TOWNSHIP OF ST. CLAIR

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
FOR THE PRETTY ROAD BRIDGE

SCREENING REPORT
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SCREENING REPORT

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File No. BR1229

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1.0 INTRODUCTION

1.1 Purpose of the Report

The Township of St. Clair initiated a Class Environmental Assessment (Class EA) process in September 2016, to evaluate the potential impacts associated with the Pretty Road Bridge, which spans Black Creek along Pretty Road, approximately 150 metres north of McCallum Line. The study process followed the procedures set out in the Municipal Class Environmental Assessment document, dated October 2000, as amended in 2007, 2011 & 2015 (Ref. 1). B. M. Ross and Associates Limited (BMROSS) was engaged to conduct the Class EA investigation on behalf of the Township of St. Clair.

The purpose of this report is to document the Class EA planning and design process followed for this project. The report includes the following major components:

- An overview of the general project area.
- A summary of the structural deficiencies associated with the crossing.
- A description of the alternative solutions considered to resolve the identified problems.
- A synopsis of the decision-making process conducted to select a preferred alternative.
- A detailed description of the preferred alternative.

1.2 Environmental Assessment Process

Municipalities must adhere to the Environmental Assessment Act of Ontario (EA Act) when completing road, sewer or waterworks activities. The Act allows the use of Class Environmental Assessments for most municipal projects. A Class EA is an approved planning document which describes the process that proponents must follow in order to meet the requirements of the EA Act. The Class EA approach allows for the evaluation of alternatives to a project, alternative methods of carrying out a project, and identifies potential environmental impacts. The process involves mandatory requirements for public input.
Class EA studies are a method of dealing with projects which have the following important characteristics in common:

- They are recurring.
- They are usually similar in nature.
- They are usually limited in scale.
- They have a predictable range of environmental effects.
- They are responsive to mitigating measures.

If the Class EA planning process is followed, a proponent does not have to apply for formal approval under the EA Act. The development of this investigation has followed procedures set out in the Class EA. Figure 1.1 presents a graphical outline of the procedures.

The Class EA planning process is divided into the following phases:

- Phase 1 – Problem identification.
- Phase 2 – Evaluation of alternative solutions to the defined problems and selection of a preferred solution.
- Phase 3 – Identification and evaluation of alternative design concepts in the selection of a preferred design concept.
- Phase 4 – Preparation and submission of an Environmental Screening Report (ESR) for public and government agency review.
- Phase 5 – Implementation of the preferred alternative and monitoring of any impacts.

Throughout the Class EA process, proponents are responsible for the following key principles of environmental planning:

- Consultation with affected parties throughout the process.
- Examination of a reasonable range of alternatives.
- Consideration of effects on all aspects of the environment.
- Application of a systematic methodology for evaluation alternatives.
- Clear documentation of the process to permit traceability of decision-making.

1.3 Project Management

The Township of St. Clair is considered the project proponent under the terms of the Class EA document. The Township engaged BMROSS to carry out the Class EA study process on their behalf.
1.4 Classification of Project Schedules

Projects are classified to different project schedules according to the potential complexity and the degree of environmental impacts that could be associated with each. There are four schedules:

- **Schedule A** – Projects that are approved with no need to follow the Class EA process.
- **Schedule A+** – Projects that are pre-approved but require some form of public notification.
- **Schedule B** – Projects that are approved following the completion of a screening process that incorporates, as a minimum, Phases 1 and 2 of the Class EA process.
- **Schedule C** – Projects that are approved following the completion of the full Class EA process.

The Class EA process is self-regulatory and municipalities are expected to identify the appropriate level of environmental assessment based upon the project they are considering. A proponent may also choose to elevate a project to a higher schedule.

1.5 Environmental Screening Report

An Environmental Screening Report provides documentation of the decision-making process followed by the proponent of a project. Included in the report is a description of the problem or opportunity; pertinent background information; the rationale for the selection of the preferred solution; descriptions of the environmental considerations and impacts; any mitigating measures that will be undertaken to minimize environmental effects, a description of the consultation process; and a description of any monitoring programs to be carried out during the construction phase. Upon completion, the report is made available to the public and review agencies for a period of 30 calendar days.

1.6 Mechanism to Request a Higher Level of Environmental Assessment

Under the terms of the Class EA, the requirement to prepare an individual environmental assessment for approval is waived. However, if it is found that a project going through the Class EA process results in significant environmental impacts, a person/party may request that the Township of St. Clair voluntarily elevate the project to a higher level of environmental assessment.

If the Township declines, or if it is believed that the concerns are not properly dealt with, any individual or organization has the right to request that the Minister of the Environment and Climate Change make an order to the project to comply with Part II of the Environmental Assessment Act which addresses individual environmental assessments. This request must be submitted to the Minister within 30 days of the publication of the Notice of Completion of the Class EA process.
2.0  BACKGROUND REVIEW

2.1  Class EA Approach

The Township initiated a formal Class EA process in December 2016 to define and evaluate impacts associated with the repair, rehabilitation or closure of the Pretty Road Bridge, located near Wilkesport, Ontario. The associated investigations followed the environmental screening process prescribed for Schedule B projects under the Class EA document. In general, the screening process required to conduct a Class EA incorporates these primary components:

i. Background Review and Problem Definition
ii. Identification of Practical Solutions
iii. Evaluation of Alternatives
iv. Project Recommendations and Implementation

The following sections of this report document the findings for each stage of the Class EA. Figure 2.1 illustrates the general tasks associated with the Schedule B screening process.

2.2  Background Review

A background review was carried out to characterize the project study area and to identify those factors that could influence the selection of alternative solutions to the defined problems. The background review for this Class EA process incorporated these activities:

- A general description of the study area and the Township of St. Clair.
- Assembly of information on the environmental setting and the existing infrastructure.
- Review of previous studies and reports pertaining to the project study area.

A desktop analysis of the project setting was completed as part of the background review. The following represent the key sources of information for this analysis:

- Ministry of Natural Resources and Forestry. Natural Heritage Information Centre (website).
- St. Clair Township. Files and discussions with staff.
- Environment Canada. Species at Risk Public Registry.
- St. Clair Region Conservation Authority. Watershed Report Cards.
Figure 2.1
Class EA Schedule B Screening Process and Related Tasks

**PHASE 1 PROBLEM DEFINITION**

**PRIMARY ACTIONS**
- Examine Environmental Setting
- Identify Servicing Deficiencies/Opportunities
- Define Problem/Oppportunity
- Identify Alternative Solutions
- Evaluation of Alternatives
- Identification of Preferred Alternative
- Evaluation of Preferred Alternative
- Recommend Preferred Alternative
- Project Implementation

**ASSOCIATED TASKS**
- Review Background Reports
- Conduct Site Inspections
- Complete Preliminary Review of Deficiencies
- Apply Scoping Criteria
- Define Practical Options
- Develop Study Methodology
- Identify Environmental Components
- Conduct Interaction Analysis
- Predict Potential Impacts
- Impact Mitigation
- Conduct Consultation
- Specialized Studies
- Examine Related Information
- Define Project Components
- Conduct Consultation
- Specialized Studies
- Assemble and Review Input
- Evaluate Interactions
- Identify Impact Mitigation
- Confirm Preference
- Conduct Final Construction
- Finalize Mitigation Strategy
- Address Outstanding Issues
- Specify Required Approvals
2.3 Description of Study Area

a) Township of St. Clair

The Township of St. Clair was formed in 2001 by the amalgamation of the former Moore and Sombra Townships. The Township is located in Lambton County and has a land base of approximately 620 km\(^2\). It is bordered by the City of Sarnia and the Aamjiwnaang First Nation to the north, the St. Clair River to the west, the Municipality of Chatham-Kent to the south, and the Municipalities of Dawn-Euphemia and Enniskillen to the east (Figure 2.2). There are a number of small, urban communities in the Township including: Corunna, Mooretown, Courtright, Sombra, Port Lambton, Wilkesport and Brigden. Corunna is the largest of these communities and serves as the major commercial and retail centre for the Township. The population, as of the 2016 census, was 14,086. The Township also serves as a major centre for the chemical and petrochemical industries, with a number of refineries and pipelines located in the municipality.

b) Project Study Area

The project study area, as shown in Figure 2.3, is situated in the southeast central quadrant of the Township, north of the historic settlement of Duthill, in the former Township of Sombra. The bridge is situated in a predominantly rural area along Pretty Road, spanning Black Creek. The existing structure is a single span steel pony truss with a concrete deck, circa 1930. During recent engineering inspections of the structure, a number of structural components of the bridge were found to be experiencing advanced deterioration. Although officially a two-lane road, Pretty Road is narrower than many roads in the region, making crossing the structure with larger pieces of agricultural equipment difficult. The bridge also has a triple load posting of 12/20/30 tonnes for three levels of trucks. With these issues it was determined that replacement, rehabilitation or closure of the structure was needed. The photos below show the existing bridge.
The existing bridge structure is situated on the Pretty Road on the boundary between Lots 20 and 21, Concession 14, in the former Sombra Township. The bridge spans 25.3 metres with a road width of 4.6 metres. The bridge has an overall deck area of 126 square metres and is supported with a steel pony truss and a concrete deck. The bridge site is located approximately 6 km west of Lambton County Road 26 (Mandaumin Road) and 3 km east of County Road 31 (Kimball Road).

The landscape located adjacent to the bridge site is a mix of actively farmed agricultural land and natural features associated with the river valley. The Pretty Road is a gravel-surfaced local road that extends in a north-south orientation spanning Black Creek from Stanley Line in the north to the Township boundary at Kent Line, in the south. The road experiences relatively low traffic volumes due to the gravel surface and weight and width restrictions associated with the bridge. However, the crossing does see higher volumes during the spring and fall when local farmers are utilizing the crossing regularly to access adjacent farm land.

