Algonquins of Pikwakanagan First Nation	Email exchange between consultation coordinator and	Algonquins of Pikwakanagan First Nation asked that the collaboration agreement be signed before March 31.



Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			Innovation Seven.	
253	2021-03-19	Algonquins of Pikwakanagan First Nation	Email from economic development consultation assistant to Innovation Seven	Algonquins of Pikwakanagan First Nation provided details for a point of contact in the community for potential bidders on PSPC projects that will be preparing Indigenous Participation Plans with their submissions.
254	2021-03-19	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to Innovation Seven	AOO asked for an update on the proposed Sixth Crossing to be added to the agenda for the March 24 meeting with PSPC/NCC
255	2021-03-19	Algonquins of Pikwakanagan First Nation	Email exchange between economic development consultant and Innovation Seven	Algonquins of Pikwakanagan First Nation asked I7 to inform PSPC/NCC that consultation on the National Capital crossings will be the subject of a meeting of Algonquins of Pikwakanagan First Nation staff and Council once a month
256	2021-03-22	Algonquins of Ontario (AOO)	Email exchange between Shared Value Solutions and Innovation Seven	Developed the agenda for the March 24 engagement meeting with PSPC/NCC
257	2021-03-22	Algonquins of Pikwakanagan First Nation	Phone call between PSPC and consultation coordinator	Discussion of the timing of completion of the collaboration agreement. Both parties will work towards a formal signing of the agreement by April 30, 2021.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
258	2021-03-24	Kitigan Zibi Anishinabeg	Email from PSPC to Chief	Provided draft notes of the March 15 engagement meeting
259	2021-03-24	Algonquins of Ontario (AOO)	Video conference	<p>Engagement meeting with AOO, PSPC and NCC and Innovation Seven to discuss AOO's work plan, budget, cash flow estimates and draft agreement related to the Alexandra Bridge replacement and other crossings. AOO will revise the work plan and cash flow based on the work that can be completed in each fiscal year. PSPC will work with the Department of Justice to complete the review of the draft agreement.</p> <p>PSPC will complete the Strategic Partnership Initiative arrangements that will enable funds to flow to Indigenous groups.</p> <p>Next meeting date was set for April 14.</p>
260	2021-03-26	Algonquins of Ontario (AOO)	Email from Innovation Seven to Shared Value Solutions	Provided the draft notes from the March 24 engagement meeting
261	2021-03-28	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to Innovation Seven	Confirmation that the March 24 meeting notes are acceptable to AOO
262	2021-03-29	Timiskaming First Nation	Email from PSPC to Timiskaming First Nation Sustainable	PSPC asked when Timiskaming First Nation would like to have the next engagement meeting.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			Development Manager	
263	2021-04-01	Timiskaming First Nation	Email from Timiskaming First Nation Sustainable Development Manager to PSPC	Timiskaming First Nation suggested April 15 as the date for the next engagement meeting
264	2021-04-07	Algonquins of Ontario (AOO)	Email from Innovation Seven to Shared Value Solutions	Asking if April 14 is still an appropriate date for the next meeting or if more time is needed to revise the budget by fiscal year.
265	2021-04-09	Algonquins of Ontario (AOO)	Email exchange between Shared Value Solutions and Innovation Seven	Rescheduled the next meeting with PSPC/NCC to April 23.
266	2021-04-12	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Phone call between Innovation Seven and AANTC's Director General	The AANTC indicated discussions about engagement should resume with its consultation coordinator.
267	2021-04-12	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Phone call from Innovation Seven to AANTC's consultation coordinator	Left a voice message

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
268	2021-04-13	Kebaowek First Nation	Phone call from Innovation Seven to Chief	Left a voice message
269	2021-04-13	Wolf Lake First Nation	Phone call from Innovation Seven to Chief	Left a voice message
270	2021-04-13	Algonquins of The Algonquins of Barriere Lake	Phone call from Innovation Seven to Chief	Left a voice message
271	2021-04-13	Le Conseil de la Première Nation Abitibiwinni	Phone call from Innovation Seven to Chief	Left a voice message
272	2021-04-13	La Communauté Anicinape de Kitcisakik	Phone call from Innovation Seven to Chief	Left a voice message
273	2021-04-13	Le Conseil de la Nation Anishnabe du Lac Simon	Phone call between Innovation Seven and Executive Director	Executive Director suggested contacting the Chief directly.
274	2021-04-13	Le Conseil de la Nation Anishnabe du Lac Simon	Phone call from Innovation Seven to Chief	Left a voice message

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
275	2021-04-13	Long Point First Nation	Phone call between Innovation Seven and Chief	Chief had only a few minutes and asked that another call be arranged later.
276	2021-04-13	Timiskaming First Nation	Phone call from Innovation Seven to Chief	Left a voice message
277	2021-04-14	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to PSPC and Innovation Seven	AOO asked if the Dec 19, 2020, version of the draft agreement provided to PSPC/NCC will be generally appropriate for the agreement with Indigenous Services Canada and the Strategic Partnership Initiative (SPI).
278	2021-04-15	Algonquins of Ontario (AOO)	Email exchange between Shared Value Solutions and PSPC and Innovation Seven	PSPC and Innovation Seven confirmed that the Dec 19, 2020, version of the agreement provides the basis for the SPI agreement. It was agreed that Innovation Seven will draft the SPI agreement for review by PSPC/NCC and AOO prior to the April 23 meeting.
279	2021-04-15	Timiskaming First Nation	Video conference	The second engagement meeting, following the initial meeting of February 17. Attendees were staff of Timiskaming First Nation and its consultant, PSPC and NCC staff. PSPC/NCC confirmed the availability of funding to Timiskaming First Nation to support its engagement activities. Timiskaming First Nation received information about the timing of the Initial Project Description, project studies and the overall IAAC process. Timiskaming First Nation has a strong interest in participating in environmental studies and has access



Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				to qualified personnel to represent its interests. Timiskaming First Nation will consider its funding needs for a future discussion.
280	2021-04-15	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Phone call from Innovation Seven to AANTC's consultation coordinator	Left a voice message
281	2021-04-16	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Phone call between Innovation Seven and AANTC's consultation coordinator	Discussion of the Indigenous engagement process to date and the relative involvement of Quebec Algonquin Nations discussed options for collaboration between the AANTC, PSPC, NCC and I7 to engage with communities
282	2021-04-20	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to PSPC and Innovation Seven	Provided revised budget and cash flow for the engagement and consultation work plan for discussion on April 23
283	2021-04-21	Algonquins of Ontario (AOO)	Email from Innovation Seven to Shared Value Solutions	Provided the first draft, for review and comment, of the Strategic Partnership Initiative proposal that will be used to flow funds to AOO
284	2021-04-21	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Video conference	AANTC's consultation and procurement coordinators met with Innovation Seven about options for how the Tribal Council could engage with PSPC/NCC

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
285	2021-04-21	Algonquins of Pikwakanagan First Nation	Email exchange between Innovation Seven and consultation coordinator	Discussion of arrangements for a signing ceremony after the collaboration agreement is completed
286	2021-04-22	Algonquins of Pikwakanagan First Nation	Email exchange between Innovation Seven and consultation coordinator	Continuation of discussion on arrangements and protocol for a signing ceremony
287	2021-04-23	Algonquins of Pikwakanagan First Nation	Email exchange between PSPC and consultation coordinator	Provision by PSPC of revised collaboration agreement for Algonquins of Pikwakanagan First Nation review
288	2021-04-23	Algonquins of Ontario (AOO)	Video conference	<p>Engagement meeting with AOO, PSPC and NCC and Innovation Seven to discuss AOO's work plan, budget, cash flow estimates and draft agreement related to the Alexandra Bridge replacement and other crossings. PSPC and the NCC are in general agreement with the work plan and budget and requested a few adjustments to the prediction of cash flow by fiscal year.</p> <p>AOO described a budget need to support the planning and coordination of economic development opportunities. The AOO was encouraged to include a position in its budget dealing with economic</p>

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				<p>opportunities and Indigenous Participation Plans.</p> <p>The draft agreement created by AOO has been sent to the Department of Justice and the NCC legal counsel for review, with comments expected in the next few weeks.</p> <p>The timetable for procurement of the Alexandra Bridge replacement technical advisor contract was shared by PSPC.</p>
289	2021-04-25	Algonquins of Pikwakanagan First Nation	Video conference	Meeting with PSPC and Innovation Seven to discuss the remaining items for clarification on the collaboration agreement prior to completion.
290	2021-04-26	Timiskaming First Nation	Email from PSPC to Sustainable Development Manager	Provision of draft notes of the April 15 engagement meeting.
291	2021-04-28	All Algonquin Nations in Quebec and Ontario, the Algonquin Anishinabeg Nation Tribal Council, and the Métis Nation of Ontario	Email from PSPC	Provision of the draft Initial Project Description for the Alexandra Bridge replacement, the draft design guidelines for a replacement bridge, and the list of studies that will be done concerning the replacement bridge.
292	2021-04-29	Algonquins of Ontario (AOO)	Email from Shared Value	Asking if the revised agreement could be provided by end of day to allow inclusion in the next meeting package



Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			Solutions to PSPC	for the Algonquin Negotiation Representatives
293	2021-04-30	Algonquins of Ontario (AOO)	Email from PSPC to Shared Value Solutions	Provision of draft notes from April 23, 2021 engagement meeting
294	2021-04-30	Algonquins of Ontario (AOO)	Email from PSPC to Shared Value Solutions	Confirmed that PSPC is working on changes to the agreement that will require additional time
295	2021-05-02	All Algonquin Nations in Quebec and Ontario, the Algonquin Anishinabeg Nation Tribal Council, and the Métis Nation of Ontario	Email from PSPC	Requesting confirmation that the email of April 28, 2021 with the draft IPD, design guidelines and list of studies was received
296	2021-05-03	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from consultation coordinator to PSPC	Confirmation that the email of April 28, 2021 with the draft IPD, design guidelines and schedule of studies was received, and that the AANTC would be in contact to schedule a meeting with PSPC/NCC
297	2021-05-03	All Algonquin Nations in Quebec and Ontario, the Algonquin Anishinabeg Nation Tribal Council, and the Métis	Email from PSPC	Informing Indigenous communities and organizations of the schedule of Requests for Proposals for bridge work, including the Technical Advisor contract for the replacement of the Alexandra Bridge.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
		Nation of Ontario		
298	2021-05-03	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Phone call from Innovation Seven to AANTC's consultation coordinator	Left a voice message
299	2021-05-04	Algonquins of Pikwakanagan First Nation	Email exchange between Innovation Seven and consultation coordinator	Provision to Algonquins of Pikwakanagan First Nation of a draft document that will be used to secure funding for the Algonquins of Pikwakanagan First Nation work plan. Algonquins of Pikwakanagan First Nation will provide comments shortly.
300	2021-05-04	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from AANTC procurement coordinator to PSPC	AANTC asked for a meeting to discuss Indigenous Participation Plans and how Algonquin people can benefit from the bridge replacement
301	2021-05-05	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from AANTC consultation coordinator to PSPC	AANTC asked for a meeting with PSPC/NCC to discuss an engagement plan for the bridge replacement
302	2021-05-07	Algonquins of Pikwakanagan First Nation	Email exchange between Innovation Seven and consultation coordinator	Algonquins of Pikwakanagan First Nation provided its comments on the latest draft of the collaboration agreement
303	2021-05-12	Algonquins of Pikwakanagan First Nation	Exchange of emails between consultation	Confirming details of a signing ceremony for the collaboration agreement on May 31

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			coordinator and PSPC	
304	2021-05-13	Algonquins of Pikwakanagan First Nation	Exchange of emails between consultation coordinator and PSPC and Innovation Seven	Arranging a video conference on May 14 to discuss the funding agreement
305	2021-05-14	Algonquins of Pikwakanagan First Nation	Email from PSPC to consultation coordinator	Provided a three-page summary of the Alexandra Bridge replacement project
306	2021-05-14	Timiskaming First Nation	Email from PSPC to a Councillor and the Sustainable Development Manager	Provided a three-page summary of the Alexandra Bridge replacement project
307	2021-05-14	Algonquins of Pikwakanagan First Nation	Video conference	Discussion between Algonquins of Pikwakanagan First Nation, PSPC, the Firelight Group and Innovation Seven about using the Strategic Partnership Initiative as the vehicle to provide funding to Algonquins of Pikwakanagan First Nation
308	2021-05-14	Algonquins of Ontario (AOO)	Email from Innovation Seven to Shared Value Solutions	Two questions were posed to SVS about the draft collaboration agreement: confirming the governance structure of the corporation created to be the party in the agreement and asking if there is a desire to include a dispute resolution mechanism in the agreement.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
309	2021-05-18	Kitigan Zibi Anishinabeg	Phone call between Chief and PSPC	Kitigan Zibi Anishinabeg would like more information about procurements and contracting opportunities associated with the bridge replacement
310	2021-05-18	Algonquins of Ontario (AOO)	Email exchange between Shared Value Solutions, PSPC and Innovation Seven	SVS provided text for the collaboration agreement about a dispute resolution mechanism, and explained the corporate structure used by AOO for agreements with governments.
311	2021-05-19	Kitigan Zibi Anishinabeg	Email from PSPC to Chief	Provided background information on the Alexandra Bridge replacement and other projects provided details on upcoming bridge procurements and economic opportunities requested an opportunity to meet to discuss economic benefits and potential issues concerning rights, treaties, and the environment.
312	2021-05-19	Algonquins of Pikwakanagan First Nation	Email from consultation coordinator to Innovation Seven	Provided comments on options for the funding mechanism to be used to provide capacity funding to Algonquins of Pikwakanagan First Nation
313	2021-05-20	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to PSPC/NCC and Innovation Seven	AOO provided revised work plan and budget for engagement activities
314	2021-05-20	Algonquins of Ontario (AOO)	Email from Innovation Seven and PSPC/NCC to	PSPC/NCC provided a suggested revised Collaboration Agreement

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			Shared Value Solutions	
315	2021-05-20	Wolf Lake First Nation	Telephone call between Chief and Innovation Seven	Arranged a meeting time on May 26 to discuss the project, the community's interest in engagement, and the need for capacity funding
316	2021-05-20	Algonquins of Pikwakanagan First Nation	Email from PSPC/NCC and Innovation Seven to consultation coordinator	PSPC/NCC provided the final version of the Collaboration Agreement for a last review by Algonquins of Pikwakanagan First Nation prior a the May 31 signing ceremony
317	2021-05-21	Algonquins of Ontario (AOO)	Telephone call and emails between Innovation Seven and Shared Value Solutions	Scheduled a meeting for May 26 with PSPC, SVS and Innovation Seven to review the Collaboration Agreement sent May 20
318	2021-05-21	Wahgoshig First Nation	Email from Innovation Seven to Director, Lands and Resources	Asking First Nation if an engagement meeting can be scheduled
319	2021-05-25	Algonquins of Ontario (AOO)	Video conference	Discussion between Shared Value Solutions, PSPC and I7 about revisions to the Collaboration Agreement concerning confidentiality and roles. SVS will provide revised text and will discuss with the AOO Planning and Environment Committee.
320	2021-05-26	Wolf Lake First Nation	Telephone call between Chief and	Introductory call to discuss the community's interest in engagement. The Chief will discuss the opportunity with her Council and will also talk with

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			Innovation Seven	the other Nations that form the Algonquin Nation Programs and Services Secretariat.
321	2021-05-27	Kitigan Zibi Anishinabeg	Email exchange between Chief and PSPC	Finalizing the details for an engagement meeting with PSPC/NCC on June 3.
322	2021-05-30	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from PSPC to consultation coordinator	Responded to AANTC's interest to meet and provided possible dates
323	2021-05-31	Algonquins of Pikwakanagan First Nation	Video Event - Signing Ceremony – Collaboration Agreement	Ceremony involving the signing of the Collaboration Agreement by the Chief and senior officials from PSPC and NCC
324	2021-06-01	Timiskaming First Nation	Email exchange between Sustainable Development Manager and PSPC	Changes to Chief and Council positions will require a temporary halt to engagements until further notice
325	2021-06-02	Wolf Lake First Nation	Email to Chief from I7	Thanking the Chief for the May 26 call and offering to provide more project details and to arrange a meeting with PSPC/NCC
326	2021-06-02	Algonquins of Pikwakanagan First Nation	Email from PSPC to consultation coordinator	Requesting an opportunity to meet to finalize details of the funding mechanism to support Algonquins of Pikwakanagan First Nation capacity and studies
327	2021-06-03	Kitigan Zibi Anishinabeg	Video conference	Chief met with PSPC/NCC and I7 to discuss next steps in benefits plans for community members and businesses,

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				and to ask the Chief's direction about engagement. The Chief will be the point of contact for engagement and requested PSPC/NCC to continue to send him project information. The Chief indicated his community did not have the capacity to participate in the rights and environmental discussions for the impact statement and would rely on the AANTC to provide this service on behalf of the community.
328	2021-06-04	Kebaowek First Nation	Email to Chief from PSPC	Requesting an opportunity to meet to discuss the draft Initial Project Description, the design guidelines, list of studies, upcoming projects as well as capacity funding and confidentiality clauses in agreements.
320	2021-06-06	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Voice message from PSPC to procurement coordinator	Attempting to follow up on interest in a meeting to discuss Indigenous Participation Plans
330	2021-06-07	Algonquins of Pikwakanagan First Nation	Email exchange between PSPC and consultation coordinator	Arranging a meeting June 8 to discuss funding mechanism
331	2021-06-08	Algonquins of Pikwakanagan First Nation	Video conference	Algonquins of Pikwakanagan First Nation staff and consultant met with PSPC to discuss options for the funding mechanism to provide capacity funding to Algonquins of Pikwakanagan First Nation. PSPC asked for information on expenses incurred to date by Algonquins of Pikwakanagan First Nation, which will be paid through a separate vehicle. PSPC requested a future meeting date

