Appendix A

Summary of Public Consultation

West Montrose Covered Bridge Rehabilitation - Public Consultation #1 Summary

Public consultation #1 was held as a virtual online public consultation between October 1, 2021 and November 10, 2021. There was no in-person public meeting held due to COVID-19 restrictions. Public consultation materials were posted on the project website at the following link: https://www.engagewr.ca/west-montrose.

Signs were posted at the bridge and notices were mailed/e-mailed out to relevant stakeholders and residents within the project limits. A notice was posted in the local newspaper (Appendix A).

The Information Package is provided in Appendix B. There were 252 visitors that viewed the project page at least once, 95 informed visitors that viewed documents, images or multiple pages, and 36 engaged visitors that participated in the survey or asked a question. A summary of the survey questions and responses is provided in Appendix C. The following community priorities and comments were raised during public consultation #1:

Other Comments - Themes	# of survey respondents
Provide traffic calming for horse & buggies and cyclists on Highway 86, lower speed limit on Highway 86, provide a way for cyclists to safely access the G2G trail	17
Issues with use of Letson Park for construction staging and protection of oak tree	8
Installation of fibre optic cable to community	8
Replace cladding only if necessary, repurpose materials from restoration work	6
Update interior lighting	6
Install security cameras	6
Install fire suppression system	6
Keep non-functional cross-bracing in place	6
Install new window slats	1
Accommodate farm vehicles and other heavy vehicles	1
Reduce speed limit over bridge	1
Concerns about risk of flooding to bridge	1
Wearing surface (tar and chip vs. wood plank)	2
Bridge capacity and load limit	2
Removal of interior white cladding to expose wooden truss	2

6 survey respondents provided identically worded comments.

A letter was received from the BridgeKeepers/West Montrose Residents' Association (Appendix D) and the National Society for the Preservation of Covered Bridges (Appendix E) with input on the proposed design. A report by Wood Research Design was received via the West Montrose Resident's Association recommending the Project Team look at options to strengthen the existing wooden truss (Appendix F)

Responses to the comments received during Public Consultation #1 are provided in the attached Appendix G. These responses were posted on the project website under a Frequently Asked Questions section.

Appendix A

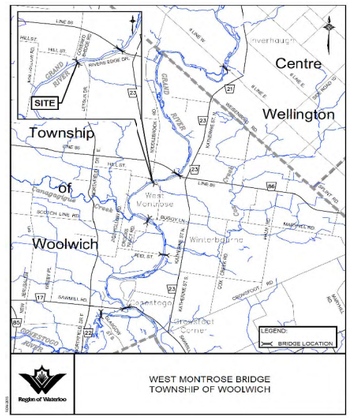
Virtual Public Consultation Centre
West Montrose Covered Bridge Rehabilitation

You are invited to provide your input into the planning of the rehabilitation of the West Montrose Covered Bridge, in the Township of Woolwich, by taking part in a virtual Public Consultation Centre (PCC).

The existing bridge consists of wooden trusses supplemented by steel Bailey trusses concealed behind wood cladding.

Between 2012 and 2018, the Region undertook a number of field studies and analyses to determine the structural behaviour of the hybrid dual truss system. It was determined that a major rehabilitation will be required so that the bridge can continue to serve the public in the coming century.

The Region retained a specialty bridge engineering consultant, Doug Dixon and Associates to conduct a detailed structural analysis and identification of rehabilitation options. The engineering consultant has recommended that the basis of the rehabilitation should include the removal of the steel Bailey trusses and replacement with robust steel girders, designed and built specifically for the purpose of carrying the loads of the West Montrose Bridge. These girders can be concealed by cladding in the same manner that the existing Bailey trusses are concealed by cladding.



Subsequent to construction of the robust structural system, other functional and aesthetic work is recommended. This would include repair or replacement of the roof and external cladding of the structure. Other considerations include a fire suppression system, implementation of security cameras and other measures to prevent entry by unauthorized vehicles.

The rehabilitation work is currently planned for construction in 2022-2023.

Due to ongoing COVID-19 restrictions on public gatherings, no physical Public Consultation Centre (PCC) will be held for this project at this present time. This virtual PCC is a forum to view the preferred design concept that is being considered and provide comments and input as well as to ask any questions that you may have about the project.

All interested parties are invited to complete the online questionnaire and add any comments at the Region's EngageWR project site by October 31, 2021.

Please provide comments at:

https://www.engagewr.ca/west-montrose

If you would like further information on the project, please visit www.regionofwaterloo.ca or contact:

J.P. Stephenson
Region Project Manager
Region of Waterloo
150 Frederick Street, 6th Floor
Kitchener, ON N2G 4J3
Telephone: (519) 575-4096
Fax: (519) 575-4430
Email: jstephenson@regionofwaterloo.ca

Doug Dixon
Consultant Project Manager
Doug Dixon & Associates
2 County Court Blvd #345
Brampton, ON L6W 3W8
Telephone (647) 405-0523
Email: ddixon@dougdixonassociates.com

All comments and information received from individuals, stakeholder groups, and agencies regarding this project are being collected to assist the Region of Waterloo in making a decision. Under the "Municipal Act", personal information such as name, address, telephone number and property location that may be included in a submission becomes part of the public record.

Region of Waterloo

Public Notice

Virtual Public Consultation Centre

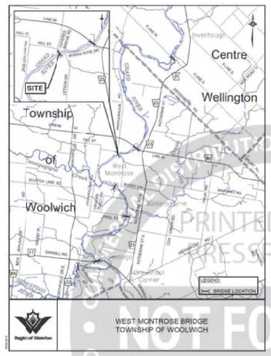
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↓ POLICE REPORT



Emergency crews responded to the Line86 and Sideroad 17 on Sept. 23 for a collision that sent one person to hospital. Justine Fraser

Police board settles new contract with Waterloo Regional Police Association

Waterloo Regional Police employees will be receiving raises averaging 2.1 per cent annually under the terms of a new five-year contract announced this week.

Retroactive to Jan. 1, 2020, the new deal runs to Dec. 31, 2024.

After a special meeting Monday, the Waterloo Regional Police Services Board announced it had approved the contracts with uniformed and civilian employees.

The average yearly increase is 2.14 per cent over the duration of the contract: 2.5 per cent retroactive to Jan. 1, 2020, 2.1 per cent for 2021 and 2022, and 2 per cent in 2023 and 2024.

The new collective agreement also included adjustments to member benefits that support and enhance member wellness, and the cessation of lifetime retiree benefits for all new hires and grand-parenting for existing members.

"We are pleased to have reached a negotiated settlement that recognizes the excellent and valuable contributions of all members, while addressing opportunities to modernize the police service and focus on sustainability while remaining fiscally prudent," said regional Chair Karen Redman, who also chairs the Police Services Board, in a statement. "I am very pleased with the five-year agreement as it provides stability, the ability to forecast future operating budgets as well as allows all of us to focus on our continued transformation of policing in Waterloo Region."

The Waterloo Regional Police Services Board is a civilian oversight body that governs the Waterloo Regional Police Service. Under the provisions of the Ontario Police Services Act, the board is responsible for the provision of adequate and effective police services for the residents of the Region of Waterloo.

SEPTEMBER 23

6:20 PM | Waterloo Regional Police responded to a mirror collision at the intersection of Arthur Street and Whippoorwill Drive in Elmira.

SEPTEMBER 25

3:45 PM | Police received a report of a collision on Chilligo Road in Woolwich Township after a driver swerved to avoid striking a squirrel in the road. Damage was minor.

SEPTEMBER 26

1:10 PM | Waterloo Regional Police received a report of a collision in the area of Lobsinger Line and Moser Young Road in Wellesley Township. The driver of White Nissan was travelling north on Moser Young Road when they stopped at a stop sign at the intersection. The driver of a Black Toyota was travelling west on Lobsinger Line and had the right of way. The driver of the Nissan proceeded into the intersection and collided with the Toyota. As a result of the investigation, an 18-year-old woman was charged with 'fail to yield to traffic on through highway.' No injuries were reported.

SEPTEMBER 28

1:26 AM | Waterloo Regional Police responded to a report of a single-vehicle collision in the area of Wideman Road and Wilmot Line in Wilmot Township. The driver of the vehicle was travelling on Wideman Road towards Wilmot Line when they allegedly failed to navigate the T-intersection and struck a fence. As a result of the investigation, a 22-year-old man was charged with 'careless driving.' There were no injuries reported.



The intersection of Sawmill and Bloomingdale roads was closed for a couple of hours Monday morning while Waterloo North Hydro crews repaired a pole downed in a collision. Justine Fraser

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Appendix B

Region of Waterloo

WEST MONTROSE BRIDGE REHABILITATION

Township of Woolwich

Public Consultation Centre #1
Information Package

What: The Regional Municipality of Waterloo is undertaking a Schedule "A+" Municipal Class Environmental Assessment (Class EA) for rehabilitation of the West Montrose Bridge.

Where: Covered Bridge Road in the Township of Woolwich.

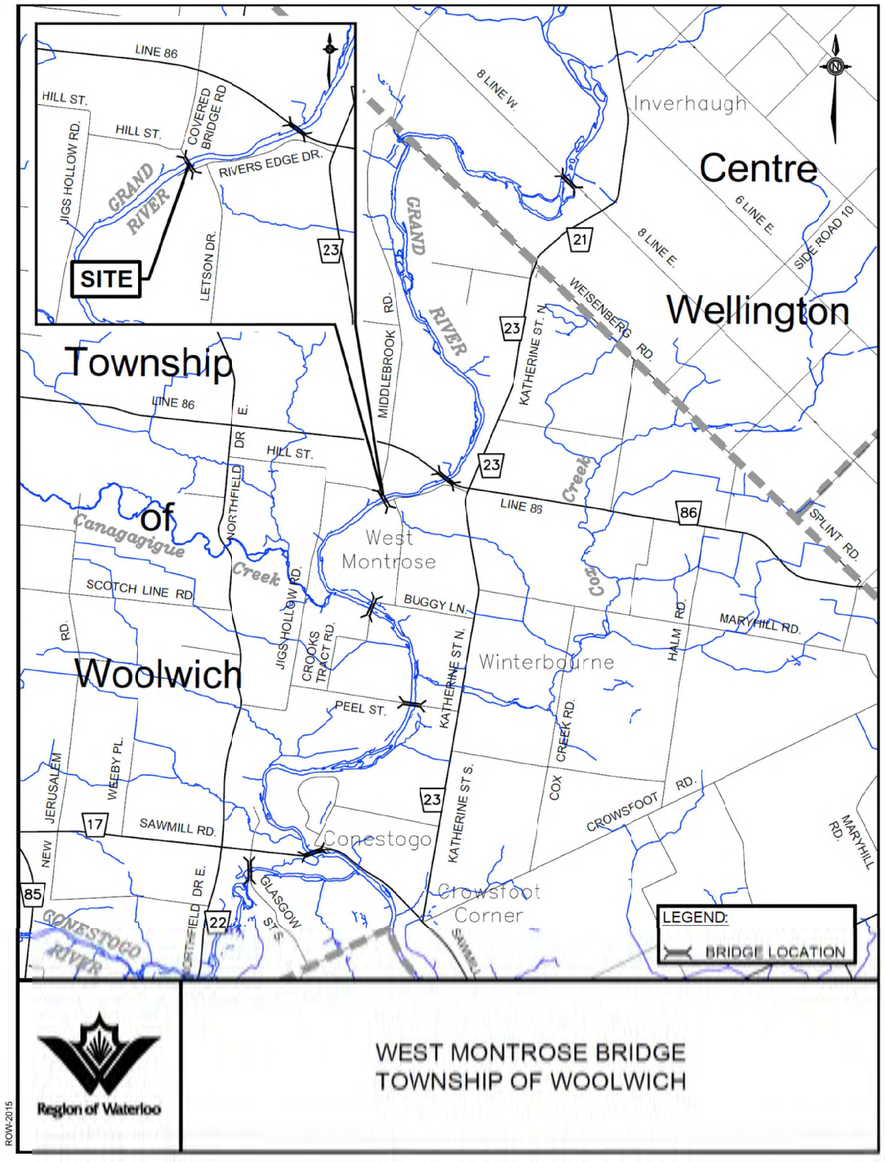
Why: To conduct a comprehensive structural rehabilitation of the West Montrose Bridge.

