



Prince of Wales Bridge
Interim Multi-Use Pathway
Schedule B Municipal Class
Environmental Assessment (EA) Study
Environmental Screening Report



Prince of Wales Bridge Interim Multi-Use Pathway
Schedule B Municipal Class Environmental Assessment (EA) Study

Environmental Screening Report

Prepared for:



Prepared By:



PARSONS
1223 Michael Street North, Suite 100
Ottawa, Ontario
K1J 7T2

March 2021

477709 03000

Table of Contents

EXECUTIVE SUMMARY	III
1.0 INTRODUCTION	1
1.1 BACKGROUND	1
1.2 STUDY PROCESS AND EA REQUIREMENTS	1
1.3 REPORT ORGANIZATION	2
2.0 CHALLENGE AND OPPORTUNITY STATEMENT	3
3.0 EXISTING CONDITIONS	10
3.1 STUDY AREA	10
3.2 SOCIAL ENVIRONMENT	10
3.2.1 Planning Context	10
3.2.2 Land Ownership	12
3.2.3 Land Use.....	12
3.2.4 Cultural heritage	12
3.2.5 Archaeology	13
3.2.6 Land Claims.....	14
3.2.7 Pedestrian and Cycling Networks	14
3.3 BIO-PHYSICAL ENVIRONMENT	15
3.3.1 Natural Environment.....	15
3.3.2 Climate Change.....	22
3.3.3 Surficial and Bedrock Geology	22
3.3.4 Source Water Protection.....	23
3.3.5 Contamination.....	23
3.4 TECHNICAL ENVIRONMENT	25
3.4.1 Structural Conditions	25
4.0 IDENTIFICATION AND EVALUATION OF ALTERNATIVE SOLUTIONS	27
4.1 ALTERNATIVE SOLUTIONS.....	28
4.2 EVALUATION OF ALTERNATIVE SOLUTIONS	30
4.2.1 Evaluation Criteria.....	31
4.2.2 Evaluation and Ranking of Alternative Solutions	32
4.2.3 Preliminary Preferred Solution	36
5.0 CONSULTATION	37
5.1 FIRST NATIONS	37
5.2 AGENCIES	37
5.3 ONLINE PUBLIC CONSULTATION	38
6.0 PREFERRED ALTERNATIVE SOLUTION	39
6.1 DESIGN DETAILS	40
6.1.1 Construction Staging and Storage	40
6.1.2 Cost.....	41
6.1.3 Schedule.....	41
6.1.4 Hertiage Impact Assessment	42
6.2 IMPACT ASSESSMENT OF THE PREFERRED SOLUTION.....	42
6.2.1 Mitigation Plans	49
6.2.2 Permits and Approvals.....	50
6.3 MODIFYING THE RECOMMENDED SOLUTION	50
7.0 CLASS EA PROJECT COMPLETION	50
7.1 CLASS EA FILING PROCEDURE	50
7.2 NOTICE OF COMPLETION	51
8.0 REFERENCES	52

LIST OF FIGURES

Figure 1: Prince of Wales Bridge.....	1
Figure 2: Municipal Class EA Process	2
Figure 3: Plan for Canada's Capital Milestone Projects	3
Figure 4: NCC Capital Pathway Strategic Plan	4
Figure 5: Transportation Master Plan - Primary Urban Cycling Network	5
Figure 6: Transportation Master Plan - Rapid Transit and Transit Priority Network (Ultimate Concept)	6
Figure 7: Ottawa Cycling Plan	7
Figure 8: City of Gatineau Cycling Master Plan – 2025 Horizon	8
Figure 9: Study Area	10
Figure 10: Land Ownership	12
Figure 11: Pedestrian and Cycling Networks	14
Figure 12: Wetlands	16
Figure 13: Issues of Potential Environmental Concern	24
Figure 14: North and South Bridge Cross Section and Elevation	26
Figure 15: Alternative 1 - Do Nothing	28
Figure 16: Alternative 2 - Add a New Interim Multi-Use Pathway to the Existing Prince of Wales Bridge Deck	29
Figure 17: Alternative 3 – Widen the Existing Prince of Wales Bridge to Accommodate a New Multi-Use Pathway	30
Figure 18: Preliminary Preferred Solution	36
Figure 19: Artists' Rendering of the Preferred Solution, Birds Eye View (South Approach)	39
Figure 20: Artists' Rendering of the Preferred Solution (Cross-Section)	39
Figure 21: Proposed Construction Staging Area and Access	41

LIST OF TABLES

Table 1: SAR identified from the background review with potential to occur within/or in proximity to the Study Area.	17
Table 2: Species at Risk Assessment	19
Table 3: Issues of Potential Environmental Concern	23
Table 4: Evaluation Criteria.....	31
Table 5: Evaluation of Alternative Solutions.....	32
Table 6: Impacts and Mitigation.....	44

APPENDIX A: Supporting Documents/Studies

- Cultural Heritage Evaluation Report (Contentworks)
- Heritage Impact Assessment (Contentworks)
- Species at Risk and Ecological Site Characterization (Parsons)
- Geotechnical Desktop Study (Golder)
- Phase 1 Environmental Site Assessment (Golder)

APPENDIX B: Consultation

- Public
- First Nations
- Agencies/Stakeholders

EXECUTIVE SUMMARY

The Prince of Wales Bridge is an existing, out of service railway bridge, that crosses the Ottawa River between the City of Ottawa (Ontario) and the City of Gatineau (Québec) on the O-Train Trillium Line. The Prince of Wales Bridge was constructed in 1879 and the superstructure was reconstructed in 1926. The Bridge is formed by two structures (north and south) separated by Lemieux Island – comprised of six spans in the south structure and seven spans in the north structure. The clear width of the structure is approximately 5 m, carrying one track only. The total crossing length is 989 meters. The south span of the south structure crosses over the National Capital Commission (NCC) Ottawa River Pathway. The NCC Voyageurs Pathway crosses the existing railway track on the north approach of the north structure. The Prince of Wales Bridge is located approximately 500 m upstream of the Chaudière Falls Ring Dam.

The City of Ottawa purchased the currently out of service railway bridge from Canadian Pacific Railway (CPR) in 2005 for a future, longer-term transit crossing. The Prince of Wales Bridge is being retained as a future rail transit bridge in the City's Three-Year Rail Network Plan as filed with the Canadian Transportation Agency. In 2013, the bridge was identified as a future "Major Pathway" in the City's Transportation Master Plan and is identified in the Ottawa Cycling Plan Affordable Cycling Project List.

The Prince of Wales Bridge is listed on the City's Heritage Register under Section 27 (1.2) of the *Ontario Heritage Act*, but it is not currently a designated heritage structure under Part IV of the *Ontario Heritage Act*.

The City sees the bridge as an asset that can be improved to accommodate active transportation (walking and cycling) between Ottawa and Gatineau on an interim basis. The use of the bridge for active transportation is imbedded in the plans of the NCC, as well as the City of Ottawa and City of Gatineau.

The objective of the EA is to investigate reasonable alternatives for an interim use of the bridge as a multi-use pathway crossing of the Ottawa River that connects the existing pathways in the cities of Ottawa and Gatineau. Three alternative solutions were considered as part of this study. They include: Do Nothing; Add a New Interim Multi-Use Pathway to the Existing Prince of Wales Bridge Deck; and Widen the Existing Prince of Wales Bridge to Accommodate a New Multi-Use Pathway. Following the development of evaluation criteria and the evaluation of alternative solutions, the addition of a New Interim Multi-Use Pathway to the Existing Prince of Wales Bridge Deck was recommended as the preferred solution. The preferred solution proposes that the existing track structure would be retained but covered to protect for potential future rail use. A new multi-use pathway timber deck will be constructed directly on the existing timber ties with an approximate 5.0 m width. The on-land portions of the pathway (at the approaches and Lemieux Island) will measure 3.0 m wide. At the south approach, a new asphalt pathway connecting the City of Ottawa Trillium Pathway to the bridge deck will be constructed. On Lemieux Island, an asphalt pathway will be implemented along the west side of the existing rail track. This will require modifications to the rail bed, vegetation removal, grading and the placement of fill. At the north approach, an asphalt surface will be constructed directly on top of the railbed overtop of the rails, supported by retaining blocks at the margins. Coverings of the existing bridge deck and at the rails at the north approach is intended to be an interim measure where a conversion back to rail use can be achieved with relative ease, if required, for future railway operations.

The preferred solution promotes a positive shift towards walking and cycling thereby providing a positive impact on the region's overall contribution to Climate Change and the reduction of Greenhouse Gas Emissions from transportation sources and a healthy lifestyle.

This study has been undertaken in accordance with Ontario's *Environmental Assessment Act*, fulfilling the requirements for a Municipal Class EA process for a Schedule 'B' project (Municipal Engineers Association, October 2000, amended in 2007, 2011 and 2015). The study outlines the process which was undertaken to confirm the preferred solution for the Prince of Wales Bridge to accommodate an interim multi-use pathway that connects the City of Ottawa with the City of Gatineau. The study documents the project challenge and opportunity, summary of existing conditions, evaluation of alternatives, a description of the preferred solution, public, agency and Indigenous consultation undertaken throughout the study, identification of impacts, mitigation and monitoring measures, and the identification of approval requirements.

1.0 INTRODUCTION

1.1 BACKGROUND

The Prince of Wales (PoW) Bridge is located on the out-of-service section of the O-Train Trillium Line north of Bayview Station crossing the Ottawa River between Ottawa, Ontario and Gatineau, Quebec. The last freight train to fully cross the Prince of Wales Bridge was from the Ottawa Central Railway during the construction of the O-Train LRT line in 2001. Railway freight traffic by the Quebec Gatineau Railway (QGRY) ceased entirely on the North Bridge since the closing of the Domtar plant in Gatineau in 2007.

The crossing consists of two separate structures. The first is the Prince of Wales Bridge South (SN011970) spanning between the Ontario shore and Lemieux Island. The second is the Prince of Wales Bridge North (SN011971) spanning between Lemieux Island and the Quebec shore. Note that the City of Ottawa Water Purification Plant is located on Lemieux Island. The south span of the South Bridge crosses over the National Capital Commission (NCC) Ottawa River Pathway. The NCC Voyageurs Pathway crosses the existing railway track on the north approach of the North Bridge. The Prince of Wales Bridge is located approximately 500 m upstream of the Chaudière Falls Ring Dam (Figure 1).

Both are steel structures, built in 1926 by the Canadian Pacific Railway, and supported on unreinforced stone masonry piers and abutments founded on bedrock, originally built between 1879 and 1881.



Figure 1: Prince of Wales Bridge

The Prince of Wales Bridge is listed on the City's Heritage Register under Section 27 (1.2) of the *Ontario Heritage Act* but it is not currently a designated heritage structure under Part IV of the *Ontario Heritage Act*.

1.2 STUDY PROCESS AND EA REQUIREMENTS

In accordance with Municipal Class Environmental Assessment Manual, October 2000, amended in 2007, 2011 and 2015, Appendix I states that:

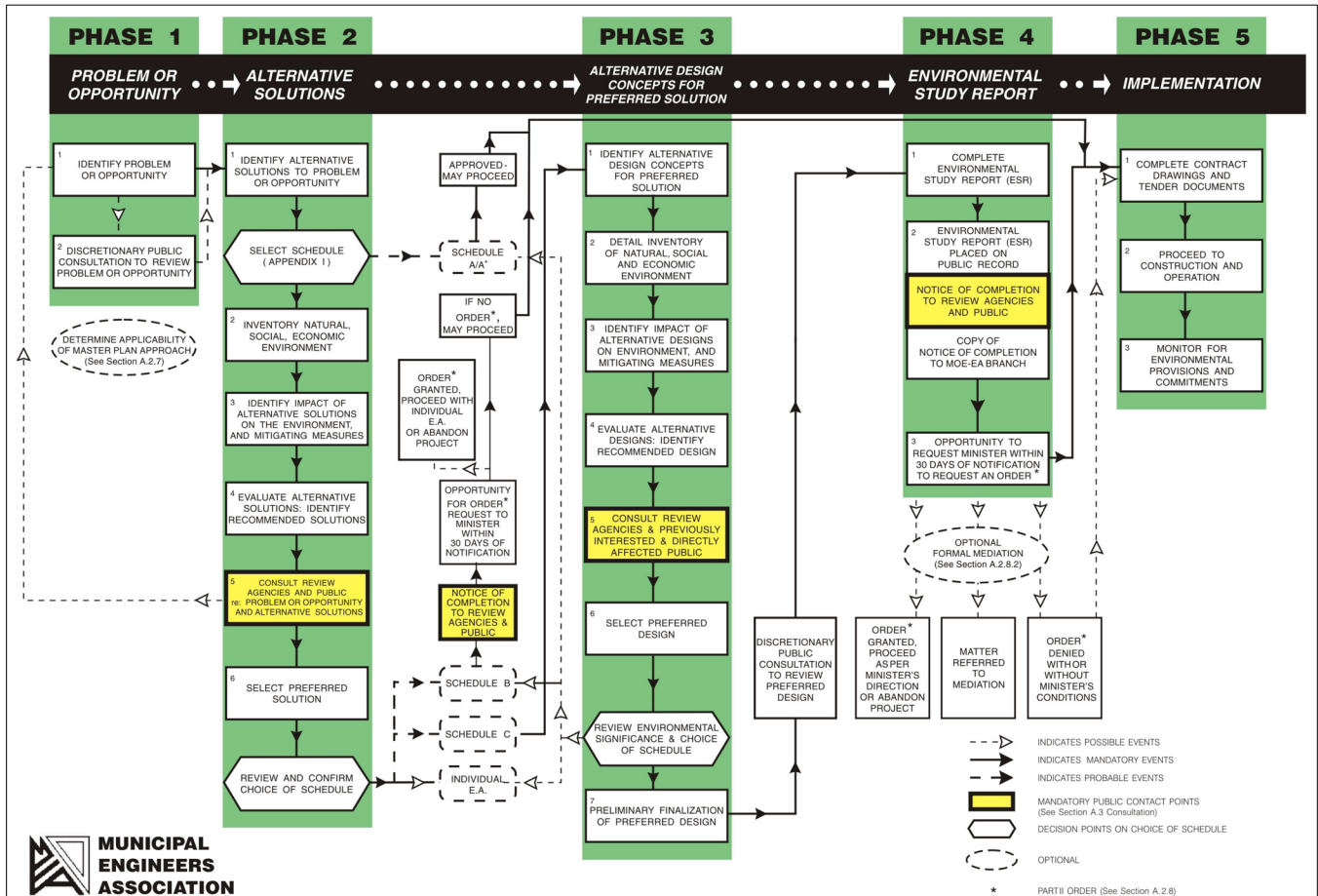
"Projects which take place partly outside the proponent's municipal boundary shall be planned at least under Schedule B, other than normal or emergency operational activities, which should be a Schedule A".

As the project will be partially undertaken within the City of Gatineau, it is being planned following the Schedule B process.

As a Schedule B undertaking, the proponent (City of Ottawa) is required undertake Phase 1 and Phase 2 of the Environmental Assessment process and document the findings in a “project file”. This Environmental Screening Report is intended to address the process and documentation requirements.

The Class EA general process is shown on **Figure 2**.

Figure 2: Municipal Class EA Process



Source: Municipal Engineers Association, 2000

1.3 REPORT ORGANIZATION

The report is divided into eight sections. The study description and background, as well as the study process and EA requirements are provided in Section 1.0. Section 2.0 outlines the Challenge and Opportunity Statement. Section 3.0 describes the Existing Conditions within and adjacent to the Study Area that could potentially be affected by the project. The Identification and Evaluation of Alternative Solutions are provided in Section 4.0. Section 5.0 describes consultation undertaken. Section 6.0 describes the Preferred Alternative Solution and the various Design Details for the Recommended Plan. An Impact Assessment of the Preferred Solution, mitigation measures, recommended monitoring and required permitting and approvals is also included in Section 6.0. The Class EA conclusion, filing procedures, including a Part II Order Request and Notice of Completion details are included in Section 7.0. References are included in Section 8.0.

2.0 CHALLENGE AND OPPORTUNITY STATEMENT

The Prince of Wales Bridge is an existing out of service railway bridge owned by the City of Ottawa but continues to be retained as a future rail transit bridge in the City's Three-Year Rail Network Plan as filed with the Canadian Transportation Agency. While the Prince of Wales Bridge is being retained as a future rail transit bridge, the City sees the bridge as an asset that can be improved to accommodate active transportation between Ottawa and Gatineau in the interim. As per Section 2 of the City of Ottawa Official Plan, Strategic Directions:

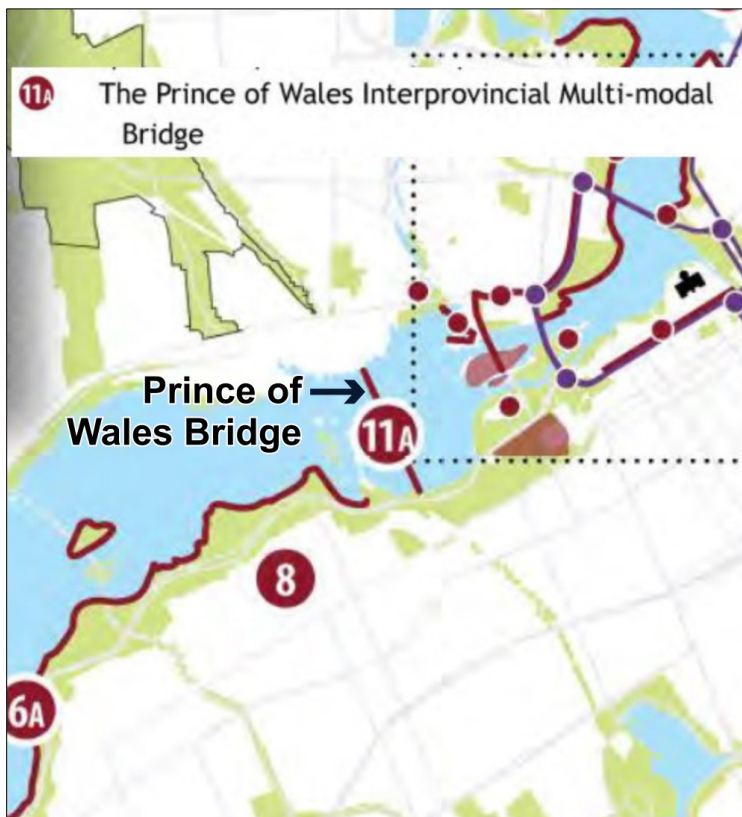
The City will protect for the possible inclusion of exclusive rapid transit service across such bridges as the Prince of Wales Bridge....In the interim, the City may seek opportunities to enhance active transportation at these crossings where feasible.

The use of the bridge for active transportation (walking and cycling) is imbedded in the plans of the NCC, as well as the City of Ottawa and City of Gatineau. The policies and objectives specific to the use of the Prince of Wales Bridge is included the following review of the various policy documents below.

Plan for Canada's Capital - National Capital Commission

As noted in the Plan for Canada's Capital (PCC - 2017): Historically, the role of the NCC in urban transportation derived from its federal planning mandate and ownership of lands and infrastructure such as bridges, parkways and corridors. The plan notes that federal involvement in regional transportation should concentrate on investing in assets that serve as a foundation for a distinctive and attractive sustainable mobility network. Improved interprovincial connectivity is an important aspect of the federal objective. The NCC has recognized the City's intent to create a multi-use pathway across the Prince of Wales Railway Bridge to connect Ottawa and Gatineau. The Plan also acknowledges a medium to longer term plan to use the bridge as a public transit connection (**Figure 3**) (NCC, 2017).

