City of Orillia

Atherley Narrows Bridge
Municipal Class Environmental Assessment
Environmental Study Report

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Executive Summary

The City of Orillia, in partnership with the Township of Ramara and Chippewas of Rama First Nation, initiated a Schedule ‘C’ Municipal Class Environmental Assessment (EA) study to assess the opportunity to provide a recreational trail connection across the Atherley Narrows, enhance existing significant cultural heritage features and establish a place of ceremony for Aboriginal people.

A great deal of preparation and collaboration has brought this project to the planning level. The Mnjikaning Fish Fence Circle was formed approximately 20 years ago and is comprised of Chippewas of Rama First Nation community members and area residents for the purpose of protecting and promoting the Mnjikaning Fish Weirs. Historically, Parks Canada was working with the Mnjikaning Fish Fence Circle to develop strategic plans to protect and promote the weirs. In addition, the Atherley Narrows Bridge Committee was formed to advance/support this project and includes representatives from the Mnjikaning Fish Fence Circle, the Chippewas of Rama First Nation, the Ontario Federation of Snowmobile Club, City of Orillia Active Transportation and Trails Advisory Committee and the local municipalities.

The study area is located at the confluence of Lake Simcoe and Lake Couchiching (Atherley Narrows), at the site of the historic CN rail bridge and north of the existing Highway 12 (Atherley Road) vehicular bridge, and situated at the Mnjikaning Fish Weirs National Historic Site (designated in 1982) and along the Trent-Severn Waterway National Historic Site (designated in 1929).

This Environmental Study Report has been documented in accordance with the EIA guide. A Project Description was submitted to Parks Canada in April 2015. A Basic Impact Analysis will be submitted to Parks Canada to complete the federal requirements.

Consultation

Stakeholder consultation provides opportunities for the public, agencies and other stakeholders to understand the study process, contribute to the development and selection of alternatives and provide feedback and advice at important stages of the EA process. The following activities were carried out to meet these objectives:

- Establishment and maintenance of a dedicated study website;
- Posting news releases on the City of Orillia/study website;
- Development of a dedicated study email address;
- Publication of study notifications in the Orillia Packet and Times newspaper;
- Mail distribution of all study notifications to relevant agencies, Aboriginal communities and/or organizations, residents and property owners located within an approximately 500 m radius of the study area, and individuals who expressed an interest throughout the course of the study;
- Two (2) Public Information Centres; and
- Meetings with the Atherley Narrows Bridge Committee.

Problem and Opportunity Statement

The existing structure is no longer in use and cannot be used for other purposes in its current state. A recreational trail connection between the Orillia and Ramara Trail Systems is required to provide safe and easy access for active transportation users. This connection can enhance the existing significant cultural heritage features of the area,
create an attractive destination for residents and visitors along the Trent-Severn Waterway, and establish an appropriate place of ceremony for First Nations people. This study sought to achieve the following:

- To be respectful of the history, education and stewardship of the Mnjikaning Fish Weirs National Historic Site of Canada today and for the future
- To establish a safe pedestrian/snowmobile link spanning over the Narrows, bridging the gap among communities
- To establish a place of ceremony at the weirs for First Nations people
- To bring public attention to the fish weirs, its history and its relationship with first peoples
- To provide an active transportation trail around Lake Couchiching to promote tourism
- To establish a point of interest along the Trent-Severn Waterway for docking and reflection on the past
- To capitalize on the opportunity provided to us by this historic asset to enhance economic development

Preferred Solution

The performance of the alternatives developed as part of this Class EA was evaluated against the Problem and Opportunity Statement, as one of a number of criteria used to develop the study recommendations. Four (4) Alternative Solutions were identified and assessed. These included ‘Do Nothing’, Reuse/Commissioning of the Existing Bridge, Utilize Existing Highway 12 and Build a New Bridge. The Evaluation of Alternative Solutions indicated that:

The ‘Do Nothing’ alternative does not create a link between the area communities and maintains the existing gap in the established recreational and snowmobile trail system. This alternative does not support economic development and tourism being planned for the area and provides limited opportunities for improving the aesthetics of the study area and/or creating a point of interest along the Trent-Severn Waterway.

The Reuse of the Existing Bridge would not provide a permanent trail connection and would require operation and maintenance over time. In addition, the existing bridge would not effectively accommodate snowmobiles, as well as pedestrians, cyclists, etc., and does not appropriately protect and commemorate the Mnjikaning Fish Weirs National Historic Site.

Utilize Existing Highway 12 would require routing the established trail to Highway 12. Highway 12 would not create a safe and easy link for recreational trail users and is not suitable for use by snowmobilers. Users may choose to continue to cross the ice, when they assume it is safe to do so. Most importantly, utilizing Highway 12 does not provide an opportunity to protect, promote and appropriately commemorate the Mnjikaning Fish Weirs.

Overall, the Build a New Bridge alternative best addresses the Problem and Opportunity Statement by providing an opportunity to protect and commemorate the Mnjikaning Fish Weirs, create a place of ceremony for Aboriginal people, provide an easy and safe link for active transportation and/or snowmobile users and establish a new point of interest along the Trent-Severn Waterway.

Alternative Design Concepts

A number of design issues and design constraints were identified and influenced the generation, assessment and evaluation of the alternative designs. In general terms, the new bridge must:

- Be cognisant of the identified location of the fish weirs and avoid any impacts.
- Consider the existing cultural heritage landscape, including Aboriginal, archaeological and built heritage.
- Consider the vertical and horizontal navigation clearance requirements by Transport Canada and The Trent-Severn Waterway.
- Allow for accessibility by the full cross section of people within the community. As such, the slopes on the structure must not exceed 5%.
- Provide sufficient design details to obtain agreement in principle from permitting agencies (i.e., Ministry of Natural Resources and Forestry, Parks Canada, Trent-Severn Waterway, Transport Canada) for the recommended design.
- Comply with the Guidelines for the Design of Snowmobile Bridges, the Bridge Code and design standards for pedestrian bridges.
- Consider shared use by a variety of recreational users.
- Avoid significant impacts to the natural environment.
- Consider need for ceremonial space and connection to the water.

The existing substructure of the former bridge will remain in place and be reused as part of the new structure. In addition, a new ceremonial space and connection to the water/the Mnijkaning Fish Fence site is desired by the Chippewas of Rama, the Mnijkaning Fish Fence Circle and the Atherley Narrows Bridge Committee. As such, the following alternative bridge design concepts were developed on the basis of removing the existing swing span of the former CN Rail bridge and constructing a new bridge.

- Alternative 1 – 3 Span Steel Truss Bridge
- Alternative 2 – Inverted Fink Steel Truss Deck-on-Girder Bridge

Based on the findings of the Evaluation of Alternative Designs, Alternative 2 - Inverted Fink Truss Deck-on-Girder Bridge is preferred based on the following key rationale:

- Considers the interests of Aboriginal communities in conserving cultural heritage and archaeological resources.
- Highest potential to support a significant Aboriginal heritage site, given that the design is the result of an interactive consultative design process with ongoing input, constructive feedback and involvement.
- Highest potential to enhance a significant archaeological resource by representing, signifying the presence of and creating awareness of the Mnijkaning Fish Weirs through enhanced design features
- Most consistent with Parks Canada’s policies and planning to:
  - Commemorate national significance of a National Historic Site;
  - Respect the irreplaceable legacy represented by a National Historic Site; and
  - Share heritage value.
- Enhanced design elements expected to attract the highest number of visitors and recreational trail users to the area.
- Provides best opportunity for visitors to understand the significance of the site.

**Project Description**

The removal of the existing swing bridge span will be required as part of this project. The existing swing bridge and superstructures will be removed down to the top of the existing concrete piers and to the existing bents. It is expected that a crane supported by a barge will be required to access and remove the bridge, given the size of the existing structure. In addition, it is anticipated that the existing swing span could be disassembled on-site, and that the existing riveted connections could be disconnected to potentially allow for the structure to be reassembled at a new site for commemorative purposes, if technically and economically feasible.

The proposed bridge will be elevated higher than the existing swing span to provide a vertical navigational clearance of 7.01 m above the Normal Water Level, which exceeds the minimum overhead fixed bridge clearance of 6.7 m required by the Trent-Severn Waterway and equivalent to the existing Highway 12 bridge, located approximately 70 m south of the study area.
The total length of the new bridge will be approximately 148.57 m. The grade along the west approach will be increased to match the bridge profile using retaining soil system (RSS) walls. The east approach will follow the existing grade.

Five (5) spans of the bridge will consist of two (2) continuous steel girders that support a series of steel "bents" oriented perpendicular to the axis of the bridge. The steel bents would be laced together with steel cables that are pre-stressed so that they contribute to the stiffness of the truss. The bents with cables, in combination with the girders, act as chords and form an inverted fink truss.

An 89 mm wood deck wearing surface is being recommended at this time, which varies from 9 m at the east and west entrances to 3 m at the midpoint of the bridge. The deck surface will be underlain by steel cross beams and steel girders. Steel guardrails will be fabricated from 12 mm steel plates, 1550 mm high and angled at 105 degrees from the horizontal deck surface to be in plane with steel cables extended from the deck to the top of the steel columns. Handrails will be provided for pedestrians at a height of 1070 mm. The bridge design will comprise a minimum width of 3 m, as required by the Ontario Guideline for the Design of Snowmobile Bridges (OGDSB), and provide two lanes (one in each direction) for snowmobiles and pedestrians. The grades for the proposed bridge will be no more than 4.9% to accommodate cyclists.

The substructure of the existing bridge will remain in place to avoid the need for in-water work. New steel columns will be placed around the perimeter and above the existing piers to support the bridge and raise the bridge deck. No new foundations are anticipated to be required to support the new bridge. The existing 10 m horizontal clearance for navigation will remain.

The existing trails to the east and west of the bridge will be resurfaced and enhanced landscaping will be provided.

It is anticipated that the design of the new structure will have a positive effect on the surrounding environment through enhanced design features. The widening and narrowing of the bridge abstractly represents the fish weirs and the design of the structure simulates the vertical repetition of the elements. These features are intended to create a landmark that should allow visitors to appreciate the Aboriginal cultural heritage of the area, the Mnjikaning Fish Weirs and the Trent-Severn Waterway. The ultimate vision for the study area includes an interpretive centre, sacred gathering space and wooden boardwalk.

Mitigation and Monitoring

Many of the environmental concerns related to this project have been mitigated through the process by which the preferred design was selected, as described in this ESR. The anticipated impacts and proposed mitigation measures are described in Section 9. A detailed list of specific commitments to be carried forward to Phase 5 of the Municipal Class EA process is provided in Section 11. Monitoring of construction activities shall ensure that all environmental standards and commitments for construction are met. The City of Orillia, in partnership with the Township of Ramara and the Chippewas of Rama First Nation, will continue to work with Parks Canada, Transport Canada and the Ministry of Natural Resources and Forestry during detail design and prior to the commencement of construction activities to ensure that the proposed works are acceptable and to obtain required permits and approvals.
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1. Introduction

1.1 Background

The City of Orillia, in partnership with the Township of Ramara and Chippewas of Rama First Nation, initiated a Schedule ‘C’ Municipal Class Environmental Assessment (EA) study to assess the opportunity to provide a recreational trail connection across the Atherley Narrows, enhance existing significant cultural heritage features and establish a place of ceremony for Aboriginal people.

The study area is located at the confluence of Lake Simcoe and Lake Couchiching (Atherley Narrows), at the site of the historic CN rail bridge and north of the existing Highway 12 (Atherley Road) vehicular bridge. The study area is bounded on the east by the Township of Ramara and on the west by the City of Orillia. In addition, the Chippewas of Rama First Nation reserve is located to the northeast of the study area. Most notably, the study area is situated at the Mnjikaning Fish Weirs National Historic Site (designated in 1982) and along the Trent-Severn Waterway National Historic Site (designated in 1929).

A great deal of preparation and collaboration has brought this project to the planning level. The Mnjikaning Fish Fence Circle was formed approximately 20 years ago and is comprised of Chippewas of Rama First Nation community members and area residents for the purpose of protecting and promoting the Mnjikaning Fish Weirs. Historically, Parks Canada was working with the Mnjikaning Fish Fence Circle to develop strategic plans to protect and promote the weirs. In addition, the Atherley Narrows Bridge Committee was formed to advance/support this project and includes representatives from the Mnjikaning Fish Fence Circle, the Chippewas of Rama First Nation, the Ontario Federation of Snowmobile Club, City of Orillia Active Transportation and Trails Advisory Committee and the local municipalities.

1.2 Study Team

The City of Orillia retained AECOM as project consultants to carry out this Municipal Class EA study. The core study team included representatives from the City of Orillia, AECOM and Shim-Sutcliffe Architects. General direction was provided by City of Orillia staff and study team meetings were held at key points in the process and prior to presenting study findings to the public and other stakeholders.

The broader study team was comprised of representatives from the following organizations:
2. Planning Process

2.1 The Municipal Class EA Process and the Selection of Schedule

The Municipal Class EA process ensures that all projects are carried out with consistency, effectiveness, efficiency and fairness. This planning process provides a consistent method of identifying and assessing economic, social and environmental impacts and concerns before improvements or additions to municipal infrastructure are undertaken and ensure that potential impacts from all municipal projects are addressed and mitigated.

The Municipal Class EA document defines four schedules under which projects may be planned and the associated processes required for each. The four types of projects are referred to as schedules and projects can be classed as either Schedule A, A+, B or C, depending on the anticipated level of environmental impact, and for some projects, the anticipated construction costs. The schedule in which a project applies determines the planning and design phases that must be followed.

**Schedule A** projects are minor operational and upgrade activities and may go ahead without further assessment once Phase 1 of the Class EA process is complete (i.e., the problem is reviewed and a solution is confirmed).

**Schedule A+** projects are limited in scale, have minimal adverse environmental impacts, and require no documentation. However, the public is to be advised of the project prior to implementation.

**Schedule B** projects must proceed through the first two phases of the process. Proponents must identify and assess alternative solutions to the problem, inventory impacts, and select a preferred solution. They must also contact relevant agencies and affected members of the public. Provided that no significant impacts are found and no requests are received to elevate the project to Schedule C or undertake the project as an Individual EA (Part II Order), the project may proceed to detailed design (Phase 5).

**Schedule C** projects require more detailed study, public consultation and documentation, as they may have more significant impacts. Projects categorized as Schedule C must proceed through the first four phases of assessment. Schedule C projects may potentially result in adverse impact(s), and as such, a public consultation program is needed to ensure that stakeholders and local residents within the study area are provided with the opportunity to provide meaningful input.

This study was conducted in accordance with Schedule C of the Municipal Class EA document. As a Schedule C project, the study proceeded under the full planning and documentation process. This Environmental Study Report (ESR) is prepared and submitted for review by the public and agencies. Exhibit 2-1 illustrates the Class EA process.

The Schedule C process includes the following five phases:
- Phase 1 - Identification of the problem or opportunity
- Phase 2 - Assessment and evaluation of alternative solutions
- Phase 3 - Assessment and evaluation of the alternative design concepts for the preferred solution
- Phase 4 - Documentation in an Environmental Study Report
- Phase 5 - Project Implementation

Consultation is a key component of the Municipal Class EA process. As such, consultation with stakeholders is mandatory.
The selection of the appropriate project Schedule is dependent on the anticipated level of environmental impact, and for some projects, the anticipated construction costs. The selection of Schedule C is recommended when the costs associated with the construction of a new water crossing are expected to exceed $2.4 million. This project falls into this category.

The filing of the ESR for public, agency and other stakeholder review completes the planning and preliminary design stage for Schedule C projects. The ESR is available for public review for a thirty (30) calendar day period commencing November 13, 2015. A Notice of Completion is published to announce the commencement and duration of the review period. Copies of the ESR are available for review and comment until December 14, 2015, at the following locations during normal business hours, and online at the City of Orillia’s project website (orillia.ca/atherleybridge):

**City of Orillia**
CAO/Clerk’s Office
50 Andrew Street South
Suite 300
Orillia, ON L3V 7T5
Phone: 705-325-1311
Mon to Fri: 8:30 am to 4:30 pm

**Orillia Public Library**
36 Mississaga Street West
Orillia, ON L3V 3A6
Phone: (705) 325-2338
Mon – Thurs: 10 am to 8 pm
Fri: 10:00 am to 6:00 pm
Sat: 9:00 am to 5:00 pm
Sun: 1:00 pm to 4:00 pm

**Chippewas of Rama First Nation**
Government Office
5884 Rama Road
Suite 200
Rama, ON L3V 6H6
Phone: (705) 325-3611
Mon to Fri: 8:30 am to 5:00 pm

**Township of Ramara**
Clerk’s Office
2297 Highway 12
Brechin, ON L0K 1B0
Mon to Fri: 9:00 am to 4:30 pm

**Ramara Public Library**
Ramara Centre Branch
5482 Highway 12 South
Atherley, ON L3V 6H7
Phone: (705) 325-5776
Tues to Thurs: 10:00 am – 8:00 pm
Fri: 10:00 am – 6:00 pm
Sat: 9:00 am – 3:00 pm

**Ramara Public Library**
Brechin Branch
3242 Ramara Road 47
Brechin, ON L0K 1B0
Phone: (705) 484-0476
Tues to Thurs: 10:00 am – 8:00 pm
Fri: 10:00 am – 6:00 pm
Sat: 9:00 am – 3:00 pm
Exhibit 2-1: Municipal Class Environmental Assessment Process

If no outstanding concerns are brought forward during the review period, the City of Orillia may proceed to the detailed design and construction stage, Phase 5 of the Class EA process, when considered appropriate.

If members of the public, interest groups and/or government agencies feel that their concerns have not been addressed through the Municipal Class EA study process, there is a provision that allows for changing the status of a project from a Schedule C Class EA to an Individual Environmental Assessment. During the 30 day review period, the affected party(ies) may request the Minister of the Environment and Climate Change to make an order for the project to comply with Part II of the EA Act (referred to as a Part II Order), which addresses Individual EAs. The Minister of the Environment and Climate Change determines whether or not this is necessary, and the decision in this regard is final. If the Part II Order is granted, the project cannot proceed unless an Individual EA is prepared. The Individual EA is subject to a formal government review and approval, and may result in a formal public hearing. If the Part II Order is denied, the project may proceed, with or without further conditions.

Anyone wishing to request a Part II Order must submit a written request within the thirty (30) calendar day review period, to the Minister of the Environment and Climate Change at the following address, with a copy to the proponent of the project, the City of Orillia:

NOTE: This flow chart is to be read in conjunction with the MEA October 2000, as amended in 2007 Municipal Class Environmental Assessment document.
2.2 Canadian Environmental Assessment Act

2.2.1 Section 67 of the Canadian Environmental Assessment Act

The Canadian Environmental Assessment Act came into force on July 12, 2012 (CEAA 2012). Section 67 of CEAA 2012 sets forth the responsibilities for the assessment of environmental impacts on federal lands. As per Section 67, federal departments are required to ensure that projects on federal lands are not likely to cause significant adverse environmental effects.

The Mnjikaning Fish Weirs National Historic Site is jointly managed by the Chippewas of Rama First Nation and Parks Canada. The site was designated a National Historical Site in 1982. In addition, Atherley Narrows is regulated by the Trent-Severn Waterway and is administered by Parks Canada. In July 2012, Parks Canada initiated the Environmental Impact Analysis (EIA) process to evaluate potential adverse environmental effects on lands and waters of proposed projects on federal lands administered by Parks Canada. Those proposing work within a Parks Canada protected heritage place must follow the framework outlined in the EIA in order to conform to CEAA 2012 requirements.

This Environmental Study Report has been documented in accordance with the EIA guide. A Project Description was submitted to Parks Canada in April 2015. A Basic Impact Analysis will be submitted to Parks Canada to complete the federal requirements.

2.2.2 Navigation Protection Program

The Navigation Protection Program (NPP) is administered by Transport Canada and ensures that the requirements of the Navigation Protection Act (NPA) are met. As such, review and authorization of works in navigable waters is required from Transport Canada, prior to any works taking place. The primary purpose of the NPA is to regulate works and obstructions that risk interfering with navigation in the navigable waters listed on the schedule to the NPA. Lake Simcoe and Lake Couchiching are both listed on Part 1 of the schedule to the NPA.

The NPA requires owners to provide a Notice to the Minister of Transport prior to works on navigable waters listed on the schedule to the NPA. The detailed information submitted in a Notice to the Minister is required for the NPP to identify likely interferences with shipping and boating activities. A Notice to the Minister of Transport in relation to this project was submitted to the NPP in April 2015.

2.3 Provincial Policy Framework

2.3.1 Provincial Policy Statement, 2014

The Provincial Policy Statement (PPS), issued under Section 3 of the Planning Act provides policy direction on matters of provincial interest related to land use planning and development, and promotes the provincial ‘policy-led’ planning system that recognizes and addresses the complex inter-relationship
among environmental, economic and social factors in land use planning. PPS policies of relevance to this Municipal Class EA are summarized herein.

Section 1.5.1 of the PPS provides the following policies regarding the provision of infrastructure to support healthy, active communities:

- **Planning public streets, spaces and facilities to be safe, meet the needs of pedestrians, foster social interaction and facilitate active transportation and community connectivity;**
- **Planning and providing for a full range and equitable distribution of publicly-accessible built and natural settings for recreation, including facilities, parklands, public spaces, open space areas, trails and linkages, and, where practical, water-based resources;**
- **Providing opportunities for public access to shorelines; and**
- **Recognizing provincial parks, conservation reserves, and other protected areas, and minimizing negative impacts on these areas.**

Section 2.6 of the PPS outlines a number of policies related to conservation of cultural heritage and archaeology:

- Planning authorities shall consider the interests of Aboriginal communities in conserving cultural heritage and archaeological resources.
- Significant built heritage resources and significant cultural heritage landscapes shall be conserved.
- Development and site alteration shall not be permitted on lands containing archaeological resources or areas of archaeological potential unless significant archaeological resources have been conserved.
- Planning authorities shall not permit development and site alteration on adjacent lands to protected heritage property except where the proposed development and site alteration has been evaluated and it has been demonstrated that the heritage attributes of the protected heritage property will be conserved.
- Planning authorities should consider and promote archaeological management plans and cultural plans in conserving cultural heritage and archaeological resources.

The PPS policies related to natural heritage (s. 2.1), water (s. 2.2) and natural hazards (s. 3.1) are also of importance to this EA study. Specific to natural heritage considerations, the following policies apply to this project:

- Development and site alteration shall not be permitted in significant wetlands…. unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.
- Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.
- Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

### 2.3.2 Growth Plan for the Greater Golden Horseshoe

The Province of Ontario initially released the Growth Plan for the Greater Golden Horseshoe (Growth Plan) in June 2006. The Growth Plan was prepared under the *Places to Grow Act, 2005* which provides a legal framework for growth planning in Ontario. The Growth Plan guides decisions on a wide range of issues including transportation, infrastructure, land use planning, housing, natural heritage and resource protection. Planning and strategic investment for transportation, water and wastewater systems and community infrastructure to support efficient growth is outlined in the Growth Plan. Policies related to transportation are intended to guide development of a system that supports a vibrant economy and quality of life and offers a balance of transportation choices to reduce reliance upon a single mode.
The Growth Plan was amended in January 2012 to consider the Simcoe Sub-area (i.e., Amendment 1), as part of the Ontario government’s plan to protect the environment while creating jobs, attracting new investment and strengthening the economy in the Simcoe region. The Simcoe Sub-area includes the City of Orillia and Township of Rama.

3. Consultation

One of the objectives of the Municipal Class EA study process is to ensure that, from the earliest stages of planning, consideration is given to the environment that might reasonably be expected to be affected by a project. Communication with affected parties is an essential part of the planning process and provides a mechanism for the proponent to define and respond to issues before key decisions are made and EA documents are submitted for formal review and approval. Recognizing that public and regulatory agency consultation is a significant and integral part of the Municipal Class EA process, a consultation program was initiated from the onset of the study and continued throughout. Comments from the public and associated responses issued by the City of Orillia (where requested) are included in Appendix A-2.

3.1 Public Participation

3.1.1 Study Website

A dedicated study website was established through the City of Orillia’s website at the initiation of the study. Relevant information was posted on the study website throughout the course of the study. This information included notices of Public Information Centres (PIC), copies of PIC presentation material and digital comment sheets that could be populated online and submitted to the study email address. The study website address is: orillia.ca/atherleybridge. It should be noted that an online news release related to the notification of PICs was also issued on the City of Orillia website approximately two weeks in advance of the PIC. A copy of the news release is included in Appendix A.

