
MUNICIPALITY OF LAMBTON SHORES

**MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
TO ADDRESS TRAFFIC CONGESTION ALONG THE
ONTARIO STREET CORRIDOR – GRAND BEND**

ENVIRONMENTAL STUDY REPORT



MUNICIPALITY OF LAMBTON SHORES

**MUNICIPAL CLASS EA TO ADDRESS CONGESTION ALONG
THE ONTARIO STREET CORRIDOR – GRAND BEND**

ENVIRONMENTAL STUDY REPORT



August 15, 2018

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**MUNICIPALITY OF LAMBTON SHORES
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TO ADDRESS TRAFFIC CONGESTION
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COMMUNITY OF GRAND BEND**

EXECUTIVE SUMMARY

1.0 INTRODUCTION

1.1 General

The Municipality of Lambton Shores, in cooperation with the Ministry of Transportation, initiated a Class Environmental Assessment process in May 2016 to identify the best strategy for resolving traffic congestion along the Ontario Street corridor in the community of Grand Bend. The study process followed the procedures set out in the Municipal Class Environmental Assessment (Class EA) document, dated June 2000, as amended in 2007, 2011 & 2015. B. M. Ross and Associates Limited (BMROSS) was engaged to conduct the Class EA investigation on behalf of the Municipality of Lambton Shores.

The Class EA investigation involved an evaluation of options to resolve deficiencies identified with two primary components of the Ontario Street corridor, i) deficiencies with the existing bridge crossing on Ontario Street South (Provincial Highway 21), and ii) deficiencies associated with the Ontario Street (north and south) corridor within the community limits. The framework of the study built upon the results of recent engineering inspections and traffic studies, which identified problems with the capacity of the existing bridge structure and road network, as they relate to traffic volumes. The Ontario Street corridor is located within a busy resort community adjacent to the prime downtown tourist district, while also serving as one of the primary north/south transportation corridors within southwestern Ontario.

The purpose of this report is to document the planning and design process followed during the Class EA investigation. The report includes a summary of the deficiencies with the existing structure and adjacent Ontario Street transportation corridor, as well as a description of the alternative solutions considered to resolve the identified problems. The public consultation process, which is an integral component of the Class EA process, is discussed in detail within the report. A preferred alternative is also presented and the decision-making process leading to the selection of this alternative is documented.

2.0 BACKGROUND

2.1 Project Study Area

(a) Municipality of Lambton Shores

In January 2001, the Towns of Bosanquet and Forest, and the Villages of Thedford, Arkona, and Grand Bend were amalgamated to form the Municipality of Lambton Shores. The new Municipality has a land base of approximately 330 km² and a population of just over 10,000 permanent residents, with an additional seasonal population of approximately 25,000. In general, Lambton Shores is comprised of a number of small urban settlement areas dispersed throughout a predominately rural landscape. A significant amount of seasonal development is situated along the Lake Huron shoreline and a large rural area extends inland from the shoreline of Lake Huron. The new Municipality incorporates a ward structure which generally corresponds to the jurisdictional boundaries of the former incorporated municipalities.

2.3.2 Community of Grand Bend

The former Village of Grand Bend forms the northern tip of Lambton Shores, and the County of Lambton, generally bounded by Parkhill Creek to the east and Lake Huron to the west. Well known for its pristine beaches and as a seasonal holiday destination, the settlement also contains a thriving commercial sector and growing retirement community. Grand Bend is one of the largest settlement areas in the Municipality, situated at the junction of Provincial Highway No. 21 (Ontario Street) and County Road 81 (Main Street East), the community has a large seasonal population that swells in the summer due to its proximity to the Lake Huron shoreline and busy Main Street shopping district. Grand Bend is home to some 2600 permanent residents and a seasonal population of more than 20,000. A photo of the bridge spanning Parkhill Creek on Ontario Street is included below.



2.2 Identified Deficiencies

(a) Bridge Deficiencies

The Ontario Street Bridge is a concrete post tension frame bridge constructed circa 1963, consisting of a single span. The bridge deck is 18.3 metres in width with a roadway width of 14.6m and a span of 35.36m. The crossing currently accommodates 4 lanes of traffic (two north bound and two south bound). There is no load posting at present and the structure accommodates about 10,000 vehicles per day during peak summer periods. The following deficiencies were noted during recent engineering inspections of the structure conducted by BMROSS and a deck condition survey completed in 1992 by Dillon Consulting Engineers:

- Asphalt deterioration
- Railing deterioration with rusted and cracked posts.
- Delamination and spalling on concrete curbs
- Deck drains need replacement
- Minor concrete patch repairs to underside of deck
- Based on the 1992 deck conditioning survey that indicated 3% of deck was in poor condition, we suspect up to 30% of deck would now be in poor condition, as no repairs have been completed in the interim.



(b) Ontario Street/Main Street Intersection

As noted in the February 2016 Paradigm Traffic Operations Study, it was determined that the current intersection and traffic signalization is insufficient to handle the traffic volumes that occur during peak periods and on holiday weekends, particularly during the summer months. Deficiencies with the current configuration were identified within the study including the limitation of 4 lanes on the south leg of the intersection, which provides 2 southbound through lanes, a north bound left turn lane and a combined north bound through lane and right-turn lane.

On busy holiday weekends during the peak summer period, when Ontario Street is busy with through traffic heading north to access the shoreline or cottage country, northbound traffic can be backed up for miles south of Grand Bend. The bridge is located very close to the intersection so traffic queuing at the intersection are sitting on the bridge. The width of the structure limits the number of lanes to four, two south bound and two north bound. One north bound lane is a dedicated left turn lane used by vehicles to access Grand Bend's Main Street. The second north bound lane accommodates through traffic heading north as well as traffic turning right onto County Road 81. On holiday weekends a high volume of pedestrians utilize the crossings which prevents north bound traffic from moving through the intersection. The traffic assessment concluded that the restrictions for traffic at the intersection are the primary cause of vehicle back-ups along the Ontario Street corridor. The photo below shows north bound traffic lined up at the Main Street intersection.



View looking north toward bridge and Main Street intersection ↑

(c) Ontario Street (Connecting Link) Corridor

The connecting link corridor through Grand Bend spans the length of Ontario Street from the former Village Boundary in the north, to Pinedale Road in the south. Through a majority of the corridor, the lane configuration consists of four lanes of traffic, two south bound, one north bound, and one centre left turning lane. The centre turn lane becomes a dedicated left turn lane as you approach any of the signalized intersections within the corridor.

With only one dedicated north bound through lane, traffic delays have become problematic in Grand Bend during busy summer periods. Other concerns with the corridor expressed by local residents include the efficacy of the centre left turn lane, no dedicated infrastructure for bicycle traffic, sidewalks are located very close to the travelled road surface making pedestrians feel unsafe, and the location of two crosswalks (one north and one south of Main Street) were also questioned.

3.0 CLASS EA PROCESS

3.1 Problem Statement

The first phase of the Class EA process includes the definition of the problem or opportunities, which need to be addressed. Based on the discussion above, the following problem/opportunity statement has been identified in conjunction with this project:

Traffic congestion and delays along the Ontario Street corridor in Grand Bend are negatively impacting accessibility for highway commercial operations located along the corridor and impacting the quality of life for residents using the roadway on a regular basis. Functionality of the corridor for pedestrians, cyclists and through traffic are also severely limited.

The second phase of the Class EA process involves the identification and evaluation of alternative solutions to address the defined problems. The evaluation of alternatives is conducted by examining the technical, social, cultural, economic, and environmental considerations associated with implementing any alternative. Mitigation measures that could lessen environmental impacts are also defined. A preferred solution or solutions is then selected.

3.2 Identification of Practical Alternatives

The purpose of the second stage of the investigation was to define alternative solutions to the identified problem/opportunities in a manner that minimizes potential environmental impacts. A limited number of practical solutions to the defined problems were identified at the outset of this Class EA process. The alternatives, stated below, build upon the findings of the preliminary engineering review discussed previously in this report.

(a) Main Street Intersection/Bridge Alternatives

Alternative 1 – Construct a new bridge capable of accommodating greater volumes of traffic. This alternative would involve the removal of the existing structure and the construction of a new bridge in the same location as the existing structure but with a wider bridge deck to accommodate an additional traffic lane. Upgrades to the approach roads would be required to accommodate the extra lane of traffic.

Alternative 2 – Replace bridge deck with a wider deck to accommodate greater volumes of traffic. This alternative would involve removal of the existing bridge deck and replacement with a wider deck capable of accommodating an additional traffic lane. Upgrades to the approach roads and widening of the bridge abutments and substructure would be required to accommodate the extra lane.

Alternative 3 - Do Nothing. This option proposes that no improvements or changes be made to address the identified problem. During the Class EA planning and design process, this alternative may be implemented at any time prior to the commencement of construction. A decision to “Do Nothing” would typically be made when the costs of all other alternatives, both financial and environmental, significantly outweigh the benefits.

(b) Ontario Street (Connecting Link) Alternatives

Alternative 1 – Add another northbound lane to the corridor (5 lanes total). This alternative would involve a physical widening of the corridor to accommodate more traffic beyond its current limits. This option would require the purchase of additional lands adjacent to the corridor in order to complete the work. Modifications to pedestrian and bicycle infrastructure will be addressed during phase 3 of the Class EA – review of detailed design alternatives.

Alternative 2 – Convert the two-way left turn lane to a northbound lane (4 lanes total). This alternative would involve a reconfiguration of the existing lane markings along the corridor to create two northbound and two southbound lanes and may also include modifications to the traffic signals and crosswalks. Modifications to pedestrian and bicycle infrastructure will be addressed during phase 3 of the Class EA – review of detailed design alternatives.

Alternative 3 – Construct a By-Pass around Grand Bend to divert through Traffic around the Community. This alternative would involve the construction of a by-pass route around Grand Bend so that through traffic can be diverted around the community. A new bridge crossing of Parkhill Creek and the construction of approach roads to the new crossing, would also be required. This option would not address deficiencies with the existing corridor within the limits of the connecting link.

Alternative 4 - Do Nothing. This option proposes that no improvements or changes be made to address the identified problem. During the Class EA planning and design process, this alternative may be implemented at any time prior to the commencement of construction. A decision to “Do Nothing” would typically be made when the costs of all other alternatives, both financial and environmental, significantly outweigh the benefits.

3.3 Identification of a Preferred Solution

The relative merits of each option were examined during the preliminary technical review of the study alternatives. Based on this assessment, the Municipality and MTO indicated a preference for Bridge Alternative 2: Replace bridge deck with a wider deck to accommodate greater volumes of traffic, and corridor Alternative 2: Convert the two-way left turn lane to a northbound lane. There are a number of attributes associated with the two Alternatives, which justified their selection as the preferred alternative (listed below):

Bridge Alternative 2 – Replace bridge deck with a wider deck

- Improves traffic safety by addressing deterioration present in the current deck structure.
- Represents the most practical option from a safety and engineering perspective.
- Presents minimal long-term impacts to noise levels and local aesthetics.
- Addresses deficiencies related to capacity and to pedestrian access across the bridge.
- Addresses transportation impacts during construction by allowing for phased construction.
- Minimizes impacts to the natural environment.

Corridor Alternative 2 – Convert the two-way left turn lane

- Improves traffic safety by increasing the capacity of the corridor by providing an additional northbound driving lane.
- Represents the most practical option from a safety and engineering perspective.
- Not anticipated to increase noise levels above current volumes, following completion of construction.
- Improves transportation volumes within the corridor to address future growth within the community and along the Highway 21 corridor.
- Minimizes the required width of the corridor and the extent of potential conflicts with private properties.

3.4 Detailed Design Alternatives – Deck Replacement and Road Corridor

Following selection of the preferred alternatives for the bridge crossing and the Ontario Street corridor, a range of options were identified to accommodate vehicular, bicycle and pedestrian traffic along the corridor and extending through the wider deck layout. These alternatives are described briefly below:

(a) Add a multi-use path, separate from the roadway, on both sides of the corridor

With this option the existing sidewalk would be removed and a 2.4 metre multi-use path would be constructed on each side of the road corridor, beyond the limits of the boulevard. The multi-use path would extend along the entire corridor, including over the bridge, and tie into the existing Rotary Trail located south of Grand Bend. The total width of the corridor would be 20.7m.

(b) Construct bike lanes at the edge of the travelled roadway

With this option bicycle lanes would be added to the road corridor beside the travelled portion of the roadway. The bicycle lanes would be 2.1 metres wide and would be separated from the vehicular lanes through lane markings. A standard sidewalk would be constructed beyond the limits of the boulevard that would be slightly wider than the current sidewalk, measuring 1.5 metres in width. The total width of the corridor would be 22.3 metres.

(c) Construct separate bike lanes, behind the curb, on both sides of the corridor

With this option separated bicycle lanes would be added to the corridor behind the curb on both sides of the corridor. The bicycle lanes would be 1.8 metres wide and would be separated from the 1.5 metre wide sidewalk through lane markings or surface treatments. The total width of the corridor would be 22.5 metres.

(d) Add a multi-use path, separate from the roadway, on one side of the corridor

With this option the existing sidewalk would be removed on one side of the corridor and a 3.3 metre multi-use path would be constructed, beyond the limits of the boulevard. A standard 1.5 metre sidewalk would be constructed on the other side of the corridor. The multi-use path would extend along the entire corridor, including over the bridge, and tie into the existing Rotary Trail located south of Grand Bend. The total width of this option is 20.7 metres.

An evaluation process was undertaken to consider the potential impacts of each detailed design alternative on various aspects of the environment including the technical, social, cultural, natural and economic environments. The results of the assessment are summarized in Table 3.1.

Table 3.1
Bridge & Corridor: Detailed Design Alternatives
Evaluation of Alternatives

Design Alternative	Alternative #1 Multi Use Path on Both Sides (20.7m)	Alternative #2 Bike Lanes at Edge of Roadway (22.3m)	Alternative #3 Separated bike paths (22.5m)	Alternative #4 Multi Use Path on One Side (20.7m)
Social Environment	- Provides connectivity with Rotary path. - Narrower width limits impacts to private property	- Provides improved cycling infrastructure - Wider cross-section will result in greater private property impacts	- Provides improved cycling infrastructure - Wider cross-section will result in greater private property impacts	- Provides improved cycling infrastructure - May present a safety concern for cyclists crossing road
Cultural Environment	- Few impacts anticipated to cultural features	- Wider cross-section could impact built heritage resources	- Wider cross-section could impact built heritage resources	- Few impacts anticipated to cultural features
Technical Environment	- Other than minor impacts to properties, joint path relatively easy to implement	- Wider curb to curb x-section will result in relocation of more utilities.	- Wider x-section will result in greater impacts to utilities & private properties.	- This option requires shifting of the centreline of the road which results in relocation of more utilities.
Economic Environment	- Less expensive than the other alternatives	- Most expensive option	- Not as expensive as Options 2 & 4.	- More expensive option
Natural Environment	- Few impacts to natural features.	- Few impacts to natural features.	- Few impacts to natural features.	- Few impacts to natural features.

3.5 Confirmation of Detailed Design Components

Prior to the second public information meeting, the preliminary preferred alternatives associated with the Class EA and with the detailed design alternatives, were presented to Municipal Council for their input and feedback. BMROSS staff attended a Municipal Council meeting held on March 27, 2018, to review the Class EA process completed to date and summarize the recommended alternatives being presented to the public at the June 4, 2018 Public Meeting.

Council was supportive of the recommendations and staff proceeded with presentation of the preferred alternatives at the public meeting. A final report will be presented to Municipal Council in September 2018, following finalization of the Class EA, to document additional feedback received during the Notice of Study Completion review period. The preferred alternatives selected in conjunction with the Class EA are summarized below.

- 1) Preferred Bridge Alternative
 - a. Replace bridge deck with a wider deck and substructure.
- 2) Preferred detailed design for intersection configuration
 - a. Add an additional northbound through lane to the intersection (5 lanes total)
- 3) Preferred Corridor Alternative
 - a. Covert the two-way left turn lane to a northbound lane
- 4) Preferred detailed design for Corridor
 - a. Add multi-use lanes on both sides of the corridor (for cyclists and pedestrians)

4.0 PUBLIC CONSULTATION PROGRAM

4.1 General

During Phases 1 to 5 of the Class EA process, consultation was undertaken to obtain input from the general public, project stakeholders, government review agencies and Aboriginal communities that might have an interest in the project. The consultation program was comprehensive in nature in order to ensure that affected property owners and key stakeholders were provided with multiple opportunities to comment upon study investigations and key project developments. The key components of the program are as follows:

- Initial Public Notice – Issued July 28, 2016
- Information Circulation to Review Agencies – Circulated on July 25, 2016
- First Public Information Meeting – Held on August 24, 2016
- Second Public Information Meeting – Held on June 4, 2018
- Notice of Study Completion – Issued on August 15, 2018

4.2 Consultation Summary

The consultation program developed for this Class EA was directed towards local residents, business owners along the Ontario Street corridor, seasonal residents that frequent the community, and Provincial and Federal review agencies. In response to notices and following the public meeting, residents indicated that traffic flow through the community was a significant problem, particularly on weekends and holidays, preventing local residents from traveling freely within the community. Concerns related to pedestrian safety and bicycle traffic, were also expressed by several residents. Comments from review agencies were typical for a Class EA which involves construction adjacent to a watercourse. Few comments were received from First Nation or Métis communities.

Consultation undertaken during Phase 3 of the Class EA, the review of detailed design alternatives, resulted in the following general comments:

- In general residents were supportive of the recommended alternatives for both the bridge and the corridor;
- There were significant concerns with funding and with how quickly the plan could be implemented. Most people wanted something done immediately to address the problems.
- Residents were concerned with property impacts along the corridor associated with the wider corridor width to accommodate the multi-use path options.

As a result of input received in conjunction with the Phase 3 consultation process summarized above, the Municipality committed to maintaining the intersection and road corridor to address deterioration prior to implementation of the ultimate project.

The Municipality also committed to continued talks with MTO to seek funding for the project so that implementation could begin as soon as possible.

The traffic consultants were contacted to investigate Oak Street further to see if a left turn lane and traffic signal were warranted at the intersection or if something else could be done to minimize concerns related to the intersection.

A commitment was made to move the north cross-walk approximately 80 metres further north from its current location, in conjunction with the proposed road work north of Main Street.

5.0 IMPACT MITIGATION

5.1 General

The identification of potential impacts associated with a project, and the implementation of suitable measures to mitigate the effect of those impacts on all aspects of the environment, is a primary objective of the Municipal Class EA process. A number of potential impacts were identified for this project as a result of the public consultation process and a detailed review of the natural environment in the vicinity of the study area.

A series of remediation measures were identified which will need to be implemented in order to minimize the environmental impacts associated with the proposed works. The following represent the key measures of the proposed mitigation plan:

- Pedestrian access will be maintained over the bridge and along the road corridor during the construction period, although access will be limited to only one side of the road to be coordinated with road reconstruction activities.
- The preferred bridge deck design will include a 2.4 metre wide multi-use path on both sides of the corridor to provide improved pedestrian and cycling access and safety.
- In-water work will be minimized as much as possible and restricted to periods of low flow, during timing windows established by applicable review agencies. This will minimize impact of construction activity on fish populations and other aquatic species inhabiting the work zone.
- A navigational opening will be maintained beneath the bridge during reconstruction of the bridge deck. If temporary access restrictions are required for safety reasons, local marina operators will be contacted in advance so that alternative arrangements can be made for boat owners docking upstream of the bridge site.
- The limit of vegetation removal adjacent to the bridge will be minimized as much as possible. Following the completion of tree and vegetation removal operations, a sediment fence will be erected to act as a physical barrier (limiting collateral damage to trees and vegetation) as well as a barrier to sediment laden runoff.
- Disturbed areas of the river bank will be restored, following the completion of construction, with native tree species and grasses, similar to those species currently present at the site.
- The Ontario Occupational Health and Safety Act will apply to all project related activity in order to minimize the risks posed by construction.
- To minimize impacts to residents, construction will be scheduled to avoid the peak tourist season and will be extended over a two year period. One lane of traffic will be maintained for northbound and southbound traffic throughout the construction period.
- Construction activities will be conducted in accordance with contract documentation and the impact mitigation requirements of various regulatory agencies. The work will be monitored through on-site supervision.
- Erosion and sediment control measures will be implemented throughout the entire work zone to minimize sediment loadings to the watercourse.