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				to obtain Algonquins of Pikwakanagan First Nation's feedback on the draft IPD and how it wishes to be involved in upcoming studies associated with the impact statement.  Notes of this meeting sent to Algonquins of Pikwakanagan First Nation on June 8.
332	2021-06-09	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Exchange of emails between PSPC and procurement coordinator	Arranging a meeting to discuss Indigenous Participation Plans
333	2021-06-14	Kitigan Zibi Anishinabeg	Email exchange between Chief and PSPC	Arranged a meeting about economic participation on other bridge projects for June 18
334	2021-06-14	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Exchange of emails between PSPC and consultation coordinator	AANTC confirmed a willingness to meet to discuss its involvement in the engagement process and suggested dates at the end of June
335	2021-06-15	Le Conseil de la Nation Anishnabe du Lac Simon	Telephone call between Innovation Seven and the executive director of economic development	Introduction to the project and an invitation for further meetings to discuss engagement, funding, and economic benefits.
336	2021-06-15	Algonquins of Ontario (AOO)	Email from Innovation Seven to	Wrote to ask if there was any information to share from the June 14 meeting of AOO's Planning and Environment Committee, and if the



Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			Shared Value Solutions	PSPC/NCC integrated project team could meet soon with the committee or AOO staff.
337	2021-06-16	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to Innovation Seven	Acknowledgement of the June 15 email and the intention to respond as soon as possible
338	2021-06-18	Algonquins of Pikwakanagan First Nation	Video conference	Meeting of Algonquins of Pikwakanagan First Nation's Algonquin Advisory Committee with PSPC/NCC Integrated Project Team to discuss the bridge design principles and the impact statement process.
339	2021-06-22	Algonquins of Pikwakanagan First Nation	Video conference	Meeting of Algonquins of Pikwakanagan First Nation staff and consultant with PSPC/NCC Integrated Project Team to discuss next steps in impact statement process. Algonquins of Pikwakanagan First Nation will have comments on the draft IPD in mid-July.
340	2021-06-22	Le Conseil de la Première Nation Abitibiwinni	Telephone call between Innovation Seven and the executive director of economic development	Introduction to the project and an invitation for further meetings to discuss engagement, funding, and economic benefits.
341	2021-06-23	Wolf Lake First Nation	Telephone call from Innovation Seven to Chief	Left a voice message asking if the Chief would like to continue the discussion from May 26 about the engagement of the First Nation and of the Algonquin Nation Programs and Services Secretariat.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
342	2021-06-24	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Video conference	Meeting of AANTC's procurement coordinator and PSPC to talk about best ways to plan for Algonquin economic participation in coming bridge projects.
343	2021-06-25	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Project Coordinator	Provided notes of June 18 meeting with Algonquins of Pikwakanagan First Nation's Algonquin Advisory Committee
344	2021-06-28	Algonquins of Pikwakanagan First Nation	Email from Project Coordinator to Innovation Seven	Provided details on Algonquins of Pikwakanagan First Nation preparation to commence a Cumulative Effects Study
345	2021-06-28	La Communauté Anicinape de Kitcisakik	Telephone call from Innovation Seven to economic development coordinator	Left a voice message indicating availability of funding and economic opportunities concerning the Alexandra Bridge replacement
346	2021-06-28	Algonquins of The Algonquins of Barriere Lake	Telephone call from Innovation Seven to economic development coordinator	Left a voice message indicating availability of funding and economic opportunities concerning the Alexandra Bridge replacement
347	2021-06-28	Algonquins of Ontario (AOO)	Email from Innovation Seven to Shared Value Solutions	Seeking input on the agenda for the engagement meeting of July 7

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
348	2021-06-29	Algonquins of Pikwakanagan First Nation	Email from Project Coordinator to Innovation Seven	Provided comments on the information that PSPC/NCC will provide about Algonquins of Pikwakanagan First Nation engagement to the IAAC on June 30
349	2021-06-30	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to Innovation Seven	Provided suggested agenda on behalf of AOO for July 7 engagement meeting with PSPC/NCC. Asked for clarification on timing of the completion of the collaboration agreement and the flow of funding to AOO for engagement.
350	2021-06-30	Wolf Lake First Nation	Telephone call from Innovation Seven to Chief	Left a voice message asking if the Chief would like to continue the discussion from May 26 about the engagement of the First Nation and of the Algonquin Nation Programs and Services Secretariat.
351	2021-07-05	Algonquins of Ontario (AOO)	Email from PSPC to Shared Value Solutions	Answered the questions and concerns from SVS's email of June 30 about agreements and funding
352	2021-07-06	Algonquins of Ontario (AOO)	Email from Innovation Seven to SVS	Final agenda for July 7 engagement meeting
353	2021-07-06	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Project Coordinator	Provided notes from the June 22 meeting with PSPC/NCC
354	2021-07-06	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Telephone call between Procurement Coordinator and PSPC	Discussing collaboration on Indigenous Participation Plans
355	2021-07-07	Algonquins of Ontario (AOO)	Video conference	Agreed on a path forward to resolve all outstanding issues on the wording

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				of the Collaboration Agreement. Confirmed that AOO will receive funding from PSPC soon for expenses incurred to date and up to the time of signing the Collaboration Agreement.
356	2021-07-07	Algonquins of Pikwakanagan First Nation	Email from Consultation Coordinator to Innovation Seven	Algonquins of Pikwakanagan First Nation confirmed its willingness to use the Strategic Partnership Initiative approach to receive funding for engagement costs
357	2021-07-09	Algonquins of Ontario (AOO)	Email from Innovation Seven to Shared Value Solutions	Provided the notes from the July 7 engagement meeting with PSPC/NCC
358	2021-07-12	Algonquins of Ontario (AOO)	Email from Innovation Seven to SVS	Asked for contact information for AOO's legal representative, to connect it with PSPC's Department of Justice advisor, as requested by AOO at the July 7 engagement meeting
359	2021-07-13	Kebaowek First Nation	Telephone call to Chief from PSPC	Left voice message asking for a meeting to discuss completion of the legal arrangements necessary to commence engagement
360	2021-07-13	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Project Coordinator	Asking for a meeting with Algonquins of Pikwakanagan First Nation and its consultant to discuss approach to studies and engagement topics
361	2021-07-14	Algonquins of Pikwakanagan First Nation	Email from Project Coordinator to Innovation Seven	Indicated willingness to provide written comments on the approach to studies and engagement topics
362	2021-07-14	Algonquins of Ontario (AOO)	Video conference	Discussed the flow of information from AOO that is necessary for PSPC to

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				be able to develop a contract and confirming order to pay expenses incurred to date and up to the signing of the Collaboration Agreement. Provided draft Strategic Partnership Initiative documentation for AOO's review and comment.
363	2021-07-14	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Video conference	Discussion of options for AANTC roles in engagement and consultation, including possibly taking a lead role in assisting PSPC/NCC to communicate with the member Nations. The matter will be discussed at a Chiefs' leadership meeting in mid-August.
364	2021-07-16	Algonquins of Ontario (AOO)	Email from Innovation Seven to Shared Value Solutions	Asking for contact details of AOO legal staff for communication with PSPC's Department of Justice advisor
365	2021-07-19	Algonquins of Pikwakanagan First Nation	Email from Project Coordinator to Innovation Seven	Asking when more information will be available from PSPC/NCC on study terms of reference and the draft IPD
366	2021-07-19	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Telephone discussion between PSPC and consultation coordinator	Discussing progress of participation plans
367	2021-07-23	Algonquin Anishinabeg Nation Tribal Council (AANTC), Algonquins of Pikwakanagan First Nation,	Email from PSPC to the four organizations/ Communities	Provided the terms of reference for the NCC adjacent lands study

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
		Algonquins of Ontario, Kitigan Zibi Anishinabeg		
368	2021-07-23	Algonquins of Pikwakanagan First Nation	Email from PSPC to Project Coordinator	Provided answers to the questions posed earlier about status of the draft IPD
369	2021-08-03	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Project Coordinator	Sought an opportunity to meet with PSPC and Algonquins of Pikwakanagan First Nation to discuss participation plans
370	2021-08-04	Algonquins of Pikwakanagan First Nation	Email from Project Coordinator to PSPC and Innovation Seven	Asked for a status update on participation plans before scheduling a meeting
371	2021-08-06	Algonquins of Pikwakanagan First Nation	Email exchange between Project Coordinator, PSPC and Innovation Seven	Provided information on the timing of work on the participation plans and that updates on project studies for the impact statement would be provided shortly.
372	2021-08-09	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Project Coordinator	Provided updates on the timing of studies for the impact statement, the intended date for submission of the IPD to IAAC, the fact that some studies from other PSPC projects will be reviewed and updated for use on the Alexandra Bridge replacement project and asking for an opportunity to discuss Algonquins of Pikwakanagan

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				First Nation's views on how the GBA+ analysis should be undertaken.
373	2021-08-09	Algonquins of Ontario (AOO)	Email from Innovation Seven to Shared Value Solutions	Provided updates on the timing of studies for the impact statement, the intended date for submission of the IPD to IAAC, the fact that some studies from other PSPC projects will be reviewed and updated for use on the Alexandra Bridge replacement project and asking for an opportunity to discuss AOO's views on how the GBA+ analysis should be undertaken.
374	2021-08-09	First Nation Huronne - Wendat	Phone call from Innovation Seven to consultation contact	Left a voice message asking for an opportunity to discuss the Nation's engagement interests.
375	2021-08-10	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to Innovation Seven	AOO will not commence its review of the draft IPD until funding is in place. AOO understands that it needs to provide information to PSPC on expenses incurred to date before funding can flow and is working to compile the information.
376	2021-08-10	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email exchange between Procurement Coordinator and PSPC	Agreed to meet about participation plans later in August.
377	2021-08-12	Algonquins of Pikwakanagan First Nation	Email from Project Coordinator to Innovation Seven	Algonquins of Pikwakanagan First Nation provided several links to studies and best practice guides concerning Indigenous engagement, traditional knowledge, environmental

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				assessment practices and GBA+ analysis.
378	2021-08-12	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Video conference between Consultation Coordinator and PSPC	AANTC wants to put a resource in place to help develop / coordinate projects, specifically develop the list of projects, set up strategic meetings with PSPC senior officials and AANTC leadership to discuss project status, information exchange and other strategic information.  AANTC is working on a dashboard tool to manage the projects.
379	2021-08-13	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Project Coordinator	Provided thanks for the best practice links and informed Algonquins of Pikwakanagan First Nation that an update list and schedule for impact statement studies will be available at the end of August.
380	2021-08-16	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Project Coordinator	Asked again about Algonquins of Pikwakanagan First Nation's availability to meet with PSPC on participation plans.
381	2021-08-16	First Nation Huronne-Wendat	Email from innovation Seven to consultation contact	Asked to arrange a meeting to discuss the Nation's interests in engagement. Community contact is away until week of August 30.
382	2021-08-19	Kebaowek First Nation	Phone call between PSPC and Kebaowek FN Land Management	PSPC is considering what mechanism can be used to pay the FN's legal costs related to drafting a confidentiality agreement. PSPC also expressed a willingness to meet and discuss a collaboration agreement and funding



Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				to enable the First Nation's participation in engagement.
383	2021-08-18	Algonquins of Pikwakanagan First Nation	Email from Project Coordinator to Innovation Seven	Provided update that data collection for the skills and proficiency inventory that is funded in part by PSPC is going well and information will be shared soon.
384	2021-08-19	Algonquins of Pikwakanagan First Nation	Video conference between Project Coordinator and PSPC	Algonquins of Pikwakanagan First Nation provided an update on its efforts to gather invoices on expenses to date so PSPC can provide compensation. The information will be provided within two weeks.
385	2021-08-20	Algonquin Anishinabeg Nation Tribal Council (AANTC) and Algonquins of Pikwakanagan First Nation	Video conference between AANTC, Algonquins of Pikwakanagan First Nation and PSPC	AANTC reported on sharing of information with its member Nations about economic opportunities associated with the bridge replacement. PSPC encouraged AANTC to submit a plan as to how it will engage its member Nations.
386	2021-08-26	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from PSPC to consultation coordinator	Asked for a discussion about directions coming from a recent meeting of Algonquin chiefs about possible collaboration for the purposes of engagement and economic opportunities between the Tribal Council and Algonquin Nations, including Algonquin Nations in Quebec and Ontario that are not members of the Tribal Council
387	2021-08-27	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from consultation coordinator to PSPC	Agreeing to meet August 30

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
388	2021-08-30	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from PSPC to consultation coordinator	Confirming availability of PSPC to meet
389	2021-08-30	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email exchange between procurement coordinator and PSPC	AANTC asked for a meeting with PSPC to discuss a broader approach to participation by Algonquin people and businesses in procurement opportunities associated with the bridges in the National Capital.
390	2021-08-30	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Text from PSPC to consultation coordinator	Requesting a time for a call to discuss the Tribal Council's role in engagement.
391	2021-08-30	First Nation Huronne - Wendat	Email from Innovation Seven to consultation contact	Offered to arrange a meeting with PSPC and the NCC to discuss the Project and the community's interest in engagement
392	2021-09-01	First Nation Huronne-Wendat	Email from Innovation Seven to consultation contact	Offered to arrange a meeting with PSPC and the NCC to discuss the Project and the community's interest in engagement
393	2021-09-04	First Nation Huronne-Wendat	Email from Innovation Seven to consultation contact	Offered to arrange a meeting with PSPC and the NCC to discuss the Project and the community's interest in engagement
394	2021-09-07	First Nation Huronne-Wendat	Email from consultation contact to Innovation Seven	The community has not had time yet to consider the offer from PSPC and the NCC to meet about the Project. The community is also questioning whether there is a need to communicate with the proponents,

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				given the role to be played by the IAAC.
395	2021-09-09	First Nation Huronne-Wendat	Email from Innovation Seven to consultation contact	Indicating that the IAAC expects proponents to engage directly with Indigenous communities, in addition to any engagement they may have with the IAAC.
396	2021-09-09	Algonquins of Ontario (AOO)	Email from Shared Value Solutions to PSPC	AOO requested a status update for the schedule of studies for the IPD and the timing for release of the second draft of the IPD.
397	2021-09-14	Algonquins of Ontario (AOO)	Email from Innovation Seven to Shared Value Solutions	AOO was informed of the changes in the timing of the IPD and was provided with the updated list of studies to be conducted for the impact statement.
398	2021-09-14	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Text from PSPC to consultation coordinator	Requesting a time for a call to discuss the Tribal Council's role in engagement.
399	2021-09-15	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Text from PSPC to consultation coordinator	Requesting a time for a call to discuss the Tribal Council's role in engagement.
400	2021-09-15	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Project Coordinator	Algonquins of Pikwakanagan First Nation was informed of the changes in the timing of the IPD and was provided with the updated list of studies to be conducted for the impact statement.
401	2021-09-17	Wolf Lake First Nation	Call from Innovation Seven to Chief	Left voice message offering to arrange a meeting with PSPC and the NCC to discuss the Project and the community's interest in engagement

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
402	2021-09-19	Algonquins of Barriere Lake	Call from Innovation Seven to Chief	Left voice message offering to arrange a meeting with PSPC and the NCC to discuss the Project and the community's interest in engagement
403	2021-09-19	Mohawk Council of Kanesatake	Email from Innovation Seven to staff contact	Offered to arrange a meeting with PSPC and the NCC to discuss the Project and the community's interest in engagement
404	2021-09-20	First Nation Huronne-Wendat	Email from Innovation Seven to consultation contact	Offered to arrange a meeting with PSPC and the NCC to discuss the Project and the community's interest in engagement
405	2021-09-21	Algonquins of Pikwakanagan First Nation	Email from PSPC to Project Coordinator	Asking for a meeting to obtain comments that Algonquins of Pikwakanagan First Nation said it would provide about how IPPs should be structured and managed
406	2021-09-22	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Text from PSPC to consultation coordinator	Requesting a time for a call to discuss the Tribal Council's role in engagement.
407	2021-09-22	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Telephone conversation between PSPC and consultation coordinator	Updating discussion on recent engagements, progress on IPPs, and to express sympathy about the loss of the Grand Chief.
408	2021-09-23	Mohawk Council of Kanesatake	Email from Innovation Seven to staff contact	Offered to arrange a meeting with PSPC and the NCC to discuss the Project, the community's interest in engagement, and funding available from PSPC

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
409	2021-09-28	Algonquins of Pikwakanagan First Nation	Video conference	Algonquins of Pikwakanagan First Nation and PSPC discussed next steps in the creation of IPPs to maximize community benefits from the Project
410	2021-10-04	Algonquins of Barriere Lake	Email from PSPC to Chief and legal representative	Offered to arrange a meeting with PSPC and the NCC to discuss the Project, the community's interest in engagement, and funding available from PSPC
411	2021-10-05	Algonquins of Pikwakanagan First Nation	Email exchange between Project Coordinator and Innovation Seven	Algonquins of Pikwakanagan First Nation asked for and received a copy for its records of the proposal sent to Indigenous Services Canada to arrange the funding from the Strategic Partnership Initiative.
412	2021-10-06	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from PSPC to Consultation and Procurement Coordinators	Provided an update on the timing of studies and completion of the Initial Project Description
413	2021-10-06	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Video conference	AANTC staff and PSPC met to discuss how engagement activity will be managed going forward. AANTC will share a letter sent to all Algonquin Nations indicating that for the purpose of economic activity and procurement, AANTC will represent all 11 Nations. AANTC staff will confirm what arrangements will be forthcoming about other engagement activities.
414	2021-10-07	Wolf Lake First Nation and Algonquin Nations Program and	Email from PSPC to Chief	Offered to arrange a meeting with PSPC and the NCC to discuss the Project, the community's interest in

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
		Services Secretariat		engagement, and funding available from PSPC
415	2021-10-07	Timiskaming First Nation	Email from PSPC to Sustainable Development Manager	Offered to arrange a meeting with PSPC and the NCC to discuss the Project, the community's interest in engagement, and funding available from PSPC
416	2021-10-07	First Nation Huronne-Wendat	Email from PSPC to consultation contact	Offered to arrange a meeting with PSPC and the NCC to discuss the Project, the community's interest in engagement, and funding available from PSPC
417	2021-10-07	Métis Nation of Ontario	Email from PSPC to consultation coordinator	Offered to arrange a meeting with PSPC and the NCC to discuss the Project, the community's interest in engagement, and funding available from PSPC
418	2021-10-07	Mohawk Council of Kahnawake	Email from PSPC to Chiefs and consultation contacts	Offered to arrange a meeting with PSPC and the NCC to discuss the Project, the community's interest in engagement, and funding available from PSPC
419	2021-10-12	Mohawk Council of Kanesatake	Telephone call from Innovation Seven to Chief	Left a voice message about interest in a meeting about the Project
420	2021-10-12	Mohawk Council of Kahnawake	Exchange of emails between PSPC and consultation contact	MCK asked to receive the Initial Project Description, which will help the community determine the level and nature of its involvement. PSPC will send the document when the second draft is ready
421	2021-10-13	Métis Nation of Ontario	Exchange of emails between	Métis Nation of Ontario Region 6 would like to meet PSPC and the NCC to learn about the project