3.1.2 Study Email Address

An opportunity for users to become part of the study mailing list and/or submit their comments and/or questions was available through a study email address (anb@orillia.ca). The study email address was provided on the study website, all study notices and at each PIC event.

3.1.3 Public Notices

Public notices were published in the Orillia Packet and Times newspaper to notify readers of the study, invite readers to comment and provide notification of PICs. Readers were also directed to the City of Orillia’s website for additional information. The public notices that were issued as part of this study are listed below. A copy of the notices is provided in Appendix A-1.

- Notice of Study Commencement and Public Information Centre #1 (combined)
- Notice of Public Information Centre #2
- Notice of Completion

In addition to being published in the local newspapers, notices were also distributed to relevant agencies, Aboriginal communities and/or organizations, residents and property owners located within an approximately 500 m radius of the study area, and individuals who expressed an interest throughout the course of the study.
3.1.4 Public Information Centres

Public Information Centres (PICs) provide an opportunity to explain project details to attendees and address questions and comments using a one-on-one approach. Two PICs were held as part of this EA study, as described below.

3.1.4.1 Notice of Study Commencement and Public Information Centre #1

The combined Notice of Study Commencement and PIC #1 was posted in the Orillia Packet and Times on Thursday, March 14 and Thursday, March 21, 2013, and mailed and/or emailed to agencies and other interest groups, as well as property owners situated within a 500 m radius of the study area, on March 20, 2013.

The PIC was held from 7:00 p.m. to 9:00 p.m. on March 27, 2013 at the Orillia City Centre, 50 City Centre Drive, Orillia. The PIC was presented as a public drop-in and informal discussion format and provided a review of the Class EA process, the Problem and Opportunity Statement, as well as the identification and evaluation of Alternative Solutions being considered as part of the study. PIC #1 provided an opportunity for members of the public to view the display material and to ask members of the study team questions. Attendees were encouraged to provide written comments. Seventeen (17) attendees signed in and four (4) comment forms were received at the PIC. Each comment was reviewed and considered by the study team.

In general, attendees were very supportive of the project and recognized the need to appropriately commemorate the Mnjikaning Fish Weirs site and provide a multi-use connection between the surrounding communities. However, some concerns were noted in association with accommodation of both pedestrians and snowmobiles, vertical allowance for boats beneath the new bridge, and the potential costs associated with building a new structure. Subsequent to PIC #1, a suggestion was also received from the public to consider bat housing opportunities as part of the bridge design.

A copy of all public correspondence is included in Appendix A of this ESR. In addition, a copy of the PIC presentation material and a summary of comments received are included within the PIC #1 Summary Report, provided in Appendix A-2 of this ESR.

3.1.4.2 Public Information Centre #2

The Notice of PIC #2 was posted in the Orillia Packet and Times on Thursday, February 5 and Thursday, February 12, 2015, and mailed and/or emailed to agencies and other interest groups, as well as property owners situated within a 500 m radius of the study area, on February 2, 2015.

The PIC was held from 6:30 p.m. to 8:30 p.m. on February 18, 2015, at the Orillia City Centre, 50 City Centre Drive, Orillia. The PIC was presented as a public drop-in and informal discussion and provided a review of the information presented at PIC #1, the feedback received at/following PIC #1, an overview of the studies completed as part of this study, the re-evaluation of Alternative Solutions and the recommended Solution, the evaluation of Alternative Designs, the recommended design and the potential impacts and proposed mitigation measures of the project. PIC #2 provided an opportunity for members of the public to view the display material and to ask members of the study team questions. Attendees were encouraged to provide written comments. A summary of the PIC and associated feedback received at/following the PIC is provided in Section 7.4 of this ESR. Information presented at the PIC event is provided in Appendix A-2.
3.2 Atherley Narrows Bridge Committee Meetings

As noted in Section 1.1, the Atherley Narrows Bridge Committee was formed to support this project and includes representatives from the Mnjikaning Fish Fence Circle, the Chippewas of Rama First Nation, the Ontario Federation of Snowmobile Club, City of Orillia Active Transportation and Trails Advisory Committee and the local municipalities. Meetings with the Atherley Narrows Bridge Committee were held at key stages of the study process, as summarized in Exhibit 3-2.

3.3 Agency Involvement

The following ministries, municipalities, agencies and authorities were contacted at the project initiation stage through correspondence notifying them of the study commencement and requesting their comments. All of these agencies were included in the study mailing list and updated regularly to ensure accuracy. Relevant agency correspondence is included in Appendix A-3.

Exhibit 3-1: Agency Contact List

<table>
<thead>
<tr>
<th>Category</th>
<th>Agencies/Authorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>Parks Canada, Trent-Severn Waterway</td>
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<tr>
<td></td>
<td>Canadian Environmental Assessment Agency</td>
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<td></td>
<td>Aboriginal Affairs and Northern Development Canada</td>
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<td></td>
<td>Environment Canada</td>
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<td></td>
<td>Department of Fisheries and Oceans</td>
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<td>Transport Canada - Ontario Region</td>
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<td>CN Rail</td>
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<td></td>
<td>Aboriginal Affairs and Northern Development Canada</td>
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<td></td>
<td>Specific Claims Tribunal</td>
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<tr>
<td>Provincial</td>
<td>Ministry of Tourism, Culture and Sport</td>
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<tr>
<td></td>
<td>Ministry of Tourism, Culture and Sport - Sport, Recreation and Community Programs</td>
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<tr>
<td></td>
<td>Ministry of Environment, Barrie District Office</td>
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<td></td>
<td>Ministry of Infrastructure</td>
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<td></td>
<td>Ministry of Natural Resources, Southern Regional Office</td>
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<td></td>
<td>Ministry of Natural Resources, Midhurst (Huronia) District Office</td>
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<td></td>
<td>Ministry of Transportation</td>
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<td></td>
<td>Ministry of Energy</td>
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<tr>
<td></td>
<td>Ministry of Aboriginal Affairs</td>
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<tr>
<td></td>
<td>Ministry of Aboriginal Affairs Aboriginal and Ministry Relationships</td>
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<tr>
<td>Municipal</td>
<td>City of Orillia</td>
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<td></td>
<td>Township of Ramara</td>
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<td></td>
<td>County of Simcoe</td>
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<tr>
<td>Utilities/Other</td>
<td>Union Gas</td>
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<td></td>
<td>Orillia Power Corporation</td>
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<td></td>
<td>Hydro One</td>
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<td></td>
<td>Bell Canada</td>
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<td></td>
<td>Rogers Communications</td>
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<td></td>
<td>Township of Severn.</td>
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<td>Township of Oro-Medonte</td>
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<td></td>
<td>TransCanada Pipelines c/o Lehman &amp; Associates</td>
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<tr>
<td></td>
<td>Trans-Northern Pipelines Inc.</td>
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<tr>
<td></td>
<td>Enbridge Pipelines Inc.</td>
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<tr>
<td></td>
<td>Orillia District Snowmobile Club</td>
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<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>
3.3.1.1 Response from Ministry of Tourism, Culture and Sport

Following receipt of the Notice of Study Commencement and Public Information Centre #1, the Ministry of Tourism, Culture and Sport (MTCS) issued a response to the City and AECOM identifying the need to recognize the potential cultural heritage value of the existing bridge structure as part of this EA study. In addition, the MTCS indicated that a project-specific Marine Archaeological Assessment was required for this study, prior to evaluating Alternative Designs.

A Cultural Heritage Evaluation Report (CHER) and Marine Archaeological Assessment (MAA) were subsequently carried out in 2014, the findings of which are summarized in Sections 4.2.3 and 4.2.4, respectively. A copy of the response is included in Appendix A-3 of this ESR. In addition, copies of the CHER and MAA are provided in Appendices D and C, respectively.

3.4 Aboriginal Peoples

Ancestors of the Chippewas of Rama First Nation moved through the area in the late 1600s and stayed with and learned how to harvest the fish at Mnjikaning from the Huron-Wendat (Hurons), the first recorded inhabitants of the area. Oral history confirms that the ancestors of the Chippewas of Rama First Nation chose to resettle at Rama following their dispersal from the Coldwater-Narrows Reserve in the 1830s, in order to be stewards of the Mnjikaning Fish Fence (MFF). The Chippewas of Rama First Nation reserve is situated approximately 4 km north/northeast of the MFF site and today, the Chippewas of Rama First Nation maintain their traditional stewardship role of the fish fence, in honour of their ancient promise to their friends, the Hurons. The Chippewas of Rama are recognized by other Aboriginal people for this important role and continue to value the site as a sacred ceremonial space.

AECOM established a list of Aboriginal contacts at the initiation of this EA study, based on information provided by Aboriginal Affairs and Northern Development Canada (AANDC) in response for a request for consultation information on January 31, 2013. The AANDC maintains an up-to-date record of information related to Aboriginal treaty information, claims and litigation data. A response was received from the AANDC on February 26, 2013, which provided information related to all of the First Nation communities located within a 100 km radius of the study area, as well as other Aboriginal groups/organizations that may have an interest in the study. These communities and/or groups were subsequently added to the study mailing list. The Aboriginal contact list was also sent to the Chippewas of Rama First Nation for their review and approval.

The study area is situated within the Williams Treaty Territory, a large area of land which occupies a portion of southern Ontario and was surrendered by the Chippewas of Rama, Beausoleil, Christian Island and Georgina Island First Nations, as well as the Mississauga Ojibway of Curve Lake, Hiawatha, Scugog Island and Alderville First Nations, to the government of Canada and the province of Ontario in 1923. The study area is also noted to be situated within the Traditional Territory of the Georgian Bay Métis Nation of Ontario.
Based on the above information, the following Aboriginal communities, groups and/or organizations were contacted throughout the course of the study through letter correspondence notifying them of the study and related events, and inviting them to provide input. Each of these communities was included in the study mailing list.

- Chippewas of Rama First Nation
- Chippewas of Georgina Island First Nation
- Beausoleil First Nation
- Curve Lake First Nation
- Hiawatha First Nation
- Alderville First Nation
- Mississaugas of Scugog Island First Nation
- Moose Deer Point First Nation
- Barrister & Solicitor, Williams Treaty First Nations
- Huron Nation-Wendat Council
- Wahta Mohawks
- Georgian Bay Métis Council
- Moon River Métis Council

Representatives of the Chippewas of Rama First Nation have been present at each of the consultation events held as part of this study, and, as noted in Section 1.1, are members of the Atherley Narrows Bridge Committee and the Mnijkaning Fish Fence Circle.

Copies of all Aboriginal correspondence are provided in Appendices A-3 and A-4.

3.5 Notice of Study Completion/Filing of the ESR

This ESR will be filed in the public record for 30 calendar days (i.e., November 13 to December 14, 2015) and the public, agencies and other stakeholders will be notified by means of newspaper advertisements, posting on the City of Orillia website, and mailing and/or emailing to agencies, interested individuals and property owners situated within a 500 m radius of the site.

3.6 Summary of Key Consultation Events

Exhibit 3-2 provides a chronological summary of the key points of contact with the public and other stakeholders throughout this study.

Exhibit 3-2: Summary of Key Consultation Events

<table>
<thead>
<tr>
<th>Consultation Event</th>
<th>Date</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atherley Narrows Bridge Committee Meeting</td>
<td>February 27, 2013</td>
<td>- To present an overview of the study process, develop the Problem and Opportunity Statement, possible Alternative Solutions and next steps in the EA process.</td>
</tr>
</tbody>
</table>
| Notice of Study Commencement and Public Information Centre #1 | March 14 and March 21, 2013 | - To introduce the study and associated purpose. 
- To invite the public to attend the first public information centre. |
<p>| Public Information Centre #1               | March 27, 2013             | - To provide an overview of the Municipal Class EA process, the study background, the study need and justification, the findings of the existing bridge condition, the Problem and Opportunity Statement, the Alternative Solutions, the recommended solution and the next steps in the EA process. |</p>
<table>
<thead>
<tr>
<th>Consultation Event</th>
<th>Date</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atherley Narrows Bridge Committee Meeting</td>
<td>May 29, 2013</td>
<td>To discuss responses received since PIC #1, including the MTCS requirement for additional cultural heritage and archaeological assessment studies.</td>
</tr>
<tr>
<td>Atherley Narrows Bridge Committee Meeting</td>
<td>July 12, 2013</td>
<td>To meet with local MP and MPP to request funding required to complete additional studies (Cultural Heritage Evaluation Report, Heritage Impact Assessment and Marine Archaeological Assessment).</td>
</tr>
<tr>
<td>Atherley Narrows Bridge Committee Meeting</td>
<td>October 29, 2014</td>
<td>To present the preliminary findings of the cultural heritage, marine archaeological and natural environment studies, the preliminary alternative designs to be evaluated.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- To provide the evaluation criteria to be used to assess the alternative design and invite suggestions.</td>
</tr>
<tr>
<td>Notice of Public Information Centre #2</td>
<td>February 5 and</td>
<td>To invite members of the public to attend the second and final PIC.</td>
</tr>
<tr>
<td></td>
<td>February 12, 2015</td>
<td></td>
</tr>
<tr>
<td>Public Information Centre #2</td>
<td>February 18, 2015</td>
<td>To provide an overview of the information presented at PIC #1, the findings of the cultural, archaeological and natural environment studies, the revised Evaluation of Alternative Solutions, the evaluation of the Alternative Designs, the recommended design, potential impacts and mitigation measures and the next steps in the EA process.</td>
</tr>
</tbody>
</table>
4. Existing Conditions

4.1 National Historic Sites

4.1.1 Mnjikaning Fish Weirs

In Ojibway, Mnjikaning means "the place of the fish fence". At least as early as 5,000 years ago, Aboriginal people placed wooden stakes (weirs) into the bottom of the Atherley Narrows, and wove brush or other vegetation among the stakes to form a complex of fences. This network of weirs guided fish into accessible areas where they could be easily speared or netted during seasonal migrations. The Mnjikaning Fish Weirs were also a traditional meeting place for Aboriginal people, agreements, treaties, exchanging goods and spiritual ceremonies, and is currently recognized as a sacred place.

The site currently contains the largest and best preserved wooden fish weirs in North America and was designated a National Historical Site in 1982. It is recognized as one of the attractions along the Trent-Severn Waterway National Historic Site of Canada. As per the Trent-Severn Waterway National Historic Site website providing information related to the site, “Visitors can enjoy a self-guided walk and learn the fascinating history of the Mnjikaning Fish Weirs”. At present, an interpretative plaque related to the Mnjikaning Fish Weirs is located on the trail, to the west of the existing Atherley Narrows swing bridge.

Historic dredging and present-day activities in the Atherley Narrows has removed and/or damaged many of the weirs. There are currently numerous marinas in proximity to the site, including a number of docks. In addition, a high level of recreational activity (i.e., boating, fishing) throughout the study area has further impacted the weirs.

Today, the Chippewas of Rama First Nation are the stewards of this sacred site.

4.1.2 Trent-Severn Waterway

Atherley Narrows is regulated by the Trent-Severn Waterway. This system consists of a 385 km recreational waterway that links Lake Ontario to the south and Georgian Bay and is used primarily by seasonal recreational watercraft. The Trent-Severn Waterway was designated a National Historic Site in 1929. The City of Orillia is identified as a leading port of call on the Trent-Severn Waterway System.

The historic swing span of the CN Rail bridge structure is situated on the east side of the main channel and is supported by a pivoting pier. The CN Rail line ceased operations through the study area in the 1990s, at which time the swing span was welded in an open position to permit the passage of boats through the Trent-Severn Waterway. The narrow channel has a posted speed limit of 10 km/h and is marked with navigational buoys. The channel through the narrows varies in depth, but generally ranges from 0.3 m to 5 m (please refer to Exhibit 4-1).
4.1.3 Cultural Resource Management Policy, 2013

The Cultural Resource Management Policy (CRMP) document was issued by Parks Canada on January 1, 2013, to outline the requirements for managing the cultural resources it administers. The objective of the CRMP is, “to ensure that cultural resources administered by Parks Canada are conserved and their heritage value is shared for the understanding, appreciation and enjoyment of present and future generations”.

Appendix 2 of the CRMP focuses on the commemorative integrity objectives for National Historic Sites, “to ensure that cultural resources that convey the heritage value of Parks Canada’s protected heritage places will be conserved and passed on to future generations and that Canadians will know why the site and its resources are important”. According to the CRMP, the following elements are required when applying commemorative integrity to the management of a National Historic Site:

1) The resources directly related to the reasons for designation as a national historic site are not impaired or under threat.
2) The reasons for designation as a national historic site are effectively communicated to the public.
3) The site’s heritage values (including those not related to the reasons for designation as a national historic site) are respected in all decisions and actions affecting the site.

4.2 Cultural Environment

4.2.1 Aboriginal Peoples

The Mnjikaning Fish Weir site has a deep cultural and spiritual meaning for Aboriginal people and is a critical component of the Aboriginal cultural heritage landscape. Atherley Narrows became a significant crossing between Lakes Simcoe and Couchiching for both Aboriginal peoples and European settlers. The way of life and culture of area First Nations has been greatly influenced by historical events at and/or in the vicinity of Atherley Narrows. It is understood that some of the fish weirs were in use at the Narrows since at least 5,000 years ago up until the establishment of reserves in Simcoe Region in the mid-1800s, as briefly summarized below. It should be noted that a detailed history is provided in the Stage 1 Archaeological Assessment and Marine Archaeological Assessment completed as part of this study, a
copy of which are provided in Appendices B and C, respectively. In addition, a complete historical timeline prepared by the Mnjikaning Fish Fence Circle is provided in Appendix A-3 of this ESR.

Many Aboriginal groups historically made use of the weirs over thousands of years. The first Aboriginal settlers are understood to have arrived in small groups in the region after 9000 B.C. The lands surrounding Atherley Narrows were occupied from the Middle Archaic period, circa 6000 B.C., and Atherley Narrows became an important component of Aboriginal travel and communication routes. In addition, the abundance of fish at Atherley Narrows made the area an ideal source of subsistence.

The Huron-Wendat are the best known/documented Aboriginal people of the early contact period (i.e., approximately 1400-1649 A.D.). Following the dispersal of the Huron in approximately 1650, the Iroquois moved through the region and briefly settled in the area, however were defeated in war and forced out by the Ojibway in approximately 1660-1700 AD. Between 1701 and 1800, Anishinaabe groups returned to the region.

From approximately 1830 to 1836, the British Government relocated the Chippewas to the Colderwater-Narrows Reserve, an approximately 4,047 hectare (10,000 acre) strip of land situated between Orillia and Matchedash Bay on Lake Huron. The Chippewas were subsequently dispersed to reserve lands, including the Chippewas of Rama First Nation, who chose to resettle at Rama in order to be the stewards of the fish weirs.

The Fisheries Act was passed in 1868, and made fishing at a weir in fresh water streams, as well as traditional methods of spearing and netting, illegal, with the exception of circumstances and under licence by the Minister. In addition, the Indian Act was passed in 1867 for the purpose of assimilating and colonizing First Nations peoples. The Williams Treaties, signed in 1923, also removed the Aboriginal people from the land and outlawed hunting and gathering.

Following the defeat of the Hurons, the Narrows continued to be a traditional meeting place for many First Nations. Historically, the fish weirs were a gathering place for the exchange of goods and stories, make agreements and/or resolve differences, festivities and spiritual ceremonies. It is well known that Samuel de Champlain visited the area in 1615 and documented the use of the fish weirs at Atherley Narrows, at which time he had allied with the Hurons.

The Chippewas of Rama First Nation reserve is situated approximately 4 km north/northeast of the site. Today, the Chippewas of Rama maintain a stewardship role of the fish fence, in honour of their ancient promise to their friends, the Hurons, and are recognized by other Aboriginal people for this important role. The Chippewas of Rama continue to value the Mnjikaning Fish Weir site as a sacred ceremonial space. A temporary site is situated beneath the Highway 12 bridge (south of the study area).

4.2.2 Stage 1 Archaeological Assessment

A Stage 1 Archaeological Assessment (AA) was carried out in 2013 to identify areas of land with archaeological potential that may be impacted by the project. The Stage 1 AA included a review of historical information for the area, including previous archaeological assessments completed within the surrounding area, as well as a site visit to confirm existing conditions.

Based on the findings of the Stage 1 AA, the former rail line embankment, corridor bed, permanently low-lying and wet areas were identified as not requiring further assessment via land-based archaeology (i.e., Stage 2 AA). However, a marine archaeological assessment (MAA) was recommended along the east
bank of the study area, given the area’s potential for containing remnant fish weirs (please refer to **Exhibit 4-2**).

**Exhibit 4-2: Areas of Archaeological Potential**

A copy of the Stage 1 AA is provided in **Appendix B** of this ESR.

### 4.2.3 Marine Archaeological Assessment

A Marine Archaeological Assessment (MAA) was carried out in May 2014. The MAA included a review of all available MAA reports previously completed within Atherley Narrows, including MAAs previously completed by others within and/or in close proximity to the study area. For the purposes of this study, the MAA was completed within approximately 30 m north and 30 m south of the study area to identify fish weir stakes that could potentially be impacted by the use of a barge as part of construction activities. The field survey for the MAA was completed on May 27, 2014 and included the following activities:

- Side Scan Sonar
- Multi beam sonar survey
- Video survey
- Sub bottom survey

The findings of the MAA indicated that areas of possible fish weir stakes were identified within the study area, including northeast of the existing swing span, to the southwest of the swing span of the CN bridge (in its open position) and immediately north of the west abutment of the existing bridge. Based on previous MAAs carried out at and/or in the vicinity of the study area, one area was identified to the southwest of the west abutment.

In addition, it was considered likely that evidence of fish weirs and other fishing practices remain buried in the sediments of the wetland located on the east side of the study area, however the presence of any remaining archaeological heritage could not be confirmed by either land or marine archaeological site survey given that the area is currently overgrown with dense water vegetation, the depth of the water in this area was less than 0.3 m and the sensitive nature of the wetland area.

It was noted that the historical dredging events would have effectively removed any previous fish weir stakes within the main channel, and that side scan sonar and sub bottom profiling did not identify any fish weir stakes in this area. In addition, the north side and centre of the inlet (i.e., northwest of the swing span), have also been subjected to dredging and no fish weirs were identified in this area. It was further noted that while fish weir stakes were identified within the east channel as part of previous studies, none were observed at the time of the MAA given that there has been appreciable sediment deposition over the east channel over the past 40 years.

Based on previous MAA research conducted within and in proximity to the site, the potential fish weir stakes remnants observed were interpreted to date either ca. 1450 to 1650 AD or potentially postdate the dredging activities for the navigation channel.

**Exhibit 4-3: Possible Fish Weir Remnants Observed May 2014**

A copy of the MAA was submitted to the MTCS for their review on November 14, 2014. A response from the MTCS was received on April 14, 2015, indicating that the MTCS is satisfied that the background research, fieldwork, and reporting for the MAA is consistent with the terms and conditions for the related marine archaeological licenses, and that the MAA report will be entered into the Ontario Public Register of Archaeological Reports. It should be further noted that a copy of the MAA was also submitted to Parks Canada in November 2014.

**4.2.4 Cultural Heritage Evaluation Report**

The existing swing span of the bridge is not municipally designated (either by the City of Orillia or the Township of Rama) under *Ontario Heritage Act*. In addition, the structure is not included on local heritage
inventories and/or municipal registers. As requested by the MTCS, a cultural heritage evaluation report (CHER) was completed by Unterman McPhail Associates in 2014 to determine the cultural heritage value of the existing bridge. As part of the CHER, a detailed review of available historical information was carried out, including detailed research on the former bridge structure and its associated construction history, the history of the rail line and area settlement. In addition, historical maps, photographs and original drawings were reviewed and an on-site survey was carried out to confirm the existing conditions of the bridge and study area.

The existing bridge consists of a multi-span structure that comprises a main swing span with fixed approach spans to the east and west. The existing movable span and west approach were developed at the site in 1920 and the east steel trestle was constructed in 1970. However, the Midland Railway of Canada constructed the first railway bridge across Atherley Narrows by 1872, following which the Grand Trunk Railway (GTR) undertook modifications to the bridge site during its ownership of the rail line from 1884 to 1920. GTR records indicate that a Howe truss swing span was constructed in 1896, following which a through iron girder structure was built in 1904 (please refer to Exhibit 4-4 and Exhibit 4-5).