6.0 PROJECT SCHEDULE

Implementation recommendations contained within the Traffic Study Report suggest that widening of the bridge deck and road corridor located immediately north and south of the Main Street intersection, occur first to resolve traffic delays presented by the current bridge and intersection configuration. The Municipality is planning to coordinate reconstruction of the connecting link corridor located north of the intersection to the municipal limits, to occur with the bridge and intersection upgrades. The condition of the road within this section of the corridor is deteriorated and is in need of repairs. The remainder of the corridor, located south of River Road, would be updated in subsequent years, dependent upon receipt of necessary approvals and sufficient funding.

A general schedule for the proposed bridge deck replacement has been prepared based on the assumption that all necessary approvals and funding will be obtained by the fall of 2019. Should funding not be received, the Municipality intends to attempt additional funding applications in subsequent years. As noted within Section 7.3, to minimize impacts to residents and seasonal visitors to the community, the timing of construction will be restricted to off-peak periods in the spring and fall. This will extend the construction timeframe over two years, but will significantly reduce additional traffic congestion related to the construction. The following represents the conceptual schedule for the completion of key project components, assuming other timelines noted above can be achieved:

- Completion of final design drawings and receipt of required approvals (April 2019).
- Tendering of project (May 2019).
- Utility line relocation works adjacent to the bridge by utility companies. No work within the travelled roadway. (March – May 2019).
- Widening of the bridge substructure on each side of the bridge (September - December 2019).
- Replacement of the bridge deck in two stages (February – May 2020).
- Road work on approaches to the bridge, through the intersection and north of Municipal Drive (September – December 2020).
- Complete site restoration work along the corridor (March-May 2021)

7.0 SUMMARY

This report documents the Municipal Class Environmental Assessment process conducted to define a solution to traffic congestion problems affecting the ‘Connecting Link’ corridor in the Community of Grand Bend, Municipality of Lambton Shores. The connecting link corridor extends along Ontario Street (Provincial Highway 21) from Pinedale Road in the south, to the municipal boundary in the north. Severe traffic congestion has plagued the seasonal community for a number of years, especially on holidays and long weekends, and is impacting the quality of life for local residents, business owners, and the traveling public.

The study evaluated alternatives associated with two components of the corridor; 1) the bridge structure spanning Parkhill Creek located immediately south of the Main Street intersection, and 2) improvements to the road design of the entire corridor.

Following a detailed assessment of the alternatives, which included consultation with review agencies and Aboriginal communities, as well as two public meetings for stakeholders and community residents, a preferred solution was selected. The Alternatives were subsequently endorsed by Municipal Council and are summarized below.

- 1) Preferred Bridge Alternative**
 - a. Replace bridge deck with a wider deck and substructure
- 2) Preferred detailed design for intersection configuration**
 - a. Add an additional northbound through lane to the intersection (5 lanes total)
- 3) Preferred Corridor Alternative**
 - a. Convert the two-way left turn lane to a northbound lane
- 4) Preferred detailed design for Corridor**
 - a. Add multi-use lanes on either side of the corridor (for cyclists and pedestrians)

The proposed project is a Schedule C activity under the terms of the Class EA. The Municipality of Lambton Shores intends to proceed with the implementation of this project upon completion of the Class EA investigation, the receipt of necessary approvals, and obtaining sufficient grant funding support from the Ministry of Transportation.

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CLASS ENVIRONMENTAL ASSESSMENT
TO ADDRESS TRAFFIC CONGESTION ON THE ONTARIO STREET CORRIDOR
COMMUNITY OF GRAND BEND**

ENVIRONMENTAL SCREENING REPORT

1.0 INTRODUCTION AND BACKGROUND

1.1 Purpose of Study

The Municipality of Lambton Shores, in cooperation with the Ministry of Transportation, initiated a Class Environmental Assessment process in May 2016 to identify the best strategy for resolving traffic congestion along the Ontario Street corridor in the community of Grand Bend. The study process followed the procedures set out in the Municipal Class Environmental Assessment (Class EA) document, dated June 2000, as amended in 2007, 2011 & 2015. B. M. Ross and Associates Limited (BMROSS) was engaged to conduct the Class EA investigation on behalf of the Municipality of Lambton Shores.

The Class EA investigation involved an evaluation of options to resolve deficiencies identified with two primary components of the Ontario Street corridor, i) deficiencies with the existing bridge crossing on Ontario Street South (Provincial Highway 21), and ii) deficiencies associated with the Ontario Street (north and south) corridor within the community limits. The framework of the study built upon the results of recent engineering inspections and traffic studies, which identified problems with the capacity of the existing bridge structure and road network, as they relate to traffic volumes. The Ontario Street corridor is located within a busy resort community adjacent to the prime downtown tourist district, while also serving as one of the primary north/south transportation corridors within southwestern Ontario.

The purpose of this report is to document the planning and design process followed during the Class EA investigation. The report includes a summary of the deficiencies with the existing structure and adjacent Ontario Street transportation corridor, as well as a description of the alternative solutions considered to resolve the identified problems. The public consultation process, which is an integral component of the Class EA process, is discussed in detail within the report. A preferred alternative is also presented and the decision-making process leading to the selection of this alternative is documented.

1.2 Environmental Assessment Process

Municipalities must adhere to the Environmental Assessment Act of Ontario (EA Act) when completing road, sewer or water works 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, and 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 a 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 the procedures set out in the Class EA. Figure 1.1 presents a graphical outline of the procedures.

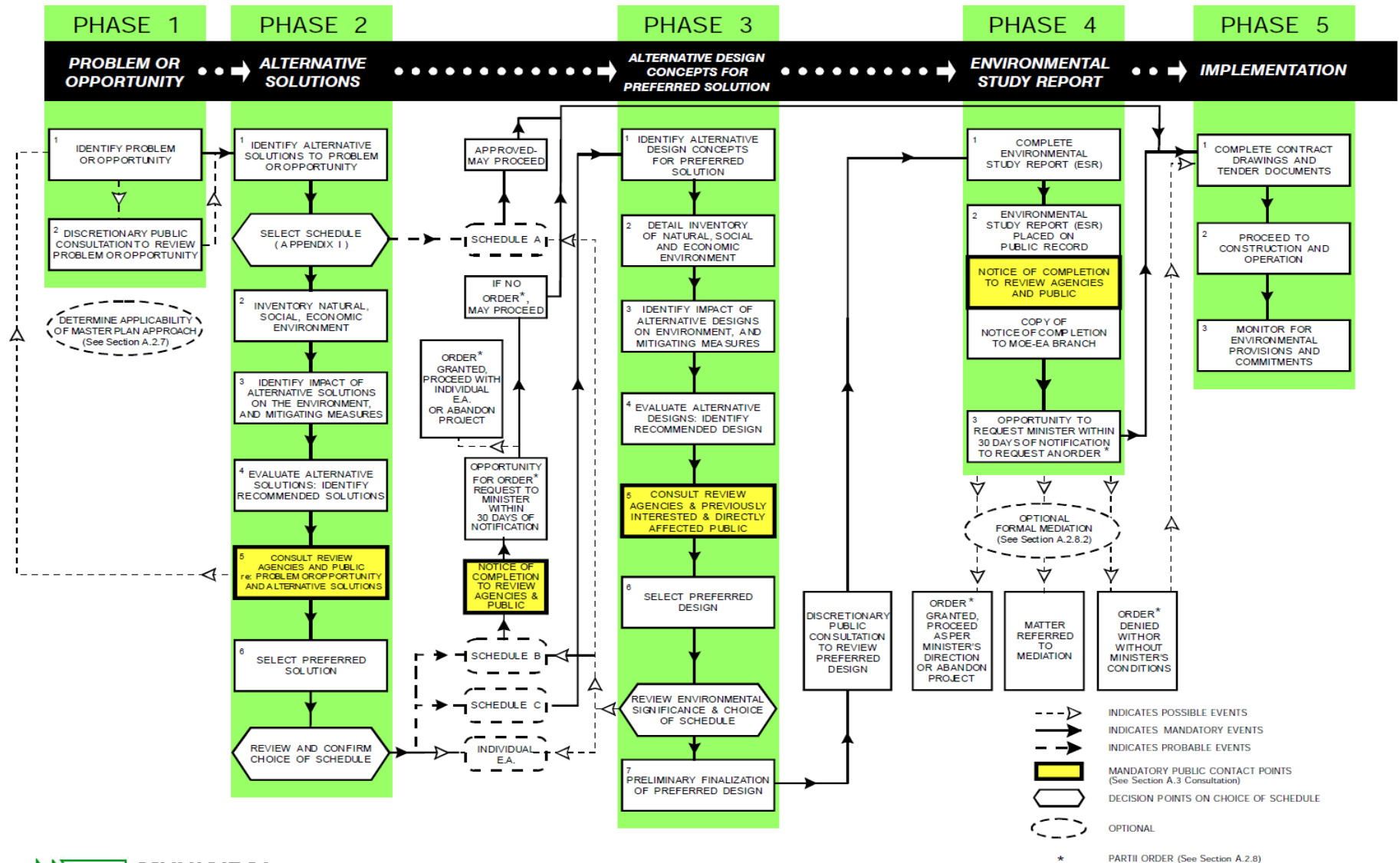
The Class EA planning process is divided into the following phases:

- 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 selection of a preferred design concept.
- Phase 4 - Preparation and submission of an Environmental Study 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 evaluating alternatives.
- Clear documentation of the process to permit traceability of decision-making.

NOTE: This flow chart is to be read in conjunction with Part A of the Municipal Class EA



1.3 Study Coordination

B. M. Ross and Associates Limited (BMROSS) conducted the Class EA planning process on behalf of the proponent, the Municipality of Lambton Shores. Input was also sought from the Ministry of Transportation (MTO) given that Ontario Street is part of a Provincial transportation corridor (Highway No. 21).

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 the project. There are three levels of 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 Phases 1 and 2 of the Class EA process, as a minimum.
- Schedule C – Projects that are approved subject to following 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.

1.5 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 has associated with it significant environmental impacts, a person/party may request that the proponent voluntarily elevate the project to a higher level of environmental assessment. If the Municipality 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 for 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 STUDY AREA DESCRIPTION

2.1 General

The Municipality of Lambton Shores initiated a Class EA process in May 2016 to address congestion along the Ontario Street corridor in Grand Bend. The associated investigations followed the environmental screening process prescribed for Schedule ‘C’ 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. Review of detailed design options
- v. Additional public/agency Consultation
- vi. 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 C screening process.

2.2 Background Review

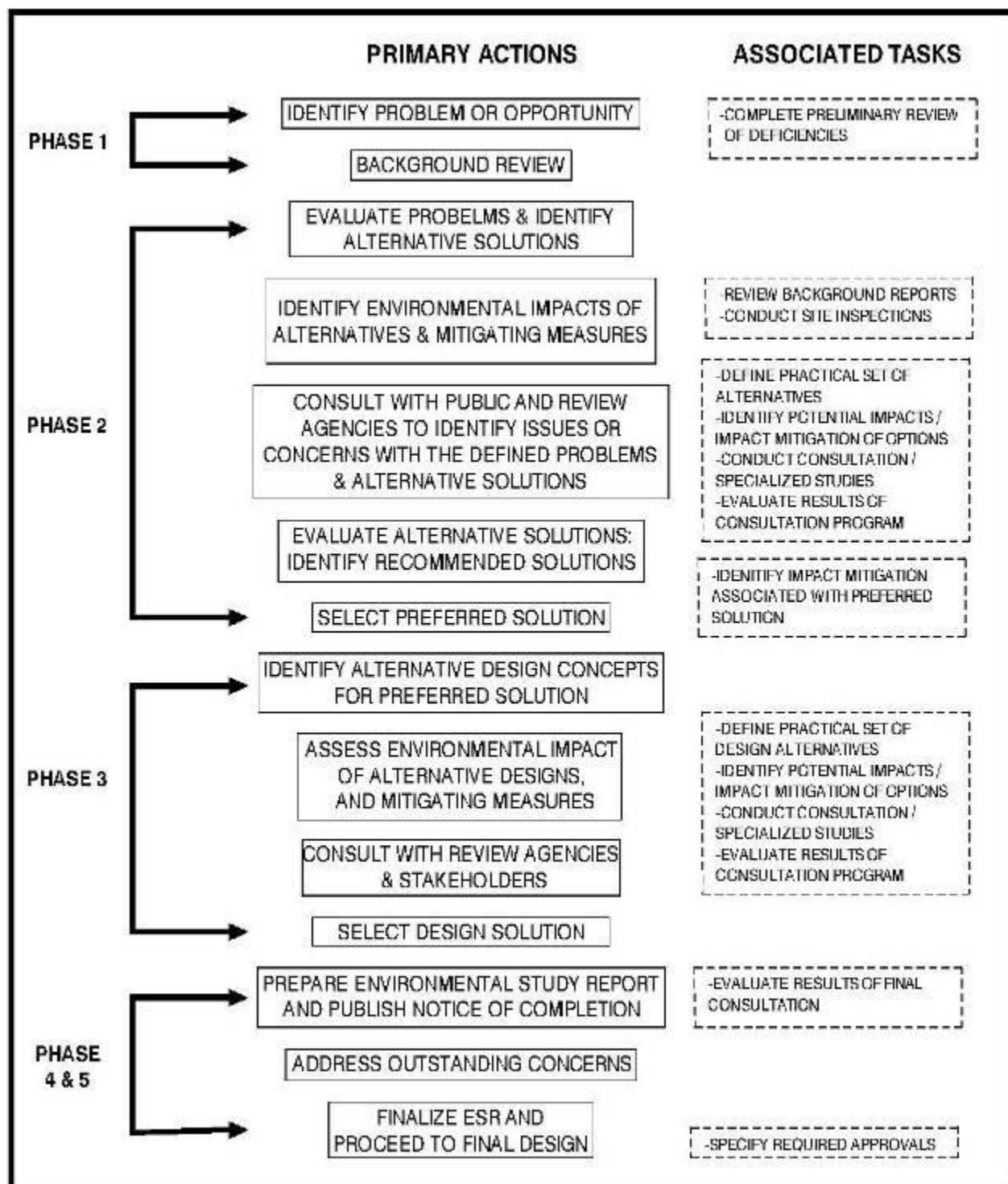
A background review was carried out to characterize the project study area and to identify those factors that could influence the selection of alternative solutions to the defined problems. The background review for this Class EA process incorporated these activities:

- A general description of the study area and the Municipality of Lambton Shores.
- 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:

- Municipality of Lambton Shores. Files and discussions with staff.
- Ministry of Transportation. London Regional Office.
- Traffic Operations Study. Paradigm Transportation Solutions Ltd.
- Ausable Bayfield Conservation Authority (website).
- Natural Heritage Information Centre (NHIC) (website).
- Ontario Structure Inspection Manual (OSIM) Report. B. M. Ross and Associates.

Figure 2.1
Class EA Schedule B Screening Process and Related Tasks



2.3 Project Study Area Description

2.3.1 Municipality of Lambton Shores

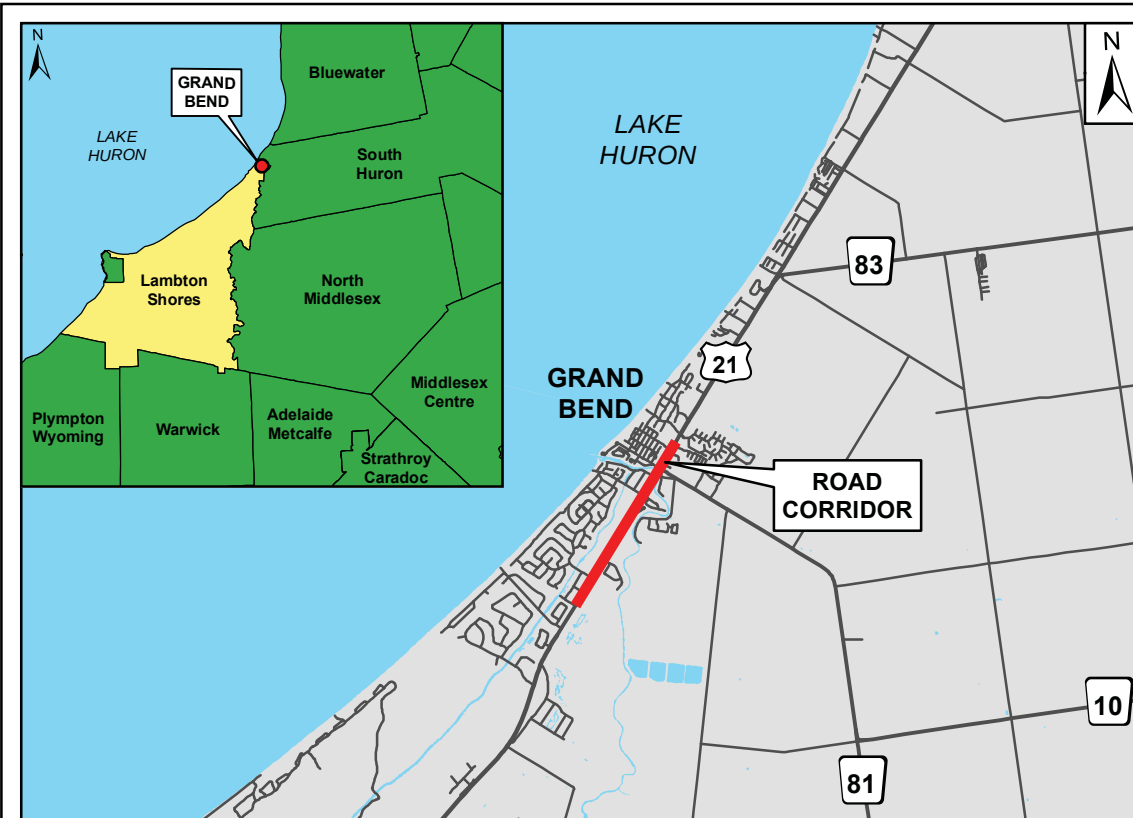
In January 2001, the Towns of Bosanquet and Forest, and the Villages of Thedford, Arkona, and Grand Bend were amalgamated to form the Municipality of Lambton Shores. The new Municipality has a land base of approximately 330 km² and a population of just over 10,000 permanent residents, with an additional seasonal population of approximately 25,000 persons. In general, Lambton Shores is comprised of a number of small urban settlement areas dispersed throughout a predominately rural landscape. A significant amount of seasonal development is situated along the Lake Huron shoreline and a large rural area extends inland from the shoreline of Lake Huron. The new Municipality incorporates a ward structure which generally corresponds to the jurisdictional boundaries of the former incorporated municipalities.

2.3.2 Community of Grand Bend

The former Village of Grand Bend forms the northern tip of Lambton Shores, and the County of Lambton, generally bounded by Parkhill Creek to the east and Lake Huron to the west. Well known for its pristine beaches and as a seasonal holiday destination, the settlement also contains a thriving commercial sector and growing retirement community. Grand Bend is one of the largest settlement areas in the Municipality, situated at the junction of Provincial Highway No. 21 (Ontario Street) and County Road 81 (Main Street East), the community has a large seasonal population that swells in the summer due to its proximity to the Lake Huron shoreline and busy Main Street shopping district. Grand Bend is home to some 2600 permanent residents and a seasonal population of more than 20,000. Figure 2.2 shows the general location of Grand Bend in relation to Lambton Shores and the surround municipalities, while Figure 2.3 illustrates the project study area. A photo of the bridge spanning Parkhill Creek on Ontario Street is included below.



