
COUNTY OF BRUCE

CLASS EA FOR TEESWATER RIVER BRIDGE

PAISLEY



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PAISLEY



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B. M. ROSS AND ASSOCIATES LIMITED
Engineers and Planners
62 North Street
Goderich, Ontario N7A 2T4
Phone: (519) 524-2641

www.bmross.net

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**CLASS EA FOR THE TEESWATER RIVER BRIDGE
IN THE COMMUNITY OF PAISLEY
COUNTY OF BRUCE**

EXECUTIVE SUMMARY

1.0 INTRODUCTION

1.1 General

The County of Bruce initiated a Class Environmental Assessment process in October 2019 to define the best strategy for resolving deficiencies identified with the Teeswater River Bridge, which spans the Teeswater River along Bruce Road 3 in the community of Paisley. Recent inspections of the structure have identified deterioration with many bridge components. The County is considering alternatives associated with the new bridge design as well as detour alternatives to allow traffic to detour around the site during construction of the new crossing.

The study process followed the procedures set out in the Municipal Class Environmental Assessment (Class EA) document, dated October 2000, as amended in 2007, 2011 & 2015. B. M. Ross and Associates Limited (BMROSS) was engaged to conduct the Class EA process on behalf of the County. The purpose of this report is to document the Schedule C Class EA process followed for this project. The report includes the following major components:

- An overview of the general project area.
- A summary of deficiencies associated with the existing structure.
- A review of specialized investigations completed in support of the Class EA.
- A description of the alternative solutions considered for resolving the defined problems.
- A synopsis of the decision-making process conducted to select a preferred alternative.
- A detailed description of the preferred alternative.

2.0 BACKGROUND

2.1 Project Study Area

The Community of Paisley is situated in the southwest portion of the Municipality of Arran-Elderslie and is divided by the Saugeen and Teeswater Rivers, which meet at the centre of the community. Queen Street (Bruce Road 3) is the primary thoroughfare through the community and provides access over the Teeswater River, which separates the north and south sections of Paisley. North Paisley contains approximately 233 parcels, including a library, arena, and grocery store. South Paisley contains nearly twice as many parcels, including a school, health

clinic, post office, pharmacy, and fire station. Queen Street also provides an efficient access route for many cottagers and is the traditional main street that provides direct access to various businesses and community facilities. The project bridge spans the Teeswater River along Bruce Road 3 in central Paisley. The existing bridge is a concrete curved T-Beam bridge comprised of three continuous spans. The northerly spans encompass the Teeswater River just upstream of its convergence with the Saugeen. The most southerly span provides outlet to a mill race which passes beneath a former Mill structure located at the southwest corner of the bridge.

Immediately upstream of the crossing is a small dam which spans the Teeswater River. Associated with the former mill located at the southwest corner of the bridge, the dam currently does not function as a water control structure, however it does provide scenic views from the bridge. Adjacent to the dam, on the north bank of the river, is a former control building for the dam, which has been converted to a retail outlet housing Cowan Canoe and Kayak Livery. This facility provides canoe and kayak rentals along the Saugeen River and provides a canoe launching area along the north bank immediately upstream of the bridge. An LCBO retail outlet and the Paisley Arena are located adjacent to the northeast corner of the bridge, as well as several downtown businesses which are situated along Bruce Road 3 to the north. A branch of The Royal Canadian Legion is located at the southeast corner of the structure.



Photo of bridge looking east (downstream) from the north bank

2.2 Identified Deficiencies

The Teeswater River Bridge is a concrete curved T-Beam bridge comprised of three continuous spans, constructed circa 1935. The bridge is a two-lane structure which accommodates over 3000 vehicles per day during peak periods. The following deficiencies were noted during recent engineering inspections of the structure conducted by BMROSS:

Bridge Deficiency Images



3.0 CLASS EA PROCESS

3.1 Identification of Problem/Opportunity

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

Significant deficiencies have been identified with some structural components of the Teeswater River Bridge on Bruce Road 3 in central Paisley, which if not remediated, may have an adverse impact on the safety of the travelling public at the bridge site.

The bridge remediation plan considered during the preliminary engineering review called for the possible replacement of the existing structure. This work requires additional environmental assessment under the terms of the Class EA document. The proponent initiated the required Class EA investigation in October 2019. The investigation followed the planning and design process set out for Schedule C activities. Schedule C projects are approved subject to completion of all five phases of the Class EA process. The purpose of the Class EA process is to

identify potential impacts related to the proposed bridge project and to plan for appropriate mitigation of any identified impacts.

3.2 Identification of Practical Alternatives

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

Alternative 1: Replacement of the existing bridge with a new bridge in the same location

This option involves the replacement of the existing structure with a new concrete bridge designed in accordance with established standards of the latest edition of the Canadian Highway Bridge Design Code. A new bridge would be in the same location and road approaches would be reconstructed to accommodate a wider bridge deck.

Alternative 2: Replacement of the existing bridge with a new bridge in a modified location

This option involves the replacement of the existing structure with a new concrete bridge designed in accordance with established standards of the latest edition of the Canadian Highway Bridge Design Code. A new bridge would be located in a modified location and road approaches would be reconstructed to accommodate a wider bridge deck and offset alignment.

Alternative 3: Do Nothing

The ‘Do Nothing’ alternative represents the least expensive alternative. It does not, however, resolve the problem of deterioration present at the current crossing or deficiencies presented by the narrow width of the bridge deck and current load posting. The implementation of this option would therefore not address these deficiencies. This option would only be considered if the negative impacts of implementation were considerable and could not be mitigated to an acceptable degree.

3.3 Identification of a Preferred Solution

Based on the results of the assessments as reported above and a review of the economic components associated with the project, the County indicated a preference for Alternative 1, replacement of the crossing in the same location. There are a number of attributes associated with this Alternative which justified its consideration as the preferred option for addressing the deterioration present at the Bridge crossing.

- Addresses existing deterioration present at the bridge crossing
- Provides a full capacity crossing for use by residents and the traveling public for the next 75-100 years
- Was the most logical choice, given constraints presented by the existing road network and adjacent structures
- Provides improved hydrology through the bridge site and increases the resiliency of the road network
- Maintains historical connection between North and South Paisley

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, review agencies and indigenous 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 October 29, 2019
- Information Circulation to Review Agencies – Circulated on October 18, 2019
- Launch of Project-Dedicated website – May 2020
- Virtual Public Information Meeting – Held on September 22, 2020
- Second Virtual Public Information Meeting – Held on May 18, 2021
- Notice of Study Completion – Issued on October 13, 2021

4.2 Consultation Summary

Consultation undertaken during Phases 1 & 2 of the process resulted in the identification of several components of importance to the local public and review agencies as follows:

- The identification of a proposed detour route was of significant importance to the community as an out of town detour would result in severe impacts to the community.
- Provision of an in-town detour was essential to maintaining the health of the downtown business district, already severely impacted by the Covid-19 crisis.
- Local residents were concerned about impacts to emergency services if an in-town detour was not provided.
- Residents wanted the new bridge to reflect the “Artistic Village of Paisley”, and be designed to reflect this concept.
- The design of the new bridge should incorporate views of the surrounding landscape and have improved pedestrian opportunities.

Phase three of the Class EA process involves the consideration and review of design alternatives associated with the preferred solution. In conjunction with the Phase 3 consultation plan, a second public meeting was scheduled and several design options were identified for the new bridge to address comments received from the public and review agencies. These included: After a review of the various bridge design options for the Teeswater Bridge, the following preferred options were selected:

Railing Design: The new bridge will have a lower parapet wall with embossed formwork to meet minimum bridge standards, while being sympathetic to the previous railing.

Bridge Deck Design: The new bridge will have a wider deck to provide larger sidewalks, which will be more accessible for mobile devices and maintenance equipment.

Viewing Areas: The new bridge will have two separate viewing areas (one on each side), to provide viewing opportunities of the Teeswater and Saugeen Rivers from a vantage point.

Bridge Span Design: The existing three-span bridge will be replaced with a two-span bridge, to improve flood flows, reduce the potential for ice jams, maintain a historical mill race, and have fewer obstructions for canoeists.

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:

- A temporary detour bridge will be constructed immediately downstream from the bridge site to permit access over the Saugeen River during the entire construction period.
- The preferred bridge design will include 1.8m wide sidewalks, a lower parapet wall with decorative railing, viewing platforms on each side of the bridge, and a two span design to improve hydraulics within the river.
- 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.
- Fish and mussel moves will be arranged in advance of the in-water component of the work to minimize impacts to aquatic species.
- Tree and vegetation removal will be minimized as much as practical, with any disturbed areas being restored upon completion of the project.
- 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

A general schedule for the proposed bridge replacement has been prepared based on the assumption that all necessary approvals will be obtained by the spring of 2022. The following represents the schedule for the completion of key project components:

- Completion of final design drawings and receipt of required approvals (November 2021).
- Tendering of project (December 2021-January 2022).
- Initiation of temporary detour bridge located east of the crossing. (March – June 2022).
- Demolition of the existing crossing (July 2022).
- Initiation of road work on section of County Road 3 immediately north of the bridge (May 2023 – September 2023).
- Construction of the new bridge (July 2022 – September 2023).
- Complete site restoration work along the corridor (September-December 2023).
- Commissioning of the new bridge (October 2023).
- Removal of the temporary bridge detour (October to December 2023)

7.0 SUMMARY

This report documents the Municipal Class Environmental Assessment process conducted to define a solution to deterioration present within the Teeswater River Bridge in Paisley.

The study evaluated alternatives associated with bridge replacement, including replacement in the same location or relocation of the bridge.

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

Alternative 1 – Replace Teeswater River Bridge in the Same Location with the following:

- Lower parapet wall with formwork and decorative metal railing
- Construct a wider deck with 1.8 metre sidewalks on both sides for accessibility purposes
- Viewing platforms on both sides to provide viewing opportunities of the rivers
- Two Spans to improve flood flow, reduce ice jams, and provide fewer obstructions for canoeists

The preferred detour would include a temporary bridge installed over the Saugeen River and a truck detour along the County Road network east of Paisley.

The proposed project is a Schedule C activity under the terms of the Class EA. Bruce County intends to proceed with the implementation of this project upon completion of the Class EA investigation and the receipt of necessary approvals.

CLASS EA FOR THE TEESWATER RIVER BRIDGE IN THE COMMUNITY OF PAISLEY COUNTY OF BRUCE

ENVIRONMENTAL STUDY REPORT

1.0 INTRODUCTION

1.1 Purpose of the Report

The County of Bruce initiated a Class Environmental Assessment process in October 2019 to define the best strategy for resolving deficiencies identified with the Teeswater River Bridge, which spans the Teeswater River along Bruce Road 3 in the community of Paisley. Recent inspections of the structure have identified deterioration with many bridge components. The County is considering alternatives associated with the new bridge design as well as detour alternatives to allow traffic to detour around the site during construction of the new crossing.

The study process followed the procedures set out in the Municipal Class Environmental Assessment (Class EA) document, dated October 2000, as amended in 2007, 2011 & 2015. B. M. Ross and Associates Limited (BMROSS) was engaged to conduct the Class EA process on behalf of the County. The purpose of this report is to document the Schedule C Class EA process followed for this project. The report includes the following major components:

- An overview of the general project area.
- A summary of deficiencies associated with the existing structure.
- A review of specialized investigations completed in support of the Class EA.
- A description of the alternative solutions considered for resolving the defined problems.
- A synopsis of the decision-making process conducted to select a preferred alternative.
- A detailed description of the preferred alternative.

1.2 Municipal Class Environmental Assessment Process

Municipalities must adhere to the *Environmental Assessment Act of Ontario* (EA Act) when completing road, sewer, or waterworks activities. The Act allows the use of Class Environmental Assessments for most municipal projects. A Class EA is an approved planning document which describes the process that proponents must follow to meet the requirements of the EA Act. The Class EA approach allows for the evaluation of alternatives to a project, alternative methods of carrying out a project, and identifies potential environmental impacts. The process also involves mandatory requirements for consultation and engagement with the public, various agencies, and Indigenous communities.

Class EA studies are a method of dealing with projects which have the following important characteristics in common:

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

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

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

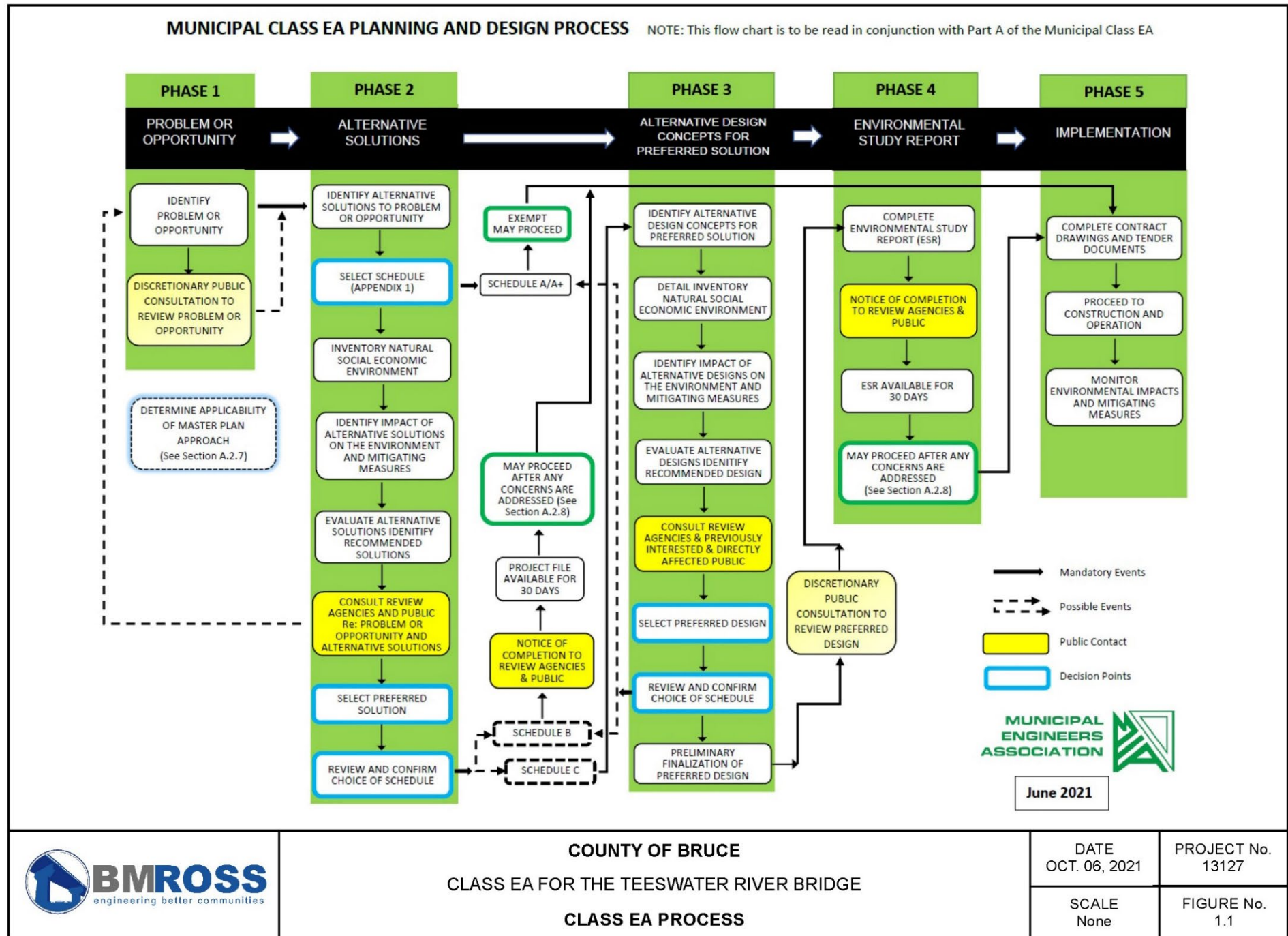
- | | |
|----------------|--|
| Phase 1 | Problem identification. |
| Phase 2 | Evaluation of alternative solutions to the defined problems and selection of a preferred solution. |
| Phase 3 | Identification and evaluation of alternative design concepts in the selection of a preferred design concept. |
| Phase 4 | Preparation and submission of an Environmental Study Report 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

1.3 Project Management

The County of Bruce is considered the project proponent under the terms of the Class EA document. The County engaged BMROSS to carry out the Class EA study process on their behalf.



1.4 Classification of Project Schedules

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

Schedule A Projects that are pre-approved with no need to follow the Class EA process.

Schedule A+ Projects that are pre-approved but require some form of public notification.

Schedule B Projects that are approved following the completion of a screening process that incorporates, as a minimum, Phases 1 and 2 of the Class EA process.

Schedule C Projects that are approved following the completion of the full Class EA process.

The Class EA process is self-regulating, and project proponents are expected to identify the appropriate level of environmental assessment based upon the project they are considering.

1.5 Environmental Study Report

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

1.6 Mechanism to Request a Higher Level of Environmental Assessment

Under the terms of the Class EA, the requirement to prepare an individual environmental assessment for approval is waived. However, if it is perceived that a project going through the Class EA process has significant environmental impacts, a person/party may convey their concerns to the County of Bruce for further consideration. A request may be made to the Ministry of the Environment, Conservation and Parks (MECP) for an order requiring a higher level of study (i.e. requiring an individual/comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g. require further studies), only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Indigenous and treaty rights. Requests made on any other grounds will not be considered by the MECP.

2.0 STUDY AREA DESCRIPTION

2.1 Background Review

A background review was carried out to obtain a general characterization of the project area and to identify factors that could influence the selection of alternative solutions to the defined problem. The background review for the Class EA process incorporated the following:

- Assembly of information on the existing structure and the environmental setting.
- Review of deficiencies at the bridge site.
- Preliminary assessment of the identified deficiencies and potential remediation.

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

- BMROSS. Ontario Structure Inspection Manual (OSIM) reports and files.
- Saugeen Valley Conservation Authority (SVCA). Website and Mapping Services.
- Government of Canada. Species at Risk Public Registry website.
- Ministry of Natural Resources and Forestry. Natural Heritage Information Centre (NHIC) website.
- Municipality of Arran-Elderslie. Files and discussions with staff.
- County of Bruce. Files, website, and information provided by staff.

Several background reports were also commissioned at the start of the Class EA process to gain a better understanding of the project study area and to aid in the selection of a preferred alternative. Specialists in cultural heritage and the natural environment, were retained to provide individual reports on those specific aspects of the environment. In addition, several studies were completed in-house by BMROSS technical staff, which have some bearing on the current analysis.

2.2 Description of the Study Area

2.2.1 Central Bruce County

The County of Bruce forms the northwest portion of Southern Ontario and is bounded on the west by Lake Huron and on the northeast by Georgian Bay. The bridge site is located in central Bruce County, within the Community of Paisley, which is situated within the Municipality of Arran-Elderslie. Arran-Elderslie forms the northeast quadrant of the County of Bruce. The project study area, as illustrated on Figure 2.1, encompasses the Community of Paisley, as well as adjacent lands to the north, east and west that may form part of a proposed detour route.

Two main river systems traverse the countryside within central Bruce County, being the Saugeen and Teeswater Rivers. The two watercourses converge in Paisley, adjacent to the study area limits. The two river systems have posed significant barriers to transportation in this portion of the County since overland transportation routes were first surveyed in the mid-19th century. The potential for numerous river crossings created a significant barrier to transportation within the region and adds complexities to potential detour routes associated with the project. The subject bridge site spans the Teeswater River along Bruce Road 3 in central Paisley. A second bridge crossing is located 80 metres to the southeast, spanning the Saugeen River.



2.2.2 Municipality of Arran-Elderslie

The Municipality of Arran-Elderslie is in the northwest portion of Southern Ontario at the easterly extent of Bruce County, just south of the Bruce Peninsula. The Municipality is bounded to the west by the Municipality of Saugeen Shores, to the south by the Municipality of Brockton, by Grey County to the east and by the Town of South Bruce Peninsula to the north. As noted, the project study area encompasses the Community of Paisley and adjacent lands located within the westerly extent of the Municipality. Arran-Elderslie was formed in January 1999, when the Townships of Arran and Elderslie, along with the Villages of Paisley and Tara and the Town of Chesley amalgamated to form the Municipality of Arran-Elderslie. The Municipality has a population of more than 6,800 permanent residents and a land base of approximately 460 km². In general, Arran-Elderslie is comprised of three urban centres (being Paisley, Tara and Chesley), and a number of small rural settlements dispersed throughout a predominately rural landscape.

2.2.3 Community of Paisley

The Community of Paisley is in the southwest portion of the Municipality of Arran-Elderslie and is divided by the Saugeen and Teeswater Rivers, which meet at the centre of the community. Queen Street (Bruce Road 3) is the primary thoroughfare through the community and provides access over the Teeswater River, which separates the north and south sections of Paisley. North Paisley contains approximately 233 parcels, including a library, arena, and grocery store. South Paisley contains nearly twice as many parcels, including a school, health clinic, post office, pharmacy, and fire station. Queen Street also provides an efficient access route for many cottagers and is the traditional main street that provides direct access to various businesses and community facilities.

2.2.4 Project Site

As discussed, the project bridge spans the Teeswater River along Bruce Road 3 in central Paisley. The existing bridge is a concrete curved T-Beam bridge comprised of three continuous spans. The northerly spans encompass the Teeswater River just upstream of its convergence with the Saugeen. The most southerly span provides outlet to a mill race which passes beneath a former Mill structure located at the southwest corner of the bridge.

Immediately upstream of the crossing is a small dam which spans the Teeswater River. Associated with the former mill located at the southwest corner of the bridge, the dam currently does not function as a water control structure, however it does provide scenic views from the bridge. Adjacent to the dam, on the north bank of the river, is a former control building for the dam, which has been converted to a retail outlet housing Cowan Canoe and Kayak Livery. This facility provides canoe and kayak rentals along the Saugeen River and provides a canoe launching area along the north bank immediately upstream of the bridge. An LCBO retail outlet and the Paisley Arena are located adjacent to the northeast corner of the bridge, as well as several downtown businesses which are situated along Bruce Road 3 to the north. A branch of The Royal Canadian Legion is located at the southeast corner of the structure. Photos of the bridge and surrounding structures, are shown on Figure 2.2. Figure 2.3 illustrates the project study area.

Figure 2.2: Site Photos



View of bridge looking west (upstream)



View of bridge deck and sidewalk looking north from the south entrance



View of bridge looking northeast from the north riverbank. Canadian Legion and former Mill structures are located at right



View of deterioration present on sidewalk soffit along the east limit of the bridge



2.3 Natural Environment

2.3.1 Physiography and Soils

Table 2.1 summarizes the general physiographic features and soils evident in the vicinity of the subject properties.

Table 2.1
Physiographic Features and Soil Types

Feature	General Characteristics
Physiography	<ul style="list-style-type: none">The bridge site is located within the Saugeen Clay Plain physiographic region, which is situated in the Saugeen River drainage basin, north of the Walkerton Moraine.The Saugeen Clay Plain is a small clay plain underlain by deep stratified clay deposited in a bay of historic Lake Warren.
Soils (General)	<ul style="list-style-type: none">The river valley area is classified as Bottomland. This is comprised of alluvial soils exhibiting variable drainage characteristics.Soils in the study area primarily consist of Saugeen silty clay loam.

2.3.2 Hydrology

Hydrology at the bridge site is complicated by the two major river systems that bisect the study area: the Saugeen River watershed to the south and east and the Teeswater River watershed to the southwest. Although the bridge site spans the Teeswater River, historic flooding within downtown Paisley is driven by flows within the Saugeen River.

The North and Lower Main Saugeen Rivers extend in a southeast to northwest orientation through the municipality and are utilized by local fisherman and canoeists; a launch site is currently situated on the northwest riverbank adjacent to the bridge site. The Saugeen River is located within the watershed limits of the Saugeen Valley Conservation Authority (SVCA) and is one of the largest river systems in southwestern Ontario, draining 2,360 km² of predominantly rural Ontario from the community of Dundalk west towards its outlet at Lake Huron. The presence of numerous cold-water streams in the upper reaches of the watershed provide excellent habitat for a variety of salmonoid species such as Brook Trout, Rainbow Trout, Brown Trout and Chinook Salmon. Bass and pike are also found within the Saugeen River watershed making it an important recreational fishery in the area.

The Teeswater River watershed is also located within the jurisdiction of the SVCA and extends south and then east from Paisley draining an area measuring 683 km². The watershed is dominated by primarily agricultural land uses, except for lands that comprise the Greenock Swamp, which is the largest forested wetland in southwestern Ontario. The presence of the swamp within the watershed limits assists with moderating flood flows downstream by providing storage for high flows during extreme runoff events. Watershed Report Cards for each watershed, prepared by the SVCA, are located within Appendix A.

2.3.3 Sensitive Natural Features in the Vicinity of the Study Area

As discussed, the project study area is located in north central Bruce County within the Teeswater and Saugeen River watersheds, which are managed by the Saugeen Valley Conservation Authority (SVCA). The landscape is comprised of rural farmland with rolling terrain bisected by the many river systems. A review of sensitive natural heritage features located in the vicinity of the project area was carried out as part of the background review. The Ontario Ministry of Natural Resources' Natural Heritage Information Centre (NHIC) database was consulted to verify the current status of significant natural areas in the vicinity of the bridge site. The location of sensitive natural features in relation to the bridge site is illustrated on Figure 2.3. A description of significant features within the study area is included below.

Significant Wetlands

There are four provincially significant wetlands, and one regionally significant wetland located within, or near the study area limits. These are described in more detail below. There are also a number of locally significant wetlands on the landscape which have not been formally evaluated. Where present, we have identified the proximity of these features to the Teeswater River Bridge site.

i. Elderslie Swamp Wetland Complex - Regionally Significant Wetland, Significant Woodland

The Elderslie Swamp is a regionally significant wetland complex located approximately 4.5km northeast of the bridge site. This natural area has also been identified as a significant woodland due to its size (>40 ha), as it has an area of approximately 490 ha.

ii. Nuttley Fen – Provincially Significant Wetland

Nuttley Fen is a provincially significant wetland located approximately 5.9km northeast of the bridge. Although only 6.9 ha in size, this natural area was identified as significant due to the rarity of fens within the landscape. As described in the Canadian Wetland Classification System (CWSS), "*a fen is a peatland with a fluctuating water table*". They are rich in dissolved minerals and have groundwater and surface water movement and according to the CWSS, the primary characteristics of fens are:

- An accumulation of peat
- Surface is level with the water table, with water flow on the surface and through the subsurface
- Fluctuating water table which may be at, or slightly below the surface
- Minerogenous
- Decomposed sedge or brown moss peat
- Graminoids and shrubs characterize the vegetation cover

iii. Glammis Bog – Provincially Significant Wetland

The Glammis Bog is a provincially significant wetland that consists of five individual wetlands and is composed of three wetland types (bog, swamp, and marsh). The wetland complex has an area of approximately 79 ha and is situated approximately 10.7 km southwest of the Teeswater River Bridge.

iv. Greenock Swamp – Provincially Significant Wetland

The Greenock Swamp is a provincially significant wetland and according to the Saugeen Valley Conservation Authority website, it “is southern Ontario’s single largest forested wetland at approximately 8,094 ha in size”

v. Edengrove Wetland Complex – Provincially Significant Wetland

The Edengrove Wetland Complex is a provincially significant wetland located approximately 10.5km south of the Teeswater Bridge. The complex consists of four individual wetlands with a total area of approximately 105.8 ha.