Exhibit 4-4: Railway Bridge (pre-1896)

Exhibit 4-5: Steel Plate Girder Structure (Installed by GTR in 1904)

The existing bridge was in operation until the closure of the CN line between Bradford and Washago in 1996, at which time the swing span was welded in the open position to permit boat traffic through the channel. A tenders’ tower was formerly located on the south side of the west approach, however was destroyed by fire in 2010.
The findings of the CHER indicated that the existing bridge is an important component of the railway history in the area and is the last remaining railway bridge over Atherley Narrows. The existing bridge was noted to have direct associations with the development of railway networks in Ontario in the 1800s and provided a strategic link for railway companies constructing lines from southern Ontario to Georgian Bay. The number of bridges constructed at this location was noted to demonstrate the importance of the rail connection at this location. The existing bridge was further noted to be a representative example of the work of past GTR and CN engineers.

Based on the findings of the CHER, the swing bridge structure is identified as having cultural heritage value or interest based on its design/physical value, historical or associative value and contextual value and it was recommended for designation under Ontario Heritage Act Reg.09/06 by the City of Orillia. The existing structure is also a rare example of a bridge with a moveable span in Ontario. The following character defining elements of the existing swing bridge were noted as part of the CHER:

- movable structure comprising a swing span with fixed approach spans to either side;
- steel through plate girder structure on the movable span;
- two plate girders with rounded ends and knee braces;
- pivot pier;
- machinery for operating the movable span;
- rails remaining on the swing span;
- reinforced concrete west approach; and
- steel plate girder east approach.

A copy of the CHER was submitted to the MTCS for their review and consideration in February 2015. A response was received from the MTCS on March 31, 2015, a copy of which is included in Appendix A-3 of this ESR. In addition, a copy of the CHER is provided in Appendix D of this ESR.

### 4.3 Socio-Economic Environment

#### 4.3.1 Trans Canada Trail

The Trans Canada Trail project was initiated in 1992 with a goal to create one of the world’s longest networks of multi-use recreational trails. While the Trans Canada Trail system is only approximately 75% complete, this community-based project is envisaged for completion (i.e., 24,000 km from the Atlantic to Pacific Oceans) in approximately 2017. At present, the Trans Canada Trail is situated to the west of the study area, where it is generally in line with a portion of the City of Orillia’s Millenium Trail. Trail users are
currently required to use the existing Highway 12 bridge, located to the south of the study area (please refer to Exhibit 4-7), to connect with the Ramara Trail on the east side of Altherley Narrows.

**Exhibit 4-7: Trans Canada Trail**

4.3.2 Simcoe County Official Plan

The 2008 County of Simcoe Official Plan (OP) provides the overall direction on land use planning and development within the County. Both the City of Orillia and Township of Ramara are considered to be part of the Simcoe Sub-area, however planning decisions by the City of Orillia are not subject to the County of Simcoe OP.

4.3.3 The County of Simcoe Trails Strategy

The Simcoe County Trails Strategy was released in August 2014 to guide investment and development of a trail network within the County. The strategy recognizes that extensive trail networks have been established by local municipalities, however that the “current trail network could be enhanced to better serve residents and visitors to the area”.

Simcoe County is recognized as, “the gateway that brings the Trans Canada Trail from eastern Canada to western Canada”.

4.3.4 Township of Ramara Official Plan

The Township of Ramara's OP came into effect on July 31, 2003, as a consolidation and update to the Official Plans for the former Township of Rama and Mara, and provides a framework for managing the effects of development on the social, economic and natural environments within the community.

4.3.4.1 Township of Ramara Land Use Planning

The OP includes Interim Secondary Plan Areas and associated policies for future consideration as part of updates to the Township of Ramara OP. Schedules A (Land Use Plan) and I-1 (Interim Secondary Plan) of the Township of Ramara OP were issued in December 2006, the designated Atherley-Uptergrove Village area occupies the east side of the study area and consists of Village Commercial and Village Residential land uses.
Special Policy 10.3.3.6 of the Township of Ramara OP applies to the Atherley-Uptergrove Village area and gives direction to ensure that public education and awareness of the Mnjikaning Fish Weirs National Historic Site be considered as part of planning, including land use designations for appropriate interpretive facilities.

4.3.5 The Township of Ramara Active Transportation Plan

The Township of Ramara Active Transportation Plan (RATP) was issued in December 2010 and subsequently updated in June 2011. The RATP recognizes that the trail network in the area is open to all types of active transportation users, including scooters, wheelchairs and snowmobiles. As part of the policy framework recommended through the RATP, it is noted that trails should be separated from roadways, to the extent possible. A number of new trails/connections are proposed as part of the RATP, as illustrated in Exhibit 4-8.

The Ramara Trail is part of the RATP network of trails and consists of a five (5) kilometer trail that follows the abandoned CN rail line to Monck Road, where it crosses Rama Road and subsequently connects with the abandoned rail line that spans in a northeast/southeast direction. The westernmost limit of the Ramara Trail ends at the east approach of the former rail corridor, adjacent to the Mnjikaning Fish Weirs site. Vehicle parking and access to the trail is available adjacent to Crother’s Marina, immediately north of Highway 12 and adjacent to Queen Street.

Exhibit 4-8: Ramara Active Transportation Plan – Existing and Proposed Trails

The RATP notes that the only crossing connecting the City of Orillia and the Township of Ramara consists of the Highway 12 vehicular bridge. While the existing Highway 12 bridge structure provides sidewalks on both sides of the highway, this crossing is not considered an ideal setting for active transportation users, especially for snowmobiles. A pedestrian bridge to serve as a regional trail connection across Atherley Narrows is strongly endorsed by the RATP.

4.3.6 City of Orillia Official Plan

The City of Orillia Official Plan (2010) sets forth the policies and objectives to guide future growth and/or development in the city, including physical, social, economic and environmental matters.
4.3.6.1  City of Orillia Land Use Planning

Land uses located adjacent to the study area consist of designated Living Area. Intensification Areas are also present and have the potential to accommodate a mixture of residential, office, retail and service commercial uses. Land uses in the study area are generally zoned for Tourist Commercial uses, and intended for hotel, marina, recreational, tourist and other related uses.

4.3.7  City of Orillia Active Transportation Plan

The City of Orillia Active Transportation Plan (ATP) was completed in July 2012 to guide development decisions for an active transportation network throughout the city, build upon the existing active transportation initiatives, promote active transportation and recreation, and connect neighbourhoods.

The City of Orillia’s Millennium Trail is part of the ATP and consists of a 9.5 km trail which winds through the City, connecting parks and other features, as well as providing a link in the Trans Canada Trail and Uhthoff Trail/Lightfoot Trail. The easternmost limit of the Millennium Trail concludes at the west approach of the historic CN rail bridge. The ATP recognizes the study area as a gap in the trail system. In addition, the construction of the Atherley Narrows bridge is considered a priority project as part of the ATP.

Exhibit 4-9: City of Orillia Active Transportation Plan

4.3.8  City of Orillia, Parks, Recreation and Cultural Master Plan

The Parks, Recreation and Cultural Master Plan (PRCMP) was completed in July 2014 to focus on four primary elements in the City of Orillia (i.e., parks/facilities, recreation, culture and trails). Given that the development of the trail network is a critical component in the City of Orillia’s planning, the Trails Master Plan was prepared as a companion document to the PR CMP to further describe trail network improvements in the city.

The PR CMP recommends that the City of Orillia develop a recreational trail across the Atherley Narrows to accommodate both pedestrians and snowmobiles. In addition, a ‘bridge park’ is identified as part of the long-term planning initiatives set forth in the plan. The park is proposed as a small waterfront feature and is recommended at the west side of the study area; and would be developed as a Cultural Park, as described in the new park classification system, at the dead end along the Millennium Trail. It is further suggested that the park could be integrated into the development of the new pedestrian bridge. The PR CMP recommends that the park design include signage, trailheads for the Orillia and Ramara Trail systems and additional interpretive signage.

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4.3.9 City of Orillia Trails Master Plan

The City of Orillia released the Trails Master Plan (TMP) in July 2014 as part of the Parks, Recreation, Culture Master Plan (PRCMP). The purpose of the TMP is to provide the framework for future trail planning in the City and acts as the companion document to the PRCMP, as noted above. The TMP recognizes the existing use of dedicated snowmobile trails on most of its trails and that a bridge at the study area would complete an off-road trail connection of the Lightfoot Trail System with the Ramara Trail system and close the gap in the Trans Canada Trail. It is further noted that the existing Highway 12 bridge comprises a narrow sidewalk and road shoulders and that any new connection should allow for snowmobile use, incorporate park space, and interpretive information regarding the Atherley Narrows.

4.3.10 Ontario Federation of Snowmobile Clubs

The Ontario Federation of Snowmobile Clubs (OFSC) was established in 1967 and coordinates safe and organized snowmobiling in the province. The OFSC works in partnership with other organizations to deliver trail programs and other resources to snowmobilers across the province.

The OFSC requires a safe route to re-establish their B Trail, which currently traverses Lake Couchiching, and there is currently an OFSC province-wide initiative to remove all major trails from ice crossings.

Exhibit 4-10: Conclusion of Millennium Trail, East Bridge Approach

Exhibit 4-11: OFSC Trail Map
4.3.11 Economic Development Initiatives

4.3.11.1 Rama Road Economic Development District

In September 2012, Ontario released policy planning for the Rama Road Economic Employment District (please refer to Exhibit 4-12), as part of the Growth Plan. Economic Employment Districts are to be planned and protected for locally significant employment uses. Uses permitted within these designated areas are limited to tourism-related and recreational uses (i.e., hotels, resorts, entertainment). Major retail uses are not permitted within these designated areas.

The Rama Road Economic Employment District is identified in Schedule 8 of the Growth Plan and is situated along the east shore of Lake Couchiching, immediately north/northeast of the study area.

4.3.11.2 City of Orillia, Economic Development Strategy

The City of Orillia, Economic Development Strategy (EDS) was completed in December 2008 to ensure investment and growth in the City and that available economic opportunities are recognized. The EDS recognizes that, “Orillia has an opportunity to focus on developing its quality of place by ensuring that the City continues to offer and promote high quality cultural heritage, recreational and leisure facilities”. The EDS understands that the City of Orillia currently offers an excellent lifestyle to its residents given its proximity to water bodies, outdoor activities available throughout all seasons, as well as its existing cultural and heritage opportunities.

Effectively utilizing creative and cultural assets to ensure that they generate tourism in the City is identified as an economic development asset in the EDS. Working in collaboration with partners outside of the City is also noted as an opportunity to attract and grow the local economy.

4.3.12 Existing Land Use

The east and west shorelines of the study area, including the west bridge approach are situated on Crown lands. As noted previously, the study area includes the Township of Ramara to the east, the City of Orillia to the west and Lake Couchiching and Lake Simcoe to the north and south, respectively. The existing Ministry of Transportation Highway 12 bridge (Jake Gaudaur Bridge) spans Atherley Narrows and is located approximately 200 m south of the study area.

The study area comprises a former CN Rail right-of-way which spans Atherley Narrows in an east-west direction. The CN Rail line was abandoned in 1996, following which the City of Orillia converted the west side of the former rail corridor into a shared-use recreational trail (i.e., Millennium Trail). The corridor was also improved to a recreational trail on the east side of the study area by the Township of Ramara in 2005 (i.e., the Ramara Trail). The study area provides a key connection to trail systems in the region, including the Ganaraska Trail, Lightfoot Trail, Trans Canada Trail and the Uhthoff Trail in Severn Township, among others.

The east side of the main channel of Atherley Narrows is bounded by the existing pivoting pier and swing span of the historical CN Rail bridge. The swing span is currently owned by CN and was welded into the open position (i.e., spanning north-south) to allow for the continued passage of boats. The channel has a posted speed limit of 10 km/h and is marked with navigational buoys. There are numerous marinas.
surrounding the study area, including Mariposa Landing to the northwest, Crate’s Lake Country Boats to the southwest and Crothers Twin Lakes Marina to the southeast. In addition, a number of docks and storage sheds are present in the channel. The northeast portion of the study area is occupied by wetland area associated with the Atherley Sucker Creek Provincially Significant Wetland Complex.

4.4 Natural Environment

A Natural Environmental Impact Assessment (EIA) report was completed for this EA study by Azimuth Environmental Inc. As part of the EIA, a review of information available from the Ministry of Natural Resources and Forestry (MNRF), Natural Heritage Information Centre (NHIC), Ontario Breeding Bird Atlas and Department of Fisheries and Oceans (DFO) was carried out. In addition, a review of existing terrestrial and aquatic conditions was undertaken based on a site visit carried out on April 23, 2013, and breeding bird surveys carried out on June 13 and 28, 2013. The presence of non-targeted bird, mammal, amphibian, reptile and insect species was also considered at the time of the 2013 site visits. The findings of the EIA identified a number of natural heritage features within and/or adjacent to the study area, as described below. It should be noted that no provincially rare and/or Species at Risk (SAR) mammal species were observed at the time of the site visit and none are expected to be present in the study area.

4.4.1 Terrestrial

A forested area is located approximately 100 m east of the bridge site, however no Significant Woodlands are located within and/or adjacent to the study area. In addition, no Areas of Natural or Scientific Interest (ANSIs) were noted within and/or in proximity to the study area.

4.4.2 Vegetation

The Ecological Land Classification (ELC) for Southern Ontario was used to classify vegetation community types in the study area and generally indicated that riparian vegetation communities are predominantly present in the area. In addition, it was noted that the area has been heavily influenced by human activities. Based on the review of existing vegetation communities, dominant plant species in the area include the following:

- Water Lily
- Cattail
- Alder
- Green Ash
- Willow
- Roadside Vegetation

Areas of ‘roadside vegetation’ associated with the existing trail edges were also observed at the time of the 2013 site visit. The information gathered as part of the EIA indicated that there are no recent records on file (i.e., within past 20 years) of any Threatened or Endangered vegetation species within the study area.

4.4.3 Provincially Significant Wetlands

The Atherley Sucker Creek Provincially Significant Wetland (PSW) Complex generally encompasses the majority of the southeast portion of Lake Couchiching, including Bird and Nadie Islands. The wetland vegetation units and aquatic habitat located adjacent to the existing trail within the east side of the study area are considered as part of the PSW (please refer to Exhibit 4-13).
4.4.4 Species at Risk

Based on information provided by the MNRF, as well as the habitat characteristics identified, the following species have the potential to occur within the area:

- Black Tern (*Chlidonias niger*), Special Concern (SC);
- Blanding’s Turtle (*Emydoidea blandingii*), Threatened (THR);
- Butternut, (*Juglans cinerea*), Endangered (END);
- Eastern Hog-nosed Snake, (*Heterodon platirhinos*), THR;
- Eastern Musk Turtle, (*Sternotherus odoratus*), SC;
- Eastern Ribbonsnake, (*Thamnophis sauritus*), SC;
- Least Bittern, (*Ixobrychus exilis*), THR;
- Northern Map Turtle, (*Graptemys geographica*), SC;
- Snapping Turtle, (*Chelydra serpentina*), SC;
- Barn Swallow, (*Hirundo rustica*), THR;
- Little Brown Myotis (*Myotis lucifugus*), END; and
- Northern Myotis (*Myotis septentrionalis*), END.

A copy of the email correspondence with the MNRF is provided in Appendix A of the EIS.

4.4.5 Significant Habitat for Threatened or Endangered Species

Based on the information reviewed and observations made at the time of the 2013 site visits, some features within the study area provide significant habitat for Threatened or Endangered wildlife species, as described below. Exhibit 4-13 illustrates the general location of these features.

**Existing Bridge Structure**

The existing bridge provides potential nesting habitat for Barn Swallows (Threatened) and potential maternal roosting habitat for two Endangered bat species. Barn Swallows were observed in the study area during the breeding bird surveys, however no evidence of nesting was identified. In addition, no evidence of bats and/or bat nesting was observed at the time of the 2013 site visits.

**Atherley Sucker Creek PSW**

The deep organics within the wetland areas provide potential overwintering habitat for Threatened or Endangered turtle species. The large areas of cattails provide potential nesting habitat for Least Bittern. Least Bittern were observed to the northeast of the study area at the time of the 2013 breeding bird surveys.

**Existing Trail**

The former rail bed and associated slopes have the potential to be used by Threatened or Endangered turtle species for nesting.
4.4.6 Potential Significant Wildlife Habitat

Based on the information reviewed and observations made at the time of the 2013 site visits, the study area has the potential to provide habitat for significant wildlife, as described below.

**Colonial Bird Nesting**
Black Tern commonly breeds in loose colonies which build floating nests in marsh lands similar to those present in the Atherley-Sucker Creek PSW. No Black Terns were identified during the 2013 breeding bird surveys, however the wetland area provides suitable habitat for this species.

**Potential Waterfowl Stopover and Staging**
Potential Waterfowl Stopover and Staging areas associated with the Atherley-Sucker Creek PSW are used during spring and fall migration. Migrating waterfowl generally prefer larger wetlands, especially those adjacent to large bodies of water, and relatively undisturbed shorelines with vegetation.

**Habitat for Species of Special Concern**
The wetland area may provide overwintering and nesting habitat for turtle species. Overwintering sites and nesting habitat are considered to be potential Significant Wildlife Habitat. Snapping Turtle was observed to be nesting within the loose gravel of the existing trail at the east side of the bridge at the time of the site visit.

4.4.7 Fish Habitat

As noted in Section 4.4.5, the Atherley Narrows and Atherley-Sucker Creek PSW complex is situated on the east side of the study area. The aquatic environment within the shallow riparian portion is less than 2 m in depth and is predominantly occupied by a variety of wetland marsh species, including cattails, rush species, and low lying shrub species. These shallow areas can be used by many fish species for cover and/or spawning.

The deep channel occupying the middle of the narrows is greater than 4 m in depth within some locations. Man-made features also occupy the sides of the channel, including fixed and floating docks,
shore walls and foundations. The existing man-made structures associated with the rail line (i.e., the centre pier and west approach) in the study area offer limited cover for fish.

4.4.8 Fish Community and Fish Species at Risk

Fish Community
Given its connecting role between the two large water bodies (i.e., Lake Couchiching to the north and Lake Simcoe to the north), Atherley Narrows is an important migration route for fish, particularly in spring and fall when fish are moving to and from their spawning areas, or moving to a different habitat to suit their thermal preferences.

Atherley Narrows is characterized as warm water predator and baitfish habitat. The shallow vegetated areas can be used by many fish species, such as cyprinids, percids and sunfish. Northern Pike and Muskellunge could also use this area for spawning. It is understood that Atherley Narrows is an area frequented for recreational fishing purposes. Based on observations made at the time of the site visit in April 2013, Yellow Perch (*Perca flavescens*) is another key fish species sought after by anglers and is known to be present in the area. Other fish species that may be present within the study area are summarized in Exhibit 4-14 below.

Exhibit 4-14: Fish Species List

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Crappie</td>
<td><em>Pomoxis anuaris</em></td>
</tr>
<tr>
<td>Bluegill</td>
<td><em>Lepomis macrochirus</em></td>
</tr>
<tr>
<td>Bowfin</td>
<td><em>Amia calva</em></td>
</tr>
<tr>
<td>Brook Trout</td>
<td><em>Salvelinus fontinalis</em></td>
</tr>
<tr>
<td>Brown Bullhead</td>
<td><em>Amelius nebulosus</em></td>
</tr>
<tr>
<td>Brown Trout</td>
<td><em>Salmo trutta</em></td>
</tr>
<tr>
<td>Common Carp</td>
<td><em>Cyprinus carpio</em></td>
</tr>
<tr>
<td>Lake Trout</td>
<td><em>Salvelinus namaycush</em></td>
</tr>
<tr>
<td>Lake Whitefish</td>
<td><em>Coregonus clupeaformis</em></td>
</tr>
<tr>
<td>Largemouth Bass</td>
<td><em>Micropterus salmoides</em></td>
</tr>
<tr>
<td>Muskellunge</td>
<td><em>Esox masquinongy</em></td>
</tr>
<tr>
<td>Northern Pike</td>
<td><em>Esox lucius</em></td>
</tr>
<tr>
<td>Pumpkinseeds</td>
<td><em>Lepomis gibbosus</em></td>
</tr>
<tr>
<td>Rainbow Smelt</td>
<td><em>Osmerus mordax</em></td>
</tr>
<tr>
<td>Rainbow Trout</td>
<td><em>Oncorhynchus mykiss</em></td>
</tr>
<tr>
<td>Rock Bass</td>
<td><em>Amnibolites restris</em></td>
</tr>
<tr>
<td>Smallmouth Bass</td>
<td><em>Micropterus dolomieu</em></td>
</tr>
<tr>
<td>Walleye</td>
<td><em>Sander vitreus</em></td>
</tr>
<tr>
<td>White Sucker</td>
<td><em>Catostomus commersoni</em></td>
</tr>
</tbody>
</table>

Fish Species at Risk
Based on available mapping, two (2) fish species protected under the *Endangered Species Act* and the *Federal Species at Risk Act* could potentially be present within the study area (i.e., American Eel (*Anguilla anguilla*) and Lake Sturgeon (*Acipenser fulvescens*)).

4.5 Technical Environment

The Atherley Narrows swing bridge comprises a main swing span, five (5) fixed approach spans to the west and nine fixed approach spans to the east (please refer to Exhibit 4-15). Based on the findings of the Cultural Heritage Evaluation Report (CHER) completed as part of the EA study, the west concrete approach and swing span were constructed in approximately 1920, and the east steel approach spans...
were constructed in approximately 1970. It is understood that no work and/or maintenance has been undertaken at the bridge since it was abandoned in the 1990s.

**Exhibit 4-15: Existing Bridge Structure**

<table>
<thead>
<tr>
<th>West approach</th>
<th>Swing span</th>
<th>East approach</th>
</tr>
</thead>
</table>

**West Approach Span**
The west approaching spans comprise an overall width of 4.93 m and consist of a five-span cast-in-place concrete abutment, piers and deck. The fifth span of the bridge is not currently visible, however it is anticipated to be covered with fill at the west end of the bridge.

**Swing Span**
The swing span consists of steel through plate girder structure with riveted connections. The superstructure comprises two plate girders, each 14.63 m in length. Knee braces are located at the inside of the girders and provide lateral support to the through girders. Transverse floor beams extend between the girders and carry the deck. Wood planks and tracks are present on the top of the deck.

The swing span is supported on a pivot pier and is situated on the east side of the main channel. Based on historical drawings, the pivot pier consists of cast-in-place concrete and is 7.98 m by 7.98 m in size. The rest piers comprise cast-in-place concrete with rounded ends and are approximately 2.13 m wide and 9.14 m long. Metal plates associated with the locking mechanism of the swing span remain in situ.

**East Approach Spans**
The east approaching spans consist of a nine-span steel structure that is 68.56 m in length. The steel trestle is constructed with bolted connections and completed with a ballasted deck. Each bent of the trestle contains four (4) steel piles (two to the south and two to the north side of the structure). The bents were braced diagonally and transversely just above the waterline to provide rigidity to the frame. The piles are connected to steel cap beams that support the superstructure. The deck has an overall width of 3.96 m.

**4.5.1 Existing Bridge Condition**
A Bridge Condition Survey and Underwater Inspection Survey were carried out at the existing bridge structure in 2010. Given that most of the substructure is located underground, a detailed analysis is not possible. However, the estimated existing capacity was evaluated based on a review of design loads that the substructure would have been required to resist by the American Railway Engineering and Maintenance-of-Way Association (AREMA), as it understood that the structure was designed in accordance with the AREMA Coopers E70 and Diesel Impact loading requirements.
The underwater inspection was undertaken to review the condition of the bridge structure below the water surface and assess its suitability for reuse within a new recreational trail connection. The inspection included visual examination of the above and below water faces of the bridge piers, underwater video documentation of the piers and observations of scouring conditions. The results of the underwater inspection of the structural components indicated that the bridge piers appeared to be in good condition and no underwater repair work was required. It was recommended that a structural engineer review the above water deterioration and determine the necessity of repair during detailed design.

**West Approach**

As part of the Bridge Condition Survey, a geotechnical investigation was carried out along the west approach. Three (3) boreholes were advanced as part of the investigation: 1) approximately 20 m west of west abutment; 2) just west of west abutment; and 3) centre of west concrete pier. Four (4) coreholes were also advanced at the west pier to ascertain existing strength of the concrete. Trace slag was observed within the top 0.5 m – 0.6 m of fill material encountered within boreholes 1 and 2.