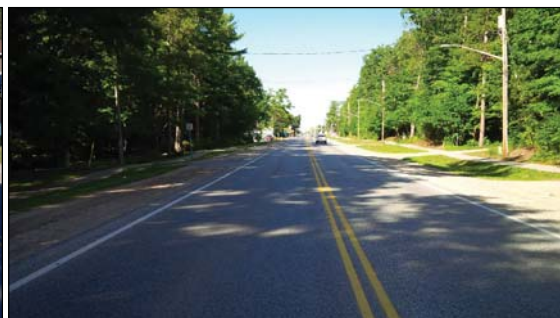
View of Ontario Street bridge looking northwest (downstream)



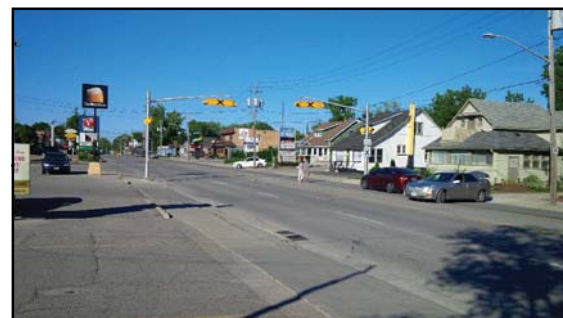
KEY PLAN
NOT TO SCALE



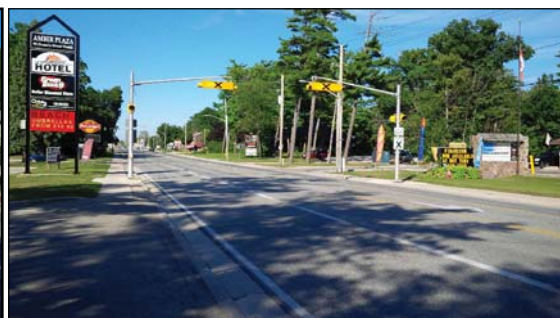
ROAD CORRIDOR FACING
NORTH TOWARDS LAKE ROAD



ROAD CORRIDOR AT SOUTH
END - FACING NORTH



CROSSWALK AT NORTH
END OF CORRIDOR



CROSSWALK AT SOUTH
END OF CORRIDOR

SITE PHOTOS TAKEN ON AUGUST 18, 2016

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AERIAL PHOTOGRAPHY OF PROJECT AREA
SCALE 1 : 11,000

**Affected Road Corridor
(Connecting Link Limits)**

MUNICIPALITY OF LAMBTON SHORES

CLASS EA TO ADDRESS TRAFFIC CONGESTION ON
THE ONTARIO STREET CORRIDOR IN GRAND BEND

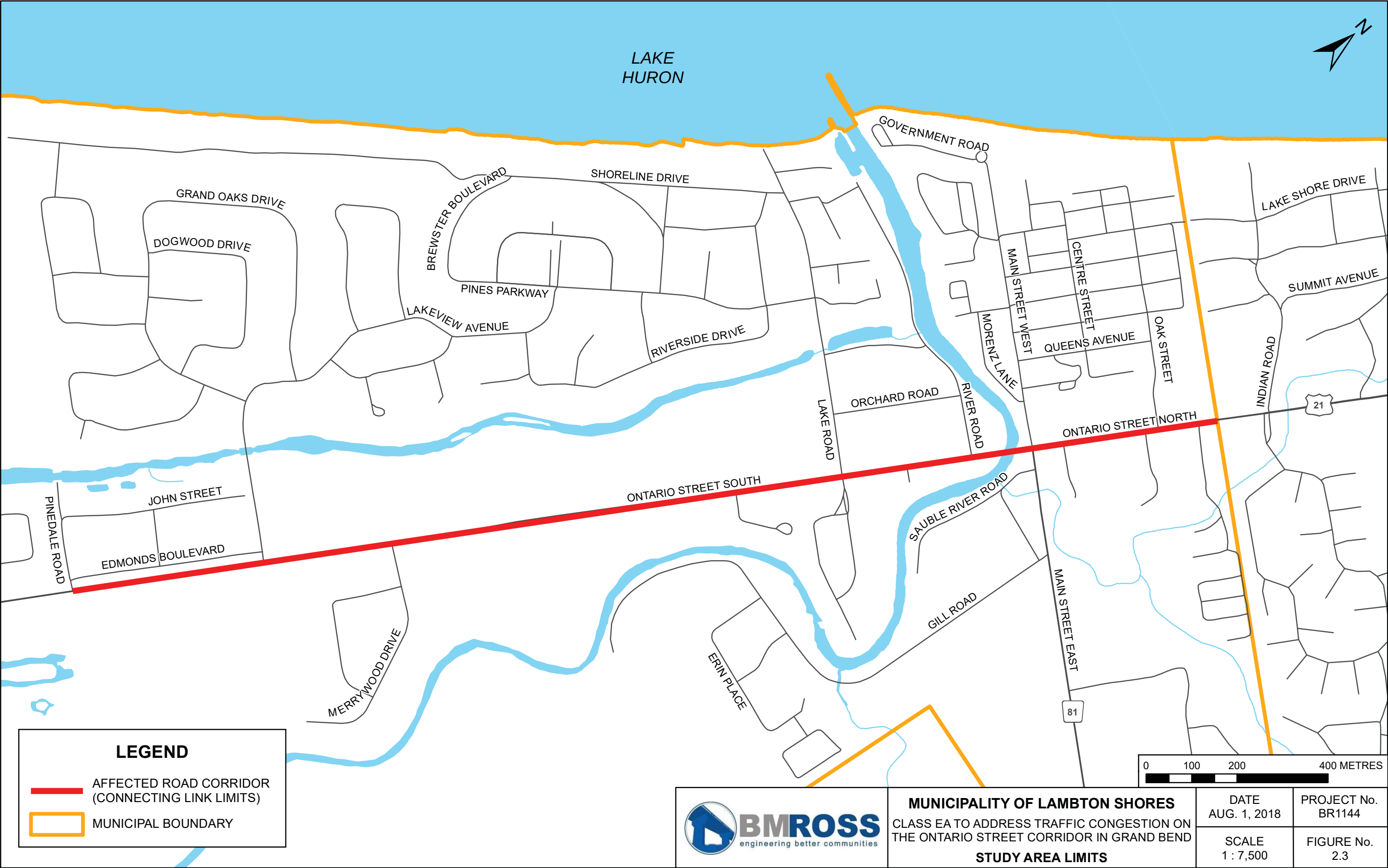
GENERAL LOCATION PLAN

DATE
AUG. 1, 2018

SCALE
AS SHOWN

PROJECT No.
BR1144

FIGURE No.
2.2



2.4 Natural Environment

2.4.1 General Physiography

The main geographic feature of the study area is the Lake Huron shoreline which forms the westerly extent of the project study area. Grand Bend is situated at a distinct divide between two shoreline types; the first is defined by a bluff that runs north-south parallel to the shoreline, and the second is dominated by a sand dune ecosystem extending inland from the shoreline. The bluff feature begins just north of Grand Bend and continues north along the shoreline extending into Bruce County. The sand dune system extends to the south and inland, defining the topography of the community and study area for some distance south into Lambton County.

The project study area is situated within the Ausable River watershed, which is managed by the Ausable Bayfield Conservation Authority (ABCA). The Ausable River originates near the community of Staffa and travels over 150 miles before reaching its current outlet at Port Franks. The watershed includes 1142 km² of primarily agricultural lands and falls over 500 feet from its source to the outlet at Lake Huron. The Ausable River originally outletted at Grand Bend but years of sediment deposits by the currents of Lake Huron, plugged the mouth and forced the river to move south to find a new outlet. This caused the gradual formation of the “Grand Bend” for which the community was eventually named.

In 1875, the Canada Company constructed a “cut” from the south end of the Thedford Marsh to the Village of Port Franks in order to relieve flooding on adjacent agricultural lands. This “cut” drained the Thedford Marsh and parts of Lake Burwell and allowed access to the former bog lands so that they could be used for vegetable farming. As a result, the Ausable River now discharges directly to Lake Huron at Port Franks. In 1892, a second “cut” was created at Grand Bend to outlet Parkhill Creek directly to the Lake at Grand Bend and create a harbour. As a result of the second ‘cut’ the former Ausable River channel was cut off from upstream drainage areas and became stagnant. The “Old Ausable River Channel” extends south from Grand Bend, parallel to the shoreline, through many residential subdivisions south of the community and through the Pinery Provincial Park to Port Franks. Because of the unique hydrology of the channel, which is now primarily fed through subsurface inputs and overland drainage runoff, a number of unique fish species have found suitable habitat within the channel.

In 1969, a dam and reservoir were constructed by the Conservation Authority on Parkhill Creek just outside of Parkhill to control flooding and erosion on lands downstream of Parkhill. This dam and reservoir act as a storage area and flood control structure in order to regulate the flow of Parkhill Creek and control problem areas downstream in the Thedford-Klondyke area. Parkhill Creek no longer flows into the Ausable River but discharges to Lake Huron at Grand Bend through the 1892 “cut”. It is this channel that flows beneath the bridge crossing on Highway 21.¹

¹ Friends of the Old Ausable Channel, <http://www.oldausablechannel.ca/history.html>

2.4.2 Sensitive 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 spaces 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 three 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. The ANSI's located south of Grand Bend are Life Science ANSI's. These features, along with other locally significant natural features, are illustrated on Figure 2.4.

(a) Port Franks Wetland (PSW)

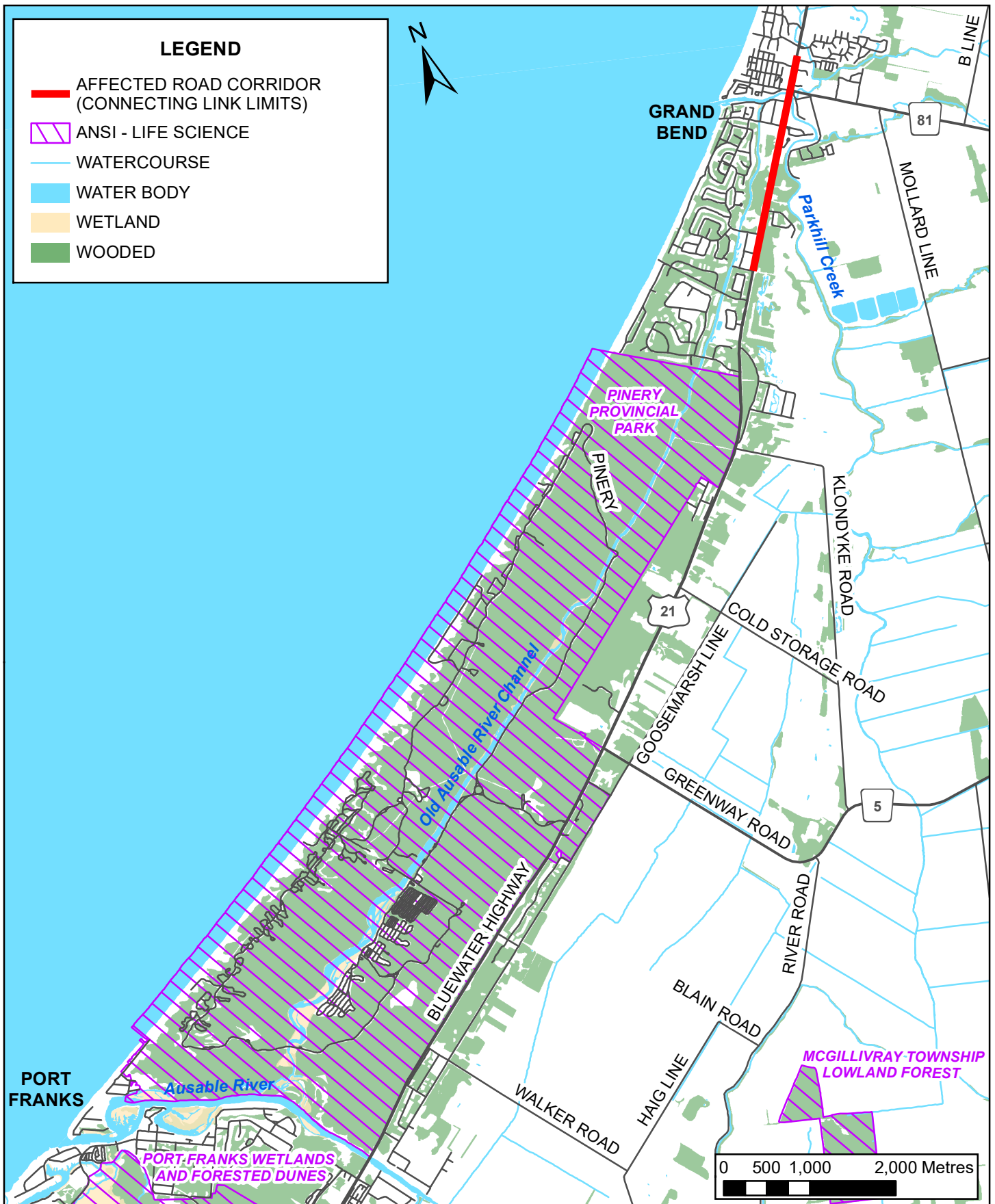
The Port Franks wetland is a provincially significant coastal wetland complex located in Port Franks approximately 12 km south of Grand Bend and is comprised of two individual wetlands and composed of two wetland types (66% swamp and 34% marsh). The first is a riverine wetland located along the Ausable River which includes several islands and an embayment along the course of the river. The second wetland feature is located along Mud Creek and includes L-Lake, situated east of Outer Drive.

(b) Port Franks Forested Dunes (ANSI/PSW)

The Port Franks Wetland and Forested Dunes natural area has been designated as both a Life Science ANSI and a Provincially Significant Wetland (PSW) complex by the Ministry of Natural Resources and Forestry (MNRF). Found amongst the sand dunes, meandering waterways and extensive forested areas adjacent to the settlement of Port Franks, this natural area is home to many significant species of flora and fauna. The dunes are comprised of fine sands, and as result, they are particularly vulnerable to erosion from storm waves and from winds.

(c) Pinery Provincial Park (ANSI)

The Pinery Provincial Park is located on Lake Huron 8 km south of Grand Bend. It spans an area of 25.32 km², approximately 6,330 acres. Within the area there are over 757 plants, 325 birds and 60 butterfly species. The park features the largest area of Oak Savanna in Ontario and contains much of the remaining Oak Savanna woodland found in North America. The park also has freshwater coastal dunes, habitat for endangered species and the largest protected forest in southwestern Ontario.



2.4.3 Species at Risk

Two categories of species at risk were researched in conjunction with this project. The first are species protected through Federal Legislation; Canada's Species At Risk Act (SARA). The second category represents species identified as rare, threatened or endangered by the Province of Ontario. These species are tracked by the MNRF and are documented on the Ontario Natural Heritage Information Centre (NHIC) web site. To protect the exact location of an identified species, both sites utilize range maps for identification purposes, which provide a large buffer around the actual species location. It is therefore difficult to determine whether a species is actually located within the project study area or has been identified due to the presence of suitable adjacent habitat. A summary of species at risk potentially present in the project study area are displayed on Table 2.1. Photos of several of these species are included below.

Table 2.1
Possible Species at Risk within the Project Area

Component	Endangered	Extirpated	Threatened	Special Concern
Mammals	American Badger	-	-	-
Birds			Cerulean Warbler	
Reptiles & Amphibians	Blue Racer, Eastern Ribbonsnake	-	-	Snapping Turtle
Fishes	Pugnose Shiner	-	Lake Sturgeon, Lake Chubsucker	River Redhorse
Lepidoterans	-	Karner Blue	-	Dusted Skipper
Plants, Lichens, Moss	Butternut	-	-	Green Dragon, Crowned Beggarticks, Creeping Draba, Eastern Green-violet, Autumn Coralroot, Six-weeks Fescue, Ram's-Head Lady's-slipper, Great Lakes Sandreed, Woodland Pinedrops, Stiff Gentian, Scarlet Beebalm, Sundial Lupine, Hairy Wood Mint, Fogg's Goosefoot, Shore Bluestem, Rattlesnake Hawkweed

* Defined by Schedule 1, Species at Risk Act



Blue Racer

Photo Credit: Ontario Nature



Snapping Turtle

Photo Credit: Ontario Nature



Shore Bluestem

Photo Credit: Plant Postings



Ram's-head Lady's-slipper

Photo Credit: Ontario's Wildflowers



Lake Chubsucker

Photo Credit: Ontario.ca

Given that the project study area is a fully urbanized transportation corridor with few natural features, save for the presence of grassed boulevards and landscaped features adjacent to the corridor, it is unlikely that any of the species identified above will be impacted by the proposed project. However, additional consideration will be undertaken during the technical review of alternatives phase of the Class EA, in order to identify any potential impacts to species at risk associated with any of the options being considered.

2.4.4 Breeding Bird Habitat

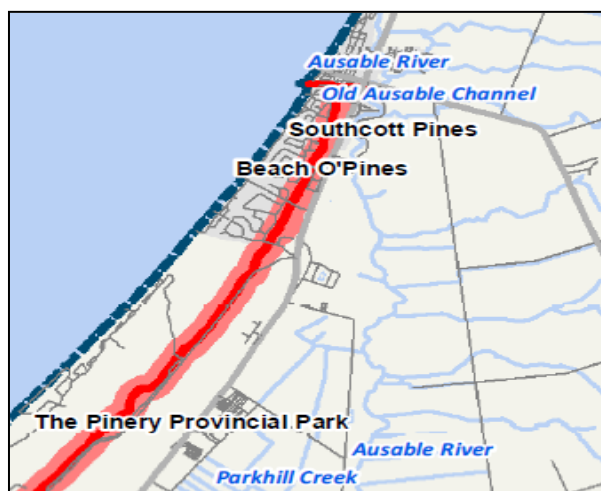
Of 94 bird species identified within the general study area, 42 species were confirmed to be breeding following a review of the most recent Ontario Breeding Birding Atlas (2001-2005), including the Canada Goose, Wood Duck, Barn Swallow and House Sparrow. An additional 29 species were categorized as probable and 23 were categorized as possible, in regards to their breeding habitat. This assessment area, designated Square 17MH49 and 17MH39 of Lambton, includes the Grand Bend urban area and portions of the Pinery Provincial Park ANSI, an area designated as a Provincially Significant Life Science ANSI.

Barn swallows are known to nest on structures, including bridges. To ensure that this species is not impacted by the project, the structure will be inspected prior to any construction activity to ensure that nesting birds are not negatively impacted by the project.

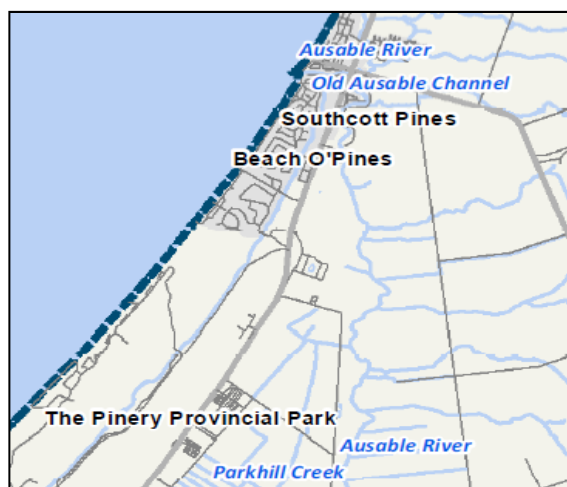
2.4.5 Aquatic Species at Risk

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. Federal and Provincial authorities have released screening maps to aid in the identification of these rare, threatened or endangered species. The image below at left indicates the potential presence of fish species at risk within the project study area, while the image at right illustrates the potential presence of mussels at risk.

Figure 2.5: Aquatic Species at Risk Screening Maps



Fish at risk screening map ▲



Mussels at risk screening map ▲

Based upon the mapping there are no mussels at risk present within Parkhill Creek or the Old Ausable channel, however there are a number of fish species at risk potentially present within the Grand Bend study area. The coloured section seen on mapping above indicates the potential presence of the following at risk fish species: Eastern Sand Darter, Lake Chubsucker and Pugnose Shiner. Input will be sought from the Ausable Bayfield 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 project.