Figure 3: Plan for Canada's Capital Milestone Projects



Source: Modified from NCC, 2017

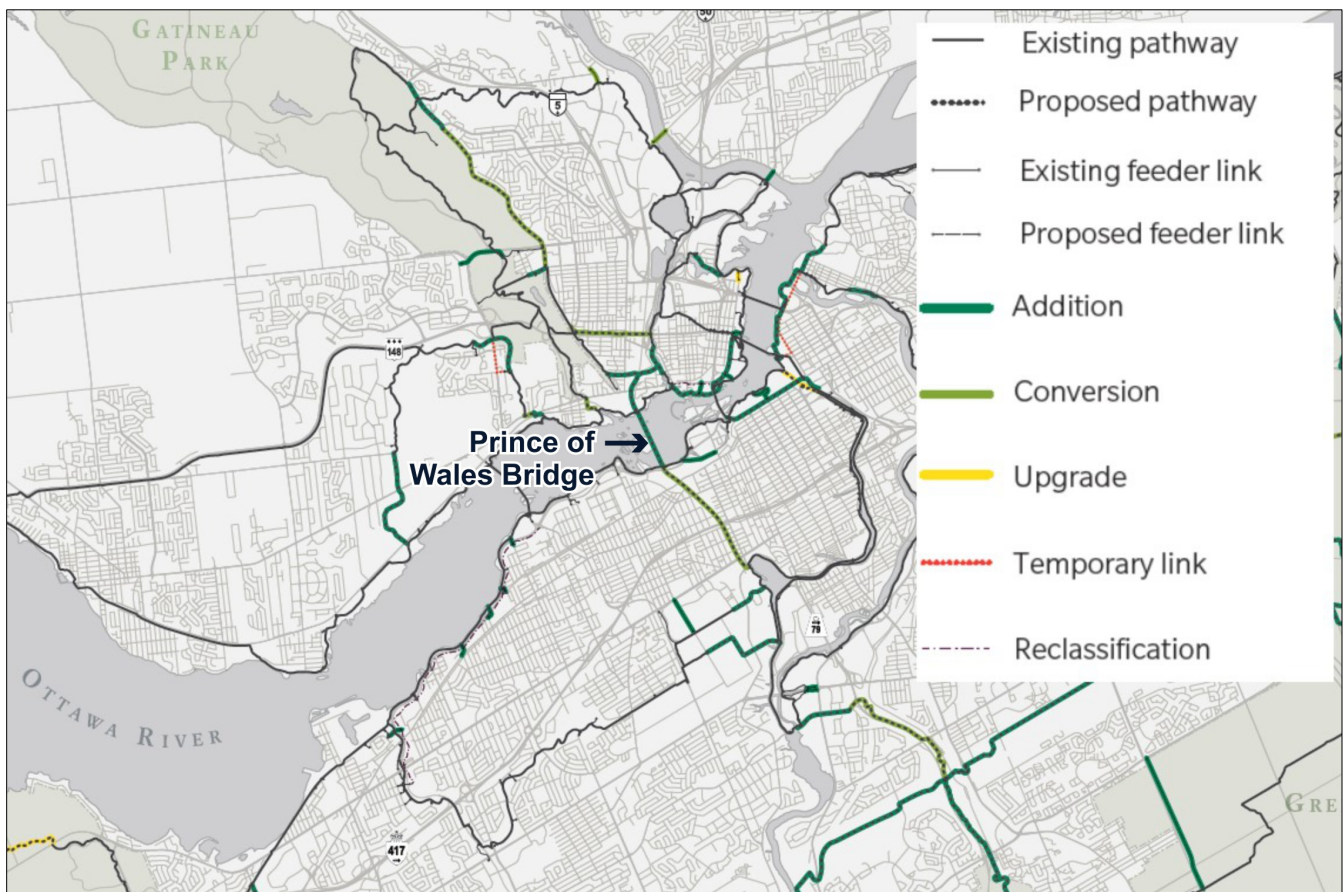
Capital Pathway Strategic Plan - National Capital Commission

The Capital Pathway Strategic Plan (2020) serves as the NCC’s primary policy document for the planning and management of the Capital Pathway Network. The network concept described in the plan is that the Capital Pathway network will become an interconnected greenway network, forming a series of unique discovery routes that traverse the varied landscapes and lead to various destinations within the Capital and includes connecting the cities of Ottawa and Gatineau.

The plan identifies the Prince of Wales Bridge as part of their Ideal Network (Section 3.1.1) as a “Proposed Pathway” and “Addition to the Capital Pathway Network” as shown on **Figure 4**.

The plan recognizes the direction provided in the PCC to improve interprovincial transportation, including an initial element of creating a multi-use pathway across the Prince of Wales Bridge (NCC, 2020).

Figure 4: NCC Capital Pathway Strategic Plan



Source: Modified from NCC, 2020

Transportation Master Plan - City of Ottawa

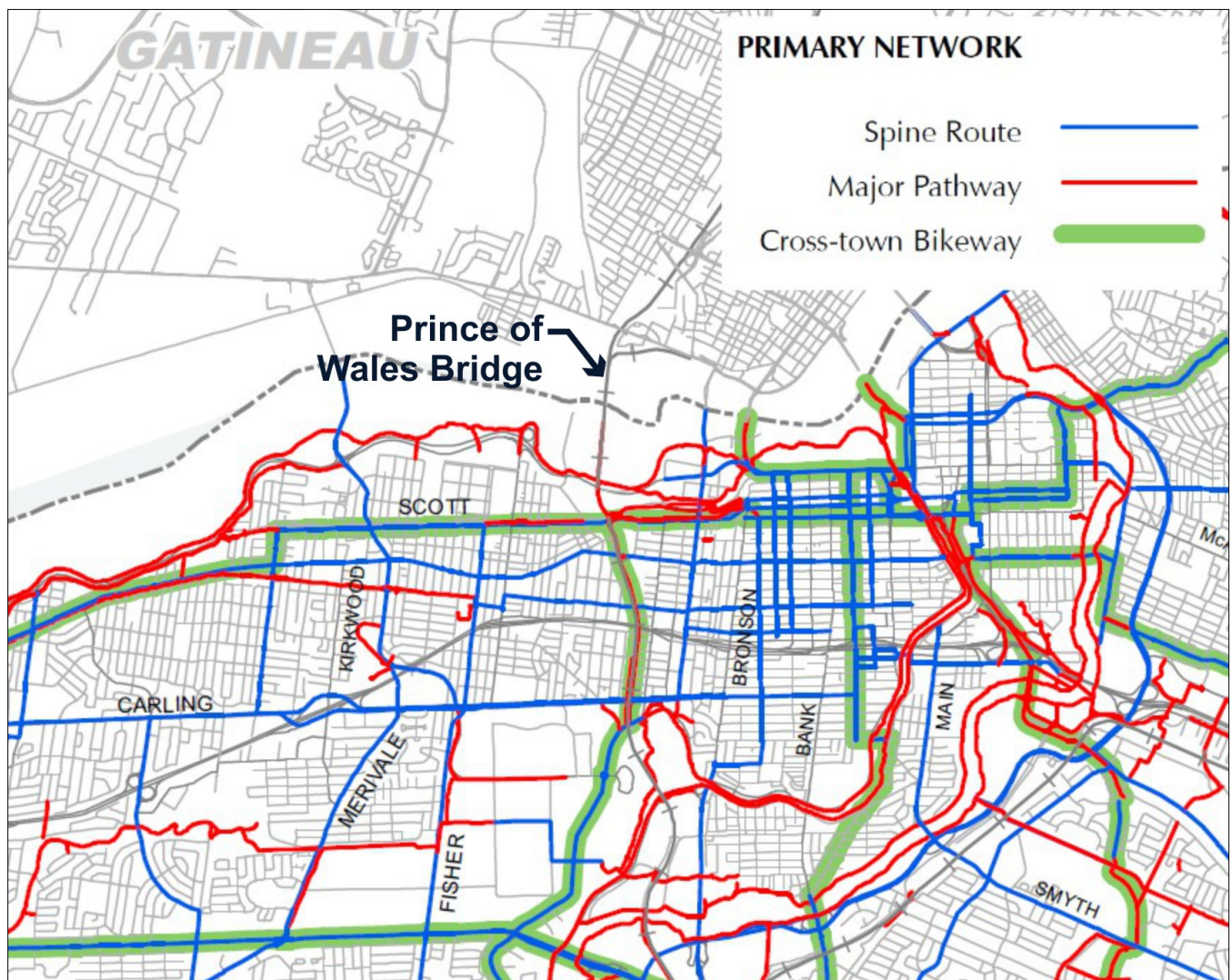
The City of Ottawa Transportation Master Plan (TMP) is the City’s blueprint for planning, developing and operating its walking, cycling, transit and road networks. Key areas of focus include integrating the concept of complete streets, updating modal share targets, advancing strategies to improve walking and cycling, and supporting transit-oriented development. As it relates to this EA, two primary objectives of the TMP is to maximize walkability and to strengthen and expand the cycling network. The TMP identifies observed mode shares and person trip volumes based on 2011 data and 2031 targets. Between 2011 and 2031, the City of Ottawa targets a 39% increase and a 145% increase in the walking and cycling modal share, respectively. Recommended strategic actions to support this increase include:

- Building a continuous well-connected pedestrian network
- Creating a walkable environment
- Improving pedestrian and cycling safety
- Build and maintain a network for cycling facilities
- Offer attractive intermodal connections and trip end facilities

TMP directions to support the sustainability goals identified in the City Strategic Plan include providing comprehensive, high-quality facilities and services for walking, cycling and public transit; using transportation demand management and supply management to make travel by walking, cycling and transit more attractive; and promoting active transportation as a component of healthy lifestyles (City of Ottawa, 2013b).

The TMP identifies a portion of the Prince of Wales Bridge as a “Major Pathway” (Figure 5). It is important to note that the Primary Urban Cycling Network represents the future cycling network in support of the plans policies.

Figure 5: Transportation Master Plan - Primary Urban Cycling Network



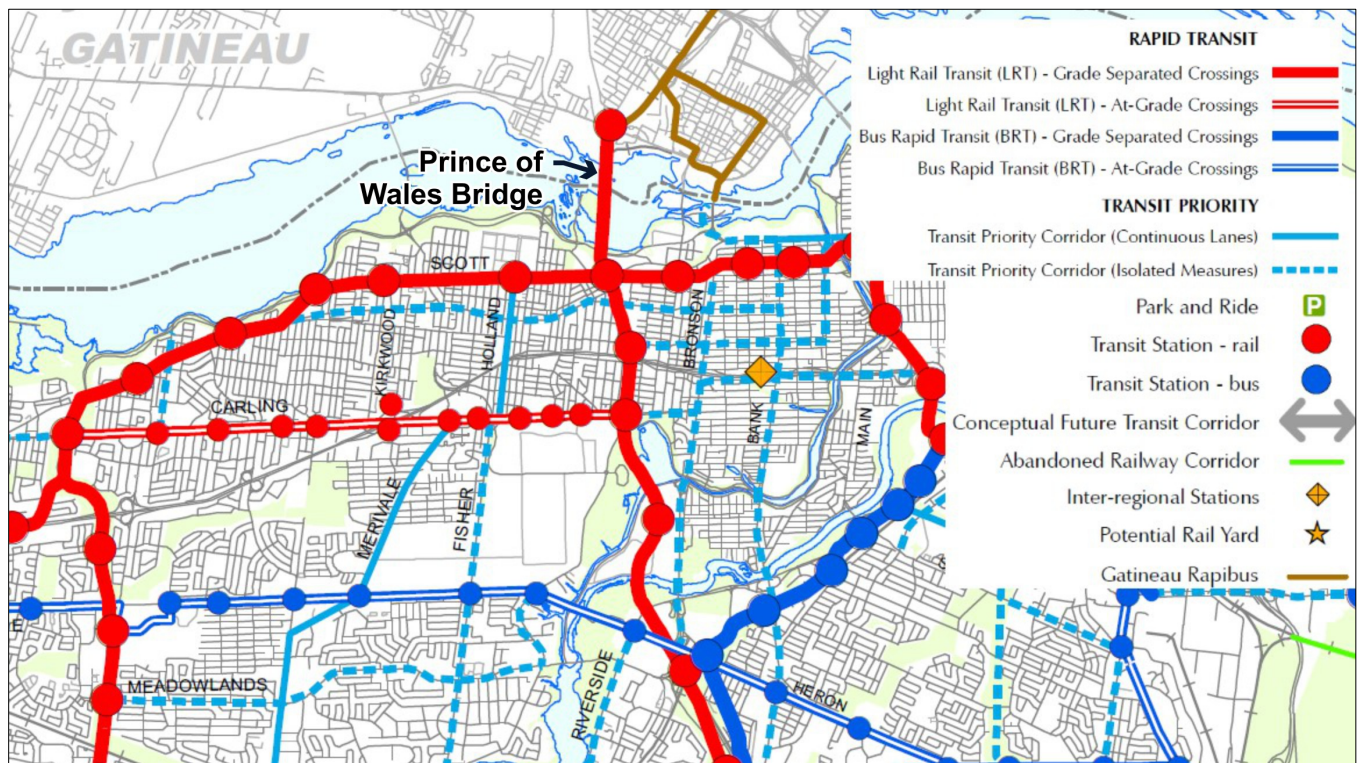
Source: Modified from City of Ottawa, 2013b

One of the goals of the TMP is to “Transform Ottawa’s Transit System” which consists of expanding the rapid transit system and transit priority network. As stated in chapter 6.1 of the TMP:

The successful implementation of an expanded rapid transit and transit priority (RTTP) network—which will include light rail transit (LRT), bus rapid transit (BRT) and O-Train facilities plus on-road transit priority measures—will be a critical element in the achievement of the City’s transit objectives. Expansion of the RTTP network will significantly increase the ease of mobility and attractiveness of transit use for residents. The City has developed a strategic approach to expanding its RTTP network in response to future transportation needs and towards the goal of achieving an ultimate RTTP network.

The Prince of Wales Bridge has been identified as a Light Rail Transit Grade Separated Crossing, contained within the Rapid Transit and Transit Priority Network – Ultimate Concept schedule within the TMP connecting the Trillium Line to Gatineau’s Rapid bus network (**Figure 6**).

Figure 6: Transportation Master Plan - Rapid Transit and Transit Priority Network (Ultimate Concept)



Source: Modified from City of Ottawa, 2013b

Cycling Plan – City of Ottawa

The 2013 Ottawa Cycling Plan (City of Ottawa, 2013a) is a long-term strategy to develop, strengthen and support a cycling culture in the City. The Plan acts a supporting strategy to the TMP that provides additional information on specific functions or geographic areas.

The Prince of Wales Bridge has been identified as part of the Affordable Network (2031), Phase 1 implementation (2014 - 2019). The Plan acknowledges, adapting the Prince of Wales Bridge to accommodate a multi-use pathway providing a connection to NCC pathways on both side of the River, as well as the City Trillium Pathway, and providing a connection between Gatineau and the City of Ottawa Bayview LRT Station (**Figure 7**).

Figure 7: Ottawa Cycling Plan



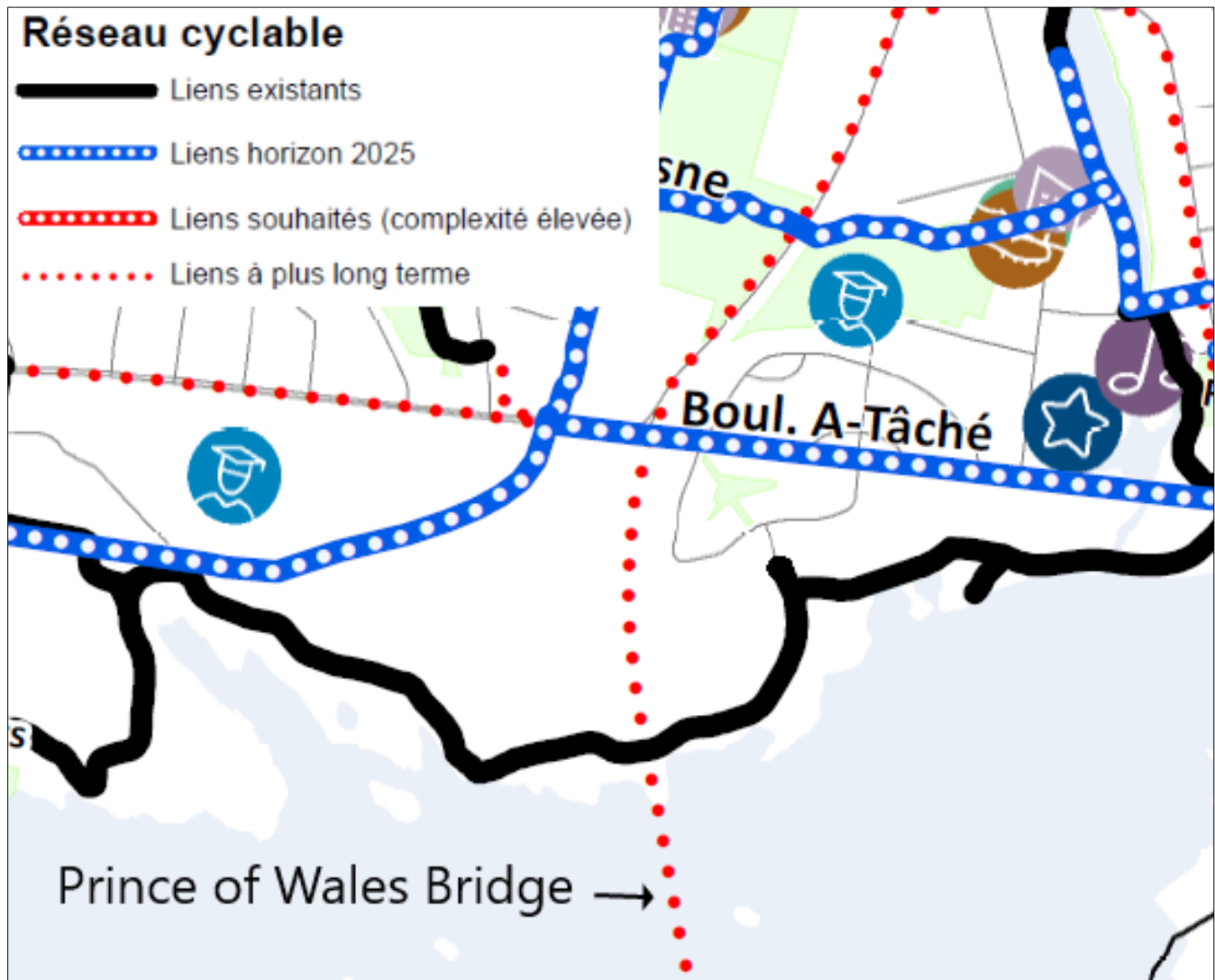
Source: Modified from City of Ottawa, 2021

Cycling Network Master Plan - City of Gatineau

The City of Gatineau Cycling Network Master Plan (2018) acts as a guide for the development of the cycling environment within the City of Gatineau. The implementation of the Plan will allow cycling to become a viable option for active transportation within the City. The Plan identifies cycling projects within the City of Gatineau that will become part of the ideal network up to the 2025 horizon.

The Prince of Wales Bridge is identified as a Long-term Link (Liens à plus long terme) that identifies projects within the 2025 Horizon (Projets à L'horizon 2025: Centre-Ville) (**Figure 8**). Long term links include cycling projects requiring infrastructure major, significant funding and / or are linked to a complex planning process, are generally achieved over the longer term (greater than the 2025 horizon) although they are identified as having high potential (City of Gatineau, 2018).

Figure 8: City of Gatineau Cycling Master Plan – 2025 Horizon



Source: Modified from City of Gatineau, 2018

Importance of this Transportation Corridor

The Prince of Wales Bridge is directly aligned with the Rapidbus transit corridor in Gatineau and the Bayview O-Train LRT Station in Ottawa. It is included in the City's long-term plans for future expansions of the metropolitan region's public transportation networks. Future extensions of the Rapidbus or the Trillium line for example, could facilitate connections such as:

- From Gatineau to a future event centre at Lebreton Flats, to Carleton University, to federal work centers at Confederation Heights, to the future hospital at Carling Station, to the Ottawa Airport
- From Gatineau to Kanata North and Department of National Defense Headquarters, with a westbound connection on the Confederation line
- From South Ottawa to the Hull sector of Gatineau

This corridor also has significant value as an Active Transportation Link. From a utilitarian perspective, it would provide a direct low-stress route for many residents in the west of Gatineau to cycle to the Tunney's Pasture federal employment node and Bayview Station. At Bayview Station, connections can be made to both the Confederation and Trillium LRT lines

which are currently undergoing significant extensions dramatically increasing the number of accessible end destinations. Bikes are permitted on the O-Train LRT system at any time of day.

North of the Ottawa River, as a northern extension of Cross-Town Bikeway #6 it would connect with pathways leading to Gatineau's future transit corridor connecting the west of Gatineau to both downtowns. The Prince of Wales Bridge link also provides a direct connection to the City's east-west Cross-Town Bikeway #2 (which sees over 3,000 cyclists on peak days). From a recreational/tourism perspective, this active transportation link would provide a direct connection between the NCC Ottawa River and Voyageurs Pathways as well as an 'all-pathway' link between Ottawa and Gatineau Park. It would be the only Ottawa River crossing free of traffic noise and stress and would provide increased resident/visitor interaction with the Ottawa River.