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			PSPC and Métis Nation of Ontario Region 6	
422	2021-10-14	Mohawk Council of Kanesatake	Telephone call from Chief to Innovation Seven	The Chief will meet with the community economic development representatives and will inform us of any interest in a meeting about the Project
423	2021-10-15	Métis Nation of Ontario	Email from Métis Nation of Ontario to PSPC	Confirming the contact details of the new consultation advisor from Métis Nation of Ontario
424	2021-10-15	Algonquins of Pikwakanagan First Nation	Email from consultation staff to PSPC	Algonquins of Pikwakanagan First Nation intends to apply to Department of Fisheries and Oceans for funding through the Canada Nature Fund for Aquatic Species at Risk and asked for a letter of support from PSPC
425	2021-10-19	Métis Nation of Ontario	Email from PSPC to Métis Nation of Ontario	Asking if Métis Nation of Ontario would like to meet to receive introductory information about the Project
426	2021-10-20	Mohawk Council of Kanesatake	Telephone call between Chief and Innovation Seven	Chief requested that PSPC send summary information about the Project
427	2021-10-20	Mohawk Council of Akwesasne	Telephone call from Innovation Seven to Chief	Left voice message offering to arrange a meeting with PSPC and the NCC to discuss the Project and the community's interest in engagement
428	2021-10-21	Algonquins of Pikwakanagan First Nation	Email from PSPC to	Provided the requested letter of support for Algonquins of

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			consultation staff	Pikwakanagan First Nation's application for funding from DFO
429	2021-10-22	Algonquins of Pikwakanagan First Nation	Exchange of emails between PSPC and the Project Coordinator	Attempting to establish a meeting time to discuss updates to the Collaboration Agreement
430	2021-10-22	Métis Nation of Ontario	Exchange of emails between PSPC and the consultation advisor	Agreed to an introductory meeting on October 27 to plan a consultation meeting with Métis Nation of Ontario Region 6 representatives
431	2021-10-27	Métis Nation of Ontario	Video conference	Meeting of consultation advisor, PSPC and Innovation Seven to agree on the approach and agenda for a consultation meeting with Métis Nation of Ontario Region 6 representatives. The meeting should be held during an evening to accommodate the Region 6 participants. PSPC indicated funding is available to Métis Nation of Ontario for its participation in the impact assessment. Métis Nation of Ontario advised that each Region 6 participant should receive an honorarium of \$200 per meeting from PSPC.
432	2021-10-28	Métis Nation of Ontario	Email from PSPC to consultation advisor	Provided draft notes from the Oct 27 meeting
433	2021-10-29	Métis Nation of Ontario	Email from PSPC to consultation advisor	PSPC suggested several dates for the meeting with the Region 6 participants.



Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
434	2021-10-29	Kebaowek First Nation	Email from PSPC to the First Nation and its legal counsel	Provided a contract to be executed by the legal counsel so that PSPC can pay for legal expenses related to drafting a confidentiality agreement
435	2021-10-29	Mohawk Council of Kanesatake	Email from PSPC to Chief	Provided the Project summary and the list and schedule of studies
436	2021-10-30	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email exchange between PSPC and consultation coordinator	<p>PSPC informed AANTC of upcoming information sessions organized by PSPC and the National Aboriginal Capital Corporation Association (NACCA) about procurement.</p> <p>AANTC will share the information with its member Nations.</p> <p>AANTC requested assistance in the preparation of a submission to the Strategic Partnership Initiative (SPI) for funding for a coordinated approach to economic development opportunities.</p>
437	2021-11-01	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from PSPC to procurement coordinator	Agreed to assist with the preparation of the SPI submission and provided a summary of the SPI information requirements
438	2021-11-03	Mohawk Council of Kanesatake	Email from Innovation Seven to community economic development staff	Asking if the First Nation has a directory of businesses owned by members
439	2021-11-03	First Nation Huronne-Wendat e First Nation	Email exchange between PSPC and	Established November 18 as the date for an introductory meeting

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
		(Huronne-Wendat)	consultation contact	
440	2021-11-03	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Meeting of PSPC and procurement coordinator	Indigenous Participation Plan detail and next steps were discussed.
441	2021-11-03	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from procurement coordinator to PSPC	Provided a list of five construction businesses owned by Algonquin members
442	2021-11-08	Métis Nation of Ontario	Email exchange between from PSPC to consultation advisor	Confirming the participants for the November 15 meeting
443	2021-11-09	Mohawk Council of Kanesatake	Telephone call between Innovation Seven and Chief	Chief said that he is still reviewing material received from PSPC. He is waiting for the return of his colleague Chief to discuss the matter in the coming weeks.
444	2021-11-10	First Nation Huronne-Wendat e First Nation (Huronne-Wendat)	Email exchange between PSPC and consultation contact	Suggested inviting the Chief responsible for economic development to the November 18 introductory meeting. First Nation Huronne-Wendat e asked PSPC and the NCC to limit their participation in the introductory meeting.
445	2021-11-12	Métis Nation of Ontario	Email from PSPC to consultation advisor	Proposing an agenda for the November 15 meeting

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
446	2021-11-12	Algonquins of Pikwakanagan First Nation	Exchange of emails between PSPC and the Project Coordinator	Algonquins of Pikwakanagan First Nation is working to gather the information on initial expenses so PSPC can provide reimbursement
447	2021-11-15	Métis Nation of Ontario	Exchange of emails between PSPC and the consultation advisor	Agreeing to postpone the November 15 meeting
448	2021-11-16	Algonquins of Pikwakanagan First Nation	Exchange of emails between PSPC and the Project Coordinator	Algonquins of Pikwakanagan First Nation requested updates on the status of the next draft of the IPD and the likely date of its submission to the IAAC. PSPC committed to respond shortly.
449	2021-11-17	Algonquins of Ontario	Email from Shared Value Solutions to PSPC	Provided an updated estimate of costs that will be incurred by AOO prior to the signing of a Strategic Partnership Agreement. Requested an estimate of when the revised estimate will be approved, and an update on the issuance of the draft IPD.
450	2021-11-17	First Nation Huronne-Wendat	Email exchange between PSPC and consultation contact	Agreement on the agenda for the November 18 introductory meeting
451	2021-11-18	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email exchange between PSPC and consultation coordinator	Discussion of progress made and next steps for the preparation of the Strategic Partnership Initiative proposal that would increase AANTC capacity to provide procurement and

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
				economic development services to Algonquin Nations.
452	2021-11-18	First Nation Huronne-Wendat	Video conference	Introductory meeting of the First Nations economic development staff, PSPC, the NCC and Innovation Seven to discuss the Project, the community's interest in engagement, and funding available from PSPC. First Nation expressed strong interest in possible economic opportunities and suggested that discussion of environmental and cultural impacts should be discussed with another section of the community administration: le bureau de Nionwentsio.
453	2021-11-18	First Nation Huronne-Wendat	Email from consultation contact to PSPC	Provided contact information for le bureau de Nionwentsio.
454	2021-11-22	Algonquins of Pikwakanagan First Nation	Exchange of emails between PSPC and the Project Coordinator	Algonquins of Pikwakanagan First Nation requested details on the Project studies completed to date and asked why some studies had been removed from the list. Algonquins of Pikwakanagan First Nation expressed its interest in participating in the archaeology study, the fish and fish habitat assessment, and the 455alternative means assessment. The draft terms of reference for the culture and heritage study were requested. Algonquins of Pikwakanagan First Nation would like discuss data needs to support the Algonquins of Pikwakanagan First Nation-led cumulative effects study.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
455	2021-11-23	Algonquins of Pikwakanagan First Nation	Exchange of emails between PSPC and the Project Coordinator	Algonquins of Pikwakanagan First Nation asked about the timing of the Request for Proposals for the Technical Advisor contract for the Project. PSPC responded the RFP will be released in mid-January 2022.
456	2021-11-24	Algonquins of Ontario	Email exchange and phone call between AOO's Senior Project Manager and Innovation Seven	Senior Project Manager recently joined AOO and sought information about the Project in the context of broader discussions with PSPC about staffing support and capacity building.
457	2021-11-24	Algonquins of Pikwakanagan First Nation	Exchange of emails between PSPC and the Project Coordinator	Confirming estimated timelines for the sharing of the second draft of the IPD. Algonquins of Pikwakanagan First Nation expressed concern about being able to comment on the second draft within 30 days of receipt.
458	2021-11-24	Algonquins of Pikwakanagan First Nation	Exchange of emails between Councillor and Innovation Seven	Discussing interest in establishing an environmental field school for Algonquin students
459	2021-11-25	First Nation Huronne-Wendat	Exchange of emails between PSPC and consultation contact	PSPC initiated contact with le bureau de Nionwentsio, sharing the presentation deck from the November 18 meeting and offering an opportunity to meet
460	2021-11-26	Algonquins of Pikwakanagan First Nation	Exchange of emails between PSPC and the	PSPC recognized Algonquins of Pikwakanagan First Nation's concerns about the time available to review the second draft of the IPD and mentioned

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			Project Coordinator	the time for review and comment available after submission of the IPD to the IAAC.
461	2021-11-30	Algonquins of Pikwakanagan First Nation	Exchange of emails between PSPC and the Project Coordinator	The Project Team is preparing a document describing the key differences between the first and second draft of the IPD to help reviewers see the changes.
462	2021-11-30	First Nation Huronne-Wendat	Exchange of emails between PSPC and consultation contact	PSPC provided the draft notes of the November 18 meeting
463	2021-11-30	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email exchange between PSPC and consultation coordinator	Provided draft notes of the meetings of October 6 and November 3, 2021, concerning Algonquin participation in economic opportunities
464	2021-12-01	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Meeting between PSPC and Algonquin Procurement Officer.	Weekly meeting to discuss IPP process, progress and detail.
465	2021-12-02	Algonquins of Ontario	Email exchange between PSPC, AOO and Shared Value Solutions	AOO requested a response to its email of November 17. PSPC responded, asking for a meeting to discuss the revised interim billing, the Collaboration Agreement, and updates to the work plan.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
466	2021-12-02	Kitigan Zibi Anishinabeg	Phone call from PSPC to Chief's office	Asking for a conversation about Kitigan Zibi Anishinabeg First Nation's need for funding for an engagement liaison officer
467	2021-12-02	Algonquins of Ontario	Email from Senior Project Manager to PSPC	Providing invoices for expenses incurred
468	2021-12-02	Métis Nation of Ontario	Exchange of emails between PSPC and the consultation advisor	Métis Nation of Ontario provided an estimate of costs for honoraria per engagement meeting
469	2021-12-02	Algonquins of Pikwakanagan First Nation	Exchange of emails between PSPC and the Project Coordinator	PSPC suggested meeting early in January 2022 to discuss Project studies
470	2021-12-03	Algonquins of Ontario	Email from Senior Project Manager to PSPC	Acknowledging PSPC's response of December 2, and that possible meeting times will be discussed with AOO's Executive Director
471	2021-12-03	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Phone conversation between procurement coordinator and PSPC	Updating progress on increasing Algonquin economic involvement in PSPC capital projects
472	2021-12-06	Algonquins of Pikwakanagan First Nation	Exchange of emails between PSPC and the Project Coordinator	Algonquins of Pikwakanagan First Nation agreed to meet in January 2022 to discuss Project studies

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
473	2021-12-07	Algonquins of The Algonquins of Barriere Lake	Exchange of emails between PSPC, Chief and law firm	Chief and Council wish to meet to discuss the Project. Current situations in the community prevent being able to schedule a meeting now.
474	2021-12-07	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email exchange between PSPC and consultation coordinator	PSPC provided information requested by AANTC on training locations for heavy equipment operators
475	2021-12-08	Métis Nation of Ontario	Exchange of emails between PSPC and the consultation advisor	PSPC requesting information on payment of honorarium fee process.
476	2021-12-07	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Meeting between PSPC and Algonquin Procurement Officer.	Weekly meeting to discuss IPP process, progress, and detail.
477	2021-12-07	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email exchange between PSPC and Algonquin Procurement Officer.	PSPC provided website link to the Operating Engineers Training Institute of Ontario.
478	2021-12-08	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email exchange between PSPC and Algonquin Procurement Officer.	AANTC expressing thanks for training institute information.



Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
479	2021-12-09	First Nation Huronne-Wendat	Exchange of emails between PSPC and consultation contact	PSPC provided the PowerPoint deck on the Introduction to the Alexandra Bridge Replacement Project.
480	2021-12-09	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email exchange between PSPC and AANTC	PSPC shared final minutes with AANTC from the October 6 <sup>th</sup> and November 3 <sup>rd</sup> meetings as well as draft meeting minutes from the December 1 <sup>st</sup> meeting.
481	2021-12-10	Algonquins of Ontario	Exchange of emails between Senior Project Manager and Innovation Seven	Requested clarification on one of the invoices sent to PSPC on December 2
482	2021-12-10	Kitigan Zibi Anishinabeg	Phone call between Chief and PSPC	PSPC informed the Chief that the AANTC is seeking funding for several positions to support consultation and assist member Nations. The Chief indicated his support for the AANTC approach rather than having a liaison officer in the community.
483	2021-12-10	Algonquins of Pikwakanagan First Nation	Email from Innovation Seven to Councillor	Informing Councillor of discussions with other Federal agencies about a possible environmental field school and asking if a meeting is desired
484	2021-12-13	Métis Nation of Ontario	Exchange of emails between PSPC and the consultation advisor	PSPC provided forms to be filled out to process honorarium fees for future January 2022 meeting.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
485	2021-12-14	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Meeting between PSPC and Algonquin Procurement Officer.	Weekly meeting to discuss IPP process, progress, and detail.
486	2021-12-14	Algonquins of Ontario	Email exchange between Executive Director and PSPC	Agreed to a meeting on January 6, 2022 with an agenda focused on completion of the funding agreements, staffing requirements, and the Collaboration Agreement
487	2021-12-15	Kebaowek First Nation	Video conference	Meeting with a Councillor, the First Nation's environmental consultant, and the Project Team. Agreement was reached to use the process negotiated between the First Nation and PSPC for the Timiskaming Dam-Bridge of Quebec replacement project as the model for the Alexandra Bridge Replacement Project. PSPC will review and update the relevant documents related to confidentiality and the contract to provide capacity building funding. Next meeting to be held after January 17, 2022.
488	2021-12-16	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email from PSPC to Algonquin Procurement Officer	Providing the final minutes of the PSPC/AANTC meeting of October 6, 2021.
489	2021-12-22 2021-12-23	Algonquins of Pikwakanagan First Nation	Email exchange between PSPC and Project Coordinator	Algonquins of Pikwakanagan First Nation requested a letter of support from PSPC/NCC for a funding application being made to the First Nations Guardian Program at Environment and Climate Change Canada.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
490	2022-01-05	Algonquins of Ontario	Email exchange between PSPC and Executive Director	Finalizing the agenda for the engagement meeting of January 6, 2022.
491	2022-01-05	Kebaowek First Nation	Email from PSPC to Councillor	Providing draft notes of the engagement meeting of December 15, 2022.
492	2022-01-06	Algonquins of Ontario	Video conference	Meeting with Executive Director, Senior Project Manager, PSPC/NCC and Innovation Seven. AOO provided a new management directive that will increase AOO staff capacity for engagement with project proponents and for the management of impact assessment activities. AOO will revise its work plan and budget accordingly for discussion with PSPC/NCC. PSPC will finalize the draft Collaboration Agreement and prepare funding contracts for discussion with AOO.
493	2022-01-06	First Nation Huronne-Wendat	Email exchange between PSPC and economic development officer	PSPC provided information on how to access the Government of Canada procurement web site to see upcoming opportunities.
494	2022-01-07	Algonquins of Pikwakanagan First Nation	Email exchange between PSPC and Project Coordinator	PSPC/NCC provided the requested letter of support for Algonquins of Pikwakanagan First Nation's funding application to the First Nations Guardian Initiative.
495	2022-01-10	La Communauté Anicinape de Kitcisakik	Phone conversation between Innovation Seven and economic	Arranging an initial meeting with PSPC on January 13, 2022.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			development officer	
496	2022-01-10	Le Conseil de la Première Nation Abitibiwinni	Phone conversation between Innovation Seven and economic development officer	Arranging an initial meeting with PSPC on January 12, 2022.
497	2022-01-10	Le Conseil de la Nation Anishnabe du Lac Simon	Phone conversation between Innovation Seven and economic development officer	Arranging an initial meeting with PSPC on January 12, 2022.
498	2022-01-10	Algonquins of Ontario	Email exchange between PSPC and Executive Director	Informing AOO that the draft IPD will be shared on January 14, 2022.
499	2022-01-10	Kebaowek First Nation	Email from PSPC to Councillor	Informing Kebaowek First Nation that the draft IPD will be shared on January 14, 2022.
500	2022-01-10	Algonquin Anishinabeg Nation Tribal Council (AANTC)	Email exchange between PSPC and Algonquin Procurement Officer	Informing AANTC that the draft IPD will be shared on January 14, 2022.
501	2022-01-10	Timiskaming First Nation	Email exchange between PSPC and Manager,	Informing Timiskaming First Nation that the draft IPD will be shared on January 14, 2022.

Record #	Date Held	Indigenous Group	Activity	Key Discussion Points
			Sustainable Development	
502	2022-01-10	Algonquins of Pikwakanagan First Nation	Email exchange between PSPC and Project Coordinator	Informing Algonquins of Pikwakanagan First Nation that the draft IPD will be shared on January 14, 2022.
503	2022-01-11	Wolf Lake First Nation	Phone conversation between Innovation Seven and Executive Director	Arranging an initial meeting with PSPC on January 18, 2022.



## Appendix E – Procedural Engagement Record

The tables provide a chronological record of the procedural aspects of engagement, including a record of the discussions about future engagement procedures expressed by the Indigenous communities and organizations to date.

