



BURNSIDE

McQuillan's Bridge

**Municipal Class Environmental
Assessment – Schedule B
Project File Report (PFR)**

City of Guelph



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Municipal Class Environmental Assessment – Schedule B Project File Report (PFR)

City of Guelph

**R.J. Burnside & Associates Limited
292 Speedvale Avenue West Unit 20
Guelph ON N1H 1C4 CANADA**

**May 2026
300059860.0000**

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May 2026

Distribution List

No. of Hard Copies	PDF	Email	Organization Name
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Record of Revisions

Revision	Date	Description
0	March 2026	Draft Submission to City of Guelph
1	May 2026	Updated Submission to City of Guelph

R.J. Burnside & Associates Limited

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Executive Summary

R.J. Burnside & Associates Limited (Burnside) was retained by the City of Guelph to complete a Schedule 'B' Municipal Class Environmental Assessment (MCEA) to study options for McQuillan's Bridge (Structure 116) – also known as the Stone Road East Bow Truss Bridge.

Originally constructed in 1916, McQuillan's Bridge is a former vehicle bridge that was repurposed as a pedestrian bridge in 2005 when Stone Road East was realigned. The bridge was designated under Part IV of the Ontario Heritage Act (OHA) in 2004 and is also included on the Ontario Heritage Bridge List, spans a designated Canadian Heritage River route and is identified as a heritage attribute of the Ontario Reformatory Heritage Conservation District.

The City closed McQuillan's Bridge in January 2025 following a routine structural condition assessment that determined the bridge was no longer able to support public use. Prior to its closure, the bridge was used as a trail crossing over the Eramosa River, providing an important link in the local third-party trail system used by hikers, cyclists, community groups, educational institutions and others.

The purpose of the MCEA study was to identify the preferred alternative solution for the replacement, removal or rehabilitation of McQuillan's Bridge. This Project File Report (PFR) documents the results of the MCEA process, including the existing conditions, proposed Alternative Solutions and public consultation. Several technical studies were completed to assess the existing conditions and potential impacts of the alternatives being considered. Studies included: Natural Heritage Report, Stage 1 Archaeological Assessment, Cultural Heritage Evaluation Report, and Heritage Impact Assessment. The findings of these studies are incorporated into the evaluation of alternative solutions and are summarized in this PFR.

Class EA Phase 1 – Problem and Opportunity Statement

In accordance with the requirements of Phase 1 of the MCEA process for a Schedule 'B' project, a Problem / Opportunity Statement was prepared. This statement defines the scope of the project and sets a benchmark for comparing alternative solutions and selecting the preferred alternative of the project.

The Problem / Opportunity Statement for the McQuillan's Bridge MCEA is defined as follows:

“The purpose of this MCEA is to identify a solution for McQuillan's Bridge that allows for safe use by pedestrians and non-motorized transportation and that minimizes environmental, cultural and social impacts while maintaining the

McQuillan's Bridge
May 2026

bridge's cultural heritage value in accordance with By-Law (2004)-17357, to the extent possible."

Class EA Phase 2 – Alternative Solutions

Alternative Solutions were developed to address a solution for McQuillan's Bridge that allows for safe use by pedestrians and other non-motorized transportation.

- Alternative 1 – Do Nothing
- Alternative 2 – Rehabilitate and Strengthen
- Alternative 3 – Rehabilitate Arches Incorporating a New Bridge
- Alternative 4 – Remove and Replace Bridge with a Prefabricated Steel Truss
- Alternative 5 – Remove and Replace Bridge with a Concrete Bowstring Arch
- Alternative 6 – Remove the Bridge and Widen the Adjacent Bridge

Alternatives were compared using a range of criteria categorized into Natural, Social, Cultural, Technical and Economic considerations. Equal weighting was applied to the evaluation criteria. Scoring was based on quantitative measures where possible (e.g., area of woodland to be removed). For many criteria (e.g., ease of construction), impacts were based on qualitative assessment and professional expertise.

The number of criteria within each category varied, so the rankings were averaged under each category heading, and the Preferred Solution was based on the average rankings for Natural, Cultural, Social, Financial, and Technical considerations.

The evaluation process determined that Alternative 1: Do Nothing should not be carried forward, because it did not meet the Problem / Opportunity Statement and scored poorly for other criteria.

The top ranked alternative solution was Alternative 2: Rehabilitate and Strengthen. The second ranked alternative solution was Alternative 4: Remove and Replace the Bridge with a Prefabricated Steel Truss.

Lower ranked alternatives include Alternative 3: Rehabilitate Arches Incorporating a New Bridge, Alternative 5: Remove and Replace the Bridge with a Concrete Bowstring Arch, and Alternative 6: Remove the Bridge and Widen the Adjacent Bridge.

Preferred Alternative Solution

The Preferred Solution for McQuillan's Bridge is Alternative 2: Rehabilitate and Strengthen. This alternative scored highest overall in the evaluation and would preserve more of the designated heritage features of the bridge than any other alternative solution.

McQuillan's Bridge
May 2026

Alternative 2 involves full rehabilitation of the existing structure. This will include reconstructing the portions of the bridge with low concrete cover or a safety concern to meet current Canadian Highway Bridge Design Code (CHBDC) requirements. Reconstruction of the existing barriers would be included to ensure current CHBDC standards for height, gaps and capacity are met. The reconstruction work may result in some areas with less aesthetically consistent details on heritage elements and this would be considered and included in consultation. Due to its poor condition, full removal and replacement of the concrete deck is recommended. The retaining walls would be repaired through the addition of subdrains and retaining wall anchors to resist further movement. Bridge footings will remain the same and no work will occur in the water. The full scope of work for Alternative 2: Rehabilitate and Strengthen is documented in the PFR.

Rehabilitation of McQuillan's Bridge will require 3-dimensional Finite Element Modeling (FEM) for alterations to the structural form including construction staging models during the detailed design phase to reduce risk and carefully analyze the structure. There is significant risk involved to the stability of the bridge and staging of removals and repairs to the deck, floor beam and bottom chord will be critical to the success of the rehabilitation. Design engineers and contractors with heritage bridge arch experience are recommended for detailed design and construction.

Alternative 2: Rehabilitate and Strengthen has an estimated capital cost of \$2.7M and will require an estimated \$5,000.00 per year for operation and maintenance. A 30-year service life or better is expected. Future maintenance of the rehabilitated structure is expected to consist of yearly cleaning of the structure in the spring / fall, routine structural inspections, and periodic concrete repairs and sealant replacement during the remaining service life.

Capital costs for Alternative 2: Rehabilitate and Strengthen will increase as the structure continues to deteriorate and will no longer be viable if deteriorated elements result in the collapse or accelerated deterioration of other critical elements.

Potential Impacts and Mitigation Associated with the Preferred Solution & Next Steps

Key impacts associated with the implementation of the preferred Alternative Solution and general mitigation required have been identified. Rehabilitation works would be limited to the existing bridge. As temporary or permanent removal of woodland features would not be required, there is no anticipated impact to the associated Species At Risk bat habitat. The Eramosa River Blue Springs Creek Provincially Significant Wetland located adjacent to McQuillan's Bridge is unlikely to be affected. While the bridge span and geometry are not changing, natural heritage improvements are recommended in the form of native plantings along the waterway.

McQuillan's Bridge
May 2026

In addition to the mitigation measures identified in the Project File Report, additional work will be required to be completed prior to construction. Additional work will include detailed design, preparation of a Conservation Plan for the heritage structure, a heritage permit, and other approvals from regulatory agencies.

During detailed design, the findings from this MCEA will be confirmed through additional investigations, planning, and consultation with the key interested parties and technical agencies.

Given the ongoing deterioration of the existing bridge, the scope of work identified in this PFR for the preferred alternative solution is valid for up to three years. Beyond that timeframe, the condition of the bridge would need to be re-assessed and the scope of the rehabilitation work re-evaluated.

Table of Contents

1.0	Introduction	9
2.0	Project Background.....	10
3.0	Municipal Class Environmental Assessment (MCEA) Process	15
3.1	Public Review Period	17
3.2	Class Environmental Assessment Section 16(6) Order (Formerly Part II Order)	17
4.0	Problem and Opportunity Statement.....	19
5.0	Existing Conditions	20
5.1	Social Environment.....	20
5.1.1	Methodology for Characterizing the Social Environment	20
5.1.2	Indigenous Treaties, Rights, and Land Claims	20
5.1.3	Relevant Land Use and Design Policies	21
5.2	Natural Environment.....	26
5.2.1	Terrestrial Environment.....	30
5.2.2	Aquatic Environment.....	38
5.2.3	Floodplain and Natural Hazards.....	40
5.3	Technical Environment.....	41
5.4	Cultural Environment.....	41
5.4.1	Cultural Heritage.....	41
5.4.2	Archaeological Resources.....	44
6.0	Evaluation of Alternatives.....	46
6.1	Alternative 1 – Do Nothing	46
6.2	Alternative 2 – Rehabilitate and Strengthen	46
6.3	Alternative 3 – Rehabilitate Arches Incorporating a New Bridge	47
6.4	Alternative 4 – Remove and Replace Bridge with a Prefabricated Steel Truss	48
6.5	Alternative 5 – Remove and Replace Bridge with a Concrete Bowstring Arch.....	49
6.6	Alternative 6 – Remove the Bridge and Widen the Adjacent Bridge.....	50
6.7	Lifecycle Cost Comparison	50
6.8	Evaluation Criteria	54
6.9	Evaluation Process.....	55
7.0	Description of the Preferred Alternative Solution	59
7.1.1	Landscaping and Restoration	61
7.1.2	Climate Change Considerations	61
8.0	Potential Impacts and Mitigation Associated with the Preferred Solution...	63
9.0	Consultation	73
9.1	Consultation with Indigenous Communities.....	73
9.2	Notices.....	78
9.3	Public Open Houses.....	78

9.3.1	Public Open House #1 (POH#1).....	78
9.3.2	Public Open House #2 (POH #2).....	79
9.4	Agency Correspondence.....	80
9.5	Consultation with Interest Groups.....	81
10.0	Next Steps.....	83
10.1	Detailed Design Work.....	83
10.1.1	Commitments for Future Studies and Consultation.....	83
10.1.2	Permits and Approvals.....	84
11.0	Conclusions.....	84
12.0	References.....	86

Tables

Table 5.1:	Field Investigations Summary Table.....	28
Table 5.2:	Fish Species Historically Observed in the Eramosa River.....	39
Table 6.1:	Lifecycle Bridge Repair Timing Schedule.....	52
Table 6.2:	Sensitivity Analysis.....	53
Table 6.3:	Evaluation Criteria.....	54
Table 8.1:	Potential Impacts and Mitigation.....	65
Table 9.1:	Communications with Indigenous Communities.....	75
Table 9.2:	Summary of Agency Correspondence.....	81

Figures

Figure 2.1:	Study Area.....	11
Figure 2.2:	Bridge Components.....	13
Figure 3.1:	Municipal Class Environmental Assessment Process Flow Chart.....	16
Figure 5.1:	Schedule 4 of City of Guelph Official Plan.....	23
Figure 5.2:	Map 6 from City of Guelph Trail Master Plan.....	24
Figure 5.3:	Guelph Innovation District Secondary Plan, Schedule A: Mobility Plan.....	25
Figure 5.4:	Ecological Land Classification.....	31
Figure 5.5:	Confirmed Significant Wildlife Habitat.....	36
Figure 5.6:	Candidate Significant Wildlife Habitat.....	37
Figure 5.7:	Grand River Conservation Authority Mapping.....	40
Figure 5.8:	Heritage Review Results (3 of 4), Cultural Heritage Report.....	42
Figure 5.9:	McQuillan's Bridge Heritage Attributes.....	43
Figure 5.10:	Study Area – Results of the Stage 1 Archaeological Assessment (Map 20 of Stage 1 AA Report).....	45
Figure 6.1:	Sample Barrier Reconstructions with Aesthetic and Safety Considerations.....	47
Figure 6.2:	Example of Prefabricated Steel Bridge.....	48
Figure 6.3:	Arch Bridge in Stoneham Quebec (Photo from "2012 Consulting Engineering Awards").....	49
Figure 6.4:	Evaluation of Alternative Solutions.....	56

Appendices

Appendix A Cultural Heritage Existing Conditions Report and Heritage Impact
Assessment

Appendix B Natural Heritage Report

Appendix C Stage 1 Archaeological Assessment

Appendix D Evaluation Matrix

Appendix E Consultation Documents

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1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) was retained by the City of Guelph to complete a Municipal Class Environmental Assessment (MCEA) to study options to improve McQuillan's Bridge (Structure 116) – also known as the Stone Road East Bow Truss Bridge. McQuillan's Bridge is a former vehicle bridge that was repurposed as a pedestrian bridge in 2005 when Stone Road East was realigned. The City closed McQuillan's Bridge in January 2025 following a routine structural condition assessment that determined the bridge was no longer able to support public use.

Prior to its closure, it was used as a crossing for pedestrians and cyclists over the Eramosa River. It was a link in a third-party trail system that was used by hikers, cyclists, community groups, educational institutions and others. The closure of McQuillan's Bridge is a disruption in this trail's connectivity.

This MCEA addresses McQuillan's Bridge and provides a solution that allows for safe use by pedestrians and non-motorized transportation and provides measures to mitigate possible impacts to the natural, social, cultural, and built environment.

The existing conditions, proposed Alternative Solutions, and public consultation process are presented in this Project File Report (PFR) for the Schedule B MCEA.

2.0 Project Background

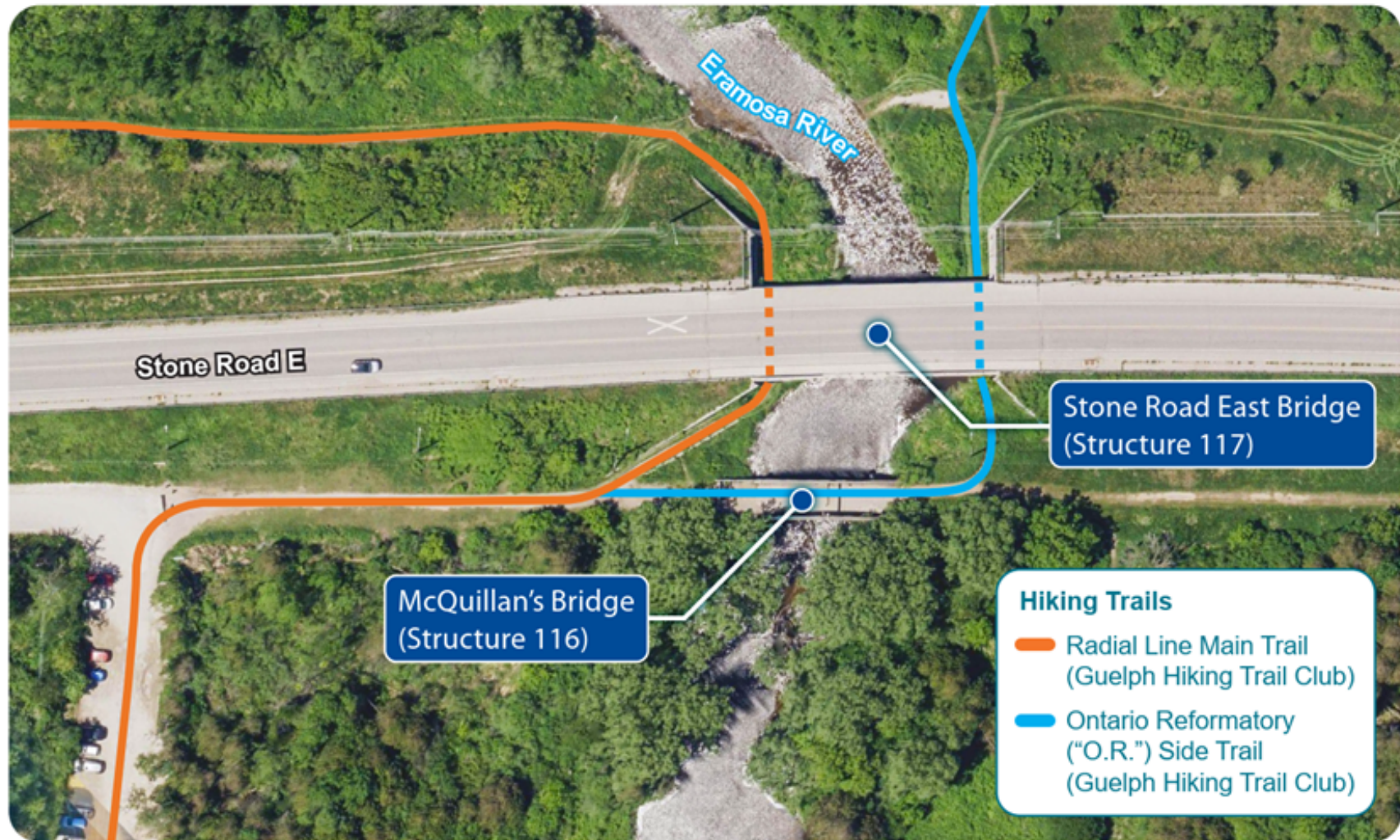
Study Area

McQuillan's Bridge crosses the Eramosa River and is located parallel to Stone Road East, approximately 1 km east of Victoria Road South. The bridge is a 21.3 m clear single span, steel reinforced concrete bowstring arch and is owned by the City of Guelph.

There are several existing trail connections within the study area. The location of the existing bridge and hiking trails is shown on Figure 2.1. The hiking trails shown are operated by the Guelph Hiking Trail Club and are not part of a City installed and maintained trail system. The trails are frequented by numerous community user groups including the Guelph Outdoor School and Barber Scout Camp.

There is a north-south hiking trail on the east side of the river (known as the "O.R. Side Trail") that goes under Stone Road East at the road bridge (Structure 117) and uses McQuillan's Bridge (Structure 116) to cross over the river, connecting to the north-south hiking trail on the west side (known as the "Radial Line Main Trail") that also goes under Stone Road East at the road bridge. The two hiking trails are included in the **City's trail network mapping** and inform the Guelph Trail Master Plan.

Figure 2.1: Study Area

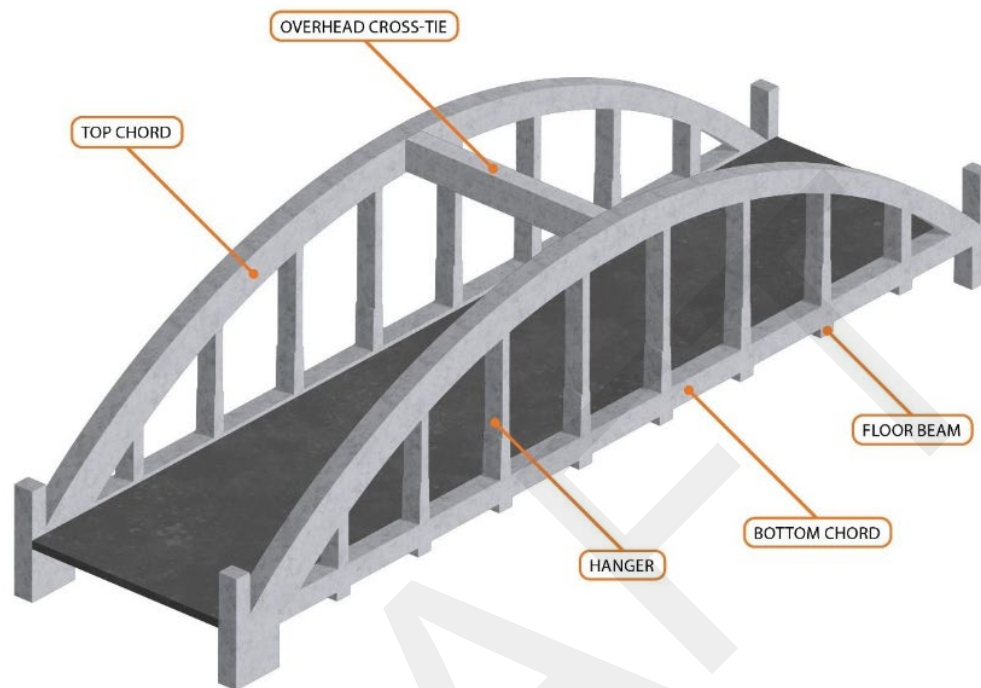


McQuillan's Bridge
May 2026

The bridge was constructed in 1916 and was rehabilitated with concrete patch repairs in 1992 and 1995. There are no available drawings of the original design or subsequent rehabilitations. The bridge accommodated a single lane of vehicular traffic until 2005, after which the bridge served pedestrian traffic until January 2025. The City closed McQuillan's Bridge in January 2025 following a routine structural condition assessment that determined the bridge was no longer able to support public use. Following the closure of McQuillan's Bridge, a temporary pedestrian route was established on Stone Road East using concrete jersey barriers, with the speed limit reduced to 40 km/h. There is an ongoing Municipal Class Environmental Assessment study for Victoria Road South, from York Road to Stone Road; Stone Road East, from Victoria Road South to Watson Parkway South. The Victoria Road and Stone Road East study will include consideration for walking and cycling facilities.