The water level at the time of the underwater inspection of the west pier was approximately 0.6 m below the top of the sheet piling on the west pier. In addition, the west pier was surrounded by water. The riverbed surrounding the pier consisted of soft silt and 70 mm stone. No undermining of the foundation was detected at the time of the 2010 inspection.

In general, the concrete west abutment and west approach structure were noted to be in generally fair condition with areas of poor condition requiring repair. In addition, the west pier of the west approach was considered to be in generally good condition, with some areas requiring minor concrete repair to prevent further scaling and spalling of the concrete.

**Centre Pier**

The riverbed surrounding the centre pier consisted of 150 mm soft silt over 70 mm cobble. The concrete pier appeared to be in good condition above the water level. Square timbers surrounded the sides of the concrete pier on all sides. These 300 mm timbers appeared to be in generally good condition below the water with no missing timbers identified. It was noted that the portion of the timbers above the water appeared to show signs of deterioration. However, all timbers were secure and all vertical joints between them were observed to be even and uniform.

**East Approaching Spans**

The existing substructure of the east approaching span structures consists of four (4) vertical steel H piles driven to an unconfirmed depth. The piles were noted to have light corrosion of the patina covering the surface of the piles. It was concluded that the steel components were acceptable for re-use within a new structure.

The east pier supporting one end of the last steel through plate girder section consists of poured in place concrete pier supported on wooden piles. At the time of the existing bridge condition survey, areas of scaling, spalls and delamination were observed around the top edge and over general faces of the east pier. In addition, some narrow map cracking and narrow stained cracks with efflorescence was noted.

It was noted that the east pier is in generally good condition with some areas requiring minor concrete repair and would be acceptable for reuse within a new structure.

The underwater configuration for the west, centre and east piers is presented in Exhibit 4-16 below.
It should be noted that paint remnants were also present on the underside of the east approaching span structures at the time of the Bridge Condition Survey. As such samples of the paint were collected and submitted for analysis of lead content. In total, two (2) different colours of paint were observed and collected (i.e., orange and green). The findings of the analyses indicated that both paint samples contained more than 0.5 percent weight-to-weight of lead.

A copy of the Bridge Condition Survey, Underwater Survey and Geotechnical Investigation Report are provided in Appendices F, G and H of this ESR, respectively.
5. **Problem and Opportunity Statement**

The existing structure is no longer in use and cannot be used for other purposes in its current state. A recreational trail connection between the Orillia and Ramara Trail Systems is required to provide safe and easy access for active transportation users. This connection can enhance the existing significant cultural heritage features of the area, create an attractive destination for residents and visitors along the Trent-Severn Waterway, and establish an appropriate place of ceremony for First Nations people. This study will therefore seek to achieve the following:

- To be respectful of the history, education and stewardship of the Mnjikaning Fish Weirs National Historic Site of Canada today and for the future
- To establish a safe pedestrian/snowmobile link spanning over the Narrows, bridging the gap among communities
- To establish a place of ceremony at the weirs for First Nations people
- To bring public attention to the fish weirs, its history and its relationship with first peoples
- To provide an active transportation trail around Lake Couchiching to promote tourism
- To establish a point of interest along the Trent-Severn Waterway for docking and reflection on the past
- To capitalize on the opportunity provided to us by this historic asset to enhance economic development
6. Alternative Solutions

The Problem and Opportunity Statement is an extremely important component of the Class EA process. The statement sets the context for the later stages of the Municipal Class EA by establishing the key problems that the project is trying to solve. The statement also assists in the development and evaluation of alternatives. The performance of the alternatives developed as part of this Class EA was evaluated against the Problem and Opportunity Statement, as one of a number of criteria used to develop the study recommendations.

6.1 Generation and Description of Alternative Solutions

The Municipal Class EA lists alternative solutions which may be considered by proponents. All feasible alternatives were evaluated as part of this study, as described in the subsequent sections. Three (3) Alternative Solutions were developed by the study team to address the Problem and Opportunity Statement developed for this project, as described in Section 5. These Alternative Solutions were further investigated prior to presentation to the public at the first Public Information Centre.

6.1.1 Do Nothing

The existing bridge structure would remain in its current position and no other works would take place. By definition this alternative does not fully address the Problem and Opportunity Statement; however, it is included to provide a benchmark for comparing the alternative solutions in accordance with the Municipal Class EA process.

6.1.2 Build a New Bridge

The existing bridge structure would be removed and a new structure would be constructed at the same location to provide a recreational link between communities and established trails to the east and west of the study area.

6.1.3 Utilize Highway 12

The existing bridge structure would be removed and all existing recreational trail users would continue to be routed to the Highway 12 vehicular bridge, with the exception of snowmobile users who would continue to cross Lake Couchiching during winter.

6.2 Evaluation of the Alternative Solutions

Under the Class Environmental Assessment (Class EA) process, municipalities are required to consider all aspects of the environment in their assessment and evaluation of infrastructure projects. The Environmental Assessment Act includes a broad definition of the "environment", including the technical, natural, social, cultural, built and economic environments. The EA process requires a systematic evaluation of alternatives in terms of their advantages and disadvantages; and proponents are required to consider both positive and negative effects on the environment as part of their assessment and evaluation process. The following evaluation criteria were grouped into five categories and used as part of the Evaluation of Alternative Solutions, as listed below.

Cultural
- Aboriginal Peoples
- Archaeological Resources
- Heritage Resources

**Natural**
- Fisheries
- Vegetation and Woodlots
- Wildlife
- Wetlands/Marsh Areas
- Hydrology

**Social/Land Use**
- Consistency with Federal/Provincial Policies
- Consistency with Local Official Planning or Land Use
- Connectivity
- Recreational Vehicles
- Recreational Opportunities
- Active Transportation
- Aesthetics

**Technical**
- Constructability
- Traffic Operations
- Safety
- Municipal Services/Utilities

**Economic**
- Economic Development
- Business Operations
- Construction Costs

For the purpose of evaluation, each alternative solution is subjected to a detailed comparative evaluation, using a "Reasoned Argument Process", which describes the advantages and disadvantages (or positive and negative affects) of each alternative in response to the evaluation criteria. Each alternative solution is ranked in terms of how well it responds to the criteria. Opportunities to incorporate mitigation to offset potential adverse impacts are also considered within this ranking process. This is commonly referred to as a “Net Effects” evaluation.

The Evaluation of Alternative Solutions completed for this study is provided in **Exhibit 6-1**
## Exhibit 6-1: Evaluation of Alternative Solutions

<table>
<thead>
<tr>
<th>ASSESSMENT CRITERIA AND SUBFACTOR</th>
<th>Description/Measure</th>
<th>Do Nothing</th>
<th>Build a New Bridge (Decommission existing swing bridge and build new bridge at same location)</th>
<th>Utilize Highway 12 (Decommission existing swing bridge and utilize existing Highway 12 bridge)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CULTURAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboriginal Peoples</td>
<td>Potential to affect fish species</td>
<td>No effect</td>
<td>Three (3) aquatic SAR species (may be impacted by construction activities)</td>
<td>Three (3) aquatic SAR species may be temporarily impacted by bridge decommissioning activities</td>
</tr>
<tr>
<td></td>
<td>Potential to affect aquatic Species at Risk (SAR)</td>
<td>No effect</td>
<td>All decommissioning and construction activities would be carried out in consultation with MNR and DFO to mitigate impacts</td>
<td>Decommissioning activities would be carried out in consultation with MNR and DFO to mitigate impacts</td>
</tr>
<tr>
<td>Archaeological Resources</td>
<td>Potential to affect vegetation and/or woodlot areas</td>
<td>No effect</td>
<td>No designated vegetation and/or woodlot areas identified</td>
<td>No designated vegetation and/or woodlot areas identified</td>
</tr>
<tr>
<td></td>
<td>Potential to affect vegetative SAR</td>
<td>No effect</td>
<td>No known effects to vegetative SAR</td>
<td>No known effects to vegetative SAR</td>
</tr>
<tr>
<td>Heritage Resources</td>
<td>Potential to affect natural wildlife habitat</td>
<td>No effect</td>
<td>May temporarily impact wildlife habitat</td>
<td>Bridge decommissioning activities may impact wildlife habitat</td>
</tr>
<tr>
<td></td>
<td>Potential to affect SAR</td>
<td>No effect</td>
<td>Impacts can be mitigated through consultation with the MNR</td>
<td>Two (2) SAR may be affected by improvements</td>
</tr>
<tr>
<td>Wetlands/Marsh Areas</td>
<td>Potential to affect wetland/marsh areas</td>
<td>No effect</td>
<td>Located adjacent to/within Provincially Significant Wetland (PSW) area (Atherley-Sucker Creek Wetland Complex)</td>
<td>Low-moderate potential to impact wetland area</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>In proximity to unevaluated wetland area (MNR)</td>
<td>PSW located immediately south/southwest and to north of existing Hwy 12 bridge</td>
</tr>
<tr>
<td>Hydrology</td>
<td>Potential to affect physical hydraulics/hydrology of existing lakes system</td>
<td>No effect</td>
<td>Potential for bridge deterioration to deposit debris/deleterious material into water system</td>
<td>Existing swing bridge decommissioning and new construction activities will be guided by applicable regulations</td>
</tr>
<tr>
<td></td>
<td>Potential to affect existing water quality/quantity</td>
<td>No improvement to hydraulics/hydrology of existing lake system</td>
<td>Existing swing bridge decommissioning and new construction activities will be guided by applicable regulations</td>
<td>No improvement to hydraulics/hydrology of existing lake system</td>
</tr>
<tr>
<td>Conclusion</td>
<td></td>
<td>Least Preferred</td>
<td>Most Preferred</td>
<td>Least Preferred</td>
</tr>
<tr>
<td>SOCIAL/LAND USE</td>
<td>Description/Measure</td>
<td>ASSESSMENT CRITERIA AND SUBFACTOR</td>
<td>Do Nothing</td>
<td>Build a New Bridge (Decommission existing swing bridge and build new bridge at same location)</td>
</tr>
<tr>
<td>-----------------</td>
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<td>------------</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Consistency with Federal (National Historic Sites Policy)/Provincial (Growth Plan, Provincial Policy Statement) Planning Policies</td>
<td>Potential to support federal/provincial policies/plans/goals/objectives</td>
<td>Inconsistent with federal policy to commemorate and communicate national significance of National Historic Site</td>
<td>Most consistent with federal policy to commemorate and communicate national significance of National Historic Site</td>
<td>Inconsistent with federal policy to commemorate and communicate national significance of National Historic Site</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inconsistent with provincial policies to:</td>
<td></td>
<td>Inconsistent with provincial policies to:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- provide equitable distribution of publicly-accessible built and natural settings for recreation (including trails);</td>
<td>- provide equitable distribution of publicly-accessible built and natural settings for recreation (including trails);</td>
<td>- provide equitable distribution of publicly-accessible built and natural settings for recreation (including trails);</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- improve connections which cross jurisdictional boundaries;</td>
<td>- improve connections which cross jurisdictional boundaries;</td>
<td>- improve connections which cross jurisdictional boundaries;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- reuse abandoned corridor for the purposes that maintain the continuous linear characteristics</td>
<td>- reuse abandoned corridor for the purposes that maintain the continuous linear characteristics</td>
<td>- reuse abandoned corridor for the purposes that maintain the continuous linear characteristics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provides least opportunity to support nearby designated Rama Road Economic Employment District (Growth Plan) intended to support tourism-related and recreational uses</td>
<td>Provides best opportunity to support nearby designated Rama Road Economic Employment District (Growth Plan) intended to support tourism-related and recreational uses</td>
<td>Provides limited opportunity to support nearby designated Rama Road Economic Employment District (Growth Plan) intended to support tourism-related and recreational uses</td>
</tr>
<tr>
<td>Consistency with the Local Official Planning or Land Use (i.e., City of Orillia and Township of Ramara)</td>
<td>Potential to support local planning objectives/policies/plans/goals</td>
<td>Inconsistent with City of Orillia and Township of Ramara Official Plan policy to conserve archaeological resources and provide recreational opportunities</td>
<td>Consistent with City of Orillia Official Plan policy to:</td>
<td>Inconsistent with City of Orillia and Township of Ramara Official Plan policy to conserve archaeological resources and provide recreational opportunities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Provide safe linkages for pedestrian and bicycle use</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Plan new development to preserve and enhance the context in which cultural heritage resources are situated</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- To recognize, protect and conserve cultural heritage resources and sites within the City</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Ensure recreation activities should be consistent with the objective of protecting and conserving natural heritage resources.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Consistent with Township of Ramara Official Plan policy to:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Create recreational and cultural opportunities that contribute to overall attraction of Township</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Conserve archaeological resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compatibility with existing/future land uses</td>
<td>Incompatible with existing/future land uses</td>
<td>Most compatible with City of Orillia’s adjacent mixed use development</td>
<td>Incompatible with existing/future land uses</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Existing structure no longer in use for the purpose it was intended (i.e., rail connection)</td>
<td>Existing/surrounding land uses not accommodated by community connection to other land uses and other jurisdictions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Existing/surrounding land uses not accommodated by community connection to other land uses and other jurisdictions</td>
<td></td>
</tr>
<tr>
<td>Connectivity</td>
<td>Ability to provide connectivity between adjacent and/or surrounding communities</td>
<td>Does not provide link between communities</td>
<td>Provides an easy and safe link between Orillia and the communities located along the eastern shores of Lake Couchiching (i.e., Ramara and Mnjikaning)</td>
<td>Does not provide link between communities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Surrounding communities continue to be served by provincial vehicular facility</td>
<td>Provides valuable link between communities through recreational connection to Orilla TransCanada/ Lightfoot Trail (west) to Ramara Rail Trail (Municipal Trail)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Does not provide direct link between TransCanada Lightfoot Trail (west) to Ramara Rail Trail (Municipal Trail)</td>
<td></td>
</tr>
<tr>
<td>Recreational Vehicles</td>
<td>Accommodation of recreational vehicles (i.e., snowmobiles)</td>
<td>No link between snowmobile trail system</td>
<td>Provides direct link between snowmobile trails (ODSSB 207 in east to Atherley Road Club Trail in west)</td>
<td>No link between snowmobile trail system</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Snowmobile users will continue to cross ice surface</td>
<td>Snowmobiles accommodated by bridge dedicated for recreational use</td>
</tr>
</tbody>
</table>
### Recreational Opportunities
- **Potential to support recreational travel within and outside the study area**
- **Potential to establish a point of interest along the Trent Severn Waterway**

<table>
<thead>
<tr>
<th>ASSESSMENT CRITERIA AND SUBFACTOR</th>
<th>Description/Measure</th>
<th>Do Nothing</th>
<th>Build a New Bridge</th>
<th>Utilize Highway 12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Highest potential to support recreational travel use in its current condition</td>
<td>Provides opportunity to establish a point of interest along waterway through bridge design and associated features</td>
<td>Limited potential to support current dedicated pedestrian cyclist facility along existing bridge in close proximity to active vehicular traffic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Deteriorating structure may deter tourists and/or waterway users</td>
<td>Pedestrians, cyclists accommodated by trail connection, away from active vehicular traffic</td>
<td>Does not provide a point of interest along the waterway</td>
</tr>
<tr>
<td><strong>Active Transportation</strong></td>
<td>Potential to accommodate active transportation users/accessibility (i.e., pedestrians, cyclists, etc.)</td>
<td>Active transportation users continue to be required to travel along Highway 12 bridge</td>
<td>Provides greatest opportunity to accommodate active transportation users</td>
<td>Active transportation users required to travel along Highway 12 bridge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Does not improve existing facilities for active transportation users</td>
<td>Pedestrians, cyclists accommodated by trail connection, away from active vehicular traffic</td>
<td>Does not improve existing facilities for active transportation users</td>
</tr>
</tbody>
</table>

### Aesthetics
- **Potential to affect aesthetics of the study area**
- **Deteriorating structure will diminish aesthetics in the study area over time**

<table>
<thead>
<tr>
<th><strong>Conclusion</strong></th>
<th>Least Preferred</th>
<th>Most Preferred</th>
<th>Moderately Preferred</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TECHNICAL</strong></td>
<td>Structural feasibility</td>
<td>Decommissioning of existing swing span is structurally feasible</td>
<td>Decommissioning of existing swing span is structurally feasible</td>
</tr>
<tr>
<td><strong>Constructability</strong></td>
<td>Existing structure cannot be reused for other purposes in its current condition</td>
<td>New bridge can be constructed to current Code requirements</td>
<td>Future decommissioning or maintenance of portions of the structure remaining in place will be required</td>
</tr>
<tr>
<td><strong>Traffic Operations</strong></td>
<td>Potential increase in vehicular recreational and/or active transportation users associated with forecasted growth in the area may increase potential for conflicts with vehicular traffic over time</td>
<td>Potential for conflicts for vehicular traffic with recreational vehicle and/or active transportation users reduced/eliminated</td>
<td>Potential increase in vehicular, recreational and/or active transportation users associated with forecasted growth in the area may increase potential for conflicts with vehicular traffic over time</td>
</tr>
<tr>
<td><strong>Safety</strong></td>
<td>Snowmobile safety compromised by traversing lake system to access east/west trail system</td>
<td>Snowmobile and active transportation users utilize dedicated facility, away from existing highway facility/active vehicular traffic</td>
<td>Pedestrian/cyclist safety compromised by adjacent active vehicular traffic lanes</td>
</tr>
<tr>
<td><strong>Municipal Services/Utilities</strong></td>
<td>Potential to affect existing municipal services and/or utilities in the study area</td>
<td>No effect</td>
<td>Ability to link new utilities across new structure</td>
</tr>
</tbody>
</table>

### Economic Development
- **Ability to support economic development in surrounding communities**
- **Ability to support and/or promote tourism in the area**

| **ECONOMIC**                     | Ability to support economic development in surrounding communities | Does not support area economic development/tourism | Greatest ability to support economic development in surrounding communities | Limited ability to support economic development/tourism in the area |
|                                 | Deteriorating structure may deter tourists and/or waterway users | Anticipated to attract tourist activity | Tourism in area supported by new/Improved tourist destination |
| **Business Operations**          | Potential to support nearby business operations | Does not support nearby businesses | Nearby businesses likely to benefit from improved facility | No change to existing conditions |
|                                 | Does not support nearby businesses | Tourist-related and local shoppers anticipated to patronize local/nearby businesses | Limited ability to support nearby business operations | Limited ability to support nearby business operations |

### Conclusion
- Potential to support nearby business operations
- Potential to accommodate active transportation users/accessibility (i.e., pedestrians, cyclists, etc.)
- Potential to affect vehicular traffic operations
- Potential to affect pedestrian/cyclist safety
<table>
<thead>
<tr>
<th>ASSESSMENT CRITERIA AND SUBFACTOR</th>
<th>Description/Measure</th>
<th>Do Nothing</th>
<th>Build a New Bridge</th>
<th>Utilize Highway 12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N/A</td>
<td>(Decommission existing swing bridge and build new bridge at same location)</td>
<td>(Decommission existing swing bridge and utilize existing Highway 12 bridge)</td>
</tr>
<tr>
<td>Conclusion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conclusion</td>
<td>Least Preferred</td>
<td>Most Preferred</td>
<td>Moderately Preferred</td>
</tr>
<tr>
<td></td>
<td>This alternative is not recommended because it:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Does not provide opportunity to protect and promote the fish weirs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Does not create link between area communities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Does not provide a safe and easy link for active transportation and/or snowmobile users</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Is inconsistent with local/provincial and federal goals/plans and policies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Does not improve area aesthetics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Does not support economic development and tourism in the area</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>This alternative is recommended because it:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Creates a place of ceremony/traditional meeting place for Aboriginal people</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Protects and commemorates the fish weirs</td>
<td>Supports and commemorates the fish weirs</td>
<td>Supports and commemorates the fish weirs</td>
<td>Supports and commemorates the fish weirs</td>
</tr>
<tr>
<td></td>
<td>- Provides opportunity to implement commemorative design features</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
</tr>
<tr>
<td></td>
<td>- Is most consistent with local, provincial and federal goals/policies/plans</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
</tr>
<tr>
<td></td>
<td>- Does not support economic development and tourism in the area</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
</tr>
<tr>
<td></td>
<td>- Establishes a point of interest along the Trent-Severn waterway</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
</tr>
<tr>
<td></td>
<td>- Accommodates active transportation users</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
</tr>
<tr>
<td></td>
<td><em>It is noted that this alternative has the potential to impact natural environment features, however some impacts can be avoided through design and/or mitigated through consultation with the MNR</em></td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
<td>Provides an easy and safe link for active transportation and/or snowmobile users</td>
</tr>
</tbody>
</table>

*It is noted that this alternative has the potential to impact natural environment features, however some impacts can be avoided through design and/or mitigated through consultation with the MNR*
6.3 The Recommended Alternative Solution

As described in the evaluation, the ‘Do Nothing’ alternative does not create a link between the area communities and maintains the existing gap in the established recreational and snowmobile trail system. This alternative does not support economic development and tourism being planned for the area and provides limited opportunities for improving the aesthetics of the study area and/or creating a point of interest along the Trent-Severn Waterway. The Mnjikaning Fish Weirs would continue to be compromised by the ongoing activities through the Atherley Narrows.

Similar to ‘Do Nothing’, routing the established trail to Highway 12 does not create a safe and easy link for recreational trail users, as preferred through municipal and provincial planning initiatives. In addition, the existing Highway 12 is a dedicated highway route and is not suitable for use by snowmobilers and users may choose to continue to cross the ice, when they assume it is safe to do so. Most importantly, utilizing Highway 12 does not provide an opportunity to protect, promote and appropriately commemorate the Mnjikaning Fish Weirs.

Overall, the Build a New Bridge alternative best addresses the Problem and Opportunity Statement by providing an opportunity to protect and commemorate the Mnjikaning Fish Weirs, create a place of ceremony for Aboriginal people, provide an easy and safe link for active transportation and/or snowmobile users and establish a new point of interest along the Trent-Severn Waterway.

6.4 Re-Evaluation of Alternative Solutions

As discussed in Section 3.1.4.2, a response from the MTCS was received in March 2013, indicating the need to recognize the potential cultural heritage value of the existing bridge structure as part of this EA study. As part of the response, the MTCS identified the following conservation and mitigation options for identified heritage resources that should be considered in order of preference:

- Restoration of missing or deteriorated elements where physical or documentary evidence (e.g. photographs or drawings) can be used for their design.
- Retention of existing bridge with no major modification undertaken.
- Retention of existing bridge with sympathetic modification.
- Retention of existing bridge with sympathetically designed new structure in proximity.
- Retention of existing bridge no longer in use but adapted for pedestrian walkway, cycle path or scenic viewing, etc.
- Relocation of bridge to appropriate new site for continued use (see 4) or adaptive re-use (see 5).
- Retention of bridge as heritage monument for viewing purposes only.
- Salvage of elements/members of bridge for incorporation into new structure or future conservation work or displays;
- Full recording and documentation of structure if it is to be demolished.

Given that the response was received from the MTCS following completion of the Evaluation of Alternative Solutions, the study team subsequently revisited the Evaluation of Alternative Solutions and revised the assessment to include the Reuse/Commissioning of the Existing Bridge, a copy of which is provided in Exhibit 6-2.