### E-1 Algonquins of Pikwakanagan First Nation

Representatives of the community have stated its requirements concerning:

- Communication protocols
- Determining the studies to be conducted
- Funding requirements
- Supporting the contributions of an Algonquin Advisory Committee
- The structure and content of the work plan
- Roles in procurement and contracting

**Table E1: Pikwakanagan First Nation requirements about the procedural aspects of engagement**

Record #	Date (YYYY-MM-DD)	Method	Indigenous Group's Procedural Requirement	Integrated Project team's response
10	2020-03-19	Telephone call	must be engaged separately from the Algonquins of Ontario	Agreed
21	2020-05-28	Video conference	Algonquins of Pikwakanagan First Nation consultation coordinator will be the point of contact for PSPC, NCC and Innovation Seven	Agreed
21	2020-05-28	Video conference	When the situation is safe, the IPT will be expected to attend a series of community meetings in Pikwakanagan and possibly in other communities where its members reside	Agreed
78	2020-08-12	Video conference	Algonquins of Pikwakanagan First Nation indicated its intention to lead several of its own studies related to environmental impacts, Indigenous Knowledge, cumulative effects of prior development in the Ottawa River watershed, and an inventory of skills and proficiencies amongst its members.	Agreed with the intent and asked Algonquins of Pikwakanagan First Nation to provide a draft work plan and budget.

Record #	Date (YYYY-MM-DD)	Method	Indigenous Group's Procedural Requirement	Integrated Project team's response
88	2020-09-11	Email and telephone call	Provision by Algonquins of Pikwakanagan First Nation of the draft work plan and budget	Commenced review
91	2020-09-17	Video conference	<p>Review of the draft budget and work plan.</p> <p>Algonquins of Pikwakanagan First Nation requires funding in two streams:</p> <ul style="list-style-type: none"> <li>- to cover the costs for initial engagement, not including costs for studies or initiatives, so that Algonquins of Pikwakanagan First Nation will be prepared and resourced to begin the more intensive work associated with impact statements. It includes drafting an agreement for negotiation with PSPC and NCC, engaging with consultants to scope possible studies and identify which studies Algonquins of Pikwakanagan First Nation wants to lead, community engagement meetings with an Advisory Committee, and legal costs.</li> <li>-funding for Algonquins of Pikwakanagan First Nation -led studies and initiatives required to inform multiple Projects in the crossings program of work prior to the commencement of environmental assessments. Key program elements include: <ul style="list-style-type: none"> <li>• Financial support for safe community engagement under Covid-19</li> <li>• Funds to support the hiring of an Algonquins of Pikwakanagan First Nation program coordinator for five years to oversee both the environmental assessment</li> </ul> </li> </ul>	Under review



Record #	Date (YYYY-MM-DD)	Method	Indigenous Group's Procedural Requirement	Integrated Project team's response
			<p>and the employment and business development</p> <ul style="list-style-type: none"> <li>• Funding for ongoing operation and maintenance of the Algonquins of Pikwakanagan First Nation Skills and Proficiencies Collection system and data base</li> <li>• Funding for a Cumulative Effects Assessment of Algonquins of Pikwakanagan First Nation member rights and practices in the Ottawa River.</li> </ul>	
105	2020-09-25	Email from Algonquins of Pikwakanagan First Nation	Provision by Algonquins of Pikwakanagan First Nation of a draft Initial Partnership Agreement related to engagement and support for Algonquins of Pikwakanagan First Nation activities for the crossings program of work	Acknowledged receipt
107	2020-09-29	Video conference	Algonquins of Pikwakanagan First Nation presented the draft Initial Partnership Agreement, stating its purposes to provide the framework for Algonquins of Pikwakanagan First Nation, PSPC and the NCC for collaboration on the National Capital Area Crossings program of work, including goals, definitions, principles, the creation of a working group, roles, communication and notification, funding, confidentiality, dispute resolution, and commitments to support the engagement and relationships between participants. Specific work Projects will be appended as schedules as negotiated and agreed.	Commenced program review and legal review
107	2020-09-29	Video conference	Algonquins of Pikwakanagan First Nation presented its intentions about the timing	Will communicate with other federal asset owners in the Ottawa River



Record #	Date (YYYY-MM-DD)	Method	Indigenous Group's Procedural Requirement	Integrated Project team's response
			and scope of a cumulative effects study that it would undertake.	watershed to discuss common elements and respond to Algonquins of Pikwakanagan First Nation
115	2020-10-09	Site meeting	Meeting of the Chief of Algonquins of Pikwakanagan First Nation and the former Chief of Algonquins of Pikwakanagan First Nation with senior officials of the NCC and PSPC at Nepean Point, overlooking the Project site. Satisfaction expressed by the Chief on engagement to date and progress in developing the work plan and budget. Social distancing protocols were followed.	Noted
140	2020-11-04	Video conference	Discussion of draft Partnership Agreement. Consensus reached on changes to the draft Agreement concerning cash flow and work plan structure. The Agreement and budget will be revisited regularly to address new work items and changing conditions.	PSPC and NCC agreed to the work schedules concerning hiring a Project coordinator for a 5-year term, the costs of communication equipment to help address pandemic restrictions, support for the maintenance of data gathered in the Skills Proficiency Collection program, the Algonquins of Pikwakanagan First Nation cumulative effects study, and

Record #	Date (YYYY-MM-DD)	Method	Indigenous Group's Procedural Requirement	Integrated Project team's response
				engagement activities to date
149	2020-11-17	Email	Provision of comments to Algonquins of Pikwakanagan First Nation	Provision by Innovation Seven of a revised initial Partnership Agreement to Algonquins of Pikwakanagan First Nation with the edits requested by PSPC and the NCC.
152	2020-11-24	Email	Provision by Algonquins of Pikwakanagan First Nation of an updated draft Partnership Agreement, work plan and budget to show activities and planned expenditures by year for five years.	Added to the program review and legal review in process
164	2020-12-07	Email	Request to commence an RFP for the Cumulative Effects Study prior to the execution of a funding agreement with PSPC	Confirmation from PSPC to proceed with drafting and issuing an RFP for a Cumulative Effects Study for the portion of the Ottawa River flowing through Algonquins of Pikwakanagan First Nation traditional territory.
194	2021-01-06	Video conference	Algonquins of Pikwakanagan First Nation is drafting a document describing the principles and values that should guide the creation of Indigenous Benefit Plans	PSPC will provide financial support to develop and execute the plan,

Record #	Date (YYYY-MM-DD)	Method	Indigenous Group's Procedural Requirement	Integrated Project team's response
			for each procurement opportunity concerning the National Capital Region crossings, including the Alexandra Bridge replacement.	and full program support to carry out its actions.
197	2021-01-11	Email	Provision by Algonquins of Pikwakanagan First Nation of a draft Chaudière Crossing work plan concerning Indigenous and community benefits in collaboration with PSPC.	Commenced review
203	2021-01-20	Video conference	Algonquins of Pikwakanagan First Nation will help PSPC prepare and undertake the Chaudière Crossing RFP to maximize Indigenous participation, including identifying barriers to Indigenous participation and providing examples of furthering Indigenous participation from other procurements.	Agreed
234	2021-02-17	Email	Algonquins of Pikwakanagan First Nation needs the opportunity to identify the core values with the Algonquins of Pikwakanagan First Nation Advisory Committee through a "what matters most" session and have the opportunity to review the draft IPD before any preliminary concerns can be identified.	Understood
236	2021-02-19	Email	Provision by Algonquins of Pikwakanagan First Nation of a revised budget for its participation in the creation of Indigenous Benefits Plans	Commenced review
241, 243	2021-02-25 and 2021-03-01	Video conference and email	Algonquins of Pikwakanagan First Nation indicated how it wants to be involved in creating and carrying out Indigenous Participation Plans, including its roles in interacting with PSPC and private sector contractors	Agreed. Algonquins of Pikwakanagan First Nation suggestions for content and for roles will be incorporated in

Record #	Date (YYYY-MM-DD)	Method	Indigenous Group's Procedural Requirement	Integrated Project team's response
				future Requests for Proposals.
255	2021-03-19	Email	Algonquins of Pikwakanagan First Nation informed PSPC and the NCC that the subject of bridge work in the National Capital Area, including the Alexandra Bridge Replacement Project, will be on Council's agenda once a month as a standing item.	Understood
302	2021-05-07	Email	Algonquins of Pikwakanagan First Nation provided PSPC and the NCC with comments on the draft Collaboration Agreement	Comments accepted and incorporated in a redraft
323	2021-05-31	Video conference	Signing ceremony between Algonquins of Pikwakanagan First Nation Chief and Council, PSPC and the NCC	Signing by all three parties of the Collaboration Agreement
338	2021-06-18	Video conference	Meeting of Algonquins of Pikwakanagan First Nation's Algonquin Advisory Committee with PSPC/NCC Integrated Project Team to discuss the bridge design principles and the impact statement process.	Initial meeting to provide project details, learn of the AAC's comments and concerns
344	2021-06-28	Email	Algonquins of Pikwakanagan First Nation provided details on Algonquins of Pikwakanagan First Nation preparation to commence a Cumulative Effects Study	Understood. The study is included in the approved work plan and budget.
348	2021-06-29	Email	Algonquins of Pikwakanagan First Nation provided text that PSPC and the NCC can share with the IAAC at the next monthly meeting about the status of engagement with Algonquins of Pikwakanagan First Nation	Agreed – Algonquins of Pikwakanagan First Nation input was included in the monthly report to the IAAC

Record #	Date (YYYY-MM-DD)	Method	Indigenous Group's Procedural Requirement	Integrated Project team's response
356	2021-07-07	Email	Algonquins of Pikwakanagan First Nation confirmed its willingness to use the Strategic Partnership Initiative approach through Indigenous Services Canada to receive funding for engagement costs	Understood. PSPC is working with ISC to complete the arrangements so that funding will flow to Algonquins of Pikwakanagan First Nation.
377	2021-08-12	Email	Algonquins of Pikwakanagan First Nation provided several links to studies and best practice guides concerning Indigenous engagement, traditional knowledge, environmental assessment practices and GBA Plus analysis.	Understood – material is appreciated.
409	2021-09-28	Video conference	Algonquins of Pikwakanagan First Nation and PSPC discussed next steps in the creation of IPPs to maximize community benefits from the Project	PSPC will continue to incorporate Algonquins of Pikwakanagan First Nation suggestions into RFPs for upcoming procurements
454	2021-11-22	Email	Algonquins of Pikwakanagan First Nation indicated its intention to participate in the Project's archaeology study, the fish and habitat assessment, and the alternate means assessment. It would also like to discuss data needs for the cumulative effects assessment it is undertaking.	Agreed. Algonquins of Pikwakanagan First Nation recommended meeting early in 2022
460	2021-11-30	Email	A requires adequate time to review the draft Initial Project Description.	Understood.

## E-2 Algonquin Anishinabeg Nation Tribal Council (AANTC)

The AANTC is developing a funding submission to increase its capacity to engage with PSPC and the NCC and to represent its Member Nations.

**Table E2: Algonquin Anishinabeg Nation Tribal Council requirements about the procedural aspects of engagement**

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
12	2020-04-30	Video conference	PSPC, the NCC and Innovation Seven can communicate directly with AANTC staff	Agreed
12	2020-04-30	Video conference	Engagement will be delayed until at least June 2020 due to the pandemic. A meeting of the Member Chiefs will be required for discussion and a decision about the roles of AANTC and the individual Algonquin Nations.	Understood
37, 38	2020-06-25	Emails	AANTC asked for clarification from Innovation Seven on its role and whether PSPC and NCC wish to engage individual Nations or collectively through the AANTC	Confirmed the role of Innovation Seven in assisting PSPC and NCC to engage with Indigenous communities, including assistance with community meetings, Indigenous engagement portions of Initial Project Description for the impact assessment. Confirmed that it is up to the Algonquin Nations and AANTC as to whether they

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
				wish to be consulted individually or via the AANTC, and confirmed that budget funds are available for the Nations and the AANTC to carry out work plans.
<b>124, 125</b>	2020-10-23	Emails	Confirmation that at this time AANTC will not lead the engagement with member Nations as it considers that to be the role of Innovation Seven. AANTC will assist with communications to member Nations.	Acknowledged the AANTC position. Reminded AANTC of the availability of funding to assist with the engagement.
<b>126, 127</b>	2020-10-23	Emails	AANTC will consider budget needs and asked for clarification of the Project schedule. Consultation coordinator will provide regular updates to the Grand Chief and will inform us of any change in AANTC's role.	Provided details on current dates for submission of draft IPD in early 2021, including circulation to Indigenous partners at the same time the draft is provided to the IAAC.
<b>266</b>	2021-04-12	Phone call	The AANTC indicated discussions about engagement should resume with its consultation coordinator.	Understood.
<b>281</b>	2021-04-16	Phone call	Discussion of the Indigenous engagement process to date and the relative involvement of Quebec Algonquin Nations discussed options for collaboration	AANTC will need to consider how it will work with its member Nations

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
			between the AANTC, PSPC, NCC and I7 to engage with communities	to engage with PSPC and the NCC
284	2021-04-21	Video conference	AANTC's consultation and procurement coordinators met with Innovation Seven about options for how the Tribal Council could engage with PSPC/NCC	Several options were discussed, understanding that some Nations will want both a direct connection to the Crown and to access AANTC's support and resources.
300, 301	2021-05-04 and 2021-05-05	Email	AANTC asked for a meeting to discuss Indigenous Participation Plans and how Algonquin people can benefit from the bridge replacement and to discuss an engagement plan for the bridge replacement	PSPC and NCC indicated their willingness and availability to meet at AANTC's convenience
363	2021-07-14	Video conference	Discussion of options for AANTC roles in engagement and consultation, including possibly taking a lead role in assisting PSPC/NCC to communicate with the member Nations. The matter will be discussed at a Chiefs' leadership meeting in mid-August.	Awaiting AANTC direction
378	2021-08-12	Video conference	AANTC wants to put a resource in place to help develop / coordinate projects, specifically develop the list of projects, set up strategic meetings with PSPC and NCC senior officials and AANTC leadership to discuss project status, information exchange and other strategic information.	PSPC and the NCC have indicated that funding is available once AANTC determines its approach
389	2021-08-30	Email	AANTC asked for a meeting with PSPC to discuss a broader approach to participation by Algonquin people and businesses in	PSPC indicated its willingness and availability to



Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
			procurement opportunities associated with the bridges in the National Capital.	meet at AANTC's convenience
<b>436, 437</b>	2021-10-30 2021-11-01	Email	AANTC indicated it is preparing a submission to receive funding through the Strategic Partnership Initiative to increase its staff capacity to engage with PSPC and the NCC and to support its Member Nations. AANTC asked for assistance from the Integrated Project Team to prepare the submission.	Assistance will be provided as requested in the development of the submission.
<b>464</b>	2021-12-01	Video conference	AANTC would like to have weekly meetings with PSPC to discuss procurement opportunities related to the Project and other PSPC projects, and to co-develop Participation Plans.	Agreed



### E-3 Kebaowek First Nation

Kebaowek First Nation has stated that it will use the process negotiated between the First Nation and PSPC for the Timiskaming Dam-Bridge of Quebec replacement project as the model for collaboration on the Alexandra Bridge Replacement Project.

**Table E3: Kebaowek First Nation requirements about the procedural aspects of engagement.**

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
45	2020-07-03	Video conference	Kebaowek First Nation believes the framework agreement being finalized for the Timiskaming Quebec Dam Replacement Project is a good model. Once it is finalized, work can begin on a similar framework agreement for the Alexandra Bridge replacement.	Agreed
45	2020-07-03	Video conference	Kebaowek First Nation collaborated with Timiskaming First Nation and Wolf Lake First Nation on the Timiskaming Quebec Dam Replacement Project and will likely do so again for the Alexandra Bridge replacement. Long Point First Nation may also join the collaboration.	Agreed
45	2020-07-03	Video conference	Past engagements carried out by the Crown were not respectful and were clearly intended to inform First Nations of decisions that had already been made. The Indigenous communities are prepared to ensure that the commitment to meaningful engagement is maintained.	Agreed
45	2020-07-03	Video conference	Kebaowek First Nation must have the opportunity to review the IPT's Initial Project Description before it is submitted to the IAAC and comment on any areas of shortcoming.	The Initial Project Description will be shared for comment and instructions with all the Indigenous communities and organizations being engaged on the Project prior to it being

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
				formally submitted to the IAAC.
45	2020-07-03	Video conference	Kebaowek will not want PSPC, NCC and the technical advisor to make community presentations. It is their preference for such discussions to happen with staff and elected officials, who have a variety of methods to communicate with the band members, including a monthly newsletter, their radio station, and social media (specifically Facebook).	Agreed
45	2020-07-03	Video conference	Video communications with band leadership are working effectively and are a good way for PSPC, NCC and Innovation Seven to link with the First Nations	Agreed
45	2020-07-03	Video conference	The Chief asked about engagement between PSPC and the NCC and other Indigenous organizations.	The full list of Indigenous organizations being engaged was described.
81	2020-08-19	Video conference	The Chiefs will appoint a technical team with authority to represent the First Nations to liaise with PSPC and NCC on the design of studies, to oversee the work of the government's technical consultant and review its reports, and to lead their own traditional knowledge and technical studies.	Agreed
153	2020-11-24	Letter from Chief to PSPC and NCC	Kebaowek First Nation would like to be engaged through a fully resourced Letter of Intent that would guide the development of an IPT process agreement with the community. The agreement would stipulate the information needed by the First Nation about the Project, funding requirements, and details of how	PSPC and the NCC responded by email on December 20, 2020 indicating a willingness to begin discussion a draft Letter of

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
			Indigenous Knowledge will be provided and respected and the community's participation in other studies.	Intent at the community's earliest convenience.
<b>214</b>	2021-02-01	Letter from Chief to PSPC and NCC	The First Nation provided a Non-Disclosure Agreement and asked that it be signed by PSPC and NCC prior to the First Nation sharing a previous Letter of Intent and a Process Agreement used for the Timiskaming Dam replacement Project.	Commenced review
<b>251, 328, 382</b>	2021-03-15, 2021-06-04, 2021-08-19	Letter from Chief to PSPC and NCC	Three First Nations (Kebaowek, Timiskaming and Wolf Lake) provided the text of a confidentiality agreement and asked it to be signed by PSPC and the NCC prior to any further discussions about work plans and budgets to support engagement.	PSPC and the NCC prefer to include the confidentiality clauses in a collaboration agreement and requested a meeting with the Chief of Kebaowek to discuss.
<b>434</b>	2021-10-29	Email	Payment of legal fees incurred in the development of draft agreements with PSPC.	A draft contract was provided by PSPC, for review and execution by the First Nation.
<b>487</b>	2021-12-15	Video conference	Agreement was reached to use the process negotiated between the First Nation and PSPC for the Timiskaming Dam-Bridge of Quebec replacement project as the model for collaboration on the Alexandra Bridge Replacement Project. PSPC will review and update the relevant documents related to confidentiality and the contract to provide capacity building funding. The First Nation provided an email address to be used for all engagement correspondence.	PSPC will review and update the contract documents for discussion with the First Nation in mid-January 2022.