Conclusion Regarding Challenge and Opportunity

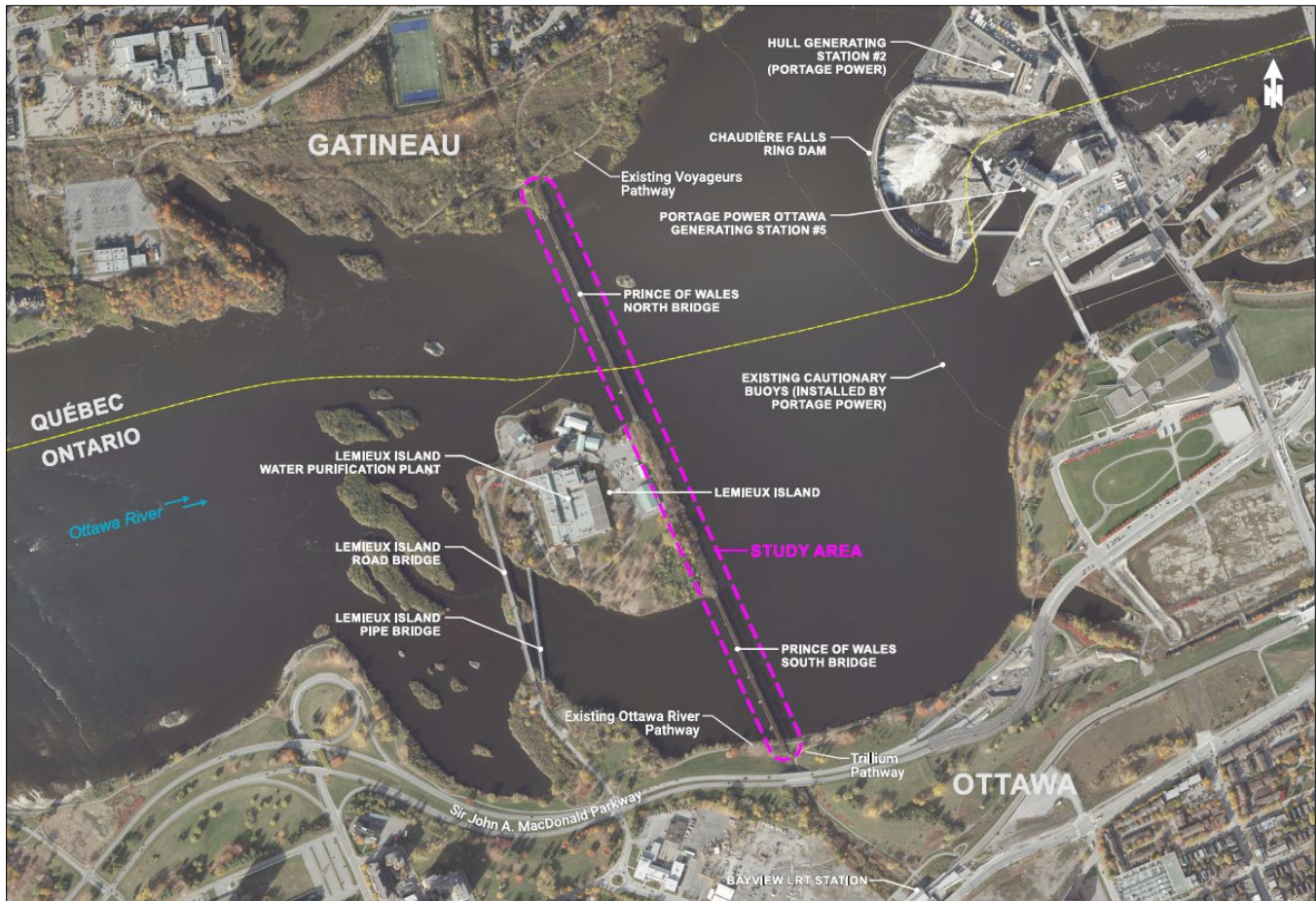
In order to formalize the crossing to the existing multi-use pathways at both bridge approaches, as well as provide a link to nearby LRT stations, the City of Ottawa is considering options for an interim multi-use pathway that can utilize the existing Prince of Wales Bridge, while at the same time maintaining potential future rail transit on the bridge. Providing a multi-use pathway on the bridge as an interim use promotes a positive shift towards walking and cycling thereby providing an overall positive impact on the region's overall contribution to Climate Change and the reduction of Greenhouse Gas Emissions from transportation sources and a healthy lifestyle.

3.0 EXISTING CONDITIONS

3.1 STUDY AREA

The EA Study Area extends the length of the Prince of Wales Bridge, from the City of Ottawa Trillium Pathway in the south, (crossing the eastern side of Lemieux Island), to the NCC Voyageurs Pathway in Gatineau (**Figure 9**). It is important to note, in order to provide context, some of the aspects of the existing environment that have been described in this report, extend beyond this Study Area.

Figure 9: Study Area



3.2 SOCIAL ENVIRONMENT

3.2.1 PLANNING CONTEXT

Provincial Policy Statement

The Provincial Policy Statement (PPS 2020) is issued under Section 3 of the Planning Act; the current PPS came into effect May 1, 2020.

Policies that are relevant to this study are provided in Part V of the PPS:

Section 1.5, Policy 1.5.1 “Healthy, active communities should be promoted by:

- a) Planning public streets, spaces and facilities to be safe, meet the needs of pedestrians, foster social interaction and facilitate active transportation and community connectivity...”.

Section 1.6, Policy 1.6.3 “Before consideration is given to developing new infrastructure and public service facilities:

- a) the use of existing infrastructure and public service facilities should be optimized; and
- b) opportunities for adaptive re-use should be considered, wherever feasible”.

Section 1.6.7, Policy 1.6.7.1 “transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs”.

Policy 1.6.7.3 “As part of a multimodal transportation system, connectivity within and among transportation systems and modes should be maintained and, where possible, improved including connections which cross jurisdictional boundaries”.

Section 1.7, Policy 1.7.1 (d) “encouraging a sense of place, by promoting well-designed built form and cultural planning, and by conserving features that help define character, including *built heritage resources* and *cultural heritage landscapes*”.

Section 2.6, Policy 2.6.1 “Significant built heritage resources and significant cultural heritage landscapes shall be conserved”.

City of Ottawa Official Plan

The City of Ottawa Official Plan (OP) provides a vision for the future growth of the City and policy framework to guide its physical development within the planning horizon (to 2031). The OP was first approved in 2003 and is updated every five years with the most recent amendments approved by council in 2013.

Section 2 of the Official Plan, Strategic Directions, outlines the broad policies that will govern growth and change in Ottawa. Strategic Directions policies that are relevant to this study are detailed below.

Section 2.3.1, Active Transportation, Policy 3.

In the construction or reconstruction of transportation facilities, such as roadways, bridges, and transit stations, and public buildings, such as community centres and libraries, the City will ensure the provision of facilities to address the needs of pedestrians and cyclists where feasible.

Section 2.3.1, Transit, Policy 15

The City will protect for the possible inclusion of exclusive rapid transit service across such bridges as the Prince of Wales Bridge, the Portage Bridge, the Chaudière Bridge, or other locations that may be recommended by Environmental Assessment studies. In the interim, the City may seek opportunities to enhance active transportation at these crossings where feasible.

Section 2.5.5. Cultural Heritage Resources

In recognition of the non-renewable nature of cultural heritage resources, and as the steward of these resources in Ottawa, the City will continue to preserve them in a manner that respects their heritage value, ensures their future viability as functional components of Ottawa's urban and rural environments, and allows them to continue their contribution to the character, civic pride, tourism potential, economic development, and historical appreciation of the community.

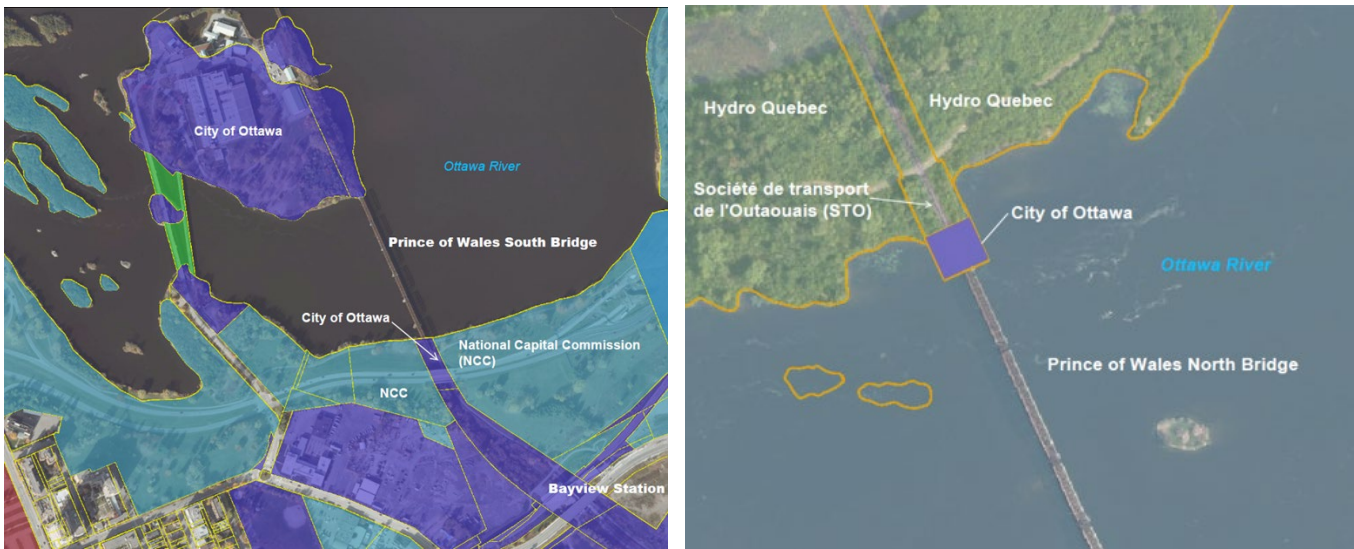
The City will provide for the conservation of properties of cultural heritage value or interest for the benefit of the community and posterity. Cultural heritage resources include:

- a) Built heritage resources (buildings, structures, sites)
- b) Cultural Heritage landscapes
- c) Archaeological Resources

3.2.2 LAND OWNERSHIP

The Prince of Wales Bridge and associated infrastructure is owned by the City of Ottawa. On the Ontario side, the approach to the bridge and Lemieux Island is owned by the City of Ottawa, while the land adjacent to the approach is owned by the NCC. On the Quebec side, approximately 30 m of the approach is owned by the City of Ottawa, while the remaining portion is owned by Société de transport de l'Outaouais (STO). Hydro Quebec lands are present on either side of the approach (Figure 10).

Figure 10: Land Ownership



Source: Modified from City of Ottawa, 2021 and Ville de Gatineau, 2021

3.2.3 LAND USE

In Ontario, existing land use surrounding the Study Area generally consists of a mix of transportation type infrastructure and manicured open space adjacent to the Sir John A. Macdonald Parkway, including multi-use pathways (Ottawa River Pathway and Trillium Pathway) rail infrastructure and light rail transit stations (Bayview Station). The City of Ottawa water purification plant is present on Lemieux Island, along with rail infrastructure and open space that is currently being used as an unofficial dog park.

In Quebec, existing land within and surrounding the Study Area consists of rail infrastructure, a multi-use pathway (Voyageurs Pathway) and large areas of natural open space.

3.2.4 CULTURAL HERITAGE

A Cultural Heritage Evaluation Report (CHER) was prepared by Contentworks (2021a) (Appendix A) for the Prince of Wales Bridge to determine its cultural heritage value. The bridge is currently listed on the City of Ottawa's Heritage Register under Section 27 (1.2) of the *Ontario Heritage Act*. The CHER documents the bridge as a potential heritage resource using the criteria recommended in the Province of Ontario's *Ontario Heritage Bridge Guidelines for Provincially owned bridges*.

The bridge was evaluated based on the criteria from the *Ontario Heritage Bridge Guidelines* (an evaluation of a bridge with a score of 60/100 or greater is considered provincially important. The bridge scored 90/100 which deems it provincially important.

Cultural Heritage Value

The Prince of Wales Bridge is of cultural heritage value due to its design and physical value, its historical value and its contextual value. It is an honest work of engineering that contributes to an appreciation of the scenic beauty of the Ottawa

River and to an understanding of the important role that railways played in the development of Ottawa and the Capital. The bridge is a landmark in the City due to its age, its association with important builders and organizations, and its overall form and engineering. The Prince of Wales Bridge provides opportunities for views and vistas that highlight the importance of the Ottawa River in the history and geography of Ottawa and has great potential to reinforce the links between Ottawa and Gatineau (Contentworks, 2021a).

Character Defined Attributes

The attributes of the bridge and its immediate site that contribute to its cultural heritage value are listed below.

Key design and physical attributes of the Bridge:

- The relationship between the Prince of Wales Bridge and its surroundings, especially in the contrast between the steel superstructure and the flowing Ottawa River and changing light conditions and in its limestone piers of the same material as the islands that are visible along the Ottawa River
- The structure's organization as two over-water bridge sections (the North and South Bridges) and a section crossing Lemieux Island
- The 11 limestone piers and four limestone abutments
- The name plates on the Ottawa and Gatineau ends of the bridge
- The length of the bridge, which is almost 1 kilometre (The total crossing length is 989 meters)
- The regularity and consistency of its forms and materials as seen in the superstructure and piers and abutments of the bridge from end to end
- The elevation of each of the abutments as they land on each of the two shores of the Ottawa River
- The through Pratt-truss superstructure in steel as built by the Dominion Bridge company
- Fasteners or other equipment surviving from the Whipple-truss superstructure erected in 1880 and replaced in 1926-7
- All wood elements, including replacement pieces, that were part of the 1879-80 and 1926-7 bridge projects
- Track systems on the North Bridge and South Bridge
- Rail alignment, rail bed and rail tracks on Lemieux Island
- Brackets on the side of the bridge that supported telegraph cables
- Utility poles and railway tracks on the Gatineau side of the bridge within the STO rail corridor
- Bridge embankments

Key contextual attributes of the Bridge:

- Its relationship to the Lemieux Island Water Purification Plant, which was constructed by bringing materials to the site via the bridge
- Its railway-bridge form, materials and design
- Its steelwork built by the Dominion Bridge company
- The piers and abutments built by Horace Beemer
- Its position on the west edge of LeBreton Flats that serves as a reminder of the significance of railways in general, and the CPR, in particular, to the development of the entire area

Key historical attributes of the Bridge:

- The physical and visual connections between the Prince of Wales Bridge and the Sir John A. Macdonald Parkway and its associated park lands
- The close physical connection between the Prince of Wales Bridge and the Lemieux Island Water Purification Plant

3.2.5 ARCHAEOLOGY

Archaeological Potential has been identified by the City of Ottawa for the area surrounding the Ontario shoreline and Lemieux Island (GeoOttawa, 2021). While archaeological potential mapping was not available for the portion of the Study

Area located in Quebec, it may have potential for areas outside of previous disturbance given the proximity to the Ottawa River.

Much of the Study Area is located within areas of previous disturbance. Golder (2021b) has identified fill material, associated with the construction of the rail bridge and the abutments on Lemieux Island, Ontario and Quebec shores. Fill has been documented across Lemieux Island and associated with the waste disposal sites either side of the rail alignment at the south approach.

3.2.6 LAND CLAIMS

The Study Area is located within the Algonquins of Ontario Settlement Area Boundary on the Ontario side (Algonquins of Ontario, 2013). There are no proposed settlement interests or crown land interests within or adjacent to the Study Area within Ontario (Algonquins of Ontario, 2013). No known lands claims have been identified within the Study Area in Quebec. It is important to note that First Nations consultation has been ongoing throughout the study to receive feedback. No responses have been received to date.

3.2.7 PEDESTRIAN AND CYCLING NETWORKS

The City of Ottawa Cycling Plan (City of Ottawa, 2013a; City of Ottawa, 2021) identifies two existing multi-use pathways that are located within/adjacent to the Study Area including the City of Ottawa Trillium Pathway and the NCC's Ottawa River Pathway. The Trillium Pathway is located just east of the south approach and provides a connection from the NCC Ottawa River Pathway and Bayview LRT Station. The existing NCC Voyageurs Pathway is located approximately 60 m north of the bridge on the Quebec side. Existing Pedestrian and Cycling Networks are illustrated on **Figure 11**.

Figure 11: Pedestrian and Cycling Networks



Source: Modified from City of Ottawa, 2021 and NCC, 2021

3.3 BIO-PHYSICAL ENVIRONMENT

3.3.1 NATURAL ENVIRONMENT

Parsons completed several site visits ranging from 2018 to 2021 to document the existing conditions and assess the potential for Species at Risk (SAR) to occur within and adjacent to the Study Area. The survey area included approximately 120 m in each direction of the Prince of Wales Bridge. The Species at Risk Assessment (Parsons, 2020b) can be found in Appendix A.

3.3.1.1 Terrestrial Habitat

South Bridge Approach

As the Prince of Wales Bridge South occurs in the Lebreton Flats district of downtown Ottawa, a mix of transportation infrastructure surrounds the Study Area along with landscaped and maintained vegetation communities (i.e. parks, manicured grass boulevards, and planted tree species). Riparian vegetation at the end of this bridge section is dominated by staghorn sumac (*Rhus typhina*), red-osier dogwood (*Cornus sericea*), glossy buckthorn (*Frangula alnus*), European buckthorn (*Rhamnus cathartica*), and red raspberry (*Rubus idaeus*). Trees occur throughout manicured grass areas to the south of the bridge and consisted of black walnut (*Juglans nigra*) and sugar maple (*Acer saccharum*). Within the rail corridor toward Bayview station, Manitoba maple (*Acer negundo*), Staghorn sumac and European buckthorn are noted as the dominant tree species.

Lemieux Island

The majority of Lemieux Island is occupied by the City of Ottawa's Lemieux Island Water Purification Plant and associated infrastructure, as well as manicured greenspace with mature planted trees used by the public as an unofficial dog park. Naturalized habitat is limited to a small woodland on the southeast end of the island which transitions into treed fencerows within the rail corridor. Vegetation within the corridor consists of a canopy dominated by red oak (*Quercus rubra*), basswood (*Tilia americana*), balsam poplar (*Populus balsamifera*), and sugar maple (*Acer saccharum*) as well as a dense shrub and vine layer including staghorn sumac, Tatarian honeysuckle (*Lonicera tatarica*), European buckthorn, red-osier dogwood, riverbank grape (*Vitis riparia*), and American bittersweet (*Celastrus scandens*). Groundcover vegetation is comprised of poison ivy (*Toxicodendron radicans*), and a variety of disturbance-tolerant flowering species including common milkweed (*Asclepias syriaca*), asters (*Symphyotrichum* sp.) and goldenrods (*Solidago* sp.). Cavity trees are present within the rail corridor which could potentially provide maternity and/or day roosting for bats.