2.4 Heritage and Cultural Landscapes

Due to the age of the structure (constructed circa 1930), completion of a Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA) were required to assess the cultural heritage value of the crossing and to identify potential impacts associated with the proposed project. In December 2016 AECOM was retained to complete the assessment.

The determination of cultural heritage value is defined through Ontario Regulation 9/06 of the Ontario Heritage Act. Based upon the regulation, various aspects of the structure are examined to determine if they have value within the following categories:

- Design value or physical value;
- Historic value or associative value;
- Contextual value.

The Pretty Road Bridge was examined based on the above criteria and was determined to have design or physical value. This was due to the truss design which is a typical construction example of an early-20th century short-span road bridge. The bridge is a late survivor of an increasingly rare form of bridge, however does not represent significant design or physical value.

The crossing was determined not to have any historic value or associative value and no contextual value was identified due to the bridge’s relative isolation from its current surroundings. The following statement of Cultural Heritage Value was established for the structure following completion of the assessment:

“The Pretty Road Bridge is a typical example of a short-span steel Warren pony truss design that was found built over numerous small creeks and rivers throughout southern Ontario. Although it exhibits characteristics of an increasingly rare form of bridge, it does not exhibit significant cultural heritage value or interest.”
The following are the character-defining heritage attributes associated with the cultural heritage value or interest of the Pretty Road Bridge:

- Riveted, Warren truss structure;
- Pony truss design.

Recommendations

The Class EA process is evaluating a range of alternatives associated with the bridge crossing including closure and removal of the crossing, rehabilitation of the crossing, and replacement of the crossing. Should replacement or removal be selected as the preferred alternative, then any defining heritage features of the bridge would be lost.

Given that no significant heritage features were identified, the loss of the bridge would not result in an extensive loss of cultural heritage value or interest.

A copy of the heritage impact assessment is included within Appendix ‘A’.

2.5 Summary of Environmental Conditions

a) General Physiography

The study area is situated within the physiographic region known as the St. Clair Clay Plains. Formerly the bed of glacial lakes Whittlesey and Warren, the St. Clair Clay Plains extend over an area of approximately 5,200 square kilometers east of the St. Clair River and south of Lake Huron. The clay plain in Lambton County consists of a shallow layer of clay that covers a till plain. Normally, soils in Lambton County are not well drained. The predominant soil type within the project study area is Brookston Clay which is a poorly drained dark grey gleisolic soil. Caistor Clay is also present in the area and is known as a better drainage type grey-brown soil. There are also small areas of Brisbane Loam and bottomland soils in the study area, associated with the Sydenham River system. In general, the clay plains show very little topographic relief with minor elevation changes. The physiography of Black Creek is 10% beveled till plain and Black Creek soil is comprised of 96% silt and clay, 3% bottom land and beach and 1% silt and clad loam.

The Black Creek is located within the Black Creek sub-watershed, which is managed by the St. Clair Region Conservation Authority (SCRCA). The watershed includes a drainage area measuring 324 km² and is comprised of a number of smaller tributaries including Plum Creek, Fox Creek and The Booth Creek Drain. The 2013 Watershed Report Card, prepared by SCRCA, identified a grade of D for forest cover within the watershed and a grade of improving D, for surface water quality. A copy of the Watershed Report Card is included in Appendix B.
b) Natural Heritage Features

The Natural Heritage Information Centre (NHIC) was consulted in conjunction with the Class EA investigation to verify the current status of significant features potentially located within the project study area. The NHIC database, compiles, maintains and distributes information on natural species, plant communities and species of conservation concern in Ontario. Information is stored in a spatial database, permitting geographic-based inquiries of current conservation data. A search of this database revealed the presence of two provincially significant Areas of Natural and Scientific Interest (ANSI’s) situated in the vicinity of the project study area. The Ministry of Natural Resources and Forestry (MNRF) identifies these sensitive natural areas within its inventory of natural heritage sites. ANSI’s take two forms; Earth Science, which are representative of significant land forms, and Life Science, which are representative of significant terrestrial features within the landscape such as wetlands and woodlands.

Areas of Natural and Scientific Interest (ANSI)

i) Bear Creek Floodplain Life Science

The Bear Creek Floodplain Life Science ANSI is located approximately 2km northwest of the project study area and covers approximately 111 hectares of land. It is located within the Lower Bear Creek subwatershed which features 45 fish species, some of which are at risk.

ii) Plum Creek Life Science

The Plum Creek Life Science ANSI is located approximately 5km northeast of the project area. The site is approximately 220 ha in size and is described as an oak-hickory upland forest.

Other Sensitive Natural Features

Utilizing a jurisdictional search of the project study area there were six sensitive natural areas identified within 10 km of the project site:

i) Bickford Oak Woods Conservation Reserve is the largest protected Carolinian clay plain forest in Canada. Located approximately 10km northwest of the project site within the Township of St. Clair, this 314-hectare property is mainly forested but does have dispersed wetland areas that provide habitat for a diversity of Carolinian species. This area has been regulated under the Provincial Parks and Conservation Reserves Act.

ii) A provincially significant wetland, identified as Bear Creek Woodlot #4, is located approximately 4 km northwest of the project site and east of County Road 31 (Kimball road) on Bickford Road.

iii) A non-provincially significant wetland, identified as Plum Creek Woods, is located approximately 7 km northeast of the project site and west of County Road 26 (Mandaumin Road). This wetland is also situated within close proximity to Plum Creek Life Science ANSI.
iv) A non-provincially significant wetland, identified as Upper Clay Creek Wetland and Lower Clay Creek Wetland, is located 10km west of the project site and just west of Highway 40.

v) A locally significant wetland, known as Grants Woodlot, is located 10 km south of the bridge, adjacent to the W. Darcy McKeough flood control structure, on lands owned and managed by the SCRCA.

vi) A provincially significant wetland complex, called Bray’s Wetland Complex, is found 7.0 km to the southeast of the bridge site.

None of these features are located in close enough proximity to the bridge site to be directly impacted by the proposed project. Figure 2.4 illustrates the location of natural heritage features located in the general vicinity of the bridge site.

2.6 Species at Risk

An evaluation for the presence of significant species and their associated habitats within the study area has been incorporated into the project planning process. A review of available information on species and habitat occurrences determined that the study area may contain species and/or associates habitats that are legally protected under provincial and federal species at risk legislation. The protection for species at risk and their associated habitats is directed by the following federal and provincial legislation:

- The federal Species at Risk Act, 2002 (SARA) provides for the recovery and legal protection of listed wildlife species and associated critical habitats that are extirpated, endangered, threatened or of special concern and secures the necessary actions for their recovery. On lands not federally owned, only aquatic species and bird species included in the Migratory Bird Convention Act (1994) are legally protected.

- The provincial Endangered Species Act, 2007 (ESA) provides legal protection of endangered and threatened species and their associated habitat in Ontario. Under the legislation, measures to support their recovery are also defined.

Based on the information available for the occurrence of species at risk and their associated habitats from the following sources, a summary of federally and provincially recognized species with the potential to be present within the project study area are listed in Table 2.1:

- Ministry of Natural Resources and Forestry, Species at Risk by Area
  Source: https://www.ontario.ca/environment-and-energy/species-risk-area

- Natural Heritage Information Centre, Make a Natural Heritage Map
  Study area located within NHIC 1km grid: 17LH9232
  Source: https://www.ontario.ca/page/make-natural-heritage-area-map

- Environment Canada, Species at Risk Public Registry, Species Search
  Source: http://www.sararegistry.gc.ca/search/SpeciesSearch_e.cfm