Areas of Natural and Scientific Interest

There are three Areas of Natural and Scientific Interest (ANSI) located within the project study area. ANSI’s take two forms; Earth Science, which are representative of significant geophysical landforms, and Life Science, which are representative of significant terrestrial features within the landscape, such as wetlands and woodlands.

i) Dobbinton Esker

The Dobbinton Esker is an Earth Science ANSI located south of Tara, approximately 13.0 km northeast of the Teeswater Bridge. Eskers are typically long ridges comprised of gravel or sediment deposited as glaciers retreated and are often winding in nature. The Dobbinton Esker is 353 ha in size.

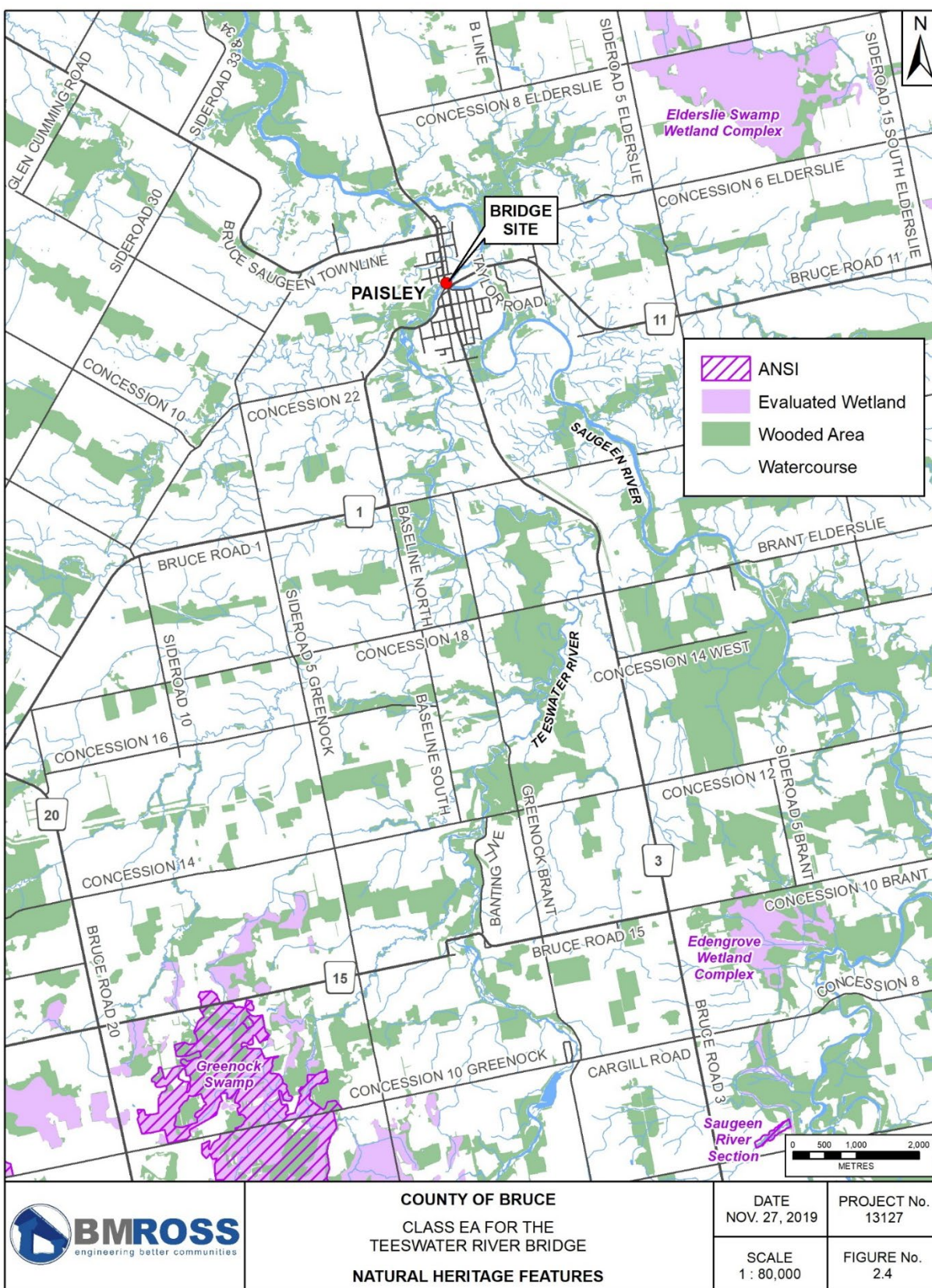
ii) Glammis Bog

The Glammis Bog is a Life Science ANSI located approximately 10.5km southwest of the Teeswater Bridge. According to the Kincardine Natural Heritage Study, this ANSI “encompasses the most significant “acid bog” in the Owen Sound OMNR District, as well as surrounding swamp communities of various composition and upland deciduous forests”.

iii) Greenock Swamp

The Greenock Swamp is a Life Science ANSI located approximately 12km south of the Teeswater Bridge. According to the Kincardine Natural Heritage Study, this ANSI is considered the “best example of swamp in District 6E-2” and that “its large size, hydrological value and diversity of wetland types and wildlife habitats make this one of the largest and best swamp forests and associated wetlands in southwestern Ontario”.

The natural heritage features in the study area are shown in Figure 2.4.



2.3.4 Species at Risk Assessment

Natural Resource Solution Inc. (NRSI) was retained to undertake a Species at Risk (SAR) habitat assessment for the project site. A background information review and field survey were completed to characterize the existing natural features and assess the presence of SAR habitat within the study area. A site visit was completed on June 30, 2020, in order to characterize the existing natural features and habitats and to verify the presence or absence of SAR and their habitats within the study area.

The section of the Teeswater River where the bridge crossing is located, has been identified by Fisheries and Oceans Canada (DFO) as containing (or potentially containing) Rainbow Mussels (*Villosa iris*) (DFO Aquatic SAR Mapping 2019). Rainbow Mussels are listed as Special Concern both provincially and federally. To determine whether suitable habitat was present to support this species, an aquatic habitat assessment was completed that included a general assessment of suitable mussel habitat with focus on mussel SAR

Potential Barn Swallow (*Hirundo rustica*) nesting under the existing bridge was also assessed as part of the study. The site of the possible detour crossing of the Saugeen River, located approximately 120 metres downstream of the bridge, was also assessed as part of the study. Barn Swallows and Little Brown Myotis were determined to have suitable habitat within the ROW development footprint, which was based on preliminary screening.

NRSI biologists completed a desktop and field-based assessment of regulated SAR habitats for areas within and adjacent to the study area. These assessments confirmed that the Teeswater River at the bridge crossing location does not provide suitable habitat for any regulated SAR. It does provide Significant Wildlife Habitat (SWH) for one Special Concern (SCC) mussel species (Rainbow). The area downstream of the bridge, at the Saugeen River, is also a candidate SWH for turtle nesting due to the presence of suitably sandy substrates adjacent to the river. However, no turtles or nests were observed during the single site visit.

Further assessment of potential impacts to fish and fish habitat would be required once detailed design drawings are finalized. Approvals may be required from the SVCA, MNRF, and DFO, including an authorization under the *Fisheries Act*. No in-water work is allowed from March 15 to July 15 of any year due to the potential presence of spring-spawning fish in the river. The assessment also proposed that the following measures be incorporated into the construction plan for the new bridge:

- Use a clear span bridge, if possible, even with temporary bridge
- Work within the timing window
- Prevent the death of fish and mussels (through salvages)
- Maintain riparian vegetation to the extent possible
- Place fill or other temporary or permanent structures outside of the high-water mark
- Maintain fish passage
- Ensure proper sediment control (i.e., isolate the work area, use turbidity curtains, prepare an ESC plan)

- Prevent the entry of deleterious substances in water (i.e., develop a response plan, keep an emergency spill kit on site, plan activities so that deleterious substances do not enter the watercourse)

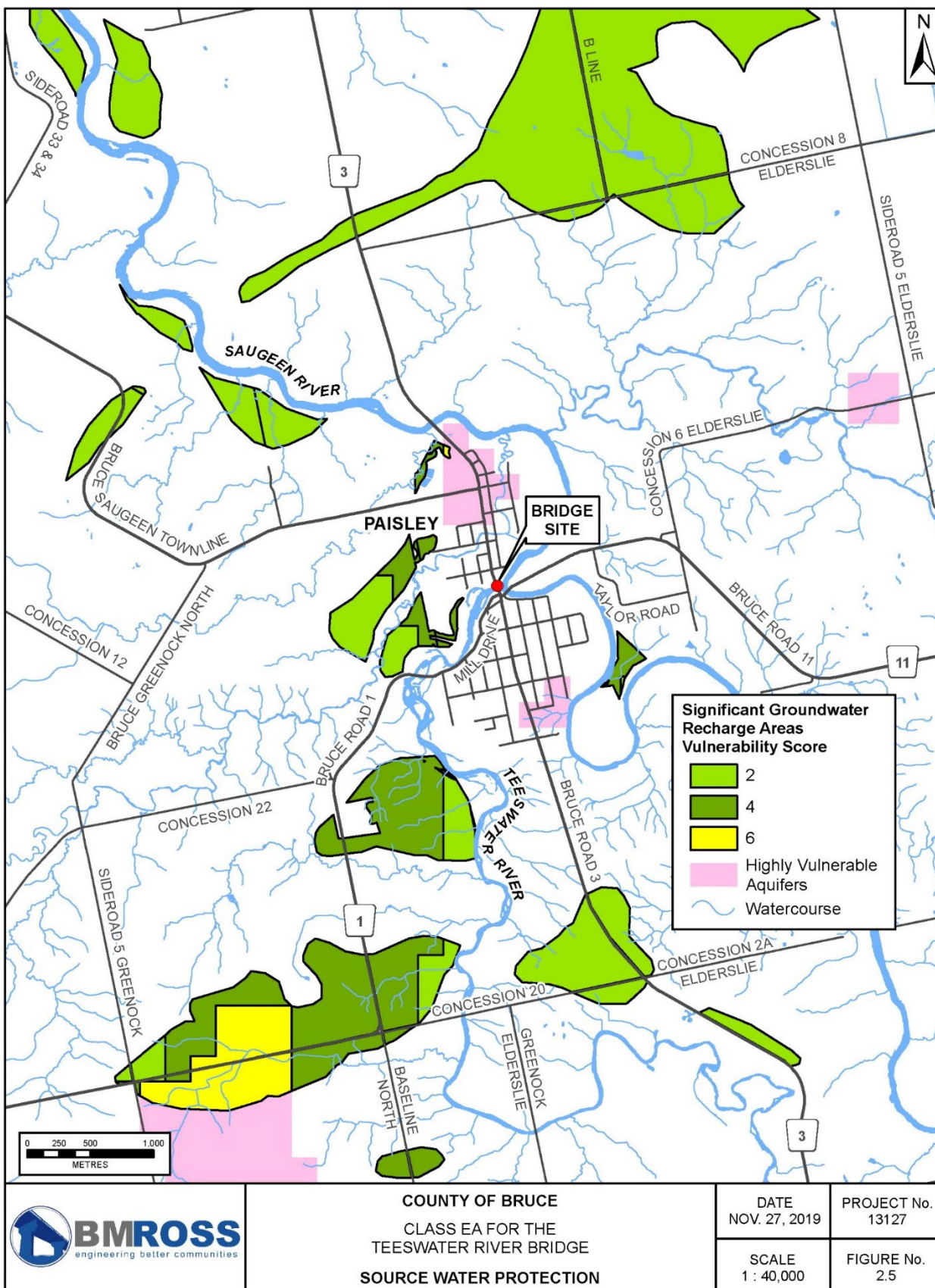
The assessment also indicated that the bridge provides suitable habitat for Barn Swallows, and it recommended the bridge demolition should occur outside of the general bird breeding period of April 1 to August 31, or that other methods be utilized to prevent active nesting on the bridge structure prior to demolition. The floodplain and aquatic habitat outside of the ROW are not expected to be directly impacted by the proposed bridge work. However, construction-stage measures should be taken to avoid impacts to riparian vegetation. A copy of the report is included in Appendix B.

2.4 Source Water Protection

The intent of the Clean Water Act (CWA), 2006, is to “*protect existing and future drinking water*” sources in Ontario. Under the Act, source protection areas and regions were established, giving Conservation Authorities the duties and powers of a drinking water source protection authority (Government of Ontario, 2006). A focus on the development, implementation, monitoring and enforcement of documentation, information and policies related to source water protection is highlighted within this duty.

Paisley is located in the Saugeen, Grey Sauble, Northern Bruce Peninsula Source Protection Region and receives its water through a watermain pipeline from Chesley. The study area falls within the Saugeen Source Protection Area, defined by the Saugeen River watershed, as discussed previously in this report. The Assessment Report for the Source Protection Region was consulted to determine if any of the study area has been identified as vulnerable or susceptible to groundwater threats and issues. While the community does not have its own water source (e.g., municipal wells), other vulnerable areas where land use activities have the potential to impact groundwater sources were identified in the study area. 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 shown on Figure 2.5, there are several SGRA's and HVA's near the Teeswater Bridge, mapped in conjunction with the Source Water Protection. Consultation with SVCA staff will continue, to ensure that potential impacts to these sensitive areas is given due consideration during the review of alternatives phase.



2.5 Climate Change

As part of the Class Environmental Assessment process, the impacts associated with climate change need to be evaluated. Some of the phenomena associated with climate change that will need to be considered include:

- Changes in the frequency, intensity and duration of precipitation, wind, and heat events.
- Changes in soil moisture.
- Changes in sea/lake levels.
- Shifts in plant growth and growing seasons.
- Changes in the geographic extent of species ranges and habitat.

There are two approaches that can be utilized to address climate change in project planning. These are as follows:

- 1) Reducing a project's impact on climate change (mitigation):
 - a. Impact of greenhouse gas emissions related to the project.
 - b. Alternative methods that would reduce adverse contributions to climate change.
- 2) Increasing the project's and local ecosystem's resilience to climate change (adaptation):
 - a. Vulnerability to climate-related severe events.
 - b. Alternative methods that would reduce negative impacts of climate change

Through the evaluation of alternatives phase of the Class EA, a consideration of each of these approaches will be completed and included in the final determination of the preferred approach for this project.

2.6 Socio-Economic Environment

2.6.1 Provincial Policy Statement

The Provincial Policy Statement (2020) was issued under Section 3 of *Planning Act* and provides policy direction on matters of provincial interest. Land use planning decisions must be consistent with the policy statements. A number of the policies contained within the PPS have relevance to the current project. These are as follows:

Section 1.6 Infrastructure and Public Service Facilities

1.6.1 Infrastructure and public service facilities shall be provided in an efficient manner that prepares for the impacts of a changing climate while accommodating projected needs.

Planning for infrastructure and public service facilities shall be coordinated and integrated with land use planning and growth management so that they are:

- a) financially viable over their life cycle, which may be demonstrated through asset management planning; and*
- b) available to meet current and project needs.*

1.6.2 Planning authorities should promote green infrastructure to complement infrastructure.

- 1.6.3 *Before consideration is given to developing new infrastructure and public service facilities:*
- a) *the use of existing infrastructure and public service facilities should be optimized; and*
 - b) *opportunities for adaptive re-use should be considered, wherever feasible.*

Section 1.6.7 Transportation Systems

- 1.6.7.1 *Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs.*
- 1.6.7.2 *Efficient use should be made of existing and planned infrastructure, including through the use of transportation demand management strategies, where feasible.*
- 1.6.7.3 *As part of a multimodal transportation system, connectivity within and among transportation systems and modes should be maintained and, where possible, improved including connections which cross jurisdictional boundaries.*

Section 2.1 Natural Heritage

- 2.1.1 *Natural features and areas shall be protected for the long term.*
- 2.1.2 *The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.*
- 2.1.3 *Natural heritage systems shall be identified in Ecoregions 6E & 7E1, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.*
- 2.1.4 *Development and site alteration shall not be permitted in:*
- a) *significant wetlands in Ecoregions 5E, 6E and 7E1; and*
 - b) *significant coastal wetlands.*
- 2.1.5 *Development and site alteration shall not be permitted in:*
- a) *significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E1;*
 - b) *significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)1;*
 - c) *significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)1;*
 - d) *significant wildlife habitat;*
 - e) *significant areas of natural and scientific interest; and*
 - f) *coastal wetlands in Ecoregions 5E, 6E and 7E1 that are not subject to policy 2.1.4(b)*
- unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*

- 2.1.6 *Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.*
- 2.1.7 *Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.*
- 2.1.8 *Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.*
- 2.1.9 *Nothing in policy 2.1 is intended to limit the ability of agricultural uses to continue.*

Section 2.2 *Water*

- 2.2.1 *Planning authorities shall protect, improve or restore the quality and quantity of water by:*
 - a) using the watershed as the ecologically meaningful scale for integrated and long-term planning, which can be a foundation for considering cumulative impacts of development;*
 - b) minimizing potential negative impacts, including cross-jurisdictional and cross-watershed impacts;*
 - c) evaluating and preparing for the impacts of a changing climate to water resource systems at the watershed level;*
 - d) identifying water resource systems consisting of ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas, which are necessary for the ecological and hydrological integrity of the watershed;*
 - e) maintaining linkages and related functions among ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas;*
 - f) implementing necessary restrictions on development and site alteration to:*
 - 1. protect all municipal drinking water supplies and designated vulnerable areas; and*
 - 2. protect, improve or restore vulnerable surface and ground water, sensitive surface water features and sensitive ground water features, and their hydrologic functions;*
 - g) planning for efficient and sustainable use of water resources, through practices for water conservation and sustaining water quality;*
 - h) ensuring consideration of environmental lake capacity, where applicable; and*
 - i) ensuring stormwater management practices minimize stormwater volumes and contaminant loads, and maintain or increase the extent of vegetative and pervious surfaces.*

- 2.2.2 *Development and site alteration shall be restricted in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored.*

Mitigative measures and/or alternative development approaches may be required in order to protect, improve or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions.

Section 3.1 Natural Hazards

- 3.1.3 *Planning authorities shall prepare for the impacts of a changing climate that may increase the risk associated with natural hazards.*

- 3.1.4 *Despite policy 3.1.2, development and site alteration may be permitted in certain areas associated with the flooding hazard along river, stream and small inland lake systems:*

a) in those exceptional situations where a Special Policy Area has been approved. The designation of a Special Policy Area, and any change or modification to the official plan policies, land use designations or boundaries applying to Special Policy Area lands, must be approved by the Ministers of Municipal Affairs and Housing and Natural Resources and Forestry prior to the approval authority approving such changes or modifications; or

b) where the development is limited to uses which by their nature must locate within the floodway, including flood and/or erosion control works or minor additions or passive non-structural uses which do not affect flood flows.

- 3.1.7 *Further to policy 3.1.6, and except as prohibited in policies 3.1.2 and 3.1.5, development and site alteration may be permitted in those portions of hazardous lands and hazardous sites where the effects and risk to public safety are minor, could be mitigated in accordance with provincial standards, and where all of the following are demonstrated and achieved:*

a) development and site alteration is carried out in accordance with floodproofing standards, protection works standards, and access standards;

b) vehicles and people have a way of safely entering and exiting the area during times of flooding, erosion and other emergencies;

c) new hazards are not created and existing hazards

d) no adverse environmental impacts will result.

2.6.2 Adjacent Land Uses

The Teeswater Bridge is located in Downtown Paisley and is adjacent to a variety of commercial, recreational and institutional land uses. More specifically, the site is adjacent to the following uses, zones, and designations:

Table 2.2
Adjacent Land Uses, Zones and Designations

	Use	Zone	Designation
North	Retail, library, arena, and mixed-use buildings	Central Business District (C1), and Institutional Urban (IU),	Central Business District, Institutional and Community Facility
East	Open Space and Residential	Environmental Protection (EP) and Residential: Low Density Single (R1)	Natural Environment and Hazard
South	Retail, restaurant, community facility, and mixed-use buildings	C1, EP, and Residential: Low Density Multiple (R2)	Central Business District
West	Open Space	EP	Natural Environment and Hazard

2.6.3 Bruce County Official Plan

The Bruce County Official Plan (OP) contains a transportation network plan in Schedule B, which is to be followed to facilitate the efficient movement of people and goods within and through the County. The road network consists of a range of road classifications, including Provincial Highways, Arterial Roads, Collector Roads, and Local Roads. The Teeswater Bridge forms part of Queen Street, which is designated as an Urban Arterial Road. The Plan states that County Council wishes to maintain and upgrade the Arterial highway system to ensure improved regional access to major markets and urban centres. Any re-routing of roads in the County Road system requires an amendment to Schedule 'B' of the County OP.

2.6.4 Arran-Elderslie Official Plan

The Arran-Elderslie OP contains policies that allow infrastructure for public roads in all land use designations, provided it is necessary, can be made compatible with its surroundings and that adequate measures are taken to ensure compatibility (subsection 3.9). The Plan also contains other relevant policies that should be considered, including policies for transportation, and for the Central Business District and Natural Environment and Hazard land use designations.

Transportation

The Teeswater Bridge forms part of Queen Street North (Bruce Road #3), which is designated as an Arterial Road on Schedule 'B' in the OP. This road classification is intended to carry large volumes of long and medium range traffic moving to points within or through the Municipality (subsection 6.2.1). Policies encourage an efficient transportation network and land use compatibility between transportation facilities and sensitive land uses (subsections 4.4.3.1(a) and 4.4.5(a)(ii)).

Central Business District

The Teeswater Bridge is in the centre of Downtown Paisley, which is designated as Central Business District in the OP. The Plan recognizes that the retention and attraction of commercial businesses is important to the long-term economic health of Paisley, and it is a goal of the Plan to enhance the viability of the downtown core area of Paisley (subsections 3.2 and 3.2.1.)

Township policies also require development to be compatible with cultural heritage resources, including significant buildings, structures, landscapes, vistas and/or archaeological sites of historic value (subsection 3.2.4(b)).

Natural Environment and Hazard

The Natural Environment and Hazard designation includes lands classified as natural hazards, such as lands susceptible to flooding, erosion, instability, and valley slopes of the Teeswater River. The OP states that “*no placing or removal of fill or construction of structures is permitted in this area without the issuance of a Fill and Construction Permit*” from the Saugeen Valley Conservation Authority (subsection 3.6.6).

Economy

Economic policies in the OP acknowledge the economic health of Paisley is important to those living in the community. It is a goal of the Plan to provide a positive economic climate to attract industry, encourage private investment, and create a wide range of employment opportunities. Paisley is promoted as one of the local service centres in the Municipality, with its downtown core as the commercial focal point. Policies promote the tourism potential of this area, including access to the Saugeen and Teeswater Rivers (subsections 4.1, 4.1.1, 4.1.2(a), (c), and (h)).

Environment

Environmental policies in the OP recognize that the natural features of the community of Paisley are centred around the Main Saugeen and Teeswater Rivers, which has shaped the location of land uses as well as the topography and layout of the settlement area. Policies aim to protect the rivers for their ecological, visual, recreational, and economic importance to the community (subsection 4.4.2(c)). Policies also aim to minimize flooding potential and to ensure no net loss of fish habitat (subsection 4.4.2(d)).

Heritage Conservation

The OP recognizes that there are features of historic, archaeological, or architectural significance in the Municipality and that Council will attempt to preserve them. Within the “Natural Environment & Hazard” designation, the Plan encourages measures which enhance public appreciation and visibility of interesting buildings, structures, or landscapes of historic, archaeological, or scenic value (subsections 4.2 and 4.2.1(b)).

2.7 Cultural Environment

Based on 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'.

2.7.1 Archaeological Resources

Certain areas of the site and study area have high archaeological potential (e.g., areas within 300m of a watercourse). For this reason, a Stage 1 & 2 Archaeological Assessment may be needed for the project if the recommended improvements involve disturbance of native soils.

2.7.2 Built Heritage Resources

Due to the age of the structure (constructed circa 1935), completion of a Cultural Heritage Evaluation Report (CHER) was required to assess the cultural heritage value of the crossing and to identify potential impacts associated with the proposed project. In November 2019, Timmins Martelle Heritage Consultants Inc. were retained to complete the evaluation report.

The report found that the structure has cultural heritage and for this reason, a Heritage Impact Assessment (HIA) was also prepared. The findings in the CHER indicated the bridge has physical/design value, historical/associative value, and contextual value as it:

- Represents a rare and early example of a curved concrete T-beam bridge in Ontario, which retains its original design features and is notable for its three continuous spans.
- Represents an ongoing infrastructural need to traverse the Teeswater River in this location.
- Is important to support the character of the area and is physically and visually linked to its surroundings.

Recommendations within the Heritage Impact Assessment (HIA) completed for the bridge, will be documented and incorporated into the design of the new structure. This will include the following:

- Documentation (drawings and/or photography) of the bridge, with particular attention to its triple-span, curved concrete T-beam structure should be made available to future researchers through the Bruce County archives.
- Railings of the new bridge should be designed in a style influenced by the originals and consider the landscape views of the Teeswater River from the bridge, and views of adjacent properties within the community.

The report is included within Appendix C.

2.7.3 Cultural Heritage Landscapes

A Cultural Heritage Landscape is defined within the 2020 Provincial Policy Statement as: “a defined geographic area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Indigenous community. The area may include features such as buildings, structures, spaces, views, archaeological sites or natural elements that are valued together for their interrelationship, meaning or association. Cultural heritage landscapes may be properties that have been determined to have cultural heritage value or interest under the Ontario Heritage Act or have been included on federal and/or international registers, and/or protected through official plan, zoning by-law, or other land use planning mechanisms”. Section 2.6.1 of the PPS states that “Significant built heritage resources and significant cultural heritage landscapes shall be conserved.”