2.5 Technical Environment – Transportation Network

2.5.1 Connecting Link Corridor

The Ontario Street Connecting Link corridor passes through the community from north to south near the easterly extent of the settlement area. Historically, development has gravitated toward the Lake Huron shoreline, west of Ontario Street. However, as the community continues to grow and expand, new developments are occurring east of Ontario Street, adjacent to Main Street East. Ontario Street currently serves as the primary location for Highway Commercial developments within the community with a number of restaurants, clothing stores and other commercial retail activities located along its length. When coupled with the high volumes of through traffic utilizing Highway 21 to access seasonal resort areas north and south of Grand Bend, the corridor has become very congested during peak tourist periods such as summer weekends and statutory holidays. The Highway 21 Bridge, constructed in 1954 and pictured below, is located near the center of Grand Bend, directly south of the Main Street/County Road 81 and Highway 21 intersection. The structure spans Parkhill Creek immediately upstream of its outlet at Lake Huron, providing recreational boaters with access to the harbour facilities situated along the river bank, downstream of the bridge. The portion of Ontario Street located within the urban limits of Grand Bend are generally defined as the ‘Connecting Link’ corridor within the community.



View of Highway 21 Bridge looking downstream (west)

Connecting Links are sections of Provincial Highways, typically located within the limits of urban settlement areas that have been downloaded to the local municipality. In exchange for realizing more control over the affected section of roadway, the municipality is responsible for maintaining the Connecting Link section and is provided with monetary assistance from the Province in maintaining the roadway. The connecting link section will usually continue to be labelled as a Highway but is identified as Connecting Link corridors through the installation of small yellow signs with C/L labelling at the start and end points. The photo at right shows the connecting link sign located at the south limit of Grand Bend adjacent to Pinedale Road.



Figure 2.3 illustrates the location of the Ontario Street Connecting Link corridor and the bridge's location in relation to the downtown commercial core and other primary attractions of the community. A photo of the Ontario Street corridor is shown below.



View of Ontario Street (Connecting Link) looking north

2.5.2 Connecting Link Analysis – Dillon Consulting 2004

A study completed by Dillon Consulting in 2004 evaluated the existing conditions at three key intersections within the former Village of Grand Bend. The study was undertaken to evaluate future growth scenarios for the area due to a large scale residential development project planned for lands immediately south of Grand Bend accessed off of Highway 21 (Ontario Street). The three intersections evaluated within the study were Ontario Street and Main Street, Ontario Street and Lake Road, and Ontario Street and Lakeview Road. The Main Street intersection is expected to experience traffic delays based on growth scenarios, in particular during peak hours on the weekend (Friday PM to Saturday peak hours). Particularly, the turning movements of the northbound right-turn and westbound left-turn lanes have been identified as significantly over capacity causing delays in traffic movement. It was estimated that traffic delays would exceed three minutes.

a) Alternatives Solutions

Based on the problems identified and projected future conditions within the area, four alternatives were identified to address the deficiencies:

1. Do Nothing

This option does not resolve the anticipated projected traffic volumes.

2. Reallocation of Existing Lanes

This option includes reversing the lane arrangement of the northbound and southbound lanes; however, it would ultimately shift the capacity problem to the other traffic direction. This option does not address the deficiencies identified at the Main Street intersection.

Other related options:

- Reverting to two through lanes per direction
- Installing overhead lane control signals
- Widening of Highway 21 by one lane

3. Major Improvements to the Ontario Street/Main Street Intersection – This option includes exclusive turning lanes in order to direct traffic flow during peak volume times.

- a. To accommodate Friday PM traffic, the intersection would require widening to accommodate a new exclusive right-turn lane for eastbound, northbound and southbound traffic, as well as a second northbound through traffic lane.
- b. To accommodate the Saturday peak hour volumes, the intersection would require widening and improvements identified for the Friday PM traffic flow, with the addition of a second northbound and westbound left-turn lanes (this option will create two northbound lanes and a westbound left-turning lane). These improvements would require a complete shift in the intersection location and require a complete reconstruction of the entire intersection. The only area for the intersection to shift to is eastward.

4. Protect for a Future Road Connection to By-Pass the Existing Ontario Street/Main Street Intersection (Ring Road Concept) – This option includes emphasizing development along Main Street East to redirect traffic away from the Main Street intersection and provide a north and south by-pass option for traffic to avoid the intersection completely. This option must consider property acquisition of the future by-pass route and the impact on businesses adjacent to the intersection.

Intersection improvements and the completion of a more in-depth, comprehensive area-wide study to address the anticipated future increase in traffic were recommended within the study. The report did not provide a detailed evaluation of which intersection improvements were preferred or feasible in addressing the identified deficiencies.

2.5.3 Traffic Operations Study – Ontario Street Bridge

In February of 2016, Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct a Traffic Operations Study to identify potential improvements to traffic flow in the area. The scope of the study consisted of the intersection of Ontario Street (Highway 21) and Main Street, and included the bridge crossing of Parkhill Creek on the south side of the intersection. The complete traffic study report is located in Appendix ‘A’.

The traffic study determined that the current intersection configuration and traffic signalization is insufficient to handle the traffic volumes that occur on weekends and holiday weekends, particularly during the summer months. Deficiencies with the current configuration were identified within the study including the limitation of 4 lanes on the south leg of the intersection comprised of 2 southbound through lanes, a dedicated north bound left turn lane and a shared north bound through lane and right-turn lane. Future traffic volumes forecast for the area (2020) were determined to be similar to the findings for 2015, with only a slight increase in traffic volumes. The identification of two improvement options was considered within the study:

Option 1 - Northbound Through and Right-Turn Lane

The first option, to create a northbound through lane and an additional northbound right-turn lane would separate the two movements of traffic, eliminating the unnecessary queue of vehicles, therefore increasing the capacity for both movements. This option would require the widening of the Ontario Street Bridge to accommodate 5 lanes. Currently, it contains 4 lanes (two southbound through lands, one northbound left-turn lane and one combination northbound through and right-turn lane).

Option 2 - Additional Northbound Through Lane

The second option is to create an additional northbound through lane, in order to accommodate traffic movement northbound through and right-turn. With this option, an additional northbound through receiving lane would have to be accommodated on the bridge and north of the intersection, either through the conversion of the existing centre turning lane into the northbound through lane or the creation of an entirely new lane. Traffic movement north of the intersection would eventually require tapering and merging of the two lanes into one, ideally at the next intersection.

The findings and analysis of the configuration options were assessed and it was determined that Option 2 provides a greater benefit to the movement of traffic within the intersection. Given the identified configuration and requirement of the addition of a northbound receiving lane (either the creation of a new lane or the conversion of the existing centre turning lane), Option 1 is considered to be an adequate subsequent design, if the implementation of Option 2 is not feasible.

2.5.4. Traffic Operations Study – Ontario Street Corridor

In October 2017, Paradigm undertook an additional analysis of the Ontario Street corridor in order to identify potential improvements to traffic flows that would result from lane reconfigurations, additions, etc. The analysis also considered the impacts of the various potential improvements on the operations of the Main Street intersection and the bridge over Parkhill Creek. An additional series of traffic counts were also collected during the 2016 Labour Day weekend. The traffic study report is located in Appendix ‘A’.

i) Improvements at Main Street Intersection

The study reiterated the same conclusion associated with the Main Street intersection that were noted in February 2016 report summarized above. The addition of a fifth lane on the bridge structure, which would allow for the creation of an additional northbound through lane, would result in the greatest improvements to traffic flows at the Main Street intersection.

ii) Improvements north of Main Street

If an additional northbound lane is created at the intersection, then a second northbound receiving lane is required north of the intersection. A widening is feasible immediately north of the intersection to Municipal Drive, but becomes difficult beyond this point due to the presence of existing buildings. Two options were considered to address the widening requirement as follows: 1) merge the two northbound receiving lanes at Municipal Drive, or 2) convert the two-way left turn lane to a northbound lane. Following a brief analysis, the report recommends option two as the most efficient means to address the widening required north of Main Street.

iii) Ontario Street and Oak Street

Additional analysis was undertaken at the Oak Street intersection with Ontario Street, following feedback received from residents at the second Public Information Centre. Concerns were related to excessive wait times for vehicles turning onto Ontario Street from Oak Street due to high traffic volumes on Ontario Street. The intersection was analysed to determine if a signal was warranted. For a traffic signal to be warranted at an intersection, a number of warrant calculations must be met over 8 hours of a typical day. The calculations consider volumes on the main street (Ontario Street) as well as the minor street (Oak). Traffic turning movements were collected at the intersection on the Labour Day weekend. Although volumes on Ontario Street were high, there were insufficient volumes on Oak Street during the peak period, let alone during a sustained 8 hour period; therefore, a signal is not warranted at the intersection.

During analysis of the turning movements it was noted that 75% of the turning movements are comprised of right turns onto Ontario Street. A partial solution to address delays on Oak Street would be to install a left turn lane on Oak Street so that traffic turning right can by-pass the vehicles waiting to turn left.

iv) Improvements at Lake Road

It is thought that many of the issues at Lake Road are associated with traffic queuing from the Main Street intersection that stretch far enough back to impact the intersection. Once improvements at Main Street are implemented, operation of the Lake Road intersection should improve. However, several options were evaluated to improve operations at the intersection once the improvements at Main Street intersection are addressed. These are as follows: 1) Widening to a five lane cross-section with an additional north bound through lane, 2) Convert the left turn lanes (north and southbound) to through lanes. This would create a 4 lane cross-section with no left turn lanes. The analysis showed that Option 1 would result in the greatest capacity improvements at the intersection and Option 2 was better than the existing configuration. Option 1 was subsequently ruled out as there is insufficient space to provide 5 lanes north and south bound at the intersection.

While Option 2 could be implemented, it was noted that the evaluated options resulted in only minor operational improvements to the intersection. In the concluding section of the letter report it was identified that adding the 5th lane at the Main Street intersection is more important than modifications to the Lake Road intersection.

v) Ontario Street south of Main Street

Similar to the cross-section north of Main Street, if a 5th lane is added at the Lake Road intersection, then a northbound receiving lane would be needed north of the intersection. Two options were considered; 1) merge the two north bound receiving lanes north of Lake Road, 2) convert the two-way left turn lane to a northbound lane.

The analysis recommended option 2 as the preferred approach to provide consistency along the corridor. If the two-way left turn is removed north of Main Street, it should also be removed south of the intersection as well.

vi) Pedestrian Cross-Walks

An analysis of the two pedestrian cross-walks was also undertaken. It was determined that the No Frills cross-walk was properly situated and should not be adjusted. The Beer Store cross-walk could benefit from being moved closer to Oak Street and further away from the Main Street intersection.

vii) Conclusions and Recommendations

The report recommended a preferred priority for implementation of the various bridge and corridor improvements as follows:

- Improvements to the intersection of Ontario Street and Main Street, including an additional north bound lane on the south leg of the intersection (bridge widening).
- Improvements to the cross-section north of Main Street, including consideration of an additional northbound receiving lane and conversion of the two-way left turn lane to a northbound lane.
- Conversion to the intersection of Ontario Street and Lake Road.
- Improvements to the cross-section of Ontario Street, south of Main Street, including consideration of conversion of the two-way left turn lane to a northbound lane.
- There is not enough evidence to suggest that moving the Beer Store cross-walk closer to Oak Street would result in increased usage.

2.6 Socio-Economic Environment

2.6.1 Adjacent Land Uses

Land uses along the Ontario Street corridor are primarily highway commercial activities with a few remaining residential properties that have not yet been converted to commercial uses. Many of the smaller highway commercial activities are housed in former residential properties that have been converted to a commercial use. Several chain style commercial operations are located along the corridor including a Tim Hortons Restaurant, a No-Frills Grocery Store, a Rona Hardware Store, an Esso Gas Station and a Bank of Montreal. A majority of the commercial operations are stand-alone operations that are specific to the Grand Bend area.

2.6.2 Land Use Planning

Areas located along the Ontario Street corridor are designated ‘Commercial’ or ‘Urban Development’ within Schedule ‘A-1’ of the Lambton Shores Official Plan. The Lambton Shores Zoning By-Law zones properties as primarily C2 – Commercial-2 (Highway Commercial) or other commercial specialty uses such as C5, C6 or C9. At the south end of the corridor, existing residential uses are generally zoned R6. Several parcels are also zoned FD – Future Development if they are currently vacant. Copies of relevant planning documents are included within Appendix ‘B’.

Several policies within the Lambton Shores Official Plan have relevance to the current project as follows:

“Section 20 TRANSPORTATION”

It is the policy of the Municipality to provide and maintain efficient, cost-effective and reliable transportation systems that integrate with adjacent systems and those of other jurisdictions to serve the needs of the local population.

20.1 ROAD SYSTEM

- a) *The movement of vehicles on public rights-of-way will be given a high priority in the planning of the transportation system within the Municipality.*

20.5 Pedestrian and Bicycle Traffic

sidewalks and walkways

- 20.5.1 *Adequate provision will be made for sidewalks and walkways to enhance the convenience and safety of pedestrians*

where sidewalks provided

- 20.5.2 *Sidewalks will generally be provided within Urban Residential and Central Commercial Areas along both sides of Arterial Roads and along at least one side of collector Roads and Local Roads, where warranted by vehicular or pedestrian traffic volumes.*

bicycle ways

- 20.5.6 *Bicycle ways within parks and between residential areas and schools, parks and commercial facilities will be provided wherever feasible.*

arterial roads

- 20.5.7 *Bicycle rights-of-way along Arterial Roads may be provided wherever sufficient volumes of bicycle traffic are in evidence, wherever feasible.*

promotion of bicycling

- 20.5.8 *During most times of the year, the bicycle is a viable alternative to the other modes of transportation, is environmentally sound, and supports active, healthy lifestyles. Wherever feasible, the Municipality will promote and initiate improvements to enhance bicycling as a means of transportation.*

bicycle master plan

- 20.5.9 *Where appropriate, the Municipality will prepare and implement a master plan for the development of a bicycle route system addressing such matters as location, design, education, enforcement and encouragement. Parts of this system will be located within the public open space network so that the safety and enjoyment of its users will be enhanced. Parts of the system will also be aligned along existing roads where necessary to provide linkages to major activity centres, employment nodes and commercial areas.*

links with other municipalities

- 20.5.10 *Consideration will be given to the potential for linking the Municipality's bicycle routes with those of neighbouring municipalities.*

integration of bicycles with road system

- 20.5.12 *The Municipality will provide properly designed and maintained, safe and convenient roads for bicycle travel according to the following criteria:*
- a) *The provision of on-road bicycling routes will be required on strategically planned collector and local streets serving the main community, civic, service, recreational, institutional and cultural destinations within the Municipality. The Municipality will also support the construction of exclusive on-road bicycle lanes and widened curb lanes on designated collector roads that serve the main destinations within the Municipality. The expansion of off-road paths through open space areas and corridors will be supported where such facilities will not adversely impact significant environmental features or functions.*
 - b) *Where bicycle lanes are incorporated into the paved roadway surface, the Municipality will ensure that grating and on-street facilities are designed and oriented in a manner that will not create a safety hazard; and*
 - c) *Where possible, the bicycle system will be located to take advantage of existing and potential road and rail signalized crossings."*

There are two main themes within these sections that should be considered in the context of the current Class EA process; i) that the efficient movement of vehicles within the municipal road network is important to the Municipality, and ii) that the promotion of bicycling as an activity, and the inclusion of bicycling infrastructure, should be a key consideration of this Class EA.

2.6.3 Property Contamination

A review of potential sources of contamination adjacent to the project study area revealed several areas with the potential for soil or groundwater contamination based upon current or historic land uses. Existing land uses posing a moderate threat of contamination include the Esso Gas Station located at the northeast corner of Ontario Street and Lake Road and a Rona Hardware Store located on the west side of Ontario Street, immediately south of Lake Road. Both sites are located immediately adjacent to the project study area and should proposed road upgrades include expansion beyond the existing limits of the highway right of way, additional investigations may be required to ensure that contamination is not present. Of note, the Esso Gas Station's underground storage facilities were recently reconstructed (spring 2018), which may be sufficient to minimize the risk at this location.

2.6.4 Highway and Construction Noise

The Ontario Street corridor contains few noise sensitive areas. However, several existing residential properties remain adjacent to the corridor and there are numerous commercial businesses with frontage on the highway. There are no residential subdivision developments or apartment buildings fronting on the corridor, however a number of residential subdivisions and condominium developments are accessed directly from Ontario Street. The project work area is controlled by Municipal By-Laws which restrict or prohibit unnecessary noise, require that construction equipment be maintained, and limit the timeframe when construction activities can occur.

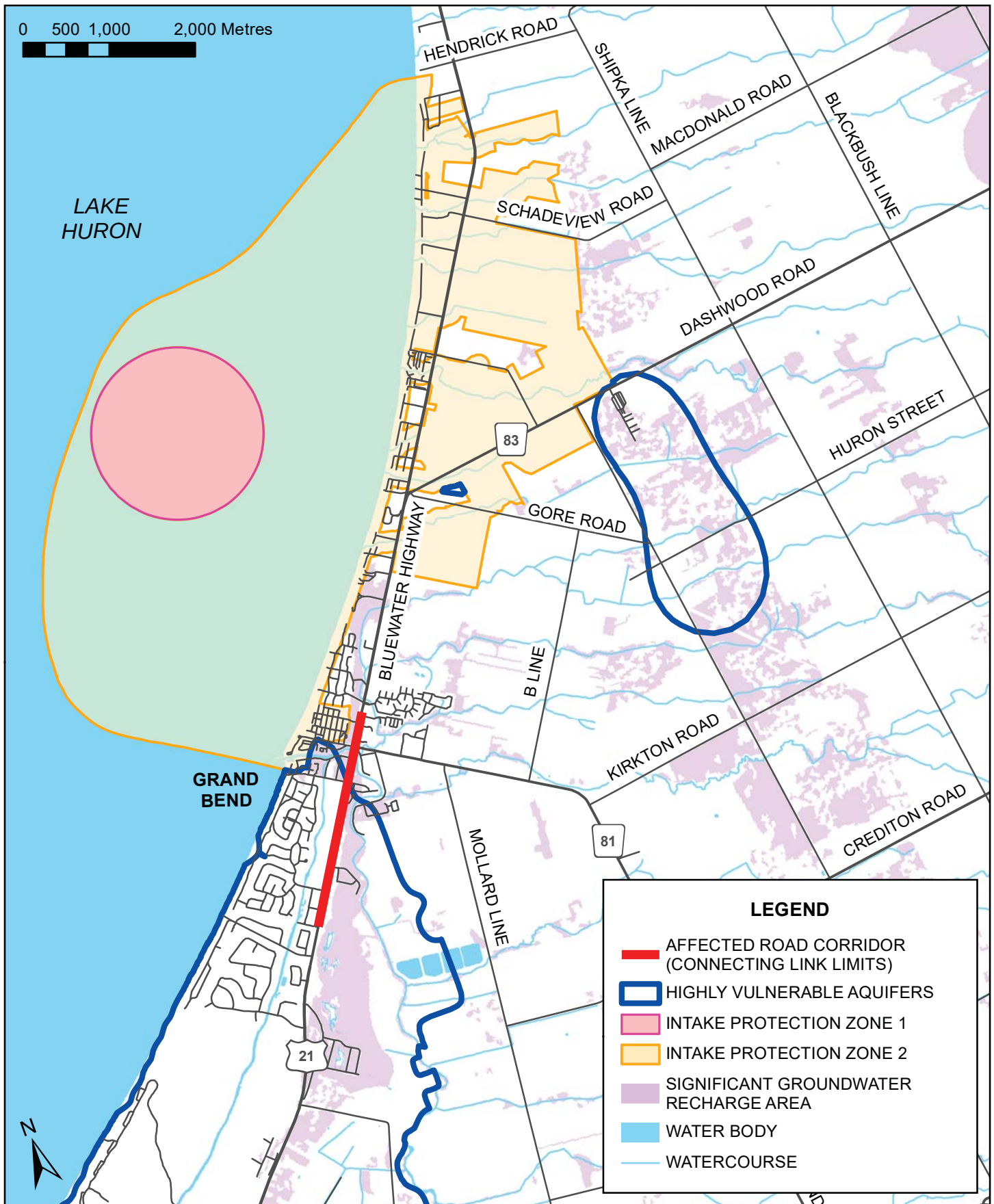
2.6.5 Source Water Protection

The Municipality of Lambton Shores is located within the Ausable Bayfield Maitland Valley (ABMV) Source Water Protection Region. The Community of Grand Bend is currently serviced by a municipal water distribution system which is piped to the community via pipeline from the Lake Huron Primary Water Supply facility based just north of Grand Bend on Lake Huron. The community was originally serviced by a number of Municipal and private groundwater well supplies, however all of the Municipal well supplies have now been decommissioned and the municipal piped distribution system has been extended throughout the community.