- Fisheries and Oceans Canada, Aquatic species at risk maps
  Source: http://www.dfo-mpo.gc.ca/species-especies/fpp-ppp/index-eng.htm
<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>SARA* Schedule 1 (Federal)</th>
<th>ESA** (Provincial)</th>
<th>Suitable Habitat in the Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acadian Flycatcher</td>
<td>Empidonax virescens</td>
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<td>Endangered</td>
<td>No</td>
</tr>
<tr>
<td>Bank Swallow</td>
<td>Riparia riparia</td>
<td>Threatened</td>
<td>Threatened</td>
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<tr>
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<td>Hirundo rustica</td>
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<td>Yes</td>
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<tr>
<td><strong>Barn Owl</strong></td>
<td>Tyto alba</td>
<td>Endangered</td>
<td>Endangered</td>
<td>Yes</td>
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<tr>
<td>Bobolink</td>
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<td>Threatened</td>
<td>No</td>
</tr>
<tr>
<td>Chimney Swift</td>
<td>Chaetura pelagica</td>
<td></td>
<td>Threatened</td>
<td>No</td>
</tr>
<tr>
<td>Eastern Meadowlark</td>
<td>Sturnella magna</td>
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<td>Threatened</td>
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<tr>
<td>Eastern Whip-poor-will</td>
<td>Antrostomas vociferus</td>
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<td>Henslow’s Sparrow</td>
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<td>King Rail</td>
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<tr>
<td>Least Bittern</td>
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<tr>
<td>Loggerhead Shrike</td>
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<td>Endangered</td>
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</tr>
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<td>Piping Plover</td>
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<tr>
<td>Prothonotary Warbler</td>
<td>Protonotaria citrea</td>
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<td>Endangered</td>
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<tr>
<td>Red-headed Woodpecker</td>
<td>Melanerpes erythrocephalus</td>
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<td>Yellow-breasted Chat</td>
<td>Icteria virens</td>
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<td>Endangered</td>
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<tr>
<td><strong>Fish and Mussels</strong></td>
<td></td>
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<td>Blackstripe Topminnow</td>
<td>Fundulus notatus</td>
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<td>Special Concern</td>
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<tr>
<td>Channel Darter</td>
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<td>Threatened</td>
<td>Yes</td>
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<tr>
<td>Eastern Pondmussel</td>
<td>Ligumia nasuta</td>
<td>Endangered</td>
<td>Endangered</td>
<td>No</td>
</tr>
<tr>
<td>Eastern Sand Darter</td>
<td>Ammocrypta pellucida</td>
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<td>Endangered</td>
<td>Yes</td>
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<tr>
<td>Grass Pickerel</td>
<td>Esox americanus vermiculatus</td>
<td>Special Concern</td>
<td>Special Concern</td>
<td>Yes</td>
</tr>
<tr>
<td>Kidneyshell</td>
<td>Ptychobranchus fasciolaris</td>
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<td>Endangered</td>
<td>Yes</td>
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<tr>
<td>Lake Chubsucker</td>
<td>Eremyx sucetta</td>
<td>Endangered</td>
<td>Threatened</td>
<td>No</td>
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<tr>
<td>Lake Sturgeon</td>
<td>Acipenser fulvescens</td>
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<td>Threatened</td>
<td>Yes</td>
</tr>
<tr>
<td>Northern Brook Lamprey</td>
<td>Ichthyomyzon fossor</td>
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</tr>
<tr>
<td>Northern Madtom</td>
<td>Noturus stigmosus</td>
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<td>Endangered</td>
<td>Yes</td>
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<tr>
<td>Northern Riffleshell</td>
<td>Epiblasma torulosa rangiana</td>
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<tr>
<td>Pugnose Minnow</td>
<td>Opsopoeodus emilae</td>
<td>Special Concern</td>
<td>Threatened</td>
<td>Yes</td>
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<tr>
<td>Pugnose Shiner</td>
<td>Notropis anogenus</td>
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<td>Endangered</td>
<td>Yes</td>
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<tr>
<td>Rayed Bean</td>
<td>Villosa fabalis</td>
<td>Endangered</td>
<td>Endangered</td>
<td>Yes</td>
</tr>
<tr>
<td>River Redhorse</td>
<td>Moxostoma varinatum</td>
<td>Special Concern</td>
<td>Special Concern</td>
<td>No</td>
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<tr>
<td>Round Hickorynut</td>
<td>Obovaria subrotunda</td>
<td>Endangered</td>
<td>Endangered</td>
<td>Yes</td>
</tr>
<tr>
<td>Salamander mussel</td>
<td>Simpsonia ambiguus</td>
<td>Endangered</td>
<td>Endangered</td>
<td>Yes</td>
</tr>
<tr>
<td>Silver Chub</td>
<td>Macrhybopsis storeriana</td>
<td>Special Concern</td>
<td>Threatened</td>
<td>No</td>
</tr>
<tr>
<td>Township of St. Clair</td>
<td>Page 16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>---------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipal Class Environmental Assessment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretty Road Bridge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insects</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Snuffbox</strong></td>
<td>Epioblasma triquetra</td>
</tr>
<tr>
<td><strong>Spotted Sucker</strong></td>
<td>Minotrema melanops</td>
</tr>
<tr>
<td><strong>Wavy-rayed Lampropus</strong></td>
<td>Lamprolis fasciola</td>
</tr>
<tr>
<td><strong>Aweme Borer Moth</strong></td>
<td>Papaipema aweme</td>
</tr>
<tr>
<td><strong>Northern Barrens Tiger Beetle</strong></td>
<td>Cinctula patruela</td>
</tr>
<tr>
<td><strong>Rusty-patched Bumble Bee</strong></td>
<td>Bombus affinis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mammals</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>American Badger</strong></td>
<td>Taxidea taxus</td>
</tr>
<tr>
<td><strong>Eastern Small-footed Myosis</strong></td>
<td>Myotis leibii</td>
</tr>
<tr>
<td><strong>Little Brown Myotis</strong></td>
<td>Myotis lucigengus</td>
</tr>
<tr>
<td><strong>Northern Myotis</strong></td>
<td>Myotis septentrionalis</td>
</tr>
<tr>
<td><strong>Tri-colored Bat</strong></td>
<td>Perimyotis subflavus</td>
</tr>
<tr>
<td><strong>American Chestnut</strong></td>
<td>Castanea dentata</td>
</tr>
<tr>
<td><strong>American Ginseng</strong></td>
<td>Panax quinquefolius</td>
</tr>
<tr>
<td><strong>Blue Ash</strong></td>
<td>Fraxinus quadrangulata</td>
</tr>
<tr>
<td><strong>Bluehearts</strong></td>
<td>Buchnera americana</td>
</tr>
<tr>
<td><strong>Butternut</strong></td>
<td>Juglans cinerea</td>
</tr>
<tr>
<td><strong>Climbing Prairie Rose</strong></td>
<td>Rosa setigera</td>
</tr>
<tr>
<td><strong>Colicroot</strong></td>
<td>Aletris farinosa</td>
</tr>
<tr>
<td><strong>Common Hoptree</strong></td>
<td>Ptelea trifoliata</td>
</tr>
<tr>
<td><strong>Dense Blazing Star</strong></td>
<td>Liatris spicata</td>
</tr>
<tr>
<td><strong>Dwarf Hackberry</strong></td>
<td>Celtis tenuifolia</td>
</tr>
<tr>
<td><strong>Eastern Flowering</strong></td>
<td>Cornus florida</td>
</tr>
<tr>
<td><strong>Dogwood</strong></td>
<td>Platanthera leucophaea</td>
</tr>
<tr>
<td><strong>Eastern Prairie fringed-orchid</strong></td>
<td>Coreopsis luteaformis</td>
</tr>
<tr>
<td><strong>False Hop Sedge</strong></td>
<td>Carex lupuliformis</td>
</tr>
<tr>
<td><strong>False Rue-anemone</strong></td>
<td>Enonion birtanum</td>
</tr>
<tr>
<td><strong>Gattinger’s Agalinis</strong></td>
<td>Agalinis gattingeri</td>
</tr>
<tr>
<td><strong>Goldenseal</strong></td>
<td>Hydrastis canadensis</td>
</tr>
<tr>
<td><strong>Heart-leaved Plantain</strong></td>
<td>Plantago cordata</td>
</tr>
<tr>
<td><strong>Kentucky Coffee-tree</strong></td>
<td>Gymnocladus dioicus</td>
</tr>
<tr>
<td><strong>Pink Milkwort</strong></td>
<td>Polygala incarnata</td>
</tr>
<tr>
<td><strong>Riddell’s Goldenrod</strong></td>
<td>Solidago riddellii</td>
</tr>
<tr>
<td><strong>Showy Goldenrod</strong></td>
<td>Solidago speciosa</td>
</tr>
<tr>
<td><strong>Skinner’s Agalinis</strong></td>
<td>Agalinis skinneriana</td>
</tr>
<tr>
<td><strong>Small White Lady’s-slipper</strong></td>
<td>Cyripedium candidum</td>
</tr>
<tr>
<td><strong>Spoon-leaved Moss</strong></td>
<td>Bryoandersonia illecebra</td>
</tr>
</tbody>
</table>
Species in bold are those identified as potentially occurring within 1km of the study area based on historical observation records.

**Notes:**
1. As determined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) under the Species at Risk Act (SARA), 2002 legislation. Species listed are designated as ‘Schedule 1’ species and are legally protected under the act.
2. As determined by the Committee on the Status of Species at Risk in Ontario (COSSARO) under the Endangered Species Act (ESA), 2007 legislation.

An investigation into the above-noted species at risk being present within the study area was completed based upon the potential for suitable habitat being located within close proximity to the project site. The NHIC 1km grid (17LH9233) contains 2 (two) historical observation records for species at risk potentially located within the study area.

- **Blackstripe Topminnow** (*Fundulus notatus*) - observation from 1975
- **Barn Owl** (*Tyto alba*) - observation from 1963

The project study area is mainly comprised of gravel roads, disturbed right of ways and actively farmed agricultural lands, however the southerly road approach abuts a forested area situated along the south bank of Black Creek. Consideration will be given to potential impacts to this area during the review of alternatives stage of the Class EA.

<table>
<thead>
<tr>
<th>Species</th>
<th>Scientific Name</th>
<th>Status</th>
<th>Substatus</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swamp Rose-mallow</td>
<td>Hibiscus moscheutos</td>
<td>Special Concern</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuberous Indian-plantain</td>
<td>Arnoglossum plantagineum</td>
<td>Special Concern</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Prairie Gentian</td>
<td>Gentiana alba</td>
<td>Endangered</td>
<td>Special Concern</td>
<td>No</td>
</tr>
<tr>
<td>Willowleaf Aster</td>
<td>Symphyotrichum praecaltum</td>
<td>Threatened</td>
<td>Threatened</td>
<td>No</td>
</tr>
<tr>
<td>Blue Racer</td>
<td>Coluber constrictor foxii</td>
<td>Endangered</td>
<td>Endangered</td>
<td>No</td>
</tr>
<tr>
<td>Butler’s Gartersnake</td>
<td>Thamnophis butleri</td>
<td>Endangered</td>
<td>Endangered</td>
<td>Yes</td>
</tr>
<tr>
<td>Common Five-lined Skink</td>
<td>Plestiodon fasciatus</td>
<td>-</td>
<td>Endangered</td>
<td>No</td>
</tr>
<tr>
<td>Eastern Foxsnake</td>
<td>Thamnophis gloydi</td>
<td>Endangered</td>
<td>Endangered</td>
<td>Yes</td>
</tr>
<tr>
<td>Eastern Ribbon Snake</td>
<td>Thamnophis sauritus</td>
<td>Special Concern</td>
<td>Special Concern</td>
<td>No</td>
</tr>
<tr>
<td>Queensnake</td>
<td>Regina Septemvittata</td>
<td>Endangered</td>
<td>Endangered</td>
<td>No</td>
</tr>
<tr>
<td>Blanding’s Turtle</td>
<td>Emydoidea blandingii</td>
<td>Threatened</td>
<td>Threatened</td>
<td>No</td>
</tr>
<tr>
<td>Eastern Musk Turtle</td>
<td>Sternotherus odoratus</td>
<td>Threatened</td>
<td>Threatened</td>
<td>No</td>
</tr>
<tr>
<td>Northern Map Turtle</td>
<td>Graptemys geographica</td>
<td>Special Concern</td>
<td>Special Concern</td>
<td>No</td>
</tr>
<tr>
<td>Snapping Turtle</td>
<td>Chelydra serpentine</td>
<td>Special Concern</td>
<td>Special Concern</td>
<td>Yes</td>
</tr>
<tr>
<td>Spiny Softshell</td>
<td>Apalone spinifera spinifera</td>
<td>Threatened</td>
<td>Threatened</td>
<td>Yes</td>
</tr>
<tr>
<td>Spotted Turtle</td>
<td>Clemmys guttata</td>
<td>Endangered</td>
<td>Endangered</td>
<td>No</td>
</tr>
</tbody>
</table>
(ii) **Aquatic Species at Risk**

Aquatic Species at Risk are aquatic based species that either live in, or rely on, an aquatic habitat for a significant portion of their life cycles. In conjunction with information gathering from the MNRF and Environment Canada Species at Risk Registry, a publically available aquatic species at risk mapping tool was utilized in determining the potential presence of aquatic species at risk and their associated critical habitat within the vicinity of the proposed project. The project location is shown on Ontario South West Map 25 of the mapping tool.