There are no significant Cultural Heritage Landscapes that have been identified within the Municipality of Arran-Elderslie or the Community of Paisley.

2.8 Technical Environment

2.8.1 Identified Deficiencies

The Teeswater River Bridge is a curved concrete t-beam bridge constructed in 1935, consisting of three continuous spans. The bridge spans the Teeswater River in central Paisley along Bruce Road 3 and carries two lanes of traffic with a sidewalk on both sides of the bridge. The following deficiencies were noted during recent engineering inspections of the structure conducted by BMROSS:

- Deterioration of sidewalk soffit (See top right image in Figure 2.6)
- Concrete deterioration on girders (See bottom right image in Figure 2.6)
- Deterioration of expansion joints (See left image in Figure 2.6)
- Hydraulic Capacity (see image below)



View of bridge during flooding event in 2018

Figure 2.6
Bridge Deficiency Images



2.8.2 Preliminary Engineering Assessment

BMROSS, in conjunction with the County of Bruce, assessed the nature and scope of the problems associated with the structure, taking into consideration the findings of recent engineering inspections. Because so many of the bridge's components are at the end of their service life and because the remaining structure cannot be proven to safely support new components, the County's preferred alternative is to replace the bridge. For this reason, rehabilitation or repair of the bridge is not a feasible alternative.

3.0 CLASS EA PROCESS

3.1 Identification of Problem/Opportunity

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

Significant deficiencies have been identified with some structural components of the Teeswater River Bridge on Bruce Road 3 in central Paisley, which if not remediated, may have an adverse impact on the safety of the travelling public at the bridge site.

The bridge remediation plan considered during the preliminary engineering review called for the possible replacement of the existing structure. This work requires additional environmental assessment under the terms of the Class EA document. The proponent initiated the required Class EA investigation in October 2019. The investigation followed the planning and design process set out for Schedule C activities. Schedule C projects are approved subject to completion of all five phases of the Class EA process. The purpose of the Class EA process is to identify potential impacts related to the proposed bridge project and to plan for appropriate mitigation of any identified impacts.

3.2 Identification of Practical Alternatives

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

Alternative 1: Replacement of the existing bridge with a new bridge in the same location

This option involves the replacement of the existing structure with a new concrete bridge designed in accordance with established standards of the latest edition of the Canadian Highway Bridge Design Code. A new bridge would be in the same location and road approaches would be reconstructed to accommodate a wider bridge deck.

Alternative 2: Replacement of the existing bridge with a new bridge in a modified location

This option involves the replacement of the existing structure with a new concrete bridge designed in accordance with established standards of the latest edition of the Canadian Highway Bridge Design Code. A new bridge would be located in a modified location and road approaches would be reconstructed to accommodate a wider bridge deck and offset alignment.

Alternative 3: Do Nothing

The 'Do Nothing' alternative represents the least expensive alternative. It does not, however, resolve the problem of deterioration present at the current crossing or deficiencies presented by the narrow width of the bridge deck and current load posting. The implementation of this option would therefore not address these deficiencies. This option would only be considered if the negative impacts of implementation were considerable and could not be mitigated to an acceptable degree.

3.3 Evaluation of Class EA Alternatives

The third phase 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 examine potential mitigation for any identified impacts. The evaluation stage generally involved the following activities:

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

3.4 Environmental Considerations

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

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

Under the terms of the EA Act, the environment is divided into five general components:

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

The identified environmental elements can be further subdivided into specific components which have the potential to be affected by the implementation of the alternative solutions. Table 3.1 provides an overview of the Specific Environmental Components considered of relevance to this investigation. These components and sub-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 existing environmental setting of the project area. These components are relevant to the current Class EA investigation.

Table 3.1
Evaluation of Alternatives: Identification of Environmental Components

Element	Component	Sub Component
Natural	Aquatic	<ul style="list-style-type: none"> • Aquatic Resources • Species at Risk
	Atmosphere	<ul style="list-style-type: none"> • Air Quality, Noise
	Surface Water	<ul style="list-style-type: none"> • Water Quality/ Quantity • Hydrology
	Hydrogeology	<ul style="list-style-type: none"> • Groundwater resources • Geologic resources
	Terrestrial	<ul style="list-style-type: none"> • Birds, Mammals • Vegetation and terrestrial habitat
Social	Neighbourhood	<ul style="list-style-type: none"> • Disruption • Vehicular Access
	Community	<ul style="list-style-type: none"> • Health and Safety • Recreational Activities
	Regional	<ul style="list-style-type: none"> • Traffic Detours
Cultural	Heritage	<ul style="list-style-type: none"> • Historical/ Cultural Resources
	Archaeology	<ul style="list-style-type: none"> • Buried Historical Artefacts
Economic	Project Area	<ul style="list-style-type: none"> • Capital and Operational Costs
	Community	<ul style="list-style-type: none"> • Property Taxes and Property Values • Downtown Businesses
	Regional	<ul style="list-style-type: none"> • Gas Money/Time Lost due to Travel
Technical	Transportation	<ul style="list-style-type: none"> • Traffic Patterns/ Volumes • Pedestrian/ Vehicular Safety
	Infrastructure	<ul style="list-style-type: none"> • Condition/ Age • Servicing Capacity • Climate Change-Related Impacts

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

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

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

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

For the purposes of this Class EA, impact determination criteria developed by Natural Resources Canada have been applied to predict the magnitude of environmental effects resulting from the implementation of a project. Table 3.2 summarizes the impact criteria.

Table 3.2
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 3.2, the level of effect 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.







3.5 Environmental Effects Analysis




The potential interactions between the three alternatives and environmental features were examined as part of the alternative evaluations phase. The purpose of this analysis was to determine, in relative terms, the effects of the identified, practical alternatives on each of the environmental components and factors, using the impact criteria described in Table 3.2. Table 3.3 summarizes the outcome of the environmental effects analysis. This analysis forms the basis for identification of significant impacts which will be discussed later in this report.









Table 3.3
Environmental Effects Analysis






 High
  Moderate-High
  Moderate
  Low-Moderate
  Low
 - Minimal/Nil








Environmental Component (Subcomponent)	Option	Level of Effect	Impact Considerations (Implementation and Operational Activities)
Natural (Aquatic)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> Some impacts are anticipated to a Significant Wildlife Habitat for Special Concern and Rare Wildlife Species (i.e. Rainbow Mussels) Impact would be minimized through fish and mussel salvages in advance of construction In-water work would not be completed between March 15 to July 1, to minimize potential impact on spring-spawning fish Riparian vegetation will be maintained to the greatest extent possible A sediment and erosion control plan will be prepared to limit construction impact on the Teeswater River
	Alternative 2: Replacement (New Location)		<ul style="list-style-type: none"> Slightly more impact than Alternative 1 is anticipated to Significant Wildlife Habitat for Special Concern and Rare Wildlife Species (i.e. Rainbow Mussels), as a result of a road offset Impact would be minimized through fish and mussel salvages in advance of construction In-water work would not be completed between March 15 to July 1, to minimize potential impact on spring-spawning fish Riparian vegetation will be maintained to the greatest extent possible A sediment and erosion control plan will be prepared to limit construction impact on the Teeswater River
	Alternative 3: Do Nothing		<ul style="list-style-type: none"> No short-term impacts anticipated. Should the structure fail and need to be removed, there may be impacts to aquatic habitat that would result during removal.
Natural (Atmosphere)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> Moderate impacts caused from noise and dust is expected during the construction period Impacts will be short-term and last approximately 12 – 14 months
	Alternative 2: Replacement (New Location)		<ul style="list-style-type: none"> Moderate impacts caused from noise and dust is expected during the construction period Impacts will be short-term and last approximately 12 – 14 months
	Alternative 3: Do Nothing		<ul style="list-style-type: none"> No short-term impacts anticipated. Should the structure fail and need to be removed, moderate noise and dust impacts caused from the removal would be expected










Environmental Component (Subcomponent)	Option	Level of Effect	Impact Considerations (Implementation and Operational Activities)
Natural (Surface Water)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> Direct short-term impact to Teeswater River, due to construction activities related to removal and replacement
	Alternative 2: Replacement (New Location)		<ul style="list-style-type: none"> Direct short-term impact to Teeswater River, due to construction activities related to removal and replacement
	Alternative 3: Do Nothing		<ul style="list-style-type: none"> No short-term impacts anticipated Should the structure fail and need to be removed, moderate impact from construction activities would be expected
Natural (Terrestrial)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> Some impacts are anticipated as the bridge provides suitable habitat for Barn Swallows and Cliff Swallow nests are present in the area Impact would be mitigated as bridge demolition work would either occur outside of the general bird breeding period between April 1 to August 31, or measures would be implemented to prevent nesting on the structure prior to demolition Minimal impact is expected to vegetated areas and any disturbed areas would be restored with native species to minimize impacts.
	Alternative 2: (New Location)		<ul style="list-style-type: none"> Some impacts are anticipated as the bridge provides suitable habitat for Barn Swallows and Cliff Swallow nests are present in the area Impact would be mitigated as bridge demolition work would either occur outside of the general bird breeding period between April 1 to August 31, or measures would be implemented to prevent nesting on the structure prior to demolition Minimal impact is expected to vegetated areas and any disturbed areas would be restored with native species to minimize impacts.
	Alternative 3: Do Nothing		<ul style="list-style-type: none"> No Impacts anticipated. Should the structure fail and need to be removed, there may be impacts to terrestrial habitat which would result during removal.


Environmental Component (Subcomponent)	Option	Level of Effect	Impact Considerations (Implementation and Operational Activities)
Natural (Hydrogeologic)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> Minor impacts to geologic and groundwater resources may occur during excavation for the new bridge and temporary bridge foundations, as well as during dewatering of the associated excavations. Impacts are not expected to be significant given that the area has been previously disturbed due to previous bridge construction activity. Geotechnical assessments would be completed in advance of construction to ensure that suitable soils exist to support the new bridge foundations. No impacts are anticipated during operation of the new bridge.
	Alternative 2: (New Location)		<ul style="list-style-type: none"> Minor impacts to geologic and groundwater resources may occur during excavation for the new bridge and temporary bridge foundations, as well as during dewatering of the associated excavations. Impacts may be greater at a new location as subsurface conditions could be different than the current bridge location. Geotechnical assessments would be completed in advance of construction to ensure that suitable soils exist to support the new bridge foundations. No impacts are anticipated during operation of the new bridge.
	Alternative 3: Do Nothing		<ul style="list-style-type: none"> No Impacts anticipated.

Environmental Component (Subcomponent)	Option	Level of Effect	Impact Considerations (Implementation and Operational Activities)
Social (Neighbourhood)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> Some impacts related to noise, dust, and vibrations from construction are expected on nearby properties. Impacts are anticipated to last approximately 12 months during construction.
	Alternative 2: Replacement (New Location)		<ul style="list-style-type: none"> Some impacts to noise, dust, and vibrations from construction are expected on nearby businesses and residences. Impacts are anticipated to last approximately 12 months during construction Road offset could impact adjacent buildings, particularly on south side of bridge.
	Alternative 3: Replacement Do Nothing		<ul style="list-style-type: none"> No impacts anticipated. Should the structure fail and need to be removed, there will be some impacts on adjacent businesses and residences.
Social (Community)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> Moderate impacts to area residents are expected during construction due to the anticipated closure of the crossing for approximately 12 months Some impact to recreational uses (e.g., kayaking, fishing, and passive) is expected during construction Impacts are relatively short term and once completed, residents will have access to a more accessible sidewalk on both sides of the bridge.
	Alternative 2: Replacement (New Location)		<ul style="list-style-type: none"> Moderate impacts to area residents are expected during construction due to the anticipated closure of the crossing for approximately 12 months Some impact to recreational uses (e.g., kayaking, fishing, and passive) is expected during construction Impacts are relatively short term and once completed, residents will have access to a more accessible sidewalk on both sides of the bridge.
	Alternative 3: Do Nothing		<ul style="list-style-type: none"> Should existing deterioration on the bridge not be remediated, the structure could become unsafe for vehicles and eventually need to be closed to vehicular traffic.
Social (Region)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> Moderate impact from detours for out-of-town traffic, which use Bruce Road 3 to access cottages to the north
	Alternative 2: Replacement (New Location)		<ul style="list-style-type: none"> Moderate impact from detours for out-of-town traffic, which use Bruce Road 3 to access cottages to the north

Environmental Component (Subcomponent)	Option	Level of Effect	Impact Considerations (Implementation and Operational Activities)
	Alternative 3: Do Nothing		<ul style="list-style-type: none"> No impacts anticipated. Should the structure fail and need to be removed, there will be moderate to high impacts to out-of-town traffic
Cultural (Built Heritage)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> Moderate to high impacts to cultural heritage values are anticipated given that the bridge will be removed prior to construction of the new crossing. Documentation of the bridge will be conducted, with particular attention to its triple-span, curved concrete T-beam structures and made available to future researchers through the Bruce County Archives Impacts will be mitigated by incorporating features influenced by the existing bridge and maintaining landscape views of the Teeswater River, and views of adjacent properties.
	Alternative 2: Replacement (New Location)		<ul style="list-style-type: none"> High impacts to cultural heritage values are anticipated given that the bridge will be in a new location. Documentation of the bridge will be conducted, with particular attention to its triple-span, curved concrete T-beam structures and made available to future researchers through the Bruce County Archives Impacts will be mitigated by incorporating features influenced by the existing bridge and maintaining landscape views of the Teeswater River, and views of adjacent properties.
	Alternative 3: Do Nothing		<ul style="list-style-type: none"> No impacts initially, however if the deterioration is not addressed, the structure could fail at some point in the future and the heritage value of the structure would be lost.
Cultural (Archaeology)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> Construction of a new bridge at the site will require excavation of native soils to construct the new abutments and wider road approaches. These activities will potential impact buried cultural material. A Stage 1 & 2 Archaeological Assessment will be completed in advance of construction to ensure that archaeological materials are identified.

Environmental Component (Subcomponent)	Option	Level of Effect	Impact Considerations (Implementation and Operational Activities)
	Alternative 2: Replacement (New Location)		<ul style="list-style-type: none"> Construction of a new bridge at the site will require excavation of native soils to construct the new abutments and wider road approaches. These activities will potential impact buried cultural material. A Stage 1 & 2 Archaeological Assessment will be completed in advance of construction to ensure that archaeological materials are identified.
	Alternative 3: Do Nothing		<ul style="list-style-type: none"> No impacts anticipated.
Economic (Project Area)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> Construction of a new bridge at the site would result in the highest capital costs
	Alternative 2: Replacement (New Location)		<ul style="list-style-type: none"> Construction of a new bridge at the site would result in the highest capital costs.
	Alternative 3: Do Nothing		<ul style="list-style-type: none"> No impacts anticipated initially, however should the deterioration not be remediated and the crossing fail, the Municipality may be liable for damages to the surrounding environment and to any affected vehicles.
Economic (Community)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> Some impact is anticipated for small businesses located in downtown Paisley, particularly if there is an extensive detour Some short-term impact is anticipated to the Tourism industry during construction; however the new bridge may contain features to add value to the industry.
	Alternative 2: Replacement (New Location)		<ul style="list-style-type: none"> Some impact is anticipated for small businesses located in downtown Paisley, particularly if there is an extensive detour Some short-term impact is anticipated to the Tourism industry during construction; however the new bridge may contain features to add value to the industry.

Environmental Component (Subcomponent)	Option	Level of Effect	Impact Considerations (Implementation and Operational Activities)
	Alternative 3: Do Nothing		<ul style="list-style-type: none"> No impacts anticipated.
Economic (Regional)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> Minimal short-term impact related to additional fuel required for detour
	Alternative 2: Replacement (New Location)		<ul style="list-style-type: none"> Minimal short-term impact related to additional fuel required for detour
	Alternative 3: Do Nothing		<ul style="list-style-type: none"> No impacts anticipated.
Technical (Transportation)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> Moderate impacts to the local transportation network will occur during construction of the new crossing. Following construction, pedestrian crossings on the bridge will be improved and more accessible.
	Alternative 2: Replacement (New Location)		<ul style="list-style-type: none"> Moderate impacts to the local transportation network will occur during construction of the new crossing. Following construction, pedestrian crossings on the bridge will be improved and more accessible.
	Alternative 3: Do Nothing		<ul style="list-style-type: none"> No impacts initially, however if the deterioration is not remediated and the crossing fails, this would have a negative impact on transportation network.
Technical Infrastructure)	Alternative 1: Replacement (Same Location)		<ul style="list-style-type: none"> A new bridge structure would be designed to current standards and would be more resilient to climate-related impacts. Fewer maintenance requirements and greater longevity.
	Alternative 2: Replacement (New Location)		<ul style="list-style-type: none"> A new bridge structure would be designed to current standards and would be more resilient to climate-related impacts. Fewer maintenance requirements and greater longevity.

Environmental Component (Subcomponent)	Option	Level of Effect	Impact Considerations (Implementation and Operational Activities)
	Alternative 3: Do Nothing		<ul style="list-style-type: none">• Climate-related impacts would continue to be a concern if no efforts are made to improve the structure.• Continued deterioration, if not addressed, would threaten the safety of the road infrastructure at the bridge.• Does not address the problem

3.6 Evaluation Summary

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

Alternative 1 Replacement of the existing bridge in the same location.

Alternative 2 Replacement of the existing bridge in an offset location

Alternative 3 Do Nothing

The environmental impacts, which include impacts to the natural, social, cultural, and technical environments, were evaluated for each of the Alternatives and are summarized in Table 3.3.

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

Alternative two, replacement of existing bridge and construction of a new bridge crossing, will have similar impacts as the replacement proposed in Alternative 1. However, there would be increased impact on cultural and social environments.

Alternative three, the ‘do nothing’ alternative, has very few impacts initially. However, it does not address the current deterioration present at the crossing which, if not addressed, could make the bridge unsafe in the long term and lead ultimately to the structural failure of the crossing. Table 3.4 summarizes the comparison of alternatives process and indicates a preliminary preferred alternative based on anticipated impacts.

3.7 Identification of a Preliminary Preferred Solution

Based on the results of the assessments as reported above and a review of the economic components associated with the project, the County indicated a preference for Alternative 1, replacement of the crossing in the same location. There are a number of attributes associated with this Alternative which justified its consideration as the preferred option for addressing the deterioration present at the Bridge crossing.

- Addresses existing deterioration present at the bridge crossing
- Provides a full capacity crossing for use by residents and the traveling public for the next 75-100 years
- Was the most logical choice, given constraints presented by the existing road network and adjacent structures
- Provides improved hydrology through the bridge site and increases the resiliency of the road network
- Maintains historical connection between North and South Paisley

Table 3.4
Summary of Environmental Effects Analysis

		Alternative 1 (Same Location)	Alternative 2 (New Location)	Alternative 3 (Do Nothing)
Natural Environment	Aquatic Species and Habitat			
	Atmosphere			
	Surface Water			
	Terrestrial Wildlife and Habitat			
	Hydrogeological			
Social Environment	Neighbourhood			
	Community			
	Regional			
Cultural Environment	Archaeological Resources			
	Built Heritage Resources			
Economic Environment	Project Area			
	Community			
	Regional			
Technical Environment	Transportation			
	Infrastructure			
		Preferred Alternative	Most Impact on Environment	Does Not Address Problem

4.0 CONSULTATION PROGRAM

4.1 Public Consultation

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 phases of the Class EA study are summarized in this section of the report and documented in Appendix D. Comments received from the program and related correspondence are also discussed below and included in the appendix.

4.2 Notice of Study Initiation

The County of Bruce issued a Notice of Study Commencement for the Class EA on October 29, 2019. The notice introduced the purpose and intent of the Teeswater River Bridge Class EA process, identified that alternatives were being considered for the new bridge design as well as detour alternatives. The Notice of Commencement was advertised in the October 29, 2019, and November 2, 2019 issues of the Owen Sound Sun Times, the October 29, 2019, and November 5, 2019, issues of the Port Elgin Shoreline Beacon, and the November 2019 edition of the Paisley Advocate. The notice was circulated to all property owners near the bridge, including landowners on Queen St. S between Church St. and Inkerman St., as well as several property owners on Goldie St. A copy of the initial notice is included in Appendix D of this report.

4.3 Dedicated Website

A dedicated website for this project was launched in May 2020 at www.paisleybridgestudy.ca and it included information on the project, project updates and a contact form where comments could be submitted. Signs were posted adjacent to the bridge site to advertise the project to the travelling public and allow them to visit the website for further information. The website also allowed for additional input to be provided from area residents. More than 60 comments were submitted through the website portal.

4.4 September 22, 2020, Public Meeting

A public meeting was arranged to introduce the project to members of the general public as well as adjacent property owners, and to solicit their input on possible outcomes associated with the various alternatives being considered. Notice of the public meeting was issued September 9, 2020 and the meeting was held virtually on Tuesday, September 22, 2020 through the Zoom platform. The meeting included a formal presentation and a question-and-answer session. An audio version of the presentation was posted in advance of the meeting to provide residents with an opportunity to review the material before the meeting. Residents were asked to pre-register to participate during the meeting. The live broadcast was also able to be viewed on YouTube. The general purpose of the meeting was to provide audience members with the following:

- Project background
- A summary of the Schedule 'C' Class EA process and proposed schedule of the project

- A summary of input received from the public and agencies
- A description of the alternatives
- Design criteria for the new bridge
- A description of the detour options
- A description of the specialized studies completed
- A summary of future actions needed to complete the process

There were 32 residents and stakeholders that preregistered for the virtual meeting. Notes can be found in Appendix D along with a copy of the presentation material. Table 4.1 presents a summary of comments received as a result of the public meeting and other notification components of the initial phases of the Class EA process. A video of the public meeting was posted on the project website at www.paisleybridgestudy.ca.

Table 4.1
Summary of Public Comments:
Notice of Commencement and First Public Meeting

Individual	Comments/ Concerns	Response/Action Taken
Paisley Business Owner Oct 28, 2019 (via email)	<ul style="list-style-type: none"> • Concerned with impact of detour on their business. • Questioned if they will be able to launch canoes just upstream of bridge. • Concerned with the impact of bridge reconstruction on the downtown businesses. • Want to ensure that the new bridge railings do not obstruct the view of the river. • A viewing platform might be one way to allow pedestrians to safely view the river. 	<ul style="list-style-type: none"> • Response letter sent by email.
Paisley Resident Oct 29, 2019 (via email)	<ul style="list-style-type: none"> • Has three concerns with bridge replacement. The first is the visibility factor when trying to turn off Mill Drive onto Queen St as the current bridge blocks the view of the southward lane entirely. • The second is how to make it safer in that whole area. Perhaps next year's traffic study will come up with some possible solutions. • The last concern is traffic diversion. If the town is by-passed for up to two years it will kill Paisley, and a baily bridge, the best way, must have enough space for transport trucks to manipulate any corners easily. • I am sure you are already aware of these issues, but I thought I would reiterate them. 	<ul style="list-style-type: none"> • Response letter sent by email.
Paisley Business Owner Paisley Freshmart Nov 3, 2019 (via email)	<ul style="list-style-type: none"> • Own the only full service grocery store in Paisley • Comments reflect their own concerns as well as those of their customers. • They rely heavily on summer tourist traffic for people travelling to trailers or cottagers who stop to stock up on their way. This sustains them through the quieter winter months. • Asked if closure could be as short as possible or only during the fall and winter. • Could a pedestrian bridge or vehicle detour be provided in-town to allow residents to cross the river during the reconstruction. • Very concerned about potential impacts on their business and the families that work for them. 	<ul style="list-style-type: none"> • Response letter sent by email.
Paisley Business Owner Tomboi Ice	<ul style="list-style-type: none"> • Virtually all the businesses in Paisley lie on the main streets, Queen St South and Queen St North. This concentration of viable businesses relies on local and passing traffic. As a result, we strongly support the new bridge being located at the same location of the old 	<ul style="list-style-type: none"> • Response letter sent by email.

Individual	Comments/ Concerns	Response/Action Taken
<p>Cream Nov 5, 2019 (via email)</p>	<p>bridge, allowing the businesses in Paisley to survive.</p> <ul style="list-style-type: none"> • We would hope that the replacement project follows an efficient timetable, with a sensible detour, that permits businesses operate during the demolishing and construction phases. • We would like to propose that the installation of a temporary bridge be considered during construction, which would allow vehicular (not large trucks) and pedestrians to readily connect North and South Streets • Like many local residents the views for people passing along the Teeswater Bridge is a source of pride and attraction for locals and visitors. We would again strongly support the side railings of the new bridge to be ‘transparent’ and not a solid opaque structure. This would encourage divers to stop in Paisley and contribute to the local economy. • Thanks for the opportunity to comment and for being kept informed. 	
<p>Paisley Resident Nov 11, 2019 (via email)</p>	<ul style="list-style-type: none"> • Would like information on what the plan is for Teeswater Bridge in Paisley Ontario. Especially how they plan for the south residents to access the north side of the town. <p>Thanks.</p>	<ul style="list-style-type: none"> • Response sent by email.
<p>Paisley Business Owner Elora Soap Company Nov 17, 2019 (via email)</p>	<ul style="list-style-type: none"> • I am a property owner located in the vicinity of the Teeswater River Bridge in Paisley. • In the past few years, we have seen high water reaching the bottom of the bridge and flowing up from the nearest storm drains. Raising the height would be sensible. This will result in higher sidewalks, and variances to every store doorway. As a store owner with a stone doorway, I would appreciate as much notice as possible of what to expect. • I am also very concerned about the proposals for a detour. My biggest fear is a bypass, similar to the one in Scone/Chesley. This kind of reroute would kill a lot of small businesses like mine. Please do not create a permanent detour of our main street traffic. I support a temporary Bailey bridge. I like the idea that it would run from the current firehall to Ross St., behind the arena. • I am very passionate about this particular bridge, and this village. One day in a random act of creativity, I dreamed up a reality tv show/engineering competition to design a suitable replacement. It will be a real challenge. In it, I suggest the idea of dreaming big. Why not have a deck leading down to the river? Insurance would be more – but how much? What if it’s a reasonably low amount that could easily be fundraised? The kind of central role that this bridge plays in both the village and the county justify making 	<ul style="list-style-type: none"> • Response letter sent by email.