## E-4 Timiskaming First Nation

The First Nation will consider how it will partner with other First Nations in the region to participate in the engagement process.

**Table E4: Timiskaming First Nation requirements about the procedural aspects of engagement.**

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
63	2020-07-23	Video conference	The Chief stated the requirement that the First Nation be provided with funding to support its participation in the engagement	Agreed
63	2020-07-23	Video conference	Timiskaming First Nation sees the value in collaborating with other First Nations in the area. Chief and Council will consider the approach to be taken.	Understood
232	2021-02-17	Video conference	Primary Timiskaming First Nation contact will be the Manager of Sustainable Development, communicating directly with PSPC/NCC. Timiskaming First Nation will consider its needs for funding and will meet with PSPC/NCC in March 2021. The First Nation will be involved in establishing protocols to review the terms of reference for studies and for Timiskaming First Nation's participation in the studies.	Agreed
251	2021-03-15	Letter to PSPC and NCC	Three First Nations (Kebaowek, Timiskaming and Wolf Lake) provided the text of a confidentiality agreement and asked it to be signed by PSPC and the NCC prior to any further discussions about work plans and budgets to support engagement.	PSPC and the NCC prefer to include the confidentiality clauses in a collaboration agreement.
279	2021-04-15	Video conference	Timiskaming First Nation received information about the timing of the Initial Project Description, project studies and the overall IAAC process. Timiskaming First Nation has a strong interest in participating in environmental studies and has access to qualified personnel to represent its interests. Timiskaming First Nation will	Awaiting indication from the First Nation on next steps.

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
			consider its funding needs for a future discussion.	
<b>324</b>	2021-06-01	Email	Changes to Chief and Council positions will require a temporary halt to engagements until further notice	Understood. PSPC will check in regularly with the First Nation for updates.



## E-5 Wahgoshig First Nation

Table E5: Wahgoshig First Nation requirements about the procedural aspects of engagement.

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
174	2020-12-11	Video conference	An election for Chief was underway and it may be possible to schedule a meeting of the new Chief and PSPC/NCC in the second or third week of January 2021. Senior band officials indicated the First Nation will be interested in engagement concerning possible impacts to the community and an Impact Benefit Agreement.	Agreed. Information was provided on Project details and the availability of funding to support the First Nation's participation.
209	2021-01-25	Email	Engagement cannot begin until after the election of a new Council on February 16.	No response necessary PSPC was copied on an email from the First Nation to IAAC.



## E-6 Algonquins of Ontario (AOO)

Representatives of the AOO have stated the following as its requirements for engagement:

- Engagement and consultation activities will be reviewed and managed by the AOO's Planning and Environment Working Group
- Engagement with members of the individual communities will be managed by community liaison officers appointed by AOO
- Communication protocols will be stipulated by AOO
- AOO will determine the studies that it will conduct
- Funding requirements will be identified by AOO
- AOO prepared a multi-year work plan and funding agreement that is acceptable to PSPC and the NCC and
- AOO is working with PSPC and the NCC to create a collaboration agreement that includes provisions for a long-term relationship.

**Table E6: Algonquins of Ontario requirements about the procedural aspects of engagement.**

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
13	2020-05-01	Telephone conference	AOO will be represented by the firm Shared Value Solutions in the planning and conduct of the engagement.	Understood
59	2020-07-20	Email	Update from AOO that a draft work plan and budget for engagement are in preparation	Understood
109	2020-10-05	Email	Submission by AOO of initial work plan and budget for engagement and studies. Activities necessary for participation in the engagement include: <ul style="list-style-type: none"> <li>- process agreement development and negotiation</li> <li>- community engagement meetings</li> <li>- Algonquin Knowledge and land use study</li> <li>- impact statement document review</li> <li>- development of an Indigenous Benefits Plan</li> <li>- participation in the selection of the IPT's technical advisors</li> <li>- a long-term relationship agreement and</li> </ul>	Commenced review

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
			- financial support for the Kichi-Sibi Guardians initiative	
141	2020-11-05	Video conference	<p>Kick off meeting to begin formal engagement process. Shared Value Solutions has been authorized by the AOO to act on its behalf in the Indigenous engagement, reporting to the AOO's Planning and Environment Working Group comprised of the elected Algonquin Nation Representatives.</p> <p>Shared Value Solutions will take the information gained in today's engagement meeting and seek the advice of the AOO's Planning and Environment Working Group on the work plan, budget and form of agreement with PSPC/NCC.</p>	PSPC and NCC described their working relationship and roles in the engagement and bridge work, the IPD process for the Alexandra Bridge replacement, the longer term aspects of the National Capital Areas crossings program of work, and budget support for Indigenous engagement.
148	2020-11-16	Video conference	Detailed discussion of the content and format of a Relationship Agreement between AOO, PSPC and the NCC, including AOO input into the selection of contractors for the bridge replacement, development of an Indigenous benefits plan, creation of an "umbrella agreement" to fund AOO capacity, with sub-agreements for each specific crossings program of work, and the process for reviewing documents from the impact statement.	Encouragement was provided by PSPC to identify increased capacity needs within AOO that could be funded through the Relationship Agreement.
151	2020-11-23	Email	Update provided by Shared Value Solutions indicating that changes have been made to the draft work plan and budget in line with the discussions at the November 16 engagement meeting, but that consideration of creating new staff	Understood

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
			capacity within AOO, with funding from PSPC, was under review by the organization.	
192	2021-01-05	Email	Shared Value Solutions asked about the status of the IPD and AOO's opportunity to review it.	The draft is expected to be shared with Indigenous communities by the spring 2021. Comments will be incorporated into a final version that will be the formal submission of the IPD to the IAAC.
195	2021-01-07	Email	Submission by Shared Value Solutions of revised work plans and budgets for the Project impact assessment, and for a Long Term Relationship Agreement concerning the National Capital Region crossings program of work.	The revised work plan and budgets are under review.
213, 240	2021-02-01, 2021-02-22	Emails	PSPC/NCC asked AOO to provide a summary of its budget request by fiscal year. AOO asked for information on the project schedule.  AOO provided an updated cash flow by fiscal year to support consultation and engagement.	
215, 225	2021-02-02, 2021-02-08	Emails	AOO requested clarification as to why one of the AOO communities received a request to participate in the socio-economic study of the replacement of the Alexandra Bridge.	PSPC and the NCC confirmed the understanding that AOO is responsible for the conducting the socio-economic assessment with

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
				its member communities.
<b>259</b>	2021-03-29	Video conference	Engagement meeting with AOO, PSPC and NCC and Innovation Seven to discuss AOO's work plan, budget, cash flow estimates and draft agreement related to the Alexandra Bridge replacement and other crossings. AOO will revise the work plan and cash flow based on the work that can be completed in each fiscal year.	<p>PSPC will work with the Department of Justice to complete the review of the draft agreement.</p> <p>PSPC will complete the Strategic Partnership Initiative arrangements that will enable funds to flow to Indigenous groups.</p>
<b>277, 278</b>	2021-04-14, 2021-04-15	Emails	AOO asked if the Dec 19, 2020 version of the draft agreement provided to PSPC/NCC will be generally appropriate for the agreement with Indigenous Services Canada and the Strategic Partnership Initiative (SPI).	PSPC confirmed that the Dec 19, 2020 version of the agreement provides the basis for the SPI agreement.
<b>282</b>	2021-04-20	Email	Provided revised budget and cash flow for the engagement and consultation work plan for discussion on April 23.	
<b>288</b>	2021-04-23	Video conference	<p>Discussion of AOO's work plan, budget, cash flow estimates and draft agreement related to the Alexandra Bridge replacement and other crossings.</p> <p>AOO described a budget need to support the planning and coordination of economic development opportunities.</p>	PSPC and the NCC are in general agreement with the work plan and budget and requested a few adjustments to the

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
				prediction of cash flow by fiscal year.  The AOO was encouraged to include a position in its budget dealing with economic opportunities and Indigenous Participation Plans.
310	2021-05-18	Email	AOO's consultants provided suggested text for the collaboration agreement about a dispute resolution mechanism, and explained the corporate structure used by AOO for agreements with governments.	Text will be used to guide the next draft of the collaboration agreement.
313	2021-05-20	Email	AOO provided a revised work plan and budget for engagement activities.	Acceptable to PSPC and the NCC
355	2021-07-07	Video conference	Agreed on a path forward to resolve all outstanding issues on the wording of the Collaboration Agreement.	Confirmed that AOO will receive funding from PSPC soon for expenses incurred to date and up to the time of signing the Collaboration Agreement.
373, 375	2021-08-09, 2021-08-10	Emails	PSPC/NCC provided updates on the timing of studies for the impact statement, the intended date for submission of the IPD to IAAC, the fact that some studies from other PSPC projects will be reviewed and updated for use on the Alexandra Bridge replacement project and asking for an opportunity to discuss AOO's views on	Awaiting AOO documents on expenses incurred to date so that funding can be provided.

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
			<p>how the GBA Plus analysis should be undertaken.</p> <p>AOO will not commence its review of the draft IPD until funding is in place. AOO understands that it needs to provide information to PSPC on expenses incurred to date before funding can flow and is working to compile the information.</p>	
449, 470	2021-11-17, 2021-12-03	Email	AOO provided a revised estimate of costs that will be incurred prior to the anticipated signing of a Strategic Partnership Agreement and requested a meeting in early 2022 to introduce new staff and to complete discussions on funding, work plans and agreements	Agreed



## E-7 Kitigan Zibi Anishinabeg First Nation

Initial communications have occurred with Kitigan Zibi through emails, telephone, and video meetings. The primary interest from the community concerns economic development opportunities. The Chief indicated a preference for engagement related to rights and environmental impacts to be carried out with the AANTC on behalf of its member communities.

**Table E7: Kitigan Zibi Anishinabeg First Nation requirements about the procedural aspects of engagement.**

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
65	2020-07-27	Email	A Councillor wrote on behalf of the Council indicating that an election for Chief was being held August 29 and that opportunities for interaction with the Council would be limited before then.	Understood
69	2020-08-06	Letter from Council	Formal confirmation from the Council of Kitigan Zibi Anishinabeg First Nation's interest in the Project and the crossings program of work, particularly the environmental assessment, archaeological protocols, and employment, training and contracting opportunities. Restated the fact that discussions with Council will not occur until after the election for Chief on August 29.	Understood
69	2020-08-06	Letter from Council	Stated the requirement that preliminary designs of the replacement bridge must be approved by Kitigan Zibi and the Algonquins of Pikwakanagan First Nation with an added form of Anishinabe content into the existing bridge.	Indigenous communities and organizations will be engaged in the bridge design process.
90	2020-09-16	Email	Engagement by the Council concerning the Project will not be an immediate priority as the issue of protecting the moose population is taking precedence.	Understood
134	2020-10-29	Telephone call	Confirmation from Kitigan Zibi that the Council is ready to have an introductory meeting with PSPC and NCC.	Indicated a willingness to meet at Council's convenience

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
				when it can suggest a date
143	2020-11-06	Site visit	Meeting of the Chief and a Councillor of Kitigan Zibi with senior officials of the NCC and PSPC at Nepean Point, overlooking the Project site at Nepean Point, overlooking the Project site. Discussion of the timetable for engagement for the Project and other crossings. Social distancing protocols were followed.	Sent an email to the Councillor asking for possible dates for a meeting.
187	2020-12-18	Telephone call	The Chief described economic development as a priority for the community.	Understood
250	2021-03-15	Video conference	The Chief would like PSPC/NCC to make a complete presentation to the Kitigan Zibi Anishinabeg First Nation Council on the procurements and on the Alexandra Bridge replacement.	PSPC and the NCC are ready at the convenience of the community.
309, 311	2021-05-18, 2021-05-19	Phone call, email	Kitigan Zibi Anishinabeg would like more information about procurements and contracting opportunities associated with the bridge replacement	PSPC and the NCC Provided background information on the Alexandra Bridge replacement and other projects provided details on upcoming bridge procurements and economic opportunities and requested an opportunity to meet to discuss economic benefits and potential issues



Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
				concerning rights, treaties, and the environment.
327	2021-06-03	Video conference	Chief met with PSPC/NCC to discuss next steps in benefits plans for community members and businesses, and the community's direction about engagement. The Chief will be the point of contact for engagement and requested PSPC/NCC to continue to send him project information. The Chief indicated his community did not have the capacity to participate in the rights and environmental discussions for the impact statement and would rely on the AANTC to provide this service on behalf of the community.	Understood
482	2021-12-10	Phone call	The Chief described the community's need for support for liaison with PSPC and the NCC. PSPC informed the Chief of the AANTC's intention to increase its staff complement to be able to assist Member Nations. The Chief will discuss further with the AANTC.	Awaiting further discussions after the Chief talks with the AANTC.

## E-8 Métis Nation of Ontario

The Métis Nation of Ontario has a protocol in place whereby engagement and consultation requests are submitted to a consultation email address and are then circulated to the appropriate Métis Nation of Ontario regional consultation committee to determine the nature and scope of any engagement.

**Table E8: Métis Nation of Ontario requirements about the procedural aspects of engagement.**

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
94	2020-09-21	Email	An email was sent to the Métis Nation of Ontario consultation email address.	Requested the opportunity to begin discussing Indigenous engagement on the Project and the Métis Nation of Ontario's requirements for engagement.
172	2020-12-09	Telephone call and email	Confirmation from Métis Nation of Ontario that it received the email consultation requests sent to its consultation in-box, which were forwarded to the Ottawa Regional Metis Council. Confirmation that the Métis Nation of Ontario has no comments but would like to receive information and updates. Confirmation that the Mattawa Regional Metis Council has no comments.	Understood
431	2021-10-27	Video conference	The Métis Nation of Ontario Region 6 Council would like an introductory meeting with the PSPC/NCC Project Team to learn more of the project and discuss possible next steps in engagement. Meetings should be held in the evening, and honoraria should be made available to the Region 6 participants.	Agreed. A meeting date will be determined. Project information was provided to Métis Nation of Ontario.

## E-9 Huronne-Wendat

The Huronne-Wendat Nation has identified the Ottawa River as an area used by its members for transportation, commerce and cultural activities.

**Table E9: Huronne-Wendat requirements about the procedural aspects of engagement.**

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
452	2021-11-18	Video conference	The representatives of the community expressed strong interest in economic opportunities and suggest that discussion of environmental and cultural impacts should be discussed with another office within its administration, le bureau de Nionwentsio.	The Project Team will keep the community informed of economic opportunities, and contact was initiated with le bureau de Nionwentsio.

## E-10 Algonquins of Barriere Lake

**Table E10: Algonquins of Barriere Lake requirements about the procedural aspects of engagement.**

Record #	Date (YYYY-MM-DD)	Method	Procedural Requirement	IPT's Response
473	2021-12-07	Email	The Chief and Council wish to meet with Project Team to discuss the Project but are not able to meet in the short term.	The Project Team will meet with Chief and Council at their convenience.

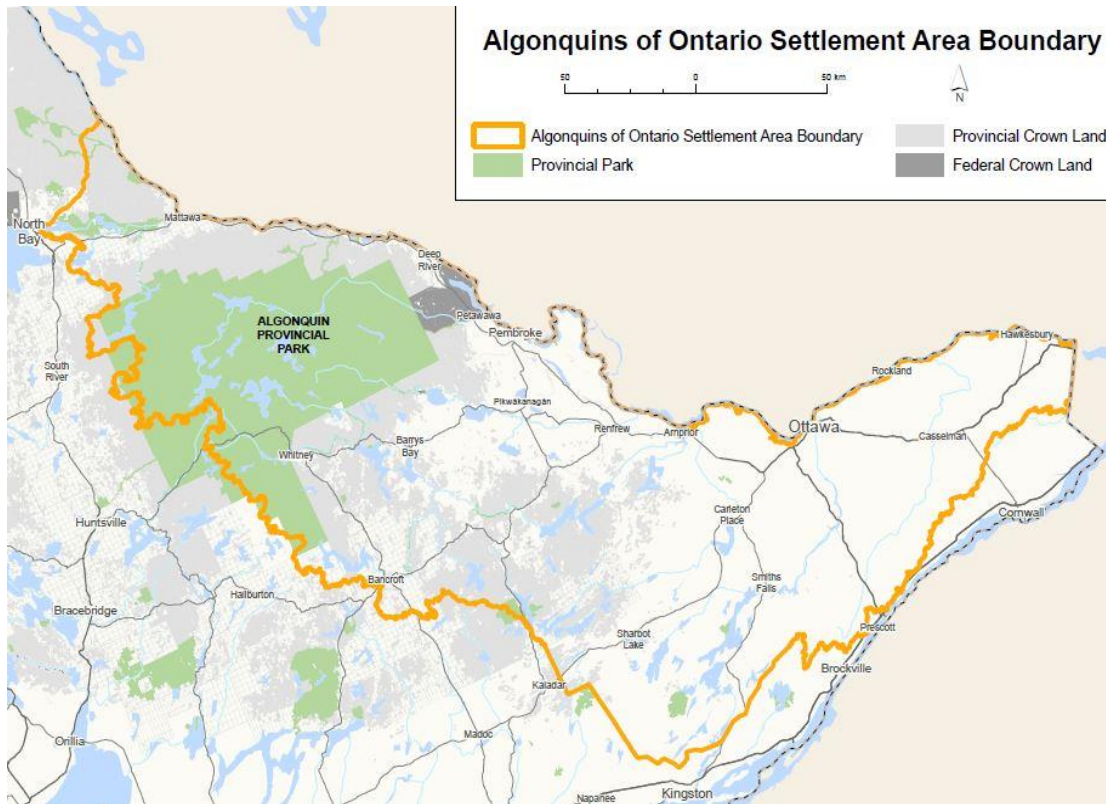
## Appendix F – Land Claims

### Land Claim and Modern Treaty Negotiation – Algonquins of Ontario

In 1983, the Algonquins of Pikwakanagan First Nation submitted a land claim to Canada and Ontario, asserting that it has Aboriginal rights and title that have never been extinguished, and has continuing ownership of the Ontario portions of the Ottawa and Mattawa River watersheds and their natural resources. The claim covers a territory of 36,000 square kilometers based largely on the watershed which was historically used and occupied by the Algonquin people and includes the location of the Alexandra Bridge.<sup>[1]</sup>

The claim was formally received in August 1985. The Province of Ontario accepted the claim for negotiations in 1991 and the Government of Canada joined the negotiations in 1992. A Framework for Negotiations was signed by the three parties in 1994.