Bowstring Concrete Arch bridges are typically a very robust structure type, owing to the reliance on compression in the concrete arch to maintain the stability of the structure with less reliance on reinforcing steel. The reinforcing steel in the hangers and bottom tension chord are protected from direct exposure to the elements by the concrete. The floor beams and deck, however, rely on composite action between the reinforcing steel and the concrete to carry loads.

As shown on Figure 2.2, the bridge has a concrete compression arch with a bottom tension chord and tension hangers with floor beams that support a 5.8 metre wide deck slab. The bowstring arch is supported on concrete abutments with approach retaining walls.

Figure 2.2: Bridge Components

The bridge is located adjacent to the Eramosa Springs Creek Provincially Significant Wetland (PSW) complex. The bridge crosses the Eramosa River which is designated as a Canadian Heritage River. The Study Area is located entirely within the Grand River watershed and lands regulated by the Grand River Conservation Authority (GRCA) through O. Reg. 24/41. The bridge is also located within the Treaty Lands of the Mississaugas of the Credit First Nation. Further information on Treaty Lands are included in Section 5.1.2.

Needs and Justification

McQuillan's Bridge was originally constructed in 1916 and was designated as a heritage property in Bylaw (2004)-17357A. According to the bylaw, the heritage designation applies to the form and appearance of the existing surface of the concrete bridge structure including:

- The eight vertical members
- Chambered and dimpled balustrading
- Arches
- The cross-member with dated inscription tying the arches

The City bylaw notes that "any repairs or reconstruction in concrete of the features may be undertaken without requiring City Council permission for an alteration to the

McQuillan's Bridge
May 2026

designation". Any more significant changes would require approval by Council and changes to the bylaw. The bridge is considered a significant cultural heritage resource in the City of Guelph. Heritage attributes are further discussed in Section 5.4.1.

The City closed McQuillan's Bridge in January 2025 following a routine structural condition assessment that determined the bridge was no longer able to support public use.

During a site visit in June 2025, Burnside confirmed that the overall condition of McQuillan's Bridge (Structure 116) is poor. As indicated in previous OSIM reports there is a wide crack between the abutment and approach retaining walls on the south side with visible outward rotation in the retaining walls in the southeast and southwest quadrants. The square reinforcing steel is lightly corroded and visible in many severe spalls located in the bottom tension chords, floor beam, deck soffit, tension hangers and in the arch top compression chord. There are also steel anchor plates at the hanger / floor beam connection and at the arch top compression chord connection with the bottom tension chord that are exposed with moderate to very severe corrosion. The rivet heads in the anchor plate connection at the hanger / floor beam are largely disintegrated. In some areas such as the floor beams, soffit and tension chord, the reinforcing steel is corroded with severe section loss, thereby reducing the overall capacity of the bridge.

In the floor beams and deck the very severe disintegration of the concrete is apparent with wide cracking, very severe scaling and a porous appearance to the concrete. This sort of disintegration is typical of unsealed concrete made using the ratio method which has been exposed to many wetting and drying cycles. It is anticipated that the concrete in the deck and floor beams have very limited strength. The concrete cover to the reinforcing steel varies between 10 and 25 millimeters based on field investigations, for comparison in the current Canadian Highway Bridge Design Code (CHBDC) the cover required would vary between 50 and 90 millimeters (CSA Group, CHBDC Section 6:19). The limited concrete cover results in poor protection to the reinforcing steel and premature corrosion which causes the concrete to spall.

3.0 Municipal Class Environmental Assessment (MCEA) Process

The planning of public sector projects or activities that have the potential for environmental effect is subject to an MCEA as required by Ontario's Environmental Assessment Act, R.S.O. 1990.

The MCEA process was developed by the Municipal Engineers Association (MEA), in consultation with the Ministry of the Environment, Conservation and Parks (MECP, previously known as Ministry of Environment), as an alternative method to Individual (now referred to as Comprehensive) Environmental Assessments for recurring municipal projects that were similar in nature, usually limited in scale and with a predictable range of environmental impacts, which were responsive to mitigating measures.

The MCEA solicits input from regulatory agencies, the municipality, Indigenous communities, and the public at the local level. This process leads to an evaluation of the alternatives in view of the significance of the environmental effects, including the technical, natural, social / cultural, and economic impact of a project, and the choice of effective mitigation measures.

Based on the description provided in the Municipal Engineering Association (MEA) Guide for MCEAs (2024) under municipal road and infrastructure project activities for a structure over 40 years old, the Alternative Solutions being considered and the estimated cost limit for the project, it was determined that a Schedule B MCEA with a Project File Report (PFR) was appropriate for the undertaking of this investigation.

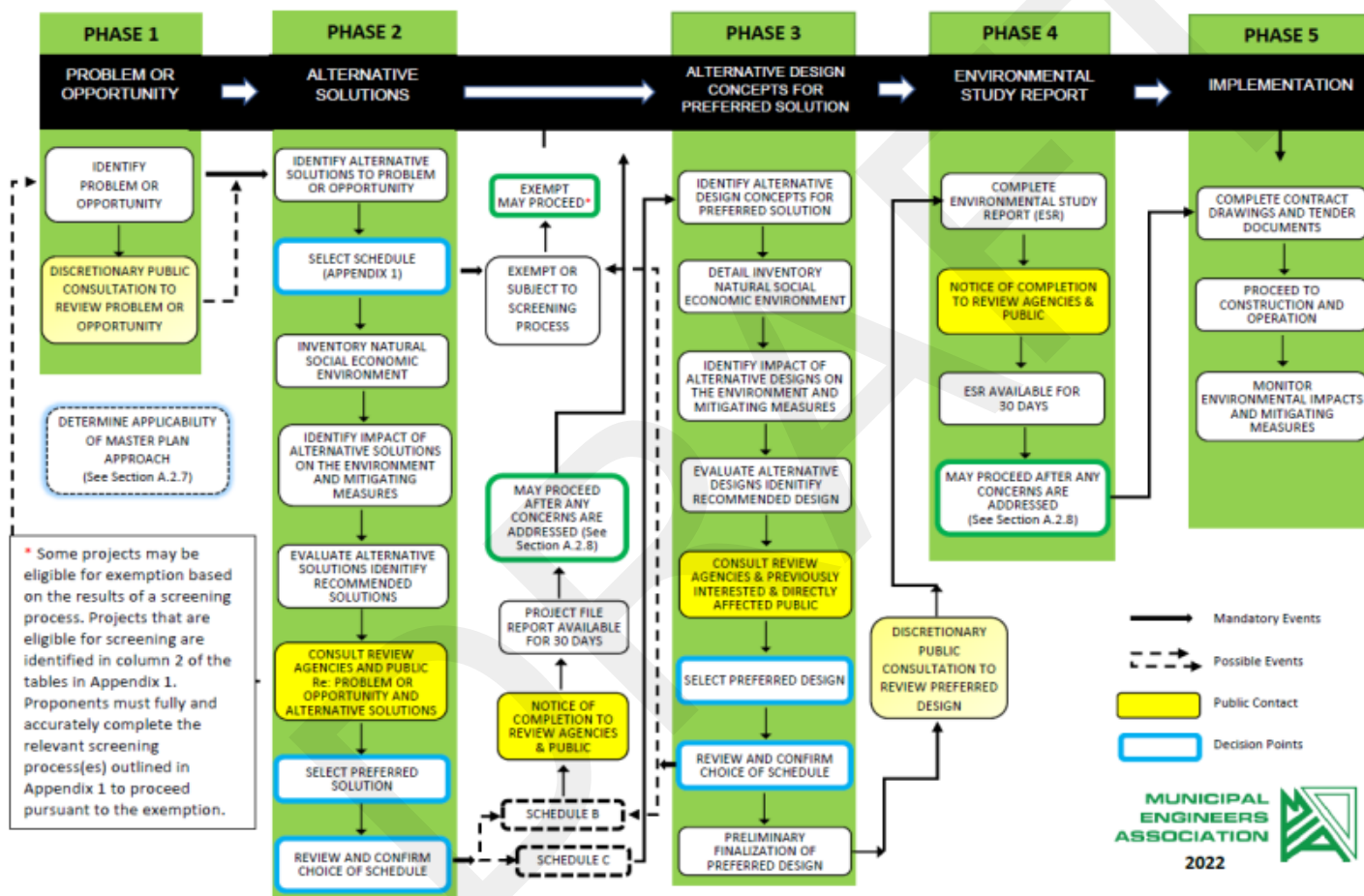
As a Schedule B project, the project planning proceeds under the planning and documentation procedures of Phases 1 and 2 of the MCEA process. Through this process, reasonable Alternative Solutions identified are evaluated with input from agencies, Indigenous communities, and stakeholders toward a recommendation for a Preferred Solution. As a minimum, public consultation is required at two stages under a Schedule B project. At the conclusion of Phase 2, the appropriate MCEA planning schedule is confirmed and, if there are no outstanding concerns, the proponent may proceed to design and implementation.

The phases of the MCEA process are illustrated in Figure 3.1 and summarized as follows:

- Phase 1 – Identify the problem (deficiency) or opportunity.
- Phase 2 – Identify alternative solutions to address the problem or opportunity by taking into consideration the existing environment and establish the preferred solution taking into account the public and review agency input. At this point, determine the appropriate schedule for the undertaking and document decisions in a project file for Schedule B projects.

McQuillan's Bridge
May 2026

Figure 3.1: Municipal Class Environmental Assessment Process Flow Chart



3.1 Public Review Period

In accordance with the requirements of the MCEA, this PFR is available for public review and comment for a period of 30 calendar days following the publication of the Notice of Completion.

Interested persons may provide written comments to our project team within the 30-day comment period. All comments and concerns should be sent directly to the project team at:

Kate Berry, EIT
Project Manager – Transportation Planning
City of Guelph
519-822-1260 ext. 4177
Kate.Berry@guelph.ca

3.2 Class Environmental Assessment Section 16(6) Order (Formerly Part II Order)

The Ministry of the Environment, Conservation and Parks (MECP) has the authority and discretion to make an Order under Section 16 of the Environmental Assessment Act. Section 16 Order requests were previously known as Part II Order requests. A Section 16 Order may require that the proponent of a project going through an MCEA process:

1. Submit an application for approval of the project before they proceed. This is generally referred to as a Comprehensive Environmental Assessment.
2. Meet further conditions in addition to the conditions in the MCEA. This could include conditions for:
 - a) Further study
 - b) Monitoring
 - c) Consultation

The minister can also refer a matter in relation to a Section 16(6) Order request to mediation.

A Section 16(6) Order can be requested if:

- You have outstanding concerns that a project going through an MCEA process may have a potential adverse impact on constitutionally protected Aboriginal and treaty rights.
- You believe that an Order may prevent, mitigate, or remedy this impact.

McQuillan's Bridge
May 2026

Requests on other grounds will not be considered. Requests should include the requester contact information and full name for the MECP.

In accordance with the requirements of the MCEA, this PFR is available for public review and comment for a period of 30 calendar days following the publication of the Notice of Completion.

Interested persons may provide written comments to our project team within the 30-day comment period. All comments and concerns should be sent directly to the project team at:

Kate Berry, EIT
Project Manager – Transportation Planning
City of Guelph
519-822-1260 ext. 4177
Kate.Berry@guelph.ca

Requests should specify what kind of order is being requested (request for additional conditions or a request for a comprehensive environmental assessment), how an order may prevent, mitigate, or remedy those potential adverse impacts, and any information in support of the statements in the request. This will ensure that the MECP is able to efficiently begin reviewing the request.

The request should be sent in writing or by email to:

Minister of the Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
Minister.MECP@ontario.ca

and

Director, Environmental Assessment Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto ON M4V 1P5
EABDirector@ontario.ca

Requests must also be sent to the project team

If the Minister does not receive a request for a Section 16 Order within 30 calendar days, then the project will move forward to detailed design, approvals process, and subsequent implementation of the Preferred Solution.

4.0 Problem and Opportunity Statement

In Phase 1 of the EA process, the objective is to identify the challenge or opportunity that the process is meant to resolve. This statement assists in defining the scope of the project and serves as its central theme and integrating element that sets a benchmark for the final output of the project.

The Problem / Opportunity Statement for the McQuillan's Bridge MCEA is defined as follows:

“The purpose of this MCEA is to identify a solution for McQuillan's Bridge that allows for safe use by pedestrians and non-motorized transportation and that minimizes environmental, cultural and social impacts while maintaining the bridge's cultural heritage value in accordance with By-Law (2004)-17357, to the extent possible.”

In accordance with the requirements of the EA planning process for Schedule B projects, the City initiated this EA to identify and evaluate Alternative Solutions to address this Problem / Opportunity Statement.

5.0 Existing Conditions

The existing natural, cultural, social and built environment within the Study Area was characterized through a compilation of existing data sources and on-site field investigations. Existing conditions are described in the following sections.

5.1 Social Environment

5.1.1 Methodology for Characterizing the Social Environment

The social environment was characterized through a review of existing information, databases, plans and policies, including the following:

- Provincial Planning Statement, 2024
- City of Guelph Official Plan (February 2024 consolidation)
- City of Guelph Transportation Master Plan, 2022
- City of Guelph Trail Master Plan, 2021
- Guelph Innovation District Secondary Plan (OPA 54, 2014)
- Grand River Conservation Authority Regulation mapping
- Source Water Protection mapping

5.1.2 Indigenous Treaties, Rights, and Land Claims

Aboriginal and Treaty Rights are protected under Section 35 of the Constitution Act, 1982. Aboriginal Rights are associated with practices, customs or traditions that are integral to the distinctive culture of the Indigenous community claiming the right. Treaty Rights are those specified in historic treaties signed between Indigenous people and the Crown.

Indigenous peoples made use of the lands in the Study Area for thousands of years before European contact. There are several persistent cultural heritage landscapes and natural heritage features in the Guelph area of continuing importance to these First Nations communities. Not least of these are the Speed and Eramosa rivers, tributaries of the Grand River, which remains an important cultural and environmental resource as recognized when it was designated a Canadian Heritage River in 1994.

There are several Indigenous communities that may have constitutionally protected Aboriginal or Treaty Rights associated with the Study Area, or a portion of it, including:

- Mississaugas of the Credit First Nation (MCFN)
- Six Nations of the Grand River (SNGR)
- Haudenosaunee Confederacy Chiefs Council [represented by the Haudenosaunee Development Institute (HDI)]

The various treaties signed between the Crown and Indigenous communities in this area are documented in the Cultural Heritage Existing Conditions Report, provided in Appendix A. A summary of treaty history from the Stage 1 Archaeological Assessment (Appendix C) is provided below. Information regarding consultation with Indigenous communities is provided in Section 9.1.

The study area is encompassed by the Between the Lakes Treaty (Treaty No. 3). The Mississauga people reached a provisional agreement with the Crown in 1784, but it proved to be unclear. Consequently, the treaty was redrafted to provide a better description of the affected lands and signed on December 7, 1792. The area covered by the treaty extended from Mapleton Township in the northwest to Elgin County in the southwest to the edge of a tract of land ceded earlier along the Niagara River in the east. The stated purpose of Treaty No. 3 (MCFN 2020; Surtees 1984) was the Crown acquisition of land for the resettling of British allies from the American Revolutionary War, most notably allies from the Haudenosaunee Confederacy (Six Nations). Of these groups, Thayendanegea (Joseph Brant) and some 1,843 members of the Six Nations and their allies settled along the Grand River in what would become known as the Haldimand Tract (Surtees 1984:25).

In 1701, the Fort Albany / Nanfan Deed was signed between the Haudenosaunee Confederacy and the acting governor of New York, on behalf of the British Crown. That agreement covered a vast territory encompassing most of the lower Great Lakes, claimed as the Haudenosaunee's Beaver Hunting Grounds. Much of the same territory also falls within the Dish with One Spoon Wampum. The Wampum represents an agreement between the Haudenosaunee and the Anishinaabeg to share the hunting territories around the Great Lakes (Glover, 2020).

5.1.3 Relevant Land Use and Design Policies

Provincial Planning Statement, 2024

The Provincial Planning Statement (PPS) came into effect on October 20, 2024, and was issued under Section 3 of the Planning Act. The PPS 2024 effectively replaces both the Provincial Policy Statement, 2020, and A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2019. Provincial policies are implemented through municipal official plans and planning decisions and set the foundation for the efficient use of land, resources, and public investment in infrastructure. Land use planning decisions made by municipalities must be consistent with the PPS.

The PPS provides directions to guide land use planning and optimize land, resources, and public investments for the next 30 years. It promotes efficient development patterns through transit-oriented development and active transportation, prioritizing intensification near transit corridors, while integrating diverse housing options, including affordable units, employment, recreation, parks, and open spaces.

McQuillan's Bridge
May 2026

The PPS focuses growth and development within settlement areas. Development in natural heritage areas is not permitted unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions. In general, projects should have consideration for energy conservation, air quality, climate change, management of resources and protecting public health and safety. Relevant policies are to be applied to each situation.

Chapter 3 of the PPS provides specific direction for the planning and development of infrastructure and facilities including: transportation related policies, land use compatibility, servicing, and public spaces. Chapter 4 of the PPS provides guidance on the wise use and management of resources including protection of natural heritage features, water, agriculture, cultural heritage and archaeology. Chapter 5 of the PPS provides guidance on protecting public health and safety from natural and human made hazards.

City of Guelph Official Plan

The City of Guelph's Official Plan is developed based on input from the community and is updated every five years. The Official Plan is focused on sustainability and establishes policies that have an overall positive effect on the City's social, economic, cultural and natural environment. The Official Plan is focused on maintaining a high quality of life for Guelph residents.

Schedule 4 of the City's Official Plan shows that there are Significant Natural Areas, Ecological Linkages and Wildlife Crossing Opportunities in the study area. A clip of Schedule 4 is shown in Figure 5.1.

Section 4.1.2 of the Official Plan indicates that development and site alteration are generally not permitted within the Natural Heritage System. Certain exceptions exist, including, "City infrastructure, where essential and authorized under an EA, may be permitted within the Natural Heritage System". In order to be permissible, this MCEA will demonstrate that there will be no negative impact on natural features and the project will result in a net ecological gain, among other requirements.

Figure 5.1: Schedule 4 of City of Guelph Official Plan**Guelph Transportation Master Plan (2022)**

The City completed a Transportation Master Plan update in 2022 which identified six core values to be achieved in the transportation planning process. One of the six core values is to ensure that transportation infrastructure and facilities are sustainable and promote healthy lifestyles and environmental stewardship. Another of the six values is to provide a complete network, enabling continuous multi-modal travel.