Individual	Comments/ Concerns	Response/Action Taken
	a beautiful space that lives up to our award-winning village brand – the Artistic River Village.	
	SIGNS ERECTED AT BRIDGE ON MAY 29, 2020	
Paisley Resident May 29, 2020 (via website)	<ul style="list-style-type: none"> • Keeping one lane of the bridge open during construction is very important to the livelihood of businesses in town who have already suffered so much. We cannot break our town in two and have people driving to Chesley or Port Elgin to shop because it's faster than the detour. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 29, 2020 (via website)	<ul style="list-style-type: none"> • Paisley Bridge detour 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 29, 2020 (via website)	<ul style="list-style-type: none"> • I hope that whatever design is selected helps to showcase the rivers. I don't want both rivers to be blocked by big blocks of concrete. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 29, 2020 (via website)	<ul style="list-style-type: none"> • Is there any possibility of making a temporary car and pedestrian bridge while this one is being replaced? I would think that anything heavier than a personal vehicle would have to reroute through Chesley or some other route. • Totally understand that it needs to be replaced! 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 29, 2020 (via website)	<ul style="list-style-type: none"> • I think a temporary bridge to connect the north and south of Paisley will be essential. Any out-of-town detours will not be feasible for a variety of reasons: Safety - access for emergency services Accessibility of services - for people without transportation to access grocery store, post office, bank, etc. Economy - businesses already struggling due to COVID—19 will be further harmed. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 29, 2020 (via website)	<ul style="list-style-type: none"> • As citizens we will have to cope with the inconvenience that results from this necessary construction. My wife and I have lived in the Village for over 60 years and have been and continue to be interested in maintaining the uniqueness of this community. My concern is for the design of the bridge. The present bridge has been a signature structure in the village for over 80 years. It is unique in the County. It's main attraction has been it's openness to the view of the two rivers. Hopefully this attribute can be maintained in some manner with the new bridge. 	<ul style="list-style-type: none"> • Acknowledgement email sent.

Individual	Comments/ Concerns	Response/Action Taken
Paisley Resident May 29, 2020 (via website)	<ul style="list-style-type: none"> • In my opinion.... a bailey bridge is the only feasible option for rapid response times for fire and emergency vehicles as well as to maintain the many village businesses that would be affected by the detours. • Detours would effectively hurt all of our businesses over the possible 2-year reconstruction... especially after the struggles of dealing with Covid-19. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 29, 2020 (via website)	<ul style="list-style-type: none"> • Would like to be kept updated, I am going to try and figure out how this will affect our gas station, and service centre. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 29, 2020 (via website)	<ul style="list-style-type: none"> • It would be great to have a classic heritage design that is timeless and coincides with our distinct downtown. It would also be nice to know what options are available for the detour and to keep our emergency services in mind when selecting a location. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 29, 2020 (via website)	<ul style="list-style-type: none"> • Temporary bridge detour please. Many walkers/bikers here. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 29, 2020 (via website)	<ul style="list-style-type: none"> • Please consider a temporary bridge. I don't like to drive on gravel and two of those options will require to do so. • Additionally, the two options that direct drivers to the east detours are going to greatly increase traffic on roads where Mennonite neighbours live and drive. One of those options brings traffic directly down the road in front of one of the schools on concession 5. That is not a particularly wide road either and is gravel. • I have had to travel that road to their school and been "stoned" by a gravel truck travelling on that same road. You simply cannot direct traffic past this school with children on bikes. • Please consult the Safety Officer, Kevin Martin from the Kincardine OPP detachment. He works with these communities. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • I feel that a temporary bridge is necessary for our village for many reasons...safety of all who live in our community being top priority and the small businesses in our village will struggle big time. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • Two major thoughts, is it possible the bridge could be replaced in 2 phases, east and west, allowing single lane traffic to flow? And 2, perhaps a design that will not be too ultra- 	<ul style="list-style-type: none"> • Acknowledgement email sent.

Individual	Comments/ Concerns	Response/Action Taken
	modern, considering Paisley is renowned for its Victorian Historic charm and the town square is located at the S end of the bridge.	
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • A temporary bridge would be necessary while a new bridge was being constructed to ensure emergency services would be available and timely. Not to mention to access the local businesses who have already taken a significant hit due to covid-19. • In regard to the new bridge, it would be nice to see a safer pedestrian crossing. Many people use the bridge to cross and frankly it's dangerous. Especially with young children and cars speeding fast. Thank you for the opportunity to voice our opinions. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • Temporary bridge option for the detour. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • I would think that a temporary/alternate bridge be put in while the Teeswater bridge is being replaced. Even a foot bridge for people to ACCESS those businesses and tourist attractions back and forth! • Everyone has to be aware of the economic impact on business and tourism that closure will have on the Village of Paisley. Regards, CJ, Resident and Home Owner 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • Please keep me up to date in what's happening. • Temporary bridge option please 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • A temporary bridge for local traffic/pedestrians only and one of the detours for traffic that is not local and just passing through. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • Temp bridge 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • I would love to see the option of a temp bridge! Being on the north end, I would need to go out of town and back into town just get simply pick up my mail. • The fire department on the other side of the bridge to my understanding, was going to be divided? But my concern is what if there is a fire, and we need that extra man power? I would like to see a temp bridge put in- as my child who is 4 is bussed out of town to the catholic school- that will only add more time to her already long bus ride (and I'm sure 	<ul style="list-style-type: none"> • Acknowledgement email sent.

Individual	Comments/ Concerns	Response/Action Taken
	many others).	
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • Unfortunately, there is no viable option besides a temporary bridge or second permanent bridge connecting the north and south ends of our town. Kids need to get to and from school and seniors and others who do not drive need to be able to get their mail and groceries not to mention emergency services. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • I think detour #3 would be best for Paisley businesses and local and tourists traffic. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • Live in Paisley and travel daily to Port for work. As well frequently go from one end of town to other for groceries, gas, etc. Would prefer a temporary bridge unless a small (tiny) detour is an option. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • As a Queen St. downtown Main Street small business, restriction to our core area without a temporary bridge for a season could be our end. Surviving Covid, will be a miracle. • New bridge, road construction and natural gas in subsequent summers will destroy us. A campaign that promotes the use of the temporary bridge as a special attraction might help inspire rather than deter. Creative engineering and marketing required. Our futures in your hands. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • Hello, I am a resident of Paisley and live on the south side of the bridge. This would very significantly affect our family. The grocery store, LCBO, arena and several businesses we use are on the north side. In addition my in-laws and other relatives live on the north side. A detour of 40 km is right out of the question. We rely on family to babysit our children and regularly rely on all of these businesses and services. I fully believe and support that the temporary bridge is the only option. Especially in the winter you may be cutting off people from food if there is a bad storm and they have to detour into the country. Sometimes these roads are closed and a detour into the country would not be an option. I realize the cost may be increased but I feel like it is an absolute necessity to have the temporary bridge option no matter the cost. Thank you, Michael Read 114 James Street Paisley. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • I really think we need the temporary bridge at least for car traffic. Division of our town for that length of time would be horrendous. 	<ul style="list-style-type: none"> • Acknowledgement email sent.

Individual	Comments/ Concerns	Response/Action Taken
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • I truly believe the temporary bridge is the best option. While I appreciate the extra cost I think it's worth it. The fact half our town would be subject to a delay in response from our fire department is a real concern. Plus we have a lot of people who don't drive that would be cut off from the pharmacy and post office or the grocery store. Thanks Nicole Slumskie 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Business May 30, 2020 (via website)	<ul style="list-style-type: none"> • As a long-time resident, current president of the Paisley and District Chamber of Commerce and business owner in Paisley, I am encouraged to see this communication from the county. I am definitely in favour of option 3 for the detour. It allows for the flow of traffic to come right into both the north and south ends of our downtown business district which is crucial for their survival particularly since the closures for COVID-19. Will the temporary bridge shown also be for pedestrian traffic? 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • Temporary bridge option would be the best solution for the residents of Paisley. Without the temp bridge Emergency response times would be severely impacted. People couldn't walk to needed resources (bank, grocery store, pharmacy, post office) and not everyone drives & there's no public transit. • With a temp bridge they can still cross the river. It would help us to continue to shop groceries, and support local stores. Along with for our children who have to be bused to schools in other towns/ cities this would make life a lot easier for re-routing. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • I hope that they put up a temporary bridge as it would have significant effects on the businesses in town. Also hope they put railings that we can see the rivers through and NOT SOLID CONCRETE !!!!! 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • I think it is vitally important to our village that the temporary bridge option be chosen. The detours are far too circuitous (really, there's a 43km option??) and our downtown businesses would not survive the disruption - especially so hot on the heels of this pandemic. We have lost so many businesses already, it could be the death of Paisley. • Property values will decrease just when they've finally started to rise. I'd prefer not to, but if I had to pay a little extra in taxes to ensure the temp bridge is built, I would do so gladly to ensure the least amount of disruption to our daily lives. Also I think it would be lovely to build a little look-out on both sides of the bridge for pedestrians to sit and view the rivers - see the salmon, watch canoes/kayaks. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident	<ul style="list-style-type: none"> • I know you probably don't want to hear it, but the only way this can be done is by 	<ul style="list-style-type: none"> • Acknowledgement

Individual	Comments/ Concerns	Response/Action Taken
May 30, 2020 (via website)	<p>building a temporary bridge so that people can still easily get from one side of town to the other.</p> <ul style="list-style-type: none"> • The detour is simply too long, for kids in school, trips to get groceries (especially in winter), and most importantly for emergency services. Imagine a house catching fire on the north side of town and the fire department having to drive that long detour to get there! Same for a medical emergency. There NEEDS to be a temporary bridge while the other is being replaced. 	email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • I have submitted a proposal for the Paisley bridge replacement already, I hope you have received it. If you haven't please email me, and I will send again. I am for the temporary bridge replacement option. • This time, however, I wanted to comment on the addresses as labelled on Queen St., north of the bridge, as marked on option 3. My place is labelled "1227 Sunset Drive" - in between 302 Queen St. N. and 326 Victoria St. N. My building's actual address is 306-312 Queen St. N., and my neighbour is not on Victoria St. - their address is 328 Queen St. N. You might want to correct that. I don't think there even is a Sunset Drive in Paisley. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • My husband and I have been discussing this, the best alternative we see would be the temporary bridge as shown in the photos. We do understand though that the County will make the decision based on the most economical option, regardless of what the residents of the village know is best for them to continue to lead normal lives. • If a temporary bridge is not feasible for vehicle traffic, at the very least install one for foot traffic so the village is not totally divided. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • What are the options being considered? What is the timeline for the repairs? Will there be a complete shutdown of traffic? 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 30, 2020 (via website)	<ul style="list-style-type: none"> • I think we would need a temporary bridge. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident May 31, 2020	<ul style="list-style-type: none"> • Temporary bridge would be best bet. 	<ul style="list-style-type: none"> • Acknowledgement email sent.

Individual	Comments/ Concerns	Response/Action Taken
(via website)		
Paisley Resident June 1, 2020 (via website)	<ul style="list-style-type: none"> • I have already sent a comment but wanted to add to it. When the bridge is built I believe the pedestrian path needs to be wider. It is dangerous and a little scary as it is now. Large trucks rush by inches from you and small children. Keeping a view of the river from the bridge is important we are the artistic river village so our rivers need to be prominent. Also a temporary bridge would be optimal rather than one lane open. We need to keep our businesses alive. Just getting kids to school from the north end would be an ordeal. Not to mention access to stores, groceries, mail, fire services, recreation facilities. Cutting of the town for months spells an end to our businesses. We have suffered enough in the last few months and must be allowed to rebuild. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 1, 2020 (via website)	<ul style="list-style-type: none"> • Definitely the temporary bridge! It would do a lot of harm to businesses on both sides of the bridge. People would not drive 30km around to buy what they needed. E.g.: if you needed to go to the Paisley Pharmacy and you're on north end of the bridge and had to drive that far to get to it, you might as well drive to Port Elgin! Shorter distance! 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 1, 2020 (via website)	<ul style="list-style-type: none"> • I wish to inform you that I prefer option #3. Detouring traffic around Paisley makes no sense at all other than being the least expensive. Using the other options leaves Paisley businesses at risk of failure never to reopen gain, creating a ghost town. The safety of residents with no complete fire, police and EMT services creates its own special issues for Paisley. Pedestrian traffic has to be included in option 3 as well. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 1, 2020 (via website)	<ul style="list-style-type: none"> • I believe it would be advantageous, practical and wise to have one more bridge in the Village of Paisley... once a new bridge is in place, traffic would be diverted to it while the old bridge is being replaced. There are two rivers, so why not two bridges? 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 1, 2020 (via website)	<ul style="list-style-type: none"> • Hello. We believe a temporary bridge should be put in place. Residents of Paisley need to be able to get around town without having a vehicle. Our businesses also need traffic going through to be able to thrive. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 1, 2020 (via website)	<ul style="list-style-type: none"> • Temp bridge is the best option. I really don't want to have to take either of the detours to get groceries, or support local business. What about those that don't drive and have to cross over the bridge for shopping. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 1, 2020 (via website)	<ul style="list-style-type: none"> • Interesting options for the detour, pretty much the only options. I would recommend the temporary bridge. If not for ease of getting to one side of town and back, but for emergency services purposes. I am a paramedic in the area and a volunteer fire fighter in 	<ul style="list-style-type: none"> • Acknowledgement email sent.

Individual	Comments/ Concerns	Response/Action Taken
	town. Thank You.	
Paisley Resident June 1, 2020 (via website)	<ul style="list-style-type: none"> • My husband and I would definitely vote for the temporary bridge option. Keeps the town connected. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 1, 2020 (via website)	<ul style="list-style-type: none"> • Given the current shutdown of our downtown businesses due to Covid, this additional potential shutdown will be especially challenging for small business trying to rebuild. Safety, especially in regards to emergency response time is also a real concern. Paisley is proud to be a “walkable” community - you can live in the village without an automobile and get virtually anything you need. This is a reason for some folks who have chosen to live here. A detour will not work for them. I believe that a temporary bridge is the only option. I think a temporary bridge that is repurposed once the new bridge is built is an excellent idea. Turn the temporary bridge into a highlighted feature of the 19 km of groomed walking trails in Paisley. We have waited a long time for this bridge, let’s make it worth our while. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 1, 2020 (via website)	<ul style="list-style-type: none"> • I think there should be an alternative temporary bridge in town. As a teacher at the school, it opens a whole can of worms trying to reroute buses and getting students who walk to school across the bridge. Also, the fire department needs access to the entire town. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Residents June 1, 2020 (via website)	<ul style="list-style-type: none"> • As residents of Paisley, we will be greatly affected by this bridge construction. We would prefer the temporary bridge option for local residents. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 1, 2020 (via website)	<ul style="list-style-type: none"> • I would like to make a suggestion about the building of the bridge. Many countries in Europe have often build the bridge elsewhere and then they bring it in when it’s completed. Lift it into place and do what must be done for completion. This cuts down on the time of the bridge being closed. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 2, 2020 (via website)	<ul style="list-style-type: none"> • To whom it may concern: For the past 6 years, our family has resided in Paisley just south of the Teeswater Bridge along Mill Drive. My wife, two toddlers, and I have engrained ourselves into the community by working with our parents who own Paisley Pharmacy, which is also on the south side of the bridge along the main street. Speaking as a resident, I feel that the construction of the bridge is welcome and overdue. The replacement of the outdated bridge would ensure the health and safety of locals and 	<ul style="list-style-type: none"> • Acknowledgement email sent.

Individual	Comments/ Concerns	Response/Action Taken
	<p>tourists who cross the bridge. With regards to the proposed detours out of town during construction, this would undoubtedly cause a great headache and inconvenience to residents. What used to take 2 minutes to drive to the pharmacy, grocery store, hardware store, etc. would take residents over 15 minutes instead. Children getting on southbound busses within town will have to be detoured even further out of town, adding to their already excessively long commute that no elementary or high school children should need to experience. Financial impact on local businesses would be evident and hard-hitting to their survival during an already financially difficult time as a result of the current pandemic. For example, free delivery services to homebound residents may not be financially feasible if deliveries are forced to detour out of town. Not only would detouring out of town be an incredible inconvenience for anyone traveling through Paisley, but it would also be a health and safety concern to force local residents to drive further out of town through roads that are often closed due to snow squalls with poor/no visibility, especially smaller gravel side roads as proposed on the maps. Detours out of town would further pose a health and safety risk to residents of the immediate area because our local firefighters and regional paramedics would not be able to respond to emergencies in a timely manner, as the detours out of town would add at least 10 minutes to their response time. Risking the health and safety by detouring travellers out of town seems grossly counterintuitive when the County is replacing the bridge with the intent of ensuring the future safety of others. I strongly support the idea of a temporary bridge during the replacement of the Teeswater Bridge. This would ensure that our emergency services would be operating in a safe and timely manner, and that travellers are not being put at risk detouring out of town driving on potentially treacherous roads just to get to the other side of the river for daily amenities. I understand that there would be a large cost to fund a temporary bridge, more so than a simple detour out of town would cost. But it is better to be safe than sorry when it comes to the accessibility of our emergency services to ensure the timely emergency response and health & safety of our local residents.</p>	
<p>Paisley Resident June 2, 2020 (via website)</p>	<ul style="list-style-type: none"> • Good Morning, I am 100% in favour of detour option 3 (temporary bridge between arena and fire hall). As a resident of Paisley I believe the extra cost of this benefits the town and county as a whole to warrant it. A detour around town would be devastating for all downtown businesses, as they rely on the summer tourist traffic for a large portion of 	<ul style="list-style-type: none"> • Acknowledgement email sent.

Individual	Comments/ Concerns	Response/Action Taken
	<p>yearly income. With a minimum detour around town of 20 minutes, in my opinion that is too long for most people to use come back into town if they are on route somewhere else. I also have a family member who lives on the south side of the bridge, and relies on walking to the grocery store for necessities on the north side, which would make things a lot harder if there is no pedestrian access maintained over the river throughout construction. If the construction/closure of the bridge spans across the winter months, residents that live on the south side also rely on the stores on the north side to avoid longer dangerous drives in winter weather. The impact on emergency services response time (specifically the fire department) for residents on the north side of the bridge would be very concerning as well. For the new proposed bridge, I feel that a railing system that still allows a visual of the river while walking or driving is essential. Similar to the existing railing system. Thank you for your time and consideration of these comments.</p>	
<p>Paisley Resident June 2, 2020 (via website)</p>	<ul style="list-style-type: none"> • If County 3 needs to be closed for a long term the impact on Paisley is huge. It will delay Emergency Services significantly, limit the ability of residents without vehicles to grocery shop and the traffic back up in the summer will be huge. When I was on Arran-Elderslie council there was some discussion about making a permanent alternative route around Paisley, is this still a possibility. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
<p>Paisley Resident June 3, 2020 (via website)</p>	<ul style="list-style-type: none"> • My partner and I moved to Paisley at the end of 2019, to open a new restaurant in Paisley. We are located on Queen Street North and opened for takeout on April 16, in the middle of covid19. We are very worried about the potential impact the bridge replacement might have on our business. We planned our business to be sustainable with the support of the Paisley & area residents, but if Paisley residents cannot even get to us, then I am worried about our business' ability to survive sustained periods of reduced traffic after being unable to fully open this year. We are strongly in support of a temporary bridge that would allow cars and pedestrians to cross the Saugeen. The other 2 detour options send people so far out of town, I fear they will simply go to a neighbouring town for whatever they need rather than shopping in town. Likewise, if visitors from neighbouring towns cannot pass through Paisley, I doubt they will come to us either. Additionally, we walk for most of our errands in town. If we have to drive to pick up our mail, etc., there will be increased cost for us in fuel, vehicle wear & tear and also the increased pollution in the environment. 	<ul style="list-style-type: none"> • Acknowledgement email sent.

Individual	Comments/ Concerns	Response/Action Taken
Paisley Resident June 4, 2020 (via website)	<ul style="list-style-type: none"> • Detour #3 would be more logical and convenient. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 10, 2020 (via website)	<ul style="list-style-type: none"> • It would be nice, on the new bridge, if you can still see the river. Same style as now, with the slats. Too pretty a view to not see if the sides are solid. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 10, 2020 (via website)	<ul style="list-style-type: none"> • I am a current resident of Goldie St. and I would like to see a temporary bridge so that I am able to get to the grocery store, liquor store and 3 take out places to access food. I would also like to see this bridge for Emergency Services to get to the North end of town in case of any emergency that may occur without having to be detoured around. That could possible pose a high risk in the event of fire or health services. As you are aware the Paisley Fire Department is located on Goldie St. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 10, 2020 (via website)	<ul style="list-style-type: none"> • My first suggestion was do it during lockdown but now that that's over. My second suggestion is PLEASE make it pretty. Maybe with a staircase down to the water and of course we need to make it a wee bit higher. It's the opportunity to create a masterpiece. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 11, 2020 (via website)	<ul style="list-style-type: none"> • Not sure if this would be an option, but I recall Clinton having the same issue, they built the new bridge beside the existing one, and once it was basically complete, they then shut the road down, removed the old bridge and simply swung the new one into place. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 11, 2020 (via website)	<ul style="list-style-type: none"> • As we don't have mail delivery in Paisley, and I don't have a car, not being able to access the post office will cause me a great deal of difficulty. With the limited availability of goods in Paisley, I rely on mail order for most of my needs. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Business Owner June 13, 2020 (via email)	<ul style="list-style-type: none"> • Thanks for your response. I'm not sure that this is the right time to make this pitch but I just wanted to remind the designer of the new bridge that it is very important to the citizens of Paisley that the both pedestrians and vehicular passengers be able to see through the side railings to view the dam and confluence of the river unlike the concrete bridge that spans Willow Creek. Hopefully we will be able to have input into this sort of decision. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident June 18, 2020 (via website)	<ul style="list-style-type: none"> • Good Morning, I prefer detour option #3. Assuming that erecting a temporary bridge may be the mostly costliest option, detour option #2 would also work well for me. I commute daily to Saugeen Shores for work. Thanks for the opportunity to comment. 	<ul style="list-style-type: none"> • Acknowledgement email sent.
Paisley Resident	<ul style="list-style-type: none"> • Do you know the expected date and duration of the construction? How long do you 	<ul style="list-style-type: none"> • Acknowledgement

Individual	Comments/ Concerns	Response/Action Taken
June 18, 2020 (via website)	expect the detour will be used? I am interested in attending your public consultation when it is allowed to occur.	email sent.
Paisley resident June 20, 2020 (via website)	<ul style="list-style-type: none"> It is important to me that the final bridge promotes a walkable Paisley and allows for a view of the river for visitors and citizens alike. As to the building stage: it would be difficult to access the North (other part of town) only by driving a detour, but whether it is worth building a temporary bridge depends on the length of the construction period. The closer detour should be allowed for local traffic- 48 km is out of the question for locals 	<ul style="list-style-type: none"> Acknowledgement email sent.
Paisley Resident June 29, 2020 (via website)	<ul style="list-style-type: none"> Foot bridge 	<ul style="list-style-type: none"> Acknowledgement email sent.
Paisley Resident June 30, 2020 (via website)	<ul style="list-style-type: none"> Possibly use a one lane temporary bridge (load restricted) from Queen Street to County Rd 11 just east of the Legion. The temporary bridge will need to be large enough for Fire trucks (and other emergency services) to service both sides of town. It allows business access from both sides of town. Maybe the military would participate. I understand that the cost of the temporary bridge is not going to be cheap. The new bridge is not going to be cheap. It will be a difficult task to balance the books and not adversely impact the town. 	<ul style="list-style-type: none"> Acknowledgement email sent.
Paisley Business Owner July 22, 2020 (via website)	<ul style="list-style-type: none"> Has there been any progress made with regards to the decision as to which of the 3 detours has been chosen? Is it perhaps time for another update? 	<ul style="list-style-type: none"> Advised that a Public Meeting was being organized for late summer.
Paisley Resident June 30, 2020 (via website)	<ul style="list-style-type: none"> A friend shared this bridge picture with me. It would be a perfect fit for Paisley's Artistic River Village. Incorporating the look of paddles with a shadow that highlights music (home of the very popular Paisley Blues Festival). I was hoping you could add this to your suggestion file (image attached showing railing that resembles piano keys). Thank you. 	<ul style="list-style-type: none"> Acknowledgement email sent.
Paisley Resident September 6,	<ul style="list-style-type: none"> The biggest concern for me is that the replacement bridge not be an ugly concrete slab with high-back concrete walls. If Paisley is to be labelled as the artistic village, the new 	<ul style="list-style-type: none"> Acknowledgement email sent.