The boundary of the Algonquin land claim is shown in the Figure F1 below.



**Figure F1: Algonquins of Ontario Settlement Area Boundary**

By 2004 it was agreed that the land claim and treaty negotiation process would be expanded to include representatives of historic Algonquin communities and territories in Ontario, in addition to the original claimants, the Algonquins of Pikwakanagan First Nation.

This led to the creation of the Algonquins of Ontario (AOO) as the organization to provide a unified approach to reach a settlement of the land claim and treaty. The agreement also stipulated how the AOO would identify people of Algonquin heritage as future beneficiaries to the claim and treaty.

The AOO is governed by representatives of ten Algonquin communities:

- Antoine
- Algonquins of Pikwakanagan First Nation
- Bonnechere
- Greater Golden Lake
- Kijicho Manito Madaouskarini (Bancroft)
- Mattawa/North Bay
- Ottawa
- Shabot Obaadjiwan (Sharbot Lake)
- Snimikobi (Ardoch)
- Whitney and Area.

The Algonquins of Pikwakanagan First Nation agreed to participate in the land claim and treaty process as part of the AOO structure with the understanding that it was solely for the purpose of the negotiations and that it would continue to have a direct relationship with the Government of Canada concerning all other Indigenous rights.

#### ***Algonquins of Ontario Consultation Process Interim Measures Agreement – 2009***

An agreement was signed on July 27, 2009 by the AOO, Ontario and Canada stipulating how Ontario and Canada would consult with the AOO on any “particular decision or activity that is applicable to the territory” during the claim and treaty negotiation process.<sup>[2]</sup>

The agreement called for the creation of the Algonquin Consultation Office, with funding from Ontario and Canada. Federal departments, provincial ministries, or other Crown agencies proposing a decision or activity applicable to the territory are to provide to the Algonquin Consultation Office appropriate notice and information of the proposed decision or activity.

This agreement continues to be in effect and its full text is available at:

<http://www.tanakiwin.com/wp-system/uploads/2013/10/10-Consultation-Process-Interim-Measures-Agreement-July-27-20091.pdf>

#### ***Agreement-in-Principle 2016***

An Agreement-in-Principle (AIP) between the AOO, Ontario and Canada was signed on October 18, 2016, following a ratification vote by Algonquin peoples earlier in 2016. The AIP was a major step towards an eventual Final Agreement that needs to be ratified by Algonquins and by the federal Parliament and provincial Legislature, after which it will take the form of a modern-day treaty setting out Algonquin Aboriginal and treaty rights protected under Section 35 of the Constitution Act, 1982.

The AIP sets out proposed key elements of a Final Agreement that would settle the Algonquin land claim, including:<sup>[3]</sup>

- \$300 million transfer to the Algonquins of Ontario
- transfer of approximately, but not less than, 117,500 acres of provincial Crown land to Algonquin ownership
- recommended approaches to address:
  - o Algonquin harvesting rights, including the right to harvest wildlife, fish, migratory birds and plants
  - o forestry
  - o parks and protected areas
  - o Algonquin heritage and culture
  - o Algonquin eligibility and enrolment.

<sup>[1]</sup> Government of Ontario, The Algonquin Land Claim, <https://www.ontario.ca/page/algonquin-land-claim>

<sup>[2]</sup> Consultation Process Interim Measure Agreement, 2009

<sup>[3]</sup> <https://www.ontario.ca/page/executive-summary-algonquins-ontario-proposed-agreement-principle>

### **Grandmothers Claim**

On March 2, 2017, Matriarch Jacqueline Sarazin and Grandmother Jane Chartrand on their own behalf and on behalf of the Kokomisag Tiji Pikwakanagan (traditional Grandmothers of Pikwakanagan) filed a claim against the Chief and Band Council of the Algonquins of Pikwakanagan and the Algonquins of Ontario and the Attorney General of Canada (the “Grandmothers Claim”). The Grandmothers are asserting rights the traditional title holders to the same lands covered by the Agreement-in-Principle as well as the lands that are the subject of the Kitigan Zibi Anishinabeg First Nation Claim. The Grandmothers are also contesting the authority of the AOO and the Chief of Pikwakanagan to represent the Algonquin Nation. The Grandmothers subsequently amended their Statement of Claim to add Windmill Dream Zibi, Master LP as a defendant party to the claim.

On February 13, 2018, Matriarch Jacqueline Sarazin, on behalf of the Grandmothers, commenced an application in Federal Court for judicial review (“JR”) of the Order-in-Council decision of December 5, 2017 that authorized the NCC to transfer certain lands and other interests located on Chaudière and Albert Islands to Windmill Developments as part of the Zibi Project. The respondent in the JR application is the Attorney General of Canada. The Zibi transactions closed in April 2018. The Grandmothers have since discontinued the JR and amended their Ontario Superior Court claim (i.e. the Grandmothers Claim) to include similar relief as contained in the JR application. This has consolidated the matters in one proceeding.

### **Land Claims, Assertions and Court Cases– Algonquin Nations of Quebec**

Algonquin Nations in Quebec have brought forward land claims, assertions and court cases concerning their interests in matters affecting their traditional territories in Quebec and Ontario, including the location of the Alexandra Bridge.



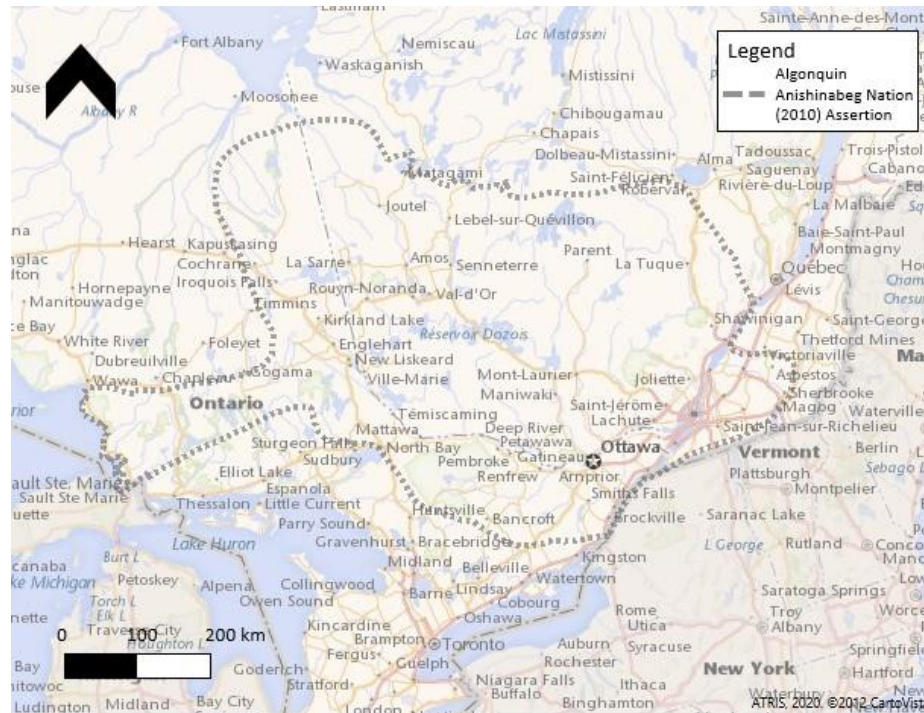
Individual Algonquins Nations in Québec have submitted initial comprehensive claims from 1985 to 1994, including claims by the Grand Lac Victoria Band (Kitcisakik) in 1985 and the River Desert Band/Kitigan Zibi Anishnabeg First Nation in 1986, 1987, 1989, and 1994. These claims were not accepted for negotiation by the Minister of Indian Affairs.

### ***Algonquin Nation Assertion of Rights (2010)***

On April 21, 2010, the seven Algonquin Nation members represented by the Algonquin Anishnabeg Nation Tribal Council submitted a statement regarding the assertion of their rights in their ancestral territory (the Nitakanin). These seven communities are Abitibiwinni — Pikogan, Eagle Village — Kipawa, Kitcisakik, Kitigan ZIBI, Lac Simon, Winnenay — Long Point and Wahgoshig.

The Tribal Council wants to establish a sharing formula that allows First Nations to have the right to utilize and co-manage the resources on the territory and for the member communities to profit from these resources. Algonquin communities also require that the duty to consult and accommodate is respected when Projects take place within the traditional territory.<sup>5</sup>

The Assertion of Rights identified the traditional territory shown in the Figure F2 below, including Western Quebec, Eastern Ontario, and portions of Northern Ontario extending to the southeast shore of Lake Superior.



<sup>5</sup> [Land and Resources | Algonquin Anishnabeg Nation \(anishinabenation.ca\)](https://www.anishinabenation.ca/) accessed January 21, 2021



## Figure F-2: Algonquin Nation Assertion of Rights (2010) Area

### *Timiskaming, Wolf Lake and Eagle Village (Kebaowek First Nation) Statement of Assertion of Aboriginal Rights and Title (2013)*

On January 23, 2013, the Algonquin Nation Secretariat (ANS) submitted on behalf of Timiskaming, Wolf Lake and Eagle Village a declaration of their aboriginal rights and title over an area of 34,000 square kilometres of the Ottawa Valley, straddling the Ontario-Québec border shown in the Figure F3 below. The claimants stated they had never surrendered their Aboriginal rights and title by treaty or otherwise and have never authorized any Aboriginal group in Quebec or Ontario to negotiate for them in relation to such rights.<sup>6</sup>

This assertion of rights was made following research carried out in the context of the comprehensive land claim process. However, there has never been a formal submission as part of this process. This assertion of rights was presented in the context of the Crown obligations with respect with the duty to consult and for the purpose of establishing interim measures as a framework for potential treaty negotiations.



<sup>6</sup> Temiskaming, Wolf Lake and Eagle Village, Members of the Algonquin Nation, Statement of Assertion of Aboriginal Rights and Title, 11 January 2013



### Figure F-3: Timiskaming, Wolf Lake and Eagle Village (Kebaowek First Nation) Statement of Assertion of Aboriginal Rights and Title (2013)

#### *Kitigan Zibi Anishinabeg First Nation Claim (2016)*

On December 7, 2016, a court action on the Ontario Superior Court was commenced by the Kitigan Zibi Anishinabeg First Nation and Jean-Guy Whiteduck, on their own behalf and on behalf of all other members of the Algonquin Anishinabe Nation (“**AAN**”) against the Attorney General of Canada, the National Capital Commission and Her Majesty the Queen in Right of Ontario with respect to several parcels owned by Canada and/or the NCC including the Parliamentary Precinct, LeBreton Flats and the Islands (the “Kitigan Zibi Anishinabeg First Nation **Claim**”).

The plaintiffs in the Kitigan Zibi Anishinabeg First Nation Claim are seeking:

- an order appointing them as representatives of the AAN
- a declaration that the AAN has aboriginal title to certain lands in Ottawa which include Parliament Hill, the Supreme Court of Canada, other significant federal buildings, Victoria, Chaudière and Albert Islands and LeBreton Flats and
- a declaration that the AAN is entitled to the lands set out in the Kitigan Zibi Anishinabeg First Nation Claim or any portion of them.

Following the issuance of the Kitigan Zibi Anishinabeg First Nation Claim, the federal government entered into exploratory discussions with the Kitigan Zibi Anishinabeg First Nation and this led to the Kitigan Zibi Anishinabeg First Nation Claim being put in abeyance on October 17, 2017. The Kitigan Zibi Anishinabeg First Nation Claim remains in abeyance today.

## Appendix G – Environmental Studies Conducted in Project Area

No regional studies, as defined under Section 93 of the Impact Assessment Act, have been or are currently being conducted in the Project area.

The following studies have been conducted, or are in the process of being conducted, within the area surrounding the Project and are either publicly available or could be made available to the public on request. These studies (sorted alphabetically) provide information relevant to the environmental conditions in the area that will inform the various baseline studies to be completed as part of the Impact Statement.

- (1) Algonquins of Ontario. (2012). *Returning Kichissippi Pimisi, the American Eel, to the Ottawa River Basin*.

This report outlines the importance of the American Eel to Algonquin peoples using traditional knowledge.

- (2) Casselman, J.M., Lehman, P., Marcogliese, L., & Oblak, J. (2011). *Fish, Fisheries, and Water Resources: Adapting to Ontario's Changing Climate: Study A1367*. Natural Resources Canada.

This study details the findings of review on research for fish populations in Ontario and adaptations to climate change. The review of existing research and conclusions allows the report to provide action items and recommendations for continuing database maintenance in order to contribute to protection, resilience, and conservation of fisheries and water resources. The area of focus is primarily on Lake Ontario, as well as the Mississippi River and watershed which is a tributary of the Ottawa River.

- (3) CIMA+. (2016). *Étude d'impact sur l'environnement: Agrandissement de la Marina de Hull à Gatineau*.

Environmental Assessment for the expansion of the Hull Marina, completed for the Portage Champlain Yacht Club which is located adjacent to the bridge. Describes geology, groundwater, sediment, vegetation, and biological conditions as well as socioeconomic, archaeological, and other components for the Project site. Details anticipated environmental impacts of the Project and mitigation measures to address them.

- (4) CIMA+. (2018). *Terrestrial Natural Heritage Investigation, Nepean Point Redevelopment, Ottawa, Ontario*.

Study of natural heritage features for an environmental assessment of the redevelopment of Nepean Point (immediately adjacent to the Alexandra bridge on the Ontario side), completed for the National Capital Commission. Details important findings for natural heritage and recommendations for mitigation measures.

- (5) City of Ottawa (2020). *City of Ottawa Stormwater Management Outfall Rehabilitations*.

The City of Ottawa is proposing the rehabilitation of six stormwater outfalls at five locations within the geographic limits of Ottawa, Ontario that exist within the urban area along the south shore of the Ottawa River.

Outfall location OUT04452, approximately 600 m north of the Ontario side of the Alexandra Bridge, is located near Boteler Street and Bolton Street in Ottawa. Some of rehabilitation Project components that may impact the Project include the instillation of a temporary cofferdam, vegetation removals, excavation of existing material and minor regrading.

- (6) Comtois, A., Chapleau, F., Renaud, C. B., Fournier, H., Campbell, B., Pariseau, R. (2004). *Inventaire printanier d'une frayère multispécifique: l'ichtyofaune des rapides de la rivière Gatineau, Québec*. Canadian Field Naturalist 118(4): 521-529.

Academic journal article that inventories the species of fish in the Gatineau River (a tributary of the Ottawa River) including documentation of the presence of certain species at risk.

- (7) DST Consulting Engineers, Inc. (2003). *Environmental Assessment Screening for the Bridges Divestiture from PWGSC to the NCC: Chaudière Crossing, Alexandra Bridge, and Macdonald-Cartier Bridge*. Public Works and Government Services Canada.

A preliminary environmental assessment was conducted for the divestiture of three bridges (Alexandra Bridge, Chaudière Crossing, and Macdonald-Cartier Bridge) from PSPC to NCC. As part of the initial assessment, valued ecosystem components (VECs), cumulative effects, levels of significance, areas for future research, and mitigation measure plans were reported.

- (8) DST Consulting Engineers Inc. (2013). *Designated Substances Survey: Alexandra Bridge, National Capital Area, Ontario*. Public Works and Government Services Canada.

A designated substances survey was conducted with visual inspection and sampling for the Alexandra Bridge. Based on the site investigation, sampling and analysis, the following Designated Substances and Hazardous Materials are present in forms and quantities expected to have a measurable impact on future work operations at the Alexandra Bridge: Asbestos-Containing Materials (ACMs) Lead Mercury PCBs and Silica.

- (9) Environment and Climate Change Canada. (2018). *An Examination of Values, Existing Data, Potential Indicators, and Governance in the Ottawa River Watershed (Draft)*.

This report provides information to inform work or interests in the Ottawa Watershed by providing a study of economic, heritage, cultural and natural values, indicators of change, and potential challenges for management. With a detailed review of past changes and impacts on diverse groups who rely on the Ottawa River watershed, data collection methods and future challenges are linked to potential approaches for integrated management.

- (11) Gillis, N.C., Rapp, T., Hasler, C.T., Wachelka, H., and Cooke, J. (2010). *Spatial ecology of adult muskellunge (Esox masquinongy) in the urban Ottawa reach of the historic Rideau Canal, Canada*. Aquatic Living Resources 23(2): 225-230.

This study details the findings of seasonal movements and home range of muskellunge in the Ottawa reach of the Rideau Canal, which is one of the few wild urban muskellunge fisheries in North America supported by natural reproduction. Seasonal movements and home range of the muskellunge were found to be greatest during spring corresponding with the period when water levels in the canal are raised and muskellunge were presumed to be searching for suitable habitat.

The study found that environmental influences such as seasonality and water depth (associated with canal operations) are believed to be the primary mechanisms contributing to habitat selection and movement patterns.

- (12) Golder Associates Limited. (2005). *Draft Report on Geotechnical Assessment, Seismic Analysis, Alexandra Bridge*, Ottawa, ON. McCormick Rankin Corporation.

The report presents the findings of a geotechnical assessment performed for the Alexandra Bridge to assess seismic performance in accordance with factors outlined by the Canadian Highway Bridge Design Code (CHBDC). The soil and groundwater conditions of the bridge site are detailed, and results for seismic slope stability, abutment retaining walls, and site coefficient are presented.

- (13) Groupe ABS. (2017). *Étude géotechnique remise en état de service de divers sites touchés par les inondations de 2017, sentier des Voyageurs*.

Geotechnical study of the Voyageurs pathway in Gatineau following flooding in 2017, completed for the National Capital Commission that details geological characteristics near the pathway and provides recommendations for remediation.

- (14) Haxton, T., & Chubbuck, D. (2002). *Review of the historical and existing natural environment and resource uses on the Ottawa River*. Ontario Ministry of Natural Resources, Science and Information Branch, Southcentral Science and Information Section Technical Report #119.

Describes the Ottawa River section by section detailing the historical development and natural resource uses existing wildlife and unique species (often at-risk) wetlands, parks, environmentally significant areas and the hydrology and chemical characteristics.