As part of the assessment report prepared for the Ausable Bayfield Source Protection Area, vulnerable areas located within each Municipality were mapped. See Figure 2.6. For Great Lakes intakes, such as that servicing Lambton Shores, an Intake Protection Zone 1 (IPZ-1) and an Intake Protection Zone 2 (IPZ-2) were delineated. The IPZ-1 is identified by measuring a fixed radius around the intake crib. The IPZ-2 defines areas located outside of the IPZ-1 that would have the potential to impact the intake such as storm sewer discharges, watercourses and shoreline features.

Other vulnerable areas where land use activities have the potential to impact groundwater sources were also identified. These areas include Highly Vulnerable Aquifers (HVA's), which are ground water aquifers located close to the surface or with little overburden to protect groundwater supplies, and Significant Groundwater Recharge Areas (SGRA's), which are comprised of highly permeable soils that allow high rates of surface water infiltration.

As can be seen on the mapping, a majority of the Ontario Street corridor is located within the limits of a significant groundwater recharge area, mapped in conjunction with the Source Water Protection. Consultation with ABMV Source Protection staff will occur once a preliminary preferred alternative is selected in order to ensure that potential impacts to these sensitive areas is given due consideration during the review of alternatives phase.



LEGEND

- AFFECTED ROAD CORRIDOR (CONNECTING LINK LIMITS)
- HIGHLY VULNERABLE AQUIFERS
- INTAKE PROTECTION ZONE 1
- INTAKE PROTECTION ZONE 2
- SIGNIFICANT GROUNDWATER RECHARGE AREA
- WATER BODY
- WATERCOURSE

2.7 Cultural Environment

2.7.1 Archaeological Resources

Based upon input received from the Ministry of Tourism, Culture and Sport (MTCS) an assessment of potential impacts to archaeological resources, built heritage resources, and cultural heritage landscapes, must be undertaken in conjunction with the Class Environmental Assessment process. To aid in this review, the Ministry provides screening tools to complete for each of these categories. Copies of the Screening Check Lists are included within Appendix 'C'. Based upon the results of the Archaeological Potential check list, a Stage 1 & 2 Archaeological Assessment will need to be completed for the project if the recommended improvements involve disturbance of native soils.

2.7.2 Built Heritage Resources

A built heritage check list was also completed to determine if built heritage resources or cultural heritage landscapes were located within the project limits. To aid in this, input was also sought from the Lambton County Historical Society. Several structures located adjacent to the Ontario Street corridor are greater than 40 years in age and may be impacted by the project. In addition, a plaque and historic cannon, displayed at the southeast corner of the Main Street intersection, will be impacted as a result of the bridge widening and intersection improvements. A photo of the plaque and cannon are included below.



Input was sought from a cultural heritage specialist on how to address these potential impacts. It was recommended that the cannon and plaque be relocated as part of the project to a new location within the same municipal parkette. As to potential corridor impacts, a Cultural Heritage Assessment Report will be completed once final design drawings are complete and the full extent of potential property impacts are known. The study is a high-level heritage report comprised of a land use history of the area and roadway and an inventory of properties. The inventory would include a basic screening level evaluation of the properties to identify any specific styles, historic associations, or landscape items associated with the property that may be of potential cultural heritage value. Once the inventory is complete, the level of impacts associated with the project are evaluated and appropriate mitigation measures identified.

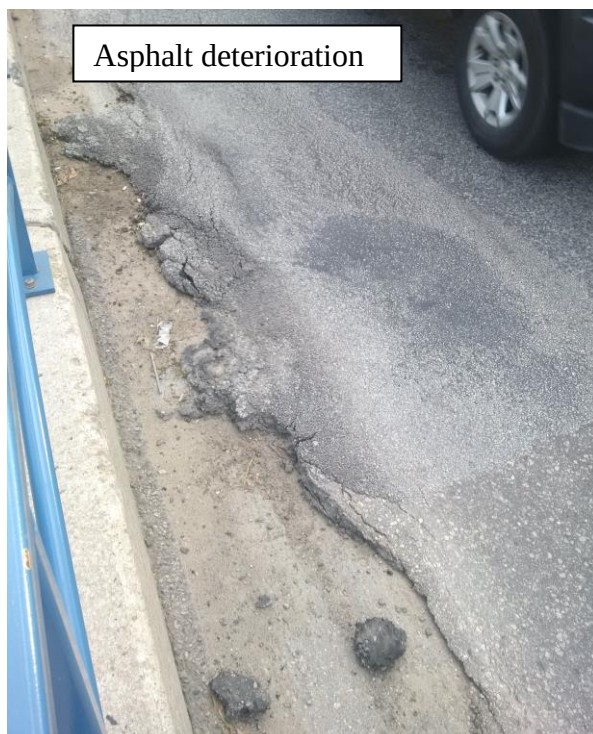
3.0 CLASS EA PROCESS

3.1 Phase 1 - Identification of Problem/Opportunity

3.1.1 Bridge Deficiencies

The Ontario Street Bridge is a concrete post tension frame bridge constructed circa 1963, consisting of a single span. The bridge deck is 18.3 metres in width with a roadway width of 14.6m and a span of 35.36m. The crossing currently accommodates 4 lanes of traffic (two north bound and two south bound). There is no load posting at present and the structure accommodates about 10,000 vehicles per day during peak summer periods. The following deficiencies were noted during recent engineering inspections of the structure conducted by BMROSS and a deck condition survey completed in 1992 by Dillon Consulting Engineers:

- Asphalt deterioration
- Railing deterioration with rusted and cracked posts.
- Delamination and spalling on concrete curbs
- Deck drains need replacement
- Minor concrete patch repairs to underside of deck
- Based on the 1992 deck conditioning survey that indicated 3% of deck was in poor condition, we suspect up to 30% of deck would now be in poor condition, as no repairs have been completed in the interim.



3.1.2 Ontario Street/Main Street Intersection

As noted in the February 2016 Paradigm Traffic Operations Study, it was determined that the current intersection and traffic signalization is insufficient to handle the traffic volumes that occur during peak periods and on holiday weekends, particularly during the summer months. Deficiencies with the current configuration were identified within the study including the limitation of 4 lanes on the south leg of the intersection, which provides 2 southbound through lanes, a north bound left turn lane and a combined north bound through lane and right-turn lane.

On busy holiday weekends during the peak summer period, when Ontario Street is busy with through traffic heading north to access the shoreline or cottage country, northbound traffic can be backed up for miles south of Grand Bend. The bridge is located very close to the intersection so traffic queuing at the intersection are sitting on the bridge. The width of the structure limits the number of lanes to four, two south bound and two north bound. One north bound lane is a dedicated left turn lane used by vehicles to access Grand Bend's Main Street. The second north bound lane accommodates through traffic heading north as well as traffic turning right onto County Road 81. On holiday weekends a high volume of pedestrians utilize the crossings which prevent north bound traffic from moving through the intersection. The traffic assessment concluded that the restrictions for traffic at the intersection are the primary cause of vehicle back-ups along the Ontario Street corridor. The photo below shows north bound traffic lined up at the Main Street intersection.



View looking north toward bridge and Main Street intersection ↑

3.1.3 Ontario Street (Connecting Link) Corridor

The connecting link corridor through Grand Bend spans the length of Ontario Street from the former Village Boundary in the north, to Pinedale Road in the south. Through a majority of the corridor, the lane configuration consists of four lanes of traffic, two south bound, one north bound, and one centre left turning lane. The centre turn lane becomes a dedicated left turn lane as you approach any of the signalized intersections within the corridor.

With only one dedicated north bound through lane, traffic delays have become problematic in Grand Bend during busy summer periods. Other concerns with the corridor expressed by local residents include the efficacy of the centre left turn lane, no dedicated infrastructure for bicycle traffic, sidewalks are located very close to the travelled road surface making pedestrians feel unsafe, and the location of two crosswalks (one north and one south of Main Street) were also questioned.

3.1.4 Problem/Opportunity Statement

The first phase of the Class EA process includes the definition of the problem or opportunities, which need to be addressed. Based on the discussion above, the following problem/opportunity statement has been identified in conjunction with this project:

Traffic congestion and delays along the Ontario Street corridor in Grand Bend are negatively impacting accessibility for highway commercial operations located along the corridor and impacting the quality of life for residents using the roadway on a regular basis. Functionality of the corridor for pedestrians, cyclists and through traffic are also severely limited.

The second phase of the Class EA process involves the identification and evaluation of alternative solutions to address the defined problems. The evaluation of alternatives is conducted by examining the technical, social, cultural, economic, and environmental considerations associated with implementing any alternative. Mitigation measures that could lessen environmental impacts are also defined. A preferred solution or solutions is then selected.

3.2 Stage 2: Identification of Practical Alternatives

The purpose of the second stage of the investigation was to define alternative solutions to the identified problem/opportunities in a manner that minimizes potential environmental impacts. A limited number of practical solutions to the defined problems were identified at the outset of this Class EA process. The alternatives, stated below, build upon the findings of the preliminary engineering review discussed previously in this report.

3.2.1 Main Street Intersection/Bridge Alternatives

Alternative 1 – Construct a new bridge capable of accommodating greater volumes of traffic. This alternative would involve the removal of the existing structure and the construction of a new bridge in the same location as the existing structure but with a wider bridge deck to accommodate an additional traffic lane. Upgrades to the approach roads would be required to accommodate the extra lane of traffic.

Alternative 2 – Replace bridge deck with a wider deck to accommodate greater volumes of traffic. This alternative would involve removal of the existing bridge deck and replacement with a wider deck capable of accommodating an additional traffic lane. Upgrades to the approach roads and widening of the bridge abutments and substructure would be required to accommodate the extra lane.

Alternative 3 - Do Nothing. This option proposes that no improvements or changes be made to address the identified problem. During the Class EA planning and design process, this alternative may be implemented at any time prior to the commencement of construction. A decision to “Do Nothing” would typically be made when the costs of all other alternatives, both financial and environmental, significantly outweigh the benefits.

3.2.2 Ontario Street (Connecting Link) Alternatives

Alternative 1 – Add another northbound lane to the corridor (5 lanes total). This alternative would involve a physical widening of the corridor to accommodate more traffic beyond its current limits. This option would require the purchase of additional lands adjacent to the corridor in order to complete the work. Modifications to pedestrian and bicycle infrastructure will be addressed during phase 3 of the Class EA – review of detailed design alternatives.

Alternative 2 – Convert the two-way left turn lane to a northbound lane (4 lanes total). This alternative would involve a reconfiguration of the existing lane markings along the corridor to create two northbound and two southbound lanes and may also include modifications to the traffic signals and crosswalks along the corridor. Modifications to pedestrian and bicycle infrastructure will be addressed during phase 3 of the Class EA – review of detailed design alternatives.

Alternative 3 – Construct a By-Pass around Grand Bend to divert through Traffic around the Community. This alternative would involve the construction of a by-pass route around Grand Bend so that through traffic can be diverted around the community. A new bridge crossing of Parkhill Creek and the construction of approach roads to the new crossing, would also be required. This option would not address deficiencies with the existing corridor within the limits of the connecting link.

Alternative 4 - Do Nothing. This option proposes that no improvements or changes be made to address the identified problem. During the Class EA planning and design process, this alternative may be implemented at any time prior to the commencement of construction. A decision to “Do Nothing” would typically be made when the costs of all other alternatives, both financial and environmental, significantly outweigh the benefits.

3.3 Stage 3: Evaluation of Alternatives

The third stage of the investigation involved the evaluation of the identified alternatives. The purpose of this stage was to examine the potential environmental impacts associated with the proposed works and to determine potential mitigation for any identified impacts. The evaluation stage generally involved the following activities:

- Preliminary technical review of alternatives.
- Selection of a preferred option (preliminary).
- Consultation with the public and review agencies.
- Selection of a preferred option (final).

3.4 Preliminary Review of Alternatives

3.4.1 Summary of Required Works

A preliminary engineering analysis was conducted to determine the works required to implement each of the identified study alternatives. With all options it is assumed the construction work will generally have to be completed outside of the busy summer holiday season. Tables 3.1 and 3.2 summarize the findings of the assessment for each set of alternatives.

Table 3.1
Primary Components of the Main Street Intersection/Bridge Alternatives

Alternative	Required Works
Alternative 1 (Replace)	- Replace 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 and the Ontario Provincial Standard Specifications (OPSS) Division 9, Structures (Ref. 3). - The bridge replacement work would have to be completed in two stages to maintain two lanes of traffic at all times. - Reconstruct road approaches to accommodate the wider structure, this would include installing retaining walls and reconstruction through the intersection. - Given the existing bridge footings are set extra deep and are very large it would be very difficult to remove them therefore it is assumed the new bridge abutment locations would have to be shifted and the stream re-aligned. - Replace existing watermain and sanitary infrastructure on the bridge, as well as other utilities present on the structure.
Alternative 2 (Replace Bridge Deck)	- Widen the bridge substructure, remove existing bridge deck and reconstruct with a new bridge deck to accommodate an extra lane. - The bridge reconstruction work would have to be completed in two stages to maintain two lanes of traffic at all times. - Reconstruct road approaches to accommodate the wider structure, this would include installing retaining walls and reconstruction of the road through the intersection. - Replace any utilities that are impacted by the proposed deck replacement.

Alternative	Required Works
Alternative 3 (Do Nothing)	- No additional works are planned in conjunction with this alternative which means the deficiencies associated with the current crossing will not be resolved.

Table 3.2
Primary Components of the Ontario Street (Connecting Link) Alternatives

Alternative	Required Works
Alternative 1 (Add another lane)	- Confirm spacing requirements and purchase land for the widening from adjacent property owners, as required. - Adjust width of road surface to add additional traffic lane(s) and relocate utilities as required to accommodate another traffic lane. - Adjust location of sidewalks and width to address safety issues of pedestrians and cyclists.
Alternative 2 (Convert two-way left turn)	- Revise lane configuration linework based on a detailed design to accommodate the required changes. - Coordinate timing of the proposed lane reconfigurations to reflect recommendations in the Traffic Study. (ie. wait until after the bridge and Main Street intersection have been widened through the addition of an additional northbound through lane).
Alternative 3 (Construct By-Pass)	- Identify a preferred location for a proposed by-pass route to the east of Grand Bend. Use existing roadways or future road corridors as much as practical. - Construct a new concrete beam bridge designed in accordance with established standards of the latest edition of the Canadian Highway Bridge Design Code spanning Parkhill Creek along the proposed by-pass route. - Construct road approaches to access the new crossing and tie into existing road infrastructure, as required. - Erect signage north and south of Grand Bend to direct through traffic onto the by-pass route and around the community.
Alternative 4 (Do Nothing)	- No additional works are planned in conjunction with this alternative which means the deficiencies associated with the current road corridor will not be resolved.

3.5 Environmental Considerations

Section 3.2 of this report listed the alternative solutions that were identified to resolve deficiencies with the Ontario Street corridor in Grand Bend. As part of the evaluation process, it is necessary to assess what effect each option may have on the environment and what measures can be taken to mitigate the identified impacts. The two main purposes of this exercise are to:

- Minimize or avoid adverse environmental effects associated with a project;
- Incorporate environmental factors into the decision-making process.

As defined within the EA Act, the environment can be divided into five general components:

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

The identified environmental elements can be further subdivided into components and sub-components which have the potential to be affected by the implementation of the alternative solutions. Table 3.3 provides an overview of the Specific Environmental Components considered of relevance to this investigation. These components 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 3.3
Summary of Project-Related Environmental Considerations

Element	Component	Sub-Component
Natural	Aquatic	• Aquatic Resources/Species at Risk
	Atmosphere	• Air Quality & Noise
	Surface Water	• Water Quality/ Quantity • Hydraulic Flow Characteristics
	Terrestrial	• Birds & Mammals • Vegetation communities
	Geologic	• Physiographic Features and Soils
Social	Neighbourhood	• Disruption/Quality of Life
	Community	• Recreational Activities/Boating • Tourism
Cultural	Heritage	• Historical/ Cultural Resources
Economic	Project Area	• Capital and Operational Costs • Property Values
	Community	• Property Taxes • Economic Growth
Technical	Transportation	• Traffic Patterns/ Volumes • Pedestrian/ Vehicular Safety
	Infrastructure	• Road Capacity/ Routes • Infrastructure Technologies

3.6 Impact Analysis

The environmental effects of each study alternative on the identified environmental features are generally determined through an assessment of the following impact predictors (i.e. impact criteria):

- Nature (direct, indirect, cumulative).
- Magnitude (level of effect, loss of function).
- Location/ Extent (where effect occurs, number/ volume affected).
- Scale (localized or regional effects).
- Timing (seasonality of effects, immediate or delayed impacts).
- Duration (period of impact).
- Frequency (intermittent or continuous).
- Reversibility (extent of recovery, recovery time).
- Socio-economic and cultural context (characteristics of affected community, implications for recovery).

For the purposes of this Class EA, impact determination criteria developed by Natural Resources Canada has been applied to predict the magnitude of environmental effects resulting from the implementation of a project. Table 3.4 summarizes the impact criteria.

Table 3.4
Criteria for Impact Determination

Level of Effect	General Criteria
High	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.
Moderate	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.
Low	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.
Minimal/ Nil	Implementation of the project could impact upon the resource during the construction phase of the project but would have a negligible impact on the resource during the operational phase.

Given the criteria defined in Table 3.4, the significance of adverse effects is predicated on these considerations:

- 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.

The evaluation process described above provides the proponent with a methodology to predict the potential effects of alternative solutions. The significance of the identified impacts is largely based on the anticipated severity of the following:

- Direct changes occurring at the time of project completion (e.g., habitat disruption).
- Indirect effects following project completion (e.g., increased sedimentation/ erosion).
- Induced changes resulting from a project (e.g., increased traffic volumes).

3.7 General Review of Options

Tables 3.5 and 3.6 provide a summary of the key considerations for each option with respect to the environmental considerations described in Table 3.3. To this end, the table identifies those benefits and impacts that were identified as significant during the initial evaluation of alternatives. Potential mitigation measures for the identified impacts are also presented.

Table 3.5
Preliminary Evaluation of Alternatives: Ontario Street/Main Intersection

Alternative	Benefits	Impacts	Remediation
Alternative 1 (Build New Wider Bridge)	- Provides new water crossing for vehicular traffic in accordance with established standards from the Canadian Highway Bridge Design Code. - Addresses safety concerns associated with deterioration of some bridge components. - Presents few impacts to air quality, noise levels and local aesthetics (following the completion of the construction phase). - Addresses deficiencies related to width of the roadway and allows for installation of bike lanes and wider sidewalks. - Addresses deficiencies with existing pedestrian access. - Will provide years of maintenance-free operation	- Terrestrial and aquatic features could be adversely affected, as construction will be required within portions of the defined stream channel and it may be necessary to re-align the stream. - Reconstructing the bridge while maintaining traffic flow over the crossing presents technical challenges. - Results in impacts to adjacent properties due to road works associated with wider bridge deck and reconstructed road approaches. - Will disrupt tourist activity in the area of the bridge site and present limitations to pedestrian access during construction. - Will restrict boat traffic on the river during construction which will negatively impact marinas located upstream of the crossing. - Most expensive alternative. - Will result in the removal of abutments that are still in good condition. - Construction duration would be longer, possibly a season longer, than Alternative 2.	- Consult with the Ausable Bayfield Conservation Authority and the DFO to assess the level of impact resulting from construction of the planned works and re-aligning the stream. - It has been assumed that it is not practical to construct a temporary bridge crossing to accommodate traffic for a year. Therefore, staged construction technics with re-instatement of four traffic lanes over the bridge during the summer months will be required. - Provide mitigation and habitat compensation to address any significant concerns identified. Implement standard mitigation measures to minimize disruption during the construction phase of the project (e.g., erosion, sediment controls). - Minimize disturbance to treed sections of the river bank as much as possible. - Consult with local marina operations to look for alternate moorings during the construction phase. - Provide temporary pedestrian access over the river during construction. - Impact cannot be mitigated.