Individual	Comments/ Concerns	Response/Action Taken
2020 (via website)	bridge should be the highlight. The amount of vehicular traffic that goes through paisley in the summer should have a good reason to stop, take pictures and most importantly, spend money at the local businesses. A covered bridge would be a huge tourist draw, a large amount of tourists that are visiting our areas are driving straight through to their destination, giving them this option to stop would greatly impact the downtown and Arran-Elderslie as a whole. It is something that will last for generations and throwing up an ugly concrete basic bridge would be such a missed opportunity for the village and community.	
Paisley Resident September 18, 2020 (via website)	<ul style="list-style-type: none"> Will a section of the bridge remain open to walk across? Or a pedestrian bridge be constructed so people on either side of the bridge don't need to detour out of town? Many people in town do not have a vehicle and walk to get their groceries or trips to other stores in our small town. How will that work in the winter? As many people will not be walking out of town to get groceries. 	<ul style="list-style-type: none"> Acknowledgement email sent.
Paisley Resident September 21, 2020 (via website)	<ul style="list-style-type: none"> Growing up in the Mill on the Teeswater River in Paisley, and having worked for Cowan Canoe/Kayak (located right at the Teeswater Bridge) for over 20 years, I have a special appreciation for the impact that the Teeswater Bridge has. It is at the heart of the community, and really portrays Paisley's character and essence. A bridge design with viewing platforms would be an absolutely perfect fit for this location. It would be a bridge that people would travel to, just to see it! I'm sure that this bridge is a unique challenge, but it also offers a very unique opportunity to showcase the beauty on either side of it. Maxwell Johnston, President- Paisley Blues Festival (named one of the Top 100 Festivals and Events in Ontario, Feb 2020) 	<ul style="list-style-type: none"> Acknowledgement email sent.
Paisley Resident September 21, 2020 (via website)	<ul style="list-style-type: none"> I prefer that a Bailey bridge is installed off Goldie Street across the river. Also hope that the railings on the new bridge are similar to the present ones where the river can be seen and not blocked by concrete sides!! 	<ul style="list-style-type: none"> Acknowledgement email sent.
Paisley Resident September 21, 2020 (via website)	<ul style="list-style-type: none"> How about 2 Bailey bridges, one for each lane of traffic-built side by side. They are cheap and can be completed in a few days. 	<ul style="list-style-type: none"> Acknowledgement email sent.
Paisley Resident	<ul style="list-style-type: none"> Thanks Kelly, great presentation and I appreciate the ongoing communication. 	<ul style="list-style-type: none"> Acknowledgement

Individual	Comments/ Concerns	Response/Action Taken
September 21, 2020 (via website)		email sent.
Paisley Resident September 21, 2020 (via website)	<ul style="list-style-type: none"> Interested in the decision that will be made on the detour 	<ul style="list-style-type: none"> Acknowledgement email sent.
Paisley Resident September 22, 2020 (via email)	<ul style="list-style-type: none"> As far as style, I personally don't like that the view of every river is being taken away, when you're driving. I know some bridges get ice and it's been decided that this is the best course of action. I'm looking for someone to tell me when ice has been a problem here as I really don't know. As a river town, I'd love to see the views maintained somehow, for folks driving through our pretty town. 	<ul style="list-style-type: none"> Response sent by email
Paisley Resident September 22, 2020 (via website)	<ul style="list-style-type: none"> My spouse is a firefighter and I know our biggest concern is making sure they are able to make it to a call anywhere in town within a reasonable time frame. If the detour is out of town this would stall their response time and could mean life or death in certain situations. It seems necessary to have a temporary bridge put in while they replace the other bridge. It would also help our small businesses. By directing traffic out of town, it will hurt our small businesses which have already taken a big hit with the covid shut down and restrictions. 	<ul style="list-style-type: none"> Response sent by email
Paisley Resident October 8, 2020 (via email)	<ul style="list-style-type: none"> Canada is famous for its hideous architecture. We are uniquely backward in our desperate try-hard cringe attempt to appear forward-thinking and making some kind of "statement". If anyone travels to Ontario, they wince at our deranged mess of block buildings and instead will be photographing the few areas yet to be destroyed like Casa Loma or the preserved areas of Elora. The only impressive government related structures were built over a century ago, everything since then is comically bad. Why is this? It's intentional. After the last world war, Canada began mass demolitions of heritage buildings (look up the razing of Toronto under Nathan Phillips) and replaced them with a type of architecture called "Brutalism". The horrendous structures you see everywhere that are sold to us as "modern" were actually devised as a form communist oppression. There's no difference between Russian occupied communist East Berlin and Canada. I know, I lived there. This tactic of using architecture as a weapon against the 	<ul style="list-style-type: none"> Acknowledgement email sent.

Individual	Comments/ Concerns	Response/Action Taken
	<p>citizenry was developed by the Bolsheviks and has been reshaping the west for 70 years. We're following a design scheme that contains ratios referred to as "angles of sorrow", the purpose of this form of architecture is to atomize and punish the citizens. Let's think about that.</p> <ul style="list-style-type: none"> • It's worked. We can't even comprehend anything else at this point. Anything for a buck, apparently. • There are thousands of villages like Paisley scattered across Europe that are breathtakingly beautiful. I'm told the reason why Europe can have beautiful bridges is because it's "old", yet much of Europe has been leveled flat in the last century and rebuilt twice. I'm then told its cost. Possibly, yet beauty pays for itself. If I have to live next to a twisted mess of concrete and steel, I'll be moving, and you'll be missing out on the countless people for generations who would stop and enjoy this feature. But maybe that's the point. I'm told we can only build bridges that last 50 years, yet elsewhere in the world, the ancient world is on display and still in full heavy use today. • You are in a unique opportunity to do far more than just replace a bridge. If the bridge, simply follows the design of tried and true classically beautiful design you are improving the texture of daily life of anyone who merely looks at it. The last thing anyone wants is a bridge that's a "statement" from some Borg or some architect's unwelcome ego. • I understand when I mention that 'beauty matters' I'm looked at as if I have two heads. • Realistically I understand there's very little I can do to influence anything here, but I just plead with you that you share this video with some involved in this project and have them consider what they're doing. Little seeds, big trees. • Thanks very much for your time, and I'd love to hear your thoughts. 	
<p>Former Water Resources Manager from SVCA October 14, 2020 (via email)</p>	<ul style="list-style-type: none"> • I'm offering the following thoughts on this project for your consideration. • The Fisher Mill Property at 316 Mill Dr. is presently for sale. It also includes the building on the opposite side of the river. The County and/or Municipality should investigate acquiring this property and then selling it following completion of the bridge project. Selling the property after the project is done would likely recoup the initial cost. While there is a large capital outlay necessary to purchase the property, there are advantages to temporarily owning it. Some of the benefits are as follows: 	<ul style="list-style-type: none"> • Response sent by email

Individual	Comments/ Concerns	Response/Action Taken
	<ul style="list-style-type: none"> • The site controls the dam and presumably the mill race and ancillary lands/river bed. The dam and/or mill race could be used to partially divert or control river flow during construction, if such is needed. • If the property is instead purchased by someone else there is no assurance that person will cooperate with the bridge project. There have been instances elsewhere where the owner of a private property integral to a municipal bridge project has been uncooperative, resulting in construction delays and additional costs. With the Fisher Mill property in the hands of the County/Municipality, that risk is eliminated. A private owner might also intend to operate the dam and mill race contrary to the interests of the bridge project. • The mill race can be permanently closed off. This action removes the need to accommodate it in the new bridge design, and avoids any future operational complications that might arise when owned again by a private individual. • Often historic mill sites have complicated or unclear land title elements, such as property boundaries, water rights, mill race obligations, and dam operations. If the Fisher Mill property happens to be in the hands of a new uncooperative owner and not the County/Municipality, it's possible the bridge project could be affected. Likewise, during the municipal ownership phase any inconsistencies in the title can be formally rectified, thereby reducing any future conflicts, when the property is sold back into private hands. • While owned by the County/Municipality all or parts of the buildings could be leased or rented out, if desired, to generate some revenue. There can be restrictions put on the renter to avoid any conflicts with the bridge construction. • As an alternative to a pedestrian walkway associated with the proposed temporary detour bridge downstream, the Fisher Mill property might be a suitable location for a prefabricated temporary pedestrian bridge. Following completion of the bridge project, the pedestrian bridge could be relocated for use elsewhere. Also, if the traffic detour is to be one of the out-of-town routes (and not use a temporary road bridge) a pedestrian bridge at the mill site is still advantageous. The design constraints at the mill site would be challenging but worth investigating. 	

Individual	Comments/ Concerns	Response/Action Taken
	<ul style="list-style-type: none"> • Old buildings near large construction sites can be at risk from damage due to vibrations. Solutions and sometimes lawsuits can be expensive. Although there are other buildings near the Teeswater Bridge site similarly at risk, at least by owning the Fisher Mill property it would remove one of the closer buildings from any claims for damage or any legal action by a private owner. • During the time the old bridge is removed and until the new bridge is completed there could be a gap created between the two adjacent sections of flood control dyke. As river floods can occur at any time of the year, it would be inadvisable to leave such a gap where flood water could conceivably escape the channel and enter the village. This gap needs to be sealed-off from being breached during a flood. Perhaps a steel sheet pile wall made watertight is an option to seal the opening during construction. • A river bar (island) has formed downstream of the south bridge pier. Removal of this bar while access is available during construction may be prudent. If only the surface material is removed and there is no excavation below the level of the adjacent river bed, it shouldn't be a loss of fish habitat and might even be considered an increase in granular/cobble substrate. • There is ongoing erosion at the toe of the flood control dyke upstream of the bridge. Repairing this area concurrent with the bridge project seems logical, subject to SVCA cooperation. • Although severe ice jams haven't been a frequent occurrence at the bridge site, it's possible that on occasion a hy-hoe working from the bridge might be needed to remove ice accumulation. Ideally, removable bridge railings make such work easier, but presumably that isn't allowed under the Bridge Code. As such, the railings should be designed in anticipation that excavation equipment may need to reach over the structure to access the river. • Public comments so far have mentioned the bridge should include a viewing platform and/or extra wide sidewalk. These are worthwhile features and one or both of them should be included in the design. • Related to the above comment, if a wider sidewalk or viewing platform is to be used, then the design should be robust enough to accommodate heavy equipment such as a hy-hoe working from the deck during ice removal. 	

Individual	Comments/ Concerns	Response/Action Taken
	<ul style="list-style-type: none"> • As you are already aware, photos showing the ice jam in 2018 are available from the SVCA. The SVCA also has ice height measurements collected on-site and on an hourly basis for that event. The measurements are relative to a local temporary benchmark on the bridge. The same information is also available for the George Grant Bridge on the Main Saugeen River. • Due to the Main Saugeen River confluence with the Teeswater River, moving river ice can be directed toward the east side of the Queen Street Bridge. Accordingly, the new bridge piers and erosion protection adjacent to the bridge structure should be designed to account for this direction of ice movement as well as the more conventional flow direction from the Teeswater River. As a performance indicator, the armour stone rip rap on the dyke northeast of the Teeswater Bridge has withstood ice impact rather successfully since the dyke was constructed, with no major repairs being required. • If my recollection is correct there is an underground sanitary sewer line under the river at or near the location for the proposed temporary bridge. The sewer line extends through the fire station parking lot. If the sewer line is present it will need to be protected during the detour bridge installation. • For soils information you may want to contact the SVCA, as they probably have soils reports for the dyke location, possibly including the proposed temporary bridge location. It should be kept in mind that this soils information was collected prior to the dyke construction. • As you are aware, old underground pipes and drains are often poorly documented at historic main streets. The 'As Constructed' drawings for the SVCA dyke or photos taken by SVCA staff during dyke construction might identify some buried pipes at the north end of the bridge. • Should you have any questions, do not hesitate to contact me. Regards, Gary Senior 	
Arran-Elderslie Resident October 21, 2020 (via mail)	<ul style="list-style-type: none"> • To whom it may concern – and for what it's worth (or not). • I enjoyed listening in on the Paisley Bridge Study public meeting on September 22. Some ideas that come to mind since: -Building a foot bridge first <p><u>Pros:</u></p> <ul style="list-style-type: none"> - Convenience and safety, pedestrians would have a quiet backroad style river crossing - Safer than trying to navigate with traffic on temporary bridge 	<ul style="list-style-type: none"> • Comments noted and filed.

Individual	Comments/ Concerns	Response/Action Taken
	<ul style="list-style-type: none"> - Fulfill desires of those who wanted something left of temporary bridge - A nifty unique feature for Paisley <p><u>Cons:</u></p> <ul style="list-style-type: none"> - Cost - Is there a decent location? - Across private land? - Privacy concerns? • If there is no temporary bridge and detours are used, a foot bridge could be a good compromise. • Fast access – a few firemen could take first and cross until truck comes around on detour. • South locals could walk across for some services – grocery, arena, etc. • North locals could walk across for bank, drugstore, etc. • North and east horses and buggies could park on their respective side and access both north and south • Convenience for construction. e.g. if tools are needed on the other side • Where could horses be tied up on south side of bridge? • Safety concern of major increase of traffic on Concession 6 between Bruce Road 11 and Sideroad 5. Hills and bends, poor visibility, meeting wide farm equipment. • Thanks Lisa for sending info papers and also zoom phone# access. I would be happy to follow future proceedings. 	

4.5 Review Agency and Stakeholder Circulation

Input into the Class EA process was solicited from government review agencies and identified stakeholders by way of direct mail correspondence. Agencies and organizations that might have an interest in the project were sent an information package detailing the purpose of the Class EA process, a description of the proposed alternatives and a general location plan of the project study area. The package was circulated to 14 separate review agencies and stakeholder groups on October 22, 2019. These parties were asked to comment on the project on or before November 29, 2019. Federal and provincial agencies responsible for Aboriginal affairs were also circulated details on the Class EA and were requested to advise if Aboriginal communities may be potentially impacted by this project.

Prior to the September 22, 2020 Public Meeting, a project update letter was prepared which summarized the information being presented at the Public Meeting and provided details of the meeting time and the location to access the presentation material. The information was forwarded to all agencies initially contacted in regards to the Class EA process. If unable to attend, it was offered to email a .pdf of the presentation material.

Appendix D contains a copy of the information circulated to the review agencies and stakeholder groups, as well as a list of those parties requested to comment on this project. The appendix also includes a copy of the request to the Aboriginal agencies and a list of the specific agencies solicited for input. Formal written correspondence from the review agencies is also provided. Table 4.2 summarizes the comments received.

Table 4.2
Summary of Review Agency and Stakeholder Comments:
Notice of Commencement and First Public Meeting

Agency	Comments/ Concerns	Response/Action Taken
Craig Newton, MECP (via email) November 8, 2019	<ul style="list-style-type: none"> • Noted that the Class EA process should include consultation with stakeholders, evaluation of alternatives, assessment of the effects of the proposed works, and identification of measures to mitigate any adverse impacts. • The Municipality has a responsibility to conduct adequate consultation with First Nation and Métis communities as part of the EA process. Provided a list of communities that should be contacted. • The crown is delegating procedural aspects of the consultation to the Municipality. EA report must also address impacts of Climate Change and Source Water Protection policies in the report. 	<ul style="list-style-type: none"> • Information noted and filed. • Response sent by email
Paul Elston SVCA November 19, 2019 (via email)	<ul style="list-style-type: none"> • Works being undertaken adjacent to the Saugeen and Teeswater Rivers will be subject to Ontario Regulation 169/06, Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses. • Concerned with works that may be constructed 	<ul style="list-style-type: none"> • Response sent by email.

Agency	Comments/ Concerns	Response/Action Taken
	<p>temporarily or permanently, within or adjacent to the channels that may impact flows. Would want to review any plans to provide proper feedback.</p> <ul style="list-style-type: none"> • Concerned with changes that may impact flow regimes and the passage of ice floes in the channel and/or impact flooding and erosion up or downstream. • Floodplain mapping is available for Paisley. The new structure design must address floodplain issues at this location on the Teeswater and Saugeen Rivers. • The SVCA owns and maintains the flood control dyke adjacent to the river. Parts of the bridge are also part of the Paisley flood control project. Any changes to either of these components must be reviewed and approved by SVCA. • The proponent must contact DFO regarding potential impacts to fish and fish habitat. 	
<p>Jack Van Dorp Bruce County Planning Dept. Nov 19, 2019 (via email)</p>	<ul style="list-style-type: none"> • The Planning Department supports the anticipated investment in this key piece of infrastructure for the County and the Community of Paisley. • We encourage consideration of bridge detail design that is supportive of the Paisley Community identity as the “Artistic River Village” and provides for a high-quality pedestrian experience in this downtown location while also addressing the vehicular transportation function. • We recommend consultation with SVCA regarding historical and predicted floodwater flows for the Teeswater River and a design that provides a robust safety factor • We encourage coordination with anticipated redevelopment of the Paisley Inn property, located at 604 Queen Street South in close proximity to the bridge site, as there may be opportunities to minimize disruption to traffic flows and ensure adequate stormwater flow capacity. • This Bridge replacement may present an opportunity to work with the Municipality of Arran-Elderslie to develop a pedestrian/bicycle route using the railway trestle bridge and municipal properties between the rail trail and Church Street (conceptual route in blue on attached airphoto generally follows existing informal trail). 	<ul style="list-style-type: none"> • Response letter sent by email.
<p>Neil Mackay Ministry of Culture (MSTHCI)</p>	<ul style="list-style-type: none"> • Their Ministry has concerns related to archaeological resources, built heritage resources, and cultural heritage landscapes • As part of the Class EA process the project should be 	<ul style="list-style-type: none"> • Information noted and filed

Agency	Comments/ Concerns	Response/Action Taken
December 13, 2019 (via email)	<p>screened to identify potential impacts to heritage resources.</p> <ul style="list-style-type: none"> • The Class EA report should document the results of the screening exercise and how the results were incorporated into the project. 	
Ian Reich, Program Manager, Grey Bruce Health Unit June 18, 2020 (via email)	<ul style="list-style-type: none"> • A strategic priority and primary concern of the health unit is injury prevention. • Concerned with interactions between vehicles and cyclists/pedestrians. • Detour options 1 & 2B are of concern to the Health Unit due to routing past two Mennonite schools (Cedar Echo and Wildwood). Many children and family members use the routes to go to school and the roads may have insufficient shoulders which compounds the concerns. • Suggest that we undertake additional consultation with the Mennonite Community to address this concern. • Also concerned that detour options 1 & 2 would limit access for Paisley residents to travel north and south within the community. • Due to these concerns, the Health Unit is suggesting that Detour Option 3 be selected for the Health & Safety of the Community. 	<ul style="list-style-type: none"> • Information noted and filed. • Asked for contact information for the Mennonite Community.
Scott McLeod Public Works Manager Arran- Elderslie September 2 & 16, 2020 (via email)	<ul style="list-style-type: none"> • Below are some of my opinions on behalf of the works department in Arran-Elderslie. • Option 1 - Lengthy detour – Bruce County Road 40 is a half load road during spring break-up. • Option 2A – Not in our Municipality with gravel. • Option 2B – Not sure how well it would take constant truck traffic. One section of gravel, could be addressed based on proposed funding. • Option 3 – Town would like for local business access and Fire protection for Fire Department. Probably not practical for heavy truck traffic and summer tourist traffic volumes. • Thanks for letting me comment. • FYI there is a 6-inch cast iron watermain crossing the Teeswater River, buried in the river (4 ft approx.) along the east edge of the present bridge. • Sanitary sewer doesn't cross the river at this location but comes to the abutments at both ends. • When construction is taking place on the bridge and Queen Street North blocked off would Bruce County 	<ul style="list-style-type: none"> • Information noted and filed.

Agency	Comments/ Concerns	Response/Action Taken
	<p>consider road reconstruction on the north side of the bridge? Watermain and services are due for replacement along Queen Street up to Cambridge Street. Sanitary sewer should be adequate. Bruce County could comment better on the Storm sewers. Sidewalks could be addressed. Queen Street South could use infrastructure work as well, but would not be practical for detours with Bridge Construction.</p> <ul style="list-style-type: none"> • For Detour Option 2B, with some financial assistance the Municipality could review the gravel section on Sideroad 5 Elderslie. With some construction upgrades and a surface treatment top completed (LCB) this may make this proposed detour more promising for vehicle traffic. 	
<p>Don Huston, Roads Supervisor Municipality of Kincardine September 10, 2019 (via email)</p>	<ul style="list-style-type: none"> • The section of Sideroad 30 between Bruce-Saugeen Townline and Conc. 12 I wouldn't recommend it a narrow road with a big hill within that road section • The structure on Conc. 10 may need some asphalt repair to each end I will have to check Sideroad 30 for culvert conditions also Conc. 10 has some wheel rutting issues 	<ul style="list-style-type: none"> • Information forwarded to project engineer.
<p>Rob Bonderud Fire Chief Paisley Fire Department September 14, 2019</p>	<ul style="list-style-type: none"> • Unfortunately there aren't many good options for the detour around the Queen Street Bridge over the Teeswater River! Having said that I would definitely like to see a temporary bridge installed. The main concern I have with that is losing parking spaces for firefighters at the Fire Hall. Option 2B is the shortest route but does involve some gravel portions which would not be very suitable for large truck traffic or high traffic volumes. • What is the anticipated time frame for the bridge replacement? • The temporary bridge is certainly my preferred option. I'm hoping AE is on their way to a new hall by then at a different location! 	<ul style="list-style-type: none"> • Information noted and forwarded to project engineer.
<p>Karla Barboza (MHSTCI) September 16, 2019 (via email)</p>	<ul style="list-style-type: none"> • I hope this email finds you well. Just to let you know that the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) has received the PIC notice for the Teeswater Bridge Replacement. Please note that there has been some changes in our offices (see information below) and this file has been reassigned to Katherine Kirzati (copied). Could you please include both Katherine and I as the contacts for this file and remove Neil Mackay. 	<ul style="list-style-type: none"> • Information noted and filed.

Agency	Comments/ Concerns	Response/Action Taken
Jason Weppler Grey-Bruce Health Unit September 21, 2021 (via email)	<ul style="list-style-type: none"> • Thank-you for including the Grey Bruce Health Unit on this correspondence. • I am unable to attend the virtual meeting tomorrow evening but would appreciate if any materials could be forwarded for review. 	<ul style="list-style-type: none"> • Provided link to project website to access the presentation material on-line.
Kevin Martin (OPP) for Bishop Shantz (Mennonite Community) October 7, 2020 (via email)	<ul style="list-style-type: none"> • I received a message from Bishop Lloyd Shantz today. • He appreciates the information that you shared (he participated in the teleconference) and advised that he plans to continue following as the construction unfolds. • No concerns were raised at this time from his community. 	<ul style="list-style-type: none"> • Information noted and filed.
Rob Bonderud Fire Chief Paisley Fire Department October 21, 2020 (via email)	<ul style="list-style-type: none"> • I have had a chance to physically drive the detour routes. Although it isn't law for us, the recommended time frame to be on scene is 10 firefighters in 10 minutes. The bulk of our responses are medical in nature for which time is definitely a factor if we are to make a difference. I would say the firefighters residences are equally split between north and south of the Teeswater River Bridge. A response will be doubly impacted by the bridge closure because the firefighters will need to respond to the hall somehow and then get to wherever the emergency is occurring. • Detour Option 1 - this is not a viable option at all for firefighters. This would be a sensible solution for large vehicle traffic • Detour Option 2A - unless I'm mistaken, the gravel road between Conc 12 and the Bruce Saugeen Townline is no winter maintenance? I did drive Conc 12 to Bruce Greenock North. That drive was about 14 mins long with a gravel portion • Detour Option 2B - 10 mins long with a gravel portion • Detour Option 3 - In my opinion this is the only option that I would support. I realize there will be a large cost associated with this route but as far as emergency response capabilities go, this is the only option that will not seriously affect our response times. • The Paisley FD will deal with whatever option chosen by Bruce County by additional apparatus placed around the village. • Feel free to contact me if more information is required. 	<ul style="list-style-type: none"> • Information forwarded to the project team.
Katherine Kirzati,	<ul style="list-style-type: none"> • Thank you for notifying us of the Virtual Public Meeting held for the above referenced project on 	<ul style="list-style-type: none"> • A copy of the Cultural

Agency	Comments/ Concerns	Response/Action Taken
Heritage Planner (Ministry of Culture) October 22, 2020 (via email)	<p>September 22nd. MHSTCI notes that slide 4 of the presentation indicates the completion of a cultural heritage report last winter. Please provide a copy of the cultural heritage report for our review and retention.</p> <ul style="list-style-type: none"> • In addition, could you provide us with an update on the status of archaeology for this undertaking. • Do not hesitate to contact Katherine Kirzati with any further concerns. 	<p>Heritage Report was forwarded for review.</p> <ul style="list-style-type: none"> • Advised that archaeological impacts would be considered once a design was confirmed.
Constable Kevin Martin South Bruce OPP November 19, 2020 (via email)	<ul style="list-style-type: none"> • 13127 – Fig 3.3 – Detour Option 3 is the preferred option for South Bruce OPP. • Thank you for the opportunity to provide input as you move forward with this project. • Have a great day, 	<ul style="list-style-type: none"> • Information noted and filed.
Katherine Kirzati, Heritage Planner (Ministry of Culture) November 16, 2020 (via phone)	<ul style="list-style-type: none"> • Reviewed the draft CHER/HIA report with Katherine • She asked that the report provide additional documentation regarding the need for the replacement of the structure. She didn't think the current report provided sufficient rationale 	<ul style="list-style-type: none"> • Updated the report to reflect the comments.

4.6 Consultation with Indigenous Communities

4.6.1 Background Review

The Crown has a duty to consult with Indigenous and Métis communities if there is a potential to impact on Indigenous 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.

To identify Indigenous Communities potentially impacted by the project the Aboriginal and Treaty Rights Information System (ATRIS) was consulted. A search was conducted for Indigenous Communities, including their traditional territories, within a 50 km radius of the project study area. Utilizing this process, six aboriginal communities were identified in conjunction with this project as follows: Chippewas of Saugeen First Nation, Chippewas of Saugeen First Nation, Saugeen Ojibway Nation (SON) – Chippewas of Saugeen & Chippewas of Nawash, Historic Saugeen Métis, Metis Nation of Ontario, and Great Lakes Métis Council. Correspondence was subsequently forwarded to each community/organization detailing the proposed bridge project and asking for input.

4.6.2 Initial Consultation Phase

Appendix D contains a copy of the information circulated to the Indigenous Communities. A response was received from the Historic Saugeen Métis (HSM) and a reply was sent by email. A summary of the comment received is included below.

Table 4.3
Summary of First Nations Consultation:
Initial Consultation Phase

Aboriginal Community	Comments/ Concerns	Response/Action Taken
Chris Hachey Historic Saugeen Métis Oct 29, 2019 (via email)	<ul style="list-style-type: none">• The Historic Saugeen Métis (HSM) Lands, Resources and Consultation Department appreciates the opportunity to be consulted on this project.• HSM interests related to the study largely focus on environmental effects / sustainability and the potential for archaeological resources associated with future development.• HSM looks forward to further consultation regarding this project as information becomes available.	<ul style="list-style-type: none">• Response sent by email.

4.6.3 Detailed Design Phase

Following the second public meeting and confirmation of the preferred location for the temporary detour and other design details associated with the new bridge, correspondence was forwarded to the Saugeen Ojibway Nation (SON) as well as the Historic Saugeen Metis (HSM). The letter provided additional details on the proposed bridge design, the location of the temporary detour bridge and approaches, environmental mitigation measures to be implemented during construction, and preliminary engineering drawings. Additionally, SON was contacted to participate during the Stage 2 archaeological field work and a copy of the Archaeological Report was forwarded to HSM for their review upon completion.

4.7 Class EA Phase 3

4.7.1 General

Phase 3 of the Class EA process involves the consideration and review of detailed design alternatives associated with the preferred solution. The preferred solution associated with the Teeswater River Bridge in Paisley, is to construct a new bridge crossing in the same location as the existing crossing. Given that the existing structure was determined to have heritage value, the design alternatives being considered will incorporate design components associated with the original crossing. Other features that will be considered are the style of railings and width of the sidewalks, which were features of concern identified by residents.

Another component of the project that will be reviewed in more detail during Phase 3 of the Class EA process is detour alternatives. As noted within Section 2.2 of this report, the existing crossing is in central Paisley spanning the Teeswater River, which bisects the community. During construction of the new bridge, this vital link within the community will be removed for a period of 12 to 14 months. This could result in significant impacts to local businesses, residents, and the community. Accordingly, several detour alternatives were identified during Phase 2 of the Class EA. A more detailed review of the alternatives will now be undertaken, and a preferred option recommended for implementation during construction of the new bridge.