When: 2022 Construction (tentative).

Who: Region of Waterloo Project Manager
J.P. Stephenson
519-575-4096
jstephenson@regionofwaterloo.ca

There is a survey at the back of this package. Please feel free to complete the survey – manually or electronically – and share your comments with us.

KEY PLAN



CONTENTS

Frequently Asked Questions
Survey

Appendix A – Brief History of Bridge.
Appendix B – Planned Rehabilitation Measures
Appendix C – Deck Replacement Options
Appendix D – Proposed Access and Staging Areas

1. What is the history of the West Montrose Bridge? Why is the Region considering this project now?

A brief chronology of the West Montrose Bridge is presented in **Appendix A**.

Pictures of the bridge with labels of the various components can be found in **Appendix B**

The West Montrose Bridge requires a complete structural rehabilitation in order to ensure that the structure will continue to serve the public through the current century.

Between 2012 and 2018, the Region undertook a number of field studies and analyses to determine the long-term structural behaviour of the hybrid dual truss system (consisting of the original 1881 wood truss and the supplemental 1944 steel Bailey truss). The principal ultimate findings were as follows:

- The dead load (i.e. weight of the bridge itself) and live loads (i.e. weight of vehicles, pedestrians, snow, etc.), are being carried by both the original wooden truss and the steel Bailey trusses.
- As the original wood trusses age, they are “shedding” (transferring) load to the Bailey trusses.
- The Bailey trusses do not have sufficient capacity to carry the entire load of the bridge. Accordingly, if sufficient load is shed by the wooden trusses onto the Bailey trusses, the Bailey trusses could become overloaded leading to the collapse and loss of the bridge.
- The Bailey trusses (manufactured in 1944) are now 76 years old and cannot be readily retrofitted to achieve a strength sufficient to carry the entire load of the bridge.
- The life of the bridge and the safety of the bridge cannot be addressed through restriction of the bridge to pedestrian-only traffic. For example, a tour group of 40 adults on foot imposes a weight approximately equal to two passenger vehicles plus occupants.
- For the best assurance of safety of the structure and its users, the bridge should undergo a major rehabilitation intended to provide a single robust load bearing system capable of supporting all dead and live loads imposed on the bridge.

2. Who is directing this project?

The planning and design for this project is being directed by staff from the Region of Waterloo and Township of Woolwich, along with Township of Woolwich Mayor Sandy Shantz and Township of Woolwich (Ward 3) Councillors Larry Shantz and Murray Martin. The consulting engineering firm Doug Dixon and Associates (“DDA”) has been retained by the Region of Waterloo to provide preliminary and final design services for this project, contract administration and inspection services through the construction phase.

3. How is this project being planned?

This project is being planned in accordance with the requirements of the Municipal Class Environmental Assessment (Class EA) process. The Municipal Class EA process is a planning and decision-making process approved under the Environmental Assessment Act that is used by municipalities to plan public infrastructure projects in order that potential environmental impacts are considered before a project is approved. It requires consultation with the public, involved stakeholders, and agencies in consideration of alternatives and their potential impacts on the project environment.

This project is being planned as a Schedule “A+” Class EA project which applies to projects that are classified as pre-approved under the Environmental Assessment Act, with the added requirement of public notification prior to implementation.

This Public Consultation Centre is being held for members of the public to become aware of the project and to provide input into the project to help refine the detailed design.

4. What is the purpose of this Public Consultation Centre?

The purpose of this Public Consultation Centre is to have interested groups and individuals learn about, and provide input on:

a) The needs for major rehabilitation of the bridge;

b) The project environment (natural, social, cultural/heritage, and economic);

c) The alternative solutions for improvements being considered by the Project Team;

d) How the alternative solutions for improvements will be evaluated and how a preferred alternative will be identified; and

e) Future public input opportunities planned.

Region and project consultant staff are available to engage in “virtual dialogue”, to gather your comments and input and to answer any questions you may have.

Information is available and comments may be submitted by using Engage Waterloo Region (https://www.engagewr.ca/west-montrose), mail, e-mail, telephone, and or facsimile, as shown on the cover page. Due to ongoing COVID-19 restrictions on public gatherings, there will be no physical Public Consultation Centre for this public consultation.

We would also encourage you to fill in the Survey on the Engage Waterloo Region page to help us gather feedback.

All comments received will be considered along with other information received over the course of the project to assist the Project Team in completing the planning and design for this project.

5. What rehabilitation actions are planned for this project?

The rehabilitation actions planned for this project include the following:

- Removal of the existing steel 1944 Bailey trusses and replacement with robust steel girders, designed and built specifically for the purpose of carrying the loads of the West Montrose Bridge. These girders will be concealed by wood cladding in the same manner that the existing Bailey trusses are concealed by wood cladding. Accordingly, the new steel girders will not be visible while travelling through the bridge,.
- Replacement of the deck system, including the longitudinal stringers and transverse nail laminated wood deck.
- Repair and/or replacement of the roof system.
- Repair and/or replacement of the external red timber cladding.
- Removal of the redundant under-deck steel cross-bracing.
- Removal of the non-functioning longitudinal tension-rod system installed by MTO in the 1950's.
- Upgraded lighting.
- Security cameras.
- Measures to prevent entry by unauthorized oversize/overweight vehicles.
- Implementation of a fire suppression system (may be implemented in a follow-up contract).
- Placement of a boulder "protection collar" around the base of the pier in order to guard against harmful scour effects associated with heavy river flows during flood events.

Please refer to **Appendix B** for figures showing the planned rehabilitation measures.

6. What options are being considered regarding the planned rehabilitation actions?

Most of the rehabilitation activities described in Section 5 are "fixed" in nature; however, there are two deck replacement options currently under consideration:

Option 1 – Timber Deck System with Asphalt Topping. This option is essentially the same as the existing timber deck system using timber stringers supporting a nail laminated timber deck and tar-and-chip topping. This system would look the same as the existing system from inside the bridge and from under the bridge. The expected life of the timber deck system would be approximately 25 years.

Option 2 – Steel Deck System with Asphalt Topping. This option uses square steel stringers supporting a steel plate deck and asphalt topping. This system would look the same as the existing system from inside the bridge, but it would look somewhat different from under the bridge. The difference would be mitigated by using unpainted "weathering steel" that develops a natural brown patina. The expected life of the steel deck system would be approximately 50 years.

Please refer to **Appendix C** for figures showing the two deck system options.

7. Is any public property required for this project?

The work will require a staging area to allow for storage of materials and equipment, assembly of components, and a site trailer. The Project Team is proposing that the empty lot at the corner of Covered Bridge Drive and Hill Street, and also Letson Park be used for this purpose. Access to mailboxes at the corner of Covered Bridge Drive and Hill Street will be maintained. The park will be restored to original or better condition upon completion of the project. Please refer to **Appendix D** for a plan view showing these proposed staging areas.

8. Is any private property required for this project?

The work will require access to the river near the bridge. The Region will seek to arrange for temporary access with adjacent property owners or seek to acquire necessary lands or easements as required. Please refer to **Appendix D** for a plan view showing the proposed access location.

9. How is the natural environment being considered?

The Region, through DDA, has retained the services of Ecotec Environmental to:

- Identify existing environmental conditions, constraints, and deficiencies.
- Develop environmental protection strategies, design elements, mitigation / enhancement / compensation measures, and construction / maintenance constraints.
- Produce a Natural Resource Assessment Report.
- Incorporate of required environmental elements into contract documents.
- Liaise with environmental review agencies (including Region of Waterloo, Grand River Conservation Authority (GRCA), Ministry of Natural Resources and Forestry (MNRF), Ministry of Environment Conservation and Parks (MECP), and Department of Fisheries

and Oceans (DFO) in order to ensure that adequate input in the environmental assessment/review process from these agencies.

- Review the recommended design for adherence to federal, provincial, municipal and other relevant agency policies, legislation and guidelines.
- Answer letters, comments and inquiries of an environmental nature received from the public and government and non-government agencies.
- Communicate with the Region of Waterloo staff in order to provide an update as to project progress, highlight any unforeseen project sensitivities/obstacles, and submit copies of all pertinent documentation, correspondence, and notices.

Field survey work will include the following:

- Aquatic habitat sensitivities (including local fisheries, unionids, and herpetofauna) and existing conditions;
- Migratory and breeding bird habitat, as well as other resident wildlife;
- Existing vegetation communities and sensitive species;
- Watercourse morphology and general water quality parameters (including dissolved oxygen, temperature, pH, water colour, and electrical conductivity);
- Aquatic habitat mapping including key habitat and physical features, watercourse substrate types, bank stability and soil types, riparian/aquatic vegetation, and critical habitat areas (e.g. potential spawning areas, deepwater holding habitat, unionid preferred habitat);
- Downstream habitat areas which could be affected by sedimentation or storm water transport; and
- Potential habitat enhancement opportunities.

An initial review of background information indicates that the following Species at Risk (SAR) may *potentially* inhabit the study area: Rainbow Mussel, Wavy-rayed Lampmussel, Silver Shiner, Greater Redhorse, Snapping Turtle, Midland Painted Turtle, Northern Map Turtle, Blanding's Turtle, Barn Swallow, and Bank Swallow.

10. How is the Cultural / Heritage environment being considered?

Heritage Protection

One of the Region's most iconic symbols, the West Montrose Covered Bridge, was designated by the Township of Woolwich in 2007 (By-Law Number 60-2007) under Part IV of the Ontario Heritage Act. Of all the covered bridges built in Ontario in the 1800s, the West Montrose Bridge

is the sole survivor and is the second oldest surviving bridge in the Region of Waterloo. The Bridge's rarity was recognized by the Ontario Archaeological and Historic Sites Board in 1960.

The West Montrose Covered Bridge is also located in, and integral to, the West Montrose Cultural Heritage Landscape, as designated in the Woolwich Official Plan (OPA 18). Views to and from the Bridge are Character Defining Attributes of the Cultural Heritage Landscape Designation and the reconstruction and rehabilitation work will preserve these views.

Heritage Considerations

The Region of Waterloo must apply to the Township of Woolwich for approval of any changes to the bridge that will impact heritage attributes identified in the Ontario Heritage Act Designation By-law. A Heritage Impact Assessment (described below) will be undertaken to recommend mitigation measures for any identified negative impacts, as a result of the project. While some negative impacts cannot be avoided, it is the sole purpose of this project is to preserve the heritage bridge in perpetuity.

After four years of structural monitoring it was recently determined that a steel Bailey truss, that was added internally to the Bridge in a 1959 rehabilitation project, was not supporting the Bridge as intended and needed to be removed as part of this project. The Bailey truss is specifically identified in the Heritage Designating By-law for the Bridge, as such, this By-law will need to be amended. It is anticipated that the amendment to the Designation By-law can occur either nearing the completion or after the rehabilitation and reconstruction work.

Background Studies in Support of the Rehabilitation and Reconstruction Project:

- Preservation Plan (April 2014)
- Heritage Impact Assessment (forthcoming 2021)
- Conservation Plan (forthcoming 2021)
- Archaeological Assessment (forthcoming 2021)

The rehabilitation and reconstruction project has been planned with retaining cultural heritage value as its central consideration. A Heritage Impact Assessment (HIA) will be prepared to assess potential impacts of the project. Once completed, the HIA will be reviewed by the Region's and Township of Woolwich Heritage Planning Committees. A Conservation Plan that will build on 2014 Preservation Plan for the Bridge and the recommendations of the HIA will also be developed. The Conservation plan will outline measures that may need to be undertaken during reconstruction, as well conservation measures for short, medium and long term, post reconstruction to ensure timely and appropriate maintenance and conservation efforts. An Archaeological Assessment will be undertaken for those areas where additional road improvements may be needed, or in or areas, such as temporary staging areas, that may be impacted by heavy machinery.

The information gathered through the above supporting studies will be used to make certain the rehabilitation and reconstruction project will be undertaken in the least impactful way and ensure that the West Montrose Covered Bridge will be conserved for many decades to come.

11. How is the Archaeological environment being considered?

The Region has retained Archaeological Services Inc. (ASI) to undertake a Stage 1 Archaeological Assessment.

The Stage 1 Archaeological Assessment will include the following components:

1. Background Research. ASI's existing database of known archaeological sites within the study area will be updated by reviewing pertinent provincial and federal government files (Ontario Archaeological Sites Database); and reviewing and compiling the results of a literature search (published and unpublished).