Based on the results from the aquatic species at risk mapping tool, Table 2.2 summarizes the species (and their associated habitats) that have the potential to be located within the project area. Associated federal and provincial status designations for each species can be found in Table 2.1.

**Table 2.2 Potential Aquatic Species at Risk Occurrence within the Project Area**

<table>
<thead>
<tr>
<th>Fish Species</th>
<th>Mussel Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackstripe Topminnow (Fundulus notatus)</td>
<td>Kidneyshell (Ptychobranchus fasciolaris)</td>
</tr>
<tr>
<td>Channel Darter (Percina copelandi)</td>
<td>Mapleleaf (Quadrula quadrula)</td>
</tr>
<tr>
<td>Eastern Sand Darter (Ammocrypta pellucida)</td>
<td>Northern Riffleshell (Epioblasma torulosa rangiana)</td>
</tr>
<tr>
<td>Grass Pickerel (Esox americanus vermiculatus)</td>
<td>Rainbow (Villosa iris)</td>
</tr>
<tr>
<td>Lake Chubsucker (Erimyzon succetata)</td>
<td>Rayed Bean (Villosa fabalis)</td>
</tr>
<tr>
<td>Northern Brook Lamprey (Ichthyomyzon fossor)</td>
<td>Round Hickorynut (Obovaria subrotunda)</td>
</tr>
<tr>
<td>Northern Madtom (Noturus stigmosus)</td>
<td>Round Pigtoe (Pleurobema sintaoxia)</td>
</tr>
<tr>
<td>Pugnose Minnow (Opsopoeodus emiliae)</td>
<td>Salamander Mussel (Simpsonaias ambugua)</td>
</tr>
<tr>
<td>Pugnose Shiner (Notropis anogenus)</td>
<td>Snuffbox (Epioblasma triqueta)</td>
</tr>
<tr>
<td>Spotted Sucker (Minytrema melanops)</td>
<td>Wavy-rayed Lampmussel (Lampsilis fasciola)</td>
</tr>
</tbody>
</table>

Input will be sought from the St. Clair Region Conservation Authority, the Ministry of Natural Resources and Forestry (MNRF) and the Federal Department of Fisheries and Oceans (DFO) as part of the approval process to identify any potential impacts to these species from the proposed bridge project.

2.7 **Breeding Bird Habitat**

The Atlas of Breeding Birds of Ontario was used to identify the bird species with confirmed, probable and possible breeding habitat in proximity to the study area (Bird Studies Canada, 2009). The study area lies within of the 100km² area identified by the Atlas as Square 17LH93, in Region 3: Lambton County. Within that square, a total of 79 species may potentially use the habitat within the square. A total of 36 species of breeding birds were confirmed to have habitat within the area. In addition to the confirmed species, 43 other species are considered to have possible or probable breeding habitat in the area. The Barn Swallow (Hirundo rustica), a threatened species in Ontario was identified as being confirmed within the atlas square. Two other species of interest given their threatened status, the Bobolink (Dolichonyx oryzivorus) and Eastern Meadowlark (Sturnella magna), were considered to have possible or probable breeding habitat within the atlas square. Additional consideration will be given to potential impacts to the identified species during the review of alternatives stage of the Class EA.
2.8  **Source Water Protection**

The Township of St. Clair is located within the Thames-Sydenham and Region Source Water Protection Region. Urban areas of the Township are currently serviced by a municipal water distribution system which is piped to the communities via pipeline from the Lambton Area Water Supply System (LAWSS) facility located in Sarnia on the St. Clair River. Rural areas of the Township, such as that surround the Pretty Road Bridge, are serviced by private well supplies. Although no wellhead protection areas are mapped within rural areas because of the presence of a piped water supply, other vulnerable areas exist within the community which may be impacted by the bridge project.

i) **Significant Groundwater Recharge Areas (SGRA):** These are areas of a permeable soil type where rain and snow melt seep into the ground, recharging an aquifer which might be utilized as a private drinking water source.

ii) **Highly Vulnerable Aquifers (HVA):** Are described as aquifers located beneath areas susceptible to groundwater contamination either due to very permeable soil conditions or a thin layer of overburden.

As part of the assessment report prepared for the Thames-Sydenham Source Protection Area, vulnerable areas located within each Municipality were mapped. These areas are illustrated on Figure 2.4. As shown, a small vulnerable area is located west of the bridge site, no other vulnerable areas are identified in proximity to the bridge.

2.9  **Identified Structural Deficiencies**

Recent engineering inspections of the structure have identified significant deterioration occurring on the bridge abutments and other structural features of the bridge. These deficiencies are identified within the OSIM Biennial Inspection Report conducted by Burgess Engineering Inc., dated November 13th, 2015. A copy of the report is included within Appendix ‘D’:

(a)  **Summary of Deficiencies**

The following represent the primary structural deficiencies and safety concerns associated with the existing crossing:

- Load limit; bridge posted at 12/20/30 tonnes.
- Concrete deck top has severe scaling, pot holing, wide cracks, spall and delamination.
- The floor beams are cracking with medium scaling throughout and are badly corroded and weakened.
- The stream is scouring against the south abutment and very steep embankment.
(b) **Preliminary Engineering Assessment**

BMROSS, in conjunction with the Township of St. Clair, assessed the nature and scope of the problems associated with the structure, taking into consideration the findings of recent engineering inspections. From this assessment it was recommended that, given the extent and significance of the identified deficiencies, the bridge should be subject to either rehabilitation or replacement.
3.0 CLass EA Process

3.1 Identification of Problem/Opportunity

The first phase of the Class EA process includes the definition of the problem or opportunities, which need to be addressed. Based upon a review of the deficiencies identified during recent engineering inspections, the following problem statement has been developed for this project:

*Significant deficiencies have been identified with some structural components of the Pretty Road Bridge, which if not remediated, may have an adverse impact on the safety of the travelling public at the bridge site.*

The bridge remediation plan considered during the preliminary engineering review called for the possible replacement of the existing structure. This work requires additional environmental assessment under the terms of the Class EA document. The proponent initiated the required Class EA investigation in December 2016. The investigation followed the planning and design process set out for Schedule B activities. Schedule B projects are approved subject to a screening process which incorporates Phases 1 and 2 of the Class EA process (i.e., Problem Identification, Evaluation of Alternative Solutions).

The purpose of the screening process is to identify potential impacts related to the proposed bridge project and to plan for appropriate mitigation of any identified impacts.

3.2 Identification of Practical Alternatives

The second phase of the Class EA process involves the identification and evaluation of alternative solutions to address the defined problems. A number of possible solutions to the defined problems were identified at the outset of this Class EA process. The alternatives, stated below, build upon the findings of a preliminary engineering assessment completed at the start of the Class EA process.

**Alternative 1: Replacement of the existing steel truss bridge with a beam bridge in the same location.** This option involves the replacement of the existing structure with a new concrete bridge designed in accordance with established standards of the latest edition of the Canadian Highway Bridge Design Code. Road approaches would also be reconstructed to accommodate the new bridge and to address existing approach road deficiencies. Rock rip rap erosion protection would be placed around the abutments adjacent to the channel.

**Alternative 2: Rehabilitate the Existing Structure.** This option would involve the replacement of all deteriorated components of structure with sympathetic components in accordance with the established standards of the latest edition of the Canadian Highway Bridge Design Code. The basic structural components and appearance of the bridge crossing would remain unchanged.

**Alternative 3: Closure of the crossing and removal of the structure.** Alternative 3 would involve the closure and removal of the existing crossing, once it reached the end of its service life.
**Alternative 4: Do Nothing.** This option proposes that no improvements or changes be made to address the identified problem. The Do Nothing alternative may be implemented at any time in the design process prior to construction. This decision is typically made when the costs of all alternatives, both financial and environmental, significantly outweigh the benefits.

### 3.3 Evaluation of Alternatives

(a) **General**

The second phase in the investigation involved the evaluation of the identified alternatives. The purpose of this phase was to examine the potential environmental impacts associated with the proposed works and to examine potential mitigation measures to address any identified impacts. The evaluation stage generally involved the following activities:

- Preliminary technical review of alternatives
- Preliminary selection of a preferred option
- Consultation with the general public and review agencies
- Final selection of a preferred option.

(b) **Estimated Construction Costs**

Estimated construction costs were calculated for each option based upon the results of the preliminary engineering completed to date. Table 3.1 summarizes anticipated costs for each of the alternatives described above. An allowance for additional environmental investigations and approvals has been included based on similar projects completed at other sites.