Alternative	Benefits	Impacts	Remediation
Alternative 2 (Replace bridge deck)	- Addresses safety concerns associated with the deterioration of some bridge components. - Presents minimal impacts to air quality, noise levels and local aesthetics (following the completion of the construction phase). - Represents a less expensive option than Alternative 1. - Allows for the continued use of existing bridge substructure, which still has many years of service life remaining. - Would more easily allow for staged construction so that 2 lanes of traffic could be maintained over bridge during construction. - Fewer impacts to terrestrial and aquatic features as bridge abutments and piers are not being replaced and stream not being re-aligned.	- Some terrestrial and aquatic features could be adversely affected, as construction may be required in the vicinity of the defined stream channel. - Widening the deck on the existing bridge abutments presents some technical difficulties. - Traffic movement would be disrupted during the construction phase (i.e., closure of at minimum two lanes of traffic during the fall and spring is anticipated). - Will restrict boat traffic on the river during construction which will negatively impact marinas located upstream of the crossing. - Results in impacts to adjacent properties due to road works associated with wider bridge deck and reconstructed road approaches.	- Implement standard mitigation measures to minimize disruption during the construction phase of the project (e.g., erosion, sediment controls). - Consult with regulatory agencies to assess the level of impact resulting from construction of the planned works. Provide mitigation and habitat compensation, as required - Consult with local marina operations to look for alternate moorings during the construction phase. - Traffic control measures could be implemented to limit traffic impacts during the construction phase, although lane restrictions may be required for short durations.
Alternative 3 (Do Nothing)	- Represents the least expensive option. - Does not impact upon existing natural or cultural features.	- Fails to resolve the defined problem.	- Identified impact cannot be mitigated.

Table 3.6
Preliminary Evaluation of Alternatives: Ontario Street (Connecting Link) Corridor

Alternative	Benefits	Impacts	Remediation
Alternative 1 (Add another northbound lane to the corridor – 5 lanes total)	- Addresses long term traffic volume and congestion impacts along the corridor by providing additional traffic lanes to increase capacity. - Presents minimal impacts to air quality, noise levels and local aesthetics (following completion of the construction phase). - Provides improved access for pedestrians using the corridor and for cyclists within the community.	- Will result in impacts to adjacent property owners where widening of the corridor and a wider ROW is required to achieve the desired road widening. - Natural and aesthetic features adjacent to the corridor could be adversely affected, as construction may be required in the vicinity of these features. - Traffic movement would be disrupted during the construction phase (i.e., will require temporary lane closures during the construction phase.) - May result in temporary access limitations to existing private and commercial properties. - May result in temporary pedestrian access limitations during the construction phase.	- Implement standard mitigation measures to minimize disruption during the construction phase of the project (e.g., erosion, sediment controls). - Consult with adjacent property owners and the community to minimize impacts. Provide mitigation and property compensation, as required - Traffic control measures would be implemented to limit traffic impacts during the construction phase, although lane restrictions will be required for short durations. - Phase the proposed work and adjust timing to avoid peak traffic periods in order to minimize traffic impacts.
Alternative 2 (Convert two-way left turn lane to a northbound lane – 4 lanes total)	- Provides improved capacity for vehicular traffic based upon traffic study analysis & recommendations. - Addresses some safety concerns associated with current lane configuration and traffic volumes. - Presents minimal impacts to air quality, noise levels and local aesthetics, as physical construction	- May result in some impacts to adjacent properties due to road works needed to reconfigure the lane alignment. - Does not address impacts to pedestrians and cyclists presented by the current lane and corridor configuration. - While it may maximize the practical	- Consult with the Ministry of Transportation on proposed lane reconfiguration to ensure that the proposed alignment is acceptable. - Consult with adjacent property owners and local residents to advise of changes to the lane configuration. - Provide additional signage in advance of the change to raise

Alternative	Benefits	Impacts	Remediation
	would not be required. - Will result in fewer impacts to the natural environment. - Will minimize social impacts related to construction such as access limitations, noise & dust. - Will address some concerns expressed by local residents regarding traffic volume and congestion. - Less expensive option.	capacity of the road while staying within the existing ROW width, it may not address long term traffic congestion along the corridor associated with future traffic volumes and growth.	awareness among local residents and through traffic.
Alternative 3 (Construct By-Pass around Grand Bend)	- Provides improved access for through traffic that utilize the proposed by-pass route. - Addresses some safety concerns associated with current lane configuration and traffic volumes. - Presents no impacts to traffic volumes along the Ontario Street corridor as construction will occur along the proposed by-pass route. - Will minimize social impacts along Ontario Street related to construction such as access limitations, noise & dust. - Will address some concerns expressed by local residents regarding traffic volume and congestion.	- Unsure if sufficient traffic volumes will utilize by-pass and lessen volumes along the corridor. - Does not address impacts to pedestrians and cyclists presented by the current lane and corridor configuration. - May result in significant impacts to the natural environment resulting from new bridge construction along the by-pass route. - May result in increased social impacts to properties located along the by-pass route. - May not address traffic concerns as traffic must still re-enter Ontario St. at County Road 81. - Most expensive option.	- Consult with the ABCA and DFO to assess the level of impact resulting from construction of the planned works. - Provide mitigation and habitat compensation to address any significant concerns identified. - Implement standard mitigation measures to minimize disruption during the construction phase of the project (e.g., sediment controls). - Minimize disturbance to treed sections of the river bank as much as possible. - Consult with property owners along the by-pass route and along C.R. 81 to address potential impacts related to construction. - Impact cannot be mitigated.
Alternative 4 (Do Nothing)	- Represents the least expensive option. - Does not impact upon existing natural or cultural features.	- Fails to resolve the defined problem.	- Identified impact cannot be mitigated.

3.8 Identification of a Preferred Solution

The relative merits of each option were examined during the preliminary technical review of the study alternatives. Based on this assessment, the Municipality and MTO indicated a preference for Bridge Alternative 2: Replace bridge deck with a wider deck to accommodate greater volumes of traffic, and corridor Alternative 2: Convert the two-way left turn lane. There are a number of attributes associated with the two Alternatives, which justified their selection as the preferred alternative (listed below):

Bridge Alternative 2 – Replace bridge deck with a wider deck

- Improves traffic safety by addressing deterioration present in the current deck structure.
- Represents the most practical option from a safety and engineering perspective.
- Presents minimal long-term impacts to noise levels and local aesthetics.
- Addresses deficiencies related to capacity and to pedestrian access across the bridge.
- Addresses transportation impacts during construction by allowing for phased construction.
- Minimizes impacts to the natural environment.

Corridor Alternative 2 – Convert the two-way left turn lane

- Improves traffic safety by increasing the capacity of the corridor by providing an additional northbound driving lane.
- Represents the most practical option from a safety and engineering perspective.
- Not anticipated to increase noise levels above current volumes, following completion of construction.
- Improves transportation volumes within the corridor to address future growth within the community and along the Highway 21 corridor.
- Minimizes the required width of the corridor and the extent of potential conflicts with private properties.

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 Project File and documented in Appendix ‘A’. Comments received from the program and related correspondence are also discussed below and documented in the appendix.

4.2 Initial Public Notice/Public Meeting Notice

Contents:	General study description, summary of proposed works, key plan, Information related to Public Information Meeting Scheduled for later in the summer.
Issued:	July 28, 2016
Placed In:	Lakeshore Advance (July 28, August 3, 2016)
Circulated To:	17 Review Agencies/Organizations, 238 Adjacent Property Owners
Input Period:	Concluded September 30, 2016

4.3 Public Information Meeting

A Public Information Meeting was held on Wednesday August 24, 2016 at the Grand Bend Legion located in central Grand Bend. The meeting was arranged to provide local residents and other stakeholders with details on study investigations and a forum to express their views. Two separate sessions were held so that business owners working during the afternoon session could also attend. The Meeting Notice was included as a component of the Class EA Initial Notice, as described above. The general purpose of the meeting was to provide audience members with the following:

- A review of project background and previous investigations undertaken prior to initiation of the Class EA for the Ontario Street corridor in Grand Bend.
- A summary of the Class EA process.
- An overview Class EA investigations undertaken in conjunction with the project.
- A description of the alternatives being considered by the Municipality for the Bridge/ Main Street intersection as well as the Ontario Street Connecting Link Corridor.
- A brief summary of the anticipated timelines for completion of the EA process.

Approximately 100 residents and stakeholders attended the two meeting sessions. Notes from the meeting are found in Appendix ‘C’ along with a copy of the presentation materials. Table 4.1 summarizes the comments received as a result of the Initial Public Notice and the public meeting.

Table 4.1
Summary of Public Comments:
Initial Consultation Phase and Public Meeting

Public Comments	Comments/ Concerns	Response/Action Taken
Owner of the Krusty Krab August 19, 2016 (via phone)	- Wanted more information on the bridge widening options and how it might impact his property. - Wanted to know if the Municipality needed to purchase some of his property.	- Project engineer called back and provided more information.
Grand Bend Resident (PIC comment sheet)	- Make sidewalks legal width - Keep rails on bridge sidewalk - Repair bridge - Install signal lights that will adjust to traffic flows. - Move cross walk closer to Oak Street - Look at road change on 81 from G.B. boundary. - Ask OPP for advice.	- Information noted and forwarded to Project Manager & Municipality
Grand Bend Resident (PIC Comment Sheet)	- Eliminating the centre left turn lane north of Main Street will make it extremely difficult to turn left from Oak Street to travel north. - Consideration should be given to installing traffic signals at Oak Street. Tim Horton's compounds the issue at this location.	- Information noted and forwarded to Project Manager & Municipality
Grand Bend Resident (PIC comment sheet)	- Please consider all types of traffic, including 18 wheel trucks not servicing the immediate area. - A by-pass could solve a lot of issues plus allow for extra parking, if we can find a way to force or encourage its use.	Information noted and forwarded to Project Manager & Municipality
Grand Bend Resident (PIC comment sheet)	- Install signage at Greenway Road directing race track traffic - Eliminate dedicated centre left turn lane - Install eastbound right hand turn lane – favour idea to have a dedicated new bridge for this traffic - Install new traffic signals that change with traffic - Development of 500 Acre Southbend Estates will compound the problem.	- Information noted and forwarded to Project Manager & Municipality
Grand Bend Resident (PIC comment sheet)	- With Grand Bend growing to the east, a right hand turn lane is needed at Main Street and Ontario St. - In the interim, lights at Main Street should allow for more N-S traffic flow - Current signals have advance left for N-S and S-N and then advance all from N-S. This should be changed immediately to advance left and then advance all for S-N.	- Information noted and forwarded to Project Manager & Municipality

Public Comments	Comments/ Concerns	Response/Action Taken
Grand Bend Resident (PIC comment sheet)	- None of the solutions proposed will help congestion on Ontario Street. - Signs should be erected at Greenway Road directing motor home, race track traffic and theatre goers to paved Mollard Line and then to 81.	- Information noted and forwarded to Project Manager & Municipality
Grand Bend Resident (PIC comment sheet)	- Favour Option 2B - Take new construction on 81 East into consideration - Gill Road left – very bad during busy times - Definitely a need for bike/pedestrian improvements on the bridge	- Information noted and forwarded to Project Manager & Municipality
Grand Bend Resident (PIC comment sheet)	- Option 2B preferred - Remove centre turn lane	- Information noted and forwarded to Project Manager & Municipality
Grand Bend Resident November 17/16 (via email)	- Study is an opportunity to address deficiencies with the cycling infrastructure in Grand Bend. - Pinery to Grand Bend bike trail currently terminates at the south end of Grand Bend and needs to be continued to Main Street. This will help to alleviate traffic congestion and be an asset to the community. - Recent provincial initiatives support a more active lifestyle and should support this initiative.	- Information forwarded to the Project Manager and the proponent.
Grand Bend Resident November 30/16 (via email)	- Provided copy of EBR listing related to MTO's support of #CycleON: Ontario's Cycling Strategy. - Noted that as part of the initiative MTO has committed to helping municipalities build local cycling infrastructure.	- Forwarded to Project Manager and Proponent.

4.4 Review Agency Circulation

Input into the study process was solicited from Government review Agencies and organizations by way of a direct mail-out. Agencies that might have an interest in the study were sent a general information bulletin that contained an outline of the process, problem definition, and alternative solutions being considered. A copy of the list of agencies/organizations circulated and the correspondence is included in Appendix 'C'.

Contents: Summary of Class EA process and project, location plan and site photos.
Circulated: July 25, 2016
Distributed To: 17 review agencies
Input Period: Concluded August 26, 2016

Table 4.2 includes a summary of the input received from review agencies.

Table 4.2
Summary of Agency Input: Initial Consultation Phase

Agency Comments	Comments/ Concerns	Response/Action Taken
Anne Marie Nicholson, HPCDSB August 9, 2016 (via fax)	- They have no concerns with regards to the above-noted project.	- Information noted and filed.
Craig Newton MOECC August 11, 2016 (via email)	- Class EA process includes consultation with the public, agencies and Aboriginal communities. - The Crown has a duty to consult with First Nation and Métis Communities. - The Crown is delegating the duty to consult to Lambton Shores for this Class EA process. - The proponent must identify if the project is located within a vulnerable area identified through Source Water Protection Plans and document this information in the Project File.	- Information noted and filed.
Rosi Zirger MTCS August 12, 2016 (via email)	- Under Class EA, proponent is required to determine a projects impact on cultural heritage resources. - Use Screening Protocols provided to screen project for impacts to archaeological and built resources as well as the Bridge Check-list. - Document screening results in the final Report.	- Information noted and forwarded to Project Manager & Municipality. - Screening completed.
Jennette Walker Municipality of Bluewater Sept. 1, 2016 (via email)	- At the moment Bluewater has no interest in this project. - If the construction detour impacts Bluewater Roads they would like to be informed.	- Information noted and filed.

4.5 Aboriginal Consultation

4.5.1 General

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 contains a number of sensitive natural features which may be of concern to First Nation and Métis communities in the area. These features include the Old Ausable River Channel, Parkhill Creek, Pinery Provincial Park and other sensitive features located along the corridor.

4.5.2 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, several aboriginal communities and organizations were identified in conjunction with the project as follows: Chippewas of Kettle and Stony Point First Nation, Chippewas of the Thames First Nation, Oneida Nation of the Thames First Nation, Munsee-Delaware Nation, Historic Saugeen Métis, Aamjiwnaang First, Métis Nation of Ontario, and Great Lakes Métis Council. Correspondence was subsequently forwarded to each community/organization detailing the proposed project and asking for input. Table 4.2 summarizes the results of the initial consultation phase associated with the Class EA process. Copies of all correspondence received or sent is included within Appendix 'C'

4.5.3 Initial Consultation Phase

Responses were received from the Historic Saugeen Métis (HSM) and the Chippewas of the Thames First Nation. An information package was compiled for the HSM including the presentation material from the Public Information Meeting, which was forwarded by email. A summary of comments received are included below in Table 4.3.

Table 4.3
Summary of Aboriginal Input: Initial Consultation Phase

Agency Comments	Comments/ Concerns	Response/Action Taken
George Govier Historic Saugeen Métis August 4, 2016 (via fax)	- They would like to receive more information on the project.	- Information noted and filed. - Presentation material from the public meeting forwarded for their review.
Fallon Birch Chippewas of the Thames FN October 11, 2016 (via email)	- Received correspondence related to the project. - Identified no concerns with the information provided to date. - Would like to be kept informed if there are any changes to the project scope that are substantive in nature.	- Information noted and filed.

4.5.4 Consultation Summary

The consultation program developed for this Class EA was directed towards local residents, business owners along the Ontario Street corridor, seasonal residents that frequent the community, and Provincial and Federal review agencies. In response to notices and following the public meeting, residents indicated that traffic flow through the community was a significant problem, particularly on weekends and holidays, preventing local residents from traveling freely within the community. Concerns related to pedestrian safety and bicycle traffic, were also expressed by several residents. Comments from review agencies were typical for a Class EA which involves construction adjacent to a watercourse. Few comments were received from First Nation or Métis communities.

5.0 ALTERNATIVE DESIGNS

5.1 General

Phase three of the Class EA process involves the consideration and review of detailed design alternatives associated with the preferred solution. The preferred solution associated with this project, to replace the existing bridge deck with a wider deck to accommodate an additional lane of traffic and to convert the two-way left turn lane to provide an additional northbound traffic lane along the Ontario Street connecting link corridor, provides few alternatives in regards to the general location of the infrastructure. Therefore, the consideration of detailed design alternatives for the bridge and corridor focussed on accommodations for pedestrians and cyclists on the new bridge deck cross-section and along the Ontario Street corridor.

5.2 Detailed Design Alternatives – Deck Replacement and Road Corridor

Following selection of the preferred alternatives for the bridge crossing and the Ontario Street corridor, a range of options were identified to accommodate vehicular, bicycle and pedestrian traffic along the corridor and extending through the wider deck layout. The detailed design alternatives, stated below, build upon the findings of the preliminary engineering review, results from the Traffic Operations Study, and input received from the general public and review agencies. These alternatives are described briefly below and are illustrated on Figure 5.1.

(a) Add a multi-use path, separate from the roadway, on both sides of the corridor

With this option the existing sidewalk would be removed and a 2.4 metre multi-use path would be constructed on each side of the road corridor, beyond the limits of the boulevard. The multi-use path would extend along the entire corridor, including over the bridge, and tie into the existing Rotary Trail located south of Grand Bend. Some private property impacts may result at the narrowest sections of the existing right of way. The total width of this option is 20.7 metres.

(b) Construct bike lanes at the edge of the travelled roadway

With this option bicycle lanes would be added to the road corridor beside the travelled portion of the roadway. The bicycle lanes would be 2.1 metres wide and would be separated from the vehicular lanes through lane markings.

A standard sidewalk would be constructed beyond the limits of the boulevard that would be slightly wider than the current sidewalk, measuring 1.5 metres in width. The total width of the corridor would be 22.3 metres. Impacts to private property would occur along any section of the existing road allowance that is currently narrower than 22.3 metres.

Construct separate bike lanes, behind the curb, on both sides of the corridor

With this option separated bicycle lanes would be added to the corridor behind the curb on both sides of the corridor. The bicycle lanes would be 1.8 metres wide and would be separated from the 1.5 metre wide sidewalk through lane markings or surface treatments. The total width of the corridor would be 22.5 metres. Impacts to private property would occur along any section of the existing road allowance that is currently narrower than 22.5 metres.

(c) Add a multi-use path, separate from the roadway, on one side of the corridor

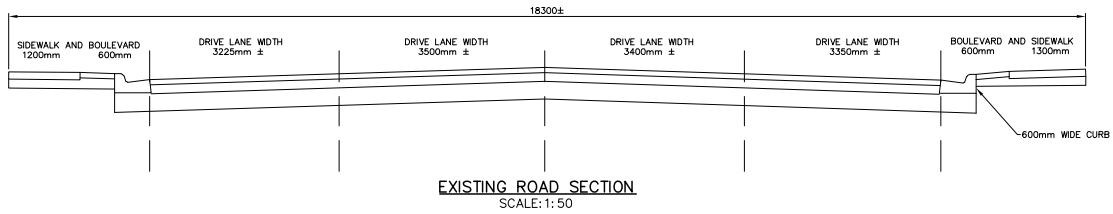
With this option the existing sidewalk would be removed on one side of the corridor and a 3.3 metre multi-use path would be constructed, beyond the limits of the boulevard. A standard 1.5 metre sidewalk would be constructed on the other side of the corridor. The multi-use path would extend along the entire corridor, including over the bridge, and tie into the existing Rotary Trail located south of Grand Bend. Some private property impacts may result at the narrowest sections of the existing right of way. The total width of this option is 20.7 metres.