2. Archaeological Site Potential Evaluation. The archaeological site potential of the study area will be determined by reviewing the updated archaeological site location data; evaluating the property's archaeological potential; reviewing site-sensitive factors; and conducting a property inspection of the project study area. The property inspection will be undertaken in order to review the project study area (and layout) and to confirm and photo-document archaeological site potential.

3. Report Preparation. A Stage 1 Archaeological Assessment report will be prepared which will describe the results of all background research and the property inspection fieldwork conducted, and will contain all necessary photographic and cartographic documentation. The report will include results of the background research pertaining to previous archaeological investigations; geo-environmental setting and historic settlement; evaluation of archaeological site potential; and results of the property inspection. The report will provide recommendations for Stage 2 assessment, if necessary

12. What is the estimated cost of this project?

The recommended rehabilitation will cost approximately $4,000,000. Please note that this cost estimate is tentative. The final cost will depend on the exact scope of work and details incorporated into the rehabilitation.

Funding for this project is being provided by the Investigating in Canada Infrastructure Program (ICIP).

13. What is the project schedule? When will construction occur?

Construction is currently scheduled to be constructed starting in Spring 2022 and continuing until Spring 2023.

14. Will the bridge be closed to vehicles and pedestrians during construction?

Construction of the rehabilitation will require the full closure of the West Montrose Bridge to all motorized vehicles and horse-and-buggy traffic for up to one full year.

It is currently believed that the bridge can remain open to pedestrians and cyclists for most of the construction period; however, there will be critical phases where the bridge will be unavailable to pedestrians and cyclists for an estimated period of up to two weeks.

Detour routes will be established and efforts will be made to make these routes as convenient and safe as possible for all road users, including horse-and-buggy traffic, pedestrians, cyclists and motorists.

More detailed information will be made available prior to construction, through letters to adjacent property owners and tenants, sign boards and postings to the Region's web site.

15. How will I receive further notification regarding this project?

Property owners and tenants abutting the project site and members of the public registering at this Public Consultation Centre will receive all forthcoming public correspondence, and will be notified of all future meetings.

Alternatively, you may visit the Region's www.engagewr.ca page at https://www.engagewr.ca/west-montrose. Please "Subscribe" to the page to receive automatic update notices.

16. How can I provide my comments?

To assist the Project Team in addressing any comments or concerns, please fill out the attached Survey and Comment Sheet and return to the Project Team members listed below.

Alternatively, you may fill out the survey and provide your comments on the Region's Engage site https://www.engagewr.ca/west-montrose

Thank you for your involvement and should you have any questions or concerns please contact one of the following:

J.P. Stephenson, P.Eng.
Senior Engineer
Region of Waterloo
150 Frederick Street
Kitchener, ON N2G 4J3
519-575-4096
jstephenson@regionofwaterloo.ca

Doug Dixon, P.Eng.
Consultant Project Manager
Doug Dixon & Associates Inc.
2 County Court Blvd #345
Brampton, ON L6W 3W8
647-405-0523
ddixon@dougdixonassociates.com

17. How can I view project information following the PCC?

The PCC display materials, and other relevant project information, notifications of upcoming meetings, and contact information are available by visiting the Region's website at www.regionofwaterloo.ca or the Engage Waterloo Region site at https://www.engagewr.ca/west-montrose.

SURVEY

Regional Municipality of Waterloo
West Montrose Bridge Rehabilitation
Public Consultation Centre #1 – October 2021

Please feel free to select from any of the following options to complete and submit the survey.

Option 1 – On-Line Survey: You may complete the survey on-line on the Region's Engage page at www.engagewr.ca/west-montrose/

Option 2 – Email Survey: You may copy-and-paste the survey text into an email message and send it to the Region at jstephenson@regionofwaterloo.ca. Alternatively, you may print and complete a paper version of the survey and send a scan of the survey to same email address.

Option 3 – Mail-In Survey. If you received a paper copy of the survey (or if you have printed your own copy), you may complete it by hand and mail it to the Region at the following address.

J.P. Stephenson, P.Eng., Senior Engineer, Region of Waterloo
150 Frederick Street, Kitchener, ON N2G 4J3

Option 4 – Fax-In Survey. If you received a paper copy of the survey (or if you have printed your own copy), you may complete it by hand and fax it to the Region at 519-575-4430.

If you would like to receive a paper copy of the survey, please contact J.P. Stephenson at 519-575-4096 or jstephenson@regionofwaterloo.ca.

If you wish to complete the survey, we ask that you send it to the Region no later than Friday, November 5, 2021.

1. What is your relationship to the West Montrose Bridge Rehabilitation (check all that apply)?

- ☐ I live near the bridge.
- ☐ I visit the bridge to enjoy the view.
- ☐ I cross the bridge on my daily commute and/or for other purposes.
- ☐ I cross the bridge as a pedestrian.
- ☐ I cross the bridge as a cyclist.
- ☐ I cross the bridge as a horse & buggy user.
- ☐ I cross the bridge as a motorist.
- ☐ Other (please specify) _____

2. Are you in favour of the general plan for the West Montrose Bridge Rehabilitation?

- ☐ Yes.
- ☐ No.
- ☐ Not sure.
- ☐ Other (please specify) _____

3. What are your feelings about the removal of the 1944 steel Bailey trusses and replacement with new purpose-built girders that will support the weight of the bridge (check all that apply)?

- ☐ I have no issues with this. The steel Bailey trusses are hidden from view anyway. Nobody even knows the trusses are there.
- ☐ I would prefer that the historic trusses be retained, but I understand that they are well past their intended life and not capable of supporting the bridge in the long run.
- ☐ I would like to see one or more sections of the steel Bailey trusses preserved for display near the bridge.
- ☐ I would like to see one or more sections of the steel Bailey trusses preserved for display in one or more of the Township and/or Region facilities (e.g. museum).
- ☐ Not sure / No preference.
- ☐ Other (please specify) _____

4. Do you a preference regarding the deck system to be implemented?

- ☐ Timber. The view from below the bridge should be as close to the existing condition, even if it means more frequent deck replacements every 25 years or so.
- ☐ Steel. The deck system will look the same to most users within the bridge in either case, but the steel system will last longer, though it will look somewhat different from below the bridge than the current timber deck.
- ☐ Not sure / No preference.
- ☐ Other (please specify) _____

5. To prevent large vehicles from gaining access to the West Montrose Bridge, additional roadside features would be required. Are you in favour of this?

- ☐ Yes. I understand that this may require installation of roadside features designed to prevent access, but any change in the general setting will be minor and it will be worth it to exclude vehicles that could damage the bridge.
- ☐ No. I don't wish to see any new roadside features added to the existing setting.
- ☐ Not sure. I would need to see what the new roadside features would look like.
- ☐ Other (please specify) _____

6. What are your thoughts on maintaining the existing sag in the roof line?

- ☐ Leave it as is. The sag has developed during the life of the bridge; therefore it is part of the history of the bridge.
- ☐ Eliminate the sag. It is not an original feature of the bridge.
- ☐ Not Sure / No preference.
- ☐ Other (please specify) _____

7. The roadway within the bridge has developed a pronounced sag in each span, with a pronounced hump over the central pier. This has a negative impact on vehicle control, adds dynamic loads to the bridge and interferes with drainage. Would you support the elimination of this roadway sag?

- ☐ Yes.
- ☐ No.
- ☐ Not Sure / No preference.
- ☐ Other (please specify) _____

9. Do you have any other comments regarding this project?

Please provide your contact information.

Name:

Address:

Postal Code:

Phone:

Email:

Collection Notice:

All comments and information received from individuals, stakeholder groups, and agencies regarding these projects and meetings are being collected to assist the Region of Waterloo in making a decision. Under the “Municipal Act”, personal information (such as name, address, telephone number, and property location) which may be included in a submission becomes part of the public record. Questions regarding the collection should be forwarded to the staff member noted above.

APPENDIX A – BRIEF HISTORY OF THE WEST MONTROSE BRIDGE

1881. The original bridge constructed. The two span bridge employs wooden trusses to support weight on the bridge.

After 1900. Original wood abutments replaced with concrete abutments.

1933. The original wooden trusses are replaced.

1937 - 1998. The Ontario Department of Highways (DOH), now the Ministry of Transportation, assumes ownership of the bridge. The DOH undertakes miscellaneous work to strengthen the bridge, including the addition of steel World War II era bailey trusses, hidden from view by the use of white wood cladding.

1998. The Ministry of Transportation transfers ownership of the bridge to the Region of Waterloo.

1999 - 2014. The Region completes a number of major and minor rehabilitation projects. Long-term structural monitoring started in 2012.

2014 - 2019. The Region presents its 10-year Preservation Plan for the bridge. Improvement recommendations included: installation of fire and lightning protection ;regulatory and advisory signage improvements; approach barrier upgrades; bracing restoration; climate studies; survey sensor installation; sprinkler installation; illumination upgrades; floor beam strengthening; and overall structural strengthening. The Region begins to implement these recommendations.

2019. The Region completes the gathering of the long-term bridge monitoring data. A Structural Evaluation to the current Bridge Design Code is undertaken, using data gathered through long-term bridge monitoring.

2020. Region Council approves a structural rehabilitation plan for the bridge.

2020 - 2021. Detailed engineering design starts for the upgrades.

For a more detailed history of the bridge, please visit:

https://www.engagewr.ca/west-montrose

APPENDIX B – PLANNED REHABILITATION MEASURES

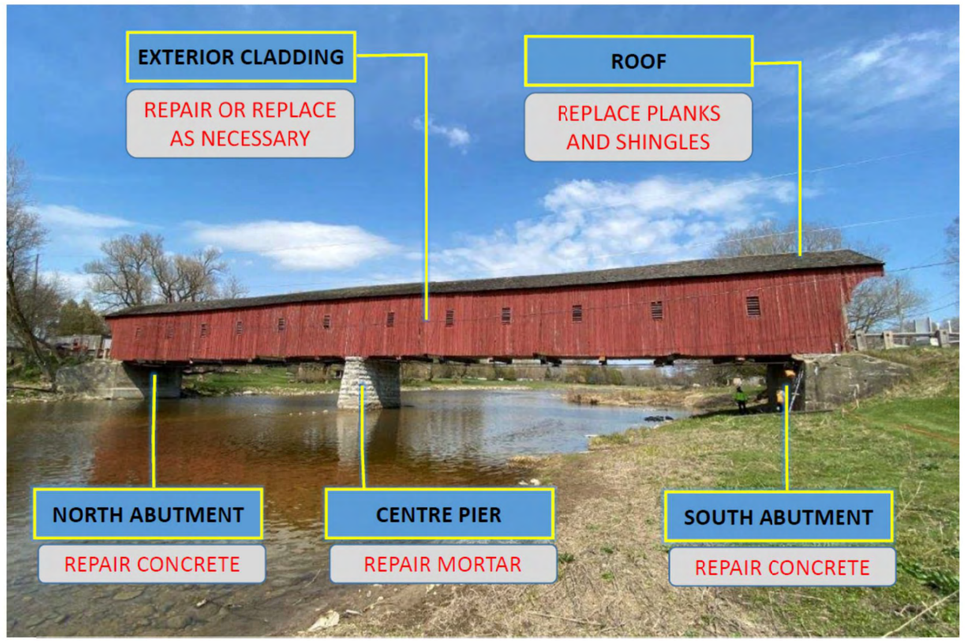


Figure B1: Elevation View – Bridge Components and Proposed Rehabilitation

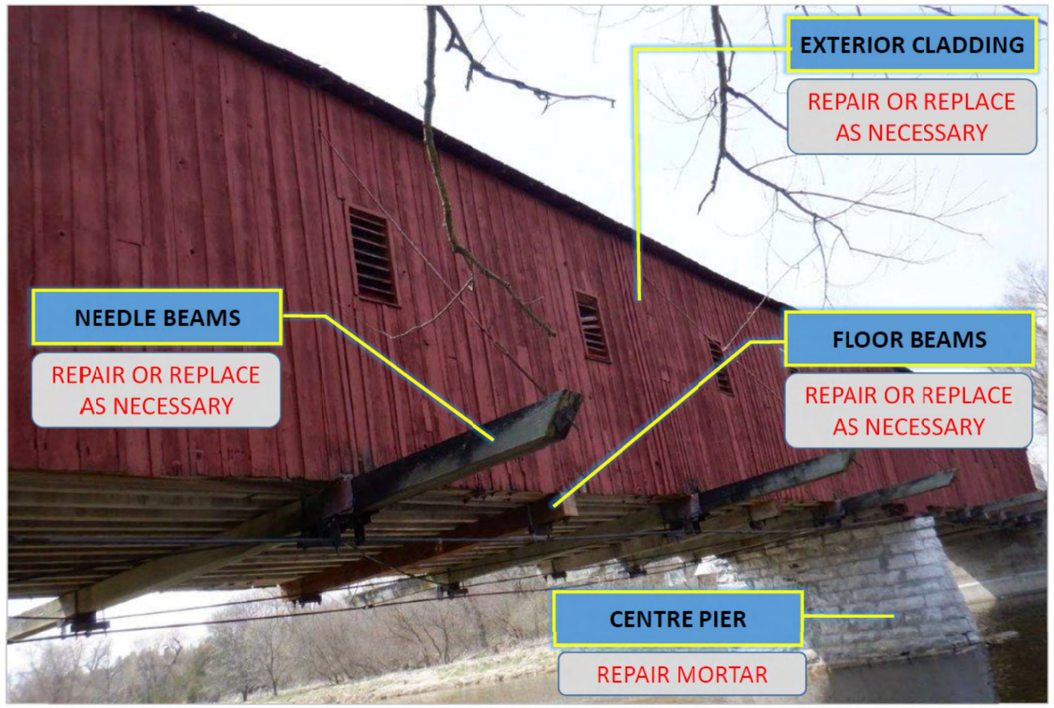


Figure B2: Exterior View – Bridge Components and Proposed Rehabilitation

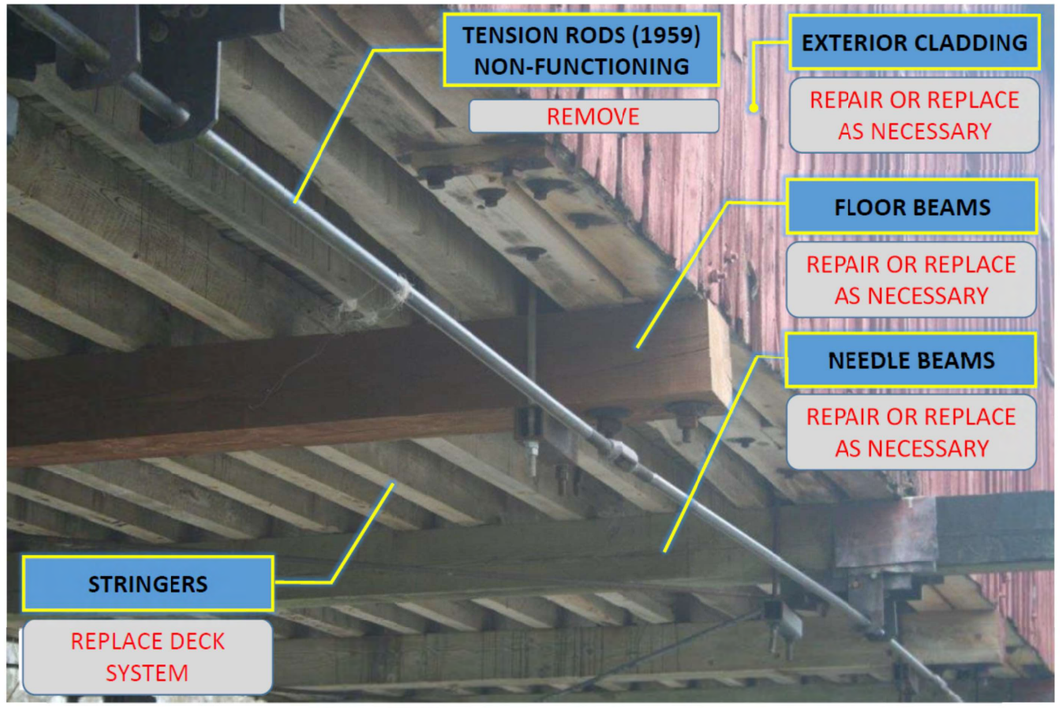


Figure B3: Exterior View – Bridge Components and Proposed Rehabilitation

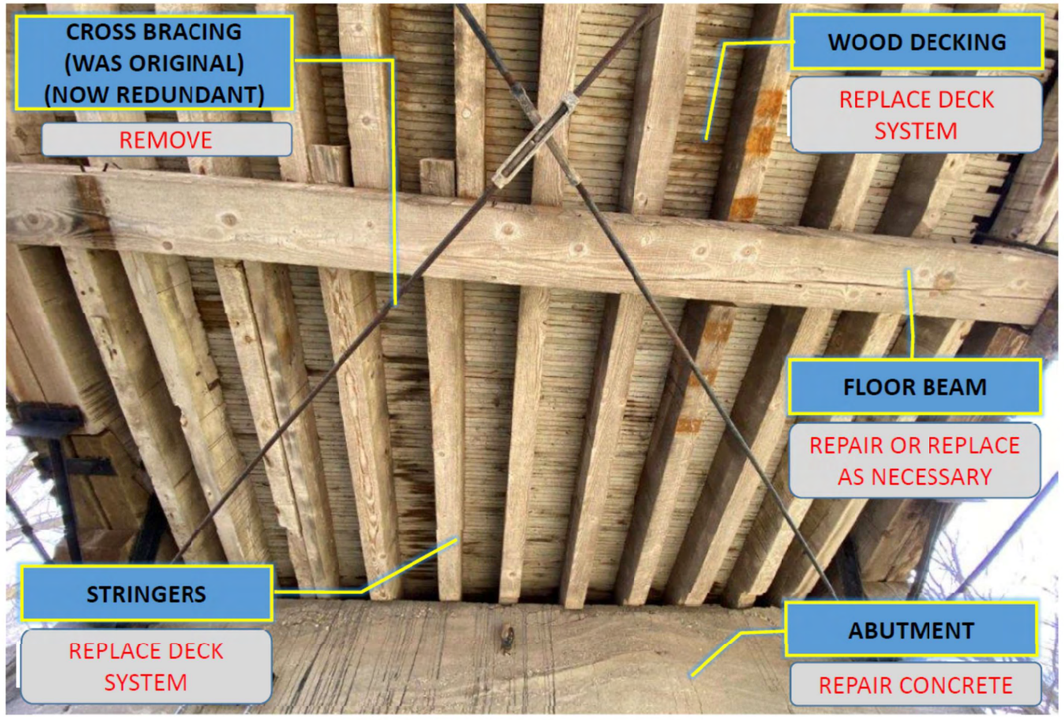


Figure B4: Underside View – Bridge Components and Proposed Rehabilitation

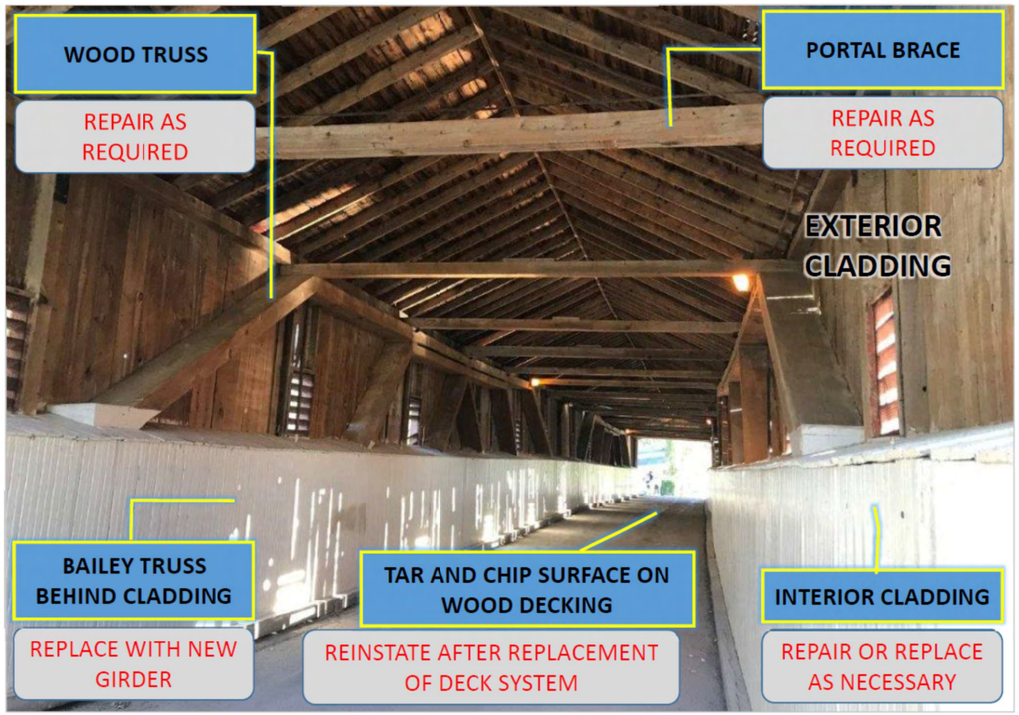


Figure B5: Interior View – Bridge Components and Proposed Rehabilitation



Figure B6: Interior View of Truss Systems

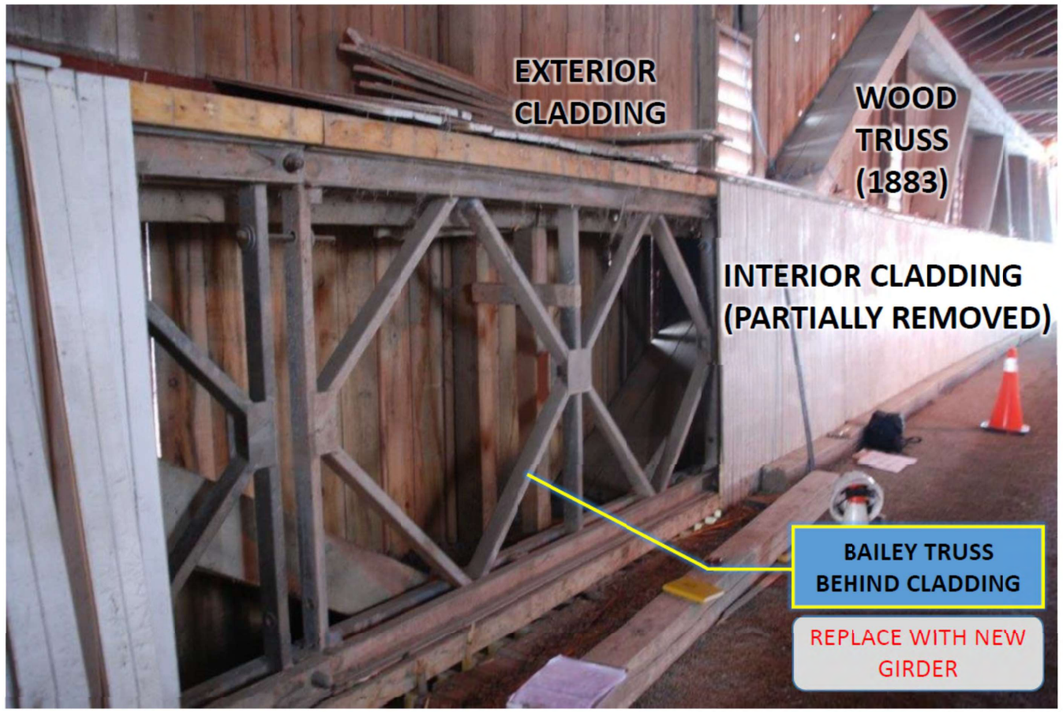


Figure B7: Interior View of Bailey Truss



Figure B8: Proposed Rehabilitation Concept

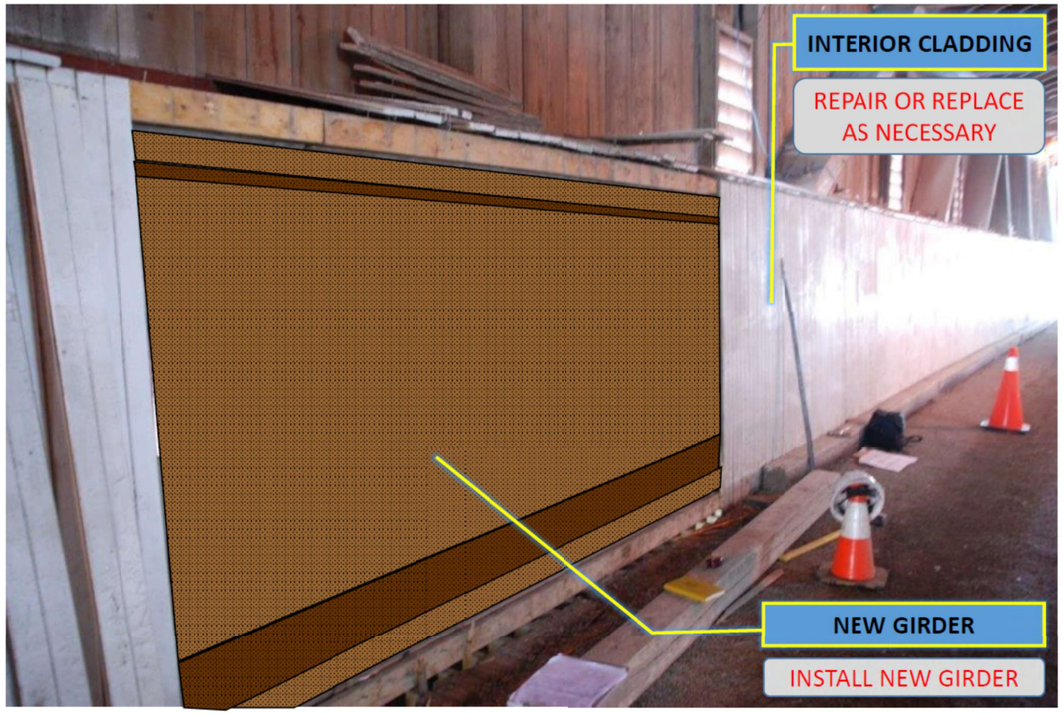
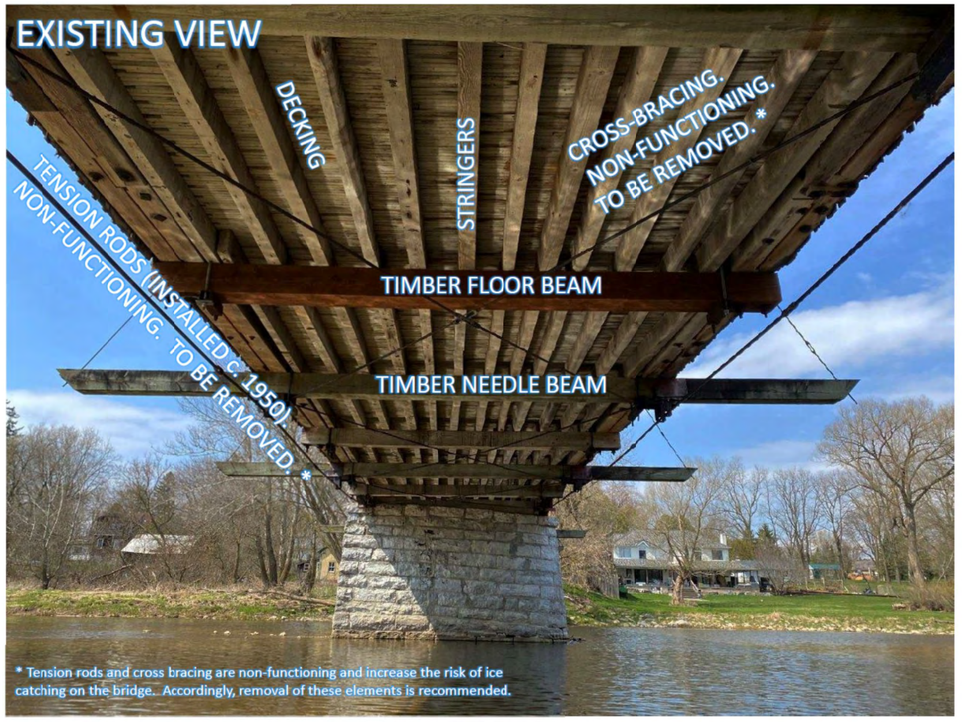
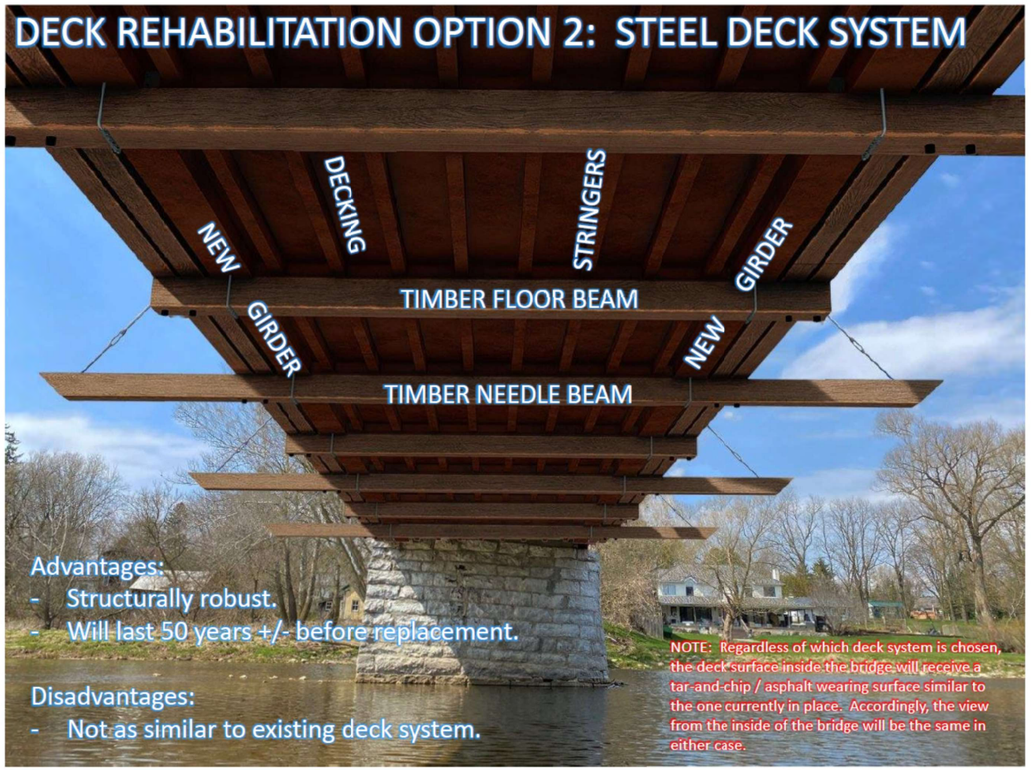


Figure B9: Proposed Rehabilitation Concept

APPENDIX C – DECK REPLACEMENT OPTIONS




DECK REHABILITATION OPTION 1: TIMBER DECK SYSTEM
NEW
DECKING
STRINGERS
GIRDER
TIMBER FLOOR BEAM
GIRDER
NEW
TIMBER NEEDLE BEAM
Advantages:
- Resembles existing deck system.
Disadvantages:
- Not as robust structurally.
- Must be replaced every 20 years +/-
NOTE: Regardless of which deck system is chosen, the deck surface inside the bridge will receive a tar-and-chip / asphalt wearing surface similar to the one currently in place. Accordingly, the view from the inside of the bridge will be the same in either case.


DECK REHABILITATION OPTION 2: STEEL DECK SYSTEM
NEW
DECKING
STRINGERS
GIRDER
TIMBER FLOOR BEAM
GIRDER
NEW
TIMBER NEEDLE BEAM
Advantages:
- Structurally robust.
- Will last 50 years +/- before replacement.
Disadvantages:
- Not as similar to existing deck system.
NOTE: Regardless of which deck system is chosen, the deck surface inside the bridge will receive a tar-and-chip / asphalt wearing surface similar to the one currently in place. Accordingly, the view from the inside of the bridge will be the same in either case.

APPENDIX D – PROPOSED ACCESS AND STAGING AREAS



APPENDIX E

Property Acquisition Process Information Sheet

The following information is provided as a general overview of the property acquisition process and is not legal advice. Further, the steps, timing, and processes can vary depending on the individual circumstances of each case.

Once the Class Environmental Assessment is complete and the Environmental Study Report outlining the Recommended Design Concept has been approved, the property acquisition process and the efforts of Regional Real Estate staff will focus on preparation for acquiring the required lands to implement the approved design. Regional staff cannot make fundamental amendments or changes to the approved design concept.

Property Impact Plans

After the project has been approved and as it approaches final design, the project planners will generate drawings and sketches indicating what lands and interests need to be acquired from each affected property to undertake the project. These drawing are referred to as Property Impact Plans (PIP).

Initial Owner Contact by Regional Real Estate Staff

Once the PIPs are finalized and available, Regional Real Estate staff will retain an independent appraiser to provide preliminary valuations of the land requirements and their effect on the value of the property. As this process nears completion Real Estate staff will contact the affected property owner/s by telephone and mail to introduce themselves and set-up initial meetings to discuss the project, appraisals, and proposed acquisitions.

Initial Meetings

The initial meeting is attended by the project engineer and the assigned real estate staff person to brief the owner on the project, what part of their lands are to be acquired or will be affected, what work will be undertaken, when, with what equipment, etc. and to answer any questions. The primary purpose of the meeting is to listen to the owner and identify issues, concerns, effects of the proposed acquisition on remaining lands and businesses that can be feasibly mitigated and/or compensated, and how the remaining property may be restored. These discussions may require additional meetings. The goal of staff is to work with the owner to reach mutually agreeable solutions.