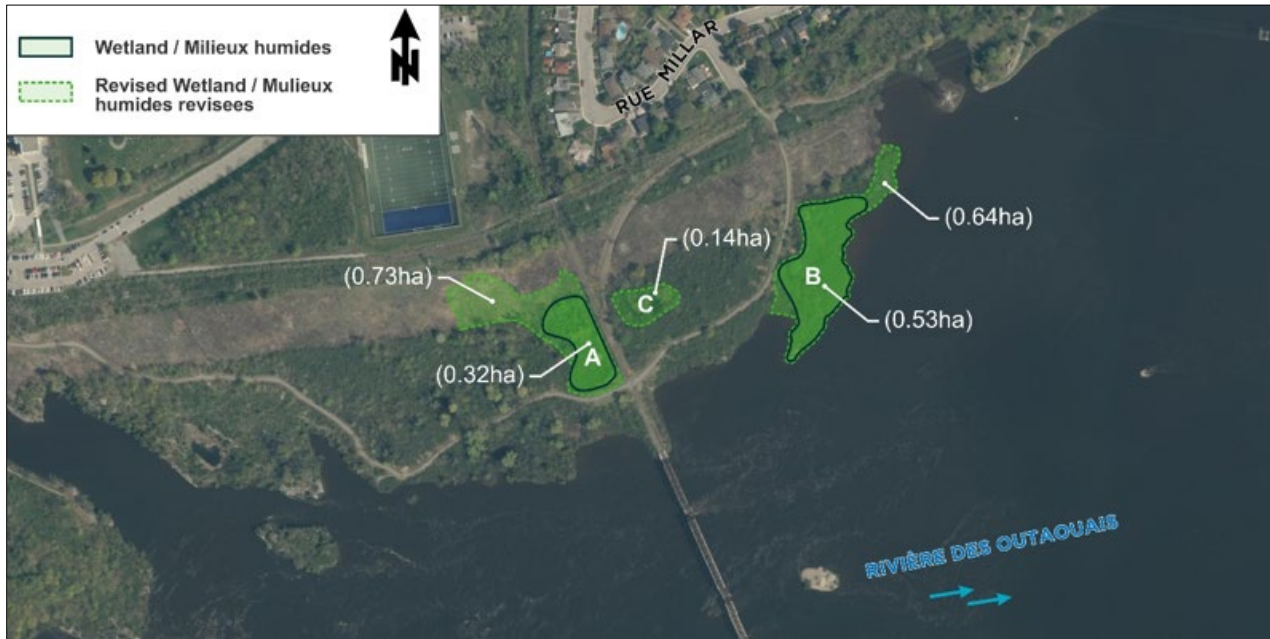
North Bridge Approach

The bridge at this location is surrounded by riparian thicket communities of staghorn sumac and red-osier dogwood. The rail corridor extends north towards Boulevard Alexandre Taché, passing through a hydro corridor dominated by low-growing vegetation including shrubby willows (*Salix* sp.), asters (*Symphyotrichum* sp.), goldenrods (*Solidago* sp.), and cattails (*Typha* sp.), approximately 150 m north of the shoreline.

Wetlands

Three small wetlands exist north of the Voyageurs Pathway, outside of the areas of proposed disturbance. Their location and boundaries are identified on **Figure 12**.

Figure 12: Wetlands



Wetland A: consists of a treed swamp dominated by ash species (*Fraxinus nigra*, *Fraxinus pennsylvanica*), trembling aspen (*Populus tremuloides*) and buckthorn species (*Rhamnus cathartica*, *Rhamnus frangula*), with cattails (*Typha sp.*) and shrub willow species (*Salix sp.*). The wetland measures 0.32 ha based on Ducks Unlimited mapping, and has a revised area of 0.73 ha, based on wetland vegetation and the extent of ephemeral pooling visible from the rail ballast during site field surveys.

Wetland B: consists of a shrub swamp dominated by buckthorn species (*Rhamnus cathartica*, *Rhamnus frangula*) and willow species (*Salix sp.*), with rushes and sedges (*Scirpus sp.*, *Cyperaceae sp.*) occurring along the shoreline. The wetland measures 0.53 ha based on Ducks Unlimited mapping, and has a revised area of 0.64 ha, based on the extent of ephemeral pooling visible during site investigations.

Wetland C: is a treed swamp that was not identified in background resources, however standing water was identified on satellite imagery, and topography shows a low-lying area equal in elevation to Wetland A. Vegetation conditions were observed to be similar to that of Wetland A. The wetland measures 0.14 ha and is expected to be connected hydrologically to Wetland A.

Generally, the overall terrestrial habitat for wildlife within the survey area is limited but is likely to support wildlife species adapted to urban conditions. Wildlife most likely to occur could include groundhog (*Marmota monax*), red squirrel (*Tamiasciurus hudsonicus*), red fox (*Vulpes vulpes*), eastern cottontail (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and eastern gray squirrel (*Sciurus carolinensis*). Existing vegetation potentially provides breeding / nesting habitat for a variety of migratory birds. Cavity trees, were observed within the rail corridor on Lemieux Island.

3.3.1.2 Aquatic Habitat

The Ottawa River is home to a diverse aquatic community with more than 75 fish species occupying in the Ottawa River between its headwaters and its confluence with the St. Lawrence River; Fifty-one fish species have been identified in the Lac Deschenes reach of the Ottawa River (Chaudière Falls to Fitzroy Harbour). The bridge is approximately 500 m upstream of the Chaudière Falls and thus experiences a wide variety of flow and depth conditions. The Ottawa River at the location of the bridge ranges between 1.8 - 3.8 m depth. Substrate is generally dominated by bedrock and in-stream vegetation is extremely limited. The existing in-water habitat at the bridge location would be considered very common and low quality, but moderately sensitive due to known occurrences of SAR in the Ottawa River. Similar substrate and in-

water conditions also exist at Lemieux Island, where the substrate consists of bedrock with some coarse rock and little in-stream vegetation. Shoreline vegetation is present at the bridge abutments and on Lemieux Island.

3.3.1.3 Species at Risk Screening

The screening for potential SAR was based on observed existing conditions and the identified presence of suitable habitat. Screening for SAR has been completed using existing available wildlife databases, consultation with appropriate agencies and several site visits completed by Parsons.

The review of online resources identified 28 SAR with occurrence records that overlap with the Study Area/Survey Area, either within 1 km (as per NHIC) or 10 km (as per wildlife atlas records, **Table 1**). The SAR Assessment is included in **Table 2**.

Table 1: SAR identified from the background review with potential to occur within/or in proximity to the Study Area.

Common Name	Scientific Name	ESA Status ¹ (Ontario)	SARA Status ² (Federal)	LEMV Status ³ (Québec)	Record Source
Insects					
Monarch Butterfly	<i>Danaus plexippus</i>	Special Concern	Special Concern	-	City of Ottawa
Reptiles					
Blanding's Turtle	<i>Emydoidea blandingii</i>	Threatened	Threatened	Threatened	ORAA, MFFP
Eastern Musk Turtle	<i>Sternotherus odoratus</i>	Special Concern	Special Concern	Threatened	ORAA
Northern Map Turtle	<i>Graptemys geographica</i>	Special Concern	Special Concern	Vulnerable	ORAA, MFFP
Snapping Turtle	<i>Chelydra serpentina</i>	Special Concern	Special Concern	-	NHIC, ORAA
Spiny Softshell Turtle	<i>Apalone spinifera</i>	Endangered	Endangered	Threatened	MFFP
Eastern Milksnake	<i>Lampropeltis triangulum</i>	Not at Risk	Special Concern	Susceptible	ORAA, MFFP
Fish					
American Eel	<i>Anguilla rostrata</i>	Endangered	No Status	Susceptible	NHIC, MFFP
Channel Darter	<i>Percina copelandi</i>	Special Concern	No Status	Vulnerable	DFO, MFFP
Lake Sturgeon (Great Lakes – Upper St. Lawrence)	<i>Acipenser fulvescens</i> pop.3	Endangered	No Status	Susceptible	DFO, NHIC, MFFP
Northern Brook Lamprey	<i>Ichthyomyzon fossor</i>	Special Concern	Special Concern	Threatened	DFO
River Redhorse	<i>Moxostoma carinatum</i>	Special Concern	Special Concern	Vulnerable	DFO, MFFP
Rosyface Shiner	<i>Notropis rubellus</i>	-	-	Susceptible	MFFP
Hickorynut	<i>Obovaria olivaria</i>	Endangered	Endangered	Susceptible	DFO
Birds					
Bank Swallow	<i>Riparia riparia</i>	Threatened	Threatened	-	OBBA
Barn Swallow	<i>Hirundo rustica</i>	Threatened	Threatened	-	OBBA
Bobolink	<i>Dolichonyx oryzivorus</i>	Threatened	Threatened	-	OBBA
Chimney Swift	<i>Chaetura pelagica</i>	Threatened	Threatened	Susceptible	NHIC, OBBA
Common Nighthawk	<i>Chordeiles minor</i>	Special Concern	Threatened	Susceptible	OBBA
Eastern Meadowlark	<i>Sturnella magna</i>	Threatened	Threatened	-	OBBA
Eastern Wood-pewee	<i>Contopus virens</i>	Special Concern	Special Concern	-	NHIC, OBBA
Peregrine Falcon	<i>Falco peregrinus</i>	Special Concern	Special Concern	Vulnerable	NHIC, OBBA
Wood Thrush	<i>Hylocichla mustelina</i>	Special Concern	Threatened	-	OBBA
Mammals					
Little Brown Myotis	<i>Myotis lucifugus</i>	Endangered	Endangered	-	AMO, City of Ottawa
Northern Myotis	<i>Myotis septentrionalis</i>	Endangered	Endangered	-	AMO, City of Ottawa
Plants					
Butternut	<i>Juglans cinerea</i>	Endangered	Endangered	-	City of Ottawa
Eastern red cedar	<i>Juniperus virginiana</i> var. <i>virginiana</i>	-	-	Susceptible	MELCC
Fragrant sumac	<i>Rhus aromatica</i> var. <i>aromatica</i>	-	-	Vulnerable	MELCC
Status Source:					
¹ ESA (Endangered Species Act) Status (MNR 2018)					

Common Name	Scientific Name	ESA Status ¹ (Ontario)	SARA Status ² (Federal)	LEMV Status ³ (Québec)	Record Source
<p>²SARA (Species at Risk Act) Status (federal status - listed) (Government of Canada, 2018)</p> <p>Extinct - A species that no longer exists anywhere.</p> <p>Extirpated (EXT) - Lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.</p> <p>Endangered (END) - Lives in the wild in Ontario but is facing imminent extinction or extirpation.</p> <p>Threatened (THR) - Lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.</p> <p>Special Concern (SC) - Lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.</p> <p>³Loi sur les espèces menacées ou vulnérables Status (Gouvernement du Québec, 1989)</p> <p>Threatened (THR) – Applies when the disappearance of the species has been determined.</p> <p>Vulnerable (VUL) – Describes a species whose survival is considered precarious, even if its disappearance has not been determined in the short or medium term.</p> <p>Susceptible (SUS) – Applies to species that are in a precarious situation that are likely to be designated Vulnerable in the near future due to predicted population declines.</p>					

Source: Parsons, 2020b

Table 2: Species at Risk Assessment

Taxon	Common Name	Scientific Name	ESA Status	SARA Status	LEMV Status	Habitat Requirements	Potential to Occur (Yes/No)	Rationale for Potential to Occur in the Study Area	Potential Critical Habitat Present in the Study Area (Yes/No)
Insects	Monarch Butterfly	<i>Danaus plexippus</i>	Special Concern	Special Concern	-	As caterpillars, they feed on milkweed plants. As adults, they are found in more diverse habitats feeding on nectar from a variety of wildflowers.	Yes	Milkweed was observed within the Study Area on Lemieux Island, and may provide breeding and foraging habitat for Monarch Butterfly.	No
Reptiles	Blanding's Turtle	<i>Emydoidea blandingii</i>	Threatened	Threatened	Threatened	Shallow water marshes, bogs, ponds or swamps, or coves in larger lakes with soft muddy bottoms and aquatic vegetation; basks on logs, stumps, or banks; surrounding natural habitat is important in summer as they frequently move from aquatic habitat to terrestrial habitats; hibernates in bogs; not readily observed.	No	Suitable habitat of marsh, bogs, or ponds are absent from the Study Area. As well, adjacent area lacks aquatic vegetation and is predominantly developed.	No
	Eastern Musk Turtle	<i>Sternotherus odoratus</i>	Special Concern	Special Concern	Threatened	Found in ponds, lakes, marshes, and rivers. With abundant emergent vegetation and soft substrate beds for hibernation.	No	Suitable habitat is absent from the Study Area, as there is very little to no emergent vegetation.	No
	Northern Map Turtle	<i>Graptemys geographica</i>	Special Concern	Special Concern	Vulnerable	Inhabits rivers and lakeshores while basking on rocks and fallen trees. It hibernates on the bottom of deep, slow-moving river sections.	Yes	Suitable habitat is present in the Study Area in the form of a river (Ottawa River) with rocky banks.	No
	Snapping Turtle	<i>Chelydra serpentina</i>	Special Concern	Special Concern	-	Permanent, semi-permanent fresh water; marshes, swamps or bogs; rivers and streams with soft muddy banks or bottoms; often uses soft soil or clean dry sand on south-facing slopes for nest sites; may nest at some distance from water; often hibernate together in groups in mud under water. They prefer shallow waters with dense vegetation, so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. They nest from early to mid-summer in gravelly or sandy areas along streams.	Yes	Suitable habitat is present within the Study Area, however there is limited wetland/marsh habitat in nearby sections of the Ottawa River.	No
	Spiny Softshell Turtle	<i>Apalone spinifera</i>	Endangered	Endangered	Threatened	Found primarily in rivers and lakes with shallow muddy or sandy areas, deep pools, basking areas, and suitable crayfish or food species, but may also occur in ditches and ponds near rivers.	No	Suitable habitat is absent from the Study Area, as predominant substrates are bedrock, cobble and large boulders.	No
	Eastern Milksnake	<i>Lampropeltis triangulum</i>	Not at Risk	Special Concern	Susceptible	Inhabit open areas of old farm fields and meadows and rock outcrops. They also occupy barns, sheds, and rural houses.	No	Suitable habitat is absent within the Study Area. Open meadow habitat is absent.	No
Fish	American Eel	<i>Anguilla rostrata</i>	Endangered	No status	Susceptible	Catadromous species migrates from freshwater lakes and tributaries to the Atlantic Ocean and Sargasso Sea to spawn. In Ontario the species prefers cool waters in lakes with gravel, sand and silt bottoms. Primarily nocturnal, hiding in soft substrate or submerged vegetation during the day.	No	Suitable habitat is absent from the Study Area, as there is very little submerged vegetation, and the dominant substrates are bedrock, cobble and large boulders.	No
	Channel Darter	<i>Percina copelandi</i>	Special Concern	No Status	Vulnerable	Clean streams and lakes with sandy or gravel bottoms with suitable benthic aquatic insect prey populations. Breeds in late spring in riffle areas with fairly fast-moving water, but winters in deeper calm water.	No	Suitable habitat is absent from the Study Area, as the dominant substrates are bedrock, cobble and large boulders. The nearest known occurrence appears to be the Gatineau River, more than 4.0 km downstream.	No
	Lake Sturgeon (Great Lakes – Upper St. Lawrence)	<i>Acipenser fulvescens pop.3</i>	Endangered	No status	Susceptible	Lives exclusively in freshwater lakes and rivers with soft bottoms of mud, sand or gravel. They are found 5 to 20 m deep. They spawn in shallow, fast-flowing water (e.g. below waterfalls, rapids or dams).	No	Suitable habitat is absent from the Study Area, as the dominant substrates are bedrock, cobble and large boulders.	No
	Northern Brook Lamprey	<i>Ichthyomyzon fossor</i>	Special Concern	Special Concern	Threatened	Inhabits clear, coolwater streams. Larvae require soft substrates, while adults are found in area with rock or gravel substrate.	No	Suitable habitat is absent from the Study Area, as the dominant substrates are bedrock, cobble and large boulders.	No

Taxon	Common Name	Scientific Name	ESA Status	SARA Status	LEMV Status	Habitat Requirements	Potential to Occur (Yes/No)	Rationale for Potential to Occur in the Study Area	Potential Critical Habitat Present in the Study Area (Yes/No)
	River Redhorse	<i>Moxostoma carinatum</i>	Special Concern	Special Concern	Vulnerable	Prefer medium to large sized rivers. Preference for shallow areas with moderate to swift flow, riffle-run habitats and coarse substrates (e.g., gravel, cobble). Prefers fast-flowing, clear rivers over rocky substrate.	Yes	Suitable habitat is present within the Study Area, in the form of a river of medium to large size (Ottawa River) with coarse substrates.	No
	Rosyface Shiner	<i>Notropis rubellus</i>	-	-	Susceptible	Prefer moderate to large-sized streams with gravel or rubble substrates, fast flowing currents, and riffles.	No	Suitable habitat is absent from the Study Area, as the watercourse is a large river system. The dominant substrates are bedrock, cobble and large boulders, but does not contain riffles.	No
	Hickorynut	<i>Obovaria olivaria</i>	Endangered	Endangered	Susceptible	Found exclusively in large, wide, deep rivers, at depths usually more than 2-3 m, with a moderate to strong current. Occurs in two known clusters in the Ottawa River: one in the upper reaches near Lake Timiskaming, and the second between Ottawa and Pembroke. Hickorynut mussel larvae are dependent upon a fish host, the Lake Sturgeon, for nutrients and dispersion.	No	Suitable habitat is absent from the Study Area as there is a very low likelihood for this species to occur within this reach of the Ottawa River, due to the bedrock substrate within the study area and the distance away from known populations. Habitat is not present in the area of in-water work.	No
Birds	Bank Swallow	<i>Riparia riparia</i>	Threatened	Threatened	-	Nest in burrows in natural and human-made settings where vertical faces of silt/sand deposits occur. Nests are often on banks of rivers or lakes but can also be found in active sand/gravel pits. A colonial breeding bird with pairs ranging from several to thousands.	No	Suitable habitat is absent from the Study Area, as no suitable vertical silt/sand surfaces exist within or adjacent to the Study Area.	No
	Barn Swallow	<i>Hirundo rustica</i>	Threatened	Threatened	-	Prefers farmland; lake/river shorelines; wooded clearings; urban populated areas; rocky cliffs; and wetlands. They nest inside or outside buildings; under bridges and in road culverts; on rock faces and in caves etc. (MNR 2000).	Yes	Suitable nesting habitat is present within the Study Area in the form of bridge structures. No nests were observed during investigations.	No
	Bobolink	<i>Dolichonyx oryzivorus</i>	Threatened	Threatened	-	Generally, prefers open grasslands and hayfields. In migration and in winter uses freshwater marshes and grasslands.	No	Suitable habitat is absent from the Study Area, as only grassed areas are of inadequate size and are regularly manicured.	No
	Chimney Swift	<i>Chaetura pelagica</i>	Threatened	Threatened	Susceptible	Historically found in deciduous and coniferous, usually wet forest types, all with a well-developed, dense shrub layer; now most are found in urban areas in large uncapped chimneys.	No	Suitable habitat is absent from the Study Area, as no buildings containing uncapped chimneys exist within or adjacent to the Study Area.	No
	Common Nighthawk	<i>Chordeiles minor</i>	Special Concern	Threatened	Susceptible	Prefer open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops).	Yes	Suitable nesting habitat is present within the Study Area in the form of barren, rocky ground within the rail ballast of Lemieux Island.	No
	Eastern Meadowlark	<i>Sturnella magna</i>	Threatened	Threatened	-	Generally, prefers grassy pastures, meadows and hayfields. Nests are always on the ground and usually hidden in or under grass clumps.	No	Suitable habitat is absent from the Study Area, as only grassed areas are of inadequate size and are regularly manicured.	No
	Eastern Wood-pewee	<i>Contopus virens</i>	Special Concern	Special Concern	-	Associated with deciduous and mixed forests. Within mature and intermediate age stands it prefers areas with little understory vegetation as well as forest clearings and edges.	No	Suitable habitat is absent from the Study Area, as no intermediate or mature forest exists within or adjacent to the Study Area.	No
	Peregrine Falcon	<i>Falco peregrinus</i>	Special Concern	Special Concern	Vulnerable	Typically nest on tall, steep cliff ledges close to large bodies of water but have adapted to urban environments and are known to nest on ledges of tall buildings within city centers.	No	Suitable habitat is absent from the Study Area, as no tall cliffs or buildings exist within or adjacent to the Study Area.	No
	Wood Thrush	<i>Hylocichla mustelina</i>	Special Concern	Threatened	-	Nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. Prefers large forest mosaics but may also nest in small forest fragments.	No	Suitable habitat is absent from the Study Area, as no intermediate or mature forest exists within or adjacent to the Study Area.	No
Mammals	Little Brown Myotis	<i>Myotis lucifugus</i>	Endangered	Endangered	-	Often associated with buildings (attics, barns, etc.). Occasionally found in trees [25-44 cm diameter at breast height (DBH)].	Yes	Suitable habitat for day and/or maternity roosting was observed in the Study Area in the form of cavity trees within the rail corridor on Lemieux Island.	No

Taxon	Common Name	Scientific Name	ESA Status	SARA Status	LEMV Status	Habitat Requirements	Potential to Occur (Yes/No)	Rationale for Potential to Occur in the Study Area	Potential Critical Habitat Present in the Study Area (Yes/No)
	Northern Myotis	<i>Myotis septentrionalis</i>	Endangered	Endangered	-	Often associated with cavities of large diameter trees (25-44 cm DBH). Occasionally found in structures (attics, barns etc.).	Yes	Suitable habitat for day and/or maternity roosting was observed in the Study Area in the form of cavity trees within the rail corridor on Lemieux Island.	No
Plants	Butternut	<i>Juglans cinerea</i>	Endangered	Endangered	-	Grows alone or in groupings in deciduous forests. Prefers moist, well-drained soil and found along streams/watercourses.	Yes	Site investigations located 3 Butternut trees on the north shore of the Study Area (Quebec). Butternut is not protected under the LEMV. No Butternut trees are present in the Ontario portions of the Study Area.	No
	Eastern red-cedar	<i>Juniperus virginiana var. virginiana</i>	-	-	Susceptible	Prefers dry soil conditions.	Yes	Site investigations located 3 Eastern red-cedar on the north shore of the Study Area (Quebec).	No
	Fragrant sumac	<i>Rhus aromatica var. aromatica</i>	-	-	Vulnerable	Prefers dry soil conditions or well-drained soil.	No	Site investigations determined that no individuals occur within the Study Area.	No

Source: Parsons, 2020b

The results of the SAR screening indicate that the following SAR have the potential to occur within and adjacent to the Study Area, including Monarch butterfly, Northern map turtle, Snapping turtle, River redhorse, Barn swallow, Common nighthawk, Little brown myotis, Northern myotis, eastern red-cedar (Quebec only), Butternut (Quebec only).