Following the re-evaluation of Alternative Solutions, the Reuse of the Existing Bridge was not selected as the recommended solution, based on the following key rationale:

- Inconsistent with local planning objectives (i.e., safe recreational linkage, permanent trail connection).
- Has been welded in the open position to allow for the passage of boats through the narrows.
- Would require operation and maintenance/rehabilitation over time.
- Centre pier cannot withstand additional load/dead load of new bridge, subsurface disturbance would be required.
- Cannot effectively accommodate snowmobiles, as well as pedestrians, cyclists, etc., in its current condition.
- Does not appropriately protect and commemorate the Mnjikaning Fish Weirs National Historic Site.
### Exhibit 6-2: Revised Evaluation of Alternative Solutions

<table>
<thead>
<tr>
<th>ASSESSMENT CRITERIA AND SUBFACTOR</th>
<th>Description/Measure</th>
<th>Do Nothing</th>
<th>Reuse Existing Bridge (Commission existing CN swing bridge)</th>
<th>Build a New Bridge (Decommission existing swing bridge and build new bridge at same location)</th>
<th>Utilize Highway 12 (Decommission existing swing bridge and utilize existing Highway 12 bridge)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CULTURAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboriginal Peoples</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential to provide an appropriate place of ceremony for Aboriginal Peoples</td>
<td>Does not provide an opportunity to protect and promote the fish weirs</td>
<td>Provides opportunity to create place of ceremony/traditional meeting place</td>
<td>Supports significant cultural resource</td>
<td>Does not support existing significant archaeological resource</td>
<td>Support cultural heritage resource (i.e. through relocation of fish weirs)</td>
</tr>
<tr>
<td>Potential to affect Aboriginal Rights or Interests</td>
<td>Does not support existing significant archaeological resource</td>
<td>Provides opportunity to support and recognize Aboriginal Rights and Interests</td>
<td>Supports Rama First Nation goal to preserve and protect culture</td>
<td>Does not provide opportunity to support Aboriginal Rights or Interests</td>
<td>Cultural heritage resource not appropriately protected and commemorated</td>
</tr>
<tr>
<td>Potential to support significant archaeological site</td>
<td>Does not adequately support existing significant archaeological resource</td>
<td>Provides limited opportunity to support Aboriginal Rights or Interests</td>
<td>Removes built cultural heritage resource</td>
<td>Provides opportunity to recognize significant cultural heritage resource (i.e. through new bridge design, interpretative centre)</td>
<td>Removes built cultural heritage resource</td>
</tr>
<tr>
<td><strong>Archaeological Resources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential to affect archaeological resources</td>
<td>Integrity of significant archaeological resource compromised by continued activities in the immediate area</td>
<td>Provides opportunity to recognize significant archaeological site</td>
<td>Cultural heritage resource can be mitigated through relocation of resource to nearby site as heritage monument</td>
<td>Integ</td>
<td>Integ</td>
</tr>
<tr>
<td><strong>Heritage Resources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential to impact built and/or cultural heritage resources</td>
<td>Retains existing built cultural heritage resource</td>
<td>Provides opportunity to recognize significant cultural heritage resource</td>
<td>Cultural heritage resource can be mitigated through relocation of resource to nearby site as heritage monument</td>
<td>Integ</td>
<td>Integ</td>
</tr>
<tr>
<td>Potential to impact vegetation and/or woodlot areas</td>
<td>Retains existing significant built cultural heritage resource</td>
<td>Cultural heritage resource can be mitigated through relocation of resource to nearby site as heritage monument</td>
<td>Cultural heritage resource can be mitigated through relocation of resource to nearby site as heritage monument</td>
<td>Integ</td>
<td>Integ</td>
</tr>
<tr>
<td>Potential to impact natural wildlife habitat</td>
<td>No effect</td>
<td>No effect</td>
<td>No effect</td>
<td>No effect</td>
<td>No effect</td>
</tr>
<tr>
<td>Potential to impact SAR</td>
<td>No effect</td>
<td>No effect</td>
<td>No effect</td>
<td>No effect</td>
<td>No effect</td>
</tr>
<tr>
<td>Potential to impact wetland/marsh areas</td>
<td>No effect</td>
<td>No effect</td>
<td>No effect</td>
<td>No effect</td>
<td>No effect</td>
</tr>
<tr>
<td><strong>NATURAL ENVIRONMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisheries (affects to be confirmed through consultation with Ministry of Natural Resources (MNR) and field study)</td>
<td>No effect</td>
<td>No effect</td>
<td>Three (3) aquatic SAR species (may be impacted by construction activities</td>
<td>Three (3) aquatic SAR species may be temporarily impacted by bridge decommissioning activities</td>
<td>Three (3) aquatic SAR species may be temporarily impacted by bridge decommissioning activities</td>
</tr>
<tr>
<td>Vegetation and Woodlots (affects to be confirmed through consultation with MNR and field study)</td>
<td>No effect</td>
<td>No effect</td>
<td>No effect</td>
<td>Decommissioning activities would be carried out in consultation with MNR and DFO to mitigate impacts</td>
<td>Decommissioning activities would be carried out in consultation with MNR and DFO to mitigate impacts</td>
</tr>
<tr>
<td>Wildlife (affects to be confirmed through consultation with MNR and field study)</td>
<td>No effect</td>
<td>No effect</td>
<td>May temporarily impact wildlife habitat</td>
<td>Bridge decommissioning activities may impact wildlife habitat</td>
<td>Bridge decommissioning activities may impact wildlife habitat</td>
</tr>
<tr>
<td>Wetlands/Marsh Areas (affects to be confirmed through consultation with MNR and field study)</td>
<td>No effect</td>
<td>No effect</td>
<td>Impacts can be mitigated through consultation with the MNR</td>
<td>Impacts can be mitigated through consultation with the MNR</td>
<td>Impacts can be mitigated through consultation with the MNR</td>
</tr>
<tr>
<td>Hydrology</td>
<td>No effect</td>
<td>No effect</td>
<td>Located adjacent to/within Provincially Significant Wetland (PSW) area</td>
<td>Low-moderate potential to impact wetland area</td>
<td>Low-moderate potential to impact wetland area</td>
</tr>
<tr>
<td>Potential to affect physical hydraulics/hydrology of existing lakes system</td>
<td>Potential for bridge deterioration to deposit debris/deleterious material into water system</td>
<td>Potential for bridge deterioration to deposit debris/deleterious material into water system</td>
<td>Existing swing bridge decommissioning and new construction activities will be guided by applicable regulations</td>
<td>Existing swing bridge decommissioning activities will be guided by applicable regulations</td>
<td>Existing swing bridge decommissioning activities will be guided by applicable regulations</td>
</tr>
<tr>
<td>Potential to affect existing water quality/quantity</td>
<td>No improvement to hydraulics/hydrology of existing lake system</td>
<td>No improvement to hydraulics/hydrology of existing lake system</td>
<td>No improvement to hydraulics/hydrology of existing lake system</td>
<td>No improvement to hydraulics/hydrology of existing lake system</td>
<td>No improvement to hydraulics/hydrology of existing lake system</td>
</tr>
</tbody>
</table>

### Conclusion
- **Most Preferred**
- **Moderately Preferred**
- **Least Preferred**
<table>
<thead>
<tr>
<th>ASSESSMENT CRITERIA AND SUBFACTOR</th>
<th>Do Nothing</th>
<th>Reuse Existing Bridge</th>
<th>Build a New Bridge</th>
<th>Utilize Highway 12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social/Land Use</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consistency with Federal (National Historic Sites Policy/Provincial (Growth Plan, Provincial Policy Statement) Planning Policies)</td>
<td>Inconsistent with provincial policy to: - provide equitable distribution of publicly-accessible built and natural settings for recreation (including trails); - improve connections which cross jurisdictional boundaries; - reuse abandoned corridor for the purposes that maintain the continuous linear characteristics;</td>
<td>Consistent with provincial policy to reuse abandoned corridor for the purposes that maintain the continuous linear characteristics; - provide equitable distribution of publicly-accessible built and natural settings for recreation (including trails); - improve connections which cross jurisdictional boundaries;</td>
<td>Most consistent with federal policy to: - provide equitable distribution of publicly-accessible built and natural settings for recreation (including trails); - improve connections which cross jurisdictional boundaries; - reuse abandoned corridor for the purposes that maintain the continuous linear characteristics;</td>
<td>Inconsistent with federal policy to: - provide equitable distribution of publicly-accessible built and natural settings for recreation (including trails); - improve connections which cross jurisdictional boundaries; - reuse abandoned corridor for the purposes that maintain the continuous linear characteristics;</td>
</tr>
<tr>
<td>Consistency with the Local Official Planning or Land Use (i.e., City of Orillia and Township of Ramara)</td>
<td>Inconsistent with City of Orillia and Township of Ramara Official Plan policy to conserve archaeological resources and provide recreational opportunities;</td>
<td>Somewhat consistent with City of Orillia Official Plan policy to provide safe linkage for pedestrian and bicycle use;</td>
<td>Consistent with City of Orillia Official Plan policy to provide safe linkages for pedestrian and bicycle use;</td>
<td>Inconsistent with City of Orillia and Township of Ramara Official Plan policy to conserve archaeological resources and provide recreational opportunities;</td>
</tr>
<tr>
<td>Compatibility with existing/future land uses</td>
<td>Incompatible with existing/future land uses; Existing structure no longer in use for the purpose it was intended (i.e., rail connection);</td>
<td>Incompatible with existing/future land uses; Existing structure no longer in use for the purpose it was intended (i.e., rail connection);</td>
<td>Most consistent with City of Orillia’s adjacent destination-type commercial uses and marina facilities;</td>
<td>Incompatible with existing/future land uses; Existing/surrounding land uses not accommodated by community connection to other land uses and other jurisdictions;</td>
</tr>
<tr>
<td>Ability to provide connectivity between adjacent and/or surrounding communities</td>
<td>Does not provide link between communities; Surrounding communities continue to be served by provincial vehicular facility; Does not provide direct link between TransCanada/ Lightfoot Trail (west) to Ramara Rail Trail (Municipal Trail);</td>
<td>Does not provide suitable link between communities (open position required to permit seasonal boat travel); Does not provide direct connection between TransCanada/ Lightfoot Trail (west) to Ramara Rail Trail (Municipal Trail);</td>
<td>Provides an easy and safe link between Orillia and the communities located along the eastern shores of Lake Couchiching (i.e., Ramara and Mnjikaning);</td>
<td>Does not provide link between communities; Surrounding communities continue to be served by provincial vehicular facility;</td>
</tr>
<tr>
<td>Ability to provide connectivity to existing trail system</td>
<td>Does not provide link between communities; Surrounding communities continue to be served by provincial vehicular facility;</td>
<td>Does not provide suitable link between communities (open position required to permit seasonal boat travel);</td>
<td>Provides valuable link between communities through recreational connection to Orillia TransCanada/ Lightfoot Trail (west) to Ramara Rail Trail (Municipal Trail);</td>
<td>Does not provide direct link between TransCanada Lightfoot Trail (west) to Ramara Rail Trail (Municipal Trail);</td>
</tr>
</tbody>
</table>

42
<table>
<thead>
<tr>
<th>ASSESSMENT CRITERIA AND SUBFACTOR</th>
<th>Description/Measure</th>
<th>Do Nothing</th>
<th>Reuse Existing Bridge (Commission existing CN swing bridge)</th>
<th>Build a New Bridge (Decommission existing swing bridge and build new bridge at same location)</th>
<th>Utilize Highway 12 (Decommission existing swing bridge and utilizes existing Highway 12 bridge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreational Vehicles</td>
<td>• Accommodation of recreational vehicles (i.e., snowmobiles)</td>
<td>• No link between snowmobile trail system</td>
<td>• No link between snowmobile trail system</td>
<td>• Provides direct link between snowmobile trails (ODSB 207 in east to Atherley Road Club Trail in west)</td>
<td>• No link between snowmobile trail system</td>
</tr>
<tr>
<td></td>
<td>• Snowmobile users will continue to cross ice surface</td>
<td>• Snowmobile users will continue to cross ice surface</td>
<td>• Snowmobiles accommodated by bridge dedicated for recreational use</td>
<td>• Snowmobiles will continue to cross ice surface</td>
<td>• Snowmobile users will continue to cross ice surface</td>
</tr>
<tr>
<td>Recreational Opportunities</td>
<td>• Potential to support recreational travel within and bo/from the study area</td>
<td>• The existing structure is not suitable for recreational use in its current condition</td>
<td>• Limited potential to support recreational travel</td>
<td>• Highest potential to support recreational travel</td>
<td>• Limited potential to support current dedicated pedestrian/cyclist facility already existing in bridge in close proximity to vehicular traffic</td>
</tr>
<tr>
<td></td>
<td>• Potential to establish a point of interest along the Trent-Severn Waterway</td>
<td>• Deteriorating structure may deter tourists and/or waterway users</td>
<td>• Does not provide a point of interest along the waterway</td>
<td>• Provides opportunity to establish a point of interest along waterway through bridge design and associated features</td>
<td>• Does not provide a point of interest along the waterway</td>
</tr>
<tr>
<td>Active Transportation</td>
<td>• Potential to accommodate active transportation users/accessibility (i.e., pedestrians, cyclists, etc.)</td>
<td>• Active transportation users continue to be required to travel along Highway 12 bridge</td>
<td>• Active transportation users continue to be required to travel along Highway 12 bridge</td>
<td>• Provides greatest opportunity to accommodate active transportation users</td>
<td>• Active Transportation users required to travel along Highway 12 bridge</td>
</tr>
<tr>
<td></td>
<td>• Does not improve existing facilities for active transportation users</td>
<td>• Does not improve existing facilities for active transportation users</td>
<td>• Does not improve existing facilities for active transportation users</td>
<td>• Pedestrians, cyclists accommodated by trail connection, away from active vehicular traffic</td>
<td>• Does not improve existing facilities for active transportation users</td>
</tr>
<tr>
<td></td>
<td>• Potential to support recreational and/or active transportation users associated with forecasted growth in the area may increase potential for conflicts with vehicular traffic over time</td>
<td>• Recreational and active transportation users utilize dedicated facility, away from existing highway facility/active vehicular traffic</td>
<td>• Recreational and active transportation users utilize dedicated facility, away from existing highway facility/active vehicular traffic</td>
<td>• Potential for conflicts for vehicular traffic with recreational vehicle and/or active transportation users reduced/eliminated</td>
<td>• Potential increase in vehicular, recreational and/or active transportation users associated with forecasted growth in the area may increase potential for conflicts with vehicular traffic over time</td>
</tr>
<tr>
<td></td>
<td>• Does not support intent of municipal Active Transportation plan to link communities and destinations with on and off-road networks of neighbouring townships</td>
<td>• Ability to provide a pedestrian bridge across the Narrows, linking Atherley or Orillia, as endorsed by the 2010 Ramara Active Transportation Plan (RATP) and identified as a Priority Project for Implementation in the 2012 Orillia Active Transportation Plan (OATP)</td>
<td>• Best supports OATP intent to link communities and destinations with on and off-road networks of neighbouring townships</td>
<td>• Provides opportunity to establish a pedestrian/cyclist facility already existing in bridge in close proximity to vehicular traffic</td>
<td>• Pedestrian/cyclist safety compromised by adjacent active vehicular traffic lanes</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>• Potential to affect aesthetics of the study area</td>
<td>• Deteriorating structure will diminish aesthetics in the study area over time</td>
<td>• Deteriorating structure will diminish aesthetics in the study area over time</td>
<td>• Provides opportunity to establish a pedestrian/cyclist facility already existing in bridge in close proximity to vehicular traffic</td>
<td>• Provides opportunity to establish a pedestrian/cyclist facility already existing in bridge in close proximity to vehicular traffic</td>
</tr>
<tr>
<td></td>
<td>• Area aesthetics greatly improved by removal of existing bridge structure and development of new/improved structure</td>
<td>• Area aesthetics greatly improved by removal of existing bridge structure and development of new/improved structure</td>
<td>• Area aesthetics greatly improved by removal of existing bridge structure and development of new/improved structure</td>
<td>• Provides opportunity to establish a pedestrian/cyclist facility already existing in bridge in close proximity to vehicular traffic</td>
<td>• Provides opportunity to establish a pedestrian/cyclist facility already existing in bridge in close proximity to vehicular traffic</td>
</tr>
</tbody>
</table>

**Conclusion**

<table>
<thead>
<tr>
<th>Least Preferred</th>
<th>Least-Moderately Preferred</th>
<th>Most Preferred</th>
<th>Moderately Preferred</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TECHNICAL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constructability</td>
<td>• Structural feasibility</td>
<td>• Existing structure cannot be reused for other purposes in its current condition</td>
<td>• Existing structure cannot be reused for other purposes in its current condition (i.e., snowmobile use)</td>
</tr>
<tr>
<td>Traffic Operations</td>
<td>• Potential to affect vehicular traffic operations</td>
<td>• Potential increase in vehicular recreational and/or active transportation users associated with forecasted growth in the area may increase potential for conflicts with vehicular traffic over time</td>
<td>• Potential increase in vehicular recreational and/or active transportation users associated with forecasted growth in the area may increase potential for conflicts with vehicular traffic over time</td>
</tr>
<tr>
<td>Safety</td>
<td>• Potential to affect pedestrian/cyclist safety</td>
<td>• Snowmobiler safety compromised by traversing lake system to access east/west trail system</td>
<td>• Snowmobiler safety compromised by traversing lake system to access east/west trail system. Existing bridge not suitable for snowmobile use.</td>
</tr>
<tr>
<td>Municipal Services/Utilities</td>
<td>• Potential to affect existing municipal services and/or utilities in the study area</td>
<td>• No effect</td>
<td>• No effect</td>
</tr>
</tbody>
</table>

**AECOM**

City of Orillia

**Atherley Narrows Bridge**

Municipal Class Environmental Assessment

**Assessment SubFactors**

- **Recreational Vehicles**
  - Accommodation of recreational vehicles (i.e., snowmobiles)
  - Snowmobile users will continue to cross ice surface

- **Recreational Opportunities**
  - Potential to support recreational travel within and bo/from the study area
  - The existing structure is not suitable for recreational use in its current condition

- **Active Transportation**
  - Potential to accommodate active transportation users/accessibility (i.e., pedestrians, cyclists, etc.)
  - Potential to support recreational and/or active transportation users associated with forecasted growth in the area may increase potential for conflicts with vehicular traffic over time

- **Aesthetics**
  - Potential to affect aesthetics of the study area
  - Area aesthetics greatly improved by removal of existing bridge structure and development of new/improved structure

**Options Available**

- **Reuse Existing Bridge**
  - Commission existing CN swing bridge

- **Build a New Bridge**
  - Decommission existing swing bridge and build new bridge at same location

- **Utilize Highway 12**
  - Decommission existing swing bridge and utilizes existing Highway 12 bridge

**Assessment Criteria**

- **Structural feasibility**
- **Existing structure cannot be reused for other purposes in its current condition**
- **Potential increase in vehicular recreational and/or active transportation users associated with forecasted growth in the area may increase potential for conflicts with vehicular traffic over time**
- **Snowmobiler safety compromised by traversing lake system to access east/west trail system**
- **No effect**

**Assessment Conclusion**

- **Least Preferred**
  - No effect

- **Least-Moderately Preferred**
  - No effect

- **Most Preferred**
  - Ability to link new utilities across new structure

- **Moderately Preferred**
  - New utilities will not be accommodate by the structure
### ASSESSMENT CRITERIA AND SUBFACTOR

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>Description/Measure</th>
<th>Do Nothing</th>
<th>Reuse Existing Bridge (Commission existing CN swing bridge)</th>
<th>Build a New Bridge (Decommission existing swing bridge and build new bridge at same location)</th>
<th>Utilize Highway 12 (Decommission existing swing bridge and utilize existing Highway 12 bridge)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ECONOMIC</strong></td>
<td>- Ability to support economic development in surrounding communities</td>
<td>- Does not support area economic development/tourism</td>
<td>- Does not support area economic development/tourism</td>
<td>- Greatest ability to support economic development in surrounding communities</td>
<td>- Limited ability to support economic development/tourism in the area</td>
</tr>
<tr>
<td></td>
<td>- Ability to support and/or promote tourism in the area</td>
<td>- Deteriorating structure may deter tourists and/or</td>
<td>- Deteriorating structure may deter tourists and/or</td>
<td>- Anticipated to attract tourist activity</td>
<td>- No improvements would not attract tourists to the area</td>
</tr>
<tr>
<td></td>
<td></td>
<td>waterway users</td>
<td>waterway users</td>
<td>- Tourism in area supported by new/improved tourist destination</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Supports Ramara Chamber of Commerce plan to help drive</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>business success through facilitating community</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
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<td>minded activities (Ramara Chamber of Commerce) and</td>
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<td>improve built environment of recreational amenities</td>
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<td></td>
<td>(Orillia's Economic Development Strategy)</td>
<td></td>
</tr>
<tr>
<td><strong>ECONOMIC AND SUBFACTOR</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Business Operations</strong></td>
<td>- Potential to support nearby business operations</td>
<td>- Does not support nearby businesses</td>
<td>- Does not support nearby businesses</td>
<td>- Nearby businesses likely to benefit from improved</td>
<td>- No change to existing conditions</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>facility</td>
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<td></td>
<td>- Tourist-related and local shoppers anticipated to</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>patronize local/nearby businesses</td>
<td></td>
</tr>
<tr>
<td><strong>Construction Costs</strong></td>
<td>- Relative potential construction costs</td>
<td>- N/A</td>
<td>- Anticipated to incur low construction costs</td>
<td>- Anticipated to incur the highest construction costs</td>
<td>- Anticipated to incur low to moderate construction costs</td>
</tr>
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</tr>
</tbody>
</table>

### RECOMMENDATION

- **Do Nothing**
  - This alternative is **not recommended** because it:
    - Does not provide opportunity to protect and promote the fish weirs
    - Does not create link between area communities
    - Does not provide a safe and easy link for active transportation and/or snowmobile users
    - Is inconsistent with local/provincial and federal goals/plans and policies
    - Does not improve area aesthetics
    - Does not support economic development and tourism in the area

- **Reuse Existing Bridge**
  - This alternative is **not recommended** because it:
    - Provides limited opportunity to protect and promote the fish weirs
    - Does not create link between area communities
    - Does not provide a safe and easy link for active transportation and/or snowmobile users
    - Does not improve area aesthetics
    - Does not support economic development and tourism in the area

- **Build a New Bridge**
  - This alternative is **recommended** because it:
    - Creates a place of ceremony/traditional meeting place for Aboriginal people
    - Protects and commemorates the fish weirs
    - Provides opportunity to implement commemorative design features
    - Is most consistent with local, provincial and federal goals/policies/plans
    - Provides an easy and safe link for active transportation and/or snowmobile users
    - Creates a link between area communities
    - Establishes a point of interest along the Trent-Severn waterway
    - Accommodates active transportation users

*It is noted that this alternative has the potential to impact natural environment features, however some impacts can be avoided through design and/or mitigated through consultation with the MNR.*
7. Alternative Designs

Subsequent to the selection of a preferred solution, alternative design concepts for the new bridge were generated and evaluated. A more detailed review of existing conditions within the study area was also undertaken to identify potential constraints to developing design alternatives for the new bridge structure including horizontal and vertical alignment, navigational clearance requirements, cross section, proximity of existing development to the existing bridge, utilities, etc. The following issues and design constraints were identified and influenced the generation, assessment and evaluation of the alternative designs. In general terms, the new bridge must:

- Be cognisant of the identified location of the fish weirs and avoid any impacts.
- Consider the existing cultural heritage landscape, including Aboriginal, archaeological and built heritage.
- Consider the vertical and horizontal navigation clearance requirements by Transport Canada and The Trent-Severn Waterway.
- The vertical geometry must allow for accessibility by the full cross section of people within the community. As such, the slopes on the structure must not exceed 5%.
- Provide sufficient design details to obtain agreement in principle from permitting agencies (i.e., Ministry of Natural Resources and Forestry, Parks Canada, Trent-Severn Waterway, Transport Canada) for the recommended design.
- Consider estimated costs of each alternative with respect to design, construction and maintenance.
- Comply with the Guidelines for the Design of Snowmobile Bridges, the Bridge Code and design standards for pedestrian bridges.
- Consider shared use by a variety of recreational users.
- Avoid significant impacts to the natural environment, including the Provincially Significant Atherley-Sucker Creek Wetland Complex.
- Consider need for ceremonial space and connection to the water.

7.1 Identification of the Alternative Design Concepts

The existing substructure of the former bridge will remain in place and be reused as part of the new structure. In addition, a new ceremonial space and connection to the water/the Mnijkaning Fish Fence site is desired by the Chippewas of Rama, the Mnijkaning Fish Fence Circle and the Atherley Narrows Bridge Committee. As such, the following alternative bridge design concepts were developed on the basis of removing the existing swing span of the former CN Rail bridge and constructing a new bridge.

7.1.1 Alternative 1 – 3 Span Steel Truss Bridge

Alternative 1 consists of three new pre-fabricated steel truss spans (17.83 m, 22.86 m, and 22.86 m long) and nine (9) steel through-plate girder spans (each 7.62 m in length and restored from the original rail bridge configuration). New steel truss spans would include a precast concrete deck and asphalt wearing surface. The restored through-plate-girder spans consist of granular fill and an asphalt wearing surface located in the existing steel deck trough assembly. The through-plate-girders would be reused and all existing bearing assemblies would be replaced. Exhibit 7-1 presents the preliminary General Arrangement of Alternative 1.