Goal – Fair and Equitable Settlement for All Parties

The goal is always to reach a fair and equitable agreement for both the property owner and the Region. Such an agreement will provide compensation for the fair market value of the lands and address the project impacts (such as repairing or replacing landscaping, fencing, paving, etc.) such that the property owner will receive the value of the lands acquired and the restoration of their remaining property to the condition it was prior to the Project.

The initial meetings will form the basis of an initial offer of settlement or agreement of purchase and sale for the required lands or interests.

Steps Toward Offer of Settlement or Agreement of Purchase and Sale

The general steps toward such an offer are as follows;

1) the Region will obtain an independent appraisal of the fair market value of the lands and interests to be acquired, and an appraisal of any effect on the value of the rest of the property resulting from the acquisition of the required lands and interests;
2) compensation will be estimated and/or works to minimize other effects will be defined and agreed to by the property owner and the Region;
3) reasonable costs of the owner will be included in any compensation settlement;
4) an offer with a purchase price and any other compensation or works in lieu of compensation will be submitted to the property owner for consideration; and
5) an Agreement will be finalized with any additional discussion, valuations, etc. as may be required.

Depending on the amount of compensation, agreements may require the approval of Council. The approval is undertaken in Closed Session which is not open to the public to ensure a level of confidentiality.

Expropriation

Due to the time constraints of these projects, it is the practice of the Region to commence the expropriation process in parallel with the negotiation process to ensure that lands and interests are acquired in time for commencement of the Project. Typically, over 90% of all required lands and interests are acquired through the negotiation process. Even after lands and interests have been acquired through expropriation an agreement on compensation can be reached through negotiation, this is usually referred to as a 'settlement agreement'.

Put simply, an expropriation is the transfer of lands or an easement to a governmental authority for reasonable compensation, including payment of fair market value for the transferred lands, without the consent of the property owner being required. In the case of expropriations by municipalities such as the Region of Waterloo, the process set out in the Ontario *Expropriations Act* must be followed to ensure that the rights of the property owners provided under that *Act* are protected.

For information on the expropriation process, please refer to 'Expropriation Information Sheet'.

The following information is provided as a general overview of the expropriation process and is not legal advice. For complete information, reference should be made to the Ontario Expropriations Act as well as the more detailed information in the Notices provided under that Act.

Expropriation Information Sheet

What is Expropriation?

Governmental authorities such as municipalities, school boards, and the provincial and federal governments undertake many projects which require them to obtain land from private property owners. In the case of the Regional Municipality of Waterloo, projects such as the construction or improvement of Regional Roads sometimes require the purchase of land from private property owners. In many cases, the Region of Waterloo only needs a small portion of the private property owner's lands or an easement for related purposes such as utilities, although in certain instances, entire properties are required.