3.3.2 CLIMATE CHANGE

On April 24, 2019, Ottawa City Council declared a climate emergency with the intention to demonstrate how climate change is being put at the forefront of decision-making for the City of Ottawa. In response, the City developed and approved a *Climate Change Master Plan* (CCMP) in 2019 that provides a framework for how Ottawa will mitigate and adapt to climate change over the next three decades. The CCMP supersedes the 2014 *Air Quality and Climate Change Management Plan* and sets guiding principles, greenhouse gas (GHG) emission targets and short-term priority actions to be undertaken in the next five years.

The City, in partnership with the NCC, has undertaken an extensive exercise to examine the future climate for the National Capital Region (NCR). The outcome of this study, *Climate Change Projections for the National Capital Region (2020)* identified the key climate change effects for the NCR to 2100. Some of the ways in which changes in climate are predicted to change vary by region. At the local level, residents of Ottawa may need to consider the impacts of warmer, wetter days, and the stress of extreme events (Parsons, 2019).

Precipitation

The Ontario Climate Change Data Portal (Ontario CCDP) indicates that annual precipitation in the Ottawa region has and will continue to increase by approximately 50mm from the period 1960-1990, to the current period, 2015-2045. In the winter months, this increase is approximately 15mm from the period 1960-1990, to the current period, 2015-2045 (Parsons, 2019).

Wind

Ontario has been experiencing increased windstorms and is projected to experience more frequent and severe wind gust events in the future as a result of the changing climate. Studies have found that all regions across Canada are expected to see the frequency of localized windstorms, particularly in summer season, increase due to warmer temperatures under a future changing climate (Parsons, 2019).

Extreme Weather Events

Extreme weather events are increasing in both frequency and intensity, resulting in larger, torrential style precipitation events, punctuated with droughts and dry conditions. There have been increases in the extreme minimum temperatures in Ottawa since 1919 to present day. As a result, it is expected that snowmelt amounts will increase as well as winter rainfall, possibly leading to an increase in flood events. Recent flood events have caused significant stress on private and public property, and indications are that these conditions will continue to occur (Parsons, 2019).

3.3.3 SURFICIAL AND BEDROCK GEOLOGY

Subsurface condition information has been documented in the Geotechnical Desktop Study (Golder, 2021a) and as part of the Phase 1 Environmental Site Assessment (ESA) (Golder, 2021b). Both documents can be found in Appendix A.

Groundwater

Groundwater levels are expected to fluctuate seasonally. Higher groundwater levels are expected during wet periods of the year, such as spring, and when river levels are higher. Further, groundwater levels would also be expected to rise at times of higher river levels. Monitoring wells (from previous studies) located on the northern portion of Lemieux Island indicate that groundwater was encountered at 2.15 to 2.60 (mbgs) (Golder 2021a).

3.3.4 SOURCE WATER PROTECTION

A review of the Mississippi-Rideau Source Protection Plan has identified a large portion of the urban part of the City as a vulnerable intake protection zone. Some land use activities within this zone are prohibited including, sewage plants and the spreading of untreated sewage. Mitigation has been proposed in Table 6.

3.3.5 CONTAMINATION

A Phase 1 ESA (Golder, 2021b) was completed for the for the study, which consisted of a review of current activities and historical information and review of relevant and readily available environmental information for the surrounding properties. The Phase 1 ESA can be found in Appendix A.

Based on the information obtained during the Phase 1 ESA investigation the following issues of potential environmental concern have been identified in **Table 3** and on **Figure 13**.

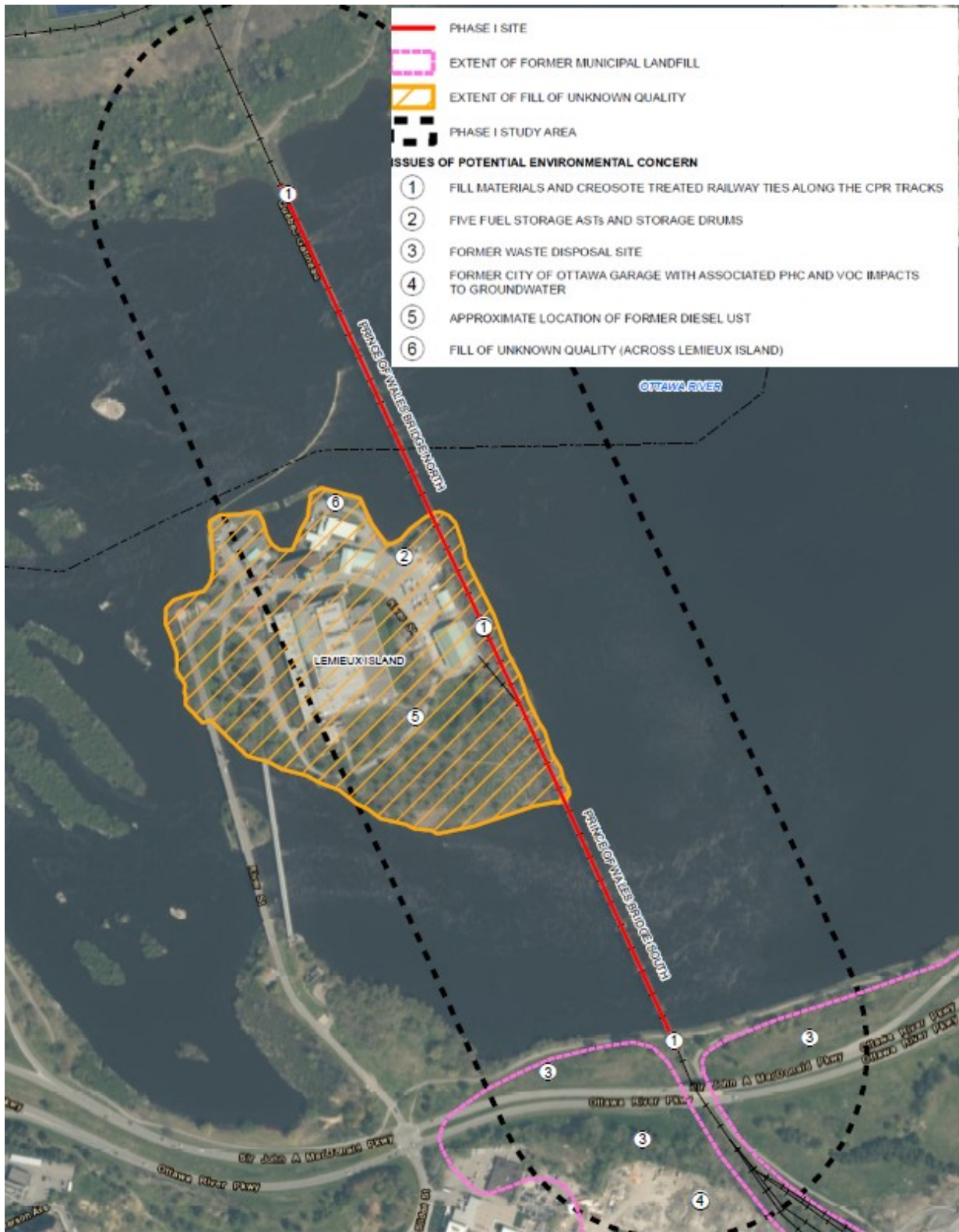
Table 3: Issues of Potential Environmental Concern

ID ON Figure 13	ACTIVITY OF POTENTIAL ENVIRONMENTAL CONCERN	LOCATION	POTENTIAL ISSUE OF CONCERN AND CHEMICALS OF CONCERN (COCS)
1	Impacted fill materials used for rail bed construction, including adjacent lands. Creosote treated rail ties are also present.	Entire length of the Site. Fill is also expected to be adjacent the site on Lemieux Island and beside the south abutment.	Potential for soil and groundwater impacts. Chemicals of concern include PHCs F1 to F4, BTEX, PAHs, and metals.
2	5 ASTs and several drums for fuel storage.	Northern part of Lemieux Island, approximately 30 m west of the Site.	Potential for soil and groundwater impacts. Chemicals of concern include PHCs F1 to F4 and BTEX.
3	Former waste disposal sites.	South and west of the Site.	Potential for soil and groundwater impacts. Chemicals of concern include PHCs F1 to F4, BTEX, PAHs, and metals.
4	Former City of Ottawa garage with associated PHC and VOC impacts to groundwater.	7 Bayview Station Road, approximately 100 m southwest of the Site.	Potential for soil and groundwater impacts. Chemicals of concern include PHCs F1 to F4, BTEX, VOCs, PAHs, and metals.
5	Fill of unknown quality.	Entire Lemieux Island.	Potential for soil and groundwater impacts. Chemicals of concern include PHCs F1 to F4, BTEX, PAHs, and metals.
6	Former diesel UST on Lemieux Island.	Northern portion of Lemieux Island, approximately 90 m west of the Site, adjacent the closest building.	Potential for soil and groundwater impacts. Chemicals of concern include PHCs F1 to F4 and BTEX.

PHCs F1 to F4 – petroleum hydrocarbons fraction 1 to fraction 4
 BTEX – benzene, toluene, ethylbenzene and xylenes
 PAHs – polycyclic aromatic hydrocarbons
 VOCs – volatile organic compounds

Source: Modified from Golder, 2021b

Figure 13: Issues of Potential Environmental Concern



Source: Modified from Golder, 2021b

3.4 TECHNICAL ENVIRONMENT

3.4.1 STRUCTURAL CONDITIONS

Prince of Wales Bridge South, located at Mile 5.54 of the Ellwood Subdivision, consists of six identical riveted steel Pratt through-truss spans of 48.1 m for an overall bridge length of 288.8 m. Prince of Wales Bridge North, located at Mile 119.14 of the Lachute Subdivision, consists of seven riveted steel Pratt through-truss with four 48 m spans, one 43.3 m span, one 80.2 m span and one 51 m span for an overall bridge length of 366.6 m. The track length on Lemieux Island between the north and south bridges is approximately 335.3 m, for a total crossing length of approximately 990.7 m between the ends of each structure.

The thermal expansion/contraction of each steel span is accommodated by steel roller bearings located at the north end of the spans; fixed bearings consisting of cast steel pedestals are located at the south end of the spans. Both steel structures, built in 1926 by the Canadian Pacific Railway (CPR), are supported on unreinforced stone masonry piers and abutments founded directly on bedrock, originally built between 1879 and 1881 by the Quebec, Montreal, Ottawa and Occidental Railway. Reinforced concrete bearing seats on the abutments and concrete pier caps were originally constructed in 1926, but those on the north bridge were reconstructed in 1996. The remnants of concrete-filled timber crib encasements are currently present at piers 1 to 4 of the south bridge and pier 1 of the north bridge. The vertical clearance between the underside of the structures and the typical water level during the summer/fall is approximately 3.9 m.

The railway track is located on a tangent alignment which is centered over each steel structure over the entire crossing of the Prince of Wales Bridge. The bridge deck consists of an open deck system with 254 mm (10") x 356 mm (14") x 3353 mm (11') long timber ties connected to the stringers by hook bolts and spaced at 406 mm (16") over the structures. Additional 254 mm (10") x 356 mm (14") x 4267 mm (14') long timber ties, spaced at approximately 2438 mm (8') center to center, are provided to support the timber Trainman's walkway on the west side of both bridges. Timber tie spacers, 102 mm (4") x 203 mm (8"), are located on either side of the deck of each structure. The track across the structures consists of two 100 RE (100 lbs/yd) bolted running rails on tie plates and two 85 RE (lbs/yd) guard rails, fastened directly to the timber ties.

There is an existing Videotron fiber optic cable installed in 2007 in a 38 mm polyethylene conduit crossing both structures in a 102 mm x 102 mm galvanized steel split duct located on top of the floor beams and attached to brackets fastened to the stone masonry abutment wingwalls on the east side of both structures. It is the understanding that there is no service across this cable due to vandalism. A 1676 mm diameter Low Pressure Transmission Main (LPTM) is located on the south approach of the south bridge, approximately 15-20m beyond the end of the bridge.

The last freight train to fully cross the Prince of Wales Bridge was from the Ottawa Central Railway during the construction of the O-Train LRT line in 2001. Railway freight traffic by the Quebec Gatineau Railway (QGRY) ceased entirely on the north bridge since the closing of the Domtar plant in Hull in 2007; QGRY had been backing trains onto the last span of the bridge to access the spur line to the plant since 1997 under an agreement with CP Rail. The City of Ottawa purchased the Prince of Wales Bridge from CP Rail in 2005 for a potential future transit crossing and the Société de transport de Outaouais (STO) purchased the railway corridor north of the Prince of Wales Bridge from the Quebec Gatineau Railway in 2010 as part of the of the *Rapibus* project.

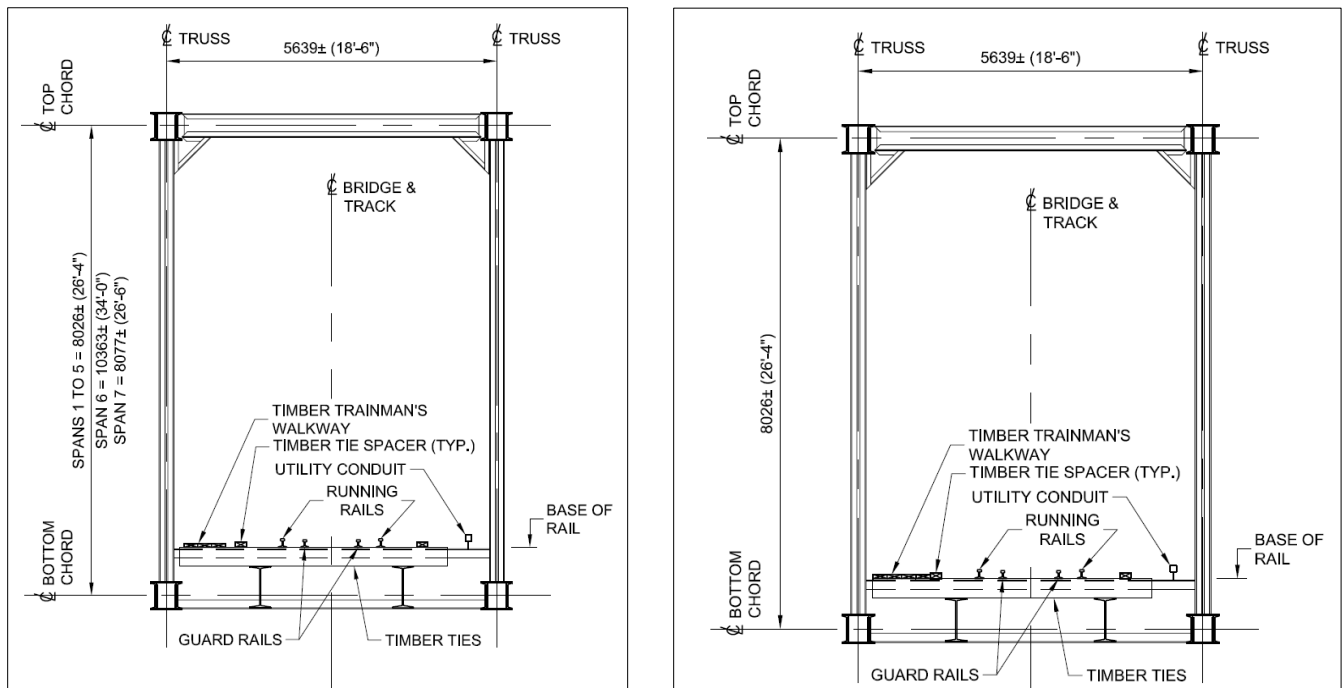
The Prince of Wales Bridge has undergone numerous rehabilitation activities since its original construction, consisting mainly of substructure repairs, deck replacements, and superstructure recoating contracts:

- 1910, 1917 and circa 1931 – in-water sections of piers 3 and 4 (north bridge), piers 1, 2 and 6 (north bridge) and piers 1 to 4 (south bridge), respectively, were encased with concrete-filled timber cribs.
- 1926 – original pin and eye-bar trusses were replaced with the existing steel through truss spans in order to carry heavier live loads.
- 1934/1935 and 1940 – rip-rap was placed around the base of piers to provide scour protection.

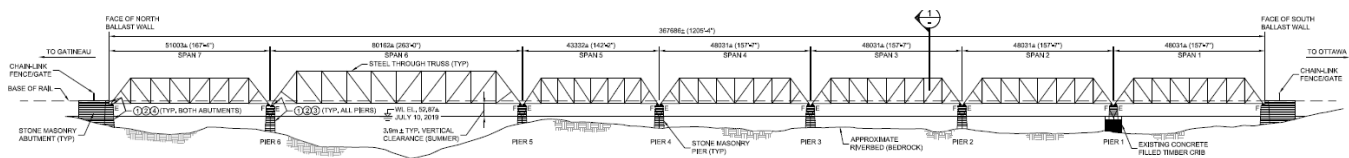
- 1959 – one pier footing was repaired, south abutment was pressure grouted, and all pier caps were gunited (north bridge) and all piers and abutments were pressure grouted and all pier caps were gunited (south bridge).
- 1960/1961 and 1962 – timber deck renewed on the south bridge and the north bridge, respectively.
- 1961 – all piers and north abutment were pressure grouted (north bridge).
- 1963/1964 – all piers and abutments were repointed and nose of pier 6 (north bridge) was reinforced.
- 1967 – all steel spans of both bridges were repainted.
- 1977 – all open joints were sealed and all piers were pressure grouted.
- 1996 – reinforced concrete pier caps and abutment bearing seats (north bridge) were reconstructed.

The cross section and elevation for the north and south bridge are shown on **Figure 14**.

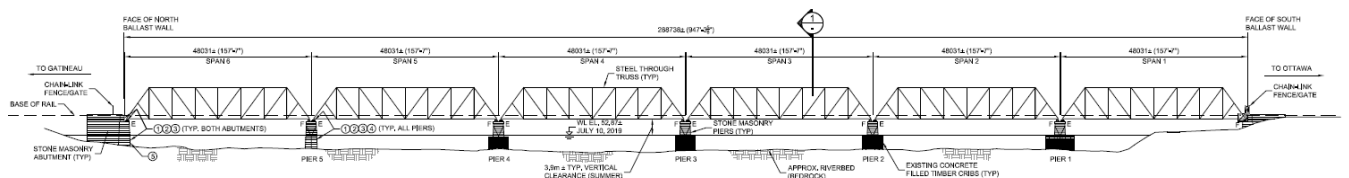
Figure 14: North and South Bridge Cross Section and Elevation



North Bridge



South Bridge



Source: Modified from Parsons, 2020

4.0 IDENTIFICATION AND EVALUATION OF ALTERNATIVE SOLUTIONS

Phase 2 of the Municipal Class EA process requires the proponent to identify:

- The range of alternative solutions in order to solve the stated challenge/opportunities of the study
- To evaluate the alternative solutions to identify a recommended solution(s)

Alternative solutions 2 and 3 (identified below) were generally carried forward from the *Prince of Wales Bridge North and South Enhancements Functional Design Report* (MMM, 2014) and Alternative 1 is included as a baseline condition for the purposes of comparing potential impacts.