7.1.2 Alternative 2 – Inverted Fink Steel Truss Deck-on-Girder Bridge

Alternative 2 consists of an inverted fink steel truss supported by a deck-on-girder bridge and is the result of an interactive consultative design process with ongoing input, constructive feedback and involvement from the
Chippewas of Rama First Nation, members of the Mnjikaning Fish Fence Circle, Parks Canada Aboriginal Liaison Officers, elected officials from the City of Orillia and the Township of Ramara, and other community groups and stakeholders.

Alternative 2 comprises thirteen spans, totalling approximately 148.57 m in length (i.e., one (1) span of 16.44 m, one (1) span of 17.83 m, two (2) spans of 22.86 m, and nine (9) spans of 7.62 m). Five (5) spans of the bridge consist of two (2) continuous steel girders that support a series of steel "bents" oriented perpendicular to the axis of the bridge. The steel bents are laced together with steel cables that are pre-stressed so that they contribute to the stiffness of the truss. The bents with cables, in combination with the girders, act as chords and form an inverted fink truss. The widening and narrowing of the alternative bridge design abstractly represents the fish weirs and the design of the structure simulates the vertical repetition of the elements. Exhibit 7-2 presents the preliminary General Arrangement of Alternative 2.
ALTERNATIVE 1 - PREFABRICATED STANDARD WARREN TRUSS STEEL BRIDGE
Atherley Narrows Snowmobile/Pedestrian Bridge
ALTERNATIVE 2 - INVERTED FINK TRUSS STEEL BRIDGE
Atherley Narrows Snowmobile/Pedestrian Bridge
7.2 Evaluation of the Alternative Design Concepts

Exhibit 7-3 details the assessment of the alternative bridge design concepts. It should be noted that the impacts to the natural and/or technical environment did not vary between the alternative design concepts given that they both include the reuse of the existing substructure of the former bridge. In addition, both designs considered the boardwalk and sacred ceremonial space as part of the ultimate vision for the project, located adjacent to the wetland area, immediately north of the existing trail and in proximity to the greatest concentration of remaining fish weirs.

7.3 Recommended Alternative Design

The Evaluation of Alternative Designs indicated that the Inverted Fink Truss Deck-on-Girder Bridge is preferred, based on the following key rationale:

- Considers the interests of Aboriginal communities in conserving cultural heritage and archaeological resources.
- Highest potential to support a significant Aboriginal heritage site, given that the design is the result of an interactive consultative design process with ongoing input, constructive feedback and involvement.
- Highest potential to enhance a significant archaeological resource by representing, signifying the presence of and creating awareness of the Mnjikaning Fish Weirs through enhanced design features
- Most consistent with Parks Canada’s policies and planning to:
  - Commemorate national significance of a National Historic Site;
  - Respect the irreplaceable legacy represented by a National Historic Site; and
  - Share heritage value.
- Enhanced design elements expected to attract the highest number of visitors and recreational trail users to the area.
- Provides best opportunity for visitors to understand the significance of the site.
### Exhibit 7-3: Evaluation of Alternative Designs

<table>
<thead>
<tr>
<th>ASSESSMENT CRITERIA AND SUBFACTOR</th>
<th>Description/Measure</th>
<th>Alternative 1: Prefabricated Standard Warren Truss Bridge</th>
<th>Alternative 2: Inverted Fink Truss Steel Bridge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cultural Environment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboriginal Peoples</td>
<td></td>
<td>High potential to provide an appropriate place of ceremony through adjacent sacred gathering space as envisioned in the ultimate design plan in response to the feedback from Chippewas of Rama First Nation, members of the Mnjikaning Fish Fence Circle, Parks Canada Aboriginal Liaison Officers. Low potential to support significant Aboriginal heritage site and Cultural Aboriginal Landscape. Bridge design does not effectively recognize Aboriginal heritage value of area.</td>
<td>High potential to provide an appropriate place of ceremony through adjacent sacred gathering space as envisioned in the ultimate design plan in response to the feedback from Chippewas of Rama First Nation, members of the Mnjikaning Fish Fence Circle, Parks Canada Aboriginal Liaison Officers. Highest potential to support significant Aboriginal heritage site. Design process leading to the bridge design was the result of an interactive consultative design process with on-going input and feedback. Highest potential to enrich Cultural Heritage Landscape. Bridge design embodies the traditional knowledge of Aboriginal Peoples through understanding the natural environment as a cultural landscape.</td>
</tr>
<tr>
<td>Archaeological Resources</td>
<td></td>
<td>Potential impacts limited to installation of boardwalk within northeast portion of the study area, common to both bridge designs as part of the ultimate vision. Impacts can be mitigated through design (i.e., floating boardwalk structure) and oversight by a licensed archaeologist and Aboriginal engagement during installation of boardwalk. Bridge design does not address or acknowledge the significance of the Mnjikaning Fish Weirs, however can be mitigated to some degree through interpretive signage.</td>
<td>Potential impacts limited to installation of boardwalk within northeast portion of the study area, common to both bridge designs as part of the ultimate vision. Impacts can be mitigated through design (i.e., floating boardwalk structure) and oversight by a licensed archaeologist and Aboriginal engagement during installation of boardwalk. Highest potential to enhance archaeological resources by representing, signifying the presence of and creating awareness of the Mnjikaning Fish Weirs, a significant Aboriginal underwater archaeological site that is not currently visible to visitors. Design signifies and represents the Mnjikaning Fish Weirs.</td>
</tr>
<tr>
<td>Heritage Resources</td>
<td></td>
<td>Potential to affect cultural heritage resources. Moderate potential to recognize cultural heritage value of the site and surrounding area. Existing swing bridge identified as significant cultural heritage resource. Swing bridge to be removed, however impacts can be mitigated to some degree through commemoration. Components of existing bridge being planned for use within new structure.</td>
<td>Highest potential to recognize cultural heritage value of the site and surrounding area through enhanced design features. Existing swing bridge identified as significant cultural heritage resource. Swing bridge to be removed, however impacts can be mitigated to some degree through commemoration. Mitigation options will be further explored during detailed design.</td>
</tr>
<tr>
<td>Natural Environment</td>
<td></td>
<td>Study area comprises warm water predator and baitfish habitat.</td>
<td></td>
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<tr>
<td>Fisheries</td>
<td></td>
<td>Potential habitat for 2 fish SAR (American Eel and Lake Sturgeon). Potential impacts to fish/fish habitat associated with swing bridge removal, rehabilitation of west approach, construction of new bridge on top of existing piers and installation of floating boardwalk structure. All work related to bridge structures can be completed without causing serious harm to fish using protective measures (e.g., sediment and erosion controls, prevention of debris from entering water).</td>
<td></td>
</tr>
<tr>
<td>Significant Habitat for Threatened or Endangered Species</td>
<td></td>
<td>Existing swing bridge structure provides potential nesting habitat for Barn Swallow (Threatened) and potential maternal roosting habitat for 2 bat species (Endangered). However surveys for these species were not carried out prior to construction to confirm presence/absence. Loose soil/gravel on trail/rail bed approaches provides potential turtle nesting habitat for Blanding’s Turtle and Snapping Turtle (Threatened or Endangered). Deep organics within wetland areas provide potential overwintering habitat for Blanding’s Turtle and Snapping Turtle. Cattail stands provide potential nesting habitat for Least Bittern. If any species are identified during construction, work will be halted and the MNRF Midhurst District office will be contacted immediately for direction. Measures will be applied in consultation with the MNRF prior to and during construction should mitigate and/or avoid impacts.</td>
<td>No significant difference between the alternatives.</td>
</tr>
<tr>
<td>Conclusion</td>
<td></td>
<td>Least Preferred</td>
<td>Most Preferred</td>
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<tr>
<td>Least Preferred</td>
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<tr>
<td>Most Preferred</td>
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<tr>
<td>ASSESSMENT CRITERIA AND SUBFACTOR</td>
<td>Description/Measure</td>
<td>Alternative 1: Prefabricated Standard Warren Truss Bridge</td>
<td>Alternative 2: Inverted Fink Truss Steel Bridge</td>
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<tr>
<td>Provincially Significant Wetlands</td>
<td>Potential to affect Provincially Significant Wetland (PSW)/marsh areas</td>
<td>Located within the Atherley-Sucker Creek PSW Complex. No new negative impacts (i.e., degradation that threatens the health and integrity) to the natural feature or its ecological function is expected. Portion of new boardwalk and sacred gathering space may extend over areas that are seasonally flooded and below the High Water Level. Boardwalk will be floating structure, however will alter the habitat below by creating a shaded area and preventing vegetative growth, however is not likely to cause serious harm to fish or fish habitat. Design and placement of the boardwalk and sacred gathering space will be confirmed in consultation with the MNRF and DFO. No significant difference between the alternatives.</td>
<td>No significant difference between the alternatives.</td>
</tr>
<tr>
<td>Significant Wildlife Habitat</td>
<td>Potential to impact Significant Wildlife Habitat</td>
<td>PSW provides potential habitat for Colonial Bird Nesting, Waterfowl Stopover and Staging and Species of Special Concern (Black Terr, Musk Turtle, Northern Map Turtle, Ribbonsnake and Snapping Turtle). Measures applied prior to and during construction should mitigate and/or avoid impacts, in consultation with MNRF. No significant difference between the alternatives.</td>
<td>No significant difference between the alternatives.</td>
</tr>
<tr>
<td>Conclusion</td>
<td>No significant difference between the alternatives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social/Land Use Environment</td>
<td>Consistency with Federal (National Historic Sites Policy)/Provincial (Growth Plan, Provincial Policy Statement) Planning Policies</td>
<td>Potential to support federal policies (e.g., Parks Canada policies related to National Historic Sites) moderately consistent with federal policy to commemorate and communicate national significance of National Historic Site. Moderate potential to support Parks Canada policies related to the National Historic Sites of Canada System Plan and Cultural Resource Management Plan. New bridge/crossing provides opportunity for new views/ perspectives of the Trent-Severn Waterway and Mnjikaning Fish Weirs National Historic Sites. Enhanced landscaping/plantings and commemorative signage could be added to design.</td>
<td>Most consistent with federal policy to commemorate and communicate national significance of National Historic Site through enhanced design. Highest potential to support Parks Canada policies related to the National Historic Sites of Canada System Plan through design that “respects the irreplaceable legacy represented by these places and their associated resources”. New bridge/crossing provides opportunity for new views/perspectives of the Trent-Severn Waterway and Mnjikaning Fish Weirs National Historic Sites. Bridge design reflective of an interactive consultative design process with on-going input and feedback from Chippewas of Rama First Nation, members of the Mnjikaning Fish Fence Circle, Parks Canada, as well as other stakeholders. Bridge design is consistent with Parks Canada’s Cultural Resource Management Policy relating to Sharing Heritage Value to: maximize opportunities for cultural resources to inspire discovery and a sense of personal connection to the National Historic Site; work with others in presenting and interpreting heritage value, especially where stories or cultural resources resonate strongly with a particular community or group; and conserve the heritage value and character-defining elements when creating any new additions to an historic place or any related new construction.</td>
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<td></td>
<td>Consistency with the Local Planning or Land Use (i.e., City of Orillia and Township of Ramara Official Plans, City of Orillia Trails Master Plan and Parks, Recreation and Culture Master Plan, etc.)</td>
<td>Potential to support provincial policies/plans/goals/objectives Provides opportunity to support nearby designated Rama Road Economic Employment District (Growth Plan) intended to support tourism-related and recreational uses Consistent with PPS policy for planning authorities to consider the interests of Aboriginal communities in conserving cultural heritage and archaeological resources, to a certain degree.</td>
<td>Highest potential to support nearby designated Rama Road Economic Employment District (Growth Plan) intended to support tourism-related and recreational uses. Enhanced design features anticipated to attract a higher number of visitors and/or recreational trail users to the area. Most consistent with PPS policy for planning authorities to consider the interests of Aboriginal communities in conserving cultural heritage and archaeological resources. Bridge was designed through on-going input and feedback received from Chippewas of Rama First Nation, members of the Mnjikaning Fish Fence Circle, Parks Canada Aboriginal Liaison Officer, as well as other stakeholders through an interactive consultative design process. Consistent with City of Orillia Official Plan policy to provide safe linkages for pedestrian and bicycle use. Most consistent with City of Orillia Plan to plan new development to preserve and enhance the context in which cultural heritage resources are situated, and recognize, protect and conserve cultural heritage resources and sites within the City. Enhanced design features signify and represent the presence of the Mnjikaning Fish Weirs Consistent with township of Ramara Official Plan policy to: Create recreational and cultural opportunities that contribute to overall attraction of Township Conserve archaeological resources.</td>
</tr>
<tr>
<td></td>
<td>Compatibility with existing/future land uses</td>
<td>Compatible with City of Orillia's adjacent mixed use development Supports intent to provide built environment which provides a pedestrian-oriented community with connections to the waterfront. Compatible with Township of Ramara's adjacent destination-type commercial uses and marine facilities No significant difference between the alternatives.</td>
<td></td>
</tr>
<tr>
<td>ASSESSMENT CRITERIA AND SUBFACTOR</td>
<td>Description/Measure</td>
<td>Alternative 1</td>
<td>Alternative 2</td>
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<tr>
<td><strong>Connectivity</strong></td>
<td>Ability to provide connectivity between adjacent and/or surrounding communities</td>
<td>Provides an easy and safe link between Orillia, Township of Ramara and The Chippewas of Rama First Nation community</td>
<td>No significant difference between the alternatives</td>
</tr>
<tr>
<td></td>
<td>Ability to provide connectivity to existing trail systems</td>
<td>Provides valuable link between communities through recreational connection to Orillia TransCanadatal Lightfoot Trail (west) to Ramara Rail Trail (Municipal Trail)</td>
<td></td>
</tr>
<tr>
<td><strong>Recreational Vehicles</strong></td>
<td>Accommodation of recreational vehicles (i.e., snowmobiles)</td>
<td>Bridge designs meet applicable Guidelines for the Design of Snowmobile Bridges</td>
<td>No significant difference between alternatives</td>
</tr>
<tr>
<td><strong>Recreational Opportunities</strong></td>
<td>Potential to support recreational travel within and to/from the study area</td>
<td>High potential to support recreational travel by providing trail connection suitable for pedestrians, cyclists and snowmobiles</td>
<td>High potential to support recreational travel by providing trail connection suitable for pedestrians, cyclists and snowmobiles</td>
</tr>
<tr>
<td></td>
<td>Potential to establish a point of interest along the Trent-Severn Waterway</td>
<td>Moderate potential to establish a point of interest</td>
<td>Moderate potential to establish a point of interest</td>
</tr>
<tr>
<td></td>
<td>Bridge designed to meet navigational requirements</td>
<td>Bridge consists of standard utilitarian design features</td>
<td>Bridge designed to meet navigational requirements</td>
</tr>
<tr>
<td></td>
<td>Moderate potential to establish a point of interest</td>
<td>Provides safe and easy access to views of the Trent-Severn Waterway and Mnjikaning Fish Weirs National Historic Sites</td>
<td>Highest potential to establish a point of interest</td>
</tr>
<tr>
<td><strong>Active Transportation</strong></td>
<td>Potential to accommodate active transportation users/accessibility (i.e., pedestrians, cyclists, etc.)</td>
<td>Provides trail connection between communities and access to views/perspectives of Mnjikaning Fish Weirs and Trent-Severn Waterway National Historic Sites</td>
<td>Unique design features anticipated to attract a number of visitors/tourists to this point of the Trent-Severn Waterway</td>
</tr>
<tr>
<td><strong>Aesthetics</strong></td>
<td>Potential to affect aesthetics of the study area</td>
<td>Moderate potential to improve aesthetics of study area</td>
<td>High potential to improve aesthetics of study area</td>
</tr>
<tr>
<td></td>
<td>Bridge is a prefabricated utilitarian bridge</td>
<td>Bridge would be landmark, creating an identity to the site and area</td>
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<tr>
<td></td>
<td>Enhanced landscaping/plantings can be implemented</td>
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</tr>
<tr>
<td><strong>Conclusion</strong></td>
<td>Least Preferred</td>
<td>Most Preferred</td>
<td></td>
</tr>
<tr>
<td><strong>Technical</strong></td>
<td>Structural feasibility</td>
<td>New center span will be fabricated off site and lifted in place by crane.</td>
<td>The trusses (comprised of girders, bents, and cables) will be assembled in a staging area in roughly 20m long pieces. The pieces will be placed through the use of a crane and assembled in a stable manner such that temporary supports will not be required. The girders will have sufficient capacity to carry the self-weight of the bridge and construction loads, without relying on truss action. Lightweight decking such as wood or fibreglass encapsulated glulam will be installed prior to erection to minimize work over water.</td>
</tr>
<tr>
<td></td>
<td>Potential to affect pedestrian/cyclist safety</td>
<td>Bridges designed to meet required railing and barrier heights/dimensions, appropriate for pedestrian, cyclist and snowmobile use</td>
<td>Design is a custom bridge but uses common construction practices</td>
</tr>
<tr>
<td>Municipal Services/Utilities</td>
<td>Potential to affect snowmobile safety</td>
<td>No significant difference between the alternatives</td>
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</tr>
<tr>
<td>Safety</td>
<td>Potential to affect existing municipal services and/or utilities in the study area</td>
<td>No significant difference between the alternatives</td>
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</tr>
<tr>
<td><strong>Conclusion</strong></td>
<td>No significant difference between the alternatives</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Economic</strong></td>
<td>Ability to support economic development in surrounding communities</td>
<td>Moderate potential to support economic development in surrounding communities</td>
<td>Highest potential to support economic development in surrounding communities</td>
</tr>
<tr>
<td>Economic Development</td>
<td>Ability to support and/or promote tourism in the area</td>
<td>Moderate ability to support and/or promote tourism in the area</td>
<td>Highest potential to attract a higher number of users/tourists to the area through unique bridge design features</td>
</tr>
<tr>
<td></td>
<td>Provides connection between communities and access to views/perspectives of Mnjikaning Fish Weirs and Trent-Severn Waterway National Historic Sites</td>
<td>Provides connection between communities and access to views/perspectives of Mnjikaning Fish Weirs and Trent-Severn Waterway National Historic Sites</td>
<td>Provides trail connection between communities, improving accessibility for active transportation and snowmobile users to nearby business operations</td>
</tr>
<tr>
<td>Business Operations</td>
<td>Potential to support nearby business operations</td>
<td>Moderate potential to support nearby business operations</td>
<td>Increased number of users/tourists to the area may increase patronage to nearby businesses</td>
</tr>
<tr>
<td></td>
<td>Provides trail connection between communities, improving accessibility for active transportation and snowmobile users to nearby business operations</td>
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</tbody>
</table>
### ASSESSMENT CRITERIA AND SUBFACTOR

<table>
<thead>
<tr>
<th>Description/Measure</th>
<th>Alternative 1 Prefabricated Standard Warren Truss Bridge</th>
<th>Alternative 2 Inverted Fink Truss Steel Bridge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticipated maintenance costs</td>
<td>Minimal maintenance costs as elements of bridge can be easily inspected from the deck. Bridge materials are not expected to require maintenance for 30+ years.</td>
<td>Minimal maintenance costs for most elements of bridge that are exposed and can be easily inspected from deck. Moderate maintenance costs required to accommodate man lifts and other special equipment for cable connections.</td>
</tr>
<tr>
<td>Anticipated construction costs</td>
<td>Asphalt deck material will require repair or replacement every 20 years, according to the local Snowmobile Club in Orillia, affiliated with the Ontario Federation of Snowmobile Clubs. Concrete has a longer design life but is more costly and time consuming to repair or replace.</td>
<td>Proposed wood deck will require replacement every 15 years but is the most common material used for snowmobile wearing surfaces and is the preferred surface by snowmobilers because it is easily replaced at less capital cost, according to the local Snowmobile Club of Orillia, affiliated with the Ontario Federation of Snowmobile Clubs. Alternate surfaces are being considered and are priced for comparison.</td>
</tr>
<tr>
<td>Estimated construction cost approximately +/- $3.2M (Estimated construction cost only, soft costs are not included. Further detailed design development is needed to determine accurate construction cost.)</td>
<td>Estimated construction cost approximately +/- $4.9M (Estimated construction cost only, soft costs are not included. Further detailed design development is needed to determine accurate construction costs).</td>
<td></td>
</tr>
</tbody>
</table>

### Conclusion

**Conclusion**

- **Moderately Preferred**
  - Alternative #1 is Not Recommended based on the following rationale:
    - Does not effectively recognize the Aboriginal heritage value of the area
    - Does not sufficiently address or acknowledge the significance of the Mnjikaning Fish Weirs
    - Less consistent with Parks Canada and local planning
    - Standard design is not expected to improve the aesthetics of the study area to the same degree as Alternative #2 or attract a higher number of visitors/recreational trail users

- **Moderately Preferred**
  - Alternative #2 is Recommended based on the following rationale:
    - Highest potential to support a significant Aboriginal heritage site
    - Highest potential to enhance a significant archaeological resource by representing, signifying the presence of and creating awareness of the Mnjikaning Fish Weirs
    - Considers the interests of Aboriginal communities in conserving cultural heritage and archaeological resources.
    - Most consistent with Parks Canada's policies and planning to:
      - Commemorate national significance of a National Historic Site
      - Respect the irreplaceable legacy represented by a National Historic Site
      - Share heritage value
    - Expected to attract the highest number of visitors and recreational trail users to the area
    - Provides best opportunity for visitors to understand the significance of the site

---

**RECOMMENDATION**

- Alternative #1 is Not Recommended based on the following rationale:
- Alternative #2 is Recommended based on the following rationale:
7.4 Public Information Centre #2

As noted in Section 3.1.4.2, PIC #2 was held on February 18, 2015, at the Orillia City Centre, 50 City Centre Drive, Orillia. The PIC was presented as a public drop-in and informal discussion and provided a review of the information presented at PIC #1, the findings of the technical studies carried out as part of this study, the revised evaluation of Alternative Solutions, the evaluation of Alternative Designs, the recommended design and the potential impacts and proposed mitigation measures of the project. PIC #2 provided an opportunity for members of the public to view the display material and to ask members of the study team questions. Attendees were encouraged to provide written comments.

Thirteen (13) comment forms were received at the PIC and two (2) were received by the requested submission date of March 13, 2015. In addition, six (6) email and/or letter responses were received from members of the public following the PIC. Each comment was reviewed and considered by members of the study team. In addition, a letter and/or email response was issued to the respondent, if requested. In general, attendees were supportive of the project. However, some key concerns were noted by some attendees and/or respondents, as summarized below.

Fishing
- The study area (particularly the west approach) is a key location for fisherman
- A number of anglers use the study area during the City of Orillia’s annual Perch Festival
- Accommodate anglers in the new bridge design

Safety for Users
- Dangerous to mix snowmobiles and pedestrians, give consideration for separating the lanes
- Concern that narrowing design may not be safe for shared use between snowmobiles and pedestrians
- Consider safety for pedestrians, inline skaters, cyclists, cross country skiers, snowshoe users etc. when mixing with snowmobiles
- Have separate areas for snowmobiles and pedestrians
- Consider the potential for icy surfaces on the bridge and associated safety for users
- Safety of pedestrians should be paramount
- Cyclists should be able to cross easily in summer

Lighting
- Consider lighting for bridge users during the evening hours

Design
- Great design, will be a draw to the area
- The design is worth the expense
- Truly celebrates the historical significance of the weirs
- Large/obtrusive on the landscape
- Concerns with how it fits in with architecture of the area
- Wood deck surface will be worn out by snowmobile use

CN Swing Bridge
- Important piece of rail history in the area – removal is permanent
- Removal of swing span is imperative
- The swing span is a hazard for boaters who are picked up by current/lose control of boat

Navigational Clearance
- The clearance must not be less than the existing Highway 12 bridge
Some respondents provided a number of suggestions for safety considerations for the new bridge, including designated/separated lanes, timed traffic lights at bridge entrances, posted speed limits and camera use. In addition, it was noted that parking should be considered for visitors. A copy of PIC #2 Summary Report is provided in Appendix A-2.

A copy of all public correspondence is provided in Appendix A3.