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Construction</th>
<th>Design/Approvals</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Replacement</td>
<td>$1,292,000.00</td>
<td>$220,000.00</td>
<td>$1,512,000.00</td>
</tr>
<tr>
<td>2) Rehabilitation</td>
<td>$289,000.00</td>
<td>$52,000.00</td>
<td>$341,000.00</td>
</tr>
<tr>
<td>3) Closure &amp; Removal</td>
<td>$115,000.00</td>
<td>$20,000.00</td>
<td>$135,000.00</td>
</tr>
</tbody>
</table>

*Note: Estimated construction costs do not include HST*

### 3.4 Preliminary Review of Alternatives

a) **Alternative 1: Replacement of the existing steel truss bridge in the same location.**

Implementation of this alternative would involve the construction of a new concrete beam bridge designed to span Black Creek at the bridge site (the current bridge has a span of 25.3 m). The new crossing would be designed to accommodate an 80 km/hr speed limit and would support a wider bridge deck (8.5m). Approach roads on each side of the bridge would need to be rebuilt to match the new wider bridge deck. Based upon input received from the MNRF, DFO and the SCRCA, a number of species at risk (SAR) fresh water mussel species and SAR fish species are present at the bridge site. Detailed habitat assessments may be required to confirm the presence of the SAR fish
and terrestrial species at the bridge site and to ensure that critical aspects of their habitat are not negatively impacted by the proposed construction. This section of Black Creek has been identified as critical habitat for some of the fresh water mussels known to be present. To ensure that the mussels are not impacted by the project, they must be manually removed from impacted areas and relocated to an area of similar habitat. This would impact repairs immediately adjacent to the south bridge abutment, which is located at the water’s edge.

b) Alternative 2: Rehabilitation of the existing bridge.

This option would involve the rehabilitation of the existing structure. Significant levels of deterioration present on the existing abutments would be repaired and areas of corrosion on the bridge deck and curbs would be corrected. A new railing will be installed and generally the overall structural design and appearance of the crossing would not be changed. This approach would be in keeping with the recommendations of the cultural heritage assessment (HIA) completed for the structure. Rehabilitation of the crossing would allow the significant cultural heritage attributes of the structure to be retained. This option would also require approvals associated with species at risk fish and fresh water mussels. In order to rehabilitate the abutments, a portion of the river bottom adjacent to the structure would need to be isolated and the mussels removed. Once the concrete repairs have been completed, rock rip rap erosion protection would be installed around the base of the abutments to protect the structure from further deterioration.

c) Alternative 3: Closure of the crossing and removal of the structure.

Alternative 3 would involve the closure and removal of the existing crossing, once it reached the end of its service life. Although this option appears to be the least costly initially, there would still be a cost associated with removal of the bridge and restoration of the surfaces. Approvals would also be required if removal of the structure will result in impacts to surrounding natural areas or species at risk habitat.

d) Alternative 4: Do Nothing

The Do Nothing alternative means that nothing would be done to address the ongoing deterioration present on the bridge abutments and deck components. Eventually, if not remediated, this could lead to the structural failure of the bridge and the eventual closure of the crossing.

3.5 Environmental Considerations

Section 3.2 of this report listed the alternative solutions that were identified to address deficiencies present with the Pretty Road Bridge. As part of the evaluation process, it is necessary to determine what effect or impact each alternative will have on the environment and what measures can be taken to mitigate the impact. The two main purposes of this exercise are:

- Minimize or avoid adverse environmental effects associated with a project
- Incorporate environmental factors into the decision making process
Under the terms of the EA Act, the environment is divided into five general elements:

- Natural environment
- Social environment
- Cultural environment
- Economic environment
- Technical environment

The identified environmental elements can be further subdivided into specific components that have the potential to be affected by the implementation of a given solution. Potential impacts are noted in the following section of the report. Table 3.2 provides an overview of the specific components considered relevant to this investigation. These were identified following the initial round of public and agency input and a preliminary review of each alternative with respect to technical considerations and the environmental setting of the project area.

<table>
<thead>
<tr>
<th>Element</th>
<th>Component</th>
<th>Sub-Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural</td>
<td>Aquatic</td>
<td>• Aquatic Habitat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Aquatic Species at Risk</td>
</tr>
<tr>
<td>Atmosphere</td>
<td></td>
<td>• Air Quality and Noise</td>
</tr>
<tr>
<td>Surface Water</td>
<td></td>
<td>• Water Quality/ Quantity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Hydraulic Flow Characteristics</td>
</tr>
<tr>
<td>Terrestrial</td>
<td></td>
<td>• Amphibians, Birds &amp; Mammals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Vegetation</td>
</tr>
<tr>
<td>Geologic</td>
<td></td>
<td>• Physiographic Features and Soils</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Drainage Characteristics</td>
</tr>
<tr>
<td>Social</td>
<td>Neighbourhood</td>
<td>• Disruption</td>
</tr>
<tr>
<td>Community</td>
<td></td>
<td>• Quality of Life</td>
</tr>
<tr>
<td>Cultural</td>
<td>Heritage</td>
<td>• Health and Safety</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Recreational Activities</td>
</tr>
<tr>
<td>Economic</td>
<td>Project Area</td>
<td>• Capital and Operational Costs</td>
</tr>
<tr>
<td>Community</td>
<td></td>
<td>• Property Taxes</td>
</tr>
<tr>
<td>Technical</td>
<td>Transportation</td>
<td>• Traffic Patterns/ Volumes</td>
</tr>
<tr>
<td>Infrastructure</td>
<td></td>
<td>• Pedestrian/ Vehicular Safety</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Road Capacity/ Routes</td>
</tr>
</tbody>
</table>

The environmental effects of each alternative on the specific components are generally determined through an assessment of various impact predictors (i.e. impact criteria). Given the works associated with the alternative solutions, the following key impact criteria were examined during the course of this assessment:

- Magnitude – including the scale, intensity, geographic scope, frequency and duration of potential impacts
- Technical complexity
• Mitigation potential – which considers avoidance, compensation and degree of reversibility
• Public perception
• Scarcity and uniqueness of affected components
• Compliance with applicable regulations and public policy objectives

Using the above criteria, the potential impacts of each alternative solution were systematically evaluated. The significance of the potential impacts posed by each alternative were evaluated considering the anticipated severity of the following:

• Direct changes occurring at the time of project completion
• Indirect effects following project completion
• Induced changes resulting from a project

For the purposes of this Class EA, impact determination criteria developed by Natural Resources Canada have been applied to predict the magnitude of environmental effects resulting from the implementation of the project. Table 3.3 summarizes the impact criteria.

### Table 3.3
Criteria for Impact Determination

<table>
<thead>
<tr>
<th>Level of Effect</th>
<th>General Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Implementation of the project could threaten sustainability of feature and should be considered a management concern. Additional remediation, monitoring and research may be required to reduce impact potential.</td>
</tr>
<tr>
<td>Moderate</td>
<td>Implementation of the project could result in a resource decline below baseline, but impact levels should stabilize following project completion and into the foreseeable future. Additional management actions may be required for mitigation purposes.</td>
</tr>
<tr>
<td>Low</td>
<td>Implementation of the project could have a limited impact upon the resource during the lifespan of the project. Research, monitoring and/or recovery initiatives may be required for mitigation purposes.</td>
</tr>
<tr>
<td>Minimal/Nil</td>
<td>Implementation of the project could impact upon the resource during the construction phase of the project but would have negligible impact on the resource during the operation phase.</td>
</tr>
</tbody>
</table>

Given the criteria defined in Table 3.2, the significance of adverse effects is predicated on the following assumptions:

• Impacts from a proposed alternative assessed as having a Moderate or High level of effect on a given feature would be considered significant.

• Impacts from a proposed alternative assessed as having a Minimal/Nil to Low level of effect on a given feature would not be considered significant.
3.6  Environmental Effects Analysis

The potential interactions between the project alternatives and the identified environmental components were examined as part of the evaluation of alternatives. The purpose of this analysis was to determine, in relative terms, the environmental effects of the identified alternatives on each the environmental components, using the impact criteria described in Table 3.3. Table 3.4 summarizes the outcome of the environmental effects analysis.
### Table 3.4
**Environmental Effects Analysis**