The Alternative solutions evaluated included:

- Alternative 1 - Do Nothing
- Alternative 2 - Add a New Interim Multi-Use Pathway to the Existing Prince of Wales Bridge Deck
- Alternative 3 - Widen the Existing Prince of Wales Bridge to Accommodate a New Multi-Use Pathway

Substructure Lifecycle Repairs

Lifecycle repairs to the bridge substructure is required and planned to occur in 2021 and 2022 and will likely be undertaken concurrently with the implementation of the preferred solution. It is important to note that the implementation of the multi-use pathway is not dependent upon the completion of the substructure repairs and would occur regardless of the solution selected. The proposed substructure works include:

- Repair exposed stone masonry abutments (above and below the waterline) and piers (above the waterline), including re-pointing all masonry joints, replacing deteriorated stones and crack injection of stones
- Install underwater pier protection around all piers, including the removal of the existing concrete filled timber cribs at pier 1 (north bridge) and at pier 1 to 4 (south bridge)
- Place rock protection at the south and north abutments

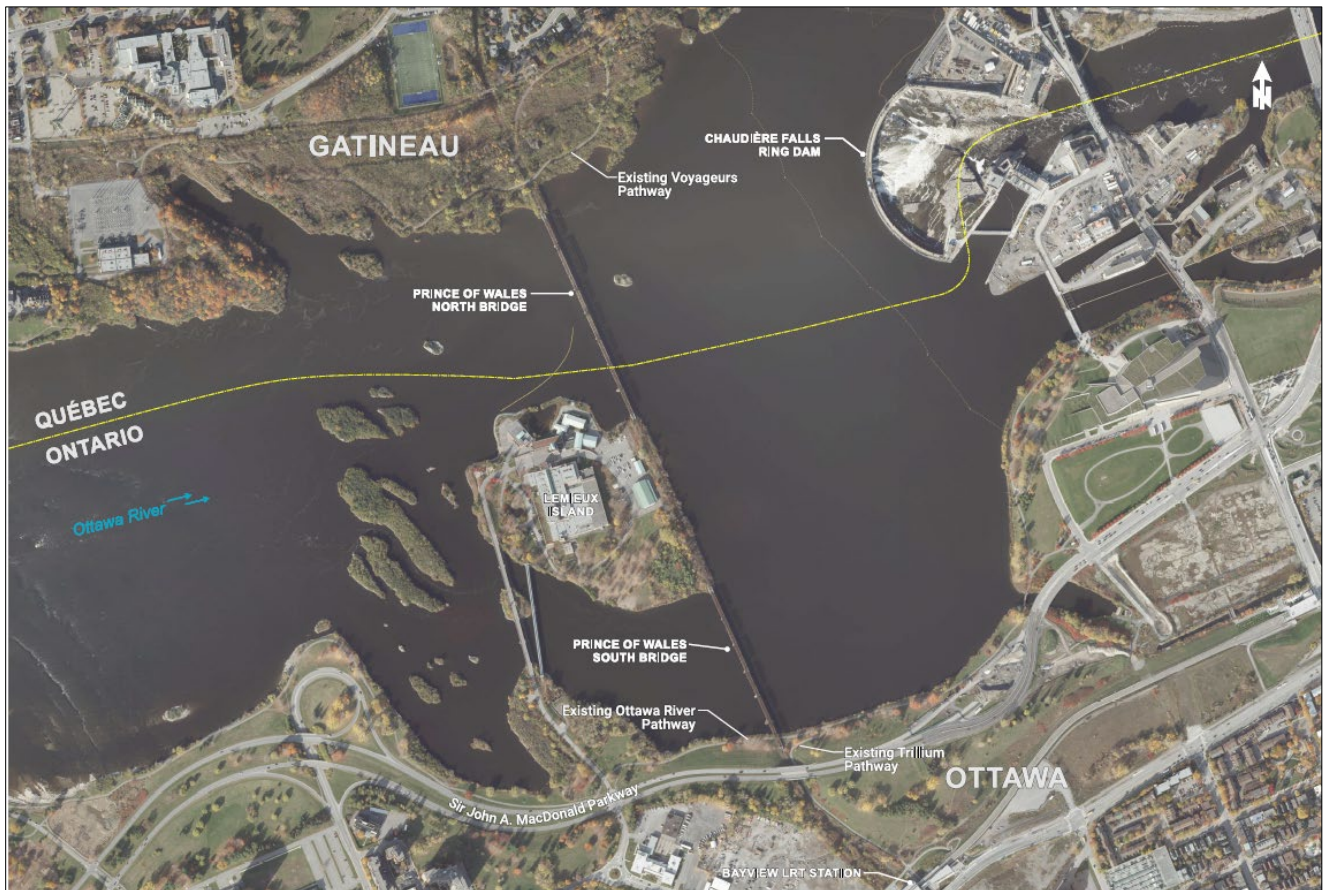
4.1 ALTERNATIVE SOLUTIONS

Under Phase 2 of the Municipal Class Environmental Assessment process, feasible and reasonable planning solutions to address the challenge/opportunity should be considered. The following section provides a written description of the alternatives evaluated.

Alternative 1 - Do Nothing

The Do Nothing alternative assumes that a multi-use pathway would not be implemented, and that no connection would be provided between Ottawa and Gatineau. Ongoing maintenance of the Prince of Wales Bridge would occur as needed. The ability to allow for future railway operation is maintained (**Figure 15**).

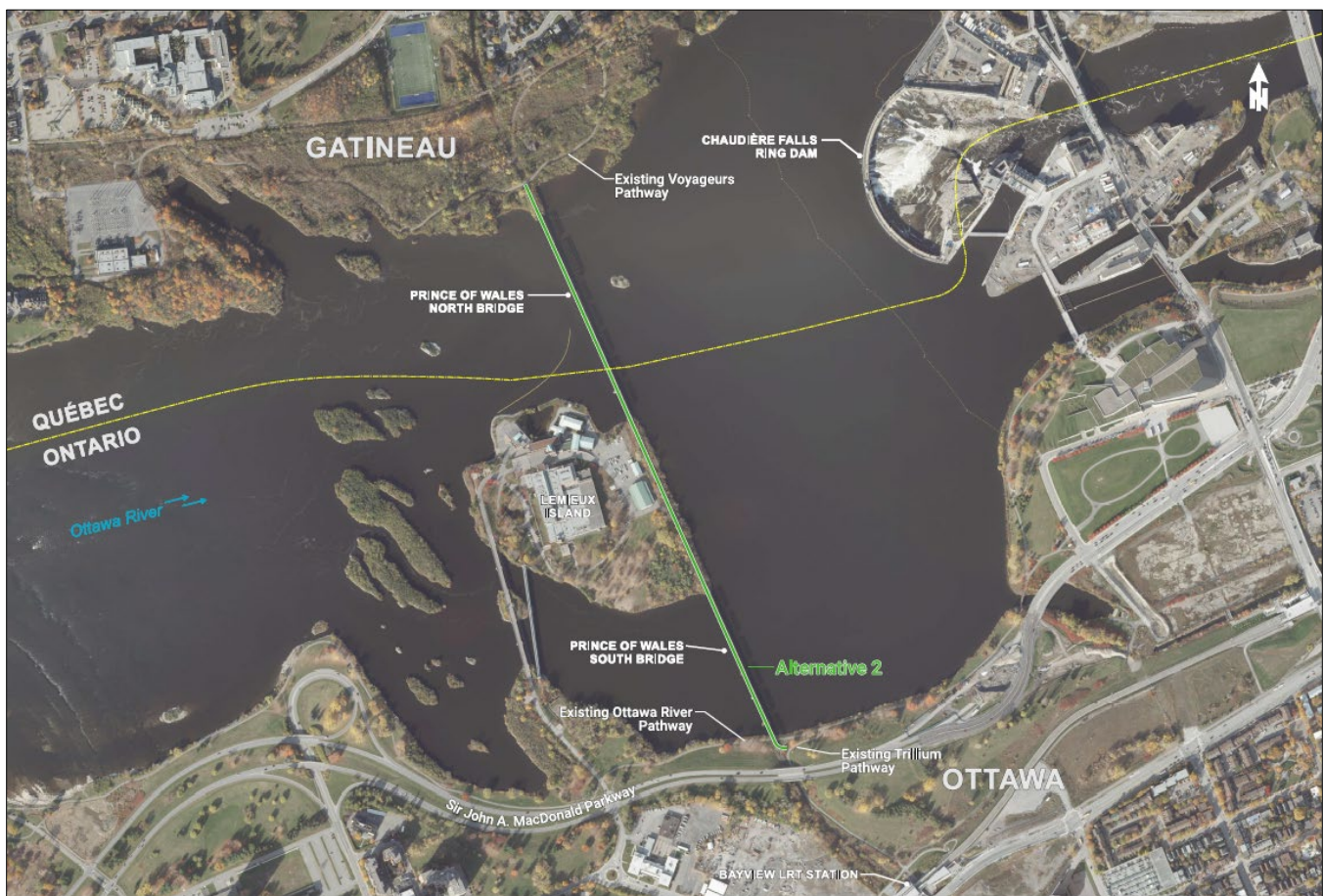
Figure 15: Alternative 1 - Do Nothing



Alternative 2 – Add a New Interim Multi-Use Pathway to the Existing Prince of Wales Bridge Deck

This alternative assumes that a new raised multi-use pathway deck would be installed on the existing railway open deck. The existing track structure would be retained but covered to protect for potential future rail use. A new multi-use pathway timber deck would be constructed directly on the existing timber ties with an approximate 5.0 m width. The on-land portions of the pathway (at the approaches and Lemieux Island) would measure 3.0 m wide. At the south approach, a new asphalt pathway connecting the City of Ottawa Trillium Pathway to the bridge deck would be constructed. On Lemieux Island, an asphalt pathway would be implemented along the west side of the existing rail track. This will require modifications to the rail bed, vegetation removal, grading and the placement of fill. At the north approach, an asphalt surface would be constructed directly on top of the railbed overtop of the rail, supported on retaining blocks at the margins. Coverings of the existing bridge deck and at the rails at the north approach is intended to be an interim measure where a conversion back to rail use can be achieved with relative ease, if required, for future railway operations (**Figure 16**). Ongoing maintenance of the existing structure would occur as needed. This alternative assumes that while the pathway will be open year-round, no winter maintenance activities would occur.

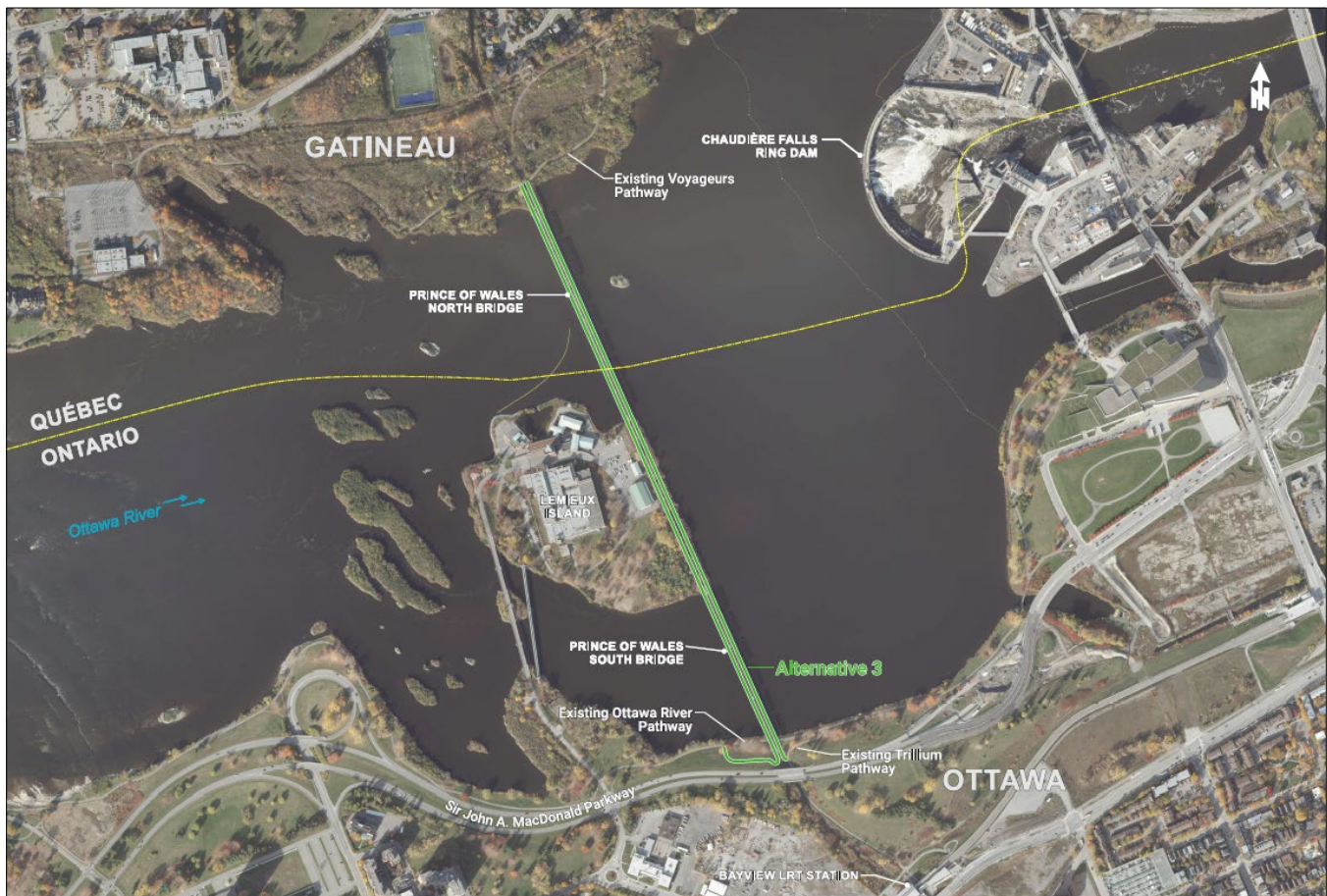
Figure 16: Alternative 2 - Add a New Interim Multi-Use Pathway to the Existing Prince of Wales Bridge Deck



Alternative 3 - Widen the Existing Prince of Wales Bridge to Accommodate a New Multi-Use Pathway

This alternative assumes that a new cantilevered multi-use pathway steel deck would be added to either the east or west side of the existing bridge and would measure 3.0 m wide. The cantilevered pathway retains the railway track structure across the bridge in its existing form (Figure 17). At the ends of the bridge, the alternative requires the construction of new concrete abutments and retaining walls, which would be located adjacent to the existing abutments. On Lemieux Island, and at the north approach, retaining structures would be required to accommodate the pathway due to the existing steep gradients. At the south approach, the multi-use pathway connection could be made either to the existing Trillium Pathway or the Ottawa River Pathway. Maintenance to the structure would occur as needed. This alternative assumes that the bridge would be fully accessible year-round.

Figure 17: Alternative 3 – Widen the Existing Prince of Wales Bridge to Accommodate a New Multi-Use Pathway



4.2 EVALUATION OF ALTERNATIVE SOLUTIONS

The development of the evaluation criteria and the evaluation of alternative solutions was completed using use expertise, professional judgement and reasoned arguments developed by the Study Team subject matter experts. The evaluation of alternative solutions involved the following basic steps:

1. Selection of evaluation criteria and indicators
2. Impact assessment and ranking of each alternative with respect to criteria
3. Ranking the alternatives
4. Selection of the preliminary preferred solution

4.2.1 EVALUATION CRITERIA

The alternative solutions were evaluated with consideration for social/cultural, biophysical, technical, and cost factors utilizing the criteria listed in **Table 4**. Included is the criteria and the indicator that was used to assess the impacts and predict the effect.

Table 4: Evaluation Criteria

CATEGORY	CRITERIA	INDICATOR
Social/Cultural	<ul style="list-style-type: none"> Planning Policy 	<ul style="list-style-type: none"> Consistency with planning policy and objectives
	<ul style="list-style-type: none"> Cultural heritage and archaeology 	<ul style="list-style-type: none"> Minimize impact to cultural heritage and archaeological resources
	<ul style="list-style-type: none"> Aesthetics 	<ul style="list-style-type: none"> Maintain visual appearance
	<ul style="list-style-type: none"> Pedestrian / cycling connectivity 	<ul style="list-style-type: none"> Improve/maintain connectivity with pedestrian and cycling networks
	<ul style="list-style-type: none"> Connectivity to LRT network 	<ul style="list-style-type: none"> Support an increased use of LRT
	<ul style="list-style-type: none"> Construction related impacts 	<ul style="list-style-type: none"> Minimize construction related impacts including noise, air quality and vibration
	<ul style="list-style-type: none"> Maintenance related impacts 	<ul style="list-style-type: none"> Minimize MUP maintenance related impacts including frequency of maintenance requirements and related pathway closures.
Biophysical	<ul style="list-style-type: none"> Construction and maintenance related impacts to aquatic resources and potential aquatic SAR 	<ul style="list-style-type: none"> Minimize impact to aquatic resources and SAR during maintenance and construction
	<ul style="list-style-type: none"> Vegetation removal 	<ul style="list-style-type: none"> Minimize vegetation removal
	<ul style="list-style-type: none"> Climate change mitigation 	<ul style="list-style-type: none"> Minimize impact of the project from contributing to climate change Encourages modal shift to active modes of transportation
	<ul style="list-style-type: none"> Climate change adaptation 	<ul style="list-style-type: none"> Ability of project to adapt to changing climate
	<ul style="list-style-type: none"> Contamination 	<ul style="list-style-type: none"> Minimize disturbance to areas of Potential Environmental Concern
Technical	<ul style="list-style-type: none"> Constructability 	<ul style="list-style-type: none"> Construction duration Ease/complexity of construction
	<ul style="list-style-type: none"> Service Life 	<ul style="list-style-type: none"> Anticipated years in service prior to rehabilitation Ongoing maintenance throughout the service life of the structure
	<ul style="list-style-type: none"> Project implementation 	<ul style="list-style-type: none"> Ease of project implementation (regulatory approvals)
	<ul style="list-style-type: none"> Future operation of the bridge as a railway 	<ul style="list-style-type: none"> Maintains the future operation of the bridge as a railway
	<ul style="list-style-type: none"> Pedestrian and cyclist safety 	<ul style="list-style-type: none"> Provides a safe connection for pedestrians and cyclists
Economic/Financial	<ul style="list-style-type: none"> Capital costs (Class B estimate) 	<ul style="list-style-type: none"> Total project cost
	<ul style="list-style-type: none"> Operational and maintenance cost 	<ul style="list-style-type: none"> Cost associated with operation and maintenance of the multi-use pathway
	<ul style="list-style-type: none"> Property requirements 	<ul style="list-style-type: none"> Minimize property requirements

4.2.2 EVALUATION AND RANKING OF ALTERNATIVE SOLUTIONS


Each alternative was ranked on a scale of least preferred to most preferred. The ranking considered the order of preference amongst the alternatives as well as the degree of impact based either on professional judgment or the quantitative results of the analysis. Summaries of the results of the evaluation of alternatives are presented in **Table 5**.