The closure of McQuillan's Bridge is a disruption in connectivity as it was previously relied on as a crossing for pedestrians and cyclists over the Eramosa River. The Municipal Class Environmental Assessment study for Victoria Road South and Stone Road East may include consideration for an alternative using McQuillan's Bridge as an east-west pedestrian and cyclist connection.

Guelph Trail Master Plan (2021)

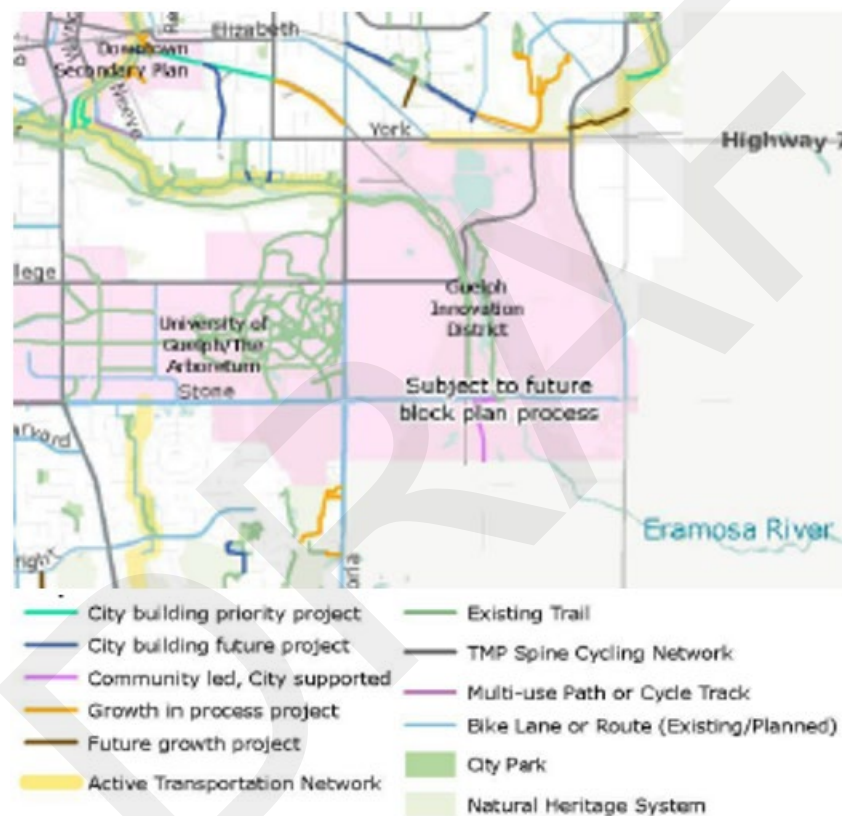
The Guelph Trail Master Plan (GTMP) update was completed in 2021 and supports an inclusive, connected, sustainable trail network that offers diverse experiences, enables an active and healthy lifestyle and showcases Guelph's natural and cultural assets for all. Goal 6 of the Trail Master Plan is to protect the City's natural heritage system and cultural heritage assets, which aligns with the goals of this MCEA study.

McQuillan's Bridge
May 2026

The GTMP acknowledges that trails exist beyond the City's network; some of which have been developed through community led, city supported projects, including the hiking trails within the study area. However, these third-party trails are recognized as an important piece of the greater Guelph Trail Master Plan trail network.

McQuillan's Bridge connects the existing hiking trail on the east side of the Eramosa River to the future Stone Road – Cooksmill Road Trail, which has been identified as a priority project in the **Guelph Trail Master Plan**. This desired connection was discussed by the City's Parks and Trail Development Team and Trail user groups and is planned as a future City trail segment.

Figure 5.2: Map 6 from City of Guelph Trail Master Plan



Guelph Innovation District Secondary Plan

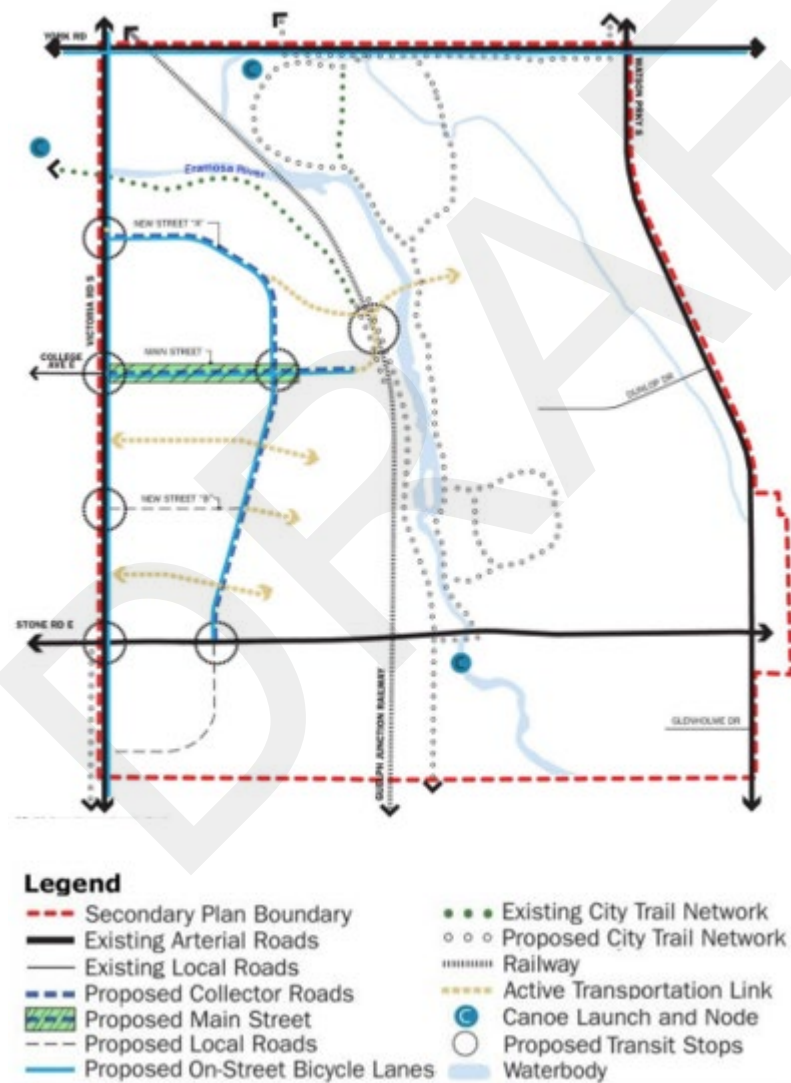
The Guelph Innovation District (GID) is a mixed-use community with a pedestrian-level focus; a portion of the GID overlaps with the project study area. The GID is planned to provide innovative sustainable employment uses with connection to an adjacent urban village. The GID plans to provide connections between all modes of transportation and prioritize pedestrians, cyclists, and transit users over vehicle-centered travel. McQuillan's Bridge provides a key connection across the Eramosa River for the local hiking trails, enabling active transportation within the corridor.

McQuillan's Bridge
May 2026

As shown on Figure 5.3, the Mobility Plan shows the proposed City trail network crossing Stone Road and McQuillan's Bridge. Section 11.2.4.1 (General Mobility Policies) note that "Consideration and provisions will be made for a future Active Transportation Link crossing over the Eramosa River as shown in Schedule A".

Section 11.2.2.1 of the GID Secondary Plan notes that "The Natural Heritage System shall be protected, maintained, restored and enhanced so that it may fill its role as the centerpiece of the GID". In addition, "The City will identify and support opportunities to provide greater public access to the Natural Heritage System". McQuillan's Bridge is located within the GID Natural Heritage System.

Figure 5.3: Guelph Innovation District Secondary Plan, Schedule A: Mobility Plan



Conservation Authority Regulations

On April 1, 2024, the 36 distinct conservation authority regulations were revoked and consolidated under a single Minster's regulation governing prohibited activities, exemptions, and permits under the Conservation Authorities Act (O.Reg 41/24). The regulation limits development on lands which may pose natural hazards, such as wetlands, watercourses, floodplains, erosion-prone lands and lands directly beside these features.

The study area includes lands regulated by the Grand River Conservation Authority (GRCA). A permit under O.Reg 41/24 will be required from the GRCA for works within the regulated areas.

Source Water Protection Plan

The Study Area is located within the Grand River Source Water Protection Area according to the Source Water Protection Atlas. The study area is also located within a Highly Vulnerable Aquifer.

The bridge is not deemed a threat to drinking water as it does not discharge any substances to the water. Project activities such as bridge construction or rehabilitation work are also not considered to be a threat when best management practices are implemented.

5.2 Natural Environment

The natural environment includes the ecological features, functions and linkages that exist within the Study Area and beyond. The existing natural environment was characterized through a review of the existing secondary source information, previous studies at the site and a variety of field investigations and analyses. The following sections document the methodology used and the findings of the various studies. A detailed description of natural features in the Study Area can be found in the Natural Heritage Report provided in Appendix B.

Methodology for Characterizing the Natural Environment

The natural environment was characterized through a review of existing information, databases, plans and policies and field investigations. These sources included:

- Aerial photographic imaging and 1:10,000 Ontario Base Mapping (OBM)
- DFO Aquatic SAR mapping
- Ministry of Natural Resources (MNR) Make a Map: Natural Heritage Areas to identify natural heritage features and Natural Heritage Information Centre (NHIC) data of rare wildlife species on, and in the vicinity of, the subject lands: 1x1 km²

McQuillan's Bridge
May 2026

Squares: 17NJ6222, 17NJ6221, 17NJ6322, 17NJ6321, 17NJ6422, 17NJ6421, 17NJ6522, and 17NJ6521

- MNR Land Information Ontario (LIO) database
- MNR Aquatic Resource Area (ARA) summary data
- MNR Online GeoHub Search (Nesting Sites, White-tailed Deer Wintering Areas)
- Ontario Hydrology Network (OHN) mapping
- The Ontario Breeding Bird Atlas (OBBA) 2001-2005 – 10 x 10 km² Square 17NJ62
- Ontario Reptile and Amphibian Atlas (ORAA) – 10 x 10 km² Square 17NJ62
- iNaturalist records
- eBird records
- GRCA Regulated Areas and features mapping
- City of Guelph Official Plan (February 2024 Consolidation)
- Guelph Innovation District Lands, Blocks 1 & 2, Guelph Environmental Impact Study (NRSI, 2025)
- Phase 1 Environmental Impact Study Natural Heritage Characterization Report (AECOM, 2022)
- City of Guelph Natural Heritage Strategy Phase I: Terrestrial Inventory Design & Defining Locally Significant Natural Areas (Dougan & Associates, 2005)
- City of Guelph Natural Heritage Strategy Phase 2: Terrestrial Inventory & Natural Heritage System. Volume 1 – Report (Dougan & Associates, 2009)

In addition, to records review, a number of field investigations were completed, as summarized in Table 5.1.

Table 5.1: Field Investigations Summary Table

Field Study	Methodology	Location	Staff Involved	Date(s)	Time of Day	Weather Conditions ^{1,2}
						(Air Temp °C / Beaufort Sky Code ¹ / Wind Scale ²)
Ecological Land Classification and Botanical Inventory	Ecological Land Classification for Southern Ontario (Lee et al.,1998) using Second Approximation codes (Lee 2008)	Full Study Area	E. Mekli Ecologist	June 16, 2025	09:00 – 16:00	Start: 20°C; End: 29°C Sky: 1 Wind: 2
			S. Yoshida Ecologist	June 20, 2025	10:06 – 17:54	Start: 20°C; End: 24°C Sky: 1 Wind: 3
			S. Yoshida Ecologist	August 19, 2025	09:15 – 13:00	Start: 18°C; End: 21°C Sky: 2 Wind:1
			S. Yoshida Ecologist	August 20, 2025	09:30 – 11:15	Start: 18°C; End: 20°C Sky: 2 Wind: 2
			E. Mekli Ecologist	August 22, 2025	09:00 – 15:50	Start: 18°C; End: 27°C Sky: 2 Wind: 2
			E. Mekli Ecologist	September 19, 2025	09:25 – 15:00	Start: 20°C; End: 24°C Sky: 2 Wind: 2
			S. Yoshida Ecologist	September 23, 2025	13:40 – 18:10	Start: 22°C; End: 21°C Sky: 2 Wind: 1
Breeding Bird Survey and Bobolink / Eastern Meadowlark Survey	Two surveys at least ten days apart using the method in the Ontario Breeding Bird Atlas Guide for Participants (BSC, March 2001). Three surveys at least seven to ten days apart using the method in the Survey Protocol for Eastern Meadowlark in Ontario (MNR, August 2013). Note: the June 11 survey was a Bobolink / Eastern Meadowlark survey only. All other surveys used both methodologies noted above.	Survey locations shown on Figure 3 in Appendix B	S. Yoshida Ecologist	June 3, 2025	06:45 – 10:41	Start: 8°C; End: 22°C Sky: 2 Wind: 1
			S. Yoshida Ecologist	June 6, 2025	08:19 – 10:12	Start: 16°C; End: 22°C Sky: 2 Wind: 2
			S. Yoshida Ecologist	June 11, 2025	07:52 – 08:42	Start: 15°C; End: 16°C Sky: 1 Wind: 2
			S. Yoshida Ecologist	June 17, 2025	06:24 – 10:32	Start: 14°C; End: 22°C Sky: 1 Wind: 2
			S. Yoshida Ecologist	June 18, 2025	08:10 – 09:33	Start: 22°C; End: 223°C Sky: 2 Wind: 1

McQuillan's Bridge
May 2026

Field Study	Methodology	Location	Staff Involved	Date(s)	Time of Day	Weather Conditions ^{1,2}
Amphibian Breeding Call Surveys	Marsh Monitoring Program Participant’s Handbook for Surveying Amphibians (BSC, 2009) Note: Three surveys are typically completed- one in each of April, May and June. The April survey was not completed due to the timing of project commencement.	Survey locations shown on Figure 3 in Appendix B	S. Yoshida Ecologist	May 29, 2025	21:23 –	Start: 14°C; End: 12°C Sky: 2 Wind: 3
			H. Neary GIS Specialist			
			S. Yoshida Ecologist	June 24, 2025	21:38 – 22:20	Start: 25°C; End: 24°C Sky: 1 Wind: 0
			H. Neary GIS Specialist			
Aquatic Habitat Assessment	Ontario Ministry of Transportation (MTO) Fisheries Protocol – Environmental Guide for Fish and Fish Habitat (June 2009)	Eramosa River, up and downstream of McQuillan’s Bridge	M. Saunders Aquatic Ecologist	August 19, 2025	09:00 – 11:00	Start: 18°C; End: 19°C Sky: 2 Wind:1
Search for potential wildlife habitats	Survey throughout study areas to search for features that could provide habitat for wildlife or SAR habitat such as: Nests, reptile hibernacula, old barns, structures, uncapped chimneys, foundations, mature forest areas with cavities or other features suitable for bat roosting, turtle nesting or overwintering sites	Full Study Area	All staff	Concurrent during all other field investigations		
Incidental flora and fauna observations	Visual observations of animals, tracks or scat and compilation of a plant inventory during all site visits	Full Study Area	All staff	Concurrent during all other field investigations		

¹NAAMP / Beaufort Sky Codes
0 = clear (no cloud cover)
1 = partly cloudy (scattered or broken) or variable
2 = cloudy or overcast
3 = sandstorm, dust storm or blowing snow
4 = fog, smoke, thick dust, or haze
5 = drizzle or light rain
6 = rain
7 = snow or snow/rain mix
8 = showers
9 = thunderstorms

²Beaufort Wind Scale
0 = calm, smoke rises vertically (0-2 km/hr)
1 = light air movement, smoke drifts (3-5)
2 = slight breeze, wind felt on face; leaves rustle (6-11)
3 = gentle breeze, leaves & twigs in constant motion (12-19)
4 = moderate breeze, small branches moving, raises dust & loose paper (20-30)
5 = fresh breeze, small trees begin to sway (31-39)
6 = strong breeze, large branches in motion (40-50)

5.2.1 Terrestrial Environment

Vegetation

The Study Area is within the floodplain of the Eramosa River, the area immediately surrounding the bridge includes a mix of open water and White Cedar – Hardwood Organic Mixed Swamp, as shown on Figure 5.4. Based on Lee et. al, 1998, 20 community types were located within the Study Area. Each community is described in further detail in the Natural Heritage Report (Appendix B).

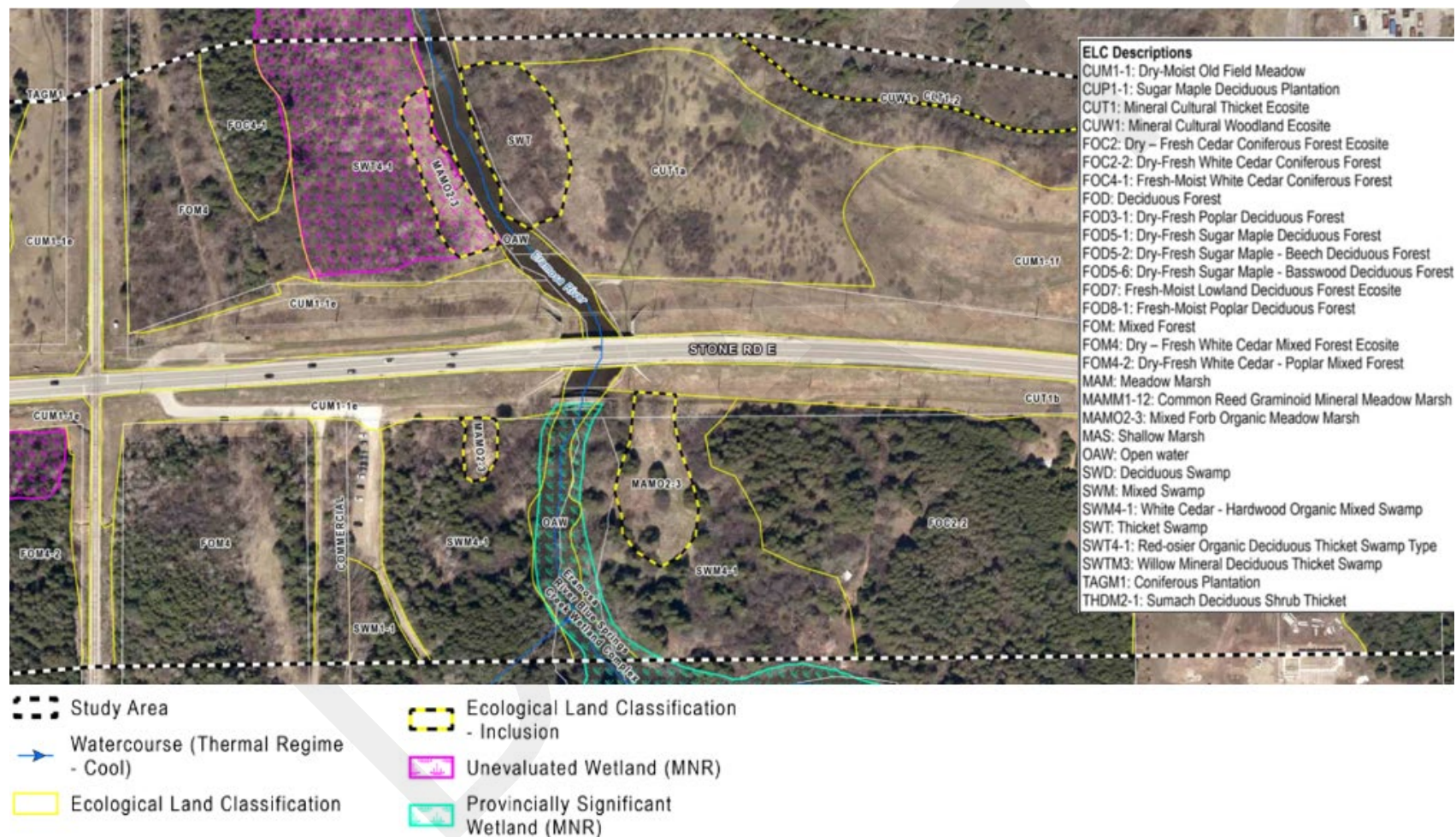
Provincially Significant Wetlands and Other Wetlands

A section of the Eramosa River Blue Springs Creek Provincially Significant Wetland (PSW) Complex is present on the southern side of the existing bridge.