Usually the governmental authority is able to buy the land required for a project through a negotiated process with the affected property owners. Sometimes, however, the expropriation process must be used in order to ensure that the land is obtained within a specific timeline. Put simply, an expropriation is the transfer of lands or an easement to a governmental authority for reasonable compensation, including payment of fair market value for the transferred lands, without the consent of the property owner being required. In the case of expropriations by municipalities such as the Region of Waterloo, the process set out in the Ontario **Expropriations Act** must be followed to ensure that the rights of the property owners provided under that *Act* are protected.

Important Note: The Region of Waterloo tries in all instances to obtain lands needed for its projects through a negotiated agreement on mutually acceptable terms. Sometimes, the Region of Waterloo will start the expropriation process while negotiations are underway. This dual approach is necessary to ensure that the Region of Waterloo will have possession of all of the lands needed to start a construction project on schedule. However, it is important to note that Regional staff continues to make every effort to reach a negotiated purchase of the required lands on mutually agreeable terms while the expropriation process is ongoing. If agreement is reached, expropriation proceedings can be discontinued and the land transferred to the Region of Waterloo in exchange for payment of the agreed-upon compensation.

What is the process of the Region of Waterloo under the Expropriations Act?

- Regional Council considers a request to begin an application under the **Expropriations Act** to obtain land and/or an easement for a specific Regional project. No decision is made at this meeting to expropriate the land. This step is simply direction for the Region of Waterloo to provide a "Notice of Application for Approval to Expropriate" to affected property owners that the process has started to seek approval to expropriate the land.

- As stated in the Notice, affected property owners have 30 days to request a Hearing to consider whether the requested expropriation is "fair, sound and reasonably necessary in the achievement of the objectives" of the Region of Waterloo. This Hearing is conducted by a provincially-appointed Inquiry Officer. Prior to the Hearing, the Region of Waterloo must serve the property owner with a Notice setting out its reasons or grounds for the proposed expropriation. **Compensation for lands is not determined at this Hearing.** The Inquiry Officer can order the Region of Waterloo to pay the

property owner up to $200.00 as compensation for the property owner's costs in participating in this Hearing, regardless of the outcome of the Hearing.

- If a Hearing is held, a written report is provided by the Inquiry Officer to the property owner and the Region of Waterloo. Council must consider the Report within 90 days of receiving it. The Report is not binding on Council and Council may or may not accept the findings of the Report. After consideration of the Report, Council may or may not approve the expropriation of the land or grant approval with modifications. A property owner may wish to make written and/or verbal submissions to Council at the time that it is considering the Report.

- If no Hearing is requested by the property owner, then Council may approve the expropriation of the land after expiry of a 30 day period following service of the Notice of Application for Approval to Expropriate.

- If Council approves the expropriation then, within 3 months of this approval, the Region of Waterloo must register a Plan at the Land Registry Office that describes the expropriated lands. The registration of this Plan automatically transfers title of the lands to the Region of Waterloo, instead of by a Deed signed by the property owner.

- Within 30 days of registration of the Plan, the Region of Waterloo must serve a Notice of Expropriation on the affected property owner advising of the expropriation. Within 30 days of this Notice, the property owner may serve the Region of Waterloo with a Notice of Election selecting the valuation date under the *Expropriations Act* for calculation of the compensation.

- In order to obtain possession of the expropriated lands, the Region of Waterloo must also serve a Notice of Possession setting out the date that possession of the land is required by the Region of Waterloo. This date has to be 3 months or more from the date that this Notice of Possession is served on the affected property owner.

- Within 3 months of registration of the Plan, the Region of Waterloo must provide the affected property owner with payment for the full amount of the appraised fair market value of the expropriated land or easement and a copy of the appraisal report on which the value is based. If the property owner disagrees with this amount, and/or claims other compensation and/or costs under the *Expropriations Act*, the compensation and/or costs matter may be referred to a provincially-appointed Board of Negotiation in an effort to reach a mediated settlement and/or an appeal may be made to the Ontario Municipal Board (OMB) for a decision. In any event, the Region of Waterloo continues in its efforts to reach a negotiated settlement with the affected property owner prior to the OMB making a decision.

2022-XXX

Region of Waterloo

DESIGN AND CONSTRUCTION
DIVISION

REHABILITATION OF
WEST MONTROSE COVERED BRIDGE
IN THE TOWNSHIP OF WOOLWICH

WOOLWICH
TOWNSHIP

DOUG DIXON &
ASSOCIATES INC

CONTRACT No. 2022-XXX

INTERNAL REVIEW SET

PRELIMINARY
NOT FOR CONSTRUCTION

KAREN REDMAN
REGIONAL CHAIR

T. SCHMIDT, P. ENG.
COMMISSIONER OF TRANSPORTATION AND
ENVIRONMENTAL SERVICES

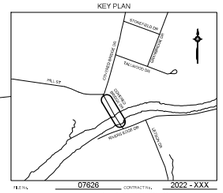
2022-XXX

R2VA2018

Region of Waterloo



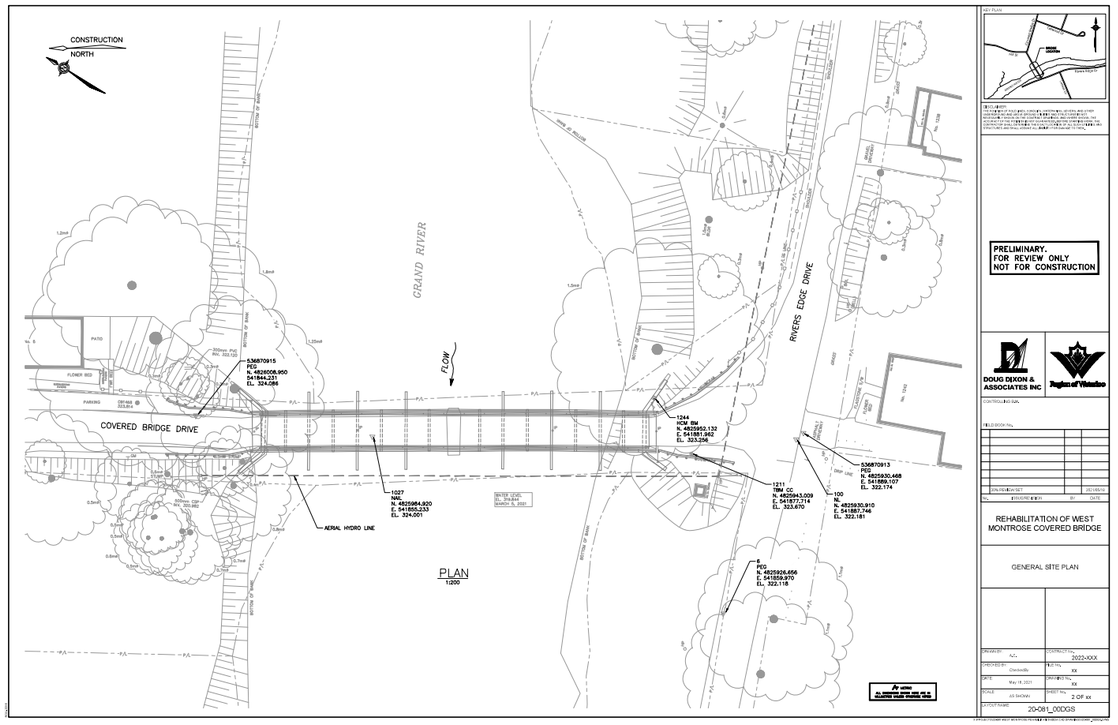
KEY PLAN



TENDER No.	07626
CONTRACT No.	2022 - XXX
WORK OF	REHABILITATION OF WEST MONTROSE COVERED BRIDGE
ROAD No.	N/A
SECTION No.	N/A
LOCATION	COVERED BRIDGE DRIVE OVER THE GRAND RIVER
MUNICIPALITY	TOWNSHIP OF WOOLWICH
LIMITS: STATION	TO STATION
SOILS REPORT	

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KEY PLAN

PRELIMINARY.
FOR REVIEW ONLY
NOT FOR CONSTRUCTION

DOUG DIXON & ASSOCIATES INC

Region of Waterloo

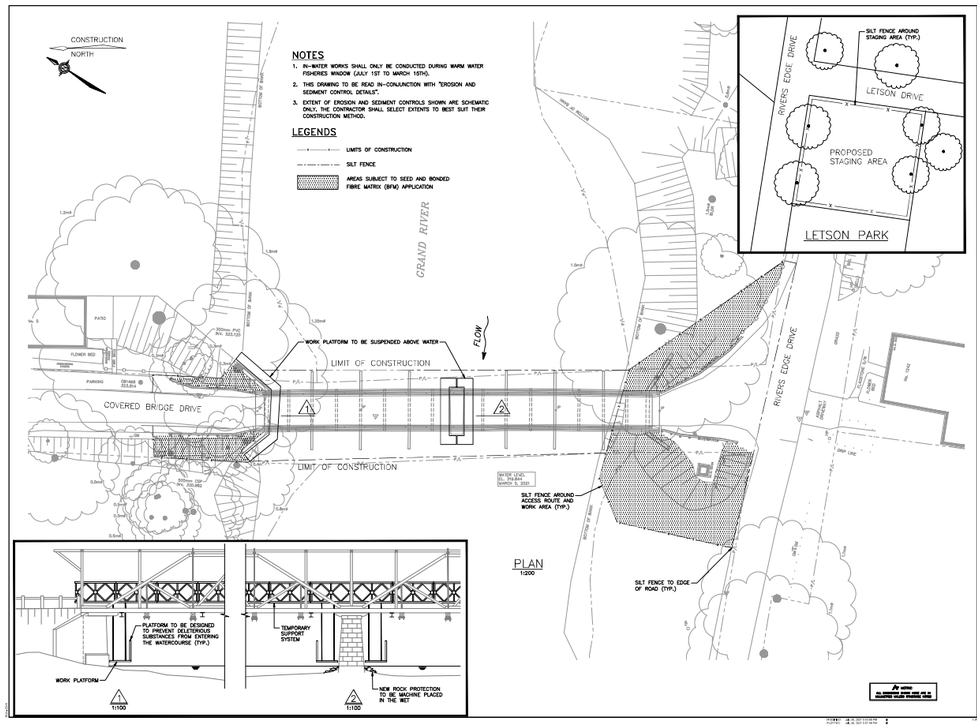
CONTROL No.	
FIELD BOOK No.	

DATE	REVISIONS	BY

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

GENERAL SITE PLAN

DRAWN BY	AJL
CONTRACT No.	2022-XXX
CHECKED BY	Dixondd
TENDER No.	XX
DATE	May 18, 2021
DRAWING No.	XX
SCALE	AS SHOWN
SHEET No.	2 OF xx
LAYOUT NAME	20-081_00DGS



KEY PLAN



DOUG DEKON & ASSOCIATES INC

Region of Waterloo

CONTROLLING BAR

FIELD BOOK No.s

No.	BY	DATE

DATA FROM SET 2015/08/10

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

EROSION AND SEDIMENT CONTROL PLAN

DRAWN BY: A.L. | CONTRACT No.: 2022-XXX

CHECKED BY: Checked By | REF. No.: XX

DATE: JUL 30, 2021 | DRAWING No.: XX

SCALE: AS SHOWN | SHEET No.: 31 OF XX

CAD FILE NAME: 20-081_00EESC

PRELIMINARY. FOR REVIEW ONLY NOT FOR CONSTRUCTION

GENERAL NOTES

1. IN-WATER WORKS SHALL ONLY BE CONDUCTED DURING WARM WATER FISHERIES WINDOW (JULY 1ST TO MARCH 15TH).
2. THIS DRAWING TO BE READ IN-CONJUNCTION WITH "EROSION AND SEDIMENT CONTROL PLAN".

EROSION AND SEDIMENT CONTROL (ESC) MITIGATION MEASURES PLAN

VARIOUS MITIGATION MEASURES WILL BE EMPLOYED DURING CONSTRUCTION TO REDUCE THE RISK OF IMPACTS TO NATURAL ENVIRONMENTAL FEATURES. MITIGATION MEASURES FOR EROSION, SEDIMENT, AND DUST CONTROL WILL BE IMPLEMENTED TO PREVENT SEDIMENT AND DUST FROM ENTERING SENSITIVE NATURAL FEATURES, INCLUDING THE GRAND RIVER AND ASSOCIATED WETLANDS.