4.7.2 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 with an opportunity to review conceptual designs of the proposed replacement bridge structure as well. A Public Notice was therefore placed in local papers and directly circulated to interested parties and residents living within close proximity to the bridge site. Residents who previously provided input on the project, were also contacted directly.

4.7.3 May 18, 2021, Public Meeting

A virtual public meeting was arranged to update members of the public as well as adjacent property owners, and to solicit their input on possible outcomes associated with the various alternatives being considered. Notice of the public meeting was issued May 5, 2021 and the meeting was held virtually on Tuesday, May 18, 2021 through the Zoom platform. The meeting included a formal presentation and a question-and-answer session. As with the first public meeting, an audio version of the presentation was prepared and posted on the project website in advance of the public meeting. Conceptual renderings of the new bridge were also prepared so that residents could visualize the new bridge's appearance. The purpose of the meeting was to provide audience members with the following:

- Brief Project background
- A summary of previous input received from the public and agencies
- A description of the detailed design alternatives
- A description of the detour alternatives
- A description of the hydrology investigation completed
- A summary of future actions needed to complete the process

There were 25 residents and stakeholders that preregistered for the virtual meeting. Notes can be found in Appendix D along with a copy of the presentation material. Table 4.1 presents a summary of comments received as a result of the public meeting and other notification components of the initial phases of the Class EA process. Comments received after notice of the meeting was sent, are included within Table 4.4.

Table 4.4
Summary of Public Comments from May 18, 2021, PIC

Agency/Individual	Comments/ Concerns	Response/Action Taken
Paisley Resident May 11, 2021 (via project website)	<ul style="list-style-type: none"> • Please keep the railings open like the new bridge on 10th street in Owen Sound. Also we need a Bailey bridge set up for the duration of the project for businesses to survive on both sides of the river. Thanks 	<ul style="list-style-type: none"> • Information added to council summary.
Paisley Resident May 13, 2021 (via project website)	<ul style="list-style-type: none"> • It is extremely important not to cut one end of the town off from the other (for the businesses) on the other hand, the faster the job is completed, the better for the same businesses. We shop in Paisley at the grocery store and hardware store, post office and frequent the restaurants and vet clinic etc. 	<ul style="list-style-type: none"> • Information added to Council Summary
Paisley Resident May 14, 2021 (via project website)	<ul style="list-style-type: none"> • With the planned bridge in Paisley, could you tell me how wide the proposed viewing platforms will be? Thanks! 	<ul style="list-style-type: none"> • Provided details on the proposed viewing platforms
Paisley Resident May 17, 2021 (via email)	<ul style="list-style-type: none"> • Hi Kelly! I have 1 more question: I put together the Paisley Blues Festival, and for 2021, we will be presenting a Summer Series of Live Music, taking place each Saturday until the end of August. We will be setting up the stage in the parking lot behind the Paisley arena. I'm just wondering if there is going to be any construction starting this summer in that area, as that is exactly where the temporary bridge will be landing when the bridge project starts. Thanks! 	<ul style="list-style-type: none"> • Responded indicating that there would be no conflicts with the proposed festival in 2021.
Paisley Resident May 17, 2021 (via email)	<ul style="list-style-type: none"> • Thank you for the presentation of the environmental, hydrological and technical considerations regarding the Paisley Teeswater bridge replacement. • I understand that BM Ross has tried very hard to respond to the design wishes expressed in this particular mid-town bridge. • Personally I don't think the separation between pedestrian and driving lanes would be an improvement. As your engineers pointed out, the salt would still run under the bridge from the sidewalk. • Structural and Code requirements seem to mean more of a solid boundary. My only question is for the railing on top of the 33" concrete boundary: Given that the concrete edge (together with the curb) would be sufficient in retaining an errant 	<ul style="list-style-type: none"> • A response from the project engineer was forwarded confirming the proposed railing would not be as "beefy" as the example shown in the presentation.

Agency/Individual	Comments/ Concerns	Response/Action Taken
	<p>vehicle from jumping the bridge, I do wonder if I would not be possible to have lighter steel banisters. Everything has bulked out visually, but especially the uprights seem awfully “beefy”.</p> <ul style="list-style-type: none"> • Are these elements coming from China at a mass discount and that is why they are used everywhere, or do the specs really require such a heavy railing? 	
<p>Paisley Business Owner May 18, 2021 (via project website)</p>	<ul style="list-style-type: none"> • The presentation on Tuesday evening was excellent and we are very pleased with the detour suggestion of the in-town bridge, the design of the new bridge, and the many considerations made from public input. We believe this will cause the least disruption to our lives and our grocery business. Thank you. 	<ul style="list-style-type: none"> • Information added to Council Summary
<p>Paisley Resident May 19, 2021 (via email)</p>	<ul style="list-style-type: none"> • I didn't catch some dates in the presentation, and I was hoping you could provide me with some so we can plan and advise our residents and organizations to support the proposal accordingly. • Is there a deadline to submit feedback from the community on last night's presentation? • Is there a projected date this will go to Bruce County Council so we can ensure we submit our letter(s) of support in time for this? • Thanks again for all the work thus far. I was really impressed with the amount of thought and consideration that has gone into the plans presented. 	<ul style="list-style-type: none"> • Comments added to Council Summary and details on timing for input was provided.
<p>Paisley Resident May 20, 2021 (via email)</p>	<ul style="list-style-type: none"> • Good morning Kelly • Thank you and the Teeswater Bridge team for the excellent community update on Tuesday evening. It was thorough and informative and more importantly, inclusive. I was really encouraged by the scope of the information and input gathered that is reflected in the overall plan. I like the proposed design and detour plan. I have received positive feedback from several members of the community as well. • When I heard the answer to my question about designing a bridge to slow people down, my immediate response was, Bingo! The answer, “to design a bridge so beautiful, it slows traffic” is what I would like to see us do. I think the proposed design is lovely. I especially like the expanded viewing platforms. I think adding a bit of an embellished cement “gateway” to the 	<ul style="list-style-type: none"> • Comments added to Council Summary.

Agency/Individual	Comments/ Concerns	Response/Action Taken
	<p>entryways as well as ornamental street lamps, could help to achieve the goal of slowing folks down. The beautiful bridges found throughout Europe are what comes to mind - something simple, understated, enduring that adds to the Artistic River Village is what I would like to see. I am not a fan of the painted designs on the current bridge and I think we need to be cautious not to overwhelm the streetscape with art as it could become garish. I see this as an opportunity to add a bit of an artistic flair for years to come. Hoping we can work together to explore this possibility as the plans unfold and firm up.</p> <ul style="list-style-type: none"> • Thank you again for fostering community engagement with this project. It is one of the most common topics my constituents want to talk about as it will have a large and lasting impact on our community. 	
<p>Paisley Business Owners May 21, 2021 (via email)</p>	<ul style="list-style-type: none"> • Hi Kelly, and thank you for the serious and thoughtful consideration and efforts made on behalf of our community. We feel “heard”. • On behalf of Tomboi Artisan Ice Cream a heart-felt thank you as well. We are only open three years, and two of those in COVID, a year of detour, may well have finished us... • Two questions: • What is the additional cost estimated to allow for infrastructure that could be maintained at “Lego bridge” site? What other factors to be considered beyond dollars? • Is there a way that we can either avoid and or minimize the GPS messaging regarding the “bridge out” indicator? As mentioned in public meeting. Thank you again. 	<ul style="list-style-type: none"> • Response provided to questions.
<p>Paisley Resident May 25, 2021 (via email)</p>	<ul style="list-style-type: none"> • Thanks for the opportunity to comment. • I'll keep it brief - I support all of the recommendations. The new bridge is visually appealing and accessible. This will be short term pain for long term gain. • Thanks to the team for all of the work 	<ul style="list-style-type: none"> • Comments added to summary for Council
<p>Paisley & District Chamber of Commerce May 25, 2021 (via email)</p>	<ul style="list-style-type: none"> • Attached is a letter of support for the recommendations for the Paisley Bridge replacement from the Paisley & District Chamber of Commerce. Thank you again for your team’s engagement with the community and taking our 	<ul style="list-style-type: none"> • Petitions are attached to the end of this document

Agency/Individual	Comments/ Concerns	Response/Action Taken
	<p>concerns and feedback seriously. It's reassuring during this time when there's so much uncertainty.</p> <ul style="list-style-type: none"> • There is also a community petition which I will send first thing in the morning. Let me know if you have any concerns or questions. • Thank you so much! 	
<p>Scott McLeod May 26, 2021 Public Works Manager, Municipality of Arran-Elderslie (via website)</p>	<ul style="list-style-type: none"> • From the Public Meeting BM Ross conducted on the Teeswater Bridge last week. The Council of Arran-Elderslie would like a report to review the details, detour and highlights. Everyone that has talked to me has praised your meeting. From this report submitted to the Council, they would like to endorse the recommendations presented by BM Ross at the May 18th Public meeting. Would you be able to supply me with some of the documentation to complete this report for support? • Thanks, Scott McLeod 	<ul style="list-style-type: none"> • Forwarded him information related to the project recommendations.
<p>Paisley Resident May 26, 2021 (via email)</p>	<ul style="list-style-type: none"> • See attached the petition of names collected online in the last few days in support of the recommendations. Have a great day! 	<ul style="list-style-type: none"> • Petition attached
<p>Former SVCA Water Manager June 5, 2021 Via email</p>	<ul style="list-style-type: none"> • I've viewed the information provided by the May 18th Public Meeting and I offer the following: • Your firm has done very well with the unique design features for the proposed bridge, particularly given the site constraints. • If street lights are proposed on the new bridge I suggest they be located on the east side, where they won't interfere with ice jam removal operations should a hy-hoe ever be needed to work from the upstream side of the bridge. • Will the new bridge railings (above the concrete wall) be relatively easy to remove by a municipal crew, to allow for full reach by a hy-hoe should an ice jam need to be dislodged? • Regarding the temporary detour bridge, on the north side of the river at the east end of Church St. there is a municipal catchbasin that drains via a storm sewer through the dyke and to the river. The outlet has a flapgate which closes off when the river rises high enough, which of course also causes collected stormwater behind the dyke to pond. During such occurrences I think the municipality installs a temporary pump there and discharges the flow over the dyke. Your proposed detour road should take into account this necessary 	<ul style="list-style-type: none"> • Information forwarded to Project Engineer and County.

Agency/Individual	Comments/ Concerns	Response/Action Taken
	<p>stormwater collection area and should also maintain the ability to drain it via pumping.</p> <ul style="list-style-type: none"> • If my recollection is correct, I believe the paved walking path on top of the dyke, the lamp posts, and the metal stairs near the northeast corner of the existing bridge are the responsibility of the municipality. These are recreational amenities and are not necessary for the flood control purpose of the dyke. While the SVCA owns and maintains the dyke, as you are aware, these amenity features are not the responsibility of the Authority. Permission is needed from the Authority for these features, but that is the extent of the Authority's involvement. That is my recollection anyway. • Thanks for the opportunity to comment and good luck with the next steps in your project. Regards. 	
<p>Paisley Artscape Society June 10, 2021 (via email)</p>	<ul style="list-style-type: none"> • The Paisley Artscape Society would like to lend its support for the recommended detour and bridge design for the Teeswater River Bridge replacement in Paisley. • Please find attached a letter of endorsement from the Paisley Artscape Society that could be forwarded to Bruce County Council as the recommendations are discussed for approval. • Thank you for your role in incorporating a wealth of public input into these recommendations. • Sincerely, Ken Cormack • Paisley Artscape Society, President 	<ul style="list-style-type: none"> • Letter added to County Council Summary report.

4.7.4 Detailed Design Alternatives

The detailed design alternatives identified for the Teeswater River Bridge are based upon the results of the Cultural Heritage Evaluation Report (CHER) and recommendations contained within the Heritage Impact Assessment (HIA), as well as input received from residents during the Phase 1 & 2 consultation program.

i) Railing Options

As explained in the CHER/HIA, the existing bridge contains ornamental steel railing panels with concrete posts. At the north end of the bridge, the railings are an unusual variation of the design where the metal panels are shorter and rest on concrete parapets. It was recommended in the CHER/HIA that the railings of the new bridge should be designed in a style influenced by the original. It was also recommended that the railing design of the new bridge should consider the landscape views of the Teeswater River from the bridge, and views of adjacent properties within the community of Paisley.

While aesthetics and heritage conservation are important considerations, the guardrail is required to comply with the Canadian Highway Bridge Design Code (CHBDC), which includes crash test and minimum height requirements for barriers. With consideration to the above, the following guide rail options are considered.

Option 1: Lower Parapet Wall with Embossed Formwork and Decorative Metal Railing

This option combines the structural strength and durability of a concrete base, while retaining some design elements that reflect the steel railing present on the existing Teeswater River Bridge. The upper railing also provides visibility to views along the river and to various cultural heritage features.

Figure 4.1 – Example Design Similar to Option 1



Strengths: *Aesthetics, Maintains Visibility, Reflects Heritage Characteristics, and Meets Technical Requirements*

Weaknesses: *More Expensive than Other Options*

Option 2: Standard Parapet Wall with Handrail

Similar to Option 1, this option is a combination of a concrete wall with a handrail. While it does not contain the same aesthetics, reflect historical design, or maintain surrounding views to the extent of other options, it would comply with bridge design requirements, be low maintenance and be a more cost-effective option.

Strengths: *Affordable and Meets Technical Requirements*

Weaknesses: *Aesthetics, Reduces Visibility, and Doesn't Reflect Heritage Characteristics*

Figure 4.2 – Example of Option 2



Option 3: Standard Parapet Wall with Handrail (Dentals in Formwork)

This option is identical to Option 2, with the exception that there are dentals in the formwork to improve aesthetics. While aesthetics would be improved, this option would also have higher costs, would not reflect the historical design, and would block views of the river and adjacent heritage buildings.

Strengths: *Aesthetics and Meets Technical Requirements*

Weaknesses: *Reduces Visibility and Doesn't Reflect Heritage Characteristics*

Figure 4.3 – Example of Option 3



Option 4: Parapet Wall with Wave Formwork

Unlike Options 1 to 3, this option is entirely concrete and does not contain aluminium or steel railing features. While this option may be sturdier and more cost-effective than other options, it would not maintain viewscales to the extent of other options or include the heritage characteristics of the existing bridge.

Strengths: *Aesthetics and Meets Technical Requirements*

Weaknesses: *Reduces Visibility and Doesn't Reflect Heritage Characteristics*

Figure 4.4 – Example of Option 4



Option 5: Parapet Wall with Custom Built Formwork

Similar to Option 4, this option is constructed entirely out of concrete but the decorative formwork provides additional aesthetics and in the example shown, this design was used to reflect heritage components of the previous bridge. This option would not reflect the characteristics of the current Teeswater River Bridge and does not maintain viewscales to the extent of other options.

Strengths: *Aesthetics and Meets Technical Requirements*

Weaknesses: *Reduces Visibility, Doesn't Reflect Heritage Characteristics, and Expense*

Figure 4.5 – Example of Option 5



Option 6: Parapet Wall With Decorative Arch

Similar to Options 4 and 5, this option is entirely concrete and contains concrete formwork on the sides and an arch element in the middle. While this adds to the bridge's aesthetics, it takes away from the views of the river, is the most expensive option, and does not have regard for the historical elements of the existing bridge.

Strengths: *Aesthetics and Meets Technical Requirements*

Weaknesses: *Reduces Visibility, Doesn't Reflect Heritage Characteristics, and Expense*

Figure 4.6 – Example of Option 6



Option 7: Concrete Barrier Between Road and Sidewalk

This option is similar to Option 3, however the wall is located between the road and the sidewalk, with a standard rail between the sidewalk and the river. While this would be safer for pedestrians, it could create a danger to motorists, as they may choose to drive closer to the middle of the road to avoid the barrier. There could also be similar issues with water damage on the bridge.











































Strengths: *Increased Pedestrian Safety*

Weaknesses: *Doesn't Block Water During High Flows and could be hazardous to vehicle traffic*

Figure 4.7 – Example of Option 7



Table 4.5
Summary of Environmental Effects Analysis for Barrier Design

Railing Option	Natural Environment	Social Environment	Cultural Environment	Economic Environment	Technical Environment	Total
Option 1 Lower Concrete Base With Upper Railing Barrier						
Option 2 Concrete Base with Single Aluminium Rail						
Option 3: Stamped Concrete Base with Single Aluminium Rail						
Option 4 Concrete Barrier						
Option 5 Concrete Barrier With Decorative Sides						
Option 6 Concrete Barrier With Decorative Arch						
Option 7 Concrete Barrier Between Road and Sidewalk						

 High
  Moderate-High
  Moderate
  Low-Moderate
  Low
 - Minimal/Nil

Preferred Option

Six barrier/rail options were presented for evaluation. These were:

Option 1	Lower Parapet Wall with Formwork and Decorative Metal Railing
Option 2	Standard Parapet Wall with Handrail
Option 3	Standard Parapet Wall with Handrail (Dentals in Formwork)
Option 4	Parapet Wall with Wave Formwork
Option 5	Parapet Wall with Custom Built Formwork
Option 6	Parapet Wall With Decorative Arch
Option 7	Concrete Barrier Between Road and Sidewalk

Based on the results of the assessments as reported above, the analysis indicated a preference for Option 1, a barrier that includes a lower parapet wall with decorative upper railings. There are several attributes associated with this Option which justified its consideration as the preferred railing design option:

- Maintains public views of the adjacent river areas more than other options
- Reflects historical elements of the existing bridge
- Meets technical safety standards
- One of the most aesthetically pleasing design options

ii) Proposed Deck Cross-Section

In order to identify a preferred design for the replacement crossing an engineering analysis was completed by BMROSS structural engineering staff. The evaluation included a review of the bridge site and associated road approaches to determine the general size and configuration required for a new bridge crossing. Figure 4.8 illustrates the standard deck cross section to be used for the new bridge crossing. The existing bridge has road and sidewalk widths that meet current technical standards. During consultation stages of this project, the public mentioned that sidewalks on the bridge could be widened and made more accessible. The bridge is located in downtown Paisley and is a major link to the north and south areas of Paisley, which attracts large amounts of pedestrian traffic. With consideration given to this, the following deck options have been reviewed.

Option 1 – Maintain Same Characteristics of Existing Deck

The existing bridge has a total width of 12.2m (40 ft.), which includes an 8.5m (28 ft.) wide road and 1.5m (5 ft.) wide sidewalks on both sides. A cross-section of the existing bridge is shown in Figure 4.8.

12192

254

1524

51

8534

51

1524

254

1423±

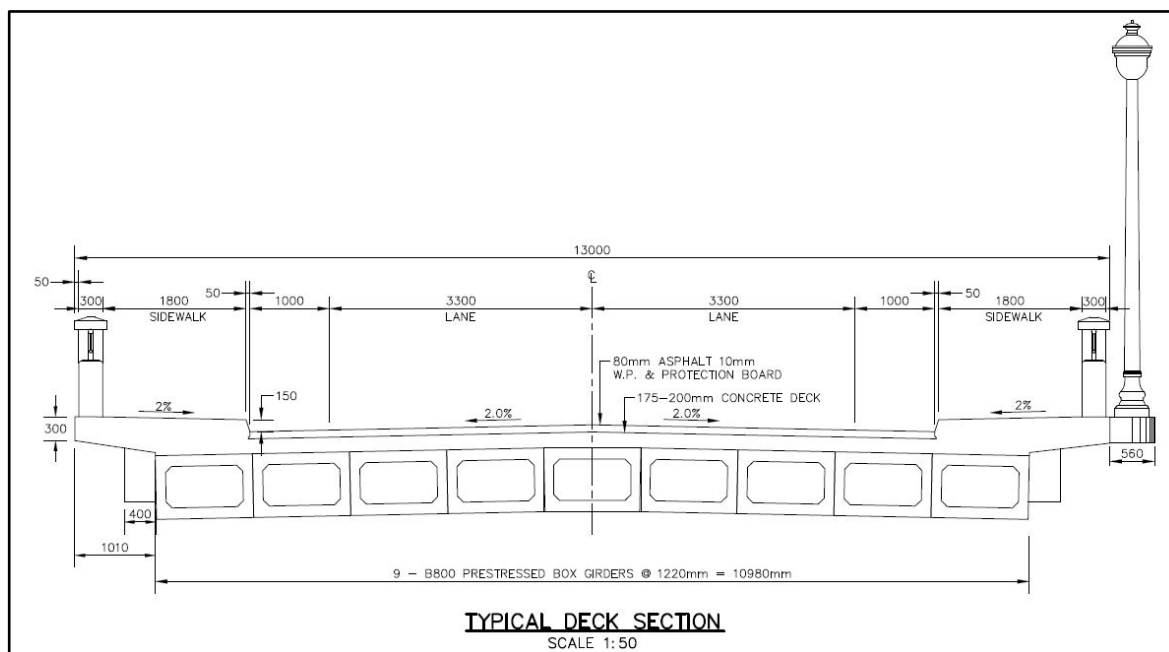
EXISTING DECK SECTION

SCALE 1:50

Weaknesses: *Not as friendly to pedestrian environment, compared to other option*

An alternative option is to construct a slightly wider bridge with a width of 13.0m (42.7 ft.), which would include an 8.6m (28.2 ft.) wide road and 1.8m (6 ft.) wide sidewalks on both sides. The width of the road would essentially be the same as what exists, which would be consistent with the road approaches north and south of the existing bridge. While the minimum standards require a minimum sidewalk width of 1.5m (5 ft.), accessibility guidelines generally encourage a wider sidewalk in busier areas to allow for passing areas, particularly for people using walking aids and other modes of transportation. The additional space would also benefit snow clearing and maintenance equipment on the sidewalk. A cross-section of the proposed deck is shown in Figure 4.9.

Figure 4.9 – Typical Deck Section



Strengths: *More accessible and contributes to a more pedestrian friendly environment*

Weaknesses: *More expensive option*

Table 4.6
Summary of Environmental Effects Analysis for Deck Design

Deck Option	Natural	Social	Cultural	Economic	Technical	Total
Option 1 Replace to existing specifications						
Option 2 Replace with wider deck / sidewalk						

High
 Moderate-High
 Moderate
 Low-Moderate
 Low
 - Minimal/Nil

Based on the results of the assessments as reported above, the analysis indicated a preference for Option 2, a new cross-section with a slightly wider deck. This option would provide a more pedestrian-friendly environment that is more accessible, allow for easier passing for those with mobile devices, and provides clearance for maintenance equipment.

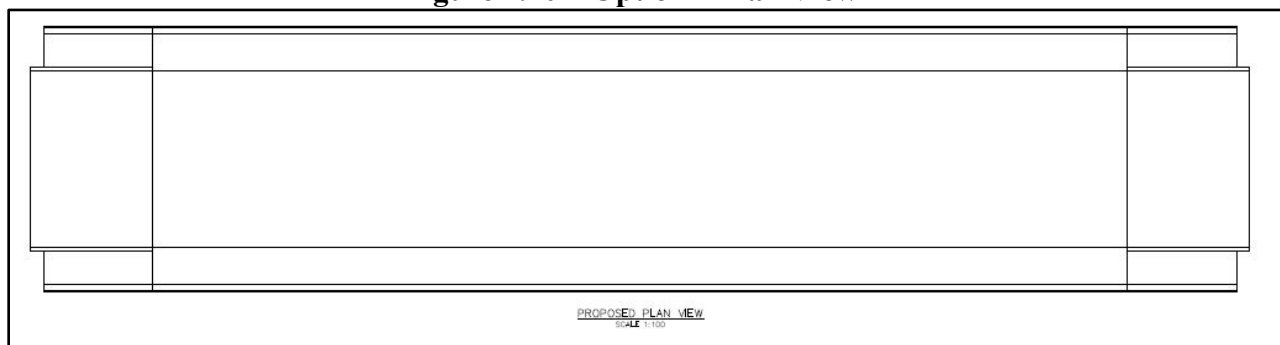
iii) Enhanced Viewing Areas

While the existing bridge does contain sidewalks and railings, there are no locations to view the river without obstructing the sidewalk. During the consultation phase of this project, a number of residents identified that a viewing platform for residents and visitors would be a welcome addition to a new bridge, to allow for safe viewing of the Teeswater and Saugeen Rivers. With consideration to this, we have reviewed the following two options.

Option 1 – No Viewing Area

Option 1 would not include an area designated for pedestrians to view their surroundings. While pedestrians could view the river from the sidewalk, this could provide conflict with pedestrians travelling over the bridge. The proposed plan in Option 1 is shown in Figure 4.10.

Figure 4.10 – Option 1 Plan View



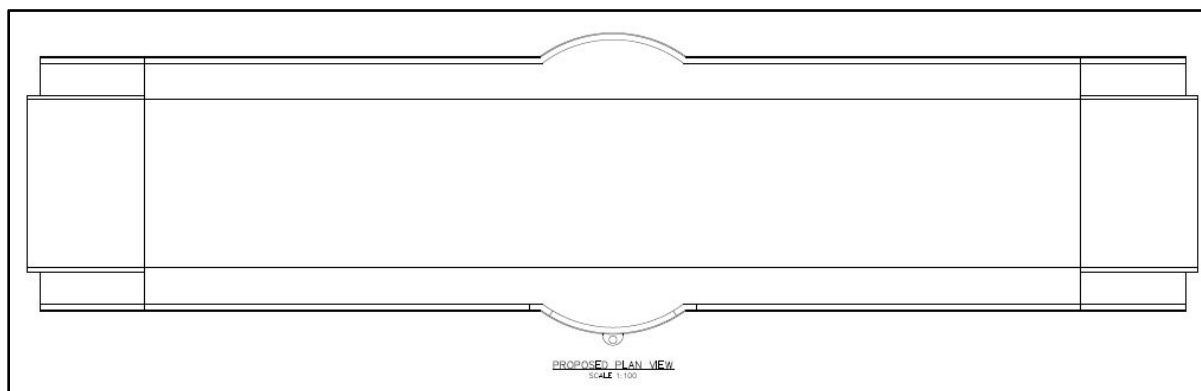
Strengths: *Most cost-effective*

Weaknesses: *Pedestrian disruption*

Option 2 – Viewing Areas

The proposed bridge in Option 2 would have two ‘bump-outs’ located in the middle of the span, to provide safe viewing opportunities, without obstructing pedestrian flow. The proposed plan is shown in Figure 4.11













Figure 4.11 – Option 2 Plan View



Strengths: *Improved pedestrian environment*

Weaknesses: *More expensive than Option 1*

Table 4.7
Summary of Environmental Effects for Viewing Platform

Deck Section	Natural	Social	Cultural	Economic	Technical	Total
Option 1 Replace without Viewing Area						
Option 2 Replace with Viewing Area						

Based on the results of the assessments as reported above, the analysis indicated a preference for Option 2, which would include a viewing platforms in the middle of the bridge. This option would provide a more pedestrian-friendly environment and allow for safe viewing of the river from a good vantage point.