An unevaluated Red-osier Organic Deciduous Thicket Swamp (SWT4-1) and Meadow Marsh (MAM) are also present to the north of Stone Road East.

McQuillan's Bridge
May 2026

Figure 5.4: Ecological Land Classification



Significant Woodlands

Section 4.1.3.6 of the City's Official Plan provides defining criteria to identify Significant Woodlands. Specifically, Significant Woodlands are:

1. Woodlands (not identified as cultural woodlands or plantations) of 1 hectare or greater in size, and a 10 metre minimum buffer
2. Woodlands 0.5 hectare in size or greater consisting of Dry-Fresh Sugar Maple Deciduous Forest and a 10 metre minimum buffer
3. Woodland types ranked as S1 (Critically Imperiled), S2 (Imperiled) or S3 (Vulnerable) by the provincial government Natural Heritage Information Centre, and a 10 metre minimum buffer

Schedule 4C identifies that extensive Significant Woodlands are found south of Stone Road and are associated with the Eramosa River Valley, within which the bridge is located.

Significant Valleylands & Significant Landform

Official Plan Schedule 4D identifies that Significant Valleylands and Significant Landform are found associated with the Eramosa River valley, with two designations: 'Undeveloped Portions of the Regulatory Floodplain' and 'Other Valleylands'. These designations are present on lands north and south of Stone Road. The bridge lies within these valleylands.

Wildlife

A large variety of wildlife has been recorded in the Study Area and its vicinity. The Ontario Breeding Bird Atlas has recorded 166 bird species in a 100 km² area, covering the Study Area.

Breeding bird surveys were conducted across Stone Road East, to the west of the bridge. In total, six locally significant bird species were observed during the course of breeding bird surveys. The species present are as follows:

- American Redstart
- Baltimore Oriole
- Belted Kingfisher
- Black-and-white Warbler
- Cliff Swallow (Stone Road Bridge)
- Cooper's Hawk (Flyover)

McQuillan's Bridge
May 2026

Habitat for raptors may be present in the forested lands of the University of Guelph Arboretum or, the valleylands of the Eramosa River contained within the NHS. However, no breeding evidence of raptors was recorded during any field investigations within the study area. Two raptors were recorded within the study area as incidental observations only (Red tailed Hawk and Cooper's Hawk). No background records of mammalian species within the Site were identified during initial background screening. Mammals with the potential to be present are those typical to rural and agricultural environments, including white-tailed deer, coyote, red fox, eastern cottontail rabbit, groundhog, and various rodent species.

The Ontario Reptile and Amphibian Atlas identified records of 27 species of frogs, snakes, salamanders, and turtles in the vicinity of the project. Amphibian breeding call surveys were conducted, one aquatic survey location was situated across Stone Road East, to the west of the bridge and a second was located south-west from the bridge. No anuran species were identified within the study area during targeted amphibian breeding call surveys.

Locations of surveys and species observations are described in further detail in the Natural Heritage Report (Appendix B).

Significant Wildlife Habitat

The findings of the records review and field investigations were assessed and compared to criteria provided in several provincial documents, including the Natural Heritage Reference Manual (MNR, 2010), the Significant Wildlife Habitat Technical Guide (SWHTG) (2000) and Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E (2015).

The Natural Heritage Report provided in Appendix B includes a screening of the various potential types of Significant Wildlife Habitat (SWH) for the subject lands and adjacent lands.

Through field investigations, some types of SWH have been confirmed as being present. For other habitat types, Burnside was able to confirm that certain habitat characteristics are present (e.g. woodlands of a certain size) but were not able to confirm that representative species are present in sufficient numbers to meet SWH criteria. As such, these areas are identified as "Candidate SWH". For planning and project design purposes, areas of Candidate SWH are generally assumed to be significant and treated as such with respect to protection, restoration and mitigation design.

The below list summarizes the Confirmed and Candidate SWH types present in the study area. Confirmed and candidate habitats are presented in Figure 5.5.

Seasonal Concentration Areas of Animals

- Waterfowl Stopover & Staging Areas (Aquatic), Northern Map Turtle (SC), Snapping Turtle (SC), Painted Skimmer (S3) – Candidate
- Bat Maternity Colonies – Candidate
- Turtle Wintering Areas – Confirmed

Rare Vegetation Communities

- Cliffs and Talus Slopes – Confirmed (Located north of Stone Road East)

Specialized Habitats for Wildlife Considered Significant Wildlife Habitat

- Bald Eagle & Osprey Nesting, Foraging & Perching Habitat – Candidate

Habitat for Species of Conservation Concern Considered Significant Wildlife Habitat

- Terrestrial Crayfish – Candidate
- Special Concern and Rare Wildlife Species – Candidate

Wildlife habitats which are deemed to be significant in the province are identified using criteria listed in Significant Wildlife Habitat Technical Guide (SWHTG) and the SWHTG Ecoregion 6E Criterion Schedule (MNRF, 2015).

The findings of the background records review and field investigations were assessed and compared to criteria provided in several provincial documents, including the Natural Heritage Reference Manual (MNR, 2010), the SWHTG and Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E (2015). The screening is presented in the Natural Heritage Report.

Each type of confirmed wildlife habitat that may be present is described in greater detail below.

Turtle Wintering Areas – Confirmed

Turtle wintering within the Eramosa River was confirmed through field investigation by NRSI (2025). The remaining wetland communities within the study area lack standing water and do not support turtle wintering.

Cliff and Talus Slopes – Confirmed

Burnside confirmed the presence of cliff slopes in association with the Eramosa River valley. Cliff communities occur in association with the WODM5, FODM5-2, and WOD communities as inclusions. This habitat type is located well outside of the area that may be impacted by the project.

McQuillan's Bridge
May 2026

There are additional types of habitat which were not confirmed present, but which could also not be confirmed absent in the Study Area. These are identified as Candidate Habitats and include:

- Waterfowl Stopover & Staging Areas (Aquatic)
- Bat Maternity Colonies
- Bald Eagle & Osprey Nesting, Foraging & Perching Habitat
- Terrestrial Crayfish
- Special Concern and Rare Wildlife Species

Wildlife habitat may be impacted by alternatives that propose to replace the bridge and result in vegetation removal, watercourse, or wetland impacts. Alternatives that do not require modification of bridge abutments are not anticipated to impact wildlife habitat.

Long-term increase in the natural riparian terrestrial habitat, approximately 4 metres on each side of the watercourse may be gained with the removal of the bridge and its associated abutment. Alternatives that maintain the abutments in their current state or with minor repairs are expected to have no change to riparian habitat.

Figure 5.5: Confirmed Significant Wildlife Habitat

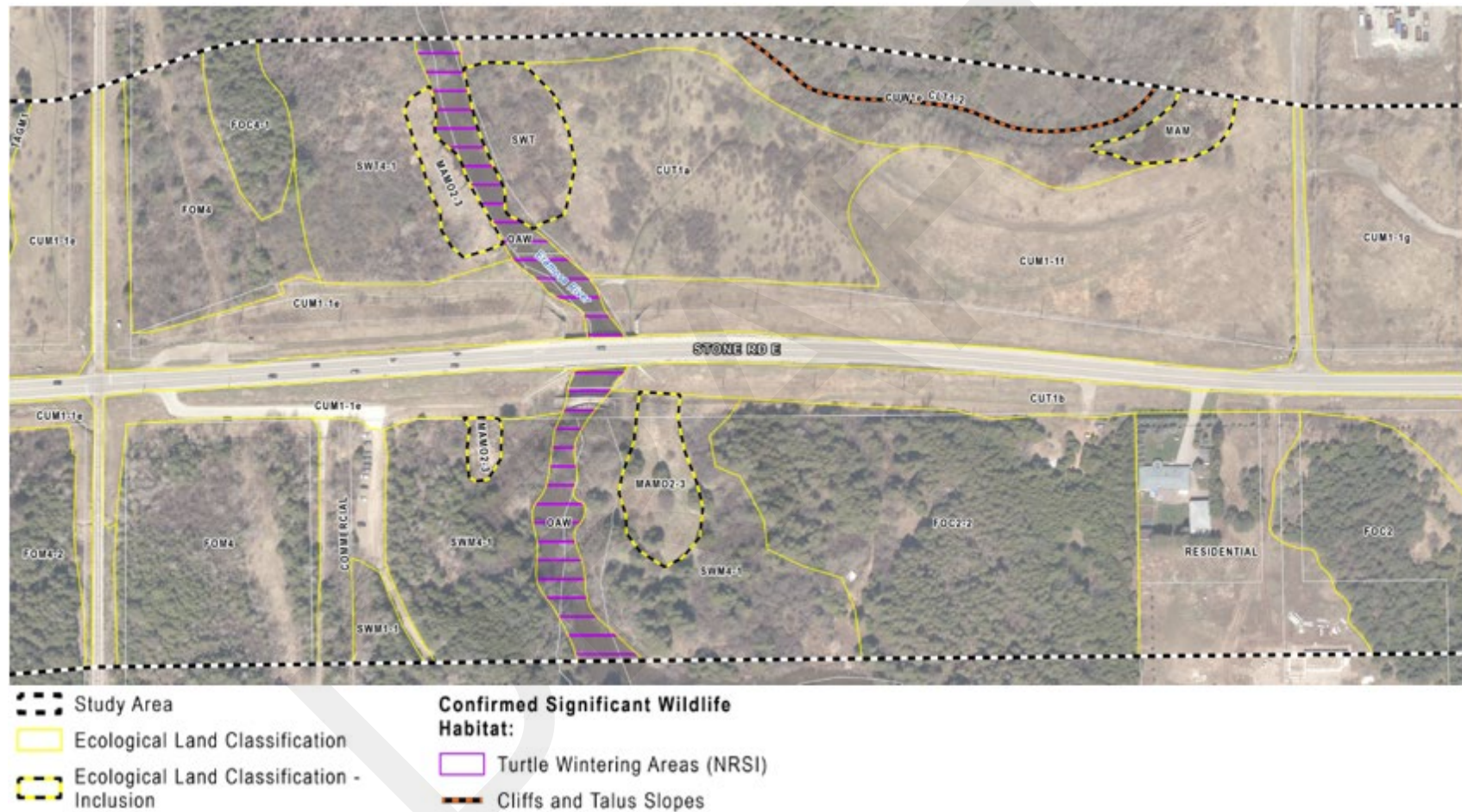
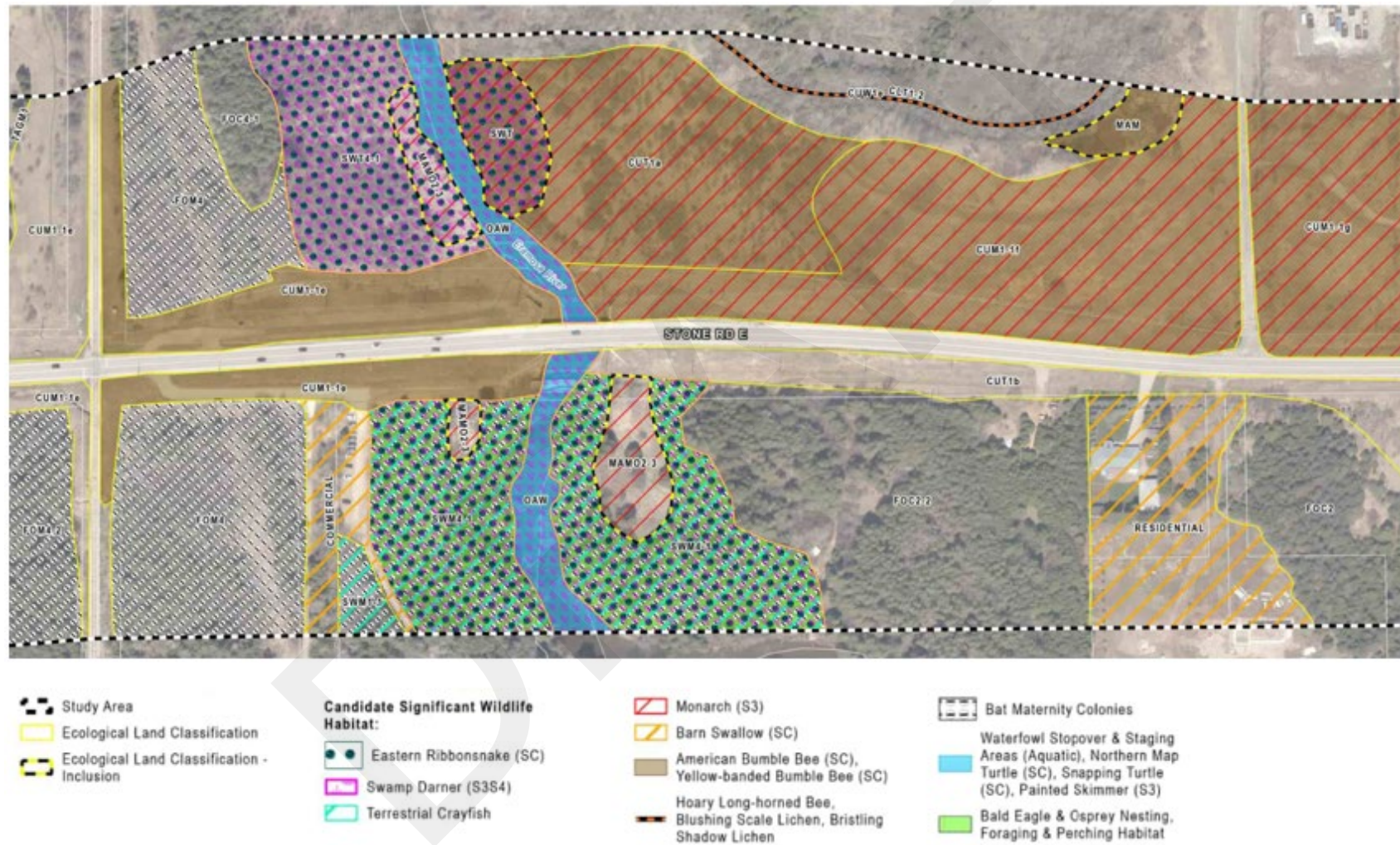


Figure 5.6: Candidate Significant Wildlife Habitat

Yellowjacket Wasp (S3) may be found throughout the entire study area.

A Species of Conservation Concern may also inhabit the Study Area but was not confirmed present or absent.

- Habitat for Snapping Turtle, a species of Special Concern, along the Eramosa River was found by AECOM Canada Ltd. (AECOM) who completed an EIS in 2022 in support of the overall Master Plan Concept and Site Plan for the City of Guelph Operations Campus.

Potential impacts are described in Section 8.0.

Habitat of Endangered and Threatened Species

The records review identified Black Ash (*Fraxinus nigra*) within the study area. Black Ash was observed by AECOM in association with the SWTO4-1 community. The location of any Black Ash specimens protected under O. Reg. 7/24 will be confirmed during the detailed design phase.

Black Ash is recently listed tree that occurs in swamps, floodplains, and fens up to 51° latitude. This species extends the furthest north of all the native ash species in Canada. The greatest threat in Ontario is invasive Emerald Ash Borer (COSEWIC, 2018). Although no individual Black Ash specimens were incidentally encountered by Burnside, Black Ash was observed by AECOM in association with the SWT4-1 and SWM4-1 communities (shown on Figure 5.4).

SAR bats including Eastern Red Bat (*Lasiurus borealis*), Hoary Bat (*Lasiurus cinereus*), Northern Myotis (*Myotis septentrionalis*), Little Brown Myotis (*Myotis lucifugus*), Silver haired Bat (*Lasionycteris noctivagans*), and Tri-colored Bat (*Perimyotis subflavus*) may occur within the study area. Targeted surveys to determine species presence / absence were not completed in the scope of work. It is presumed that habitat to support all of the above species occurs within the area.

5.2.2 Aquatic Environment

Immediately beneath the McQuillan's Bridge, the channel transitions into a riffle. The channel widens slightly (20 m) with shallower depths (~0.15 m) beneath the bridge, narrowing again to ~18 m downstream. Substrate in this reach was dominated by cobbles (~90% cover) with scattered boulders (~10%). Shorelines remained stable; however, riparian cover decreased compared to the upstream reach, with only herbaceous vegetation present, providing minimal overhead cover. No significant instream woody debris of vegetation was observed.

The hardened shoreline associated with the McQuillan's Bridge was evident. On the south bank, the hardened section extended ~5.8 m along the channel (~58 m² of riparian area), with ~8 m² protruding directly into the channel. The north bank was smaller (~20 m²) and did not extend into the channel at the time of the survey.

McQuillan's Bridge
May 2026

The Eramosa River is present within the study area. The river has a cold-water thermal regime. The table below identifies the fish species that have been historically observed in this watercourse, reflecting the coldwater classification. According to the DFO Species at Risk Act mapping, there are no endangered, threatened or special concern species found within the study area.