5.3 Evaluation of Alternatives

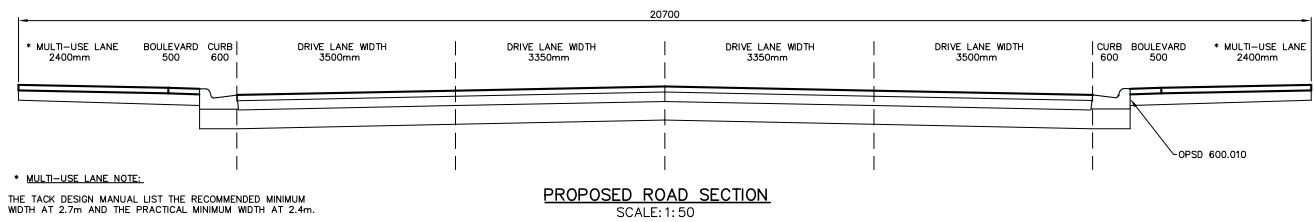
(a) Preliminary Evaluation Matrix

An evaluation process was undertaken to consider the potential impacts of each detailed design alternative on various aspects of the environment including the technical, social, cultural, natural and economic environments. The results of the assessment are summarized in Table 5.1.

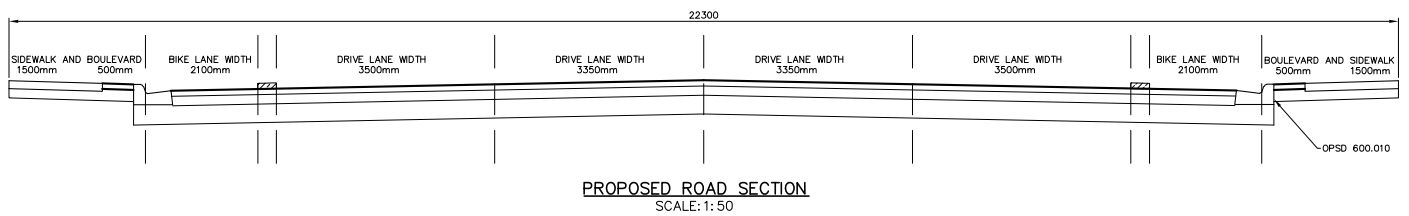
EXISTING CONDITIONS



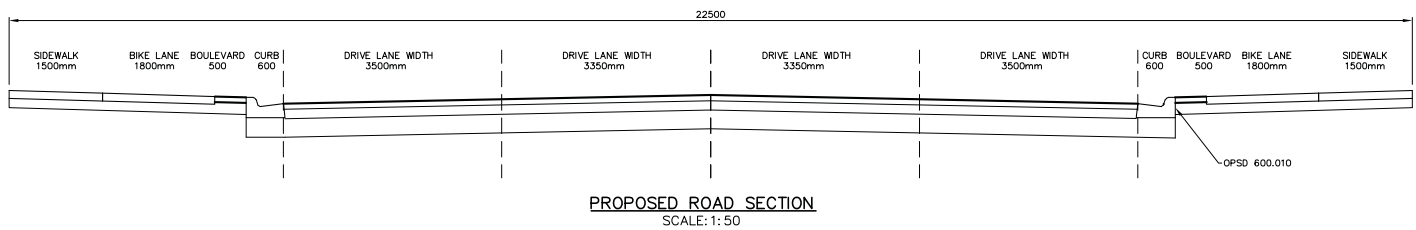
ALTERNATIVE #1 - MULTI USE PATH ON BOTH SIDES



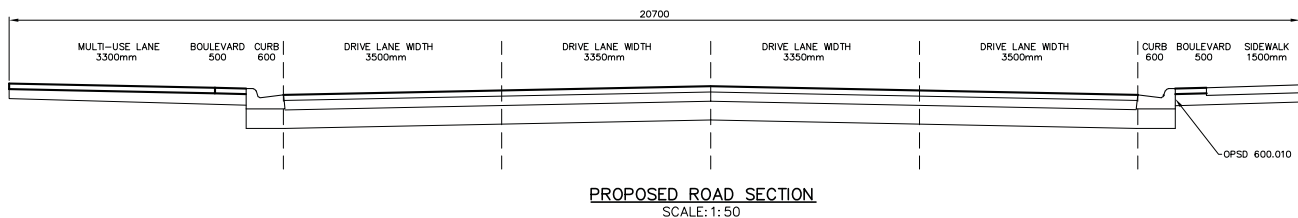
ALTERNATIVE #2 - BIKE LANES AT EDGE OF ROADWAY



ALTERNATIVE #3 - SEPARATE BIKE PATHS



ALTERNATIVE #4 - MULTI USE PATH ON ONE SIDE



MUNICIPALITY OF LAMBTON SHORES
CLASS EA TO ADDRESS TRAFFIC CONGESTION ON
THE ONTARIO STREET CORRIDOR IN GRAND BEND
CORRIDOR DESIGN ALTERNATIVES

DATE
AUG. 1, 2018

PROJECT No.
BR1144

SCALE
NTS

FIGURE No.
5.1

Table 5.1
Bridge & Corridor: Detailed Design Alternatives
Evaluation of Alternatives

Design Alternative	Alternative #1 Multi Use Path on Both Sides (20.7m)	Alternative #2 Bike Lanes at Edge of Roadway (22.3m)	Alternative #3 Separated bike paths (22.5m)	Alternative #4 Multi Use Path on One Side (20.7m)
Social Environment	- Provides connectivity with Rotary path and improved cycling infrastructure. - Narrower width limits impacts to private property	- Provides improved cycling infrastructure - Wider cross-section will result in greater private property impacts	- Provides improved cycling infrastructure - Wider cross-section will result in greater private property impacts	- Provides improved cycling infrastructure - May present a safety concern for cyclists crossing road
Cultural Environment	- Few impacts anticipated to cultural features	- Wider cross-section could impact built heritage resources	- Wider cross-section could impact built heritage resources	- Few impacts anticipated to cultural features
Technical Environment	- Other than minor impacts to properties, joint path relatively easy to implement	- Wider curb to curb x-section will result in relocation of more utilities.	- Wider x-section will result in greater impacts to utilities & private properties.	- This option requires shifting of the centreline of the road which results in relocation of more utilities.
Economic Environment	- Less expensive than the other alternatives	- Most expensive option	- Not as expensive as Options 2 & 4.	- More expensive option
Natural Environment	- Few impacts to natural features.	- Few impacts to natural features.	- Few impacts to natural features.	- Few impacts to natural features.

b) Evaluation of Corridor Alternatives

An evaluation exercise was undertaken to examine the relative impacts of the four corridor alternatives. The evaluation process involved assigning a value out of 10 for each of the stated criteria, which related to the potential impact of development on the various criteria (i.e. 10 representing significant potential impact, 1 representing minimal potential impact). Rankings for the four alternatives were then tabulated from the assigned scores. Table 5.2 summarizes the results of the detailed assessment exercise.

**Table 5.2:
Evaluation Matrix of Corridor Alternatives**

<i>Evaluation Criteria</i>	Alternative #1 Multi Use Path on Both Sides (20.7m)	Alternative #2 Bike Lanes at Edge of Roadway (22.3m)	Alternative #3 Separated bike paths (22.5m)	Alternative #4 Multi Use Path on One Side (20.7m)
i. Disruption to Natural Features	2	4	5	2
ii. Anticipated Impact on Affected Landowners	4	7	9	3
iii. Community Level Impacts	3	5	6	5
iv. Cultural Heritage Impacts	3	5	6	2
v. Design Considerations	3	7	5	3
vi. Transportation Considerations	2	8	2	2
vii. Economic Considerations	5	8	6	8
Total Score	22	44	39	25
Overall Ranking	1	4	3	2

5.4 Additional Public Consultation

To permit the review of design alternatives, an additional point of public contact is required. Although the Class EA document indicates that Phase 3 consultation is to be directed to review agencies and previously interested stakeholders and members of the public, it was felt that the general public should be provided an opportunity to review the preferred alternatives. A Public Meeting Notice was therefore placed in local papers and directly circulated to interested parties and residents that were previously contacted during the initial consultation phase of the Class EA. The presentation material was also made available on the municipal website for residents who were unable to attend the meeting.

5.4.1 Additional Agency and Aboriginal Consultation

Input from review agencies and Aboriginal communities who had previously expressed an interest in the project, was also sought during the Phase 3 consultation efforts. In advance of the Public Information Meeting, a project update letter was drafted and forwarded to the identified contacts. The correspondence included details about the preferred alternatives selected for each component of the project and summarized the detailed design alternatives being considered for the proposed bridge and corridor improvements. A link to allow access to the presentation material prepared for the Public Information meeting, was also provided for those interested in reviewing the material. Table 5.3 provides a summary of feedback received as a result of the Phase 3 consultation with Agencies and Aboriginal Communities.

Table 5.3
Summary of Agency and Aboriginal Input: Phase 3 Consultation

Agency Comments	Comments/ Concerns	Response/Action Taken
Chris Hachey Historic Saugeen Métis May 01, 2018 (via email)	- They have no objection or opposition to the proposed project.	- Information noted and filed.
Kent Orr CLASS May 7, 2018 (via email)	- Glad to see improvements to the Ontario Street corridor. - Provide bus transport for students to the Grand Bend Public School. - A bridge closure would be of great concern and they would prefer that the bridge not be closed during construction.	- Information noted and filed.
MNRF Laura Warner May 11, 2018 (via email)	- Provided information on Species at Risk, Oil and Gas wells, and approval requirements for the project.	- Information noted and filed.
MTCS Brooke Herczeg June 5, 2018 (via email)	- Requested copies of the PIC presentation material for review.	- Forwarded copies of the presentation material on June 6, 2018.

Agency Comments	Comments/ Concerns	Response/Action Taken
County of Lambton Glen Millar June 6, 2018 (via email)	- Counties of Lambton, Middlesex and Huron are planning to repair the tri-county bridge located on C.R. 5 (Greenway Road) - Bridge will be closed during the repairs and traffic will be detoured north on Ontario Street. - Construction expected in 2019; will need to coordinate with Grand Bend work so as not to conflict.	- Information forwarded to Project Manager and Municipality.

5.4.2 Second Public Information Meeting

A Second Public Information Meeting was held on Monday June 4, 2018 at the Grand Bend Legion located in central Grand Bend. The meeting was arranged to update local residents and other stakeholders on the preferred alternatives selected for the project and a forum to express their views. Two separate sessions were held so that business owners working during the afternoon session could also attend. The purpose of the meeting was to provide members of the public with the following:

- A review of additional investigations undertaken following the first PIC.
- An overview of previous and current Class EA investigations undertaken in conjunction with the project.
- A description of the preliminary preferred alternatives selected by the Municipality for the Bridge/ Main Street intersection as well as the Connecting Link Corridor.
- A brief summary of the anticipated timelines for completion of the EA process.

Approximately 85 residents and stakeholders attended the two meeting sessions. Notes from the meeting are found in Appendix 'C' along with a copy of the presentation materials. Table 5.4 summarizes the comments received as a result of the meeting and additional consultation efforts.

Table 5.4
Summary of Phase 3 Public Consultation

Comments	Comments/ Concerns	Response/Action Taken
Grand Bend Resident June 4, 2018 (via email)	- Suggested converting the two-way left turn lane to another northbound through lane. - Massive infrastructure changes to address a seasonal problem would be wasteful.	- Replied via email that converting the two-way left turn lane was the plan for the corridor. - Bridge needs repairs anyways and Municipality is seeking funding to help with costs.
Public Meeting Attendee June 4, 2018 (comment sheet)	- Suggested that a central lane be designated that could change the direction of traffic based on traffic lights. Similar to Lions Gate Bridge in B.C. - If traffic backed up south, the lane could be changed to a northbound lane, or switched to southbound if traffic backed up to the north.	- Information noted and forwarded to Project Manager & Municipality
Public Meeting Attendee June 4, 2018 (comment sheet)	- Agree that something needs to be done at Oak Street. - A left turn lane on Oak Street would help with backed up traffic on Oak.	- Information noted and forwarded to Project Manager & Municipality
Public Meeting Attendee June 4, 2018 (comment sheet)	- Believes that the combined bike path/pedestrian option would be the safest. - Wants a solid barrier on the bridge between bikes /pedestrians and truck traffic so bikes can't be caught under 18 wheelers.	- Information noted and forwarded to Project Manager & Municipality
Public Meeting Attendee June 4, 2018 (comment sheet)	- Suggested building a floating barge for pedestrians between River Road and the bridge that could lift up to let boats pass through on the river.	- Information noted and forwarded to Project Manager & Municipality
Public Meeting Attendee June 4, 2018 (comment sheet)	- Need a traffic light in the vicinity of Merrywood to allow cars to make a left onto Highway 21. - It is a very dangerous situation currently and will only get worse as the new development moves forward at South Bend Estates.	- Information noted and forwarded to Project Manager & Municipality
Grand Bend Resident June 6, 2018 (via email)	- Concerned with operation of the cross-walk at the beer store. - Cross-walk is too close the Main Street lights and backs up traffic into the intersection. - Lots of issues with how the cross-walk works, a safety issue in current location. Presentation didn't say how pedestrians would be dealt with to resolve future growth in the community.	- Information noted and forwarded to Project Manager & Municipality - Replied indicating that information will be added to official consultation record for the EA.
Grand Bend Resident June 6, 2018 (via email)	- Generally supportive of the recommendation to widen the bridge, but concerned that funding might delay implementation and something needs to be done now to address problems.	- Information noted and forwarded to Project Manager & Municipality

Comments	Comments/ Concerns	Response/Action Taken
	- Suggests that the Municipality work with the MTO to provide some relief now for very frustrated members of the community.	
Grand Bend Resident June 7, 2018 (Comment sheet via fax)	- Long-time Grand Bend resident. - Agree with the preferred options shown in the presentation. - Think bike lanes should be separate from the traffic lanes for safety reasons.	- Information noted and forwarded to Project Manager & Municipality
Lambton Shores Community Association June 8, 2018 (via mail)	- Found the presentation to be very informative. - Concerned that with four lanes proposed north of Main Street it will be very difficult to make a left hand turn from Oak Street, especially with Tim Hortons right beside. Thinks there should be a traffic light at Oak St. and wants confirmation that it will be part of the plan going forward.	- Information noted and forwarded to Project Manager & Municipality
Grand Bend Resident June 10, 2018 (via email)	- Properties located on the east side of the corridor are very close to the sidewalk currently. - Plan will widen the sidewalk and add a bike lane. - Doesn't think it is warranted. - Not much bike traffic on the east side of Hwy. - Concerned with safety for residents living near bike path and snow removal issues in winter.	- Information noted and forwarded to Project Manager & Municipality
Grand Bend Resident June 12, 2018 (via email)	- Wondered if it would be possible to bury utilities (hydro poles) when doing the corridor work rather than relocate the poles. - Suggested that a dedicated left turn lane be added to Oak Street. Currently cars turning right have to wait behind left turning vehicles.	- Information noted and forwarded to Project Manager & Municipality
Grand Bend Residents June 16, 2018 (via email)	- Attended the June 4 Public Meeting and had the following concerns. - Proximity of the sidewalk to their house - Loss of boat dock/rental income - Safety of entering and exiting driveway across 2 lanes of traffic	- Information noted and forwarded to Project Manager & Municipality
Grand Bend Resident June 18, 2018 (via email)	- Excited and supportive of the proposed plan - New bicycle plan will be great for Grand Bend businesses and tourism and safer for cyclists. - Obtaining property and moving infrastructure will take time but will be well worth the effort.	- Information noted and forwarded to Project Manager & Municipality
Grand Bend Resident June 19, 2018 (comment sheet via email)	- Should implement a pedestrian scramble at Main Street intersection, where all traffic stops and pedestrians can cross from all directions. - Pot holes at Main Street intersection need to be fixed, can't wait 2-3 years.	- Information noted and forwarded to Project Manager & Municipality
Grand Bend Resident June 19, 2018 (via email)	- Resident of Grand Bend and chair of the Lakeshore Eco-Network, a local not for profit focused on raising awareness about biodiversity and climate change.	- Information noted and forwarded to Project Manager & Municipality

Comments	Comments/ Concerns	Response/Action Taken
	- Agree with the recommended options as best way to move forward - Appreciate thought given to bike lanes and pedestrian traffic. Excellent, well thought out plan that deserves community support.	
Iris Chan LEA Consulting Ltd. July 19, 2018 (via email)	- Retained by Choice Properties to review traffic studies and documentation used to select the preferred project alternative for the corridor. - Concerned with potential impacts to the No Frills store related to implementation of the preferred alternative – removal of the two-way left turn lane adjacent to their entrance. - Requesting additional traffic analysis at No Frills to support the preferred alternative and identify necessary mitigation measures.	- Letter forwarded to the Municipality and project engineer for consideration. - Additional traffic analysis to be undertaken adjacent to No Frills to determine potential impacts and suitable mitigation.

5.4.3 Phase 3 Consultation Summary

Consultation undertaken during Phase 3 of the Class EA, the review of detailed design alternatives, resulted in the following general comments:

- In general residents were supportive of the recommended alternatives for both the bridge and the corridor;
- There were significant concerns with funding and with how quickly the plan could be implemented. Most people wanted something done immediately to address the problems.
- Residents were concerned with property impacts along the corridor associated with the wider corridor width to accommodate the multi-use path options.

As a result of input received in conjunction with the Phase 3 consultation process summarized above, the Municipality committed to maintaining the intersection and road corridor to address deterioration prior to implementation of the ultimate project.

The Municipality also committed to continued talks with MTO to seek funding for the project so that implementation could begin as soon as possible.

The traffic consultants were contacted to investigate Oak Street further to see if a left turn lane and traffic signal were warranted at the intersection or if something else could be done to minimize concerns related to the intersection.

The Municipality agreed to consider moving the north cross-walk approximately 80 metres further north from its current location, in conjunction with the detailed engineering design associated with road work north of Main Street.

Municipal staff also committed to initiating contact with affected private property owners during the detailed design phase, following completion of the Class EA process.

5.5 Confirmation of Detailed Design Components

Prior to the second public information meeting, the preliminary preferred alternatives associated with the Class EA and with the detailed design alternatives, were presented to Municipal Council for their input and feedback. BMROSS staff attended a Municipal Council meeting held on March 27, 2018, to review the Class EA process completed to date and summarize the recommended alternatives being presented to the public at the June 4, 2018 Public Meeting. Council was supportive of the recommendations and staff proceeded with presentation of the preferred alternatives at the public meeting. A final report will be presented to Municipal Council in September 2018, following finalization of the Class EA, to document additional feedback received during the Notice of Study Completion review period. The preferred alternatives selected in conjunction with the Class EA are summarized below.

- 1) Preferred Bridge Alternative
 - a. Replace bridge deck with a wider deck and substructure.
- 2) Preferred detailed design for intersection configuration
 - a. Add an additional northbound through lane to the intersection (5 lanes total)
- 3) Preferred Corridor Alternative
 - a. Covert the two-way left turn lane to a northbound lane
- 4) Preferred detailed design for Corridor
 - a. Add multi-use lanes on both sides of the corridor (for cyclists and pedestrians)

6.0 IDENTIFICATION OF POTENTIAL IMPACTS

6.1 General

In reviewing the various criteria identified in Section 3.5 of this report and additional comments provided during the public consultation program, a number of specific environmental elements were identified which could be adversely affected by the implementation of the preferred alternatives. The impact of specific components of the proposed bridge and corridor construction on the identified environmental elements, are summarized in Table 7.1. Specific mitigation measures for the identified impacts are also presented. The table identifies impacts directly related to construction, which are generally short-term in nature and of limited duration. Impacts of a greater magnitude and duration (changes to traffic patterns, private property impacts) are also discussed in the following section.

Table 6.1
Construction Related Environmental Effects

	Environmental Components	Geology and Hydrology Resources	Aquatic Resources	Significant Environmental Features	Cultural Heritage Resources	Social Environment	Economic Environment	Technical Environment
	Key Project Works and Activities							
1	Construction Component							
	Contractor Mobilization to the site	○	○	○	○	●	○	○
	Establishment of Temporary Storage Areas	○	●	○	○	●	○	○
	Site Clearing	○	●	○	●	○	○	○
	Installation of Sediment Control Devices	○	●	○	○	○	○	○
	Traffic Control Plan Implementation	○	○	○	○	●	○	○
	Construction or wing walls and retaining walls	●	●	○	●	●	○	●
	Excavation	●	●	○	●	●	○	●
	Removal of Existing Deck	○	●	○	○	○	○	●
	Temporary Storage of Fuels	●	●	○	○	○	○	○
	Construction of new bridge deck	●	●	○	●	●	○	●
	Replacement of sewage & water infrastructure	●	●	○	○	●	○	●
	Reconstruction of Approach Roads	○	○	○	●	●	○	●
	Grading	○	●	○	○	●	○	○
	Construction Traffic	○	○	○	○	●	○	○
	Site Restoration (seeding/topsoil)	○	○	○	○	○	○	○

● Potential for adverse effect ○ No adverse effect expected

6.2 Potential Impact to Natural Features

Construction activities associated with the bridge widening could pose a risk to fish habitat, given the proximity of construction activities to the river channel. 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. 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 potential impacts associated with components of the environment identified above and the specific measures proposed to mitigate the impacts to specific features of the natural environment.