### 7.4.1 Responses to Public Comments and/or Concerns Raised

**Exhibit 7-4** provides a summary of the responses to comments and concerns raised during this EA study.

**Exhibit 7-4: Summary of Responses to Public Comments and Concerns Raised**

<table>
<thead>
<tr>
<th>Public Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Safety Considerations</strong></td>
<td></td>
</tr>
<tr>
<td>There should be separate areas for snowmobilers and pedestrians.</td>
<td>A new bridge at this location is a rare example of a dedicated crossing for both snowmobilers and pedestrians and your concerns for safety are understood. The City will continue to explore safety provisions for the new bridge, in consideration of the variety of recreational users that may use the new connection.</td>
</tr>
<tr>
<td>The bridge will ice up and you cannot have such a high safety risk in final design.</td>
<td>The bridge and deck surfacing will be designed to accommodate year-round pedestrian use, including snowmobiles in the winter.</td>
</tr>
<tr>
<td><strong>Illumination</strong></td>
<td></td>
</tr>
<tr>
<td>How is the new bridge going to be illuminated</td>
<td>It is expected that the new bridge will be illuminated to assist with travel in the evening hours. Lighting considerations will be further explored during detailed design.</td>
</tr>
<tr>
<td><strong>Navigation</strong></td>
<td></td>
</tr>
<tr>
<td>Ensure that the horizontal clearance is maintained</td>
<td>Please note that no change to the existing horizontal clearance is being proposed as part of this project. Given the sensitive nature of the area, the substructure of the existing bridge will remain in place to avoid the need for in-water work. New steel columns, placed around the perimeter and above the substructure, are being planned in order to support the new bridge and raise the bridge deck. As such, no in-water work is being proposed as part of this project.</td>
</tr>
</tbody>
</table>
| Ensure the vertical clearance is sufficient. | Since the new bridge is being planned along navigable waters (both Lake Couchiching and Lake Simcoe are included on the List of Scheduled Waters), this project is subject to the *Navigation Protection Act* (NPA), the purpose of which is to regulate works and obstructions that risk interfering with navigation in the navigable waters listed on the schedule to the NPA. As such, this project and associated bridge design is subject to review and approval by Transport Canada. Given that the site is situated at National Historic Sites (i.e., the Mnijikaning Fish Weirs and the Trent-Severn Waterway), this project is also subject to review by Parks Canada, Trent-Severn Waterway. Over the past 25 years, the Historic High Water Level in Lake Simcoe has ranged between approximately 218.9 m and approximately 219.48 m. In January 2015, the High Water Level was measured at approximately 218.83 m, and was measured at 218.69 m in early March 2015. In accordance with the Trent-Severn Waterway Act, the *High Water Level* is specified as the 90th percentile of the annual maximum annual water level for Lake Simcoe.
<table>
<thead>
<tr>
<th>Public Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waterway requirements, the minimum fixed bridge clearance is 6.7 m. The</td>
<td>The navigational clearance for this location is 7.01 m above the normal water level elevation of 219.15</td>
</tr>
<tr>
<td>navigational clearance for this location is 7.01 m above the normal water</td>
<td></td>
</tr>
<tr>
<td>level elevation of 219.15.</td>
<td></td>
</tr>
<tr>
<td><strong>Existing Bridge</strong></td>
<td></td>
</tr>
<tr>
<td>Removal of the Swing Bridge is imperative.</td>
<td>Thank you for input on the existing swing span for the former rail bridge. Through this Environmental Assessment study, a Cultural Heritage Evaluation Report was completed and identified this structure as a significant cultural heritage resource. It is understood that its current location may be a potential hazard for boaters navigating their way through the channel. If technically and economically feasible, the existing swing span may be relocated for commemorative purposes, given its identified cultural significance.</td>
</tr>
<tr>
<td>The swing bridge hangs out over the water and is a hazard to boaters.</td>
<td></td>
</tr>
<tr>
<td>The swing bridge is a significant piece of history for the area. Removal is</td>
<td></td>
</tr>
<tr>
<td>permanent.</td>
<td></td>
</tr>
<tr>
<td><strong>Mnjikaning Fish Weirs</strong></td>
<td>A Marine Archaeological Assessment was completed to identify the existing location of remaining fish weirs within the study area. As part of the MAA, consideration was also given to the use of a barge during removal of the bridge. As such, marine archaeologists assessed within 30 m to the north and 30 m to the south of the existing swing bridge. All areas where fish weirs were identified will be avoided during construction activities.</td>
</tr>
<tr>
<td>Avoid Impacts to Mnjikaning Fish Weirs During Removal of the Existing Bridge.</td>
<td></td>
</tr>
<tr>
<td>Past development through the channel has wiped out any remaining fish weirs</td>
<td>It should be noted that there are hundreds of fish weirs remaining at Atherley Narrows, some of which are approximately 5,000 years of age. It is understood that many were removed during historical dredging and bridge construction activities through the area, however many remain throughout the undisturbed portions of the area. A number of marine archaeological assessments have been previously completed and have confirmed the presence of many remaining fish weirs. Regardless of the historical activities, there are still many areas that have not been disturbed and hundreds of fish weirs have been identified within these areas. However, existing activities (i.e., recreational boating and fishing) continue to threaten the remaining fish weirs and it is through this project that we hope to raise public awareness and appreciation and preserve this significant cultural heritage site.</td>
</tr>
<tr>
<td>Parking</td>
<td></td>
</tr>
<tr>
<td>Has parking been considered?</td>
<td>No new parking areas are being planned as part of this project. As this project planning continues, there is an opportunity to develop a Cultural Park, as described in the new park classification system of the 2014 Parks, Recreation, Culture Master Plan, at the dead end along the Millennium Trail. This park may be integrated into the proposed bridge development. Parking at the new Cultural Park may be considered at the time of park planning. In addition, the City hopes to create additional pedestrian access points to the water’s edge at road right of ways as recommended in the 2014 Parks, Recreation, and Culture Master Plan.</td>
</tr>
<tr>
<td>Project Funding</td>
<td>The cost of project is currently estimated at $10M. However, the total cost will be further refined at the detailed design stage. At this time, City of Orillia Council has allocated $1.5M for the construction of the bridge in the Majors Capital Plan, contingent on partner funding and a government</td>
</tr>
</tbody>
</table>
### Public Comment

<table>
<thead>
<tr>
<th>Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant(s). The partnership for the 1.5M and arrangements are yet to be confirmed. However, as part of previous and current planning for this project, the costs were divided as follows: City of Orillia (50%); Township of Ramara (30%); and, Chippewas of Rama First Nation (20%). The Orillia Snowmobile Club has also donated $10,000 to date. The City would be seeking the 8.5M funding from either the provincial or federal government (or both) if the timing lines up and the terms of the grants permit. No grant has been secured to date.</td>
<td></td>
</tr>
</tbody>
</table>

### Consultation

<table>
<thead>
<tr>
<th>Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>A presentation and Q &amp; A session would have been preferred to the PIC format held.</td>
<td></td>
</tr>
<tr>
<td>The PIC was held as a public drop-in and informal discussion to provide opportunities for members of the public to view the display material at their leisure and to ask members of the study team questions. Your comments will be included as part of the public documentation prepared as part of this study.</td>
<td></td>
</tr>
</tbody>
</table>

### Anglers

<table>
<thead>
<tr>
<th>Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider accommodating fishermen bridge design</td>
<td></td>
</tr>
<tr>
<td>There may be an opportunity to consider a small pedestrian landing at the base of the abutment during the detailed design stage of this project. However, fishing opportunities must be balanced so that boating activities through the narrows and/or the Mnijkaning Fish Weirs are not impacted. It is understood that the west bridge abutment area is currently being accessed for fishing opportunities, in particular the Perch Festival, however alternate fishing opportunities exist along the current waterfront. There is currently “No Trespassing” signs and chain link fencing to prohibit access to the bridge abutment; however these features have been vandalised to gain access for fishing. In the future, the City hopes to create additional pedestrian access points to the water’s edge at road right of ways, as recommended in the 2014 Parks, Recreation, and Culture Master Plan.</td>
<td></td>
</tr>
</tbody>
</table>
8. Project Description

8.1 Removal of Existing Bridge

The removal of the existing swing bridge span will be required as part of this project. The existing swing bridge and superstructures will be removed down to the top of the existing concrete piers and to the existing bents. It is expected that a crane supported by a barge will be required to access and remove the bridge, given the size of the existing structure. In addition, it is anticipated that the existing swing span could be disassembled on-site, with the floor beams, wood planks and deck and each plate girder being removed and lowered via crane onto the barge below. The existing riveted connections could be disconnected to potentially allow for the structure to be reassembled at a new site for commemorative purposes, if technically and economically feasible.

The works associated with the removal of the existing swing span will be further investigated during detailed design. An experienced contractor will be retained to ascertain the technical approach and costs associated with the removal activities.

8.2 Description of the Preferred Design

The structure consists of an inverted fink steel truss supported by a deck-on-girder bridge. The bridge will be elevated higher than the existing swing span to provide a vertical navigational clearance of 7.01 m above the Normal Water Level, which exceeds the minimum overhead fixed bridge clearance of 6.7 m required by the Trent-Severn Waterway and equivalent to the existing Highway 12 bridge, located approximately 70 m south of the study area.

The bridge comprises thirteen spans, totalling approximately 148.57 m in length (i.e., one (1) span of 16.44 m, one (1) span of 17.83 m, two (2) spans of 22.86 m, and nine (9) spans of 7.62 m), and two (2) approaches. The grade along the west approach will be increased to match the bridge profile using retaining soil system (RSS) walls. The east approach will follow the existing grade.

An 89 mm wood deck wearing surface is being recommended at this time. The width of the deck varies from 9 m at the east and west entrances to 3 m at the midpoint of the bridge. The deck surface will be underlain by steel cross beams and steel girders. Steel guardrails will be fabricated from 12 mm steel plates, 1550 mm high and angled at 105 degrees from the horizontal deck surface to be in plane with steel cables extend from the deck to the top of the steel columns. Handrails will be provided for pedestrians at a height of 1070 mm.

The bridge design will comprise a minimum width of 3 m, as required by the Ontario Guideline for the Design of Snowmobile Bridges (OGDSB), and provide two lanes (one in each direction) for snowmobiles and pedestrians. The grades for the proposed bridge will be no more than 4.9% to accommodate cyclists.

The existing trails to the east and west of the bridge will be resurfaced and enhanced landscaping will be provided.

8.2.1 Drainage and Stormwater Management

The wood deck of the bridge will not be waterproofed and rainwater will run through the deck. As such, deck drains will not be required as part of the new design.

8.2.2 Sub-Structure

The substructure of the existing bridge will remain in place to avoid the need for in-water work. New steel columns will be placed around the perimeter and above the existing piers to support the bridge and raise the bridge deck. No
new foundations are anticipated to be required to support the new bridge. The existing 10 m horizontal clearance for navigation will remain.

New Retained Soil System (RSS) retaining walls with false abutment will be used at the west approach in lieu of repairing the west abutment, which is currently in poor condition. The new RSS will consist of precast concrete walls that retain new free draining granular material backfill, and will be completed with the same wood deck wearing surface as the bridge. The RSS will include a maximum height of 3.3 m and taper down to grade. The earth embankment is to be retained by two (2), approximately 1 m wide precast concrete walls and 140 mm thick vertically oriented planks tied together using a geo-synthetic mesh at regular intervals, or as designed by the supplier. The retaining walls are to be capped with steel channels bolted to steel wide flange cross beams at 2 m on centre. A short concrete abutment bearing on the retained soil will be constructed to support the west end of the bridge.

8.2.3 Superstructure

Five (5) spans of the bridge will consist of two (2) continuous steel girders that support a series of steel "bents" oriented perpendicular to the axis of the bridge. The steel bents are laced together with steel cables that are pre-stressed so that they contribute to the stiffness of the truss. The bents with cables, in combination with the girders, act as chords and form an inverted fink truss.

A wood deck wearing surface was recommended by the Orillia Snowmobile Club (OSC), affiliated with the Ontario Federation Snowmobile Club (OFSC), given its ease of installation, ability to be repaired incrementally and ease of replacement with limited cost. The wood decking is anticipated to have a 10 to 15 year life. Pressure treated timber decking will be installed directly on 350 mm deep steel cross beams that are underlain by 720 mm deep steel girders.

The guardrails will consist of 12 mm laser cut steel plates angled at 105 degrees from the horizontal deck surface, in plane with galvanized steel cables.

The height of the bridge is 7.01 m above the Normal Water Level in order to meet the Trent-Severn Waterway fixed bridge clearance requirements (i.e., 6.7 m). The height of the new bridge will be the same height as the nearby Jack Guadaur Bridge (Highway 12 bridge), which traverses Atherley Narrows to the south of the new bridge site.

8.2.4 Architectural/Aesthetic Features

It is anticipated that the design of the new structure will have a positive effect on the surrounding environment through enhanced design features. The widening and narrowing of the bridge abstractly represents the fish weirs and the design of the structure simulates the vertical repetition of the elements. These features are intended to create a landmark that should allow visitors to appreciate the Aboriginal cultural heritage of the area, the Mnjikaning Fish Weirs and the Trent-Severn Waterway.

8.2.5 Preliminary Cost Estimate

The preliminary construction cost associated with the recommended bridge design and associated approaches and infrastructure is approximately $4,970,400, including structure costs (i.e., $1,960,200) and approaches and infrastructure costs (i.e., $3,010,200). These costs will be refined during detail design.
8.3 Ancillary Functions

The ultimate site vision for the study area includes an interpretive centre, sacred gathering space and wooden boardwalk. The ancillary functions described herein may be implemented individually and/or over time.

8.3.1 Interpretive Centre

At present, there is very little understanding of the significance of the Mnjikaning Fish Weirs National Historic Site because one is unable to see the underwater weirs. Creating a vantage point to better understand the Narrows is essential to providing visitors with a deep understanding of the significance and sacredness of the Mnjikaning Fish Weirs.

An interpretive center is being proposed within the space provided between the underside of the new bridge and the existing structural support for the former bridge, situated on the east side of the narrows. This space is in a unique location that is close to the underwater Mnjikaning Fish Weirs. The floor of the interpretive center would consist of an insulated concrete raft slab on helical piers. Small steel columns around the perimeter of the space will support a steel framed roof. No new support and/or foundation would be required as part of this proposed space.

8.3.2 Sacred Gathering Space

A new sacred gathering space is proposed adjacent to the wetland area, immediately north of the existing trail in proximity to the greatest concentration of remaining fish weirs. The gathering space will comprise a circular walled enclosure with no roof. The walls are to be constructed of galvanized steel posts with wood cladding on both sides. The floor will consist of a wood deck supported by a galvanized steel beams on helical piles. The beams will be oriented radially and will also provide support for the steel posts. The wood deck supports are being planned within the previously disturbed lands associated with the historical CN Rail line.

8.3.3 Boardwalk

A wooden boardwalk is proposed to connect to the sacred gathering space to enable all visitors to get close to the water of the Atherley Narrows and the Mnjikaning Fish Weirs site. The boardwalk would comprise two support systems; one system above solid ground, ramping up to meet the bridge approach, and a second system over the water. The overall length of the boardwalk is approximately 182 m long and 2.6 m wide. As such, the total surface area of the boardwalk space is expected to be approximately 481 m².

A portion of the boardwalk over solid ground is situated within/proximity to the former rail corridor and will be constructed similar to the east approach utilizing a wood deck on a galvanized steel framework. The boardwalk
decking in this area will be both the structural and a wearing surface and will be open to below. Spans for this area will be limited to approximately 4 m with helical pier foundations.

A wood-framed boardwalk supported on conventional floating docks, each approximately 6 m in length is being planned within the wetland area. No permanent supports are currently being planned within the wetland area to avoid direct impacts to terrestrial and/or aquatic species or habitat and/or archaeological resources, to the extent possible.

It should be noted that the precise location of the boardwalk will be confirmed during detailed design, in consultation with the Ministry of Natural Resources and Forestry (MNRF), the Department of Fisheries and Oceans (DFO), Parks Canada, the Chippewas of Rama First Nation and the Atherley Narrows Bridge Committee.

8.3.4 Detailed Design

Life Cycle Costing analyses will be carried out during detailed design of the project. The use of a timber truss is being explored in consideration of potential life cycle costs associated with this option. The use of timber truss is not expected to significantly change the aesthetics of the bridge.

Alternative deck construction options, including a waterproof bridge deck, consisting of steel, concrete or laminated wood encapsulated in fibreglass, asphalt and concrete, will also be further explored as part of detailed design, in consultation with the OSC and OFSC. It is understood that asphalt may have a 15 to 20 year life span and concrete may last up to 75 years. According to the OSC, concrete needs to be repaired or replaced every 20 years due to the wear and tear created by the carbonized steel blades of snowmobiles. This is typically more costly and time consuming to repair than the recommended wood deck proposed. It should be noted that surface runoff will be collected in catch basins to be located at the east and west approaches in the case where alternate waterproof decks are used.
ATHERLEY NARROWS SNOWMOBILE/PEDESTRIAN BRIDGE

Preliminary Design

[Diagram of the Atherley Narrows Snowmobile/Pedestrian Bridge with annotations and measurements.]
9. **Anticipated Environmental Impacts and Proposed Mitigation Measures**

Many of the environmental concerns related to the project have been mitigated through the process by which the recommended design was selected, as described in this ESR. The balance of anticipated impacts to the natural and cultural environments and the proposed mitigation measures for the preferred bridge design is described in the following sections. It should be noted that the City of Orillia will continue to work with Parks Canada, Trent-Severn Waterway, Transport Canada and the MNRF during detailed design and prior to the start of construction to ensure that the proposed works are acceptable and to obtain required permits and approvals.

The proposed mitigation measures described herein are related to the removal of the existing swing bridge and construction of a new bridge. The potential impacts associated with the ancillary functions are generally described in Section 10.

### 9.1 Natural Environment

#### 9.1.1 Terrestrial

**Trees and Shrubs**

Modifications to the bridge approaches and/or improvements to the trail corridor may impact some trees and/or shrubs. The permanent removal of existing vegetation will be avoided to the extent possible. The City will prepare a Vegetation Restoration Plan during detailed design so that opportunities to preserve existing trees and shrubs and/or plant new trees and shrubs are explored. Suitable areas of the trail right-of-way shall be replanted with site-appropriate indigenous trees and shrubs. The Vegetation Restoration Plan will be developed in consultation with the MNRF, the Township of Ramara and the Chippewas of Rama First Nation.

**Breeding Birds**

Any necessary vegetation and/or tree removal (site grubbing) will be carried out outside of the migratory bird breeding window, as per the *Migratory Birds Act* (May 1 to July 31). Active nest surveys will be undertaken prior to construction if clearing of vegetation must take place during this period. If required, all work completed below the high water mark will be completely isolated through the use of two parallel runs of heavy duty silt fence that will be "toed in" to the soft substrate at the water's edge.

#### 9.1.2 Species at Risk

It is understood that features within the study area provide suitable habitat for some SAR. An on-site preconstruction meeting with the Construction Administrator will be undertaken by a qualified biologist to ensure that all involved are aware of the potential for SAR within the specified areas and the necessity for action. Areas where construction activities are being planned (i.e., vegetation, on/under rocks/debris, along the shoreline, in the water etc.), will be scanned prior to each activity to ensure that SAR are not in the area. If Species at Risk are encountered, they will be allowed to disperse prior to commencing work and the MNRF will be contacted to report the observation. If the planned activity has the potential to harm, harass or kill the animal(s), the MNRF will be contacted immediately to discuss management options to minimize, reduce or control adverse effects, and design compensatory mitigation and environmental effects monitoring, if required.
Potential Bat and/or Barn Swallow Habitat

The existing swing span provides suitable nesting habitat for Barn Swallow and potential maternal roosting habitat for two Endangered bat species that may be present in the area. An on-site pre-construction meeting will be held between the contract administrator and a qualified biologist to ensure that all staff is aware of the potential for these SAR within the study area. Care will be taken to confirm the presence/absence of Barn Swallow and/or bat species beneath the existing bridge. If either of these species are identified on or beneath the bridge prior to works, the MNRF shall be contacted immediately to determine the appropriate actions to protect the species in accordance with Ontario’s Endangered Species Act, and the Migratory Birds Convention Act, and the Migratory Birds Regulations.

Turtle Nesting Habitat

The loose soil and gravel associated with the existing trail and rail bed provide potential nesting habitat for turtle Species at Risk, including Blanding’s Turtle, Musk Turtle and Snapping Turtle. These species may be identified during construction and/or may attempt to nest within the gravel surface of the existing trail within the work area.

In order to compensate for the potential loss of nesting habitat for turtle species, the use of artificial turtle nesting structures will be placed within adjacent areas. The artificial structures will consist of contained areas of loose gravel and soils, and will be situated away from the main areas of human activity, above the water level, open to the sun, and if possible, be difficult to access by predators.

In addition, protective fencing will also be placed along the existing trail to prevent turtle nesting within the soil/gravel in advance of any construction activities and prior to the turtle nesting season. Silt fencing will be installed along the limits of the work area on both sides of the trail in a configuration that would prevent turtles from moving out of the waterbody and into loose gravel within the work area to nest. Fencing shall be erected prior to May 15, and inspected daily throughout the nesting season (i.e., May 15 to June 30). Any identified damage shall be immediately repaired to prevent turtles from accessing to the work area.

9.1.3 Fish/Fish Habitat

Release of Debris/Sediments

Construction activities, including removal of the existing swing bridge and construction of the new bridge has the potential to release debris and sediment to the adjacent waters. The existing bridge will be carefully disassembled on-site and subsequently removed by a crane supported by a barge. A temporary platform will be installed to collect any debris that would otherwise fall into the water. Any deleterious material will be collected and removed from the site and none will be temporarily and/or permanently placed in the natural areas within and/or surrounding the site.

No machinery will remain on-site and none will enter the waterbody, alter the channel bed or the shoreline features.

Water Supply Contamination

Lead-Based Paint

Remnant lead-containing paint is present on the underside of the existing spans for the east approach. The paint will be removed as per Ontario Ministry of Labour Occupational Health and Safety Branch guidelines related to lead abatement protocol (i.e., Lead on Construction Projects) and by a qualified contractor. During removal of the existing spans, no debris will be permitted to enter the waterway and/or adjacent land. Any debris will be carefully collected via a temporary platform and disposed of at an appropriate receiving facility.
**Equipment Use**

All vehicle/equipment maintenance will be restricted to the temporary staging areas/at least 30 m away from the water, and no material stockpiling will take place within the immediate work area.

All equipment used for the purpose of excavation shall be maintained to avoid leakage of fuels and liquids and stored and operated in a manner that prevents any deleterious substances from entering the water. An emergency spill kit shall be kept on-site and employed immediately should a spill occur. An adequate supply of clean up materials will be maintained on-site. Should any spills occur during construction, the Spills Action Centre (1-800-268-6060) of the Ministry of Environment Climate Change will be contacted immediately. All provincial and federal regulations shall be adhered to in the case of a spill.

**Stockpiling**

A detailed Sediment and Erosion Plan shall be completed prior to construction should consider the needs for both mitigation of impacts to fish habitat/bridge construction and the exclusion of turtles from the work area. All excavated materials requiring stockpiling will be in accordance with OPSS 180.07.06 and placed in predetermined locations. The perimeters of stockpiles will be encircled with silt fencing, according to OPSD 219.110. A Construction Work Plan will be developed and will designate locations for stockpiling of soils and other materials including fuel. Prior to commencement of construction, the limits of protection areas will be delineated.

9.2  Culture Heritage

9.2.1  Mnjikaning Fish Weirs

It is expected that a crane supported by a barge will be required to remove the swing and east spans of the existing bridge. The substructure of the existing bridge will be reused to accommodate the new bridge, therefore no in-water works are being planned at this time.

The Chippewas of Rama and Mnjikaning Fish Fence Circle will continue to be engaged throughout detailed design of the project. In addition, the Chippewas of Rama will be notified in advance of any construction activities at the site. The contractor and associated staff will be made aware of the location of the Mnjikaning Fish Weirs. These will be avoided during construction activities. A licensed marine archaeologist will remain on-site to ensure that impacts to the fish weirs are avoided during existing bridge removal and new bridge construction activities.

9.2.2  Cultural Heritage Resources

The existing Atherley Narrows Swing Bridge has been identified as a significant cultural heritage resource. Given its demonstrated cultural heritage value or interest, the mitigation measures described herein will be considered by the City of Orillia during detailed design, in consultation with the Township of Ramara and the Atherley Narrows Bridge Committee:

- The Atherley Narrows Swing Bridge and site should be considered for designation under Part IV of the OHA, or for "listing" under the OHA as a heritage resource on a municipal register.
- The retention of bridge as heritage monument for viewing purposes in an adjacent setting will be undertaken, if economically and technically feasible. The City of Orillia is currently undertaking the J.B. Tudhope Memorial Park Design Plan Update. The feasibility of relocating the Atherley Narrows swing bridge to this park will be explored as part of the plan update.
- Elements/members of the swing bridge will be salvaged for incorporation into an interpretative display in an adjacent setting.
- A photographic documentation of the Atherley Narrows Swing Bridge shall be prepared prior to any change to the structure, its site and its context. The documentation will include a historical summary of the
development of the site, historical photographs, contemporary photographs of the structure, photographic key plans and original and rehabilitation drawings.