Table 5.2: Fish Species Historically Observed in the Eramosa River

Species Name	Scientific Name	Thermal Regime Preference
American Brook Lamprey	<i>Lampetra appendix</i>	Cold
Blacknose Dace (Western)	<i>Rhinichthys atratulus</i>	Cool
Blackside Darter	<i>Percina maculata</i>	-
Bluntnose Minnow	<i>Pimephales notatus</i>	Warm
Brook Stickleback	<i>Culaea inconstans</i>	Cool
Brook Trout	<i>Salvelinus fontinalis</i>	Cold
Brown Trout	<i>Salmo trutta</i>	Cool
Central Mudminnow	<i>Umbra limi</i>	Cool
Common Shiner	<i>Luxilus cornutus</i>	Cool
Creek Chub	<i>Semotilus atromaculatus</i>	Cool
Fantail Darter	<i>Etheostoma flabellare</i>	-
Greenside Darter	<i>Etheostoma blenniodes</i>	-
Hornyhead Chub	<i>Nocomis biguttatus</i>	Cool
Iowa Darter	<i>Etheostoma exile</i>	-
Johnny Darter	<i>Etheostoma nigrum</i>	Cool
Largemouth Bass	<i>Micropterus salmoides</i>	Warm
Longnose Dace	<i>Rhinichthys cataractae</i>	Cool
Mottled Sculpin	<i>Cottus bairdii</i>	Cool
Northern Hog Sucker	<i>Hypentelium nigricans</i>	Warm
Pumpkinseed	<i>Lepomis gibbosus</i>	Warm
Rainbow Darter	<i>Etheostoma caeruleum</i>	-
River Chub	<i>Nocomis micropogon</i>	Cool
Rock Bass	<i>Ambloplites rupestris</i>	Cool
Slimy Sculpin	<i>Cottus cognatus</i>	Cold
Smallmouth Bass	<i>Micropterus dolomieu</i>	Cool
White Suckers	<i>Catostomus commersonii</i>	Cool

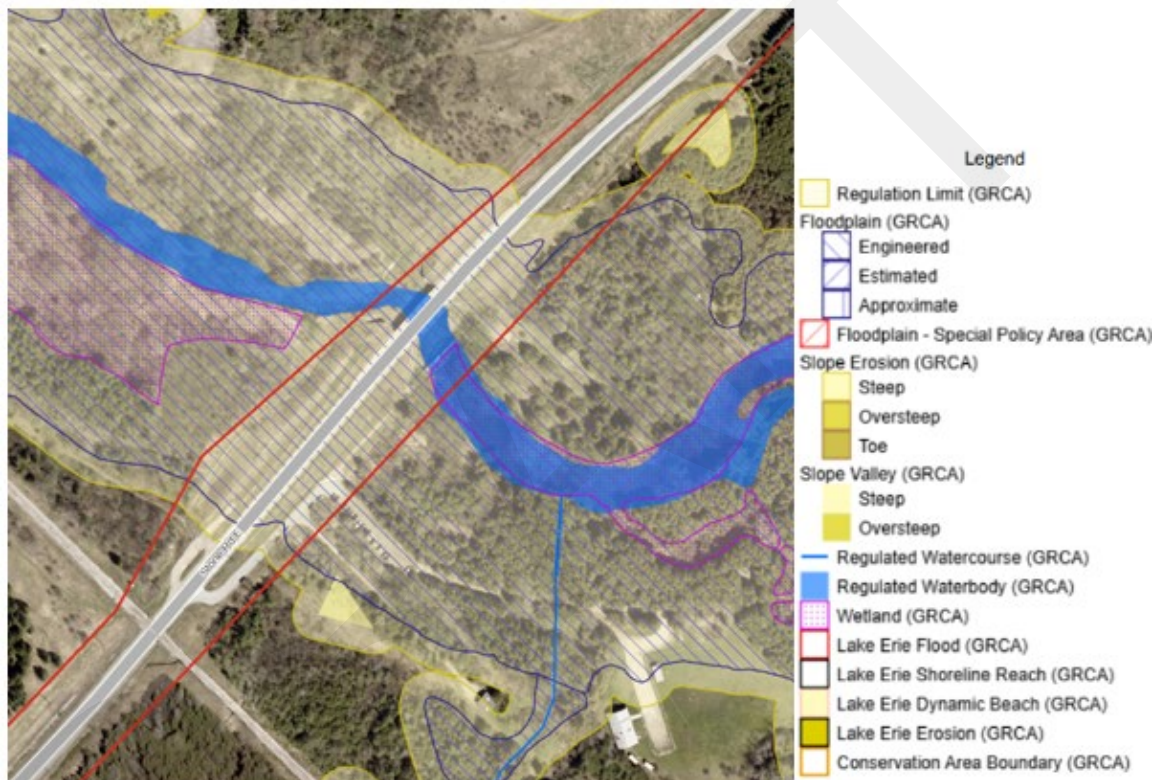
Source: MNRF ARA Mapping (2017)

5.2.3 Floodplain and Natural Hazards

Most of the Study Area is below the floodplain elevation and is regulated by the GRCA under O. Reg. 24/41.

Approval from the GRCA is required for all work within the floodplain.

Figure 5.7: Grand River Conservation Authority Mapping



Hydraulic Capacity

The existing abutments are located within the waterway and restrict the flow of the river in the current configuration. The hydraulic performance of the site is also affected by the downstream Stone Road bridge. Opportunities for improving the hydraulic capacity are limited only to options that include full replacement of the bridge.

GRCA has noted they may require hydraulic analysis demonstrating no negative impacts to the regulatory floodplain should hydraulic capacity of the bridge change. In addition, further assessment of impacts to the wetland may be needed if changes to abutments are proposed. This would include confirmation of wetland boundaries through an on-site boundary staking exercise.

5.3 Technical Environment

On September 3, 2025, a Detailed Condition Survey Report (DCSR) was completed by Bridge Check Canada in accordance with the Ministry of Transportation (MTO) Structure Rehabilitation Manual. The DCSR consisted of visual inspection, delamination survey, concrete cores, and corrosion potential survey.

A significant amount of the deck, bottom chord, floor beams, and soffit have severe deterioration from spalling and delamination caused by corroding steel. The corrosion potential survey indicated that the deck (including top of bottom chord) had average values of -0.446V (Voltage). Areas with a corrosion potential numerically greater than -0.350V have a greater than 90% probability of active corrosion. The chloride testing indicated that contamination has extended into the reinforcing level for the deck. The visual inspection of the deck and soffit (including floor beams and bottom tension chord) were consistent with previous reports indicating extensive concrete in poor condition.

The arch and hangers were also included in the corrosion potential survey with probable corrosion identified for 27-42% of the reinforcing. Generally, the probable active corrosion is limited to the splash zone of the arch and the tension hangers. Concrete cover measured in the arch and the hangers were identified as having low cover from 20-40 millimeters.

The compressive strength results significantly exceeded those that are to be assumed as the maximum by the Canadian Highway Bridge Design Code (CHBDC) where no cores are available. The calculated equivalent concrete strength was calculated as 26.6 MPa (Megapascals). This indicates that the concrete on this bridge while not air entrained to improve protection from freeze-thaw and chlorides is of good quality.

5.4 Cultural Environment

5.4.1 Cultural Heritage

Cultural Heritage Report: Existing Conditions

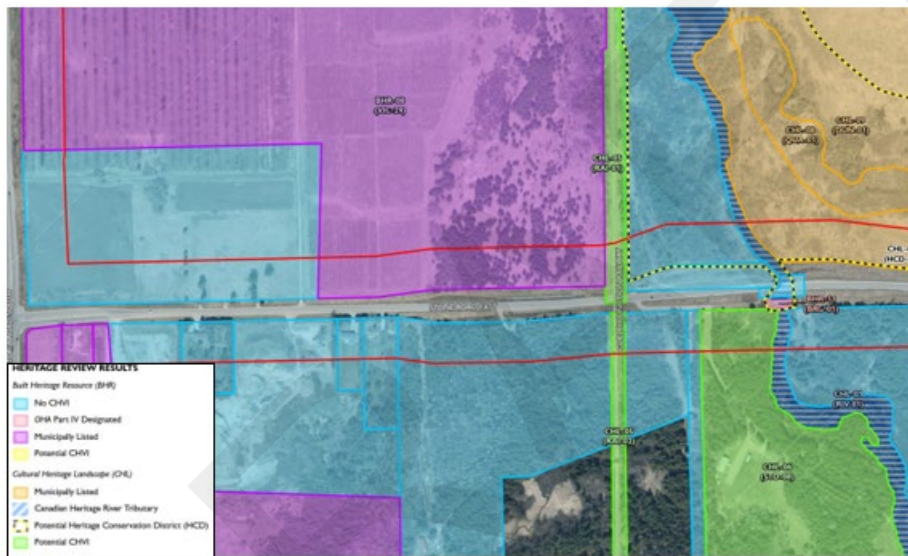
McQuillan's Bridge is located within proximity to the former Ontario Reformatory grounds at 785 York Road; however the property is outside of the 60 m buffer area. The former Ontario Reformatory was identified by the Ontario Realty Corporation (ORC) as a provincial heritage property in 2008 and subsequently classified as a Provincial Heritage

McQuillan's Bridge
May 2026

Property of Provincial Significant; it was designated by the municipality under Part IV of the Ontario Heritage Act (OHA) in 2021.

The Ontario Reformatory HCD is of local and provincial significance as a representative and intact example of an early 20th century correctional facility. The property consists of the main detention complex, ancillary industrial and agricultural buildings, and landscaped components such as stone walls, ponds, and gardens which are all visually, functionally, and historically linked to each other and their surroundings. The borders of the HCD (CHL-07) are outlined in Figure 5.8. As the HCD was not yet approved at the time the report was written, the figure refers to it as a Potential HCD.

Figure 5.8: Heritage Review Results (3 of 4), Cultural Heritage Report



McQuillan's Bridge is located within the Ontario Reformatory Heritage Conservation District (HCD) and is a heritage feature of the HCD in the Ontario Reformatory HCD Plan and Guidelines. Figure 5.8 shows the potential Cultural Heritage Landscape (CHL-06) associated with the Guelph Radial Line Trail to the south of the bridge. The figure also highlights that the Eramosa River is a Canadian Heritage River Tributary.

The Cultural Heritage Report is provided in Appendix A.

Heritage Impact Assessment

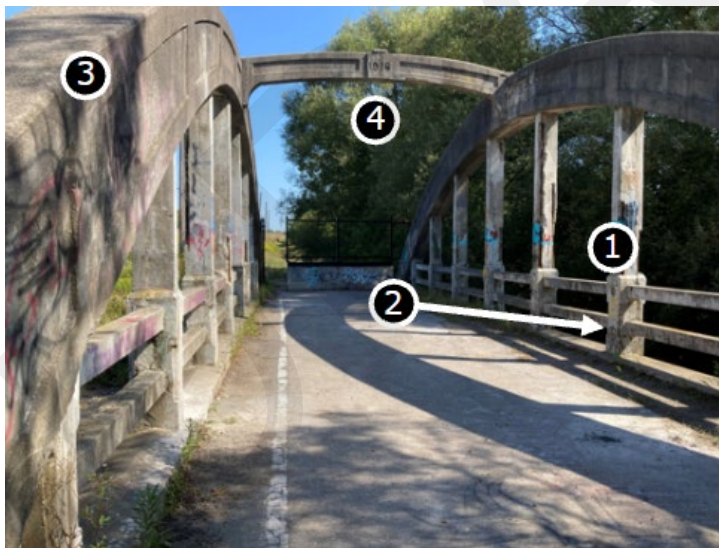
McQuillan's Bridge was constructed in 1916 by Charles Mattaini, a local contractor and craftsman who built over fifty bridges in this area. This bridge is the only example of the concrete bow string truss form within the City of Guelph and is one of only a few remaining examples of this type in the County. The concentration of the concrete bowstring bridge type in Wellington County is notable and reflects the availability of local aggregate and the particular skills of a local craftsman.

McQuillan's Bridge was designated under Part IV of the OHA in 2004. A Statement of Cultural Heritage Value or Interest (CHVI) was prepared as part of the designating by-law (By-law 2004-17357). The bridge is also included on the Ontario Heritage Bridge List and spans the Eramosa River and is considered to be an early and rare surviving example of concrete bow string truss construction in a local, provincial and national context. The bridge is also included on the Ontario Heritage Bridge List and spans the Eramosa River and is considered to be an early and rare surviving example of concrete bow string truss construction in a local, provincial and national context. The bridge has the following heritage attributes:

Heritage attributes shown in Figure 5.9 are as follows: are as follows:

1. Eight vertical members
2. Chamfered and dimpled balustrading
3. Arches
4. The cross-member with dated inscription tying the arches

Figure 5.9: McQuillan's Bridge Heritage Attributes



Any alternatives modifying the above outlined heritage attributes of the bridge would fall under the description of a Schedule B activity of the MCEA process.

The Heritage Impact Assessment is provided in Appendix A.

5.4.2 Archaeological Resources

A Stage 1 Archaeological Assessment was completed by TMHC Inc. The Stage 1 Archaeological Assessment report is provided in Appendix C.

The Stage 1 Archaeological Assessment property inspection was conducted on July 15, 2025. The field review was conducted from publicly accessible lands. The Stage 1 background study determined that the majority of the study area no longer contain archaeological potential as a result of deep and extensive land alteration and as a result of previous assessments for which no further assessment was required in keeping with the 2011 Standards and Guidelines. According to the background research, three previous reports detail fieldwork within 50 m of the study area.

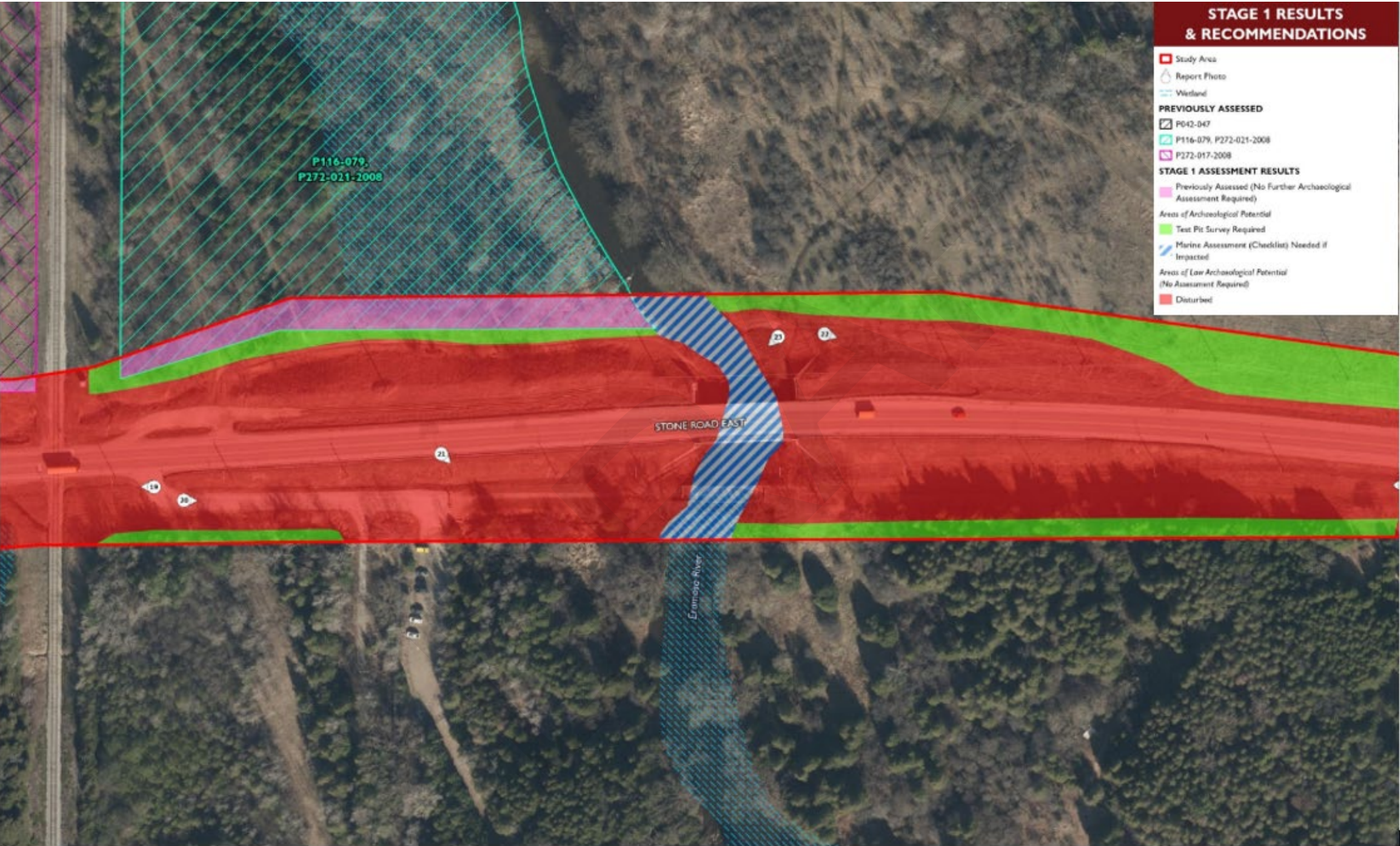
Grassed and treed lands that are not obviously disturbed retain archaeological potential. The grassed and treed portions of the study area that demonstrate archaeological potential are recommended for Stage 2 archaeological assessment prior to ground disturbing activities.

No in-water works are presently proposed as part of the project; if impacts become planned within the Eramosa River, a Marine Archaeological Assessment may be required.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act.

The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Public and Business Service Delivery and Procurement.

Figure 5.10: Study Area – Results of the Stage 1 Archaeological Assessment (Map 20 of Stage 1 AA Report)



6.0 Evaluation of Alternatives

The following alternative solutions were identified to address the problem / opportunity statement.

6.1 Alternative 1 – Do Nothing

This option would leave the bridge to age in place with no work planned in the near term or in the future. As the concrete deteriorates, and components of the bridge fall, there will be an impact on the aquatic habitat under the bridge and downstream. No access to the bridge is currently provided, and a permanent fence with locked gates has been erected; however, there is still the risk of public access by cutting the fence or locks or by climbing. Potential safety concerns for this option include river users (falling debris), flooding due to debris in the river or failure of bridge and natural habitat / contamination of watercourse.

6.2 Alternative 2 – Rehabilitate and Strengthen

The aim of this alternative would be to rehabilitate the bridge as an active transportation river crossing, but where there is currently an ongoing durability issue due to low concrete cover, elements will be reconstructed to meet current Canadian Highway Bridge Design Code (CHBDC) cover requirements. This option will not present any opportunities to improve the natural heritage or ecological features of the adjacent area outside of new planting opportunities. Key features of Alternative 2 include:

- The CHBDC code requirements for the barriers, deck and floor beam will be addressed to meet current code for pedestrian / maintenance vehicle loading and barrier requirements.
- Reconstruction of the existing barrier would be included in this alternative to ensure current CHBDC and Ontario Building Code (OBC) requirements for height, gaps and capacity are met. A sympathetic barrier appearance would be included (see samples in Figure 6.1 below).
- Modifications to heritage features will be required to the eight vertical members and railing including the architectural reveals (chamfered and dimpled); however, reconstruction of similar reveals are possible.
- A thin waterproofing wearing surface which does not increase dead load significantly such as Matacryn is recommended to protect the concrete deck and curbs from future water penetration.

A 30-year service life or better is expected. The estimated capital cost for this repair is \$2,680,000.00. Costs for this alternative will increase as the structure continues to deteriorate and will no longer be viable if deteriorated elements result in the collapse or accelerated deterioration of other critical elements. This option will remain viable for up to three years at which point the feasibility of this option should be re-assessed. Annual

inspections of the bridge should be completed by a competent heritage bridge engineer until the bridge is rehabilitated is completed. If hinges form in the arches and it becomes deformed, a rehabilitation will no longer be viable. The retained design firm with experience in concrete arch bridges is to confirm the final scope and viability of this alternative at the start of the detailed design period.

Figure 6.1: Sample Barrier Reconstructions with Aesthetic and Safety Considerations



6.3 Alternative 3 – Rehabilitate Arches Incorporating a New Bridge

This alternative would consist primarily of constructing a new bridge superstructure within the existing concrete arches. This alternative does not preserve how the arch functions; however, the appearance of the main heritage attributes will be protected. The new bridge on the interior of the arches will meet current CHBDC standards and will be narrower than the existing bridge. Key features of Alternative 3 include:

- Removal of failing deck and floor beams with the addition of stabilizing beams (steel or concrete) to ensure stability of arches
- Aggressive repairs and reconstruction to the bottom chords
- Concrete repairs, strengthening and reconstruction of heritage attributes while changing the overall dimensions of the Tension Hangers
- Concrete Patch Repairs to Top Compression Chords and abutment
- Replacement of Steel Anchor plates between tension hangers and floor beams with galvanized or stainless steel plates
- Replacement of the southern retaining walls (which are not easily visible), with the addition of drainage behind the abutment with a mechanically stabilized earth structure (MSE) or precast retaining structure
- Abrasive Blast Cleaning of all reinforcing steel exposed during repairs. Steel that remains exposed would be coated or touched up with galvanizing paint
- Installation of prefabricated galvanized steel pedestrian bridge with 3 m wide deck between the arches that sits on its own independent foundation

The service life of this option will be 30 years for the arch components and a 75-year service life for the new pedestrian bridge (with maintenance). Maintenance for both bridges will include annual cleaning and periodic repairs on a 15- to 30-year cycle. After 30 years the arch structure should be reassessed to ensure it is still suitable to remain in service for dead loads. The formation of hinges in the arch and permanent deformation as a result of overloading will indicate the arch should no longer remain in service. The estimated capital cost for this repair is: \$2,450,000.00. Costs for this alternative will increase if the arch, hangers or ties become so deteriorated they can no longer sustain their own weight. The option is expected to remain viable for up to five years.

6.4 Alternative 4 – Remove and Replace Bridge with a Prefabricated Steel Truss

Alternative 4 includes the full removal of the existing bridge and replacement with a prefabricated steel truss bridge (example shown in Figure 6.2). The span will extend to the top of bank allowing for a natural environment opening under the bridge and increased hydraulic capacity to account for future climate changes in storm event flows. Prefabricated bridge shapes can be manufactured to mirror the concrete bridge shape. Other memorialization of McQuillan's Bridge can be explored as part of the replacement.