6.2.1 Aquatic Habitat

For this project, minimal in-stream work will be required due to the retention of the existing bridge abutments in the channel. As shown in the photo below, the existing abutments are currently above the water level in the channel, so much of the work can occur without encroaching into the watercourse. The abutments will need to be expanded to support the wider deck and road section, but given the current conditions a majority of the work can occur in the dry. To ensure that all potential concerns are addressed, consultation will be undertaken with the Ausable Bayfield Conservation Authority (ABCA), the Ministry of Natural Resources and Forestry (MNR), and with the Department of Fisheries and Oceans Canada (DFO), once detailed drawings of the proposed deck widening are completed.



6.2.2 Vegetation removal

The extent of existing vegetation at the bridge site consists of trees and shrubs located adjacent to the channel and road approaches. Widening of the deck and road approaches will require to match the wider bridge deck and sidewalk proposed in conjunction with the preferred bridge design. Species present within approximately 10 metres of the bridge consist of the following:

East side of the bridge (some species were further than 5-10m):

Black Locust (none native but naturalized species- lots on the northeast side)

Sugar Maple

Black Walnut

Manitoba Maple

Black Willow

Hickory

Chokecherry

Ash

Riverbank Grape

Staghorn Sumac

Alternate-leaved Dogwood

Various Asters/Goldenrods (lots down below near the docks)

West side of bridge (some species were further than 5-10m):

Manitoba Maple

Black Walnut

Willow

Sugar Maple

Riverbank Grape

Asters/Goldenrods

All of the species identified are common to southwestern Ontario. Disturbed areas adjacent to the bridge will be restored with native species similar to those currently present at the site.

6.3 Potential Impact to Residents/Adjacent Properties

6.3.1 General

The primary land uses located in close proximity to the bridge and road corridor are commercial or residential activities. To achieve the proposed road and bridge widenings needed at the bridge site and immediately north and south of the intersection, the road corridor will need to be expanded to add the additional lane of traffic and wider multi-use path. The greatest impacts will occur immediately adjacent to the bridge and intersection where construction and road widening will affect both sides of the road corridor. The following points detail the specific impacts and mitigation proposed to minimize the duration and extent of these potential impacts.

6.3.2 Traffic Disruption (short-term)

The existing bridge is a concrete post-tension bridge constructed in the mid 1950's. Replacement of the bridge deck will require complete removal of the entire deck top and portions of the road approaches, adjacent to the bridge. It is possible to replace the deck in stages to allow a single northbound and southbound lane of traffic over the bridge during construction. To minimize impacts to motorists, the construction will be scheduled over a 2 year period and will occur in the fall and spring to avoid peak traffic periods. Pedestrian traffic will be maintained on one side of the bridge. Reducing traffic flow to a single lane will undoubtedly result in traffic back-ups and delays; however, scheduling the work in the spring and fall so that peak tourist periods are avoided, will help to minimize the extent of the disruptions.

Modifications to the road corridor located north and south of the bridge will also result in disruptions to traffic. Similar to the bridge construction, construction will be timed to avoid peak tourist periods and traffic flow will be maintained at all times, although lane restrictions will be required. Access to private properties will be maintained, although there may be brief periods when access is limited. Property owners will be given advance notice of the timing so that alternative arrangements can be made, if required.

6.3.3 Private Property Impacts (short-term)

Temporary impacts to private property may occur during construction of the bridge and expansion of the road corridor to install the multi-use path. Adjacent to the bridge, temporary access may be required to facilitate construction of retaining walls and for construction access. Disturbed areas would be restored upon completion of construction.

A similar level of encroachment will be required for the multi-use path. For a majority of the corridor, the widened path surface can be accommodated within the limits of the existing road allowance. However, many properties maintain signage or landscaping features that are currently located on municipal property. These features may require relocation if they encroach upon the proposed path alignment. In locations where the new path will extend very close to the limits of the road allowance, a temporary construction easement may be required to facilitate construction. All disturbed areas will be restored upon completion of the proposed works.

6.3.4 Private Property Impacts (long-term)

At several locations where the proposed road widening will involve the addition of a new traffic lane (immediately north and south of the bridge), or where the existing road allowance is very narrow, land will need to be purchased from private property owners to facilitate implementation of the project. It is the Municipality's intention to identify these properties as early in the process as possible and approach the landowners to negotiate suitable agreements for the exchange of property.

6.3.5 Pedestrian Access

As noted above, pedestrian access over the bridge will be maintained during construction, however it will be limited to only one side of the crossing. Similarly, during road reconstruction activities and installation of the multi-use path, pedestrian access will be limited to one side of the corridor. Access routes will be signed during the construction period to clarify routes for pedestrians and cyclists. Tentative construction schedules will be posted on the municipal website during construction to keep residents informed.

6.3.6 Capital Costs

Section 2.5 of this report identifies the Ontario Street corridor as a ‘connecting link’ corridor. The connecting link is part of the Provincial transportation network, however is maintained by the local municipality. Traditionally the Ministry of Transportation provided funding to Municipalities to help support the ongoing maintenance of the corridor, due to extra traffic volumes not associated with the local community. Lambton Shores has therefore been in discussions with the Ministry of Transportation to obtain funding to assist with implementation of the project.

6.4 Potential Impact to Navigation

Parkhill Creek, at the bridge site, passes beneath the crossing before discharging to Lake Huron some 900 metres downstream. The river and associated municipal and private marinas serve an important role for the community. The marinas are popular destinations for recreational boaters and local fishing enthusiasts. A boat launch is located downstream that can be used by visiting boaters. The reconstructed bridge will provide a slightly reduced clearance beneath the structure upon completion, lowering the “low steel” elevation of the crossing by approximately 0.9 metres (3 feet). Based upon consultation with local marina operators, a majority of the boats that utilize the river will not be negatively impacted by the reduced clearance. Temporary closure of the channel will be required during portions of the construction due to safety concerns, however a navigational opening should be maintained during most of the construction period.

The following measures will be implemented to ensure the safe passage of vessels through the bridge site during construction:

- A minimum opening measuring 3m x 3m will be maintained beneath the bridge during construction, to permit passage of vessels beneath the site.
- Warning signs will be placed up and downstream of the bridge site advising vessels of the bridge construction.
- If temporary closures are required, advanced notice will be provided to local marina operators in advance of the closure so that alternative arrangements can be made.

7.0 RECOMMENDATIONS AND PROJECT IMPLEMENTATION

7.1 General

The purpose of the fourth stage of the study was to develop study conclusions and recommendations for future action. The stage involved the completion of a final evaluation of study findings and the identification of a preferred alternative. This stage also involved identifying (1) future work required to implement the selected alternatives and (2) measures to mitigate the impacts of constructing the proposed works.

7.2 Study Conclusions

Based upon a review of the current environmental setting, no potential impacts were identified with the preferred Alternatives that could not be mitigated. To this end, the proposed bridge and corridor widening plan appears to be appropriate for the setting and should not result in significant adverse environmental effects. It was therefore concluded from the study that the Municipality should proceed with the project, pending the receipt of all required approvals and in accordance with all mitigation measures defined during the approvals process.

7.3 Selection of a Preferred Alternative

7.3.1 Preferred Alternative

Given the foregoing, Alternative 2 - construction of a new wider bridge deck, was selected as the preferred bridge solution, and Alternative 2 – conversion of the two-way left turn lane to a northbound through lane, was selected as the preferred corridor alternative. The works associated with the preferred alternatives are illustrated in Appendix ‘D’ and discussed in more detail below:

7.3.2 Bridge Deck Replacement

The replacement bridge deck will be supported with precast, pre-stressed concrete girders to help speed up the construction process and minimize costs. The existing abutments will be widened to support the wider bridge deck. Retaining walls will also be constructed adjacent to the wider abutments to minimize impacts to adjacent properties. The clear span between abutments will be maintained at its current width of 35.36 m above the channelized river. The deck width is proposed to be 24.25 m which allows for 5 - 3.35 m traffic lanes, 1.0 m side clearances and 2.4 metre multi use paths on each side. The deck will be protected with waterproofing and pavement. A crossfall of 2% will be used on the deck and approaches. Approach slabs will be used at each end of the bridge to reduce dynamic loads. A parapet wall or barrier wall with handrail will be used on both sides to provide PL-2 barrier protection. Plans of the proposed deck structure are included in Appendix ‘D’.

7.3.3 Corridor Improvements

The proposed corridor has a total width of 20.7 metres which will be comprised of two 3.35m driving lanes at the centre of the corridor and two 3.5m driving lanes at the outside of the corridor, adjacent to the curb. A 0.6 metre curb and 0.5m boulevard, will separate the multi-use path from the vehicle lanes. A multi-use path measuring 2.4m in width will be located adjacent to the boulevard. The two-way left turning lane will be converted to a dedicated northbound lane.

In conjunction with the above noted improvements, existing municipal infrastructure, including watermains, storm sewers and sanitary sewers, will be evaluated as part of the engineering design and upgraded or replaced if required. Similarly, existing utilities such as hydro, natural gas, communications infrastructure and street lighting, will be examined during the final design stage and relocated or upgraded as required. Preliminary engineering drawings of the proposed corridor improvements are included in Appendix 'D'.

7.4 Class EA Project Schedule

The recommended solution is considered a Schedule "C" project under the terms of the Class EA document, as the project involves the reconstruction of a water crossing (> 1.5 million dollars). This requires the completion of all five phases of the Class EA process.

7.5 Final Public Consultation

A Notice of Completion was circulated to local residents, stakeholders and government review agencies (refer to Appendix 'B'). The notice identified the preferred alternative and provided the basis for appeal of the selected option (i.e., a Part II Order request to the Minister of the Environment prior to the conclusion of the review period). Locations where the Environmental Study Report would be available for viewing were also noted.

The following summarizes the distribution of the notice.

Contents:	Identification of preferred solutions, key plan, locations where ESR would be available for review.
Issued:	August 15, 2018
Placed In:	Exeter Lakeshore Times Advance (August 15 and August 22, 2018)
Distributed To:	17 review agencies/organizations, 170 adjacent property owners

An Environmental Study Report was also prepared which summarized the Class EA process undertaken in conjunction with the project. Hard copies of the report were made available for public review at the Grand Bend Municipal Office and also posted on the Lambton Shores website. The review period for the Notice will conclude September 14, 2018.

7.6 Project Implementation

The construction works associated with Alternative 1 outlined in Section 8.3 of this report will be initiated in the fall of 2019 and continue during off season periods until the spring of 2021, pending the successful completion of the Class EA process and the receipt of all necessary approvals and sufficient funding support from MTO. The project would commence in September 2019 with the bridge deck and road corridor north of the Main Street intersection being replaced over the following 2 years, during the spring and fall construction periods (restoration would occur shortly thereafter). The project will be completed by a qualified Contractor following a competitive selection process. Constructed works will be warranted by the Contractor for a period prescribed in the contract documentation (typically one year). Following the completion of the warranty period, the Municipality of Lambton Shores will assume ownership of the structure and will maintain the physical condition and operation of the bridge and will perform remediation work as required and in accordance with the requirements of applicable regulatory agencies.

7.7 Summary of Impact Mitigation

A series of remediation measures will need to be implemented in order to minimize the environmental impacts associated with the proposed works. The following represent the key measures of the proposed mitigation plan:

- Vehicular and pedestrian access will be maintained over the bridge and along the road corridor during the construction period, although access will be limited to only one side of the road to be coordinates with road reconstruction activities.
- The preferred bridge deck design will include a 2.4 metre wide multi-use path on both sides of the corridor to provide improved pedestrian and cycling access and safety.
- In-water work will be minimized as much as possible and restricted to periods of low flow, during timing windows established by applicable review agencies. This will minimize impact of construction activity on fish populations and other aquatic species inhabiting the work zone.
- A navigational opening will be maintained beneath the bridge during reconstruction of the bridge deck. If temporary access restrictions are required for safety reasons, local marina operators will be contacted in advance so that alternative arrangements can be made for boat owners docking upstream of the bridge site.
- The limit of vegetation removal adjacent to the bridge will be minimized as much as possible. Following the completion of tree and vegetation removal operations, a sediment fence will be erected to act as a physical barrier (limiting collateral damage to trees and vegetation) as well as a barrier to sediment laden runoff.
- Disturbed areas of the river bank will be restored, following the completion of construction, with native tree species and grasses, similar to those species currently present at the site.

- The Ontario Occupational Health and Safety Act will apply to all project related activity in order to minimize the risks posed by construction.
- To minimize impacts to residents, construction will be scheduled to avoid the peak tourist season and will be extended over a two year period. Two lanes of traffic will be maintained for northbound and southbound traffic throughout the construction period.
- Construction activities will be conducted in accordance with contract documentation and the impact mitigation requirements of various regulatory agencies. The work will be monitored through on-site supervision.
- Erosion and sediment control measures will be implemented throughout the entire work zone to minimize sediment loadings to the watercourse.

7.8 Cost Recovery

The probable capital cost of the project is approximately \$5.1 million for the bridge reconstruction, Main Street intersection and corridor improvements south to River Road and north to Municipal Drive. Reconstruction of the corridor north of Municipal Drive to the municipal limits is an additional \$950,000. Improvements to the corridor south of River Road are estimated at 2.95 million (this does not include possible property purchase, relocation of utilities, relocation of cross-walks or possible upgrades to the traffic signals at Lake Street). All cost estimates include an allowance for engineering. The Municipality intends to finance the municipal portion of the capital costs of the work through the public works budget and finance the remainder of the project costs through funding assistance from the Ministry of Transportation.

7.9 Class EA Study Completion

The following activities are required in order to complete the formal Class EA screening process:

- Address outstanding issues resulting from the Notice of Completion.
- Finalize the Environmental Study Report following the conclusion of the 30-day review period.
- Advise the Municipality of Lambton Shores, the Ministry of Transportation and the Ministry of the Environment and Climate Change (MOECC) when the study process is complete (assuming no Part II Order requests are filed).

8.0 APPROVALS

8.1 General

A number of approvals will be required in order to facilitate the implementation of the recommended solution. The following are the key approvals required to permit the construction of the proposed works:

8.2 Conservation Authorities Act

The proposed bridge reconstruction works would involve construction on lands regulated by the Ausable Bayfield Conservation Authority. In accordance with the Conservation Authorities Act, an application will be submitted to the Conservation Authority to obtain approval for the project. The application will define measures proposed to protect sensitive lands, such as stream banks, during construction in order to minimize the negative impacts of the project on the ecology of the area. The Authority may require additional measures be incorporated into the construction plan as part of the approvals process.

8.3 Ontario Water Resources Act

Wastewater works associated with the preferred alternative are subject to the *Ontario Water Resources Act*. Consequently, the project cannot proceed until the Municipality has received the necessary Environmental Compliance Approval (ECA) from the Ministry of the Environment, Conservation and Parks (MECP). The approval will define how the sewage works must be implemented.

8.4 Safe Drinking Water Act

Watermains require an amendment to the Municipality's Drinking Water Works Permit, issued under the Safe Drinking Water Act. The amendment is accomplished by completing a Form 1.

9.0 PROJECT SCHEDULE

Implementation recommendations contained within the Traffic Study Report suggest that widening of the bridge deck and road corridor located immediately north and south of the Main Street intersection, occur first to resolve traffic delays presented by the current intersection configuration. The Municipality is planning to coordinate reconstruction of the connecting link corridor located north of the intersection to the municipal limits, to occur with the bridge and intersection upgrades. The condition of the road within this section of the corridor is deteriorated and is in need of repairs.

The remainder of the corridor, located south of River Road, would be updated in subsequent years, dependent upon receipt of necessary approvals and sufficient funding.

A general schedule for the proposed bridge deck replacement has been prepared based on the assumption that all necessary approvals and funding will be obtained by the fall of 2019. Should funding not be received, the Municipality intends to attempt additional funding applications in

subsequent years. As noted within Section 7.3, to minimize impacts to residents and seasonal visitors to the community, the timing of construction will be restricted to off-peak periods in the spring and fall. This will extend the construction timeframe over two years, but will significantly reduce additional traffic congestion related to the construction.

The following represents the conceptual schedule for the completion of key project components, assuming other timelines noted above can be achieved:

- Completion of final design drawings and receipt of required approvals (April 2019).
- Tendering of project (May 2019).
- Utility line relocation works adjacent to the bridge by utility companies. No work within the travelled roadway. (March – May 2019).
- Widening of the bridge substructure on each side of the bridge (September - December 2019).
- Replacement of the bridge deck in two stages (February – May 2020).
- Road work on approaches to the bridge, through the intersection and north of Municipal Drive (September – December 2020).
- Complete site restoration work along the corridor (March-May 2021)

10.0 SUMMARY

This report documents the Municipal Class Environmental Assessment process conducted to define a solution to traffic congestion problems affecting the ‘Connecting Link’ corridor in the Community of Grand Bend, Municipality of Lambton Shores. The connecting link corridor extends along Ontario Street (Provincial Highway 21) from Pinedale Road in the south, to the municipal boundary in the north. Severe traffic congestion has plagued the seasonal community for a number of years, especially on holidays and long weekends, and is impacting the quality of life for local residents, business owners, and the traveling public.

The study evaluated alternatives associated with two components of the corridor; 1) the bridge structure spanning Parkhill Creek located immediately south of the Main Street intersection, and 2) improvements to the road design of the entire corridor.

Following a detailed assessment of the alternatives, which included consultation with review agencies and Aboriginal communities, as well as two public meetings for stakeholders and community residents, a preferred solution was selected. The Alternatives were subsequently endorsed by Municipal Council and are summarized below.

- 1) Preferred Bridge Alternative
 - a. Replace bridge deck with a wider deck and substructure
- 2) Preferred detailed design for intersection configuration
 - a. Add an additional northbound through lane to the intersection (5 lanes total)
- 3) Preferred Corridor Alternative
 - a. Convert the two-way left turn lane to a northbound lane
- 4) Preferred detailed design for Corridor
 - a. Add multi-use lanes on either side of the corridor (for cyclists and pedestrians)

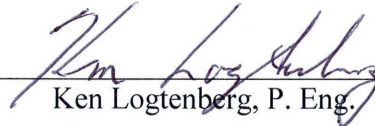
The proposed project is a Schedule C activity under the terms of the Class EA. The Municipality of Lambton Shores intends to proceed with the implementation of this project upon completion of the Class EA investigation, the receipt of necessary approvals, and obtaining sufficient grant funding support from the Ministry of Transportation.

All of which is respectfully submitted.

B. M. ROSS AND ASSOCIATES LIMITED



Per


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Per


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KV:hv

REFERENCES

1. Municipal Engineers Association. Municipal Class Environmental Assessment. June 2000, as amended in 2007, 2011, & 2015.
2. Municipal Engineers Association, Ministry of Transportation. Ontario Provincial Standard Specifications. April 2014.
3. Paradigm Transportation Solutions Ltd., Ontario Street Bridge, Grand Bend Traffic Operations Study, February 2016.
4. Ausable Bayfield Conservation Authority. Fill and Flood Line Mapping, Village of Grand Bend. June, 1976.
5. Paradigm Transportation Solutions Ltd., Ontario Street Grand Bend, Improvement Opportunities and Priorities, 18 October 2017.
6. Natural Heritage Information Centre. Natural Areas Mapping. 2018.
7. County of Lambton. Website and mapping services. 2018.
8. Environment Canada. Species at Risk website and Mapping. 2018.
9. Atlas of the Breeding Birds of Ontario. Website and Range Maps. 2018.
10. Ausable Bayfield Conservation Authority. Website and mapping services. 2018