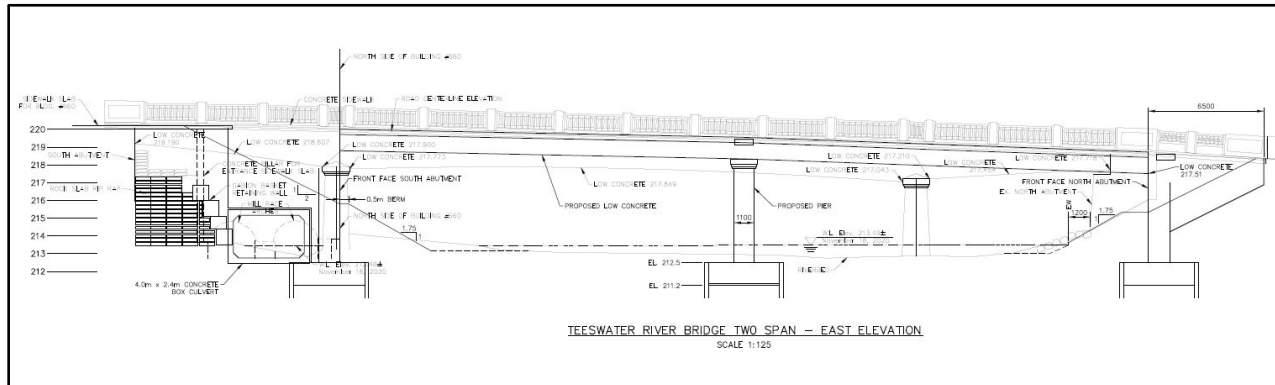
iv) Bridge Span

The existing structure is a three-span bridge with two piers located in the Teeswater River. The north pier is in line with the main flow path of the river acting as a barrier during high flow events. The most southerly span is in line with the former mill building located southwest of the bridge and serves as outlet for the mill race that is located beneath the building. The building blocks flows from upstream and appears to limit the hydraulic capacity of the Teeswater in its current alignment. It was thought that a shorter span might be acceptable at the site, but would need to be confirmed through the hydrology assessment. Accordingly two options were proposed.

Option 1 - Two Span Bridge

This option includes one pier in the Teeswater River, which effectively splits the river into two equal spans. To maintain the historical mill race, a rectangular box culvert is proposed at the south side of the bridge and would line up with the mill race arches. The two span option was assessed as part of the bridge hydrology analysis and it was determined that this option would improve flood flows, reduce the potential for ice jams, maintain a historical mill race, and have fewer obstructions for canoeists. An elevation of the two span bridge is shown in Figure 4.12.

Figure 4.12 – Two Span Bridge Elevation



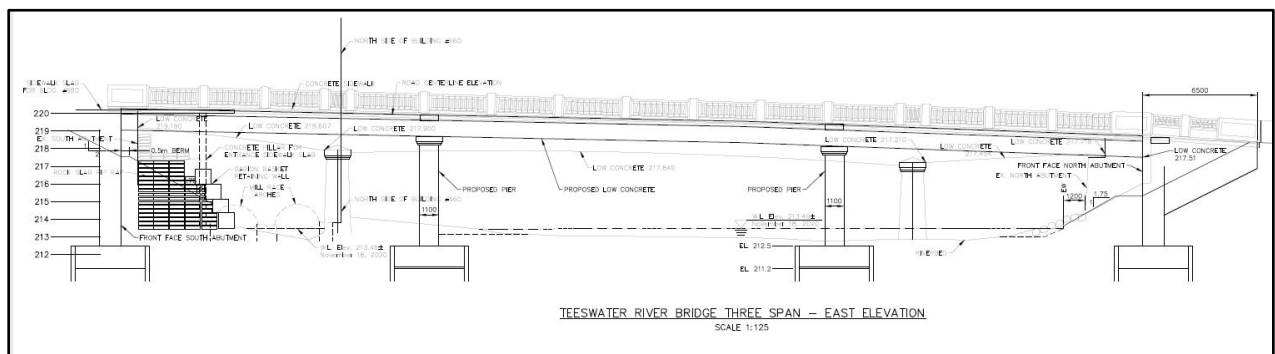
Strengths: *Natural Environment, Social Environment, and Cultural Environment*

Weaknesses: *Technical Environment (assumption that southern span is not required for hydrology)*

Option 2 - Three Span Bridge

This option includes two piers in the Teeswater River, which splits the river into three parts. The three span option was analysed as part of the bridge hydrology analysis and it was determined that this option would obstruct the river and flood flows more than Option 1. An elevation of the three span bridge is shown in Figure 4.13.













Figure 4.13 – Three Span Bridge Elevation



Strengths: *Technical Environment and Cultural Environment*

Weaknesses: *Natural Environment and Social Environment*

Table 4.8
Summary of Environmental Effects for Bridge Span

Bridge Span	Natural	Social	Cultural	Economic	Technical	Total
Option 1 Two Span						
Option 2 Three Span						

v) Summary of Design Options

After a review of the various bridge design options for the Teeswater Bridge, the following preferred options were selected:

Preferred Railing Option

The preferred new bridge will have a lower parapet wall with embossed formwork to meet minimum bridge standards, while being sympathetic to the previous railing.

Preferred Deck Option

The preferred new bridge will have a wider deck to provide larger sidewalks, to be more accessible for mobile devices and maintenance equipment.

Preferred Viewing Area Option

The preferred new bridge will have two separate viewing areas (one on each side), to provide viewing opportunities of the Teeswater and Saugeen Rivers from a vantage point.

Preferred Bridge Span Option

The existing three-span bridge will be replaced with a two-span bridge, to improve flood flows, reduce the potential for ice jams, maintain a historical mill race, and have fewer obstructions for canoeists.

Images of the existing bridge and conceptual renderings of the proposed bridge are shown in Figure 4.14.

Figure 4.14 – Comparison of Existing Bridge and Proposed Bridge

Existing



Proposed



4.7.5 Detour Alternatives

As mentioned in Section 3.6 of this report, there are expected short-term impacts to the transportation network in the area during the construction period. Based on traffic counts along this section of Bruce Road #3, there was a peak of 7,636 vehicles per day in the summer of 2009. As the bridge links both sides of the village and the Downtown business district, it also provides an important pedestrian connection to shops, businesses, residences, parks, a school, arena, and community centre.

For the purposes of this section of the report, the detour is assumed to be in place for 14-16 months during the period of demolition and construction. The proposed detour options include:

- Option 1:** Detour on County Roads (added 43.5km to travel distance)
- Option 2A:** Detour on Local Roads to the west of Paisley (added 18.0km to travel distance)
- Option 2B:** Detour on Roads to the east of Paisley (added 13.0km to travel distance)
- Option 3:** Local detour that used a temporary bridge (added 425 to travel distance)

Option 1 – County Roads

Option 1 would use only County-owned roads and would have a travel distance of 43.5 km for local traffic and 36.6 km for through traffic. As shown in the figure below, this route would use Bruce Roads 11, 10 and 40 and would be longer than other options. While transporters will look for shorter routes, it may be used by some heavy trucks on a single trip. There are no costs to improving these roads and the only incremental cost may be to sign this detour. A map of this detour route is shown in Figure 4.15.

Figure 4.15 – Detour Map (Option 1)

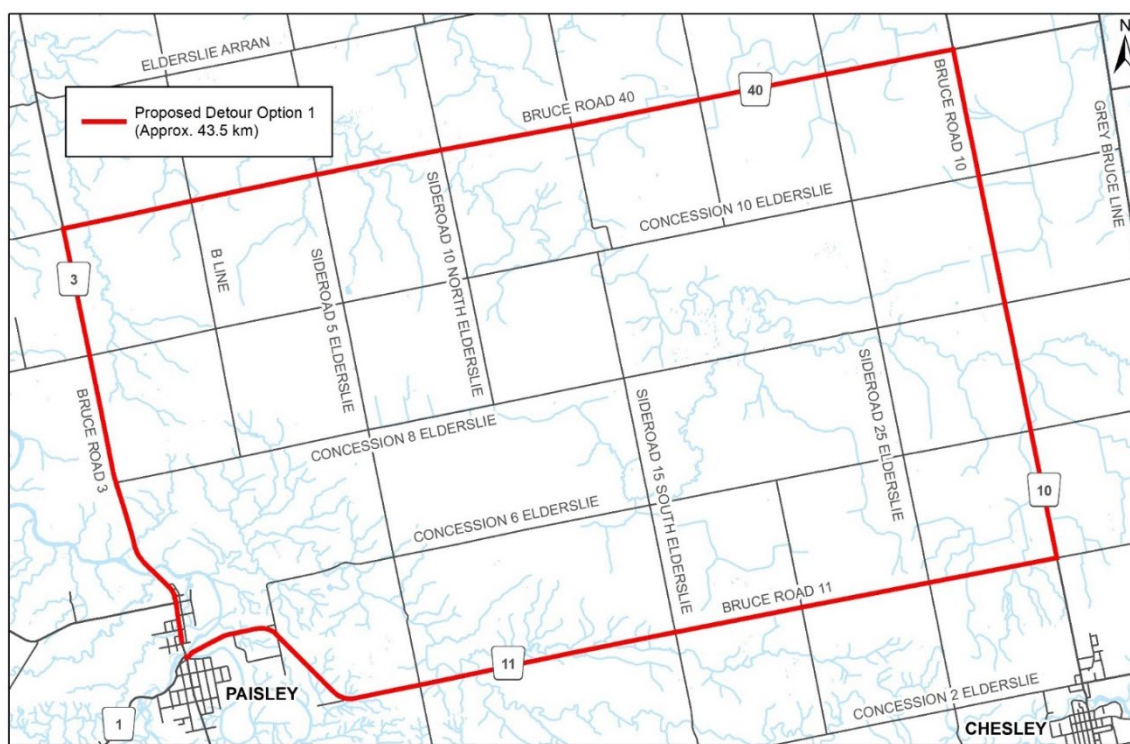







Table 4.9
Environmental Effects Analysis for Option 1 Detour

Environment	Description of Impact	Ranking
Natural	Longest route would result in increased fuel consumption and vehicle emissions.	
Social	Longer vehicle trips would result in lost time, fewer social interactions, and longer emergency response times.	
Cultural	No impacts expected.	
Economic	Minimal costs for detour route signage and costs to travellers as a result of more fuel consumption. Downtown businesses could be impacted as there would not be any through traffic for 14 months.	
Technical	Longest detour route but roads are already constructed to acceptable standards.	

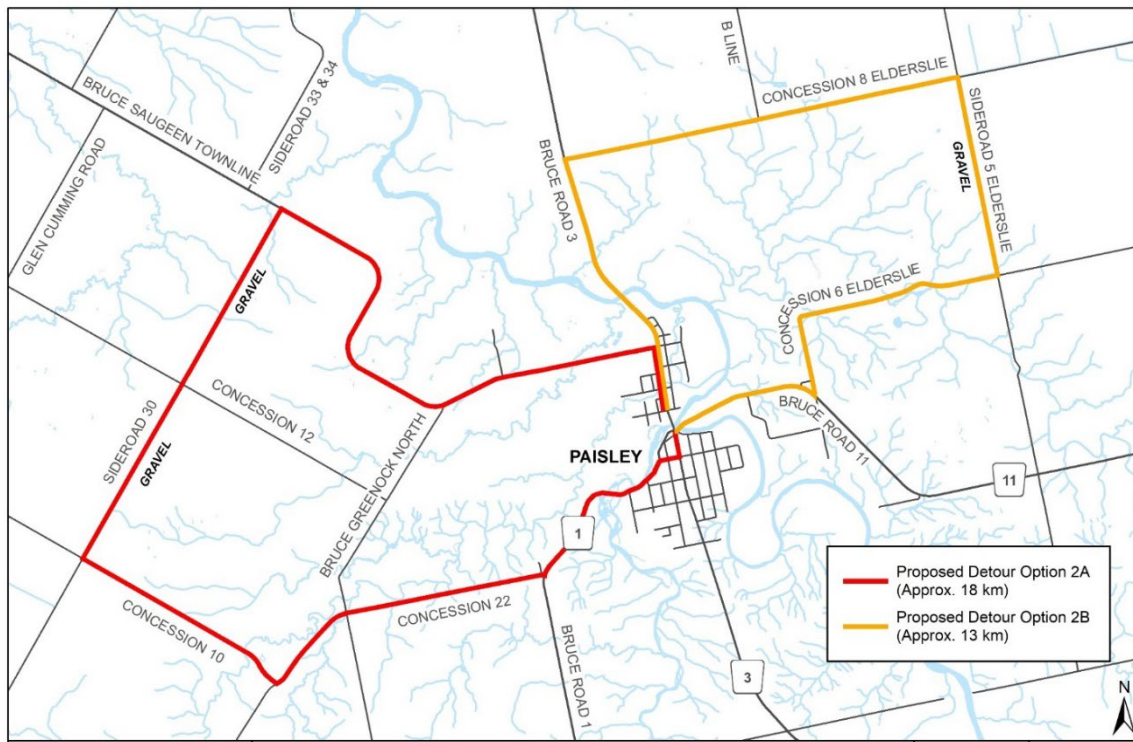
Options 2A and 2B – Local Roads

Option 2A involves a detour to the west of Paisley and would use Bruce-Saugeen Townline, Bruce Sideroad 30, Bruce Concession 10, and Greenock Concession 22 for a detour length of approximately 18 km or 17.2 km for through traffic. However, parts of Sideroad 30 are effectively single lane and have no winter maintenance. The narrow width, poor road structure and vertical alignment would make this segment of road intolerable for the detour traffic. For this reason, Option 2A has been discarded and no further investigation has been done.

Option 2B involves a detour to the east of Paisley, using Bruce Road 11, Concession 6 Elderslie, Sideroad 5 and Concession 8 Elderslie. This route uses existing bridges over the Saugeen River on Road 11 (Goldie St.) and over the North Saugeen River (Concession 6). Both of these bridges have sufficient capacity for the anticipated detour traffic. However, the roads and intersections are not adequate for the volume of detour traffic for the period of time expected. For this reason, improvements are recommended for road surfaces and intersection turning radii for the safe use by transport trucks.

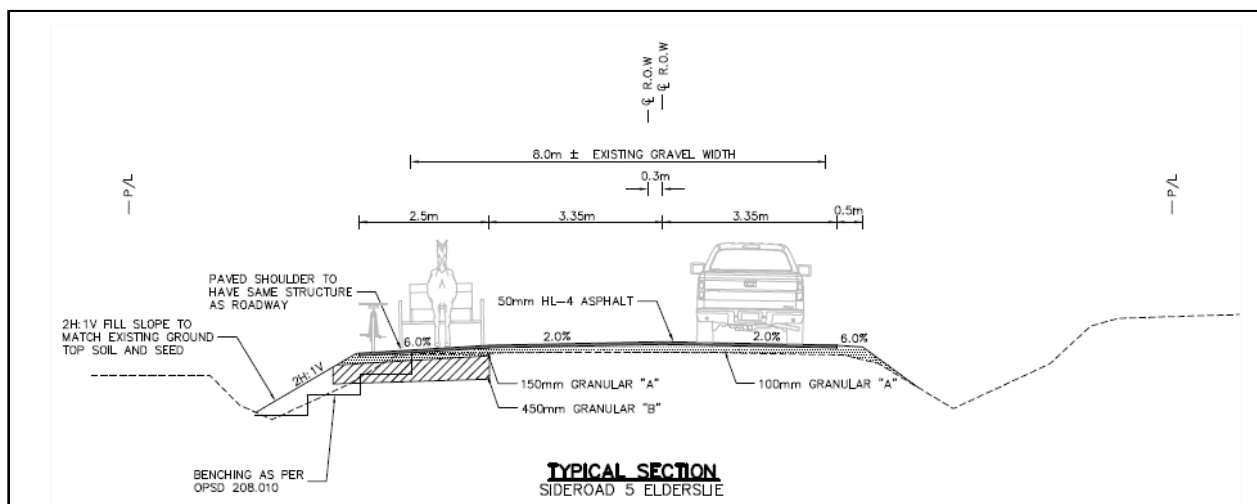
The proposed detour routes in Option 2 are shown in red (2A) and orange (2B) in Figure 4.16.

Figure 4.16 - Detour Map (Option 2)



Of particular concern is the location of a private Mennonite school on the east side of Sideroad 5. Sideroad 5 is also gravel surfaced which is not suitable for the traffic volumes and duration of the construction detour. For these reasons, it is proposed that Sideroad 5 be paved and widened with a paved shoulder on the east side. The paved shoulder could be used by cyclists, pedestrians and buggies commuting to the school. A typical cross section of the proposed upgrade to Sideroad 5 is shown below.

Figure 4.17 – Typical Section (Sideroad 5)








Concession 8 is a paved road. However, the pavement is badly rutted and probably not of sufficient depth to survive the duration of the detour. It is recommended that the shoulders be widened at each end to improve turning radii and it is recommended that a sand pad and top coat pavement be applied to correct the rutting and add structure.

The following is a breakdown of probable costs to improve the detour to tolerable standards and provide a paved shoulder for school traffic on Sideroad 5.

1. Improve intersection Bruce Rd 3 and Conc. 8	\$ 132,700
2. Repave Conc. 8 and place shoulder gravel	\$ 842,900
3. Improve intersection Conc. 8 and S.R.5	\$ 65,500
4. Pave and widen Sideroad 5	\$ 858,300
5. Improve intersection S.R. 5 and Conc. 6	\$ 68,300
6. Improve Conc. 6 (shoulder, guiderail, line painting)	\$ 42,100
7. Improve intersection Conc. 6 and Bruce Rd 11	\$ 37,800
Total probable cost	\$2,047,600 + HST

Although the cost is significantly high, there will be residual benefits with the road improvements along the detour routes. It also adds to the inventory of assets of Arran-Elderslie that will require future maintenance; the asphalt surface on sideroad 5. The high traffic volume will also accelerate the deterioration of asphalt surfaces over the period of the detour. This option deals with vehicle traffic. It does not provide a practical solution for pedestrian or bicycle traffic for people who want to get from one part of town to the other. It relies on automobiles to carry people on the detour who may have used self-propelled transportation otherwise.

Table 4.10
Environmental Effects Analysis for Option 2B Detour

Environment	Description of Impact	Ranking
Natural	Second longest route would result in increased fuel consumption and vehicle emissions.	
Social	Longer vehicle trips would result in lost time, fewer social interactions, and longer emergency response times, but not to the extent of Option 1.	
Cultural	No impacts expected.	
Economic	Second most expensive option and would result in future maintenance costs for Arran-Elderslie. While it would add to their assets, it would also result in future maintenance costs. Downtown businesses could be impacted as there would not be any through traffic for 14 months. Additional costs to travellers as a result of more fuel consumption, but not to the extent of Option 1.	
Technical	Roads would be constructed to acceptable road standards.	

Option 3 – Temporary Detour Bridge Across Saugeen River

This route involves constructing a temporary road and sidewalk approach from Goldie Street to the east bank of the Saugeen River, beside the current fire hall. Similarly, a road and sidewalk approach would need to be constructed through the parking lot of the arena to reach the top of the dyke on the west bank of the Saugeen River. This would need to occupy most of the parking lot in order to make the grade change down to the level of Church St. The raised ramp level would effectively cut off Ross Street as a dead end at its intersection with Church St., for the duration of the detour. The proposed detour route is shown on Figure 4.18 below.

Figure 4.18 – Map of Temporary Bridge Detour

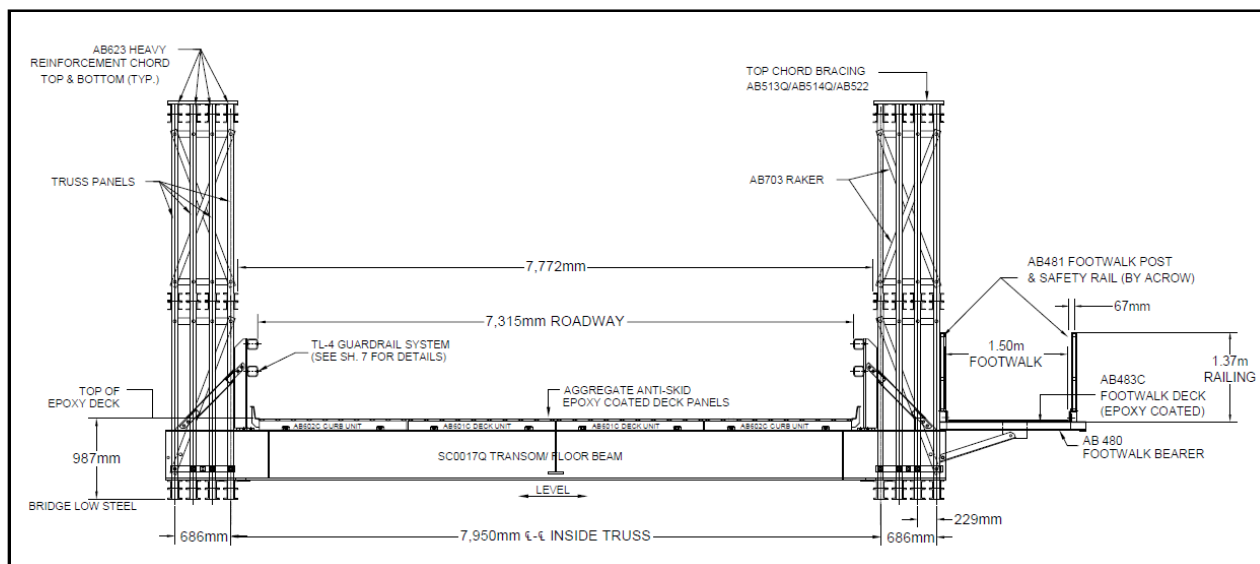


The temporary bridge structure is likely to be made of pre-engineered segmental steel panels that can be assembled on-site and launched across the river. Foundations need to be constructed to fully support the bridge, two lanes of traffic and one sidewalk. Most of these elements will require removal and the floodplain will require restoration. Some sub-surface foundation structures may remain in place.

This detour option will have some awkward alignment for trucks turning from Goldie Street onto the detour and from Church Street onto Queen Street. However, with some re-grading and curb adjustments, it is felt that the alignment should be tolerable for the duration of the detour.

Figure 4.19 shows some details of the proposed temporary bridge with two lanes of traffic and one sidewalk on the exterior of the truss.

Figure 4.19 – Proposed Deck Section for Temporary Bridge





There is a major electrical conductor overhead that will require relocation as part of this temporary bridge.

The following are estimated costs to develop this detour option:

1. General costs of mobilization, site access, insurance	\$ 381,400
2. Allowance for electrical line relocation	\$ 60,000
3. Earthworks and environmental	\$ 193,000
4. Road and sidewalk	\$ 155,000
5. Abutments and foundations	\$ 487,000
6. Bridge rental, delivery	\$ 686,000
7. Bridge assembly, placement, removal, inspection	\$ 473,000
Total probable cost	\$2,435,400 + HST

Table 4.11
Environmental Effects Analysis for Option 3 Detour













Environment	Description of Impact	Impact
Natural	Minor impacts expected to riparian habitat along the shoreline which will be removed to construct bridge supports. No in-water work is required, so few impacts to aquatic habitat. Shortest route would result in less fuel consumption and fewer vehicle emissions.	○
Social	Most convenient detour route for vehicular and pedestrian traffic. Would offer the quickest response times in the event of an emergency.	○
Cultural	No impacts expected.	○

Environment	Description of Impact	Impact
Economic	Most expensive option for capital costs and bridge will be removed, resulting in a loss in investment. Option will have the least amount of impact on Downtown businesses, as downtown traffic will not be impacted as much as other options. Reduced costs associated with fuel consumption for travellers.	
Technical	Most efficient detour route but may be difficult for large trucks and it would remove parking spaces at the north.	

Summary of Detour Options

The analysis of the various detour options is summarized in Table 4.12 below.

Table 4.12
Environmental Effects Analysis for Detour Options

Environment	Option 1	Option 2B	Option 3
Natural			
Social			
Cultural			
Economic			
Technical			
	Preferred Option (Truck Traffic)		Preferred Option

Preferred Detour Option(s)

Based on the above analysis of the various detour options available, it was determined that a combination of Options 1 and 3 would be most appropriate. Local and through traffic would use a temporary bridge located east of the existing Teeswater Bridge, and truck traffic would be directed towards the County Road network east of Paisley. These options were chosen for the following reasons:

- Least amount of impact to Downtown businesses
- Least amount of impact on response times for emergency services
- Pedestrian and Vehicular links to the north and south parts of the Village would be maintained
- Tight turning radius may be difficult for trucks using Detour Option 3 and for this reason, would be directed towards a detour route shown in Option 1

5.0 SITE SPECIFIC EVALUATIONS

5.1 Hydraulic Report

A Hydraulic Report was completed by BMROSS in July 2021 to review relevant background information and hydrotechnical design criteria for the preliminary design of the proposed Teeswater River Bridge replacement structure and temporary detour bridge. The preliminary design assessed the hydraulic adequacy of the existing crossing, and identified constraints and sizing for the design of the proposed structures. This was achieved by completing:

- a desktop review to collect information on the crossing and upstream watershed, including previous flood studies;
- a hydrologic analysis on streamflow gauges on the Teeswater and Saugeen River to confirm design flows at the replacement and temporary bridge locations;
- a hydraulic analysis to evaluate conditions at the existing bridge;
- a hydraulic analysis to evaluate proposed alternatives for the replacement bridge;
- a hydraulic analysis to evaluate proposed alternatives for the temporary detour bridge;
- a scour assessment to determine appropriate rock protection;
- an assessment of potential ice jam conditions at the crossings; and
- an assessment on floodplain fill impacts.

(a) Design Criteria

The design criteria for the proposed replacement and temporary structures included the following:

- Bridge Design Code requirements for design flood flows, allowable vertical clearance, and freeboard;
- Integration with existing flood protection measures (dyke system);
- Allowable increase in the flood elevation upstream of the structure;
- Ice jam assessment;
- Scour and rock protection design;
- Floodplain fill and storage analysis.