Table 5: Evaluation of Alternative Solutions

CRITERIA (Value)		Alternative 1: Do Nothing	Alternative 2: Add a New Interim Multi-Use Pathway to the Bridge Deck	Alternative 3: Widen Existing Prince of Wales Bridge
SOCIAL/CULTURAL	Planning Policy	Is not consistent with planning policy. While the bridge would be preserved for future rail use, no pathway connection is provided.	Consistent with planning policy and objectives. The bridge will be protected for future rail use, while in the interim, enhancing active transportation at the crossing.	Somewhat consistent with planning policy and objectives. The bridge will be protected for future rail use and a pathway connection would be provided.
		○	●	◐
	Cultural Heritage and Archaeology	No impact to cultural heritage or archaeology.	As per the conclusion of the Heritage Impact Assessment, the project will have a positive impact on the cultural heritage value of the bridge. No impact archaeological resources are anticipated as pathway construction would be limited to the rail corridor and in areas of previous disturbance.	The widening of the existing structure may impact cultural heritage and possibly archaeology, as the bridge would be modified to accommodate a new pathway including a widening of the structure, the addition of new abutments and pedestrian and cycling barriers.
		●	●	○
	Aesthetics	No impact to aesthetics.	The bridge would be modified to accommodate a new deck, however the visual appearance the existing bridge is maintained.	Potential impacts to the visual appearance of the existing bridge as the addition would widen the structure, add new abutments and modify the existing structural components.
		●	●	○
	Pedestrian/ Cycling Connectivity	No new multi-use pathway is added. Does not address pedestrian/cycling connectivity between Ottawa and Gatineau, nor does it meet the needs and objectives of the project.	A new pedestrian /cycling connection between Ottawa and Gatineau will be provided.	A new pedestrian/cycling connection between Ottawa and Gatineau will be provided.
		○	●	●

CRITERIA (Value)		Alternative 1: Do Nothing	Alternative 2: Add a New Interim Multi-Use Pathway to the Bridge Deck	Alternative 3: Widen Existing Prince of Wales Bridge
	Connectivity to LRT Network	No connection will be provided.	Provides direct connection to Bayview LRT Station.	Provides direct connection to Bayview LRT Station.
		○	●	●
	Construction Related Impacts	No construction related impacts as no pathway is implemented.	Minimal construction related impacts. The multi-use pathway would be located within the existing bridge alignment. Regrading and embankment widening on Lemieux Island and at approaches would be required.	Moderate construction related impacts as the bridge would need to be widened, including the addition of abutments to accommodate a new multi-use pathway. Significant retaining structures would be required.
		●	◐	○
	Maintenance Related Impacts	No impact to users as a pathway is not implemented.	A wooden deck type would increase frequency of maintenance which may cause disruptions to pathway users.	A steel deck type would reduce the frequency of maintenance given the durability of the material.
		●	○	◐
BIOPHYSICAL	Construction and Maintenance Related Impacts to Aquatic Resources and Potential Aquatic SAR	No construction related impacts as no pathway is implemented. Moderate maintenance related impacts associated with upkeep of the existing bridge. In-water (and near water) activities have the potential to deliver deleterious substance into the river.	Lowest potential impact to the aquatic environment. Construction activities associated with the multi-use pathway would be completed above water. Regrading would take place adjacent to the Ottawa River on Lemieux Island and at the approaches with the potential to introduce sediment into the river. Moderate maintenance related impacts associated with upkeep of the existing bridge. In-water (and near water) activities have the potential to deliver deleterious substance into the river.	Highest potential impact to the aquatic environment. Construction activities associated with the multi-use pathway would require some in-water (and near water) work, including the addition of abutments, placement of fill, regrading and retaining structures on Lemieux Island and at the north approach, which have potential to introduce sediment into the river. Moderate maintenance related impacts associated with upkeep of the existing bridge. In-water (and near water) activities have the potential to deliver deleterious substance into the river.
		●	◐	○

CRITERIA (Value)		Alternative 1: Do Nothing	Alternative 2: Add a New Interim Multi-Use Pathway to the Bridge Deck	Alternative 3: Widen Existing Prince of Wales Bridge	
	Vegetation Removal	No vegetation related impacts.	Vegetation removal is required Lemieux Island and at the approaches.	Vegetation removal is required on Lemieux Island and at the approaches.	
		●	○	○	
	Climate Change Mitigation	Does not contribute to increases in active modes of transportation (walking and cycling) causing no change on the transportation networks contribution to Greenhouse Gas Emissions.	Encourages use of active modes of transportation (walking and cycling) having a positive impact (reduction) on the transportation networks contribution to Greenhouse Gas Emissions. The re-use of the existing bridge requires the least amount of material and time to construct. The amount of waste generated, and construction activities required is low.	Encourages use of active modes of transportation having a positive impact (reduction) on the transportation networks contribution to Greenhouse Gas Emissions. The re-use of portions of the existing bridge will require less materials and time to construct. The amount of waste generated, and construction required is moderate.	
		○	●	◐	
	Climate Change Adaptation	Little opportunity to build in bridge resiliency to climate change.	Provides opportunity to build in new resiliency to the changing climate including extreme weather events for new elements.	Provides opportunity to build in resiliency to the changing climate including extreme weather events for new elements.	
		○	●	●	
	Contamination	No disturbance to areas of Potential Environmental Concern.	Some impact to areas identified as Potential Environmental Concern a result of regrading, and earth works on Lemieux Island and at approaches.	Greater impact to areas identified as Potential Environmental Concern a result of significant earth works required on Lemieux Island and at the approaches.	
		●	◐	○	
	TECHNICAL	Constructability	No construction is proposed.	Shortest construction duration and least complex to construct.	Longest construction duration most complex to construct.
			●	◐	○
Service Life		No pathway construction is proposed. The anticipated service life is related only to that of the existing structure.	The service life of the multi-use pathway deck is up to 20 years. The anticipated service life of the remaining existing structure will meet or exceed this.	The service life of the multi-use pathway deck is greater than 50 years. The anticipated service life of the remaining existing structure will meet or exceed this.	

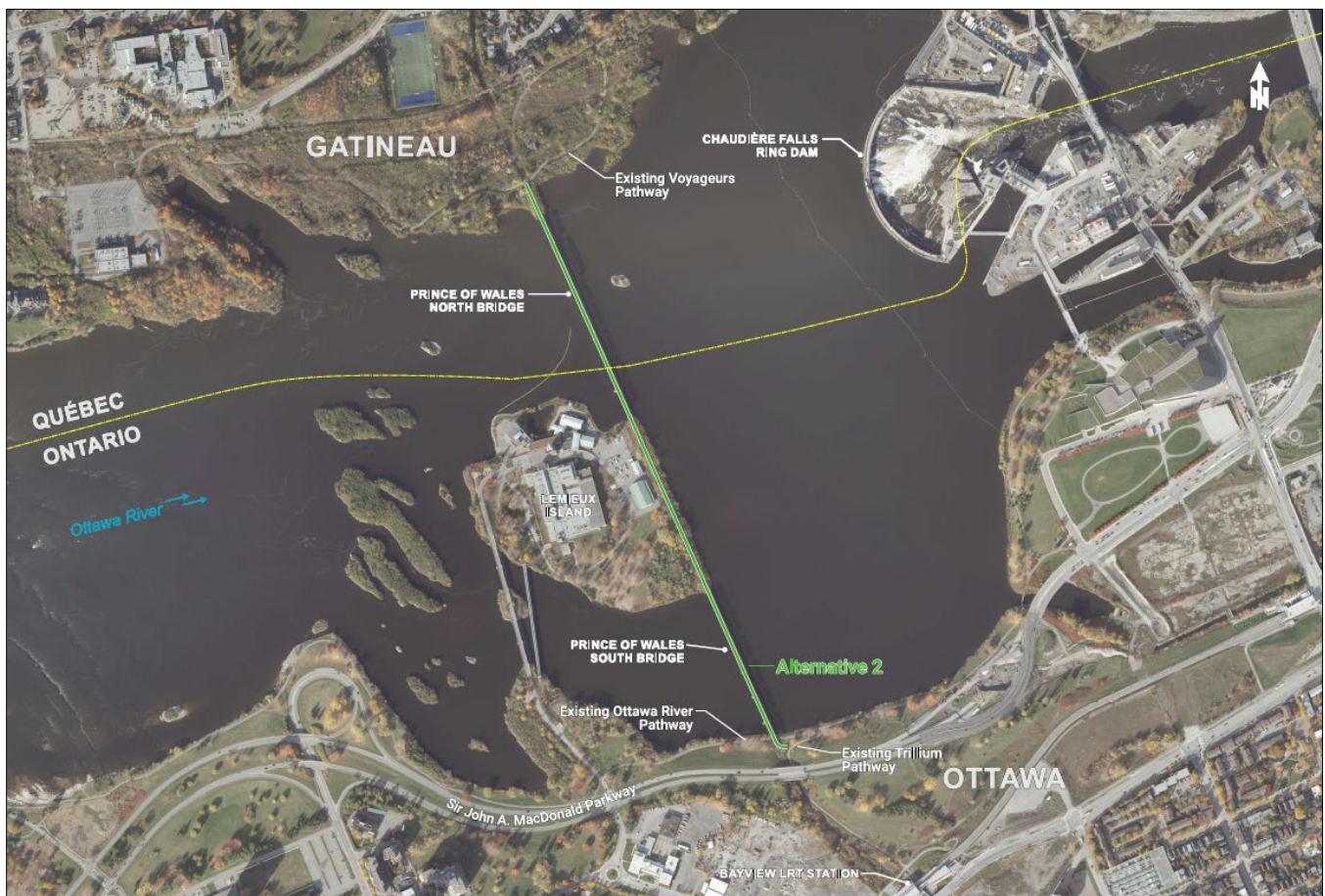
CRITERIA (Value)		Alternative 1: Do Nothing	Alternative 2: Add a New Interim Multi-Use Pathway to the Bridge Deck	Alternative 3: Widen Existing Prince of Wales Bridge
		○	◐	●
	Project Implementation	No project, therefore no regulatory approvals required. Regulatory approvals required for maintenance activities	Least complex project implementation. Regulatory approvals required for maintenance activities.	Most complex project implementation. Regulatory approvals required for maintenance activities.
		●	◐	○
	Future operation of the bridge as a railway	Maintains future railway operation.	Maintains future railway operation.	Maintains future railway operation.
		●	●	●
	Pedestrian and cyclist Safety	Does not provide a crossing.	Provides a safe crossing for pedestrians and cyclists.	Provides a safe crossing for pedestrians and cyclists.
		○	●	●
ECONOMIC	Capital Costs	No capital cost. Multi-use pathway is not implemented.	Lowest capital cost.	Highest capital cost.
		●	◐	○
	Operational and Maintenance Costs	No operational and minimal maintenance cost associated with a multi-use pathway.	Highest operational and maintenance cost related to the multi-use pathway.	Lowest operational and maintenance cost related to the multi-use pathway.
		●	○	◐
	Property Requirements	No additional property requirements.	No additional property requirements.	Easement/property requirements (NCC).
	●	●	○	
Overall Ranking		○	●	◐
				

4.2.3 PRELIMINARY PREFERRED SOLUTION

Based on the above evaluation, Alternative 2, illustrated on **Figure 18** was chosen as the preliminary preferred solution, as it:

- Meets the needs and objectives of the study, providing an interim connection between Ottawa and Gatineau in accordance with municipal and federal plans
- Has a positive impact on modal shift to active modes of transportation
- Best maintains the heritage components and visual appearance of the bridge
- Provides a direct connection to Light Rail Transit stations
- Is the least complex to construct, has the shortest construction duration, and has the least construction related impacts
- Enables the bridge decking to be removed to allow for use by rail in the future
- Has the lowest capital cost

Figure 18: Preliminary Preferred Solution



5.0 CONSULTATION

Consultation was undertaken with both internal and external stakeholders including City of Ottawa staff, regulatory agencies, and the general public. This section provides a summary of consultation undertaken (Appendix B).

5.1 FIRST NATIONS

An invitation to participate/public on-line engagement notification was sent to First Nation groups in the form of an email and mailed letters on February 10, 2021. One letter was returned to sender by Indigenous Services Canada Consultation and Accommodation Unit; a second follow-up attempt was made. The list First Nation groups contacted are shown below. No Responses have been received to date.

- Indigenous Services Canada Consultation and Accommodation Unit
- Indigenous Services Canada
- Ontario Ministry of Indigenous Relations and Reconciliation
- Algonquins of Ontario
- Algonquins of Pikwàkanagàn
- Ottawa Métis Council
- Kitigan Zibi Anishinabeg
- Metis Nation of Ontario Head Office

5.2 AGENCIES

Consultation and coordination with internal (City of Ottawa) and external agencies have been ongoing. External agencies contacted, as well as the summary of correspondence has been included below:

City Gatineau and Société de transport de l'Outaouais (STO) – Project initiation meeting held January 2021 to discuss the site access requirements on the Voyageurs Pathway as well as site access and pathway construction requirements in the STO rail corridor. The City of Gatineau requested that if their pathway is to be used for access, a traffic control plan and pre and post inspections survey should be undertaken and submitted to the City for review and approval. The City commented that any works should be completed in accordance with existing noise By-laws and that pathway work must be coordinated with other municipal works in the area. STO has confirmed that the proposed multi-use pathway works and access requirements will have little impact on the existing rail corridor, although the existing rail corridor should remain functional for rail.

Hydro Quebec – Notification through a land access request submitted in February 2021. Communication is ongoing.

Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (MELCC) - Notification through the submission of a Certificate of Authorization in January 2021. No comments have been received

Ministère des Forêts, de la Faune et des Parcs (MFFP) – Notification through the submission of a Certificate of Authorization in January 2021. Comments have been received relating to proposed maintenance activities, including in-water timing windows, provincial boundaries, in-water timing windows and proposed areas of impact. Responses were provided along with additional information for their consideration.

Ministry of Environment, Conservation and Parks (MECP) – Notification through a preliminary screening review sent in December 2020, requesting MECP comments on the proposed project. A response was received in February 2021 providing a summary of their comments and additional questions relating to in-water works, timing windows, vegetation removal and Species at Risk. Responses were provided along with additional information for their consideration. MECP has no further comments.

Ministry of Natural Resources and Forestry (MNR) - Notification occurred through the submission of a *Public Lands Act* applications in December 2020 and March 2021. Additional details on the proposed works were provided. MNR has requested review of the project through MECP and DFO, which is ongoing.

Transport Canada (TC) - Notification through the submission of an Application for Approval to the Navigation Protection Program. TC provided comments requesting confirmation of temporary works that could impact waterway navigation. Responses were provided. As per the requirements of the Act, a Public Notice was posted in the Ottawa Citizen and LeDroit newspapers, notifying the public of proposed works. The comment period ended March 6. No comments were received. Authorization from TC was received March 17, 2021.

Fisheries and Oceans Canada - Notification occurred through the submission of a Request for Review submitted in November 2020. DFO has provided comments and requested additional details related to the proposed maintenance activities, including timing of work, methods, and mitigation. This additional detail was provided.

National Capital Commission (NCC) – Notification through a Land Access request submitted in February 2021. The NCC has indicated that they would continue to be interested in the coordination and integration of the new connection into the pathway network, eg connection points, signage, wayfinding etc. They have also expressed interest in having a groomed ski trail across the bridge. The NCC would like the chance to work with the City on communications for any pathway impacts on both sides of the river.

5.3 ONLINE PUBLIC CONSULTATION

A Notice of Project Commencement and Notice of Public Meeting were published in the Ottawa Citizen and Le Droit newspapers on January 16, 2021 and February 20, 2021 (respectively) and on the City of Ottawa Website.

Public Consultation material included exhibit boards and was posted on the City of Ottawa website (<https://ottawa.ca/en/city-hall/public-engagement/projects/prince-wales-bridge-temporary-multi-use-pathway>) set up specifically for this project. Feedback from the public was provided through email to the City of Ottawa Project Manager. All comments received have been included in Appendix B.

The online Public Information Session provided information and solicited comments on:

- The Environmental Assessment Process
- The Challenge or Opportunity Statement
- Existing Conditions
- Alternative Solutions
- Preliminary Preferred Solution
- Next Steps

The public comment period ended March 8, 2021, with 88 comments received. The comments provided showed overwhelming support for a crossing, and the preliminary preferred solution. Several common suggestions include:

- providing benches and look out areas along the bridge
- providing a connection to Lemieux Island
- maintaining the bridge in the winter as a cross-country ski trail
- ensure cyclist and pedestrian comfort, safety and accessibility

6.0 PREFERRED ALTERNATIVE SOLUTION

Further to the evaluation of alternative solutions, and subsequent agency and public consultation, Alternative 2 was chosen as the preferred solution. Artist renderings of the preferred solution is shown on **Figure 19** and **Figure 20**.

Figure 19: Artist Rendering of the Preferred Solution, Birds Eye View (South Approach)



Figure 20: Artist Rendering of the Preferred Solution (Cross-Section)



6.1 DESIGN DETAILS

An understanding of the details of the preferred solution is important to assist in the assessment of the possible impacts of the project and requirement for mitigation and monitoring measures. The anticipated project works include:

- Carry out stone masonry repairs on ballast walls and top of wingwalls
- Reconstruct reinforced concrete abutment bearing seats and pier caps (south bridge only)
- Carry out concrete repairs on abutment bearing seats and pier caps and construct concrete bearing pedestals (north bridge only)
- Jack all truss spans and replace all bridge bearings
- Replace 40% of track ties due to deterioration and longer ties to support elevated timber deck
- Construct new elevated timber deck on top of track ties
- Install new pedestrian / cyclist steel post and cable railing system
- Install segmental block retaining wall on Quebec approach on either side of the railbed to support the asphalt pathway
- Construct new asphalt multi-use pathway segments linking the south approach to the City of Ottawa Trillium Pathway, linking both structures across Lemieux Island, and linking the north approach to the NCC Voyageurs Pathway, with localized site alteration and vegetation removal, including an embankment widening with rockfill material on Lemieux Island
- Install new pathway lighting along bridge and approaches
- Remove existing chain-link security fences and gates
- Remove existing videotron duct with fiber optic cable from bridge and cap conduit at ends of wingwalls
- Remove existing abandoned telegraph steel brackets on bridge and wood pole line on approaches and Lemieux Island

6.1.1 CONSTRUCTION STAGING AND STORAGE

Construction staging, storage and access locations for the proposed work are shown on **Figure 21** below. Staging and storage locations are planned to be located on City of Ottawa property. Access will be required across numerous properties including Hydro Quebec, STO and the NCC.

Figure 21: Proposed Construction Staging Area and Access



6.1.2 COST

The Class 'B' construction cost estimate for the recommended solution is \$10.5 million.

6.1.3 SCHEDULE

The construction of the interim multi-use pathway is expected to be determined, pending budget and approval of permits.

6.1.4 HERITAGE IMPACT ASSESSMENT

A Heritage Impact Assessment (HIA) (Contentworks, 2021b) (Appendix A) was completed as part of this EA following the recommendations contained within the Cultural Heritage Evaluation Report (Contentworks, 2021a). The HIA examined the preferred solution, informed by conservation guidance from the *Ontario Heritage Bridge Guidelines for Provincially Owned Bridges and the Standards and Guidelines for the Conservation of Historic Places in Canada*. The purpose of the HIA is to assess the potential impact of the design and construction of an interim multi-use pathway on the bridge on the cultural heritage values and heritage attributes of the bridge and to consider and recommend options to mitigate any potential negative impacts.

The conclusions of the HIA indicate that the proposed project is very compatible with, and will protect, the historic fabric and appearance of the Prince of Wales Bridge. The project will ensure the Bridge's ongoing viability and enhances the quality of the place (Contentworks, 2021b).

6.2 IMPACT ASSESSMENT OF THE PREFERRED SOLUTION

An impact analysis was undertaken to identify and mitigate the potential effects, both positive and negative associated with project implementation (**Table 6**). This section describes the analysis/assessment of the identified impacts of implementing the preferred solution. The values and conditions identified in the documentation of existing conditions were used as the basis for assessing the effects of the preferred solution on the social, physical and biological environments. The impact analysis involved applying the following steps:

- Step 1:** Identify and analyze activities where the project (as described in the preceding section) may interact with existing environmental conditions giving consideration to best management practices
- Step 2:** Identify the residual environmental effects, if any
- Step 3:** Identify opportunities for further mitigation of residual effects, if possible/practical, including monitoring
- Step 4:** Determine the significance of the residual environmental effects, after further mitigation

In this assessment, “residual” environmental effects are defined as changes to the environment caused by the project, and vice versa, when compared to existing conditions and taking into account all built-in mitigation measures. Potential residual environmental effects were assessed as to their significance, including spatial and temporal considerations, and were categorized according to the following definitions:

- “Negligible” means an effect that may exhibit one or more of the following characteristics:
 - nearly-zero or hardly discernible effect; or
 - affecting a population or a specific group of individuals at a localized area and/or over a short period in such a way that the effect is similar to random small changes but would have no measurable effect on the population as a whole.
- “Insignificant” means an effect that may exhibit one or more of the following characteristics:
 - not widespread;
 - temporary or short-term duration (i.e., only during construction phase);
 - recurring effect lasting for short periods of time during or after project implementation;
 - a permanent effect that does not result in a transgression or contravention of legislation, standards, or environmental guidelines or objectives;
 - affecting a specific group of individuals in a population or community at a localized area or over a short period, but not affecting other trophic levels or the integrity of the population or community; or
 - not permanent, so that after the stimulus (i.e., project activity) is removed, the integrity of the environmental component would be resumed.
- “Significant” means an effect that may exhibit one or more of the following characteristics:

- widespread;
 - permanent transgression or contravention of legislation, standards, or environmental guidelines or objectives;
 - permanent reduction in species diversity or population of a species in sufficient magnitude to cause a decline in abundance and/or change in distribution beyond which natural reproduction or immigration would not return that population, or any species dependant on it, to its former level within several generations;
 - permanent loss of critical/productive habitat;
 - permanent loss of important community archaeological/heritage resources; or
 - permanent alteration to community characteristics or services, established land use patterns, which is severe and undesirable to the community as a whole.
- “Positive” means an effect which results in an improvement to the existing or future conditions.