THE PRIMARY PRINCIPLES OF THE EROSION AND SEDIMENTATION PROTECTION MEASURES ARE TO MINIMIZE THE DURATION OF SOIL EXPOSURE; RETAIN EXISTING VEGETATION, WHERE FEASIBLE; REPLACE/RESTORE VEGETATION; DIVERT RUNOFF AWAY FROM EXPOSED SOILS; SLOW RUNOFF VELOCITIES; AND TRAP SEDIMENT AS CLOSE TO THE SOURCE AS POSSIBLE.

IN ORDER TO ACHIEVE THESE PRINCIPLES, THE FOLLOWING MITIGATION MEASURES ARE PROPOSED:

1. WIRE-BACKED SILT FENCING WITH NON WOVEN GEOTEXTILE FABRIC WILL BE USED TO CONTAIN ALL CONSTRUCTION AREAS ALONG THE BANKS OF THE GRAND RIVER, ALONG THE EDGES OF NATURAL AREAS; AND TO DELINEATE SITE BOUNDARIES. NON-WOVEN GEOTEXTILE FABRIC TO BE TERRAFIX 270R OR APPROVED EQUIVALENT.
2. ROCK/FIBRE FILTRATION TUBE FLOW CHECKS WILL BE INSTALLED IN DITCHES AND SWALES.
3. DUST FROM THE CONSTRUCTION AREA WILL BE CONTROLLED WITH REGULAR APPLICATION OF SUPPRESSANT TO AVOID TRANSPORT AND POTENTIAL IMPACT TO SENSITIVE NATURAL AREAS.
4. ALL AREAS OF EXPOSED SOIL WILL BE STABILIZED AND REVEGETATED THROUGH THE APPLICATION OF SEED AND BONDED FIBRE MATRIX, WITHIN A RESTRICTED PERIOD OF TIME FOLLOWING THE COMPLETION OF GRADING ACTIVITIES IN THE AREA.
5. NO EQUIPMENT WILL BE PERMITTED TO ENTER ANY NATURAL AREAAREAS BEYOND THE SILT FENCING (SITE BOUNDARIES) DURING CONSTRUCTION.
6. ALL MATERIALS REQUIRING STOCKPILING WILL BE CONTAINED (SURROUNDED WITH SILT FENCE), AND KEPT AT LEAST 30m AWAY FROM SENSITIVE NATURAL FEATURES.
7. REFUELING OF EQUIPMENT WILL BE CARRIED OUT AWAY FROM ANY SENSITIVE NATURAL FEATURES TO AVOID POTENTIAL IMPACTS IN THE EVENT THAT AN ACCIDENTAL SPILL OCCURS.
8. A CONTINGENCY SUPPLY OF FILTER CLOT, SILT FENCE, ROCK, AND FILTER TUBES WILL BE KEPT AVAILABLE ON SITE, IN THE EVENT OF AN EMERGENCY.
9. ALL ESC SHALL BE PROPERLY MAINTAINED AND MONITORED ON A REGULAR SCHEDULE AND BEFORE ANY FORECASTED RAIN EVENTS. ESCS ARE TO BE REMOVED ONLY AFTER THE SOILS OF THE CONSTRUCTION AREA HAVE BEEN STABILIZED AND COVERED IS RE-ESTABLISHED.
10. THE CONTRACTOR WILL BE REQUIRED TO RESTORE ANY DISTURBED NATURAL AREAS TO PRE-CONSTRUCTION (OR BETTER) CONDITIONS (SEE RESTORATION PLAN).
11. DURING DEMOLITION AND REMOVAL OF THE EXISTING BRIDGE SUPERSTRUCTURE, CARE WILL BE TAKEN TO REMOVE THE MATERIAL IN A MANNER SUCH THAT NO DEBRIS WILL BE PERMITTED TO FALL INTO THE WATERCOURSE OR OTHER SENSITIVE NATURAL AREAS.
12. WORKING PLATFORMS WILL BE SUSPENDED FROM THE EXISTING STRUCTURE TO CONTAIN THE DEMOLITION DEBRIS (I.E. CONCRETE PIECES FROM THE ABUTMENT).
13. CONCRETE CHIPPING AND/OR SAWING ACTIVITIES WILL BE CONDUCTED BEHIND A FILTER CLOTH CURTAIN SO THAT NO DUST OR DEBRIS MAY ESCAPE THE CONSTRUCTION AREA.

CONSTRUCTION MONITORING PLAN

THE CONTRACT ADMINISTRATOR SHALL BE RESPONSIBLE FOR MONITORING FOR ENVIRONMENTAL COMPLIANCE DURING ALL STAGES OF CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, REPLACEMENT OF TIMBER COMPONENTS IN BRIDGE SUPERSTRUCTURE, REPAIRS OF CONCRETE ABUTMENTS AND MASONRY PIER, AND PLACEMENT OF THE IN-WATER PIER ROCK PROTECTION.

ALL ESC MEASURES (AS IDENTIFIED IN THE CONTRACTOR'S ESC MITIGATION MEASURES PLAN) SHALL BE INSPECTED REGULARLY TO ENSURE PROPER INSTALLATION, MAINTENANCE AND DECOMMISSIONING. THE SITE AS A WHOLE SHALL ALSO BE REVIEWED TO ENSURE SEDIMENT AND DUST GENERATED BY CONSTRUCTION ACTIVITIES ARE RESTRICTED FROM ENTERING SENSITIVE NATURAL FEATURES, INCLUDING THE GRAND RIVER AND NEARBY WETLANDS. ESC MONITORING SHALL OCCUR ON A MINIMUM BI-WEEKLY BASIS AND PRIOR TO ANY MAJOR FORECASTED PRECIPITATION.

IF WORK DOES NOT COMMENCE PRIOR TO NESTING SEASON, PREVENTATIVE MEASURES SUCH AS EXCLUSION NETTING SHALL BE INSTALLED AND MAINTAINED. THE EXISTING BRIDGE SHALL BE INSPECTED PRIOR TO THE INSTALLATION OF BIRD NESTING PREVENTATIVE MEASURES TO ENSURE THERE ARE NO ACTIVE BIRD NESTS PRESENT. THE CONDITION AND EFFECTIVENESS OF BIRD NEST EXCLUSION MEASURES SHALL BE MONITORED THROUGHOUT THEIR USE DURING THE NESTING SEASON, AND ANY ADJUSTMENTS OR REPAIRS COMPLETED AS NECESSARY.

WILDLIFE PROTECTION PLAN

THE CONTRACTOR SHALL MINIMIZE THE IMPACT ON WILDLIFES OVER THE COURSE OF CONSTRUCTION:

1. A QUALIFIED BIOLOGIST SHALL BE RETAINED BY THE CONTRACTOR. THE QUALIFIED BIOLOGIST SHALL BE ON CALL AND MONITOR THE SITE DURING CONSTRUCTION AS NOTED IN THE CONTRACT DOCUMENTS.
2. THE QUALIFIED BIOLOGIST SHALL CONDUCT A NEST SURVEY PRIOR TO CONSTRUCTION IF THE COMMENCEMENT IS DURING NESTING SEASON.
3. VEGETATION CLEARING SHALL ENSURE NO HARM TO NESTS OR NESTING BIRDS.
4. WILDLIFE ENCOUNTERED DURING CONSTRUCTION SHALL NOT KNOWINGLY BE HARMED AND SHALL BE ALLOWED TO MOVE AWAY FROM THE CONSTRUCTION AREA ON ITS OWN.
5. IF AN ACTIVE BIRD NEST IS IDENTIFIED WITHIN OR ADJACENT TO THE CONSTRUCTION SITE AND HAS THE POTENTIAL TO BE HARMED, THE CONTRACT ADMINISTRATOR SHALL BE NOTIFIED. THE CONTRACTOR SHALL NOT DESTROY THE PROTECTED MIGRATORY BIRDS AND NESTS. WORK SHALL NOT PROCEED IN THE AREA UNTIL A QUALIFIED BIOLOGIST DEFINES AND MARKS AN APPROPRIATE SETBACK WITHIN WHICH NO CONSTRUCTION ACTIVITIES WILL OCCUR.
6. ANY WILDLIFE ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED BY THE QUALIFIED BIOLOGIST. PERMIT TO HANDLE WILDLIFE IS REQUIRED FROM THE APPROPRIATE REGULATORY AGENCIES.
7. IF A SPECIE-AT-RISK (SAR) OR POTENTIAL SAR IS ENCOUNTERED WITHIN OR ADJACENT TO THE CONSTRUCTION AREA, THE CONTRACTOR SHALL CONTACT MECP FOR DIRECTION. SAR OR POTENTIAL SAR SHALL NOT BE HANDLED OR HARMED DURING CONSTRUCTION WORKS.

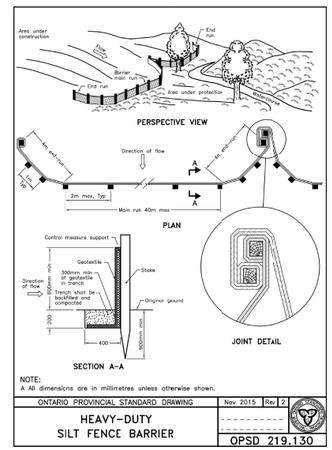
CONSTRUCTION NOTES

SEED AND COVER:

1. ALL DISTRIBUTED SOILS WITHIN THE CONSTRUCTION LIMITS WILL BE RESTORED TO GRADE, TOPSOILED, AND GIVEN A SURFACE TREATMENT OF SEED AND BONDED FIBRE MATRIX (BFM).
2. THE SEED MIX USED SHALL BE MTO'S OLD FIELD MIX, AND SHALL BE APPLIED ACCORDING TO OPSS 804.

WORKING ON BARGE NOTES

1. CONTRACTOR SHALL ERECT AND MAINTAIN SOLID DEBRIS BARRIERS ON EDGES OF BARGE WHERE WORK IS NOT OCCURRING.
2. NO SPUD PILES SHALL BE USED TO STABILIZE OR SECURE WORK BARGES. SUCH BARGES SHALL BE MOORED TO THE SHORELINE OR THE PIER OR ABUTMENTS AS REQUIRED.



NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
HEAVY-DUTY SILT FENCE BARRIER		OPSD 219.130

KEY PLAN



DOUG DEKON & ASSOCIATES INC

Region of Waterloo

CONTROLLING BAR

FIELD BOOK No.s

No.	BY	DATE

DATA FROM SET 2015/08/10

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

EROSION AND SEDIMENT CONTROL DETAILS

DRAWN BY: A.L. | CONTRACT No.: 2022-XXX

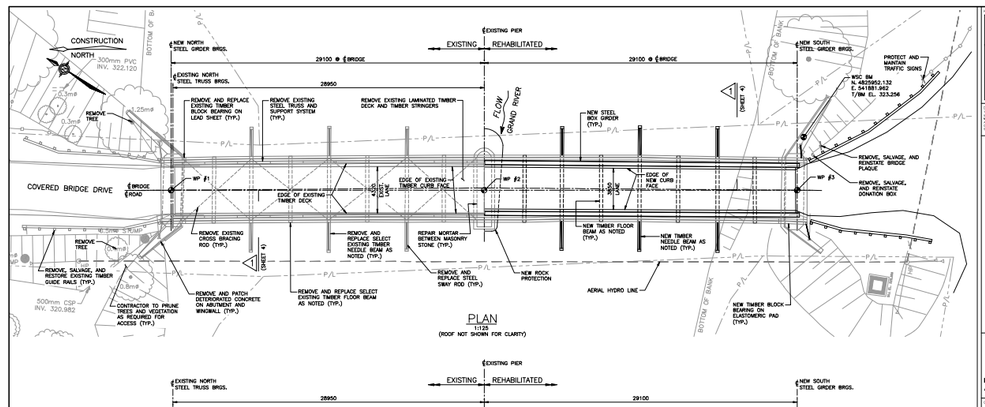
CHECKED BY: Checked By | REF. No.: XX

DATE: JUL 30, 2021 | DRAWING No.: XX

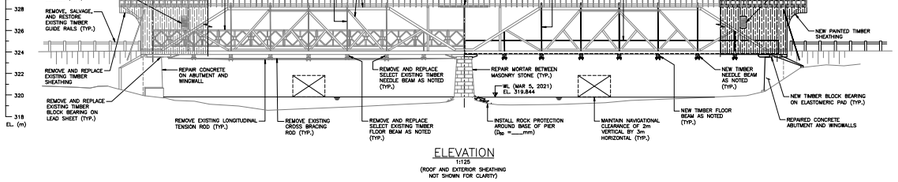
SCALE: AS SHOWN | SHEET No.: 532 OF xx

CAD FILE NAME: 20-081_00EESC

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PLAN
1:125
(ROOF NOT SHOWN FOR CLARITY)