- Additional historical research with CN and Library and Archives Canada is an anticipated component of this work. A professional heritage consultant in good standing with the Canadian Association of Heritage Professionals (CAHP) and demonstrated experience in the preparation of documentation reports should undertake the work. The documentation report would be deposited with the City of Orillia, the Township of Ramara, the Simcoe County Archives, the Orillia Public Library (Local History Room) and the Ramara Public Library (Ramara Centre Branch).

- An Interpretation Plan will be prepared that addresses the historical and contextual values of the site and includes, but is not limited to, the Mnijikaning Fish Weirs, the Narrow’s historical importance as a water and rail transportation link, its place in the Trent-Severn Waterway, a National Historic Site and the overall value of the cultural heritage landscape.

9.3 Social Environment

9.3.1 Recreational Users

Active Transportation

The proposed trail connection has never been available to users. As such, impacts to users during construction are not anticipated. The preliminary design for the new bridge was developed in consideration of the Bridge Code and the Ontario Guideline for the Design of Snowmobile Bridges.

Navigation

The height of the new bridge (i.e., 7.01 m) will maintain the navigation clearance required by the Trent-Severn Waterway (i.e., 6.7 m). The horizontal clearance will remain the same as the existing bridge (i.e., 10 m) given that the substructure is being used to support the new bridge.

All construction is being planned after the October Thanksgiving long weekend and before March 31, to meet the restricted terrestrial and aquatic species timing windows, as well as the Trent-Severn Water lockage schedule and main recreational boating season between May/Victoria Day long weekend through the October/Thanksgiving long weekend.

Safety

The barrier and railing heights being planned as part of the new bridge were developed in consideration of the applicable code and guidelines. Additional safety considerations associated with shared use between all types of recreational users, including snowmobiles will be determined during detailed design. These include, but are not limited to: separated lanes; signage; speed restrictions; pedestrian refuge areas; and signals.

Lighting

Lighting is anticipated along the new bridge. Bridge illumination details will be further explored during detailed design and will consider the existing natural heritage features of the surrounding environment.

9.3.2 Aesthetics

Enhanced landscaping features will be implemented at the bridge approaches. Commemorative elements representing other heritage features of the area, such as the Atherley Narrows Swing Bridge, can be incorporated into the landscape, particularly at the west approach where the City of Orillia is considering the future use of the area.
as a Cultural Park. The new bridge is expected to create a landmark that should allow visitors to appreciate the Aboriginal cultural heritage of the area, the Mnijkaning Fish Weirs and the Trent-Severn Waterway.

9.3.3 Parking

Parking is currently available at the entrance to the Ramara Trail, situated at the north end of Queen Street in the Township of Ramara. The need for additional parking will be reviewed during detailed design.

9.4 Air Quality

Activities associated with the removal of the existing swing span and eastern approach spans and construction of the new bridge are not expected to create large quantities of dust that will exceed acceptable MOECC guidelines; nevertheless appropriate mitigation measures will be implemented to reduce localized dust emissions around the site. During construction, best management practices and control measures to mitigate any air quality impacts caused by construction dust will be carried out.

Non-chloride dust suppressants will be applied, as recommended by the MOECC. Material handling, such as excavation, loading and hauling will be the most significant source of dust during construction of the new bridge. In addition to the above, dust control will be achieved through planning and proper implementation of construction controls and mitigation which include, but are not limited to, use of dust suppression measures such as spraying down the site and approaches, washing trucks on a regular basis and use of dust covers on haulage trucks.

To prevent air quality impacts associated with construction vehicle exhaust fumes, emission control devices on equipment should be functional and effective. Further, new or well-maintained heavy equipment and machinery, preferably fitted with muffler/exhaust system baffles, as well as the use of engine covers, will be used.

9.5 Construction

9.5.1 Timing of Construction Activities

All works will be restricted to following the October Thanksgiving long weekend and before March 31, in consideration of the timing windows outlined in Exhibit 9-1 below. Where possible, construction activities will be planned over a continuous schedule.

<table>
<thead>
<tr>
<th>Restricted Dates</th>
<th>Respective Timing Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 31 to July 15</td>
<td>Warm Water Fish species spawning</td>
</tr>
<tr>
<td>April 1 to July 15</td>
<td>Migratory birds, nests and eggs</td>
</tr>
<tr>
<td>May/Victoria Day long weekend through the October/Thanksgiving long weekend</td>
<td>Trent-Severn Waterway lockage schedule</td>
</tr>
<tr>
<td>Spring</td>
<td>Main recreational boating season</td>
</tr>
<tr>
<td></td>
<td>High Water Levels</td>
</tr>
</tbody>
</table>

9.5.2 Staging Areas

Full vehicular access for the construction of the proposed bridge is provided from the two existing approaches on the east and west ends of the bridge site. Access to the site from Highway 12/Atherley Road will be provided from the existing entrance to the Ramara Trail on the east side of the study area. The associated gravel-surfaced parking area will be used for temporary parking and storage of vehicles and supplies. In addition, the existing entrance to the Millennium Trail at Highway 12/Atherley Road will be used to access the site from the west side of the study area.
9.5.3 Equipment Use

During construction, all machinery will be maintained and free of fluid leaks. Where feasible, light vehicles with wide tires having a large surface area (rather than tracked vehicles) and lighter machinery (e.g. hand-held equipment) should be used in and around natural areas. The use of tracked vehicles will be avoided to the extent possible.

Maintenance, vehicle washing and refuelling stations will be located at a minimum of 30 m away from natural features or water bodies. Spill collection pads will be stored on-site at all times for vehicle refuelling and maintenance purposes.

9.5.4 Grading and Excavation

New RSS fill material will be imported and placed west of the existing west abutment to raise the grade to meet the new bridge elevation. A facing will be required on the water side and the approach will stop at least 1 m short of the shoreline. There will be no dewatering required as part of the bridge construction.

The west approaching spans will be raised by 3.3 m over a distance of approximately 73.6 m to allow for the required navigational clearance below the bridge structure. Minor excavations will include the removal of the upper 0.5 m to 1.0 m of the existing rail bed fill. It should be noted that trace slag material was identified within the top 0.5 m/0.6 m of fill within two boreholes advanced at the west approach as part of a previous geotechnical investigation (i.e., one approximately 20 m west of the west abutment and one immediately west of the west abutment). Representative sampling and chemical analyses will be carried out on the removed material to confirm suitability for disposal and identify an appropriate receiving facility. Clean sand fill subgrade, compacted and proof-rolled prior to commencing construction, will be placed in lieu of the excavated material.

All excavations will be carried out in conformance to Ontario Regulation 213/91 and the Occupational Health and Safety Act and Regulations for Construction Projects (OHSA). All excavations above the water table not exceeding 1.2 m in depth may be constructed with unsupported slopes. The soils encountered during this investigation are classed by OHSA as Type 3 above the water level and Type 4 below. As such, unsupported walls of excavations in these soils shall maintain a gradient of 1.5 horizontal to 1 vertical (1.5H:1V) or flatter.

9.5.5 Material Stockpiling and Handling

Soil and/or groundwater contamination will be controlled through best management practices, including:
- Stockpiled materials will be stored at least 30 m away from the water to prevent deleterious substances from inadvertently discharging to the environment;
- A spill response plan will be developed and all staff will be trained on appropriate procedures;
- Emergency spill kits will remain on-site at all time; and,
- All waste material generated from construction activities will be removed by authorized and approved off-site vendors.

9.5.6 Utilities

No active utilities will be impacted by the proposed works. All abandoned/out-of-use utilities will be removed and disposed of at an appropriate receiving facility.
10. Design and Construction of the Ancillary Functions

The following mitigation measures have been developed in consideration of the potential impacts associated with construction of the boardwalk and sacred ceremonial space. These ancillary functions will be further developed during detailed design of the project, and are subject to approval by Parks Canada. It should be noted that these features are being proposed along the northeast shore of the historic east channel. As such, construction of the boardwalk and/or the sacred ceremonial space is not expected to interfere with navigation.

10.1.1 Wildlife/Species at Risk

Detailed design and construction of the proposed boardwalk within the wetland will consider the use of the wetland for a seasonal Colonial Bird Nest and Waterfowl Stopover and Staging Area. Additional consideration will be given to Black Tern if it is identified to be nesting in the PSW prior to construction. The MNRF Midhurst District will be contacted to document the sighting.

It should be noted that the boardwalk is being proposed as a floating structure within the wetland area, however should permanent supports be required, mitigation measures are to be followed to ensure that there are no contraventions of the Endangered Species Act or Species at Risk Act: Any in-water work shall be undertaken during the active season (after April 15 and before October 1) to ensure that overwintering turtles are not impacted; and, any in-water area shall be monitored to ensure that no turtles are trapped in the work area.

The precise layout of the proposed boardwalk will be confirmed during detailed design, in consultation with the Chippewas of Rama, MNRF and DFO. It is understood that a review by the DFO may be required during detailed design of the boardwalk to confirm that it complies with the Fisheries Act.

10.1.2 Aquatic Environment

Where the proposed boardwalk extends into flooded areas it will create a new footprint below High Water Level. All work completed below the high water mark will be completely isolated to avoid sediment entering the waterway. Diligent erosion and sediment control measure will be applied through the use of sediment fencing. Sediment fencing will be maintained until all construction works are complete.

A floating boardwalk will alter the habitat below it by creating a shaded area and preventing vegetation to grow. This may not necessarily impact the fish habitat negatively as the shaded areas beneath the deck may create some open water and cover that is currently limiting in the near shore area which is densely vegetated by cattails. If required, any in-water work will be undertaken outside of the fish timing window (i.e., before March 31 and after July 15). The boardwalk is being proposed along the northeast shore of the historic east channel. As such, construction of the boardwalk and/or the sacred ceremonial space is not expected to interfere with navigation.

Similarly, a permanent boardwalk would shade the vegetation and require supports that are driven into the substrate. The footprint of the supports would be small if posts are used to hold up the deck. The boards will alter the habitat in the same way as the floating boardwalk. It should be noted that, should construction of the boardwalk have the potential to impact overwintering habitat for the identified turtle species, construction activities should also be limited to the active season (i.e., after April 15 and before October 1).

Construction of the sacred ceremonial space and/or boardwalk may result in the permanent loss of trees and/or shrubs. Mitigation measures described in Section 9.1.1 will be applied to minimize and/or avoid impacts to vegetation.
Efforts will be made to avoid permanent structures within the wetland area, to the extent possible. The City of Orillia and Township of Ramara will continue to engage the Chippewas of Rama and Parks Canada throughout the detailed design process. In addition, a licensed marine archaeologist will be on-site during installation of the boardwalk.

**Turtle Nesting and Overwintering Habitat**

The proposed construction of the boardwalk and/or sacred ceremonial space will consider the mitigation recommendations prescribed in Section 9.1.2 related to turtle nesting.

### 11. Monitoring and Commitments

The key commitments made as part of this Environmental Study Report are presented in Exhibit 11-1 below. At key stages of the project it is recommended that construction activities be monitored by qualified personnel to ensure fish habitat protection measures and mitigation measures are installed appropriately and functioning properly, and water quality is maintained in the waterbody. Key stages would include the installation of sediment fences, removal of the existing bridge structure and monitoring of the construction of the new bridge. Photographic documentation should be collected during all stages of construction and of the final condition of the restored areas once the project is complete.

It is recommended that these environmental commitments become part of the contract package so that contractors are aware of the requirements prior to tendering. Environmental monitoring will be combined with construction supervision to include periodic site visits and inspections throughout the course of the work (e.g. confirm the proper placement and maintenance of all erosion and sediment control measures). Monitoring of construction activities must ensure that all environmental standards and commitments for construction are met.

#### Exhibit 11-1: Detailed Design Commitments

<table>
<thead>
<tr>
<th>ID#</th>
<th>Detailed Design Commitments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>VEGETATION</strong></td>
</tr>
<tr>
<td>1</td>
<td>All areas disturbed during construction will be restored immediately following the completion of earthworks. Site restoration will include re-vegetation of all erodible soils using a layer of topsoil (if necessary) and type of soil guard combined with native tree and shrub plantings.</td>
</tr>
<tr>
<td>2</td>
<td>Limits of work will be delineated in field prior to construction commencement to minimize environmental impacts in sensitive areas.</td>
</tr>
<tr>
<td>3</td>
<td>A Landscape Planting Plan will be completed and include locally native, non-invasive species that blend into the surrounding environment and complement the existing plant species composition.</td>
</tr>
<tr>
<td>4</td>
<td>Restoration of the vegetation removed will be completed in consultation with the MNRF, where appropriate.</td>
</tr>
<tr>
<td>5</td>
<td>Restoration measures will focus on existing natural areas to: i) link isolated features, increasing landscape connectivity, ii) encourage the growth of various habitat types, increasing biodiversity, and iii) target key wildlife species (i.e., Species at Risk) to increase suitable habitat.</td>
</tr>
<tr>
<td>6</td>
<td>If work will take place near trees, tree protection fencing shall be erected and maintained to protect the tree and root zone.</td>
</tr>
<tr>
<td>7</td>
<td>No activity shall be allowed within the tree protection fence area. Equipment shall not be driven over root zones, no materials shall be stockpiled near trees, and foot traffic shall be limited especially during rainy periods when soil is more prone to compaction.</td>
</tr>
</tbody>
</table>

**PROVINCIAL SIGNIFICANT WETLAND**

| 8   | At this time, no permanent footprint is being proposed within the PSW. Additional consideration associated with impacts to the PSW will be considered during detailed design of the boardwalk. |

**WILDLIFE**

| 9   | Vegetation and/or tree removal (site grubbing) will be carried out outside of the migratory bird breeding window. |
| 10  | Exclusion fencing will be installed in advance of construction activities to prevent turtle species from nesting in the work area. |
11. Artificial nesting habitat for turtle species within adjacent areas will be implemented prior to construction. Nesting structures to contain loose gravel and soils, and will be situated away from the main areas of human activity, above the water level, open to the sun, and if possible, be difficult to access by predators.

12. The sediment and erosion plan will consider the need for mitigation of impacts to fish habitat/bridge construction and the exclusion of turtles from the work area.

**SPECIES AT RISK**

13. The MNRF will be consulted at the outset of detail design to confirm if additional SAR fieldwork is required.

14. An on-site pre-construction meeting will be held between the contractor and a qualified biologist to ensure that all staff are aware of the potential for SAR within the study area.

15. Care will be taken to confirm the presence/absence of Barn Swallow and/or bat species beneath the existing bridge. If either of these species is identified on or beneath the bridge prior to works, the MNRF shall be contacted immediately.

16. Any in-water work will be undertaken during the active season to avoid impacts to overwintering turtles (i.e., after April 15 and before October 1).

17. Detailed design and construction of the proposed boardwalk within the wetland will consider the use of the wetland for a seasonal Colonial Bird Nest and Waterfowl Stopover and Staging Area. Additional consideration will be given to Black Tern if it is identified to be nesting in the PSW prior to construction. The MNRF Midhurst District will be contacted to document the sighting.

18. Additional Species at Risk surveys will be carried out to confirm presence/absence of SAR. Bat and Barn Swallow surveys will be carried out prior to construction to confirm absence.

19. The precise layout of the proposed boardwalk will be confirmed during detailed design, in consultation with the MNRF and DFO.

20. If SAR encountered during construction, all works will stop and MNRF will be contacted immediately.

21. Bridge design elements that encourage nesting/roosting for birds and bats will be considered during detailed design, in consultation with the MNRF.

**WATER QUALITY**

22. A temporary platform will be installed to collect any debris that would otherwise fall into the water. Any deleterious material will be collected and removed from the site and none will be temporarily and/or permanently placed in the natural areas within and/or surrounding the site.

23. No machinery will remain on-site and none will enter the waterbody, alter the channel bed or the shoreline features.

24. Continuous construction schedule recommended to minimize duration of work in proximity to water/natural features.

25. In-water works will conform to Department of Fisheries and Ocean’s (DFO) Restricted Activity Timing Windows (i.e., between October 1 and July 15).

26. All equipment maintenance activities required during construction shall be conducted away (i.e., at least 30 m) from the site to protect the channel from any accidental spillage of deleterious material. Appropriate spill response material will be kept on-site.

**EROSION AND SEDIMENTATION**

27. Diligent erosion and sediment control measure will be applied through the use of sediment fencing. Sediment fencing will be maintained until all construction works are complete.

28. The integrity of all sediment trapping devices will be monitored regularly (at least weekly, and immediately following rain events) and properly maintained; such structures will be removed only after the soils of the construction areas have been stabilized and then only after the trapped sediments have been removed.

**MNJIKANING FISH WEIRS**

29. The contractor and associated staff will be made aware of the location of remnant fish weirs prior to any construction activities.

30. A marine archaeologist, licensed under the Ontario Heritage Act, will be present during construction activities to ensure that identified areas are avoided during construction.

31. Known locations of fish weirs will be avoided during construction. Efforts will be made to avoid permanent structures within the wetland area.

32. The Chippewas of Rama First Nation, stewards of the Atherley Narrows Fish Weirs, will continue to be engaged throughout detailed design and construction of the new bridge.

**ATHERLEY NARROWS SWING BRIDGE**

33. A photographic documentation of the swing bridge will be prepared prior to any change to the structure, its site and its context.

34. A documentation report, as prescribed within Section 6.3 of the CHER, will be prepared and deposited with the City of Orillia, the Township of Ramara, the Simcoe County Archives, the Orillia Public Library (Local History Room) and the Ramara Public Library (Ramara Centre Branch).

35. An Interpretation Plan will be prepared that addresses the historical and contextual values of the site and includes, but is not limited to, the Mnjikaning Fish Weirs National Historic Site, the historical importance of Atherley Narrows as a water and rail transportation link, its place in the Trent-Severn Waterway National Historic Site and the overall value of the cultural heritage landscape. The Interpretation Plan will be submitted to Parks Canada for their review and input.
<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>36.</td>
<td>The bridge will be retained as a heritage monument for viewing purposes in a nearby setting, if technically and economically feasible.</td>
</tr>
<tr>
<td>37.</td>
<td>Elements/members of the existing swing bridge will be salvaged and/or reused in an adjacent setting. The west side of the trail corridor will be considered so as not to detract from the fish weir and sacred space facilities on the east side.</td>
</tr>
<tr>
<td>38.</td>
<td>Preparation of a commemorative interpretation strategy to celebrate the historic railway crossing.</td>
</tr>
<tr>
<td>39.</td>
<td>The potential use of COR-TEN steel in the design of the new bridge in sympathy with the railway swing bridge materials of construction will be considered during detailed design.</td>
</tr>
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</table>

### AIR QUALITY

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<tbody>
<tr>
<td>40.</td>
<td>Water and/or dust suppressants shall be used during construction to protect air quality. A Dust Control Plan will be developed during detailed design.</td>
</tr>
<tr>
<td>41.</td>
<td>Only equipment that is in good operating condition and compliant with applicable federal regulations for off-road diesel engines will be used during construction.</td>
</tr>
</tbody>
</table>

### CONTAMINATED WASTE

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<tbody>
<tr>
<td>42.</td>
<td>Representative sampling and chemical analyses will be carried out on the removed material to confirm suitability for disposal and identify an appropriate receiving facility. Clean sand fill subgrade, compacted and proof-rolled prior to commencing construction, will be placed in lieu of the excavated material.</td>
</tr>
<tr>
<td>43.</td>
<td>If any soil samples exceed the applicable MOECC guidelines, any impacted material will be removed from the site at the time of construction activities and disposed of at a licensed receiving facility.</td>
</tr>
<tr>
<td>44.</td>
<td>A visual evaluation of the site shall be completed by an Environmental Health and Safety specialist and confirm site-specific requirements.</td>
</tr>
<tr>
<td>45.</td>
<td>A Control Plan shall be prepared and implemented to prevent lead-containing paint from becoming airborne and/or entering the water. The plan will be prepared in accordance with Ontario Ministry of Labour and the Occupational Health and Safety Act requirements.</td>
</tr>
<tr>
<td>46.</td>
<td>Bridge removal activities will be carried out in a manner and with equipment that will leave any portion of the existing structure not designated for removal or salvage undisturbed and avoid any impacts to the water.</td>
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### MATERIAL STOCKPILING AND HANDLING

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<tbody>
<tr>
<td>47.</td>
<td>All wastes will be recycled at a facility that handles this material and/or disposed of at a licensed facility.</td>
</tr>
<tr>
<td>48.</td>
<td>All excavated materials requiring stockpiling will be in accordance with OPSS 180.07.06 and placed in pre-determined locations. The perimeters of stockpiles will be encircled with silt fencing, according to OPSD 219.110.</td>
</tr>
<tr>
<td>49.</td>
<td>A construction work plan will be developed which designates locations for stockpiling of soils and other materials including fuel. Prior to commencement of construction, the limits of protection areas will be delineated.</td>
</tr>
</tbody>
</table>

### SAFETY

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<tbody>
<tr>
<td>50.</td>
<td>Illumination for the new bridge will be considered during detailed design.</td>
</tr>
<tr>
<td>51.</td>
<td>Opportunities to ensure the safety of all types of recreational users will be explored during detailed design and implemented. In consideration of the comments received from the public, these include but are not limited to:</td>
</tr>
<tr>
<td></td>
<td>- designated/ separated lanes</td>
</tr>
<tr>
<td></td>
<td>- timed traffic lights at bridge entrances</td>
</tr>
<tr>
<td></td>
<td>- signage/ posted speed limits</td>
</tr>
<tr>
<td></td>
<td>- camera use</td>
</tr>
<tr>
<td>52.</td>
<td>Accessibility for Ontarians with Disabilities Act requirements will be met.</td>
</tr>
</tbody>
</table>

### NAVIGATION

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<table>
<thead>
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<tbody>
<tr>
<td>53.</td>
<td>No works within the navigational channel within the Trent-Severn Waterway lockage operation (i.e., between May long weekend and October long weekend) or the recreational boating season, in consultation with Transport Canada and Parks Canada, Trent-Severn Waterway.</td>
</tr>
<tr>
<td>54.</td>
<td>Consultation with potentially effected boaters will be carried out to ensure they are aware of the potential temporary closure of the channel during construction activities.</td>
</tr>
</tbody>
</table>

### 11.1 Permits and Approvals

The Atherley Narrows Bridge project is subject to various regulatory approvals, including Environmental Impact Analysis requirements under Section 67 of the Canadian Environmental Assessment Act 2012. Permits and approvals required by the associative regulatory agency include the following:

- Transport Canada Navigation Impact Assessment
- Parks Canada Basic Impact Analysis
- Parks Canada/Trent-Severn Waterway, Shoreline and In-Water Works Permit
- Permit under the Public Land Act (for activities on Crown Land)
- Application for Work Permit (including Part 4, Road or Trail Construction/Water Crossings)
- Memorandum of understanding between MNRF and City of Orillia outlining responsibilities for maintenance, decommissioning, etc.
- Review and approval of engineered plans by MNRF engineering (MNRF will outline in a Terms of Reference)

Water takings in Ontario are governed by the Ontario Water Resources Act (OWRA) and the Water Taking Regulation (O.Reg. 387/04). A Permit to Take Water (PTTW) is required for construction dewatering, groundwater or surface water extraction and the active diversion of surface water flows, if needed for pumping water volumes greater than 50,000 L per day. However, water taking is not expected to be required as part of this project.

11.1.1 Ontario Occupational Health and Safety Act

Health and safety requirements will be adhered to during construction under Ontario’s Occupational Health and Safety Act.

Mitigation measures identified in this report shall be written into the contract specifications. During construction, the contract administrator will ensure that monitoring/inspection of the project works is undertaken to ensure that all environmental commitments identified in the Environmental Study Report are adhered to by the contract team.

In consideration of the existing site conditions and the proposed design concept for the new bridge, the potential impacts to natural resources associated with this project are expected to be minimal and mitigable.

11.1.2 Land Ownership

Land ownership in the study area is shared between the City of Orillia, the Township of Ramara, and the Crown. While the railway right-of-way was transferred to the respective municipalities following the abandonment of the rail line in the 1990s, the existing swing span of the abandoned bridge continues to be owned by CN. The City of Orillia will continue to work with CN during detail design to formally conclude property requirements.