- (15) Intera Engineering Ltd. (2007). *Phase II Environmental Site Assessment*, Nepean Point, Property Asset #96254, Ottawa, Ontario.

Study of soil and groundwater quality/contamination at Nepean Point as part of a Phase II ESA. The point is located next to the Alexandra Bridge structure on the Ontario side. Some exceedances are described.

- (16) Kilgour & Associates Limited. (2013). *Ottawa River Shoreline Works: Fish and Fish Habitat Risk Assessment*: Draft Report. National Capital Commission.

This document is a fish and fish habitat risk assessment for works along the Ottawa River shoreline on the northern side of the Parliament buildings in downtown Ottawa. This area is very near to the Alexandra Bridge. Fish habitat in this area was found to be degraded and rehabilitation efforts would be required in order for fish to use the area for spawning or rearing activities.

- (17) McCormick Rankin Corporation. (2006). *Réhabilitation du pont Alexandra. Rapport d'évaluation environnementale*. Ottawa, Ontario.

This report outlines the possible environmental effects that could occur during a bridge rehabilitation. The findings are that the Project is not likely to lead to any negative effects on the environment. Although from 2006, this report is focused on the Alexandra Bridge and surrounding area.

- (18) MMM Group Limited (McCormick Rankin) & CIMA+ S.E.N.C (MRC-CIMA+) (2012). *Macdonald-Cartier Bridge Rehabilitation Designated Substances Report – Project No. R.005066.503*. Public Works and Government Services Canada.

Report on the findings of designated substances and hazardous materials on the Macdonald-Cartier Bridge in advance of rehabilitation work to be performed. The findings list substances identified as well as work activities classified by their level of risk in terms of substance impacts or interaction.

- (19) MNRF (2016) *Background Information to the Fisheries Management Plan for the Ottawa River – Fisheries Management Zone 12 in Ontario, Fisheries Management Zone 25 in Quebec*.

Report discusses the ten reaches of Fisheries Management Zone 12 (Ottawa River) and provides a description of species found and relative abundances in each of the 10 reaches. The report was a precursor to the Fisheries Management Plan for the Ottawa River.

- (20) MNRF and MFWPQ. (2018) *Fisheries Management Plan for the Ottawa River*.

This Fisheries Management Plan replaces the Strategic Fisheries Management Framework for the Ottawa River originally implemented in 1999. It is intended to help the Ontario and Quebec government agencies in working together to manage fisheries of the Ottawa River consistently. The Plan identifies monitoring that will take place to ensure that progress is being made towards the management objectives and targets.

- (21) National Capital Commission. (2005). *Canada's Capital Core Area Sector Plan*. National Capital Commission: Ottawa, Canada.

This plan envisioned the sustainable development of the capital region with the use of a Strategic Environmental Assessment. The plan highlighted the need for integration of knowledge and efforts from all levels of government, as well as the establishment of initiatives and interventions. This plan focused on many aspects of key features in the downtown core, including the Alexandra Bridge.

- (22) National Capital Commission. (November 2007). *Canada's Capital Views Protection*. National Capital Commission: Ottawa, Canada.

This report focuses on the maintenance of views in Canada's Capital, particularly pertaining to National Symbols and height control. The aim of the information was to guide policy and future development with consideration to key aspects of the protection study findings. The Alexandra Bridge boardwalk represents a four viewpoint sequence for consideration in design control.

- (23) National Capital Commission. (2008). *Guide for the Management of Archaeological Resources*. National Capital Commission: Ottawa, Canada.

This purpose is to guide and prepare Project managers who are responsible for Projects that may have an impact on archaeological resources. The policies and legislation included are aimed at protecting these resources. The document is created by the NCC for use on NCC lands.

- (24) National Capital Commission. (2011). *Draft 90%, Confederation Boulevard Guidelines*. National Capital Commission: Ottawa, Canada.

(25) National Capital Commission. (2017). *Capital Illumination Plan*. National Capital Commission: Ottawa, Canada.

In the Illumination Plan, lighting is discussed as an urban strategy for showcasing the identity of the National Capital Region. The aims of the plan are to enhance the Capital's nighttime beauty and promote sustainable development. The plan found that Alexandra Bridge, a landmark in the daytime, was not showcased at night with current lighting fixtures.

(26) National Capital Commission. (2017). *The Plan for Canada's Capital: 2017-2067*. National Capital Commission: Ottawa, Canada. <http://capital2067.ca/wp-content/uploads/2017/05/PFCC-English-complete-optimized.pdf>

(27) National Capital Commission. (April 2018). *Ottawa River North Shore Parklands Plan*. National Capital Commission: Ottawa, Canada.

This report is to serve as a guide when making decisions for development Projects and activities on federal lands with a long term vision in mind. Report includes general and detailed policies governing development in the area. The focus area is Hull Island which is connected to Alexandra Bridge.

(28) National Capital Commission. (2018). *Sustainable Development Strategy: 2018 -2023*. National Capital Commission: Ottawa, Canada.

The NCC is voluntarily adopting the Federal Sustainable Development Strategy in order to play a role in greening Canada's Capital. This report outlines what the goals are, as well as strategies to attain the successes. Alexandra Bridge is in the NCA.

(29) National Capital Commission. (2020). *Capital Pathway Strategic Plan*. National Capital Commission: Ottawa, Canada.

The Capital Pathway is over 200km of multi-use pathways through the region and the report outlines how it will be planned for the next 30 years. It addresses new challenges that were not present at the initial stage of development 50 years ago. Sections of the pathway run adjacent to the Ottawa River and Canal.

(30) Parsons. (2015). *Minto Bridges East and Centre Rehabilitation: Non-Basic Environmental Effects Evaluation*.

Non-Basic Environmental Effects Evaluation (EEE) for the rehabilitation of the Minto Bridges (constructed in 1900), located approximately 1km away from the Alexandra Bridge. EEE document details the ecological characteristics (fauna, vegetation, species-at-risk), baseline environmental conditions, Project actions and mitigation measures.

(31) Parsons. (2020). *Feasibility Study on the use of Alexandra Bridge for an Interprovincial Public Transit system in the Capital Core Area*

(32) Pérusse, M., Lambert, D., Duguay, S. (2017). *Timiskaming Complex: Replacement of the Quebec Dam – Fish Census Summary – Fall 2017*. Tetra Tech.

A summary of the fish census component of the Environmental Effects Evaluation for the Timiskaming Quebec Dam Replacement performed in the fall of 2017. The report identifies fish species found in the Ottawa River and whether they had been recorded in past studies, as well as spawning probabilities linked with flow conditions near the dam site.



(33) Price Waterhouse Cooper (2020). *Alexandra Bridge Replacement Project: Market Sounding Report*.

(34) Public Service and Procurement Canada. (2014). *Mitigation Measures Form: Alexandra Bridge Security Fence Installation*.

This is the Mitigation Measures Form (MMF) for security fence installation on the shoreline around the abutment of the Alexandra Bridge on the Ottawa side of the Ottawa river. The MMF outlines basic Project classification, a detailed Project description, and potential environmental effects and corresponding mitigation measures.

(35) Public Services and Procurement Canada. (2016). *Environmental Decision Record: PSPC Alexandra Bridge Area Coating for Piers 2 and 3, Ottawa, ON*.

Environmental decision record for a protective coating Project for piers 2 and 3 on the Alexandra Bridge. Details the Project description and location, anticipated environmental effects, and corresponding mitigation measures.

(36) Public Services and Procurement Canada. (2019). *Mitigation Measures Form: Superstructure Steel Replacement*.

Mitigation Measures Form (MMF) for the superstructure steel replacement on the Alexandra Bridge, intended to strengthen and/or replace corroding steel members. MMF outlines Project description and classification, Project description, potential environmental effects, and corresponding mitigation measures.

(37) Public Works and Government Services Canada. (2001). *Environmental Assessment Screening for the Installation of Signs on the Northwest and Southeast Approaches to the Macdonald-Cartier Bridge at Hull, Quebec and Ottawa, Ontario: Project No. 431792*.

An investigation was performed for the requirement of an Environmental Assessment (EA) for the installation of signage at the northwest and southeast approaches to the Macdonald Cartier Bridge in accordance with requirements of the Canadian Environmental Assessment Act (CEAA). The Project was found not to have significant environmental effects with the implementation of mitigation measures and given the low sensitivity of biophysical and social components implicated in the Project.

(38) Public Works and Government Services Canada: Office of Greening Governmental Operations. (2006). *Strategic Environmental Assessment Divestiture of Chaudière Crossing Part 2-11*. Public Works and Government Services Canada: Owner-Investor.

A Strategic Environmental Assessment (SEA) was conducted in advance of the divestiture of three bridges in Ottawa, including the Chaudière Crossing. In the Environmental Setting section, the following information was provided:

Species of Concern: A nesting pair of Peregrine Falcons (subspecies *anatum*) lives in downtown Ottawa, west of the Rideau River. These birds are protected under Schedule 1, Part 3 of the Species at Risk Act. The River Redhorse (designated as a Species of Special Concern under Schedule 3 of the Species at Risk Act) has been reported to frequent the Ottawa River. Other wildlife of concern in the area include migratory birds and fish, protected under the Migratory Birds Convention Act and the Fisheries Act.

- (39) Public Works and Government Services Canada: Office of Greening Governmental Operations. (2006). *Strategic Environmental Assessment Divestiture of Alexandra Bridge Part 2-12*. Public Works and Government Services Canada: Owner-Investor.

A Strategic Environmental Assessment (SEA) was conducted in advance of the divestiture of three bridges in Ottawa, including the Alexandra Bridge. In the Environmental Setting section, the following information was provided:

Species of Concern: A nesting pair of Peregrine Falcons (subspecies *anatum*) lives in downtown Ottawa, west of the Rideau River. These birds are protected under Schedule 1, Part 3 of the Species at Risk Act. The River Redhorse (designated as a Species of Special Concern under Schedule 3 of the Species at Risk Act) has been reported to frequent the Ottawa River. Other wildlife of concern in the area include migratory birds and fish, protected under the Migratory Birds Convention Act and the Fisheries Act.

- (40) Public Works and Government Services Canada: Office of Greening Governmental Operations. (2006). *Strategic Environmental Assessment Divestiture of Macdonald-Cartier Bridge Part 2-13*. Public Works and Government Services Canada: Owner-Investor.

A Strategic Environmental Assessment (SEA) was conducted in advance of the divestiture of three bridges in Ottawa, including the Macdonald-Cartier Bridge. In the Environmental Setting section, the following information was provided:

Species of Concern: A nesting pair of Peregrine Falcons (subspecies *anatum*) lives in downtown Ottawa, west of the Rideau River. These birds are protected under Schedule 1, Part 3 of the Species at Risk Act. The River Redhorse (designated as a Species of Special Concern under Schedule 3 of the Species at Risk Act) has been reported to frequent the Ottawa River. Other wildlife of concern in the area include migratory birds and fish, protected under the Migratory Birds Convention Act and the Fisheries Act.

- (41) Public Works and Government Services Canada. (2010). *Species at Risk in Ottawa*.

A list of species at risk in Ottawa. This list was created for reference and was last updated in 2010.

- (42) Public Works and Government Services Canada. (2012). *Preliminary Identification of Environmental Services Required: Alexandra Bridge Bearing Painting*.

In advance of bearing painting on the Alexandra Bridge, a Preliminary Identification of Environmental Services Required (PIESR) was completed by Environmental Services at Public Works and Government Services Canada to identify areas where environmental mitigation activities might be required. The property had been classified E under PWGSC Species at Risk Protocol, which indicates that the probability of the presence of a natural habitat is very low, and/or non-existent.

- (43) Public Works and Government Services Canada. (2017). *Preliminary Identification of Environmental Services Required: Portage Channel Bridge – Barriers & Attenuators*.

In advance of repair work on the Portage Channel Bridge on the French River in Dokis, ON, this PIESR was created by PWGSC to address environmental aspects for consideration. In this assessment, the prime breeding season for birds was noted to be from April 15th to August 15th. A breeding bird survey of the area (conducted by a qualified avian biologist) was recommended prior to the work to avoid/limit bird nests to be disturbed/destroyed.



- (44) Trow Associates Inc. (2008). *Phase I Environmental Site Assessment*, Jacques-Cartier Park South, Gatineau, Quebec.

Phase I ESA investigates the environmental site conditions at Jacques-Cartier Park South for the modification of the ramp and dock wall.

- (45) Trow Associates Inc. (2008). *Phase II Environmental Site Assessment*, Jacques-Cartier Park South, Gatineau, Quebec.

Study of groundwater and soil quality/contamination at Jacques-Cartier Park South as part of a Phase II environmental assessment for the modification of the ramp and dock wall. Some exceedances are described in soil samples and groundwater samples.

- (46) WSP. (2014). *Caractérisation des berges de la rivière des Outaouais*. Revue de littérature. Prepared for the National Capital Commission.

Thirteen (13) sites were identified along the shorelines of the Ottawa River on both Quebec and Ontario sides. The objective of the study is to conduct a literature review on the natural environment of the selected sites, to establish their environmental sensitivity and the availability of environmental information for each site. This will allow the identification of the sites to be prioritized for future field investigations.

- (47) WSP. (2015). *Caractérisation des berges de la rivière des Outaouais*. Inventaires de terrain. Prepared for the National Capital Commission.

Five sites were characterized along the Quebec and Ontario shoreline of the Ottawa River: the northern part of the island (sector 1), the Jacques-Cartier Park and Charron House (Sector 2), the Scott Point (sector 3), the Parc des Portageurs (area 4) and the Westboro Beach (Area 5). The sites were selected following a literature review (WSP, 2014), which identified shoreline portions with low to very high ecological sensitivity and where ecological environmental information was absent. Studied components include watercourses, terrestrial vegetation, wetlands, federal species at risk and provincial threatened or vulnerable species.

- (48) WSP Canada Inc. (2018). *Étude écologique et caractérisation de l'habitat du poisson aménagements de stabilisation, sentier des Voyageurs*, Gatineau (QC).

Ecological study and fish habitat characterization for the Voyageurs pathway in Gatineau, completed for the National Capital Commission. Details existing flora, fauna, and fish species and describes fish habitat characteristics.

- (49) WSP Canada Inc. (2019). *MÉMORANDUM TECHNIQUE – Mise à jour du rapport sur la faune ichtyenne et les habitat aquatiques – Étude d'évaluation environnementale des liaison interprovinciales*

## Appendix H – Planning and Design Principles (provided as a separate document)

The appendix is provided as separate document.



## Appendix I – List of Species in Project Area

Scientific Name		Federal		Ontario		Quebec	
		COSEWIC	Schedule 1 SARA	ESA	s-rank	LEMV	s-rank
<i>Acanthis flammea</i>	Common Redpoll				S5		S5
<i>Acanthis hornemanni</i>	Hoary Redpoll				SUB, S4N		S4
<i>Accipiter cooperii</i>	Cooper's Hawk	Not at Risk			S4		S4S5B
<i>Accipiter gentilis</i>	Northern Goshawk	Not at Risk			S4		S4
<i>Accipiter striatus</i>	Sharp-shinned Hawk	Not at Risk			S5		S4S5B
<i>Actitis macularius</i>	Spotted Sandpiper				S5B		S4B
<i>Aegolius acadicus</i>	Northern Saw-whet Owl				S5		S4S5B
<i>Agelaius phoeniceus</i>	Red-winged Blackbird				S5		S5B
<i>Aix sponsa</i>	Wood Duck				S5B, S3N		S5B
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	Special Concern		Special Concern	S4B	Likely	S2B
<i>Ammospiza leconteii</i>	LeConte's Sparrow				S5B		S4B
<i>Anas acuta</i>	Northern Pintail				S5B, S4N		S4B
<i>Anas crecca</i>	Green-winged Teal				S4B, S4N, S5M		S5B
<i>Anas platyrhynchos</i>	Mallard				S5		S5B
<i>Anas rubripes</i>	American Black Duck				S4		S4S5B
<i>Anser caeruleus</i>	Snow Goose				S5B		S5M
<i>Anthus rubescens</i>	American Pipit				S4B		S5B
<i>Antigone canadensis</i>	Sandhill Crane				S5B, S3N		S5B
<i>Antrostomus vociferus</i>	Eastern Whip-poor-will	Threatened	Threatened	Threatened	S4B	Likely	S3B
<i>Aquila chrysaetos</i>	Golden Eagle	Not at Risk		Endangered	S1B, S4N	Vulnerable	S3B

Scientific Name		Federal		Ontario		Quebec	
		COSEWIC	Schedule 1 SARA	ESA	s-rank	LEMV	s-rank
<i>Archilochus colubris</i>	Ruby-throated Hummingbird				S5B		S5B
<i>Ardea alba</i>	Great Egret				S2B, S3M		S3B
<i>Ardea herodias</i>	Great Blue Heron				S4		S5B
<i>Asio flammeus</i>	Short-eared Owl	Special Concern	Special Concern	Special Concern	S4?B, S2S3N	Likely	S3B
<i>Asio otus</i>	Long-eared Owl				S4		S4B
<i>Aythya affinis</i>	Lesser Scaup				S4B, S4N, S5M		S4B
<i>Aythya americana</i>	Redhead				S2B, S4N, S4M		S4B
<i>Aythya collaris</i>	Ring-necked Duck				S5B, S4N		S5B
<i>Aythya marila</i>	Greater Scaup				S4B, S4N, S5M		S4B
<i>Bartramia longicauda</i>	Upland Sandpiper				S2B		S3B
<i>Bombycilla cedrorum</i>	Cedar Waxwing				S5		S5B
<i>Bombycilla garrulus</i>	Bohemian Waxwing				S4B, S5N		S4S5
<i>Bonasa umbellus</i>	Ruffed Grouse				S5		S5
<i>Botaurus lentiginosus</i>	American Bittern				S5B		S4B
<i>Branta bernicla</i>	Brant				S4M		S3M
<i>Branta canadensis</i>	Canada Goose				S5		S5B
<i>Bubo scandiacus</i>	Snowy Owl				S4N		S4
<i>Bubo virginianus</i>	Great Horned Owl				S4		S5
<i>Bucephala albeola</i>	Bufflehead				S5		S4B
<i>Bucephala clangula</i>	Common Goldeneye				S5		S4B
<i>Bucephala islandica</i>	Barrow's Goldeneye				S2N	Vulnerable	S3
<i>Buteo jamaicensis</i>	Red-tailed Hawk	Not at Risk			S5		S4S5B
<i>Buteo lagopus</i>	Rough-legged Hawk	Not at Risk			S1B,S4N		S3S4B
<i>Buteo lineatus</i>	Red-shouldered Hawk	Not at Risk			S4B, S2N		S4B