The service life for this alternative with typical maintenance (bearing washing, periodic minor repairs) is 75 years. The estimated capital cost for a replacement using a prefabricated steel truss is: \$1,130,000.00.

Figure 6.2: Example of Prefabricated Steel Bridge



6.5 Alternative 5 – Remove and Replace Bridge with a Concrete Bowstring Arch

This alternative includes the full removal of the existing bridge and replacement with a new bridge that would incorporate concrete bowstring arch elements blending the historical appearance of the existing bridge with modern construction methods. The new bridge would mirror the existing shape, including architectural reveals with a longer span to meet current hydraulic requirements. The span will extend to the top of bank allowing for a natural environment opening under the bridge and increased hydraulic capacity to account for future climate changes in storm event flows. Memorialization of McQuillan's Bridge can be explored as part of the replacement. As outlined in the HIA, it is preferred that cultural heritage resources be conserved in situ. Where a cultural heritage resource cannot be conserved in situ or through relocation and approval for demolition or removal is granted, the City in consultation with Heritage Guelph would require full documentation of the cultural heritage resource for archival purposes, consisting of a history, photographic record and measured drawings.

The service life for this alternative with typical maintenance (bearing washing, periodic minor repairs) is 75 years. Arch bridges have lasted in Europe for thousands of years with appropriate maintenance. An estimated capital cost for a replacement using a cast in place concrete bowstring arch is: \$3,200,000.00.

Figure 6.3: Arch Bridge in Stoneham Quebec (Photo from "2012 Consulting Engineering Awards")



6.6 Alternative 6 – Remove the Bridge and Widen the Adjacent Bridge

This alternative includes the full removal of the existing bridge, naturalization of the area including the approach trails. The adjacent road bridge (Structure 117) would be widened to accommodate a multi-use trail along with a trail re-alignment. Removal of the existing bridge will improve overall hydraulic capacity by opening up the current restrictions within the floodplain. It is assumed that widening of Structure 117 would make use of the existing abutments and that only the bridge superstructure would be widened.

Memorialization of McQuillan's Bridge can be explored as part of the replacement. As outlined in the HIA, it is preferred that cultural heritage resources be conserved in situ. Where a cultural heritage resource cannot be conserved in situ or through relocation and approval for demolition or removal is granted, the City in consultation with Heritage Guelph would require full documentation of the cultural heritage resource for archival purposes, consisting of a history, photographic record and measured drawings.

The service life for this option will be controlled by the remaining service life of the adjacent road bridge and has been estimated as 50 years. This alternative will be subject to the outcome of the ongoing Municipal Class Environmental Assessment study for improvements to Stone Road East, which includes consideration for potential widening of Structure 117 to accommodate additional vehicle lanes and/or walking and cycling facilities.

The estimated capital cost for this option would be \$1,350,000.00 as a stand-alone project; however, if the widening of Structure 117 and construction of a multi-use trail was incorporated into the future Stone Road East improvements, the costs for this option could be lower as a standalone project. This would need to be reviewed in the context of the available width of Structure 117, and the grade, ramp and road-crossing requirements needed for trail connectivity.

6.7 Lifecycle Cost Comparison

The lifecycle costs of each option were considered as part of the evaluation. Analysis included costs associated with yearly maintenance, minor rehabilitations, major rehabilitations and future replacements. In order to achieve a 75-year design life, bridges typically undergo minor repairs every 15 years, and major rehabilitations every 30 years. It is noted that since McQuillan's Bridge is a pedestrian bridge, it will not experience heavy traffic loading and is not expected to experience winter salt to the same extent as a road bridge, on which the rehabilitation timeline estimates are based. Costs for replacements are based on re-constructing a similar type of structure, i.e. Alternative 2 is replaced in the future with a concrete bowstring arch. Rehabilitation costs were generally assumed to be 25% of the replacement cost of the same type of structure. The life cycle

McQuillan's Bridge
May 2026

costs are broken down according to the following table. It is noted that Alternative 1 – Do Nothing was not included in this analysis.

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Table 6.1: Lifecycle Bridge Repair Timing Schedule

Year	Alternative 2: Rehabilitate and Strengthen	Alternative 3: Rehabilitate Aches Incorporating a New Bridge	Alternative 4: Remove and the Bridge with a Prefabricated Steel Truss	Alternative 5: Remove and Bridge with a Concrete Bowstring Arch	Alternative 6: Remove the Bridge and Widen the Adjacent Bridge
Year 0	Major Rehabilitation \$2.7 M	Major Rehabilitation \$2.45 M	Replacement \$1.13 M	Replacement \$3.2 M	Major Rehabilitation \$1.35 M
Year 15	Minor Repairs \$300 K	Minor Repairs \$300 K	Minor Repairs \$50 K	Minor Repairs \$75 K	Minor Repairs \$30 K
Year 30	Replacement** \$3.2 M	Replacement** \$2.7 M	Rehabilitation \$282 K	Rehabilitation \$800 K	Rehabilitation \$337 K
Year 45	Minor Repairs \$50 K	Minor Repairs \$50 K	Minor Repairs \$50 K	Minor Repairs \$50 K	Minor Repairs \$50 K
Year 60	Major Rehabilitation \$800 K	Major Rehabilitation \$680 K	Major Rehabilitation \$282 K	Major Rehabilitation \$800 K	Replacement(as part of road bridge project) \$1.0 M
Year 75	Minor Repairs \$50 K	Minor Repairs \$50 K	Replacement** \$1,131,000	Replacement** \$3.2 M	Minor Repairs \$50 K
Yearly Maintenance*	\$5 K	\$5 K	\$2 K	\$2 K	\$1 K
Net Present Value of Future Costs beyond year 0	\$1.0 M	\$900 K	\$150 K	\$350 K	\$150 K

*Yearly Maintenance Costs include bridge cleaning, and minor repairs, i.e. from impact damage.
**Note that replacement costs have been based on the assumption that a similar type of structure will be used as the original option.

The costs detailed in Table 6.1, including yearly maintenance costs were used in the calculation of the net present value of the future works, using inflation rates of 3, 5 and 7%. An average of the net present values calculated using these three inflation rates is noted in the table below and is used for comparison purposes for the evaluation matrix. The initial capital expenditures for the bridges were not included in the sensitivity analysis and Net Present Value calculation, as those costs are captured elsewhere in the evaluation matrix.

Table 6.2: Sensitivity Analysis

Alternative	3%	5%	7%	Average
Alternative 2	\$1,539,920.80	\$928,333.17	\$572,218.54	\$1,013,490.84
Alternative 3	\$1,352,548.58	\$820,348.46	\$509,699.36	\$894,198.80
Alternative 4	\$263,195.31	\$137,157.94	\$81,607.54	\$160,653.60
Alternative 5	\$604,693.54	\$297,926.64	\$167,625.63	\$356,748.60
Alternative 6	\$250,676.58	\$134,304.88	\$76,654.95	\$153,878.80

It is noted that the costs of Alternative 4 and Alternative 6 have the lowest net present value, whereas the costs for Alternative 2 have the highest net present value.

6.8 Evaluation Criteria

The criteria used to evaluate the Alternatives are presented in Table 6.3.

Table 6.3: Evaluation Criteria

Component	Criteria for Evaluating Alternatives
Natural Environment	Area of woodland to be temporarily or permanently removed
	Area of wetland to be temporarily or permanently removed
	Temporary or permanent impact on wildlife habitat
	Temporary or permanent impact on the habitat of Species at Risk
	Temporary or permanent impact on aquatic habitat
	Impacts to the hydraulic capacity of the Eramosa River
	Ability to meet climate change resiliency and adaptation goals
Cultural Heritage	Temporary or permanent impact to cultural heritage landscapes
	Temporary or permanent impact to built heritage resources and heritage value of the bridge
	Impact on archaeological resources
Social Environment	Consistency with Future Guelph Strategic Plan
	Ability to support a connected trail network
Financial Factors	Estimated Capital Costs and Net Present Value
	Estimated Property Acquisition Costs
	Estimated Future Study and Replacement Costs Net Present Value
	Estimated Operational and Maintenance Costs (including differences in lifecycle costs)
Technical Factors	Complexity of construction and maintenance
	Construction duration
	Design life
	Ability to achieve public safety standards and risk exposure for pedestrians
	Ability to meet accessibility for Ontarians with Disabilities Act (AODA) and Facility Accessibility Design manual (FADM) guidelines
	Impacts on traffic movement and safety
Problem Opportunity Statement	Ability of the alternative to address the problem opportunity statement

6.9 Evaluation Process

Alternatives were compared using the criteria and indicators listed in Table 6.3. Scoring was based on quantitative measures where possible (e.g., area of woodland to be removed). For many criteria (e.g., ease of construction), impacts were based on qualitative assessment and professional expertise.

Evaluation Score

- Most Desirable ●
- Moderately Desirable ◐
- Somewhat Desirable ◑
- Less Desirable ◒
- Least Desirable ○

Criteria are categorized into Natural, Social, Cultural, Technical and Economic considerations. Because each of these main headings has a different number of criteria, the rankings are averaged under each main heading and the Preferred Solution was based on the average rankings for Natural, Cultural, Social, Financial, and Technical considerations. Equal weighting was applied to the evaluation criteria.

A summary of the evaluation of alternatives is presented in Figure 6.4. The detailed evaluation is provided in Appendix D.

Figure 6.4: Evaluation of Alternative Solutions

Criteria for evaluating Alternatives	Alternative 1: Do nothing	Alternative 2: Rehabilitate and strengthen the bridge	Alternative 3: Rehabilitate arches Incorporating a new bridge	Alternative 4: Remove and replace with a prefabricated steel truss	Alternative 5: Remove and replace with a concrete bowstring arch	Alternative 6: Remove the bridge and widen the adjacent bridge
Natural environment						
Cultural heritage						
Social environment						
Financial						
Technical						
Addresses Problem - Opportunity Statement	X	✓	✓	✓	✓	✓
Overall Summary	Not carried forward	Preferred Alternative	3rd preferred alternative	2nd preferred alternative	4th preferred alternative	5th preferred alternative

The evaluation process determined that Alternative 1: Do Nothing should not be carried forward, because it did not meet the Problem / Opportunity Statement and scored poorly for other criteria.

Alternatives 2, 3, 4, 5 and 6 all met the Problem / Opportunity Statement and scored similarly in several categories, so overall were closely ranked.

The top ranked alternative solution was Alternative 2: Rehabilitate and Strengthen. This alternative scored highest overall in the evaluation and scored highest for the cultural heritage criteria, as it would preserve more of the designated heritage features of the bridge than any other alternative solution. Alternative 2 is the only alternative solution that would retain the function of the arches, a heritage attribute of the bridge. Alternative 2 scored slightly lower for natural environment criteria as there are limited opportunities for improvement while keeping the existing structure within the river channel. This alternative also scored lower for financial and technical criteria due to the higher costs, shorter lifespan and the complexity of the rehabilitation work.

The second ranked alternative solution was Alternative 4: Remove and Replace the Bridge with a Prefabricated Steel Truss. Alternative 4 offers an economical solution and scored well in terms of financial and technical criteria compared to the other alternative solutions. This alternative would result in the complete loss of the heritage structure and so scored lower for cultural heritage criteria. A prefabricated steel bridge shape could be manufactured to mirror the existing bridge shape; however, architectural reveals identified in the heritage attributes for the hangers would be difficult to reconstruct with steel. Further, the steel reconstruction would be visually and functionally different than the concrete. Alternative 4 scored mid-range for natural environment criteria as the new bridge with wider span would increase hydraulic capacity for river flow.

Alternative 3: Rehabilitate Arches Incorporating a New Bridge, was ranked third overall. This option scored above average for cultural heritage, but not as high as Alternative 2, because although it would protect the appearance of the main heritage attributes, it would not preserve the full functionality of the arch and would change the aesthetics of the river crossing. This alternative scored slightly below average for natural environment criteria as there are limited opportunities for improvement while keeping the existing structure within the river channel. Alternative 3 also scored below average for financial and technical criteria due to the higher costs, shorter lifespan and the complexity of the rehabilitation work.

Alternative 5: Remove and Replace the Bridge with a Concrete Bowstring Arch, was ranked fourth overall. This alternative would result in the complete loss of the heritage structure and so scored below average for cultural heritage criteria. While prefabricated bridge shapes can be manufactured to mirror the concrete bridge shape for Alternative 5, the aesthetics at the crossing would be slightly different and the bridge span would be longer. Alternative 5 scored mid-range for natural environment criteria as the wider span

McQuillan's Bridge
May 2026

would increase hydraulic capacity for river flow. Compared to the other replacement option (Alternative 4), this alternative had a similar score for technical criteria but scored lower for financial criteria due to having a higher capital cost.

The fifth ranked alternative was Alternative 6: Remove the Bridge and Widen the Adjacent Bridge. This alternative would result in the complete loss of the heritage structure and therefore scored lower for the cultural heritage criteria. Memorialization could be explored as part of the removal / widening which could retain some form of heritage value but would not retain the feature itself. Alternative 6 scored highest of all the alternatives for natural environment criteria, as the complete removal of a bridge structure at this location would open up the river channel which presents an opportunity for naturalization of the area of the existing bridge. Alternative 6 scored lower for the social environment criteria than the other alternatives because although trail connectivity could be achieved, the trail-user experience would be lower quality due to the grade changes (between the road bridge and the riverbanks) and the proximity to road traffic.

7.0 Description of the Preferred Alternative Solution

The Preferred Solution is Alternative 2 – Rehabilitate and Strengthen. Portions of the bridge with low concrete cover or a safety concern will be reconstructed to meet current CHBDC cover requirements. This may result in some areas with less aesthetically consistent details on heritage elements. Bridge footings will remain the same and no work will occur in the water.

Based on the concrete removal policy outlined in the MTO Structure Rehabilitation Manual given that more than 10% of the deck area is more negative than -0.350 V in the corrosion potential survey and the average adjusted chloride content at the top reinforcement level is more than 0.05% by mass of concrete, concrete deck removal and replacement is recommended.

Given the current condition of the bridge the following work is recommended for this rehabilitation:

- Deck replacement (Glass Fibre Reinforced Polymer (GFRP) or stainless steel concrete reinforced, timber, or non-slip metal)
- Extensive concrete removal and reinforcing steel repairs and/or reconstruction to the bottom chord
- Replacement of bearing plates / anchor plates at ends of arches
- Floor beam replacement (with GFRP or stainless steel reinforcing as needed)
- Concrete repairs, strengthening and reconstruction of heritage attributes while increasing the overall dimensions of the tension hangers
- Concrete patch repairs to top compression chord and abutment
- Replacement of the exposed steel anchor plates between tension hangers and floor beams with galvanized or stainless steel
- Replacement of the barriers with code compliant barriers with a sympathetic appearance
- Repair of retaining walls through the addition of subdrains and retaining wall anchors to resist further movement
- A thin waterproofing wearing surface which does not increase dead load significantly such as Matacryn is recommended to protect the concrete deck and curbs from future water penetration
- Abrasive blast cleaning of reinforcing exposed during repairs. Steel that remains exposed would be coated or metalized

This rehabilitation alternative will require 3-dimensional Finite Element Modeling (FEM) for alterations to the structural form including construction staging models during the detailed design phase to reduce risk and carefully analyze the structure. It is recommended that only design engineers and contractors with heritage bridge arch experience be accepted for this project. There is significant risk involved to the stability of the bridge and staging of removals and repairs to the deck, floor beam and bottom

chord will be critical to the success of the rehabilitation. The structural stability of the arch must be analyzed at each stage of concrete removals to ensure that the arches are able to support their own weight along with any loads associated with the repairs. If concrete repairs to the deck, bottom chord, hangers and arch are not well thought out and modeled in advance, the arch and other components could experience excessive loading, resulting in overstressing or failure and collapse.

The CHBDC code requirements for the barriers, deck and floor beam will be addressed to meet current code for pedestrian / maintenance vehicle loading and barrier requirements. Reconstruction of the existing barrier would be included in this alternative to ensure current CHBDC requirements for height, gaps and capacity are met, aesthetics would be considered and included in consultation.

Durability issues such as deck protection through the addition of a waterproofing wearing surface will be considered and will not impact the appearance of the bridge. Modifications to heritage features will be required to improve durability including increased concrete cover. The eight vertical members and railing including the architectural reveals (chamfered and dimpled) dimensions will be impacted; however, reconstruction of the reveals is possible. The addition of coating to the arch for graffiti protection or appearance are considered aesthetic, these may be considered but are not required to improve the durability of the arch.

Environmental / ecology improvements are limited for this alternative as the span and geometry of the bridge is not changing but may be implemented in the form of native plantings along the waterway.

A 30-year service life or better is expected. The budget for this repair is \$2,680,000.00. Costs for this alternative will increase as the structure continues to deteriorate and will no longer be viable if deteriorated elements result in the collapse or accelerated deterioration of other critical elements. The feasibility of this option should be re-assessed within three years of the last structure inspection in fall 2025. This option will remain viable for up to three years from the last structure inspection in fall 2025, at which point the feasibility of this option should be re-assessed. Annual inspections of the bridge should be completed by a competent heritage bridge engineer until the bridge is rehabilitated. If hinges form in the arches and it becomes deformed, a rehabilitation will no longer be viable. The retained design firm with experience in concrete arch bridges is to confirm the final scope and viability of this alternative at the start of the detailed design period.

Future maintenance of the rehabilitated structure is expected to consist of yearly cleaning of the structure in the spring / fall, routine Ontario Structure Inspection Manual (OSIM) inspections, and periodic concrete repairs and sealant replacement during the remaining service life of 30 years. With ongoing maintenance and repairs arch bridges have lasted well beyond the anticipated 30-year service life. However, irreversible

damage to the arches such as loss of steel in the tension ties or hangers or overloading resulting in the formation of multiple hinges (wide full depth cracks in the arch) would limit future rehabilitation options. It is recommended that the City perform a feasibility study when the structure is nearing the end of its estimated service life (30 years) to determine rehabilitation options and lifecycle extension available at that time.

The local heritage committee can be consulted for review of patch repair mockups to ensure agreement on finish consistency and approach.

The potential impacts and mitigation outlined in Section 8.0 are conservative and allow for some development beyond the standard limits if required. The detailed design will be developed in consultation with various City departments, GRCA, and others, as required.

7.1.1 Landscaping and Restoration

A Landscape / Restoration Plan will be developed during detailed design. The plan will include:

- Restoration of any areas disturbed during construction, including restoration of construction laydown areas
- Riparian plantings along the eastern bank of the Eramosa River to improve the ecological function of the riparian zone

7.1.2 Climate Change Considerations

Climate change is usually associated with any significant change in long-term weather patterns. Changes in the composition of the atmosphere is resulting in processes that alter global temperature and precipitation and is affecting local weather patterns. These processes can ultimately lead to increased occurrence of extreme weather events such as floods, droughts, ice storms and heat waves.

As highlighted in the City's Climate Adaptation Plan, Guelph's future climate is expected to experience the following:

- The number of days with high wind gusts >40 and 70 km/hour will increase between 10% to 40% by the end of this century.
- The number of periods without measurable rainfall will not likely change by 2050 or even 2080, but the overall likelihood of drought impacting ecosystems is expected to increase.
- The number of extreme cold days is projected to decline dramatically by 2050 and could virtually become a rare event (less than once per year) by 2080.
- The number of hot days is projected to increase dramatically, quadrupling by 2050 and increasing over 7-fold by 2080.
- Heavy rainfall events that typically lead to flooding is projected to increase by 10-18% for 24-hour events, and 6-16% for 5-day rainfall events by 2050 and 2080.