<table>
<thead>
<tr>
<th>Environmental Component</th>
<th>Option</th>
<th>Level of Effect</th>
<th>Impact Considerations (Implementation and Operational Activities)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natural</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1) Replacement          | Moderate to High        | • Some impacts to aquatic habitat are anticipated as a result of construction-related activities, as aquatic species at risk are present at the bridge site and will need to be relocated in order to facilitate construction.  
• Additional impacts may occur related to sediment and erosion control during construction of the new abutments and approach roads. |
| 2) Rehab                | Moderate                | • Some impacts to aquatic habitat are anticipated as a result of construction-related activities, as aquatic species at risk are present at the bridge site and will need to be relocated in order to facilitate construction. |
| 3) Closure & Remove Structure | Low to Moderate | • Limited impacts to aquatic habitat are anticipated as a result of construction-related activities required to remove the existing truss and abutments. Aquatic species at risk present at the bridge site could be negatively impacted during removal. |
| 4) Do Nothing           | Low to Moderate         | • No Impacts Anticipated.  
• Should the structure fail and need to be removed, there may be impacts to aquatic habitat which would result during removal. |
| **Terrestrial**         |                          |                 |                                                                                                                                                                                                                                                                   |
| 1) Replacement          | Moderate                | • Moderate impacts to terrestrial habitat are anticipated as a result of the wider footprint and approach road re-grading required to accommodate the new bridge.  
• Terrestrial species at risk are potentially present at the bridge site. Habitat surveys may need to be completed prior to construction to ensure that sensitive habitats are not impacted. |
| 2) Rehab                | Low                     | • Only limited vegetation removal is required immediately adjacent to the abutments in order to facilitate the concrete repairs.  
• Terrestrial species at risk are potentially present at the bridge site. Habitat surveys may need to be completed prior to construction to ensure that sensitive habitats are not impacted. |
<p>| 3) Closure &amp; Remove Structure | Low                  | • No impacts anticipated for closure of the crossing, however removal of the structure and abutments could result in impacts to adjacent natural areas.                                                                                                               |
| 4) Do Nothing           | Low                     | • No Impacts anticipated.                                                                                                                                                                                                                                         |</p>
<table>
<thead>
<tr>
<th>Environmental Component</th>
<th>Option</th>
<th>Level of Effect</th>
<th>Impact Considerations (Implementation and Operational Activities)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Community</td>
<td>1) Replacement</td>
<td>Moderate</td>
<td>• A moderate level of impact to residents is expected during construction due to the anticipated closure of the crossing for approximately 6-8 months during construction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Impacts are relatively short term and once completed, residents will have access to a full capacity crossing.</td>
</tr>
<tr>
<td></td>
<td>2) Rehab</td>
<td>Low to Moderate</td>
<td>• Some impacts to traffic movement are anticipated during construction but will be for a shorter time period than full reconstruction of the crossing.</td>
</tr>
<tr>
<td></td>
<td>3) Closure &amp; Remove Structure</td>
<td>High</td>
<td>• Residents located in the vicinity of the bridge would be negatively impacted by closure of the crossing due to loss of access currently provided by the crossing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Additional impacts to the agricultural community are also anticipated. The bridge is used by local farmers to avoid travel on busy county roads and to access farmland.</td>
</tr>
<tr>
<td></td>
<td>4) Do Nothing</td>
<td>Moderate</td>
<td>• Should existing deterioration on the bridge not be remediated, the structure could become unsafe for vehicles and eventually need to be closed to vehicular traffic.</td>
</tr>
<tr>
<td><strong>Cultural</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Heritage</td>
<td>1) Replacement</td>
<td>Moderate to High</td>
<td>• Moderate to high impacts to cultural heritage values are anticipated given that the bridge will be removed prior to construction of the new crossing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Impacts to buried cultural artefacts will also need to be assessed through completion of a Stage 1 &amp; 2 Archaeological Assessment prior to construction.</td>
</tr>
<tr>
<td></td>
<td>2) Rehab</td>
<td>Minimal/Nil</td>
<td>• No impacts to cultural heritage values are anticipated given that the bridge will remain in place and be rehabilitated using sympathetic materials for restoration.</td>
</tr>
<tr>
<td></td>
<td>3) Closure &amp; Remove Structure</td>
<td>Moderate to High</td>
<td>• Closure of the crossing and removal of the structure would result in significant impacts to cultural heritage as any heritage values identified with the existing truss would be lost.</td>
</tr>
<tr>
<td></td>
<td>4) Do Nothing</td>
<td>Low to Moderate</td>
<td>• No impacts initially, however if the deterioration is not addressed, the structure could fail at some point in the future and the heritage value of the structure would be lost.</td>
</tr>
<tr>
<td><strong>Economic</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Municipal</td>
<td>1) Replacement</td>
<td>High</td>
<td>• Construction of a new bridge at the site would result in relatively high capital costs for a small crossing that experiences low levels of traffic volume.</td>
</tr>
<tr>
<td>Environmental Component</td>
<td>Option</td>
<td>Level of Effect</td>
<td>Impact Considerations (Implementation and Operational Activities)</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------------------------</td>
<td>-----------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>2) Rehab</td>
<td>Low to Moderate</td>
<td>• Low to moderate economic impacts are anticipated, given that repair costs are relatively low in relation to the construction of a new crossing.</td>
</tr>
<tr>
<td></td>
<td>3) Closure &amp; Remove Structure</td>
<td>Low to Moderate</td>
<td>• Economic impacts to the municipality from removal of the crossing would be relatively low, in comparison to the more costly estimate associated with replacement. However, permanent closure of the crossing could have a negative impact on the local economy and could result in long term economic impacts.</td>
</tr>
<tr>
<td></td>
<td>4) Do Nothing</td>
<td>Low</td>
<td>• No impacts anticipated initially, however should the deterioration not be remediated and the crossing fail, the Township may be liable for damages to the surrounding environment and to any affected vehicles.</td>
</tr>
<tr>
<td><strong>Technical</strong></td>
<td>1) Replacement</td>
<td>Low to Moderate</td>
<td>• Moderate impacts to the local transportation network will occur during construction of the new crossing when the road will be closed for a period of 6-8 months. Following completion of construction transportation opportunities will be significantly improved.</td>
</tr>
<tr>
<td></td>
<td>2) Rehab</td>
<td>Low to Moderate</td>
<td>• Minor impacts to local traffic are anticipated during rehabilitation of the crossing. Although the road will be closed during completion of the repairs, the timeline will be significantly less than the replacement option, requiring only 3 months to complete. • Upon completion, the existing deterioration at the crossing will be corrected, however the bridge will still be too narrow for large pieces of agricultural equipment to cross.</td>
</tr>
<tr>
<td></td>
<td>3) Closure &amp; Remove Structure</td>
<td>Moderate to High</td>
<td>• Permanent closure of the crossing will result in impacts to the local transportation network by removing one of the existing river crossings in this area, limiting the north/south local transportation network.</td>
</tr>
<tr>
<td></td>
<td>4) Do Nothing</td>
<td>Moderate</td>
<td>• No impacts initially, however if the deterioration is not remediated and the crossing fails, this would have a negative impact on the long-term transportation routing in this part of the Township.</td>
</tr>
</tbody>
</table>
3.7 Evaluation Summary

Four alternative solutions were initially presented for evaluation. These were:

- Alternative 1 – Replacement of the existing steel truss bridge with a beam bridge in the same location.
- Alternative 2 – Rehabilitation of the existing bridge.
- Alternative 3 – Closure of the crossing and removal of the structure.
- Alternative 4 – Do Nothing

The environmental impacts, which include impacts to the natural, social, cultural and technical environments, were evaluated for each of the above noted Alternatives.

Alternative 1, replacement of existing bridge and construction of a new bridge crossing, will result in the greatest impacts to the natural environment during construction, due to wider approach roads and the requirement for in-water work during construction of the new, and removal of the existing abutment. This option also resulted in the greatest impacts to the economic environment, due to higher capital costs associated with a new bridge. Most of these impacts are construction-related, and following site remediation would have no long-term impacts on the environment.

Alternative two, rehabilitation, resulted in some impacts to the natural environment due to in-water work associated with repair of the abutments. This option represented the fewest impacts to the cultural and economic environment, due to retention of the crossing and the comparatively low capital costs associated with rehabilitation. However, transportation deficiencies associated with the existing structure, related to the width and load limits of the existing crossing, would not be addressed with this option.

Alternative three, closure and ultimate removal of the crossing, would result in the greatest impacts to the social environment. A number of local residents responded to the initial EA Notice indicating that they used the crossing regularly and did not want to see it closed. The crossing is used most heavily during planting and harvesting periods, when the local farming community need to access crop land. We were also advised that the crossing is used for recreational uses, such as horseback riding. Other routes are more dangerous due to the speed and volume of traffic on adjacent County Roads (Mandaumin and Kimball Roads) and the Stanley Line cannot be used due to the type of grate crossing installed during recent repairs.

Alternative 4, the ‘do nothing’ alternative, has very few impacts initially. However, it does not address the current deterioration present at the crossing which, if not addressed, could make the bridge unsafe in the long term and lead ultimately to the structural failure of the crossing. Table 3.5 summarizes the comparison of alternatives process and indicates a preliminary preferred alternative based on anticipated impacts.
Table 3.5
Evaluation of Alternatives

<table>
<thead>
<tr>
<th>Environmental Components</th>
<th>Replacement</th>
<th>Rehabilitation</th>
<th>Closure</th>
<th>Do Nothing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social</td>
<td>●</td>
<td>●</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td>Cultural</td>
<td>❌</td>
<td>●</td>
<td>❌</td>
<td>●</td>
</tr>
<tr>
<td>Economic</td>
<td>❌</td>
<td>❌</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Natural</td>
<td>❌</td>
<td>❌</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Technical</td>
<td>●</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td>Results</td>
<td>Somewhat Preferred</td>
<td>Most Preferred</td>
<td>Least Preferred</td>
<td>Somewhat Preferred</td>
</tr>
</tbody>
</table>

Scoring: Most Preferred ● Moderately Preferred ● Somewhat Preferred ● Least Preferred ❌ Not Preferred ❌

3.8 Identification of a Preliminary Preferred Solution

Based on the results of the assessments as reported above and a review of the economic components associated with the project, the Township indicated a preference for Alternative 2, rehabilitation of the crossing. There are a number of attributes associated with this Alternative which justified its consideration as the preferred option for addressing the deterioration present at the Pretty Road Bridge crossing.

- Addressed existing deterioration at the Pretty Road Bridge crossing;
- Would result in no negative impacts to the cultural environment by retaining the historic truss at the site;
- Was the less expensive than the replacement option;
- Would result in fewest impacts to the social environment;
- Results in fewer impacts to the natural environment than construction of a new crossing.

4.0 PUBLIC CONSULTATION PROGRAM

4.1 General

Public consultation is an integral component of the Class EA process. Public consultation allows for an exchange of information which assists the proponent in making informed decisions during the evaluation of alternative solutions. During Phases 1 and 2 of the study process, consultation was undertaken to obtain input from the general public, stakeholders, and review agencies that might have an interest in the project.
The components of the public consultation program employed during the initial Class EA study are summarized in this Section of the Screening Report and documented in Appendix ‘C’. Comments received from the program and related correspondence are discussed below and also documented in Appendix C.

4.2 Initial Notice

Contents: General study description, summary of proposed work.
Issued: December 28th, 2016 and January 4, 2017
Placed In: Wallaceburg Courier Press
Circulated To: 12 review agencies, Aboriginal Communities, adjacent property owners.

Comments received as a result of the Notice are included within Table 4.1.