Scientific Name		Federal		Ontario		Quebec	
		COSEWIC	Schedule 1 SARA	ESA	s-rank	LEMV	s-rank
<i>Buteo platypterus</i>	Broad-winged Hawk				S5B		S5B
<i>Butorides virescens</i>	Green Heron				S4B		S3S4B
<i>Calidris alba</i>	Sanderling				S4M		S4M
<i>Calidris fuscicollis</i>	White-rumped Sandpiper				S5M		S4M
<i>Calidris minutilla</i>	Least Sandpiper				S4B, S5M		S4B
<i>Calidris pusilla</i>	Semipalmated Sandpiper				S2B, S4M		S2B
<i>Cardellina canadensis</i>	Canada Warbler	Special Concern	Threatened	Special Concern	S5B	Likely	S4S5B
<i>Cardellina pusilla</i>	Wilson's Warbler				S5B		S5B
<i>Cardinalis cardinalis</i>	Northern Cardinal				S5		S5
<i>Cathartes aura</i>	Turkey Vulture				S5B, S3N		S5B
<i>Catharus fuscescens</i>	Veery				S5B		S5B
<i>Catharus guttatus</i>	Hermit Thrush				S5B, S4N		S5B
<i>Catharus minimus</i>	Gray-cheeked Thrush				S4?B, S4M		S5B
<i>Catharus ustulatus</i>	Swainson's Thrush				S5B		S5B
<i>Centronyx henslowii</i>	Henslow's Sparrow	Endangered	Endangered	Endangered	S1B		S1B
<i>Certhia americana</i>	Brown Creeper				S5		S5
<i>Chaetura pelagica</i>	Chimney Swift	Threatened	Threatened	Threatened	S3B	Likely	S2B
<i>Charadrius vociferus</i>	Killdeer				S4B		S3S4B
<i>Chlidonias niger</i>	Black Tern	Not at Risk		Special Concern	S3B, S4M		S2S3B
<i>Chordeiles minor</i>	Common Nighthawk	Special Concern	Threatened	Special Concern	S4B	Likely	S3S4B
<i>Chroicocephalus philadelphia</i>	Bonaparte's Gull				S5		S4B

Scientific Name		Federal		Ontario		Quebec	
		COSEWIC	Schedule 1 SARA	ESA	s-rank	LEMV	s-rank
<i>Circus hudsonius</i>	Northern Harrier	Not at Risk			S5B, S4N		S3S4B
<i>Cistothorus palustris</i>	Marsh Wren				S4B, S3N		S4B
<i>Cistothorus platensis</i>	Sedge Wren	Not at Risk			S4B	Likely	S2B
<i>Clangula hyemalis</i>	Long-tailed Duck				S3B, S5N		S4S5B
<i>Coccothraustes vespertinus</i>	Evening Grosbeak	Special Concern	Special Concern	Special Concern	S4		S4
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo				S4B		S2S3B
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo				S4S5B		S4B
<i>Colaptes auratus</i>	Northern Flicker				S5		S5B
<i>Columba livia</i>	Rock Pigeon				SNA		SNA
<i>Contopus cooperi</i>	Olive-sided Flycatcher	Special Concern	Threatened	Special Concern	S4B	Likely	S3S4B
<i>Contopus virens</i>	Eastern Wood-pewee	Special Concern	Special Concern	Special Concern	S4B	Likely	S3B
<i>Corvus brachyrhynchos</i>	American Crow				S5		S5B
<i>Corvus corax</i>	Common Raven				S5		S5
<i>Coturnicops noveboracensis</i>	Yellow Rail	Special Concern	Special Concern	Special Concern	S3B	Endangered	S3B
<i>Cyanocitta cristata</i>	Blue Jay				S5		S5
<i>Dolichonyx oryzivorus</i>	Bobolink	Threatened	Threatened	Threatened	S4B		S3B
<i>Dryobates pubescens</i>	Downy Woodpecker				S5		S5
<i>Dryobates villosus</i>	Hairy Woodpecker				S5		S5
<i>Dryocopus pileatus</i>	Pileated Woodpecker				S5		S5
<i>Dumetella carolinensis</i>	Gray Catbird				S5B, S3N		S5B
<i>Empidonax alnorum</i>	Alder Flycatcher				S5B		S5B



Scientific Name		Federal		Ontario		Quebec	
		COSEWIC	Schedule 1 SARA	ESA	s-rank	LEMV	s-rank
<i>Empidonax flaviventris</i>	Yellow-bellied Flycatcher				S5B		S5B
<i>Empidonax minimus</i>	Least Flycatcher				S5B		S5B
<i>Empidonax traillii</i>	Willow Flycatcher				S4B		S4B
<i>Eremophila alpestris</i>	Horned Lark				S4		S3S4B
<i>Euphagus carolinus</i>	Rusty Blackbird	Special Concern	Special Concern	Special Concern	S4B, S3N	Likely	S3S4B
<i>Falco columbarius</i>	Merlin	Not at Risk			S5		S5B
<i>Falco peregrinus</i>	Peregrine Falcon	Special Concern	Special Concern	Special Concern	S4	Vulnerable	S4B
<i>Falco sparverius</i>	American Kestrel				S4		S3B
<i>Fulica americana</i>	American Coot	Not at Risk			S3B, S4N		S4B
<i>Gallinago delicata</i>	Wilson's Snipe				S5B		S4S5B
<i>Gallinula galeata</i>	Common Gallinule				S3B		S4B
<i>Gavia immer</i>	Common Loon	Not at Risk			S5		S5B
<i>Geothlypis philadelphia</i>	Mourning Warbler				S5B		S5B
<i>Geothlypis trichas</i>	Common Yellowthroat				S5B, S3N		S5B
<i>Haemorhous mexicanus</i>	House Finch				SNA		S4S5
<i>Haemorhous purpureus</i>	Purple Finch				S5		S5B
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Not at Risk		Special Concern	S4	Vulnerable	S4
<i>Hirundo rustica</i>	Barn Swallow	Threatened	Threatened	Threatened	S4B		S3B
<i>Hydroprogne caspia</i>	Caspian Tern	Not at Risk			S3B, S5M	Endangered	S1B

Scientific Name		Federal		Ontario		Quebec	
		COSEWIC	Schedule 1 SARA	ESA	s-rank	LEMV	s-rank
<i>Hylocichla mustelina</i>	Wood Thrush	Threatened	Threatened	Special Concern	S4B		S3B
<i>Icterus galbula</i>	Baltimore Oriole				S4B		S4B
<i>Ixobrychus exilis</i>	Least Bittern	Threatened	Threatened	Threatened	S4B	Vulnerable	S2B
<i>Junco hyemalis</i>	Dark-eyed Junco				S5		S5B
<i>Lanius borealis</i>	Northern Shrike				S4B, S5N		S4B
<i>Lanius ludovicianus</i>	Loggerhead Shrike	Endangered		Endangered	S1B	Endangered	S1B
<i>Larus argentatus</i>	Herring Gull				S4B, S5N		S4B
<i>Larus delawarensis</i>	Ring-billed Gull				S5		S5B
<i>Larus hyperboreus</i>	Glaucous Gull				S4N		S4
<i>Larus marinus</i>	Great Black-backed Gull				S1B, S4N		S4B
<i>Leiothlypis celata</i>	Orange-crowned Warbler				S5B		S5B
<i>Leiothlypis peregrina</i>	Tennessee Warbler				S5B		S5B
<i>Leiothlypis ruficapilla</i>	Nashville Warbler				S5B		S5B
<i>Lophodytes cucullatus</i>	Hooded Merganser				S5		S4S5B
<i>Loxia curvirostra</i>	Red Crossbill				S5		S4
<i>Loxia leucoptera</i>	White-winged Crossbill				S5		S5
<i>Mareca americana</i>	American Wigeon				S4B, S4N, S5M		S4S5B
<i>Mareca strepera</i>	Gadwall				S4B, S4N, S5M		S5B
<i>Megaceryle alcyon</i>	Belted Kingfisher				S5B, S4N		S4B
<i>Megascops asio</i>	Eastern Screech-Owl	Not at Risk			S4		S3S4
<i>Melanerpes carolinus</i>	Red-bellied Woodpecker				S5		S3





Scientific Name		Federal		Ontario		Quebec	
		COSEWIC	Schedule 1 SARA	ESA	s-rank	LEMV	s-rank
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	Endangered	Endangered	Special Concern	S3	Endangered	S1B
<i>Melanitta deglandi</i>	White-winged Scoter				S4B, S5N		S3S4B
<i>Melanitta perspicillata</i>	Surf Scoter				S4B, S5N		S4S5B
<i>Meleagris gallopavo</i>	Wild Turkey				S5		S5
<i>Melospiza georgiana</i>	Swamp Sparrow				S5B, S4N		S5B
<i>Melospiza lincolnii</i>	Lincoln's Sparrow				S5B		S5B
<i>Melospiza melodia</i>	Song Sparrow				S5		S5B
<i>Mergus merganser</i>	Common Merganser				S5		S5B
<i>Mergus serrator</i>	Red-breasted Merganser				S5		S4B
<i>Mimus polyglottos</i>	Northern Mockingbird				S4		S4B
<i>Mniotilta varia</i>	Black-and-white Warbler				S5B		S5B
<i>Molothrus ater</i>	Brown-headed Cowbird				S5		S4B
<i>Myiarchus crinitus</i>	Great Crested Flycatcher				S5B		S4B
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron				S3B, S2N, S4M		S3S4B
<i>Oxyura jamaicensis</i>	Ruddy Duck				S3B, S4N, S5M		S3B
<i>Pandion haliaetus</i>	Osprey				S5B		S4B
<i>Parkesia motacilla</i>	Louisiana Waterthrush	Threatened	Threatened	Threatened	S2B	Likely	S1B
<i>Parkesia noveboracensis</i>	Northern Waterthrush				S5B		S5B
<i>Passer domesticus</i>	House Sparrow				SNA		SNA

Scientific Name		Federal		Ontario		Quebec	
		COSEWIC	Schedule 1 SARA	ESA	s-rank	LEMV	s-rank
<i>Passerculus sandwichensis</i>	Savannah Sparrow				S5B, S3N		S4B
<i>Passerella iliaca</i>	Fox Sparrow				S5B, S3N		S5B
<i>Passerina cyanea</i>	Indigo Bunting				S5B		S4S5B
<i>Perdix perdix</i>	Gray Partridge				SNA		SNA
<i>Perisoreus canadensis</i>	Canada Jay				S5		S5
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow				S4S5B		S3S4B
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	Not at Risk			S5B, S4N		S5B
<i>Phalaropus tricolor</i>	Wilson's Phalarope				S2B, S4M		S2B
<i>Phasianus colchicus</i>	Ring-necked Pheasant				SNA		N/A
<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak				S5B		S4S5B
<i>Picoides arcticus</i>	Black-backed Woodpecker				S5		S4
<i>Pinicola enucleator</i>	Pine Grosbeak				S4B, S5N		S4
<i>Pipilo erythrophthalmus</i>	Eastern Towhee				S4B, S3N		S3B
<i>Piranga olivacea</i>	Scarlet Tanager				S5B		S4B
<i>Plectrophenax nivalis</i>	Snow Bunting				S4N		S4S5B
<i>Pluvialis squatarola</i>	Black-bellied Plover				S4M		S4M
<i>Podilymbus podiceps</i>	Pied-billed Grebe				S4B, S2N		S4B
<i>Poecile atricapillus</i>	Black-capped Chickadee				S5		S5
<i>Polioptila caerulea</i>	Blue-gray Gnatcatcher				S4B		S3B
<i>Poocetes gramineus</i>	Vesper Sparrow				S4B		S3S4B



Scientific Name		Federal		Ontario		Quebec	
		COSEWIC	Schedule 1 SARA	ESA	s-rank	LEMV	s-rank
<i>Porzana carolina</i>	Sora				S5B		S4B
<i>Progne subis</i>	Purple Martin				S3B		S2B
<i>Quiscalus quiscula</i>	Common Grackle				S5		S5B
<i>Rallus limicola</i>	Virginia Rail				S4S5B		S4B
<i>Regulus calendula</i>	Ruby-crowned Kinglet				S5B, S3N		S5B
<i>Regulus satrapa</i>	Golden-crowned Kinglet				S5		S5B
<i>Riparia riparia</i>	Bank Swallow	Threatened	Threatened	Threatened	S4B		S3B
<i>Sayornis phoebe</i>	Eastern Phoebe				S5B		S5B
<i>Scolopax minor</i>	American Woodcock				S4B		S5B
<i>Seiurus aurocapilla</i>	Ovenbird				S5B		S5B
<i>Setophaga americana</i>	Northern Parula				S5B		S5B
<i>Setophaga caerulescens</i>	Black-throated Blue Warbler				S5B		S5B
<i>Setophaga castanea</i>	Bay-breasted Warbler				S5B		S5B
<i>Setophaga cerulea</i>	Cerulean Warbler	Endangered	Endangered	Threatened	S2B	Endangered	S1B
<i>Setophaga coronata</i>	Yellow-rumped Warbler				S5B, S4N		S5B
<i>Setophaga fusca</i>	Blackburnian Warbler				S5B		S5B
<i>Setophaga magnolia</i>	Magnolia Warbler				S5B		S5B
<i>Setophaga palmarum</i>	Palm Warbler				S1B		S4B
<i>Setophaga pensylvanica</i>	Chestnut-sided Warbler				S5B		S5B
<i>Setophaga petechia</i>	Yellow Warbler				S5B		S5B
<i>Setophaga pinus</i>	Pine Warbler				S5B, S3N		S4S5B
<i>Setophaga ruticilla</i>	American Redstart				S5B		S5B



Scientific Name		Federal		Ontario		Quebec	
		COSEWIC	Schedule 1 SARA	ESA	s-rank	LEMV	s-rank
<i>Setophaga tigrina</i>	Cape May Warbler				S5B		S5B
<i>Setophaga virens</i>	Black-throated Green Warbler				S5B		S5B
<i>Sialia sialis</i>	Eastern Bluebird	Not at Risk			S5B, S4N		S4S5B
<i>Sitta canadensis</i>	Red-breasted Nuthatch				S5		S5
<i>Sitta carolinensis</i>	White-breasted Nuthatch				S5		S5
<i>Spatula clypeata</i>	Northern Shoveler				S4B, S4N, S5M		S4B
<i>Spatula discors</i>	Blue-winged Teal				S3B, S4M		S3S4B
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker				S5B, S3N		S5B
<i>Spinus pinus</i>	Pine Siskin				S5		S5
<i>Spinus tristis</i>	American Goldfinch				S5		S5B
<i>Spizella arborea</i>	American Tree Sparrow				S5		S4S5B
<i>Spizella pallida</i>	Clay-colored Sparrow				S4B		S4B
<i>Spizella passerina</i>	Chipping Sparrow				S5B, S3N		S5B
<i>Spizella pusilla</i>	Field Sparrow				S4B, S3N		S3B
<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow				S4B		S3B
<i>Sterna hirundo</i>	Common Tern	Not at Risk			S4B		S4B
<i>Sterna paradisaea</i>	Arctic Tern				S4B, S2M		S4B
<i>Strix varia</i>	Barred Owl				S5		S5
<i>Sturnella magna</i>	Eastern Meadowlark	Threatened	Threatened	Threatened	S4B, S3N		S3B
<i>Sturnus vulgaris</i>	European Starling				SNA		SNA
<i>Tachycineta bicolor</i>	Tree Swallow				S4S5B		S4B



Scientific Name		Federal		Ontario		Quebec	
		COSEWIC	Schedule 1 SARA	ESA	s-rank	LEMV	s-rank
<i>Thryothorus ludovicianus</i>	Carolina Wren				S4		S3S4
<i>Toxostoma rufum</i>	Brown Thrasher				S4B		S4S5B
<i>Tringa solitaria</i>	Solitary Sandpiper				S4B, S5M		S4S5B
<i>Troglodytes aedon</i>	House Wren				S5B		S4B
<i>Troglodytes hiemalis</i>	Winter Wren				S5B, S4N		S5B
<i>Turdus migratorius</i>	American Robin				S5		S5B
<i>Tyrannus tyrannus</i>	Eastern Kingbird				S4B		S4B
<i>Vermivora chrysoptera</i>	Golden-winged Warbler	Threatened	Threatened	Special Concern	S3B	Likely	S2B
<i>Vireo flavifrons</i>	Yellow-throated Vireo				S4B		S3B
<i>Vireo gilvus</i>	Warbling Vireo				S5B		S5B
<i>Vireo olivaceus</i>	Red-eyed Vireo				S5B		S5B
<i>Vireo philadelphicus</i>	Philadelphia Vireo				S5B		S5B
<i>Vireo solitarius</i>	Blue-headed Vireo				S5B		S5B
<i>Zenaida macroura</i>	Mourning Dove				S5		S4S5B
<i>Zonotrichia albicollis</i>	White-throated Sparrow				S5		S5B
<i>Zonotrichia leucophrys</i>	White-crowned Sparrow				S5B, S3N		S5B



## Notes:

### Bird record sources:

Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier (eds.). 2007. Atlas of the Breeding Birds of Ontario, 2001 – 2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp. Accessed October 2021. <https://www.birdsontario.org/>.

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### Federal and Ontario species ranking definitions:

Endangered - a wildlife species facing imminent extirpation or extinction

Threatened - a wildlife species likely to become endangered if limiting factors are not reversed.

Special Concern - a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified traits

Not at Risk - a wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances

### Quebec species listing definitions:

Endangered (vulnerable) - a species, subspecies or population whose survival is considered precarious



Threatened (menacee) - species, subspecies or population whose extinction is apprehended

Likely (susceptible) - species that may be designated as threatened or vulnerable

Provincial s-rank definitions:

S1 - severely at risk in the province

S2 - at risk in the province

S3 - vulnerable in the province

S4 - widely distributed, abundant and seemingly out of danger across the province, may still be causes for long-term concern

S5 - wide distribution, abundant and demonstrated stability in the province

S#S# - priority range interval (between two specific categories)

S? - indicates uncertainty

S#B - breeding population

S#M - migratory population

S#N - non-breeding population

SNA - hybrid, exotic, accidental or non-regular presences

SNR - rank not assigned