(b) Comparison to Historical Models

The BMROSS HEC-RAS model results were checked for consistency against previous HEC2 modelling efforts completed by the 1990 Cumming Cockburn Study. A summary of modelled water surface elevations and differences for the 50, 100 and regional events are provided in Table 5.1. Cross-section locations are limited to those corresponding with previous 1990 modeling. The updated BMROSS model was also run with the previous 1990 flow values to compare differences in model setup. It is acknowledged that flood elevations between the previous 1990 model and updated BMROSS model may differ due to updated cross-sectional data from the provincial DTM data and survey, revised boundary conditions, manning's n values, and computational differences between HEC2 and HEC-RAS software.

Table 5.1 Comparison of Model Results - Existing Conditions
Water Surface Elev. (m)

Cross-section Station		Cumming Cockburn 1990 Model			BMROSS 2020 Model - 1990 Flows			BMROSS 2020 Model - 2020 Flows		
2020 Station	1990 Station	50	100	Hazel	50	100	Hazel	50	100	Hazel
1000	300	215.74	215.9	216.93	215.57	215.7	216.6	216	216.3	216.6
1285	590	216.32	216.48	217.53	216.02	216.16	217.11	216.47	216.79	217.11
1358	660	216.51	216.67	217.71	216.21	216.33	217.13	216.57	216.85	217.13
Bruce Road 3										
1402	700	216.74	216.92	218.34	216.66	216.78	217.87	217.68	217.76	217.87
1738	1040	217.06	217.22	218.51	217.01	217.16	218.37	218	218.17	218.37
1899	1475	217.41	217.56	218.75	217.17	217.31	218.46	218.08	218.26	218.46
2304	1875	217.65	217.81	218.95	217.32	217.47	218.63	218.2	218.4	218.63
2896	2405	217.83	217.98	219.12	217.55	217.71	218.83	218.37	218.59	218.83
3406	2930	217.98	218.13	219.27	217.76	217.91	219.02	218.51	218.75	219.02
3574	2990	217.97	218.12	219.24	217.73	217.86	218.87	218.44	218.65	218.87
3854	3310	218.09	218.24	219.53	218.23	218.41	219.6	218.99	219.31	219.6
Goldie Street Bridge										
3901	3351	218.27	218.43	220.5	218.23	218.4	219.91	219.02	219.39	219.91
3970	3420	218.28	218.45	220.55	218.26	218.44	220.05	219.07	219.46	220.05
4706	5660	218.5	218.68	221.03	218.61	218.8	220.73	219.46	219.88	220.73
5120	6070	218.66	218.85	221.16	218.79	218.97	220.89	219.62	220.02	220.89

Water Surface Elevation Difference – Comparison to 1990 Cumming Cockburn Model (m)

Cross-section Station		Cumming Cockburn 1990 Model			BMROSS 2020 Model - 1990 Flows			BMROSS 2020 Model - 2020 Flows		
2020 Station	1990 Station	50	100	Hazel	50	100	Hazel	50	100	Hazel
1000	300				-0.17	-0.20	-0.33	0.26	0.40	-0.33
1285	590				-0.30	-0.32	-0.42	0.15	0.31	-0.42
1358	660				-0.30	-0.34	-0.58	0.06	0.18	-0.58
Bruce Road 3										
1402	700				-0.08	-0.14	-0.47	0.94	0.84	-0.47
1738	1040				-0.05	-0.06	-0.14	0.94	0.95	-0.14
1899	1475				-0.24	-0.25	-0.29	0.67	0.70	-0.29
2304	1875				-0.33	-0.34	-0.32	0.55	0.59	-0.32
2896	2405				-0.28	-0.27	-0.29	0.54	0.61	-0.29
3406	2930				-0.22	-0.22	-0.25	0.53	0.62	-0.25
3574	2990				-0.24	-0.26	-0.37	0.47	0.53	-0.37
3854	3310				0.14	0.17	0.07	0.90	1.07	0.07
Goldie Street Bridge										
3901	3351				-0.04	-0.03	-0.59	0.75	0.96	-0.59
3970	3420				-0.02	-0.01	-0.50	0.79	1.01	-0.50
4706	5660				0.11	0.12	-0.30	0.96	1.20	-0.30
5120	6070				0.13	0.12	-0.27	0.96	1.17	-0.27

(c) Model Results

The updated BMROSS 2020 HEC-RAS model produces slightly lower water surface elevations than the 1990 Cumming Cockburn HEC 2 model for the same flow values. This is illustrated by the model scenario, in which the updated BMROSS model was run with the lower 1990 flows for the 50 and 100 year event, with an average difference in calculated water surface elevations of 0.18 m and 0.19 m respectively. Higher water surface elevations provided in the 2020 BMROSS model with 2020 flows can be mostly attributed to the higher flow values from the updated flood frequency analysis. All models use the same 1974 Conservation Branch flows for the Hurricane Hazel regional event for the Saugeen River. The BMROSS 2020 HEC-RAS model estimates lower regional event flood levels than the 1990 model, with the exception of immediately downstream of Goldie Street Bridge. The average differences in the regional event water surface is approximately 0.34 m.

Since there is a difference in water levels between the 1990 model and the updated BMROSS model, the more conservative values from the BMROSS modelling will be used in the design criteria and analysis of the proposed replacement and temporary structures for the 100 and 50 year design events.

(d) Recommendations for Teeswater River Bridge

The report provided the following recommendations for replacement of the Teeswater River Bridge:

- The proposed 22.75 m twin span bridge to be used for final design on the Teeswater River, located along County Road 3 (Queen Street) in the Village of Paisley.
- Flood protection provided in the proposed replacement bridge railing/parapet be increased from 219.03 m to 219.33 m, corresponding to modelled 100 year elevations. Flood protection works shall be provided such that they can be integrated into any future dyke upgrades. The level of flood protection with proposed railing/parapet will be confirmed with SVCA at the detailed design stage.
- Rip rap protection, nominal 250 mm stone, should be placed at the bridge site. Additional rock protection is proposed at the toe of the dyke immediately upstream, including some canoe access points to the river with armour stone.
- In case there is a forecast high-water event, construction contingency plans should include the stockpiling of sandbags or steel sheet piling to fill any breach in the dyke at Queen Street generated as part of replacement bridge construction. Full restoration of all affected dyke segments will be included in the contract.

(b) Recommendations for the Temporary Detour Bridge

The report also included the following recommendations for a temporary detour bridge:

- The proposed 65.5 m single span temporary detour bridge be used for final design on the Saugeen River, connecting Goldie Street to Church Street in the Village of Paisley.
- Rip rap protection, nominal 300 mm stone, should be placed on the stream banks for erosion protection at the temporary bridge site.

- In case there is a forecast high-water event, construction contingency plans should include the stockpiling of sandbags or steel sheet piling to fill any breach in the dyke at the temporary detour bridge location. Full restoration of all affected dyke segments will be included in the contract.

A draft copy of the Hydrology Report was submitted to SVCA staff in July of 2021 for their input and review. The report will be finalized once input from SVCA is received. A copy of the Draft Hydrology Report is included within Appendix E.

5.2 Geotechnical Assessment

A Geotechnical Investigation was completed by Peto MacCallum Ltd. Consulting Engineers in the spring of 2021. The report noted that two previous geotechnical investigations had been completed at the site by other firms; i) Dominion Soil investigation in 1977, and ii) Atkinson Davies investigation in 2005. Details associated with the previous work was referenced during the current investigation.

The field work consisted of the completion of 8 boreholes, with 4 completed at the proposed bridge replacement location, and an additional 4 completed at the proposed temporary detour site. At each location, one borehole was completed at the proposed abutment location and one at the roach approach. The field work was undertaken between April 13-15, 2021 and May 31, 2021.

The boreholes were advanced using continuous flight hollow stem augers, powered by a truck mounted CME-75 drill rig, equipped with an automatic hammer. Representative samples of the subgrade were recovered at frequent depth intervals for sampling. Standard penetration tests were also carried out simultaneously during the sampling. Ground water conditions within the boreholes were also assessed.

The results of the investigation indicated that organic very loose silt/firm clayey silt was encountered below a fill layer to a depth of 4.5m of the new bridge approach. Sub-excavation of the surficial fill and organic silt/clayey silt may be required if a larger grade raise is proposed for the road approaches. Competent soil was identified at each abutment location to support footing foundations. However, recommendations for pile foundations have also been provided in the report.

It is also recommended that a sample borehole be drilled from the existing bridge deck at the location of the new central pier to determine the soil stratigraphic profile including the extent of the river bed sediments. This information is required to assess scour potential within the river and to assist with cofferdam design.

A copy of the Geotechnical Assessment is included within Appendix F.

5.3 Stage 1 & 2 Archaeological Assessment

To evaluate the potential for cultural heritage resources to be present within the study area, the Ministry of Heritage, Sport, Tourism and Culture Industries' checklist "*Screening for Impacts to Built Heritage and Cultural Heritage Landscapes*" was completed for the study area. It was determined that there was some potential for cultural resources to be present within the proposed detour bridge site where portions of the south approach area are undisturbed.

To address potential impacts to archaeological resources potentially present within the project area, a Stage 1 & 2 archaeological assessment was completed for the proposed road approaches and bridge abutments on the south side of the Saugeen River, adjacent to the Arran-Elderslie Fire Hall. Timmins Martelle Heritage Consultants were retained to complete the assessment. Representatives from the Saugeen Ojibway Nation (SON) that represent two indigenous communities located in Bruce County, were contacted in advance of the field work to request that monitors be present.

The Stage 2 field work was completed by Timmins Martelle Heritage Consultants Inc. on September 28, 2021 at the temporary bridge location north-east of the Queen Street bridge. The Stage 2 field work consisted of shovel test pitting at five metre intervals in all areas potentially impacted by the proposed construction. Nothing of archaeological significance was discovered as a result of the Stage 2 Assessment.

A copy of the Screening Check-List and Stage 1 & 2 Archaeological Assessment is included within Appendix G.

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 6.1. 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

Key Project Works and Activities	Geology and Hydrology Resources	Aquatic Resources	Significant Environmental Features	Cultural Heritage Resources	Social Environment	Economic Environment	Technical Environment
Construction Component							
Contractor Mobilization to the site	○	○	○	○	●	○	○
Establishment of Temporary Storage Areas	○	●	○	○	●	○	○
Site Clearing	○	●	○	●	○	○	○
Installation of Sediment Control Devices	○	●	○	○	○	○	○
Construction of temporary bridge & approaches	○	○	○	○	●	○	○
Traffic Control Plan Implementation	○	○	○	○	●	○	○
Excavation for foundations	●	●	○	●	●	○	●
Installation of granular access pads in the river	●	●	○	●	○	○	●
Removal of Existing Structure	○	●	○	●	○	○	○
Dewatering	●	●	○	○	●	○	●
Construction of Bridge Abutments & Piers	●	●	○	●	●	○	●
Installation of rock rip rap	●	●	○	●	●	○	●
Reconstruction of Approach Roads	○	○	○	●	●	○	●
Grading	○	●	○	○	●	○	○
Site Restoration (seeding/topsoil)	○	○	○	○	○	○	○

● Potential for adverse effect ○ No adverse effect expected

6.2 Impact Assessment and Mitigation

6.2.1 Potential Adverse Impacts

Based on the findings of the environmental effects analysis (Table 3.7) and the environmental interactions analysis (Table 5.1), the detailed design options associated with the preliminary preferred alternative has the potential to adversely impact upon a number of specific environmental features, including:

- Natural Environment
- Social Environment
- Economic Environment
- Cultural Environment
- Technical Environment

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

6.2.2 Natural Environment

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

(a) Aquatic Habitat

For this project, the extent of in-stream work required will result in disruption to the river bed beneath the bridge. A portion of the channel beneath the bridge will need to be isolated during removal of the existing bridge and construction of the new bridge supports. Based on the NRSI species at risk assessment that was completed at the site, there is habitat for special concern (SCC) and rare wildlife species (Rainbow Mussels).

Efforts will be made to avoid or mitigate impacts to the SWH during this project. This will be done through the implementation and maintenance of standard construction mitigation measures during bridge construction. These measures will include erosion and sediment controls, avoidance of work during the night, an emergency spills response plan, containment system to capture debris, mussel and fish salvages, and in-water works timing window. Permit applications will be submitted to the Federal Department of Fisheries and Oceans, the Saugeen Valley Conservation Authority and Ministry of Natural Resources and Forestry, for approval of the associated in-water work.

To minimize impacts to the channel, temporary access pads comprised of clean stone, will be installed, to allow equipment access for construction of the in-water pier and removal of the old bridge. Mussel searches will be conducted in advance of the construction to ensure that impacts to fresh water mussels are minimized. Upon completion of the work, rock rip rap erosion protection will be placed to protect the abutments from future scouring activity. To minimize the extent of impacts, construction will be timed to occur during periods of low flow, during approved timing windows established by the Ministry of Natural Resources and Forestry. Upon completion of the proposed works, the extent of disturbed river bed not protected by rip rap will be restored to pre-existing conditions.

(b) Terrestrial Habitat

Both existing bridge abutments are located adjacent to the Teeswater River riverbank. Some impacts to existing terrestrial features will occur during removal of the upper portion of the existing abutments and construction of the new temporary bridge. Based on the NRSI species at risk assessment that was completed at the site, there are no significant species present that will be impacted by the loss of habitat in these areas. The limits of the work area will be clearly defined in the field through the installation of sediment fencing, to limit encroachment into adjacent natural areas. All disturbed areas will be fully restored with appropriate native plant species, upon completion of construction. In addition, tree removal activities will be scheduled to avoid impacts to breeding birds and other wildlife (September 1 to March 31). Disturbed areas will also be restored upon completion of the project with native species.

To protect the candidate SWH for turtle nesting, all equipment laydown areas will be located outside of the sandy area west of the firehall. A keyed-in sediment fence will also be installed to delineate the work area for the temporary bridge to help keep turtles outside of the construction area and prevent equipment and materials from impacting suitable nesting habitat.

(c) Breeding Birds

Based on the NRSI species at risk assessment, Barn Swallows and their nests were not observed, however the bridge does provide suitable habitat for the species, and Cliff Swallow nests are present in the area. To avoid impacts to birds, the bridge will be netted prior to April 1 to prevent active nests from becoming established on the structure.

(d) Hydrogeologic Resources

During excavation of the bridge foundations and installation of the central pier, excavation of subsoil will be required to ensure the footings are supported by suitable material. This may result in impacts to subsurface material and groundwater resources, as dewatering may be required to pour the new foundations. Any required dewatering will be undertaken in compliance with MECP water taking regulations. Turbid water that is pumped from the excavations will be filtered before being returned to the channel. Any excess excavated material from the bridge site or road approaches will be disposed of in accordance with Ontario Regulation 406/19, On-Site and Excess Soil Management regulation.

6.2.3 Social Environment

(a) Potential Impact to Residents/Adjacent Properties

To facilitate reconstruction of the crossing, the existing bridge will be removed, and a new bridge constructed in the same location. This will require closure of the crossing for a period of approximately 14 to 16 months. Properties located in close proximity to the bridge site could experience some direct impacts from construction (e.g. noise, traffic disruption, and restricted access). The closest residential uses are located southwest of the Teeswater River Bridge, on the second and third floors of a mixed-use building. This building is southwest of the bridge and is adjacent to the south approach lane and may experience some impacts related to noise. Access to adjacent properties will be maintained during the entire construction period.

As discussed, the preferred alternative will require closure of the crossing for a period of approximately 14 to 16 months. Bruce Road 3 will be closed adjacent to the bridge site and traffic will be detoured through a temporary bridge east of the site. Truck traffic will be directed to the detour using the County Road system east of Paisley. Once the new bridge is completed, no long-term impacts to traffic are anticipated. Figure 4.18 illustrates the proposed detour route around the bridge site that will be identified for vehicular traffic.

(b) Pedestrian Access

As discussed, the preferred alternative includes a temporary bridge that will have a sidewalk on one side, in order to maintain pedestrian connectivity in downtown Paisley. Access routes will be signed during the construction period to clarify routes for pedestrians and cyclists. Tentative construction schedules will be posted on the County's website during construction to keep residents informed. Once the bridge is completed, there will be improved pedestrian infrastructure associated with the new bridge design, including wider sidewalks on both sides of the bridge and viewing platforms.

(c) Commercial District

Even with implementation of the temporary in-town detour, there may be impacts to downtown businesses if tourists opt to take a different route to avoid the construction. To mitigate this impact, signage will be erected at the entrances to the community and at major intersections in the County road network, advising that the downtown shopping district is open for business. Social media and local radio stations will also be utilized to encourage tourists to visit Paisley on their way to the cottage to stock up on provisions.

(d) Potential Impact to Navigation

The Teeswater River, at the bridge site, passes beneath the crossing before merging with the Saugeen River, approximately 40 metres downstream. A canoe and kayak outfitter is located approximately 80 metres upstream, at a dam in the Teeswater River. The river and associated boat rental and launching areas serve an important role for the community. These are popular destinations for tourism and local fishing enthusiasts. Temporary closure of the river will be required during portions of the construction due to safety concerns, however a navigational opening will be maintained during a majority 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 the public so that alternative arrangements can be made.

After construction of the new bridge, there will be increased clearance and fewer pillars in the river blocking boat travel routes. Additionally, erosion protection being installed along the base of the dyke upstream of the bridge, will incorporate launching areas for boaters.

6.2.4 Economic Environment

The probable costs of the project are approximately **\$8,225,000** (plus engineering and an allowance for approvals). The proponent intends to finance the capital costs of the work through their capital works budget. Given the location of the project, within downtown Paisley, which is in the Municipality of Arran-Elderslie, some components of the project will be funded by the Municipality. This includes replacement of water and electrical infrastructure on the bridge, as well as street lights and modified components of the barrier system needed to tie into the dyke flood control system.

6.2.5 Cultural Environment

(a) Built Heritage

Implementation of the preferred alternative has the potential to impact cultural heritage features identified during completion of the HIA for the crossing. The County is proposing to incorporate design elements into the new structure that are sympathetic to the design of the former structure and maintain landscape views of the Teeswater and Saugeen Rivers, as well as to adjacent properties. There will also be extensive documentation taken of the bridge, with particular attention to its triple-span, curved concrete T-beam structure, which will be made available to future researchers through the Bruce County Archives.

(b) Archaeological Resources

To address potential impacts to archaeological resources, a Stage 1 & 2 Archaeological Assessment will be completed for construction of the temporary bridge and approach roads. The assessment is being completed by Timmins Martelle Heritage Consultants, the same firm who completed the heritage assessment of the bridge.

6.2.6 Technical Environment

(a) Traffic Movement (Short Term)

The existing bridge will be completely removed and replaced with a new bridge. It is anticipated that the construction process may take up to 14 months, which will require detour routes to accommodate both local and through traffic during this time period. To minimize impacts to travelers and local residents, a temporary bridge will be provided across the Saugeen River, as discussed in Section 4.7.5 of this report. Pedestrian access will also be accommodated on one side of the bridge. A longer detour route for truck traffic will be provided along the County's Road network to the east of the Teeswater River Bridge, which will also disrupt traffic.

Access to private properties will be maintained throughout the construction period, 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.

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. This 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 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 County 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 1, replacement of the crossing in the same location, was selected as the preferred bridge solution. The works associated with the preferred alternatives are illustrated in Appendix H and discussed in more detail below:

Preferred Railing Option: The preferred new bridge will have a lower parapet wall with embossed formwork to meet minimum bridge standards, while being sympathetic to the previous railing.

Preferred Deck Option: The preferred new bridge will have a wider deck to provide larger sidewalks, to be more accessible for mobile devices and maintenance equipment.

Preferred Viewing Area Option: The preferred new bridge will have two separate viewing areas (one on each side), to provide viewing opportunities of the Teeswater and Saugeen Rivers from a vantage point.

Preferred Bridge Span Option: The existing three-span bridge will be replaced with a two-span bridge, to improve flood flows, reduce the potential for ice jams, maintain a historical mill race, and have fewer obstructions for canoeists.

Preferred Detour Route: An in-town temporary detour will be established east of the bridge site spanning the Saugeen River for local traffic. Truck traffic will be directed to the County detour route located east of Paisley within Arran-Elderslie.

7.4 Class EA Project Schedule

The recommended solution is considered a Schedule "C" activity under the terms of the Class EA document, as the project involves the reconstruction or alteration of a structure or the grading adjacent to it when the structure is over 40 years old, which after appropriate evaluation is found to have cultural heritage value (> 2.4 million). This requires the completion of all five phases of the Class EA process.

7.5 Final Public Consultation

A Notice of Study Completion was recently circulated to local residents, stakeholders and government review agencies (refer to Appendix D). 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, Conservation and Parks 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:	January 5, 2022
Placed In:	Hanover Post, Shoreline Beacon, Walkerton Herald (January 5 and 12, 2022), Paisley Advocate (January 2022 Edition), Project website, Bruce County Social Media Accounts.
Distributed To:	14 review agencies/organizations, 66 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 Bruce County office and posted on the Bruce County website. The review period for the Notice will conclude February 4, 2022.

7.6 Project Implementation

The works associated with Alternative 1 outlined in Section 8.3 of this report will be constructed during the 2022 and 2023 construction seasons, pending the successful completion of the Class EA process and the receipt of all necessary approvals. The project would commence in March/April 2022 with the temporary detour bridge being constructed adjacent to the Paisley Fire Hall. Once completed the Teeswater River Bridge would be removed and the new bridge constructed over the next 12-16 months. 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, Bruce County 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:

- Pedestrian and Vehicular access will be maintained in Downtown Paisley, through the installation of a temporary bridge north from Goldie Street to Church Street, until the new Teeswater River Bridge is completed.
- Detour route for truck traffic will be directed towards the County Road detour located to the east of Paisley.
- The preferred bridge deck design will include 1.8 metre sidewalks on both sides of the corridor to provide improved pedestrian access and safety.
- The parapet wall will be lower and contain a decorative metal railing that reflects the design of the previous bridge structure; documentation of the bridge will be completed and provided to the Bruce County Archives.
- Viewing platforms will be installed on both sides of the bridge, to provide a good vantage point for viewing the Saugeen and Teeswater Rivers.
- 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 and mussel populations and other aquatic species inhabiting the work zone.
- Measures will be implemented at the bridge to limit nesting activity on the underside of the structure.
- All equipment laydown areas for construction of the temporary bridge will be located outside of the sandy area west of the fire hall and fenced to prevent turtles from accessing the area.
- Prior to the start of in-water work, including bridge demolition, the river will be systematically searched for mussels and other aquatic life. If found, mussels and fish will be transferred to suitable locations upstream of the work area.
- A navigational opening will be maintained beneath the bridge during construction of the new bridge. If temporary access restrictions are required for safety reasons, the public will be contacted in advance so that alternative arrangements can be made.
- The limit of vegetation removal adjacent to the bridge will be minimized as much as feasible. 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.
- 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.
- Approvals will be obtained from the appropriate regulatory agencies in advance of construction.

- That any activities occurring during development of the site that result in the management of excess soil will be completed in accordance with Ontario Regulation 406/19, On-Site and Excess Soil Management, and current guidance documents entitled Management of Excess Soil-A Guide for Best Management Practices.

7.8 Cost Recovery

The probable capital cost of the project is approximately \$4.4 million for the bridge and construction and \$2.8 million for the temporary bridge, and \$1,822,500 for other associated items (e.g. road approaches), for a total of approximately \$9,047,500 (including an allowance for engineering but not property acquisition or utility relocation). The County intends to finance the majority of the capital costs of the work through the public works budget.

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 County of Bruce, the Municipality of Arran-Elderslie and the Ministry of the Environment, Conservation and Parks (MECP) 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 Saugeen Valley Conservation Authority (SVCA). In accordance with the Conservation Authorities Act, an application will be submitted to the SVCA 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. SVCA staff will also review the bridge hydrology report to ensure that the proposed design will not negatively impact long term flood elevations in the community.

8.3 Fisheries and Oceans Canada (DFO)

A Request for Project Review will be submitted to Fisheries and Oceans Canada for review of the project in regard to potential impacts to fisheries resources and SAR mussels. The application was submitted in the summer of 2021 along with supporting documentation indicating how the project would mitigate potential impacts to fish and mussel habitat.

8.4 Ministry of Northern Development, Mines, Natural Resources and Forestry

In order to remove the existing structure and install the new piers and abutments, portions of the channel will need to be isolated, requiring fish and mussel salvages. A License to Collect Fish for Scientific Purposes is required to authorize this work.

9.0 PROJECT SCHEDULE

A general schedule for the proposed bridge replacement has been prepared based on the assumption that all necessary approvals will be obtained prior to the start of construction. The following represents the schedule for the completion of key project components:

- Completion of final design drawings and receipt of required approvals (November 2021).
- Tendering of project (December 2021-January 2022).
- Initiation of temporary detour bridge located east of the crossing. (March – June 2022).
- Demolition of the existing crossing (July 2022).
- Initiation of road work on section of County Road 3 immediately north of the bridge (May 2023 – September 2023).
- Construction of the new bridge (July 2022 – September 2023).
- Complete site restoration work along the corridor (September-December 2023).
- Commissioning of the new bridge (October 2023).
- Removal of the temporary bridge detour (October to December 2023)

10.0 SUMMARY

This report documents the Municipal Class Environmental Assessment process conducted to define a solution to deterioration present within the Teeswater River Bridge in Paisley.

The study evaluated alternatives associated with bridge replacement, including replacement in the same location or relocation of the bridge.

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

Alternative 1 – Replace Teeswater River Bridge in the Same Location with the following:

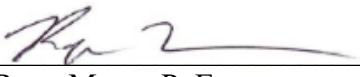
- Lower parapet wall with formwork and decorative metal railing
- Construct a wider deck with 1.8 metre sidewalks on both sides for accessibility purposes
- Viewing platforms on both sides to provide viewing opportunities of the rivers
- Two Spans to improve flood flow, reduce ice jams, and provide fewer obstructions for canoeists

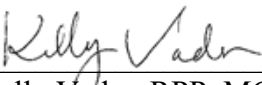
The preferred detour would include a temporary bridge installed over the Saugeen River and a truck detour along the County Road network east of Paisley.

The proposed project is a Schedule C activity under the terms of the Class EA. Bruce County intends to proceed with the implementation of this project upon completion of the Class EA investigation and the receipt of necessary approvals.

All of which is respectfully submitted.

B. M. ROSS AND ASSOCIATES LIMITED

Per 
Ryan Munn, P. Eng.
Project Manager

Per 
Kelly Vader, RPP, MCIP
Environmental Planner

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