McQuillan's Bridge
May 2026

- The number of days where freeze / thaw cycles occur is projected to decrease by 13% by 2050 and 26% by 2080.
- The number of days where more than 5 cm of snowfall occurs will decline slightly from 11 to 10 by 2050 and then drop further to 7 days by 2080. The number of days with freezing rain is projected to increase by 40% and 45% for 2050 and 2080, respectively. Snowfall and freezing rain will continue to be present throughout the rest of this century.
- The number of hot days with warm nights which are currently rare events (less than once per year) will become more common in the future, rising to 8 days in 2050 and rising further to 28 days by 2080.
- Winter season precipitation is projected to increase by 12% by 2050 and 20% by 2080, noting that the amount of snowfall will decline, and amount of rainfall will increase.

The project is intended to support walking and cycling as a option to reduce reliance on vehicular travel as a means to reduce greenhouse gas emissions. The project is designed to support the City's climate change goals by helping to create a viable active transportation option.

There is potential for the project to be affected by climate change. Precipitation is the key climate and weather-related variable of concern with respect to the bridge. As a result of climate change, storm events are predicted to become more intense, which can result in larger volumes of precipitation at one time as noted in the local climate change projections. Other climate variables such as temperature are major inputs to evaporation and snowmelt processes. Increases in temperature are likely to impact precipitation and snowmelt runoff volumes discharged to watercourses.

The majority of the Study Area is located within a floodplain. The area has been subject to flooding in the past and flooding can be expected to increase in the future.

The following measures will be implemented during the design and operation of the trail:

- Although the bridge's existing abutments will not be significantly altered, the rehabilitated portions of the bridge will be designed in accordance with GRCA Regulations and will be designed to ensure flood and erosion risk are minimized and are within acceptable parameters.

8.0 Potential Impacts and Mitigation Associated with the Preferred Solution

The Preferred Solution has the potential to impact various components of the social, natural and built environment.

Potential impacts are as follows:

Natural

- Clearing of trees, shrubs and ground vegetation has the potential to disturb or destroy nests of migratory birds, wildlife habitats and habitats for SAR
- Removal of wetlands results in the loss of wildlife habitat, natural stormwater management and other benefits received from wetlands
- Clearing of trees, shrubs and ground vegetation has the potential to disturb or destroy nests of migratory birds and maternity roosting areas for bats
- Active nests on bridge structures may be disturbed during construction
- Rare species, which have not yet been identified in the area, may be present and could be disturbed by the project works
- Sediment and erosion impacts associated with land grading and clearing (if determined to be required)
- Habitat for turtles and aquatic snakes in the Eramosa River could be disturbed by work on, and around, the river banks and adjacent lands
- Introduction of invasive species into natural areas is possible
- Mortality of wildlife inadvertently moving through construction zones
- Dust effects on wildlife habitat
- Effects on hydrology due to changes to site grading and decreased permeability
- Temporary effects on hydrology due to dewatering (if required)
- There is potential for spills of fuels or other hazardous materials to occur during fueling of construction equipment or other construction activities
- Any steep slopes associated with valleylands could be disturbed by vegetation removal, grading work and the movement of large equipment which could result in erosion, slumping or slope failure
- The location of any Black Ash specimens protected under O. Reg. 7/24 should be confirmed during the course of the tree inventory and detailed design phase

Cultural Heritage

- Heritage features of the bridge will be altered and may require permitting
- There is potential that unexpected archaeological resources are found during construction
- Despite completed and ongoing archaeological surveys, unexpected archaeological resources may be found during construction

Social / Technical

- Use of the trail connection through the bridge will be available after rehabilitation and foot traffic may increase over previous conditions
- Bridge works have the potential to become damaged or fail if not designed with regard to site conditions

Proposed mitigation measures for potential effects outlined above are presented in Table 8.1.

Table 8.1: Potential Impacts and Mitigation

Feature	Description of Potential Effects	Mitigation Measures	Construction and Post-Construction Monitoring Activities
Effects on Ecological Features and Functions			
Significant Woodlands and other Treed Areas	Removal of trees results in the loss of tree cover, shade, soil stability, wildlife habitat, stormwater absorption and other benefits that trees provide	• The boundaries of any woodlands that may be subject to impacts will be established on-site through staking with City staff during detailed design. • A Tree Inventory and Preservation Plan will be completed once the preferred alignment has been identified and the preliminary grading limits are known. • Tree removals should be compensated with new tree plantings as per the City's Tree Preservation policy. • Tree Protection Zones (TPZs) will be established during detailed design and based on data collected during the tree inventory and the City's Tree Technical Manual. • Appropriate tree protection fencing will be installed around trees as per the City's Tree Technical Manual. • A Landscape / Restoration Plan will be developed during the detailed design stage to outline how, and where, tree planting will occur and how restoration of lands disturbed during construction will be carried out. • The Landscape / Restoration Plan will use only native species.	• Regular inspections will be conducted by the Contractor to ensure that mitigation is implemented. • The construction area will be monitored one year post-construction to determine if invasive species have established as a result of construction. Any new invasive species patches will be removed and replaced with native species.
Provincially Significant Wetlands / Other Wetlands	Removal of wetlands results in the loss of wildlife habitat, natural stormwater management and other benefits received from wetlands	• No stockpiles, storage or disturbance to grade will occur within 30 m of a wetland. • The boundaries of any wetlands that may be subject to impacts will be established on-site through staking on-site with GRCA and City Environmental Planning staff. • If impacts to a wetland, or wetland buffer, are unavoidable a Wetland Compensation Plan will be developed that ensures no net loss of wetland size or function. The Compensation Plan will be developed in accordance with GRCA regulations and will be approved by the GRCA during the detailed design and approvals process.	• None required.

Feature	Description of Potential Effects	Mitigation Measures	Construction and Post-Construction Monitoring Activities
Nests of Migratory Birds / Roosting Habitat for Rare Bats	Clearing of trees, shrubs and ground vegetation has the potential to disturb or destroy nests of migratory birds and maternity roosting areas for bats. Active nests on bridge structures may be disturbed during construction.	- Any vegetation clearing should take place outside of the breeding bird and bat roosting timing window. - If clearing must occur within this window: - A qualified Ecologist / Avian Biologist will first search the affected area. Any active nests will be flagged and all clearing within the associated habitat will be avoided until the Ecologist / Avian Biologist confirms that the birds have fledged, and the nest is no longer active - If a nesting migratory bird (or SAR protected under ESA, 2007) is identified within or adjacent to the construction site, all activities will stop, and the Contractor shall discuss mitigation measures with the proponent. In addition, the proponent will contact the MECP to discuss applicable mitigation options. The Contractor will proceed based on the mitigation measures established through discussions with the MECP - Clearance must be provided by MECP in relation to the removal of trees within the bat roosting season - If it is known that work on a bridge will be required during the nesting season, exclusion netting may be installed ahead of the season to limit the ability of birds to nest on the structure for one season. The netting must be removed as soon as possible after construction.	None required.
Species at Risk Trees	Rare species, which have not yet been identified in the area, may be present and could be disturbed by the project works	- A tree inventory will be completed to determine if any Black Ash, Butternut or other at-risk vegetation is present. - If any Provincial SAR are identified during the tree inventory and/or associated detailed design studies, potential impacts will be mitigated to the extent possible and the MECP will be consulted as needed to determine next steps and permitting requirements. Under the amended ESA, the SARO List remains in effect, and conditional exemptions and new permits are still available. Any activities that affect species or their habitats protected under the amended ESA (as listed on the SARO List) still require proper authorization or an applicable exemption.	None required.

Feature	Description of Potential Effects	Mitigation Measures	Construction and Post-Construction Monitoring Activities
All Adjacent Natural Features	Sediment and erosion impacts associated with land grading and clearing (if determined to be required)	• All work zones should be clearly marked on detailed design drawings and at the work site to indicate that no work should occur outside the work zone. • Detailed grading, construction, dewatering and erosion and sediment control (ESC) plans will be submitted as part of the detailed design. • Implementation of the ESC measures will conform to industry best management practices and recognized standard specifications such as Ontario Provincial Standards Specifications (OPSS). • ESC measures will be implemented prior to construction and maintained during the construction phase in accordance with the ESC plan developed during detailed design. • All ESC measures will be inspected prior to construction and maintained during the construction phase to prevent entry of sediment into natural features. • Routine upkeep and maintenance of ESC features are to include regular monitoring for erosion and sedimentation impacts due to site grading during and after trail construction. • If the ESC measures are not functioning properly, no further work in the affected areas will occur until the sediment and/or erosion problem is addressed. • All disturbed areas of the construction site will be stabilized and re-vegetated as soon as conditions allow. • ESC measures will be left in place until all areas of the construction site have been stabilized and will then be removed by the Contractor. • Wet weather restrictions shall be applied during site preparation and excavation. Work should be avoided near watercourses during periods of excessive precipitation and/or excessive snow melt. • The Contractor will be aware of spill prevention best practices and will have contingency plans in place should a spill occur. Personnel will be trained in how to apply the plans. Spills or depositions into watercourses will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. Spills will be reported to the Ontario Spills Action Centre at 1-800-268-6060.	• None required.

Feature	Description of Potential Effects	Mitigation Measures	Construction and Post-Construction Monitoring Activities
Rare snakes and turtles	Habitat for turtles and aquatic snakes in the Eramosa River could be disturbed by work on, and around, the river banks and adjacent lands	ESC fencing in areas adjacent to the Eramosa River should be designed to effectively exclude Snapping Turtle, Midland Painted Turtle, Northern Map Turtle, Blanding's Turtle, and Eastern Ribbonsnake from active work areas. Turtles are often drawn to nest in areas with exposed soils, including construction sites.	None required.
Natural Areas	Introduction of invasive species into natural areas	- Construction equipment should be cleaned prior to bringing it to the site to avoid introducing exotic species from other sites. - All disturbed areas of the construction site will be revegetated as soon as conditions allow. - Re-vegetation of disturbed areas will be carried out in accordance with a Landscape / Restoration Plan to be developed during the detailed design stage. - The Landscape / Restoration Plan will use only native species. - If extensive invasion of non-native species is identified as a result of the Project, contingency measures may need to be developed, including the potential need for an herbicide application. An herbicide application plan will be developed as required.	None required.
Wildlife	Mortality of wildlife inadvertently moving through construction zones	- Silt fencing will be properly installed and maintained in accordance with the ESC plan to keep wildlife out of work areas. - If wildlife inadvertently moves into a construction area, the Environmental Inspector will move the species outside of the work area, if possible, using gloves and a bucket or plastic tub, as appropriate. - If any SAR are encountered that are not identified on relevant permits, all work will cease within the immediate work area and the MECP will be contacted.	The Contractor will be required to regularly monitor fenced areas to ensure that fencing is properly keyed / toed into the ground to ensure that wildlife cannot gain access under fenced area.
Wildlife	Dust effects on wildlife habitat	As appropriate, dust from the work areas will be controlled through suppressants (e.g., water).	None required.
Groundwater / Wetlands	Effects on hydrology due to changes to site grading and decreased permeability	A Grading Plan will be developed during detailed design to ensure that project works do not alter surface drainage patterns.	None required.

Feature	Description of Potential Effects	Mitigation Measures	Construction and Post-Construction Monitoring Activities
Groundwater / Wetlands	Effects on hydrology due to dewatering (if required)	- Minor dewatering may be required during work in, and around, bridge footings. - All requirements under the Ontario Water Resources Act, R.S.O. 1990, c. O.40 with respect to the quality of water discharging into natural receivers will be met, including the following mitigation measures and best practices: - If significant changes in water levels / seepage areas are noted, operations will cease until water levels recover. - Appropriate measures are to be implemented where necessary to maintain or improve runoff quantity and quality to adjacent wetlands.	Workers will report any instances of spills to their supervisors.
Groundwater / Surface Water / Natural Areas	There is potential for spills of fuels or other hazardous materials to occur during fueling of construction equipment or other construction activities	- All materials and equipment used for the purpose of site preparation and project construction shall be operated and stored in a manner that prevents any deleterious substances (petroleum products, silt, etc.) from entering natural features. - Any stockpiled materials will be stored at least 30 m away from wetlands or watercourses. - City of Guelph SOP – Groundwater Protection (SD-105342) should be followed.	None required.
Valleyland / Steep Slope	Any steep slopes associated with Valleylands could be disturbed by vegetation removal, grading work and the movement of large equipment which could result in erosion, slumping or slope failure	- The setback from the Eramosa River for any new construction work will be confirmed with the GRCA during detailed design. - Detailed design plans will be submitted to the GRCA to confirm that all work is in compliance with GRCA Regulations. - Wet weather restrictions will be applied during site preparation and excavation. Work will be avoided in Valleylands during periods of excessive precipitation and/or excessive snow melt.	The Contractor Inspector will perform regular inspection to ensure that mitigation is implemented.

Feature	Description of Potential Effects	Mitigation Measures	Construction and Post-Construction Monitoring Activities
Fish Habitat / Eramosa River and tributaries	Work in riparian areas and in-water can disrupt habitat	• The footprint of disturbed areas will be minimized to the extent possible. • Vegetated buffers will be left in place adjacent to watercourses / waterbodies to the maximum extent possible. • Wet weather restrictions will be applied during site preparation and excavation. Work will be avoided near watercourses during periods of excessive precipitation and/or excessive snow melt. • All requirements under the Fisheries Act will be met including Project Review or permitting. • Following construction, all disturbed riparian areas should be restored and/or revegetated as soon as conditions allow, using native materials. • Near-water work and work below the annual high-water mark will adhere to the appropriate in-water work timing window to avoid potential impacts to resident and migratory fish species. The proposed timing in-water window for this project, if required, is from July 15 to September 30 to accommodate both spring and fall spawning fishes. • Works will be performed in isolation of flowing waters. Work zone isolation will be achieved by placing cofferdams constructed of clean, non-erodible materials at the upstream and downstream limits of the work area. • Fish will be removed from the work area prior to the commencement of in-water works. Fish rescues will occur under a License to Collect Fish (LCF) obtained from the MNR. • All pump inlets will have a suitable screen to prevent the entrainment / impingement of fish. • Machinery will not enter the watercourse. • Any discharge from dewatering will outlet to a vegetated area at least 30 m from the watercourse and utilize a sediment filter bag. A second pump and extra filter bags must be kept on site at all times. • In the event of sediment discharge, all operations will stop immediately until the problem can be resolved.	• None required.

Feature	Description of Potential Effects	Mitigation Measures	Construction and Post-Construction Monitoring Activities
Eramosa River	Work on riverbanks can change the hydrology of the river	- Further investigations should be undertaken to ensure the proposed alternatives will not impact potential erosion hazards that may be present due to the presence of riverine slopes and/or the meander belt of the watercourse. The requirement for engineering assessments such as geotechnical or fluvial geomorphology should be confirmed with GRCA at the detailed design stage. - The geometry and alignment of structures should be reviewed during the detailed design stage. - All stormwater management and bridge sizing-related components of the projected shall be designed with consideration for increased precipitation due to climate change. - Where erosion protection, channel regrading / stabilization or earth retaining structures are determined to be required, the use of “softer” means of protection shall be preferred over the use of hard surfaces unless it is unfeasible to do so.	None required.
Lighting	Outdoor lighting can affect the patterns of nocturnal wildlife	If any new lighting is proposed along the bridge, where it currently does not exist, it should be directed downward and away from natural areas.	None required.
Adjacent Lands	Soil Compaction	- Heavy equipment and material stockpiles will be limited to marked construction areas. - Temporary construction staging areas and construction roads which have been compacted will be rehabilitated upon completion of construction.	None required.
Effects on Cultural Heritage and Archaeological Resources			
Archaeological Resources	There is potential that unexpected archaeological resources are found during construction	- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act. - The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Public and Business Service Delivery and Procurement.	No monitoring required.
Cultural Heritage Resources	Impacts to heritage features	- The HIA report recommends preparation of a Conservation Plan for the preferred alternative and implement mitigations based on the plan prior to commencing work. - A Heritage Permit may be required from the City of Guelph as McQuillan’s bridge is designated under OHA Part IV.	No monitoring required.

Feature	Description of Potential Effects	Mitigation Measures	Construction and Post-Construction Monitoring Activities
Effects on Social / Technical Environment			
Third-party trail	Use of the trail will be available after rehabilitation and traffic may increase over previous conditions.	- Public notification prior to construction will be provided to the local hiking clubs and adjacent properties for distribution amongst their membership regarding construction and any possible disturbance. - Active transportation movement can continue to be accommodated on the Stone Road bridge during construction.	No monitoring required.
Bridge Stability and Design	Constructed works have the potential to become damaged or fail if not designed with regard to site conditions	- The bridge will be designed in accordance with the recommendations provided. - Bridge design for rehabilitation will include consideration of support or staging required to maintain structural integrity - Annual inspections until the bridge is rehabilitated, including regular maintenance activities such as cleaning of debris	The long-term structural integrity and safety of the bridge will be subject to regular inspections throughout its lifespan, in accordance with City and provincial guidelines and regulations.

9.0 Consultation

Consultation is an important part of the MCEA process to ensure that anyone with an interest in the project has an opportunity to provide input into the decision-making process.

The key features of the consultation process included:

- Identifying key stakeholders, agencies, local residents, Indigenous Nations, and other interested or potentially affected parties that need to be consulted during the MCEA process.
- Notifying key stakeholders, agencies, local residents, Indigenous Nations, and other interested or potentially affected parties of the study at key points of the MCEA process.
- Engaging key stakeholders, agencies, local residents, Indigenous Nations, and other interested or potentially affected parties at key points of the MCEA process to gather input and help inform key decision making.
- Responding to inquiries or comments in an efficient and timely manner.

A Project Contact List was developed as a mailing list to distribute project Notices. The Project Contact List consisted of technical and provincial agencies, municipalities, utilities, local interest groups, businesses, and Indigenous Communities that may have an interest in the project, as well as local residents within the vicinity of the study area. Throughout the MCEA process, the Project Contact List was used to maintain contact information for those interested in the study, as well as to summarize comments received about the project and responses. The comments received throughout the MCEA were considered in the evaluation of the alternatives.

A copy of the Project Contact List is provided in Appendix E.

9.1 Consultation with Indigenous Communities

There are several Indigenous communities that may have constitutionally protected Aboriginal or Treaty Rights associated with the Study Area, or a portion of it, including:

- Mississaugas of the Credit First Nation (MCFN)
- Six Nations of the Grand River (SNGR)
- Haudenosaunee Confederacy Chiefs Council [represented by the Haudenosaunee Development Institute (HDI)]

These communities / organizations were contacted at various stages in the EA process.

McQuillan's Bridge
May 2026

Contact with these Indigenous communities and organizations included:

- Initial emails and follow-up phone calls prior to issuance of the Notice of Commencement to introduce the project and gauge whether the community may wish to participate in portions of the fieldwork
- Emails and follow-up phone calls to issue the Notice of Study Commencement and formally introduce the project
- Circulation of project information and draft reports for review

Correspondence is summarized in Table 9.1 and is provided in Appendix E.