Once potential effects were predicted, mitigation measures were identified. Often these mitigation measures were sufficient to reduce potential negative effects to an insignificant or negligible status. Mitigation included avoidance, reduce and repair. Construction Best Management Practices (BMPs) are also included in the mitigation of effects.

Monitoring is important to verify the accuracy of predicting effects. Monitoring was recommended to determine what effects would actually occur with project implementation and may result in the modification of mitigation measures to improve their effectiveness. Identified monitoring measures may included inspection, surveillance, and compliance monitoring.

Table 6: Impacts and Mitigation

ENVIRONMENTAL VALUE	PROJECT ACTIVITY	ANALYSIS OF POTENTIAL ENVIRONMENTAL EFFECT	MITIGATION MEASURES	POTENTIAL RESIDUAL EFFECT	LEVEL OF SIGNIFICANCE AFTER MITIGATION	MONITORING RECOMMENDATION
Social Environment						
Cultural/Built Heritage	Impacts related to the multi-use pathway implementation and associated bridge work.	Loss of heritage value as a result of the interim multi-use pathway implementation.	The history of the Prince of Wales Bridge could be highlighted by the City through interpretation media associated with the bridge, including interpretation panels, and Prince of Wales Name Plate. Prior to the removal or covering of bridge elements, such as the telegraph brackets, a photographic record should be completed.	None anticipated.	Negligible.	None.
Archaeological Resources	Impacts related to the multi-use pathway implementation and associated bridge work.	Disturbance of archaeological resources.	Archaeological resources are not expected due to the presence of excessive fill at the site and expected extent of soil disturbance. If archaeological resources are accidentally uncovered during construction activities, the site should be protected from further disturbances until a licensed archaeologist has completed an assessment.	None anticipated.	Negligible.	None anticipated.
Air quality	Impacts related to the multi-use pathway implementation.	Dust and equipment exhausts will diminish air quality during the construction period.	Contractor to implement air quality BMPs and will be responsible for implementing a mitigation strategy with the intent on satisfying the requirements for Ontario Regulation 419. These can include: <ul style="list-style-type: none"> Dust suppressants will be applied as warranted. Haul routes and nearby streets should be cleaned as per existing municipal standards. 	Dust may be a temporary irritant to adjacent properties.	Insignificant.	As per <i>Public Communications Plan</i> . Monitor complaints during construction.

ENVIRONMENTAL VALUE	PROJECT ACTIVITY	ANALYSIS OF POTENTIAL ENVIRONMENTAL EFFECT	MITIGATION MEASURES	POTENTIAL RESIDUAL EFFECT	LEVEL OF SIGNIFICANCE AFTER MITIGATION	MONITORING RECOMMENDATION
			<ul style="list-style-type: none"> Minimize site storage of granular material. Locate storage piles in sheltered areas if feasible. Equipment to be kept in good working order and will not unnecessarily idle. <p>Contractor to prepare <i>Public Communications Plan</i> to inform residents of planned construction works.</p>			
Pedestrian and Cycling Network	Impacts to existing networks	Construction activities may result in the temporary detours for pedestrians and cyclists on existing pathways.	<p>Contractor to implement a Construction and Traffic Management Plan to minimize the effects on traffic flow and to ensure roadway safety for all users.</p> <p>A Public Communications Plan should be developed residents of construction schedule and changes.</p> <p>Construction fencing to demarcate the work area for safety.</p>	Temporary inconvenience to pathway users.	Negligible.	As per <i>Public Communications Plan</i> .
Pedestrian and Cycling Network	Operation of the interim Multi-use pathway	New interim inter-provincial link for pedestrian and cyclists will be provided.	<i>Public Communications Plan</i> to include information on use of the new facility.	None anticipated.	Positive.	None.
Land Use and Open Space	Impacts to existing open space during construction	Construction staging and access requirements will temporarily displace public access to open space uses at both ends of the bridge and at Lemieux Island.	<i>Public Communications Plan</i> to inform residents of planned construction works, detours and closures.	Temporary inconvenience to pathway users.	Insignificant.	As per <i>Public Communications Plan</i> .
Noise	Impacts related to the multi-use pathway implementation.	Noise levels produced by the construction could be disruptive to nearby property owners.	Temporary increased noise levels from the reconstruction are not expected to be noticeable given that the major	Temporary increase in noise from construction.	Negligible.	As per <i>Public Communications Plan</i> .

ENVIRONMENTAL VALUE	PROJECT ACTIVITY	ANALYSIS OF POTENTIAL ENVIRONMENTAL EFFECT	MITIGATION MEASURES	POTENTIAL RESIDUAL EFFECT	LEVEL OF SIGNIFICANCE AFTER MITIGATION	MONITORING RECOMMENDATION
			<p>of the work is within an area that is currently off limits to the public.</p> <p>As per Public Communications Plan to inform residents of planned construction works. Contractor to adhere to the City By-laws (2017-255). Noise BMPs may include:</p> <ul style="list-style-type: none"> • Keeping equipment well maintained, moving parts lubricated and restricting unnecessary idling. • Compliance with MECF NPC-115 and NPC-118. • Contractor to have construction noise complaint process detailed, and action plan to address noise related complaints where warranted. 			Monitor complaints during construction.
Property Requirements	Impacts related to the multi-use pathway implementation.	Access across public and private property for construction staging.	Obtain necessary land access permissions including NCC, STO and Hydro Quebec.	Access permitted .	Negligible.	As per conditions of Land Access Permits.
Bio-Physical Environment						
Vegetation	Impacts related to the multi-use pathway implementation.	Vegetation removal is required to accommodate the implementation of the multi-use pathway and permit construction staging, storage and access	Undertake tree vegetation/tree compensation as per City requirements. Implement revegetation where appropriate.	Removal of vegetation.	Negligible.	None.
Wildlife	Impacts related to the multi-use pathway implementation.	Impact to urban wildlife due to construction activities. Removal of urban wildlife habitat.	Follow City's Protocol for Wildlife Protection during Construction Guide	None.	Negligible.	As per City's Protocol for Wildlife Protection during Construction Guide, and <i>Species at Risk Assessment</i> found in Appendix A.

ENVIRONMENTAL VALUE	PROJECT ACTIVITY	ANALYSIS OF POTENTIAL ENVIRONMENTAL EFFECT	MITIGATION MEASURES	POTENTIAL RESIDUAL EFFECT	LEVEL OF SIGNIFICANCE AFTER MITIGATION	MONITORING RECOMMENDATION
Breeding Birds	Impacts related to the multi-use pathway implementation.	Vegetation removal has the potential to impact breeding birds during construction.	Vegetation removals should be undertaken prior to April 15 and August 31 to avoid impacting nesting breeding birds. A bird nest sweep should be undertaken by a qualified professional for removal occurring outside of this window. Tree/vegetation compensation as per City requirements.	Loss of nesting habitat.	Negligible.	None.
Species at Risk	Impacts related to the multi-use pathway implementation.	Potential Impacts to Species at Risk as a result of construction activities.	Implement mitigation contained in the Species at Risk Assessment found in Appendix A.	None.	Negligible.	See Species at Risk Assessment found in Appendix A.
Aquatic Habitat	Impacts related to the multi-use pathway implementation.	Increased sedimentation during construction could impact fish habitat. Input of deleterious substances and water quality: via spills/leaks during construction.	Implement Erosion and Sediment Control Plan Implement Spills Response and Action Plan Implement mitigation as per DFO Letter of Advice.	Potential localized and temporary reduction in water quality.	Negligible.	As per <i>Erosion and Sediment Control Plan</i> and <i>Emergency Response and Spill Response Reporting Plan</i> Implement monitoring (if required) as per DFO Letter of Advice.
Climate Change: Extreme weather events	Impacts of extreme weather events on infrastructure resiliency and impacts on the user.	High variability in temperature extremes. Increasing frequency of high-intensity and duration of weather extremes (i.e. wet weather, dry periods, wind storms)	<i>Inspections and continue maintenance activities to maintain integrity of the bridge.</i> <i>Provision for rest areas. Public Communication Plan to inform users of anticipated extreme weather events.</i> <i>Emergency Response Plan</i>	Additional maintenance requirements.	Negligible	As per inspection program.
Contamination	Impacts related to the multi-use pathway implementation.	Excavation during construction activities may disturb known organic and inorganic contamination within the soil.	Excavated soil should be evaluated for soil quality to determine the suitability for reuse on the Site and/or to determine the off-site disposal and reuse requirements in	Management and removal of contaminated materials, if required.	Insignificant	As per Phase 1 Environmental Site Assessment.

ENVIRONMENTAL VALUE	PROJECT ACTIVITY	ANALYSIS OF POTENTIAL ENVIRONMENTAL EFFECT	MITIGATION MEASURES	POTENTIAL RESIDUAL EFFECT	LEVEL OF SIGNIFICANCE AFTER MITIGATION	MONITORING RECOMMENDATION
			accordance with Ontario Regulation 406/19. It is noted that previous testing of shallow fill from the bridge abutments identified the presence of contamination above the reuse criteria for both on and off-site. Excavation of these materials will require landfill disposal if taken off-site. If soils exceeding the applicable site standards (MECP Table 9 Standards) are to be reused on-site, further assessment may be required to determine site specific risks.			
	Impacts related to the multi-use pathway implementation.	Risk of soils contamination due to accidents during construction refueling and accidents during operation.	<i>Emergency Response and Spill Response Reporting Plan.</i>	Temporary localized contamination prior to clean-up.	Negligible.	Spills reporting in accordance with <i>Emergency Response and Spill Response Reporting Plan.</i>
Intake Protection Zone	Contamination impacts related to the multi-use pathway implementation.	Potential for contaminate release and associated impacts to water quality.	<i>Emergency Response and Spill Response Reporting Plan.</i>	Potential localized and temporary reduction in water quality.	Insignificant	Spills reporting in accordance with <i>Emergency Response and Spill Response Reporting Plan.</i>

6.2.1 MITIGATION PLANS

The following section provides an overview of each of the mitigation plans identified in **Table 6** and assigns responsibility for each of the plans during the next phases of the project.

Erosion and Sediment Control Plan

The purpose of the erosion and sedimentation control plan is to determine the degree of erosion and sedimentation that would occur under normally anticipated weather conditions during the life of the project, and to develop and implement mitigative strategies to control any foreseen areas determined to be pre-dispositioned to the problem. This would include: the identification of planting and slope rounding specifications within the contract tender; identifying and specifying seeding and sodding locations; identifying areas requiring slope benching or retaining structures in the detailed design process; and post construction monitoring and mitigative practices.

Emergency Response and Spill Response Reporting Plan

The preparation of an Emergency Response Plan to be used by the contractor will be included to allow full access to emergency services during the construction period, so that at any given time there is a method to access all adjacent land uses. Additionally, the Emergency Response Plan should include provisions for providing temporary services to end users in the event of a construction related service outage or other service disruption. A Spills Response and Reporting Plan will be prepared and adhered to by the contractor. Spills or discharges of pollutants or contaminants will be reported immediately. Clean up shall be initiated quickly to ensure protection of the environment.

Environmental Protection

It will be the responsibility of the Contractor to ensure that no contamination, waste or other substances, which may be detrimental to aquatic life or water quality, will enter a watercourse as either a direct or indirect result of construction. In this regard, any floating debris resulting from construction which accumulates on watercourse beds and watercourse banks is to be immediately cleaned up and disposed of. Any spills or contamination, waste or other substances which may be detrimental to aquatic life or water quality will also be immediately cleaned up.

Any work which will cause or be the cause of discharge to watercourses is to be prohibited. At all times, construction activities are to be controlled in a manner that will prevent entry of deleterious materials to watercourses. In particular, construction material, excess material, construction debris and empty containers are to be stored away from watercourses and the banks of watercourses.

Management of Contaminated Materials

There is the potential for contaminated soils and groundwater to exist within the area of proposed work, most notably documented poor-quality fill within and adjacent to the bridge. As a result, it is recommended that the soil within future excavation areas be evaluated for soil quality to determine the suitability for reuse on the Site and/or to determine the off-site disposal and reuse requirements in accordance with Ontario Regulation 406/19. It is noted that previous testing of shallow fill from the bridge abutments identified the presence of contamination above the reuse criteria for both on and off-site. Excavation of these materials will require landfill disposal if taken off-site. If soils exceeding the applicable site standards (MECP Table 9 Standards) are to be reused on-site, further assessment may be required to determine site specific risks or management requirements.

Public Communications Plan

The requirement for a Public Communications Plan originates from the need to keep the public informed about the work in progress and the end result of the construction activities. Businesses, institutions, residents and other stakeholders including emergency service vehicle providers must be aware of scheduled road closings and other disruptions to normal service ahead of time in order that their activities can be planned with minimum disruption. The Public Communications Plan will follow the standard set by the City including detail on how to communicate the information to the public, what information should be disseminated, and at what project stage the communication should take place.

6.2.2 PERMITS AND APPROVALS

As part of the detailed design process several permits and approvals will be required, including:

- Public Lands Act Authorization, Ministry of Natural Resources and Forestry
- Ministère des Forêts, de la Faune et des Parcs and Ministère de l'Environnement et de la Lutte contre les changements climatiques, Certificate of Authorization
- Canadian Navigable Waters Act Authorization, Transport Canada
- Letter of Advice, Department of Fisheries and Oceans
- Land Access Permit, National Capital Commission
- Following the completion of detailed design, the City will issue Municipal Consent to proceed to construction.

6.3 MODIFYING THE RECOMMENDED SOLUTION

It is important to distinguish between minor and major changes. A major design change would require the completion of an amendment to this EA, while a minor change would not. For either kind of modification, it is the responsibility of the City of Ottawa, as the proponent, to ensure that all possible concerns of the public and affected agencies are addressed.

Minor design changes may be defined as those which do not appreciably change the anticipated net impacts associated with the project. This includes any modifications that are required to the design as a result of municipal design review (i.e. changes to minimum lane widths or updates to best practices and guidelines). Such changes would be dealt with during the detailed design phase and would remain the responsibility of the City of Ottawa to ensure that all relevant issues are addressed.

Due to unforeseen circumstances, it may not be feasible to implement the project as described in this Report. Accordingly, any significant modifications to the project or change in the environmental setting for the project which occurs after the filing of this environmental assessment shall be reviewed by the City of Ottawa and an addendum to the EA shall be prepared as appropriate.

7.0 CLASS EA PROJECT COMPLETION

This screening report has been prepared in accordance with the Municipal Class EA process for Schedule B projects. It outlines the process which the City of Ottawa and the Study Team has undertaken to confirm the preferred solution for the implementation of an interim multi-use pathway across the Prince of Wales Bridge.

The process involved contact and engagement with affected public, stakeholders (including First Nations), and permitting agencies to ensure that they were aware of the project and to address any concerns that they may have. The process also documented a detailed evaluation of all reasonable and feasible solutions which lead to a recommended and preferred solution. An impact analysis was undertaken on the preferred solution and while the project has the potential to have effects on the social and biophysical environment during construction, these effects can be mitigated with prescribed design features, sound environmental management practices were practical and possible. Through incorporating mitigation measure, no significant adverse environmental effects are expected to prevail after mitigation. This represents the conclusion of the planning procedures as outlined in the Municipal Class EA process.

7.1 CLASS EA FILING PROCEDURE

Following the procedure for Schedule B projects, the Screening Report will be placed on public record, for the required thirty (30) day review period, during which time interested parties are invited to review its contents. The public has the ability to Request a Part II Order to the Ministry of Environment Conservation and Parks for a higher level of assessment on a project if they are concerned about potential adverse impacts to constitutionally protected Aboriginal and treaty rights.

Part II Order Requests:

Requests should be submitted after the proponent has issued the Notice of Completion for a Class Environmental Assessment for a project. The request should be submitted within the review period/comment period outlined in the Notice of Completion.

The Ministry recommends that you follow the process set out below before submitting a Request:

- Participate in the consultation opportunities provided to the public within the Class Environmental Assessment process
- Engage in discussions with the proponent to try to address and resolve your concerns

Requests should not be submitted for the sole purpose of delaying, stopping, or frustrating the planning and implementation of an undertaking proceeding under a Class Environmental Assessment process. The Minister may consider the efforts of the requester to resolve the concerns directly with the proponent when deciding whether to make an order.

Minister Jeff Yurek
Ministry of Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
minister.mecp@ontario.ca

and

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto ON, M4V 1P5
ClassEAnotices@ontario.ca

Requests should also be copied to the City of Ottawa by mail or by e-mail. Please visit the ministry's website for more information on requests for orders under section 16 of the Environmental Assessment Act at: <https://www.ontario.ca/page/class-environmental-assessments-part-ii-order>

7.2 NOTICE OF COMPLETION

In accordance with the Municipal Class Environmental Assessment process October 2000, amended in 2007, 2011 and 2015, a Notice of Completion was published in the in the Ottawa Citizen and Le droit newspapers on April 6, 2021 and on the City of Ottawa Website.

This notice outlined the project's completion, the Preferred Alternative Solution, the thirty (30) day review period and detailed instructions on how to make a Part II Order Request. A digital copy of the report was placed on public record on April 6, 2021, for public review. The report can be accessed by following this link ottawa.ca/princeofwalesbridge. Comments and/or concerns are to be submitted no later than May 6, 2021. Anyone who still has any outstanding concerns about potential adverse impacts to constitutionally protected Aboriginal and treaty rights, within the thirty (30) day review period, can make a Part II Order Request to the Minister of Environment Conservation and Parks if the concerns cannot be addressed by the City. Details about the procedure are included in Section 7.1 of this report and in the Notice of Completion provided in Appendix B.

The work undertaken in preparing and filing this report represents completion of the Class EA process. Subject to the completion of the mandatory thirty (30) day review period, and no Requests are received, the City intends to finalize the detailed design and implement the project in 2021.

8.0 REFERENCES

- Algonquins of Ontario. (2013). Interactive map, A00 Agreement is Principle. Retrieved from <http://www.tanakiwin.com/imap.html>: Accessed October 30, 2019.
- City of Gatineau. (2018). Plan directeur du réseau cyclable de la ville de Gatineau. Retrieved from <https://www.gatineau.ca/portail/default.aspx?p=accueil>
- City of Ottawa. (2021). GeoOttawa. Basemapping. retrieved from <https://maps.ottawa.ca/geoottawa/>
- City of Ottawa. (2003). Official Plan, consolidated.
- City of Ottawa. (2013a). Ottawa Cycling Plan, OCP 2013.
- City of Ottawa. (2013b). Transportation Master Plan
- Contentworks. (2021a). Cultural Heritage Evaluation. Prince of Wales Bridge, Ottawa, Ottawa Ontario.
- Contentworks. (2021b). Heritage Impact Statement. Prince of Wales Bridge, Ottawa, Ottawa Ontario.
- Golder. (2021a). Geotechnical Desktop Study, proposed Interim Multi-Use Pathway, Prince of Wales Bride, National Capital Region.
- Golder. (2021b). Phase 1 Environmental Site Assessment, Prince of Wales Bride, National Capital Region.
- Municipal Engineers Association. (2000). Municipal Class Environmental Assessment, as amended.
- Ministry of Municipal Affairs and Housing. (2020). Provincial Policy Statement.
- Mississippi-Rideau Source Protection Region. (2021). Online Mapping. Retrieved from <http://www.mrsourcewater.ca/PublicMappingTool.html>
- National Capital Commission. (2020). Capital Pathway Strategic Plan. Retrieved from <https://ncc-ccn.gc.ca/our-plans/capital-pathway-strategic-plan#doc1>
- National Capital Commission .(2017). Plan for Canada's Capital 2017-2067. Retrieved from <https://ncc-ccn.gc.ca/our-plans>
- Parsons. (2019). Climate Change and EA Approach.
- Parsons. (2020a). Prince of Wales Bridge Substructure Repairs, General Arrangement Drawing.
- Parsons. (2020b). Prince of Wales Bridge Substructure Repairs and Interim Multi-Use Pathway. Species at Risk, Ecological Site Characterization and Fisheries Self Assessment. Update March 2021.
- Ville de Gatineau. (2021). interactive map (Atlas de Gatineau), Retrieved from https://www.gatineau.ca/portail/default.aspx?c=en-CA&p=publications_cartes_statistiques_donnees_ouvertes/cartes/carte_interactive_atlas_gatineau