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Summary of Comments</th>
<th>Action Taken</th>
</tr>
</thead>
</table>
| Adjacent Property Owner January 3rd, 2017 (via mail) | - Believes bridge was repaired three years ago.  
- Uses bridge crossing personally and for farm equipment  
- Does not want the bridge to be closed | - Comments noted and filed. |
| Adjacent Property Owner January 11th, 2017 (via phone) | - Lives on Bentpath Line - east of Pretty Road  
- Wants to be able to able to stay off the busy roads.  
- Uses the bridge more during farming season, 3-4 times a day during haying season.  
- Does not want the bridge to be closed. | - Comments noted and filed. |
| Adjacent Property Owner January 12th, 2017 (via phone) | - Owns land on Stanley Line - Lot 22, Con. 15  
- Home farm on Bentpath Line  
- Uses bridge 2-3 times a week but can’t take all equipment over the bridge due to width.  
- In favour of replacement | - Comments noted and filed |
| Adjacent Property Owner January 17th, 2017 (via phone) | - Owns two farms south of Pretty Road, west side of Burman Line.  
- Made reference to Stanley Line Bridge being closed for several years due to mussels  
- In favour of replacement or rehabilitation | - Comments noted and filed |
| Adjacent Property Owner January 23rd, 2017 (via email) | - Not a property owner but works with farmers in the area  
- Does not want the bridge to close as it would impact him by traveling a longer distance with equipment. | - Comments noted and filed |
| Adjacent Property Owner January 23rd, 2017 (via phone) | - Home farm is northwest of the bridge.  
- Needs a wider bridge  
- Does not want the bridge to close | - Comments noted and filed |
<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Summary of Comments</th>
<th>Action Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adjacent Property Owner</strong>&lt;br&gt; January 24th, 2017 (via email)</td>
<td>- Branch manager for AGRIS Co-op in Brigden&lt;br&gt;- Does not want the bridge to close as they do business with local farmers in the area daily.</td>
<td>- Comments noted and filed</td>
</tr>
<tr>
<td><strong>Adjacent Property Owner</strong>&lt;br&gt; January 26th, 2017 (via email)</td>
<td>- Owns two farms on all four sides of the bridge&lt;br&gt;- In favour of replacing the bridge with a beam bridge for a wider bridge.&lt;br&gt;- Does not want the bridge to be closed.</td>
<td>- Comments noted and filed</td>
</tr>
<tr>
<td><strong>Adjacent Property Owner</strong>&lt;br&gt; January 26th, 2017 (via mail)</td>
<td>- Large field crop farmer in the area, uses the bridge numerous times.&lt;br&gt;- In favour of replacement of the bridge with a beam bridge so it would be wider.</td>
<td>- Comments noted and filed</td>
</tr>
<tr>
<td><strong>Adjacent Property Owner</strong>&lt;br&gt; January 29th, 2017 (via email)</td>
<td>- Owns farms south of bridge, uses on a daily basis.&lt;br&gt;- Feels it is much safer to travel with farm equipment on Pretty Road then driving on the busier Kimball road.&lt;br&gt;- In favour of replacing the bridge with a new two lane bridge but would be satisfied with rehabilitation.</td>
<td>- Comments noted and filed</td>
</tr>
<tr>
<td><strong>Adjacent Property Owner</strong>&lt;br&gt; February 14, 2017 (via email)</td>
<td>- Uses bridge to reach farms between Stanley and Burman Line.&lt;br&gt;- In favour of the bridge being replaced or rehabilitated.</td>
<td>- Comments noted and filed</td>
</tr>
<tr>
<td><strong>Adjacent Property Owner</strong>&lt;br&gt; February 15, 2017 (via email)</td>
<td>- Land owner and farmer in the area.&lt;br&gt;- In favour of replacement of existing steel truss bridge with a beam bridge in the same location.&lt;br&gt;- Does not want the bridge to close as it would cause problems for the farmers and their equipment.</td>
<td>- Comments noted and filed</td>
</tr>
<tr>
<td><strong>Adjacent Property Owner</strong>&lt;br&gt; February 16, 2017 (via email)</td>
<td>- Uses bridge two times a day to and from work.&lt;br&gt;- Taking an alternate route would cause them 30km extra each week.&lt;br&gt;- Would rather not see repairs similar to Stanley Bridge (steel grate decking) - horses won’t cross it.&lt;br&gt;- Does not want the bridge to close.</td>
<td>- Comments noted and filed</td>
</tr>
</tbody>
</table>

### 4.3 Government Review Agencies

Input into the Class EA process was solicited from government review agencies by way of direct mail correspondence. Agencies that might have an interest in the project were initially sent a letter describing the nature of the project and a copy of the Notice of Study Commencement. Appendix ‘C’ contains a copy of the information circulated to the review agencies and a list of the agencies requested to comment on the project. Formal written correspondence from the agencies is also provided. A summary of the comments received can be found in Table 4.2.
### Table 4.2
**Summary of Review Agency Comments**

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Summary of Comments</th>
<th>Action Taken</th>
</tr>
</thead>
</table>
| Ministry of Tourism, Culture and Sport Joseph Muller, Heritage Planner February 8th, 2017 (via email) | - Their interest in project relates to their mandate of conserving Ontario’s cultural heritage, which includes archaeological, built heritage (bridges), and cultural heritage landscapes.  
- Seek input from Indigenous communities.  
- Suggest using the checklist and background material to determine if preparation of a CHER is required.  
- Use MTCS screening criteria to determine potential heritage impacts to the bridge.  
- The screening check lists and completed studies should be documented in the final EA report. | - Comments noted and filed.                      |
| St. Clair Region Conservation Authority Sarah Hodgkiss, Planning Ecologist February 9th, 2017 (via email) | - Project located within an area regulated by the SCRCA; a permit will be required prior to implementation.  
- SCRCA has a record of flooding on Pretty Road, if preferred option is replacement then there should be a consideration of raising the bridge to avoid frequent flooding.  
- Adjacent significant woodlands, Black Creek contains mussel SAR and fish habitat.  
- Suggested we consult with MNR and DFO. | - Comments noted and filed.                      |
| Ministry of Natural Resources and Forestry, Claire Paller, District Planner February 14, 2017 (via email) | - Request additional notices and information when available.  
- Indicated that digital correspondence was acceptable. | - Comments noted and filed.                      |
| Ministry of the Environment and Climate Change Craig Newton, Regional Planner March 17th, 2017 (via email) | - Proposed project may have the potential to affect Aboriginal or treaty rights protected under Section 35 of Canada’s Constitution Act 1982.  
- The MOECC is delegating the procedural aspects of rights-based consultation to the Township of St. Clair.  
- Required to consult with Aamjiwnaang First Nation and Walpole Island First Nation who have been identified as potentially affected by the proposed project.  
- It may be required to contact the Director of Environment Approvals Branch to discuss with the communities identified by MOECC.  
- Must identify early in the process if a project is within a source water protection vulnerable area.  
- Report should include Source Water Protection info.  
- Requested to keep MOECC informed of the status of the project as it proceeds through the Class EA process. | - Comments noted and filed.                      |
4.4 Aboriginal Consultation

(a) Aboriginal Consultation Process

The Crown has a duty to consult with First Nation and Métis communities if there is a potential to impact on Aboriginal or treaty rights. This requirement is delegated to project proponents as part of the Class EA process, therefore the project proponent has a responsibility to conduct adequate and thorough consultation with Aboriginal communities as part of the Class EA consultation process.

The project study area is located in proximity to the Aamjiwnaang First Nation and also contains a number of sensitive natural features which may be of concern to First Nation and Métis communities in the area. These features include Black Creek and the forested river bank located immediately south of the bridge structure.

(b) Background Review

In order to identify Aboriginal Communities potentially impacted by the project the Aboriginal and Treaty Rights Information System (ATRIS) was consulted. A search was conducted for Aboriginal Communities, including their traditional territories, within a 50 km radius of the project study area. Utilizing this process, nine aboriginal communities were identified in conjunction with this project as follows: Aamjiwnaang First Nation, Chippewas of the Thames First Nation, Oneida Nation of the Thames, Munsee-Delaware Nation, Walpole Island First Nation, Historic Saugeen Métis, Metis Nation of Ontario, and Great Lakes Métis Council. Correspondence was subsequently forwarded to each community/organization detailing the proposed project and asking for input.

(c) Initial Consultation Phase

Responses were received from the Aamjiwnaang First Nation, the Chippewas of the Thames First Nation and the Historic Saugeen Métis. Information packages detailing study investigations were prepared and circulated to both Aboriginal Communities for review and comment. A summary of comments received are included below in Table 4.3.

**Table 4.3 Summary of Aboriginal’s Comments**

<table>
<thead>
<tr>
<th>Review Agency</th>
<th>Comments/Concerns</th>
<th>Actions Taken</th>
</tr>
</thead>
</table>
| Chippewas of the Thames First Nation Received January 19th, 2017 (via mail) | - No concerns with the project  
- Feel that the project would have minimal impact on their Treaty and Traditional Territory  
- If any changes to the project of a substantive nature, please keep them informed  
- Attached a copy of the Consultation Protocol that came into effect January 1st, 2017. | - Information noted and filed |
### Table: Comments/Concerns and Actions Taken

<table>
<thead>
<tr>
<th>Review Agency</th>
<th>Comments/Concerns</th>
<th>Actions Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Saugeen Métis</td>
<td>- Response form: no concerns with this project and do not wish to be consulted further</td>
<td>- Information noted and filed.</td>
</tr>
<tr>
<td>January 13th, 2017 (via mail)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Aamjiwnaang First Nation (AFN)       | - Project discussed at the Aamjiwnaang First Nation’s Environment Committee meeting  
- Wanted more information on plans to reduce and mitigate impacts on wildlife  
- Request that any habitat areas that have been disturbed, be restored.  
- Interested in any archeological studies  
- Request to have their Archeological and Species at Risk Monitors on site during assessment studies and construction.  
- Request native plant species re-planted or planted in another significant area near project area.  
- Response Form: Send additional information on this project and would like to meet with representatives of this project. | - Information noted and filed.    |
| February 6th, 2017 (via mail)        |                                                                                  |                                   |

### 4.5 Public Information Meeting

A Public Information Centre (PIC) was held on Wednesday December 13 at the Wilkesport Community Centre from 6:00 p.m. to 8:00 p.m. with a formal presentation beginning at 6:30 p.m. The meeting included an open house component before the formal presentation with display boards explaining the study process and other project components. Representatives from the Township of St. Clair and BMROSS were available to answer questions from those in attendance. The meeting was arranged to serve several purposes:

- Provide local residents and other stakeholders with additional details on the Class EA process and a forum to express their views.
- Provide area residents with an overview of the recommendations identified in conjunction with the Class EA investigations.
- Provide residents with an opportunity to ask questions and review mapping and other display material prepared in support of the Environmental Assessment.
- Identify the preliminary preferred alternative recommended by Council.