Table 9.1: Communications with Indigenous Communities

Indigenous Community	Notices Sent	Comment Received	Study Team Correspondence
Mississaugas of the Credit First Nation (MCFN)	Yes	250916_Letter: MCFN staff responded to the study team's introductory letter requesting a Consultation Coordination Fee and MCFN DOCA's limited capacity for review. 251006_Email: MCFN staff acknowledged the City's update letter and noted they will still require a Technical Review Agreement for the reviews of the Stage 1 AA and Natural Environmental Inventory. 251104_Email: MCFN staff confirmed receipt of documents shared by City on Nov 3, 2025. 251212_Letter: MCFN staff shared comments from the MCFN DOCA Archaeology Unit, indicating no comments or concerns regarding the Stage 1 Archaeological Assessment (AA) report, and expressing interest to participate in any future Stage 2 AA fieldwork. 260206_Email: MCFN staff acknowledged the materials shared by the City on February 6 and indicated that MCFN will follow-up with comments by March. 260309_Email: MCFN staff advised that MCFN Cultural Unit and Environmental Unit have no comments or concerns at this time regarding Victoria Road, Stone Road and Structure 116, Guelph.	250915_Letter: Formal project introduction from the study team, describing the scope and overall timeline of the MCEA study and inviting engagement with MCFN. Noted that the Notices of Study Commencement have not yet been issued and indicated when they were expected to be published. 251006_Letter: Update letter from the study team, Acknowledged MCFN's request for capacity funding and provided update on status of City's policy review, noting despite this we hope to create opportunities for consultation with MCFN. The Study team shared that Stage 1 Archaeological Assessment and the Natural Environmental field studies were completed in September 2025 and that draft reports would be circulated, also offering virtual introductory meeting dates. 251017_Letter: Update letter from the study team sharing the Notice of Commencement for McQuillan's Bridge Schedule B EA Study (including Notice of Public Open House), and the Stage 1 Archaeological Assessment draft report. 251103_Email: The study team shared the draft Natural Heritage report and the Public Open House #1 materials and offered a virtual meeting with the project team. 251229_Letter: Update letter from the study team. Shared the draft Cultural Heritage Report and draft Heritage Impact Assessment for review. Letter also included reminder to provide feedback on the draft Natural Heritage Report and noted the City's intention to contact MCFN in early 2026 to start developing Field Liaison Agreement for Stage 2 AA. 260114_Letter: Update letter from the study team sharing Notice of Public Open House #2 and reminders to provide feedback on the draft Natural Heritage Report, the draft Cultural Heritage Report and the draft Heritage Impact Assessment. 260206_Letter: The study team shared the Public Open House #2 materials for review and included reminders to provide feedback on the draft Cultural Heritage Report and the draft Heritage Impact Assessment. 260309_Letter: Follow-up letter from the study team with a reminder to provide feedback on the draft Cultural Heritage Report, the draft Heritage Impact Assessment and the POH#2 materials.

Indigenous Community	Notices Sent	Comment Received	Study Team Correspondence
Six Nations of the Grand River (SNGR)	Yes	250915_Email: SNGR staff acknowledged receipt of the City's introduction letter, expressed thanks for the advance notice of the project, and noted interest in meaningful engagement. 251006_Email: SNGR staff responded to the City's update letter, noting that SNGR "looked forward to engaging when provincially-mandated capacity funding is available". 251020_Email: SNGR staff acknowledged receipt of the City's update letter and confirmed the draft Stage 1 AA report had been circulated to their Archaeology Supervisor. 260105_Email: SNGR staff acknowledged receipt of the City's update letter and noted that SNGR "will not engage in uncompensated EA work". 260114_Email: SNGR staff acknowledged receipt of the City's update letter and expressed concern about lack of capacity funding for EA study participation. 260206_Email: SNGR staff reiterated that SNGR "won't review project documents without capacity funding in place".	250915_Letter: Formal project introduction from the study team, describing the scope and overall timeline of the MCEA study and inviting engagement with SNGR. Noted that the Notices of Study Commencement have not yet been issued and indicated when they were expected to be published. 251006_Letter: Update letter from the study team. City staff acknowledged SNGR's request for capacity funding to participate in EA studies and provided update on status of City's policy review, noting despite this we hope to create opportunities for consultation with SNGR. The Study team shared that Stage 1 Archaeological Assessment and the Natural Environmental field studies were completed in September 2025 and that draft reports would be circulated, also offering virtual introductory meeting dates. 251017_Letter: Update letter from the study team sharing the Notice of Commencement for McQuillan's Bridge Schedule B EA Study (including Notice of Public Open House), and the Stage 1 Archaeological Assessment draft report. 251103_Email: The study team shared the draft Natural Heritage report and the Public Open House #1 materials and offered a virtual meeting with the project team. 251229_Letter: Update letter from the study team. Shared the draft Cultural Heritage Report and draft Heritage Impact Assessment for review. Letter also included reminder to provide feedback on the draft Natural Heritage Report. Noted the City's intention to contact SNGR in early 2026 to start developing Field Liaison Agreement for Stage 2 AA. 260114_Letter: Update letter from the study team sharing Notice of Public Open House #2 and reminders to provide feedback on the draft Natural Heritage Report, the draft Cultural Heritage Report and the draft Heritage Impact Assessment. 260206_Letter: Update letter from the study team sharing the Public Open House #2 materials for review and reminders to provide feedback on the draft Cultural Heritage Report and the draft Heritage Impact Assessment. Letter also acknowledged SNGR's concerns about capacity funding from SNGR's January 14 email.

Indigenous Community	Notices Sent	Comment Received	Study Team Correspondence
Haudenosaunee Development Institute (HDI)	Yes	250731_Email: HDI staff contacted the archaeology sub-consultant TMHC and noted they were aware of the PIF for the study and noted HDI is within its rights to participate in all stages of this project, asking for project information. 250829_Email: HDI staff reiterated interest in participating in the project and expectation of engagement early in the planning process. 250915_Email and voicemail: HDI staff responded to the study team's introductory letter confirming interest in Stage 2 AA fieldwork and natural heritage fieldwork. 250929_Email: HDI staff requested future archaeological and natural heritage fieldwork be postponed until an agreement is reached with the City. 251007_Email: HDI staff provided a copy of HDI's standard monitoring agreement, confirmed a date for an initial virtual meeting and requested that the City forward any pertinent reports in advance of meeting. 251031_Virtual Meeting: In response to City staff presenting an overview of the project, HDI staff enquired about the status of the City's consideration of providing capacity funding and requested that there should be no deadline for review of study documents until capacity funding is provided. HDI staff expressed interest in the City and HDI coming to an understanding in terms of Indigenous community history and treaty rights and noted the need for compensation for the cumulative impacts of municipal projects on treaty rights and lands.	250822_Email: The study team received the HDI email from TMHC and responded to HDI noting the project is in early stages and HDI will be contacted regarding the project shortly. 250915_Letter: Formal project introduction from the study team, describing the scope and overall timeline of the MCEA study and inviting engagement with HDI. Notes that the Notices of Study Commencement have not yet been issued and indicates when they are expected to be published. 250919_Call: City's Manager of Transportation Planning provided information about anticipated timelines for fieldwork and expressed interest in meeting with HDI staff to discuss the project. 251006_Letter: Update letter from the study team responding to HDI's emails and recent phone call. Acknowledged HDI's interest in field studies and indicated commitment to working with HDI to set up an agreement. The study team noted they expect to share draft reports in October 2025 and offered virtual introductory meeting dates. 251017_Letter: Update letter from the study team sharing the Notice of Commencement for McQuillan's Bridge Schedule B EA Study (including Notice of Public Open House), and the Stage 1 Archaeological Assessment draft report. 251103: The study team shared the draft Natural Heritage report and the Public Open House #1 materials, and thanked HDI staff for attending the virtual meeting with the city on October 31. 251229_Letter: Update letter from the study team. Shared the draft Cultural Heritage Report and draft Heritage Impact Assessment for review. Letter also included reminder to provide feedback on the draft Natural Heritage Report. Noted the City's intention to contact HDI in early 2026 to start developing Field Liaison Agreement for Stage 2 AA. 260114_Letter: Update letter from the study team sharing Notice of Public Open House #2 and reminders to provide feedback on the draft Natural Heritage Report, the draft Cultural Heritage Report and the draft Heritage Impact Assessment. 260212_Letter: Update letter from the study team sharing the Public Open House #2 materials for review and reminders to provide feedback on the draft Cultural Heritage Report and the draft Heritage Impact Assessment. 260309_Letter: Follow-up letter from the study team with a reminder to provide feedback on the draft Cultural Heritage Report, the draft Heritage Impact Assessment and the POH#2 materials. 260325_Email: Reminder to provide feedback on the draft Cultural Heritage Report, the draft Heritage Impact Assessment and the POH#2 materials. 260325_Call: Left voice with reminder to provide feedback on the draft Cultural Heritage Report, the draft Heritage Impact Assessment and the POH#2 materials.

9.2 Notices

The Schedule B Class EA requirements include two mandatory public points of contact during the EA process, a Notice of Commencement, and a Notice of Completion. In addition, two Notices of Public Open House were also issued.

Project notices were emailed or mailed to those on the Project Contact List, published on the Guelph Today news website at <https://www.guelphtoday.com/directory/public-notices-and-tenders>, and were posted on the City's website in the Newsroom and on the project webpage at <https://guelph.ca/city-hall/planning-and-development/environment-planning/environmental-assessments/victoria-road-stone-road-and-structure-116-municipal-class-environmental-assessment-study/>.

A project webpage was also established on the City's engagement website at <https://haveyoursay.guelph.ca/en/projects/victoria-stone-assessment> to provide project information, including project notices, throughout the MCEA process and engage residents and the public that may have an interest in the project.

The Notice of Commencement and Public Open House #1 (POH #1) inviting public input was issued on October 16, 2025. The Notice for the second Public Open House #2 (POH #2) inviting public input was issued on January 14, 2026. A copy of the Notice of Commencement and POH #1, and Notice of POH #2 are provided in Appendix E. At the conclusion of the MCEA process for the project, a Notice of Completion will be published in the Guelph Today news and on the City's website and mailed / emailed to all on the Project Contact List. The Notice of Completion will provide members of the public with the dates and methods to view the Project File Report, including names and addresses of individuals to whom they can send their comments.

All documentation related to consultation can be found in Appendix E. The comments received throughout the EA were considered in the evaluation of the Alternative Solutions.

9.3 Public Open Houses

9.3.1 Public Open House #1 (POH#1)

The first POH was held on November 6, 2025, from 4 to 8 p.m. as a drop-in style open house at the Royal Canadian Legion Branch 234 (57 Watson Parkway South) with project information displayed around the room, and representatives from the study team present to answer questions. The POH materials were posted on the City's project webpage prior to the POH on November 3, 2025, for the public to view and download.

Opportunities for public feedback were made available through interactive boards at the POH and a digital survey provided on the City's webpage for the project, or by

contacting the study team with written comments by email. The comment period ran from November 3 to November 17, 2025.

A copy of POH materials and the POH Summary of Engagement documenting comments received during the comment period are included in Appendix E.

9.3.2 Public Open House #2 (POH #2)

The second POH was held on February 5, 2026, from 5 to 7 p.m. as a drop-in style open house at the Royal Canadian Legion Branch 234 with project information displayed around the room, including a review of the problem/opportunity statement (as presented in POH#1) supporting studies, Evaluation of Alternative Solutions, and the Preliminary Preferred Alternative Solution. Representatives from the study team were again present to answer questions as well as discuss the project with interested members of the public. The POH materials were posted on the City's project webpage for the public to view and download anytime during the comment period from February 5, 2026, to February 26, 2026.

Opportunities for public feedback were made available through interactive boards at the POH and a digital survey provided on the City's webpage for the project, or by contacting the study team with written comments by email.

Below is a summary of comments and study team responses.

- Responses showed residents value the bridge for its heritage, community / cultural significance, as well as its role in connectivity for the hiking trail network. Responses indicated that there is strong preference for an off-road pedestrian and cyclist crossing.
 - The study team acknowledges these priorities from the community. Heritage considerations are captured in the evaluation of alternative solutions under cultural heritage with the sub-criteria: temporary or permanent impact to cultural heritage landscapes & temporary or permanent impact to build heritage resources and heritage value of the bridge.
 - Preference for an off-road crossing has been captured in the evaluation table under technical factors in the sub-criterion: ability to achieve public safety standards and risk exposure for pedestrians and under social environment under the sub-criterion: ability to support a connected trail network.
- Most responses emphasized preference of Alternative 2 for maintenance of heritage, trail connectivity, and safety for pedestrians and cyclists.
 - The study team acknowledges that responses support the preliminary preferred alternative solution – Alternative 2: Rehabilitate and Strengthen the Bridge.
- One respondent noted that while the trail is noted to be third-party, the bridge was built by the City.

McQuillan's Bridge
May 2026

- The study team acknowledges this connection between the bridge and trail system. This consideration is considered in the evaluation of alternative solutions under social environment under the sub-criterion: ability to support a connected trail network. Reference to this connection is also made in the Project File Report.
- One respondent indicated interest in a visual assessment of how Alternative 2 changes the appearance of the bridge.
 - The study team acknowledges this interest in how the bridge's aesthetics will change and notes that a Heritage Impact Assessment was completed for McQuillan's Bridge before the evaluation of alternative solutions was conducted to ensure heritage impacts for each alternative were captured.
- Some respondents indicated concern that Alternative 6 would put pedestrians and cyclists close to traffic.
 - The study team acknowledges this concern with Alternative 6 (Remove the Bridge and Widen Adjacent Road) and notes it has also been captured in the evaluation table under technical factors in the sub-criteria: ability to achieve public safety standards and risk exposure for pedestrians.
- One response indicated preference for Alternative 4 noting they see value in service life and constructability over cultural heritage.
 - The study team acknowledges this comments and notes service life and constructability has been considered as part of the evaluation in technical factors under design life.
- Some responses indicated concern about financial considerations with one response noting interest in the costs and lifespan of alternatives being considered. One separate response noted preference for Alternative 3 due to its longer life span. An additional response noted that while the resident values heritage, they see the primary value of the bridge as a crossing, noting interest in a quick and cost-effective solution.
 - The study team acknowledges the interest in financial considerations and notes that the service life of Alternative 3 (Rehabilitate Arches Incorporating a New Bridge) would be 30 years for the arch components and a 75-year service life for the new pedestrian bridge (with maintenance). This has been considered in the evaluation of alternative solutions under financial factors.

A copy of POH materials and the POH Summary of Engagement documenting comments received during the comment period are included in Appendix E.

9.4 Agency Correspondence

Notices were sent to various federal and provincial agencies with a potential interest in the project. A summary of correspondence and how comments were considered is presented in Table 9.2. All correspondence can be found in Appendix E.

Table 9.2: Summary of Agency Correspondence

Agency	Comment	How Comment was Considered
Grand River Conservation Authority (GRCA)	251029_Letter: GRCA responded to the Notice of Commencement noting the study area contains the GRCA regulated features. GRCA staff noted that restoring the bridge would not raise hydraulic concerns, but additional grading or relocation of the bridge may require hydraulic analysis. Staff also noted a scoped wetland assessment is requested and that staking should be conducted between May to September. 260113_Letter: GRCA responded to the technical background memorandum with a letter noting that modifications to the bridges may require hydraulic analysis demonstrating no negative impacts to the regulatory floodplain. GRCA staff can provide further feedback as preliminary alternatives and designs are advanced.	GRCA staff were consulted about the project in its early stages and circulated on all study notices. GRCA staff were provided with a draft copy of the Natural Heritage Report and Terms of Reference for review along with a package including technical background memorandum summarizing technical details of bridge alternatives and a draft copy of the detailed evaluation of alternatives. GRCA will continue to be circulated, including on the draft PFR to allow early consideration for future commitments.
Ministry of Citizenship and Multiculturalism (MCM)	260219_Letter: MCM provided a letter response to the Notice of study Commencement with preliminary comments including outline of screening checklist / study requirements	260421_MCM was circulated the cultural heritage and archaeology reports.

9.5 Consultation with Interest Groups

Heritage Advisory Committee Meeting

- Members of the project team attended the January 15, 2026, meeting and presented background information on the study
- The Committee recommended Alternative 2 as the preferred solution, and Alternative 3 as the second preferred alternative

McQuillan's Bridge
May 2026

- The Committee noted that if vertical spindles are to be added to rails, they should be fabricated in a manner that matches the bridge construction in material and appearance

Guelph Historical Society

The Guelph Historical Society provided a letter to Mayor and Council in February 2026 noting their position to restore and repair McQuillan's Bridge, referencing By-Law (2024)-20944.

A copy of the Heritage Advisory Committee meeting minutes and Guelph Historical Society letter are included in Appendix E.

Planning, Environment and Water Advisory Committee Meeting

- Members of the project team attended the February 9, 2026, meeting and presented background information on the study
- The Committee recommended both Alternative 2 and Alternative 3 as the preferred solution

A copy of the Planning, Environment and Water Advisory Committee meeting minutes are included in Appendix E.

10.0 Next Steps

The Project File Report (PFR) will be posted for the required 30-day public and agency review period and will be finalized provided there are no Section 16 Order requests.

10.1 Detailed Design Work

During detailed design, the preferred alternative would be refined and finalized to address site-specific conditions as identified in this report.

The detailed design phase involves additional studies and the development of detailed drawings for the preferred alignment as well as construction standards and specifications. The detailed design will include:

- Plan and profile drawings
- Typical sections and details
- Materials specifications
- Construction access route locations
- Construction sequencing and management plan
- Tree protection, removal and Landscape / Restoration plans
- Utility locates and mitigation plans
- Sediment and erosion control plans
- Confirmation if any grassed and treed portions of the study area that retain archaeological potential are to be disturbed to confirm Stage 2 Archaeological Assessment requirements
- Confirmation if a marine archaeological assessment is required, based on the limits of planned riverbed disturbance as part of the work
- Grading Plan which shows the proposed connection of the bridge to the adjacent existing 3rd party trails, or any redesign / grading of those trail accesses.
- 3-dimensional Finite Element Modeling (FEM) for alterations to the structural form including construction staging models to reduce risk and carefully analyze the structure.

The additional studies and consultation to occur during the detailed design phase are described in the following sections.

10.1.1 Commitments for Future Studies and Consultation

The following future studies will be completed early in the detailed design process such that any findings can be incorporated into the design, as required:

- Preparation of a Conservation Plan in line with recommendations of the HIA for the preferred alternative and implementation of mitigation measures based on the plan prior to commencing work

McQuillan's Bridge
May 2026

- A Tree Inventory and Preservation Plan will be completed to identify tree removals and/or tree injuries and appropriate protection measures
- Development of a Landscape / Restoration Plan with consideration for natural heritage improvements in the form of native plantings along the waterway
- GRCA has noted they may require hydraulic analysis demonstrating no negative impacts to the regulatory floodplain and wetland staking. GRCA staff can provide further feedback as the design advances
- Submission of a Request for Review to the DFO for any proposed works in or near the Eramosa River

10.1.2 Permits and Approvals

The City, in coordination with the consultants and contractors, will secure the necessary permits and approvals for the bridge. This may include, but is not limited to:

- Fisheries Act compliance / approval from the Department of Fisheries and Oceans, if in-water work is required
- A Heritage Permit from the City of Guelph
- Approval under O. Reg. 41/24 for work within the GRCA regulated area

11.0 Conclusions

This study considered options to address the condition of McQuillan's Bridge (Bridge 116). Through the MCEA process, it was determined that the Preferred Solution is Alternative 2: Rehabilitate and Strengthen.

As per the requirements of the Municipal Class EA, this Project File is available for public review and comment for a period of 30 calendar days following the publication of the Notice of Study Completion.

Concerns regarding the project should be directed to the contacts listed in the Notice of Completion. If concerns relating to Aboriginal or Treaty Rights arise regarding this project which cannot be resolved in discussion with the City, a person or party may request that the Minister of the Environment make an Order for the project to comply with Section 16 of the Environmental Assessment Act (referred to as a Section 16 Order), which addresses Comprehensive Environmental Assessments. Requests must be received by the Minister within 30 calendar days of the first publication of the Notice of Completion.

McQuillan's Bridge
May 2026

If the Minister does not receive a request for a Section 16 Order within the 30 calendar days, then the project will move forward, if the City can arrive at and formalize a property agreement, to detailed design, approvals, and subsequent implementation of the preferred alternative.

Respectfully submitted by:

R.J. Burnside & Associates Limited

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McQuillan's Bridge
May 2026

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McQuillan's Bridge
May 2026

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