Eight residents and stakeholders attended the meeting. A copy of the presentation material is included within Appendix ‘C’.
Table 4.4
Summary of Comments: Public Information Meeting

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Summary of Comments</th>
<th>Action Taken</th>
</tr>
</thead>
</table>
| Adjacent Property Owner November 27th, 2017 (via phone) | - Concerned about horses being able to cross the bridge safely and easily.  
- Wanted the farm community to be taken into consideration and for the bridge to be wider for large farm equipment.  
- Asked if a new bridge would be a beam bridge and not some other type of bridge. | - Information noted and filed.                                                                        |
| Ministry of Natural Resources and Forestry December 1, 2017 (via email) | - Received copy of the public meeting Notice.  
- Advised that they had not yet completed a screening of natural heritage or other resource values for the project, including SAR.  
- Provided information on SAR Screening Protocol, Legislation administered by MNRF, and Oil and Gas Deposits. | - Information noted and filed.  
- SAR information request submitted.                                                                      |
| Adjacent Property Owner December 21, 2017 (via phone) | - Was unable to attend the public meeting but still wanted to provide input.  
- Preference is to build a new beam bridge at the site that would accommodate larger agricultural equipment.  
- Thinks that council is more willing to spend money on projects like bike paths and trails located close to urban areas, and is unwilling to spend money on projects within primarily agricultural areas. | - Information noted and filed.  
- Forwarded copies of PIC presentation material.                                                          |
| Local Residents January 12, 2018 (via email) | - Advised that the bridge was constructed in 1931 by the Canada Paving Company based in Windsor.  
- Were told that the bridge was the only one of its kind in Ontario and therefore would have heritage value.  
- They support the rehabilitation option. | - Information noted and filed.                                                                        |

4.6 Consultation Summary

The consultation program developed for this project was directed towards the general public, adjacent property owners, federal and provincial review agencies, and the local Aboriginal community. Feedback received from review agencies expressed concerns related to a number of species at risk potentially present at the bridge site and within adjacent natural areas that might be impacted by the proposed project. Numerous residents expressed concerns related to the possible closure of the bridge. Several indicated that rehabilitating or replacing the bridge would be preferred. Feedback was received from three Aboriginal communities; two indicated that they had no concerns with the project, while the Aamjiwnaang First Nation were concerned with potential impacts to natural features and native plant species. They requested additional information on the project going forward and requested to meet with municipal representatives.
5.0 IDENTIFICATION OF POTENTIAL IMPACTS & MITIGATION MEASURES

5.1 Framework of Analysis

Following the selection of Alternative 2 as the preliminary preferred alternative, a study framework was developed to further evaluate the potential impacts of implementing this alternative. The purpose of this review was to assess the environmental interactions resulting from the construction and operation of the proposed works, and to determine if the identified interactions would generate potential environmental impacts. The assessment of the preferred alternative incorporated these activities:

- Assessment of the construction and operational requirements of the proposed works.
- Additional consultation with the public, stakeholder groups and government agencies.

Review of engineering methodologies associated with the proposed rehabilitation.

5.2 Construction Phase

The construction plan for the project involves the following general tasks:

- Complete habitat surveys adjacent to the bridge abutments to ensure that ESA protected species are not present within areas to be disturbed.
- Organize and attend a pre-construction meeting.
- Mobilize to the site.
- Provide traffic signs and barricades at the limits of the construction area, as required.
- Install sediment fencing adjacent to the abutments at the limits of the work area.
- Complete mussel move in river adjacent to the south bridge abutment.
- Isolate bridge abutments with coffer dams; transfer fish.
- Complete concrete removals on the bridge abutments, curbs, and deck.
- Remove existing railings and replace with new.
- Complete concrete repairs to the abutments and curbs as required.
- Complete deck repairs.
- Install rip rap adjacent to the abutments.
- Remove coffer dams.
- Restore disturbed areas adjacent to the abutments with native species.
- Remove traffic barricades and signs, as appropriate.
- Complete all required documentation and reporting.

The impacts of the proposed construction activities on the identified environmental elements are summarized in Table 5.1.
Table 5.1
Construction Related Environmental Effects

<table>
<thead>
<tr>
<th>Key Project Works and Activities</th>
<th>Natural Environment</th>
<th>Cultural Heritage Resources</th>
<th>Social Environment</th>
<th>Economic Environment</th>
<th>Technical Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Component</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contractor Mobilization to the site</td>
<td>○</td>
<td>○</td>
<td>□</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Utility Locates</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Implementation of traffic control plan</td>
<td>○</td>
<td>○</td>
<td>□</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Installation of sediment and erosion control</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Mussel move and coffer dam installation</td>
<td>●</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Concrete removals</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>□</td>
</tr>
<tr>
<td>Concrete repairs and installation of barriers</td>
<td>□</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Dewatering</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>□</td>
</tr>
<tr>
<td>Construction Traffic</td>
<td>○</td>
<td>○</td>
<td>□</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Rip rap installation</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Site Restoration (seeding/topsoil)</td>
<td>□</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Legend: ● Potential for significant adverse effect
□ Potential for limited adverse effects
○ No adverse effect expected

5.3 Impact Assessment and Mitigation

Based upon an evaluation of construction-related impacts and the findings of the environmental effects analysis (Table 5.4) and the environmental interactions analysis (Table 5.3), the preliminary preferred option has the potential to adversely impact upon a number of specific environmental features. They are as follows:

Natural Environment
- Aquatic Habitat, Fisheries and Species at Risk

Social Environment
- Construction-related impacts

The potential impacts to each identified feature are described in this section of the report and measures to mitigate the impacts are also presented. As noted above, potential impacts have been categorized as either short term or long term and reviewed accordingly. The selection of mitigation measures was based upon consideration of three broad approaches to mitigation; avoidance, minimization of adverse effects and compensation.
5.4 Impact to Natural Features

Construction activities associated with the bridge rehabilitation could pose a risk to the ecology of the study area, given the proximity of construction activities to the Black Creek channel and terrestrial habitat areas located adjacent to the river corridor. Accordingly, a series of protective measures will be incorporated into construction plans to help mitigate any identified impacts. As well, any lands disturbed by the construction process would be restored with native species. All remediation planned for the project will also be carried out in accordance with the mitigation and restoration requirements of the regulatory agencies. The following provides detailed descriptions of the specific measures proposed to mitigate impacts to natural features.

(a) Aquatic Habitat

For this project, the extent of in-stream work required will result in disruption to the river bed adjacent to the south bridge abutment (see photo below). An area around the abutment will need to be isolated and de-watered so that concrete restoration work can occur. Upon completion of the work, rock rip rap erosion protection will be placed to protect the abutments from future scouring activity. To minimize the extent of impacts, construction will be timed to occur during periods of low flow, during approved timing windows established by the Ministry of Natural Resources and Forestry. Upon completion of the proposed works, the extent of disturbed river bed not protected by rip rap will be restored to pre-existing conditions.

Photo looking south toward the south bridge abutment ↑
(b) **Terrestrial Habitat**

The south extent of the bridge is located adjacent to the forested river bank of Black Creek. Limited impacts to terrestrial features may occur during rehabilitation of the crossing. Consultation with MNRF will be undertaken prior to construction and the proposed work areas will be examined to confirm that significant species are not present within areas to be disturbed. The work area will also be clearly defined in the field to limit encroachment into adjacent natural areas and all disturbed areas will be fully restored with appropriate native plant species, upon completion of construction.

(c) **Breeding Birds**

To protect breeding birds, all trees that might provide nesting habitat for birds will be removed between August 30th and April 1st. If not removed within the approved timing window, the tree will be inspected by a biologist to ensure no negative impact prior to removal. The bridge structure will also be examined in advance of construction to ensure that no active nests are present that may be impacted by construction.

(d) **Aquatic Species at Risk**

Present at the bridge site are a number of freshwater mussel species protected through legislation both provincially and federally. To address potential impacts to these species, consultation with the MNRF and DFO will be undertaken to obtain required approvals in advance of construction. To protect the species, all mussels will need to be moved from those portions of the river bottom that will be directly impacted by the proposed bridge construction. The mussel relocation will be completed in accordance with the “Protocol for the Detection and Relocation of Freshwater Mussel Species at Risk in the Ontario Great Lakes Area (OLGA)” by Mackie et al. (2008). A biological consulting firm with experience in mussel moves will be retained in advance of construction to complete the required approvals.

5.5 **Potential Impact to Residents/Adjacent Properties**

To facilitate reconstruction of the crossing, the bridge abutments, deck, beams and railing need to be rehabilitated. This will require closure of the crossing for a period of approximately 6-8 weeks. Properties located in close proximity to the bridge site will experience relatively limited direct impacts from construction (noise/traffic disruption/restricted access). The closest residence is located approximately 240 metres southeast of the bridge, so is unlikely to experience impacts related to noise, however may be impacted by restricted access.

As discussed, the preferred alternative will require closure of the crossing for a period of approximately 6-8 weeks. Pretty Road will be closed adjacent to the bridge site and traffic will need to be detoured around the site on adjacent local roads. No road work is required to complete the upgrades, so disturbances will be limited to the existing bridge site. Once the rehabilitation work is completed, no long term impacts to traffic are anticipated. Figure 5.1 illustrates potential detour routes around the bridge site and their associated lengths.