ELEVATION
1:125
(ROOF AND EXTERIOR SHEATHING NOT SHOWN FOR CLARITY)

ABBREVIATIONS

- BM – BENCHMARK
- CJ – CONSTRUCTION JOINT
- EL. – ELEVATION
- P/L – PROPERTY LINE
- WL – WATER LEVEL
- WP – WORKING POINT
- T/P – TOP OF PAVEMENT

WORKING POINT COORDINATES			
WP	NORTHING	EASTING	ELEVATION
1	4825999.7447	541847.1043	324.154
2	4825974.9064	541862.2657	324.217
3	4825950.0681	541877.4272	324.087

FLOOD LEVEL		FLOOD LEVEL	
RETURN	ELEVATION	RETURN	ELEVATION
2 YR	XXX.XXX	25 YR	XXX.XXX
5 YR	XXX.XXX	50 YR	XXX.XXX
10 YR	XXX.XXX	100 YR	XXX.XXX

KEY PLAN

LEGEND
THE INFORMATION SHOWN ON THIS DRAWING, INCLUDING ALL DESIGNS, DETAILS AND DIMENSIONS, IS THE PROPERTY OF THE REGIONAL MUNICIPALITY OF WATERLOO AND IS NOT TO BE USED FOR ANY OTHER PROJECT OR EXTENSION OF THIS PROJECT WITHOUT THE PERMISSION OF THE REGIONAL MUNICIPALITY OF WATERLOO.

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FIELD BOOK No.

No.	REVISIONS/ISSUED	BY	DATE

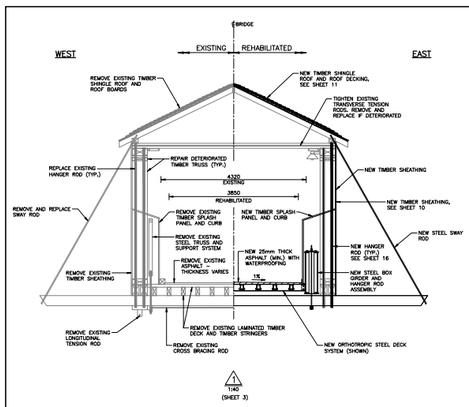
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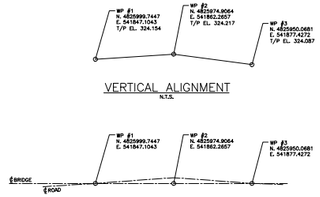
REHABILITATION OF WEST MONTROSE COVERED BRIDGE

GENERAL ARRANGEMENT I

DRAWN BY: N/A	CONTRACT No.: 2022-XXX
CHECKED BY: Chris Kelly	SCALE: As Shown
DATE: JUNE 30, 2021	DRAWING No.: XX
	SHEET No.: 3 OF XX

CAD FILE NAME: 20-091_001GA





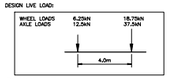
VERTICAL ALIGNMENT
N.T.S.

HORIZONTAL ALIGNMENT
N.T.S.

GENERAL NOTES

DESIGN CODE: CHBDC–19

DESIGN LIVE LOAD:



CONCRETE

CLASS OF CONCRETE: 35 MPa

CLEAR COVER

RETAINED EXISTING REINFORCING STEEL	MATCHED TO EXISTING
BEARING PAD	70mm ± 20mm
UNLESS OTHERWISE NOTED	70mm ± 20mm

REINFORCING

1. REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.
2. UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS 'B'.
3. BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.
4. STAINLESS STEEL REINFORCING SHALL BE TYPE 316LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa UNLESS OTHERWISE NOTED.
5. BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS S512–1, UNLESS INDICATED OTHERWISE.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL BE ATMOSPHERIC CORROSION RESISTANT STEEL (ACR) CONFORMING TO CAN/CSA–G40.20–04/G40.21–04 GRADE 350AT. ROLLED SECTIONS SHALL CONFORM TO CAN/CSA–G40.20–04/G40.21–04 OR ASTM A588.
2. ALL GIRDER S AND ATTACHMENTS FABRICATED FROM PLATE MATERIAL SHALL BE MADE FROM GRADE 350AT STEEL.
3. BOLTS ON ATMOSPHERIC CORROSION RESISTANT STEEL SHALL BE ASTM A325 TYPE 3, M22. BOLTS ON COATED STEEL SHALL BE GALVANIZED ASTM A325M TYPE 1, M22. BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR PLANES.
4. ALL LENGTHS SHOWN ARE IN THE HORIZONTAL PLANE AND MEASURED AT 20°C.
5. GIRDERS SHALL BE CAMBERED TO VALUES SHOWN IN THE RELAXED CAMBER DIAGRAM.
6. RELAXED CAMBER ORDINATES INCLUDE AN ALLOWANCE FOR GIRDER SELF WEIGHT, DECK, SUPERIMPOSED DEAD LOADS AND PROFILE OF ROADWAY.
7. THE ENDS OF GIRDERS, AND BEARING STIFFENERS SHALL BE TRULY VERTICAL UNDER FULL DEAD LOAD.
8. ALL BUTT WELDS IN FLANGE MATERIAL AND WEB SHOP SPLICES SHALL BE FINISHED FLUSH OR SMOOTH AS INDICATED, BY GRINDING WHERE NECESSARY IN THE DIRECTION OF APPLIED STRESSES. IF RELOCATION OR ADDITIONAL SHOP SPLICES ARE REQUIRED, THEIR LOCATION SHALL BE APPROVED BY THE ENGINEER.
9. UNLESS OTHERWISE NOTED, THE MINIMUM FILLET WELD SHALL BE AS FOLLOWS:

MATERIAL THICKNESS OF THICKER PART JOINED (mm)	MINIMUM SIZE OF FILLET WELD (mm)
10 TO 12 INCLUSIVE	5
OVER 12 TO 20	6
OVER 20 TO 40	8
OVER 40 TO 60	10
OVER 60 TO 120	12

10. THE CONTRACTOR SHALL ENSURE THE STABILITY OF ALL COMPONENTS DURING HANDLING, TRANSPORTATION AND ERECTION AND UNTIL THE STRUCTURAL STEEL IS IN ITS FINAL LOCATION WITH ALL PERMANENT BRACING, CONNECTIONS AND SUPPORTS IN PLACE.
11. THIS DRAWING TO BE READ IN CONJUNCTION WITH STRUCTURAL STEEL II TO VII DRAWINGS.

ABBREVIATIONS

- T/P – TOP OF PAVEMENT
- EL. – ELEVATION
- WP – WORKING POINT
- CJ – CONSTRUCTION JOINT

SCOPE OF WORK

THE GENERAL SCOPE OF WORK INCLUDES, BUT IS NOT LIMITED TO:

REMOVAL

1. REMOVE EXISTING INTERIOR TIMBER SPLASH PANELS AND CURBS AND EXTERIOR TIMBER GUIDE RAILS.
2. REMOVE EXISTING STEEL BAILEY TRUSS PANELS AND ASSOCIATED STEEL HARDWARE.
3. REMOVE EXISTING DEBRIS/WASTE MATERIALS FROM BRIDGE.
4. REMOVE EXISTING TIMBER SHINGLES, ROOF BOARDS, AND EXTERIOR SHEATHING BOARDS.
6. REMOVE EXISTING STEEL HANGER, TENSION, SWAY, AND CROSS BRACING RODS AND ASSOCIATED STEEL HARDWARE AS INDICATED.
7. REMOVE EXISTING TIMBER TRUSS AND FRAME MEMBERS AS INDICATED.
8. REMOVE EXISTING TIMBER STRINGER AND NAIL–LAMINATED DECK.
9. REMOVE DETERIORATED AND DELAMINATED CONCRETE IN ABUTMENT AND RETAINING WALL FACES. REMOVE DETERIORATED POINTING IN PIER.
10. REMOVE TOP PORTION OF EXISTING ABUTMENTS AND PIER TO LIMITS SHOWN.

REPAIR AND NEW CONSTRUCTION

1. PATCH REPAIR ABUTMENT AND RETAINING WALL FACES. REPOINT PIER AND STABILIZE CRACKED MASONRY STONES.
2. RECONSTRUCT TOP OF ABUTMENTS AND PIER AND INSTALL NEW BEARINGS.
3. INSTALL NEW TIMBER TRUSS AND FRAME MEMBERS AS INDICATED. REPAIR DETERIORATED TIMBER COMPONENTS.
4. INSTALL NEW STEEL HANGER, TENSION, SWAY, AND CROSS BRACING RODS AND ASSOCIATED STEEL HARDWARE AS INDICATED. TIGHTEN LEFT–IN–PLACE RODS.
5. INSTALL NEW STEEL GIRDERS AND ASSOCIATES STEEL HARDWARE.
6. INSTALL NEW ORTHOTROPIC STEEL DECK SYSTEM.
7. INSTALL NEW TIMBER EXTERIOR SHEATHING BOARDS, ROOF BOARDS, AND CEDAR SHINGLES.
8. INSTALL NEW TIMBER SPLASH PANELS AND REINSTATE EXTERIOR TIMBER GUIDE RAILS.

CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DETAILS AND ELEVATIONS OF THE EXISTING STRUCTURE THAT ARE RELEVANT TO THE WORK SHOWN ON THE DRAWINGS PRIOR TO THE COMMENCEMENT OF THE WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR AND THE PROPOSED ADJUSTMENT OF THE WORK TO MATCH THE EXISTING STRUCTURE SHALL BE SUBMITTED FOR APPROVAL.
2. TYPICAL AREAS OF REPAIRS ARE INDICATED ON THE DRAWINGS. WHERE REPAIR LIMITS ARE NOT SHOWN, LIMITS SHALL BE IDENTIFIED BY THE CONTRACT ADMINISTRATOR.
3. ANY DAMAGE DURING CONSTRUCTION TO THE EXISTING STRUCTURE NOT DESIGNATED FOR REPAIR, UTILITIES, AND ADJACENT PROPERTIES SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR AT NO COST TO THE OWNER.
4. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ADEQUATE PROTECTION OF ALL UTILITIES, SERVICES, ROADWAYS, AND THE ENVIRONMENTS.
5. THE CONTRACTOR SHALL PROVIDE DEBRIS PLATFORM AND NECESSARY CONTAINMENT MEASURES DURING CONSTRUCTION TO COLLECT FALLING CONCRETE AND CONSTRUCTION DEBRIS AND ENSURE THAT NO DEBRIS OR MATERIALS RESULTING FROM REMOVAL ENTER THE WATERCOURSE AND OTHER AREAS BELOW THE BRIDGE.
6. THE CONTRACTOR SHALL NOT PERMIT ANY TOOLS, EQUIPMENT, VEHICLES, TEMPORARY STRUCTURES OR PARTS THEREOF USED OR MAINTAINED FOR THE PURPOSE OF BUILDING OR PLACING A WORK IN A NAVIGABLE WATER TO REMAIN IN THE WATER AFTER COMPLETION OF THE PROJECT, WHERE A WORK OR A PART OF A WORK THAT IS BEING CONSTRUCTED OR MAINTAINED IN A NAVIGABLE WATER CAUSES DEBRIS OR OTHER MATERIAL TO ACCUMULATE ON THE BED OR ON THE SURFACE OF SUCH WATER, THE CONTRACTOR OF THAT WORK OR PORTION OF THAT WORK SHALL REMOVE THE MATERIAL OR DEBRIS TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR AND REGULATORY AUTHORITY.
7. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE STABILITY OF THE ORIGINAL STRUCTURE DURING CONSTRUCTION. CONSTRUCTION VEHICLES, EQUIPMENT, ERECTION OF GIRDERS, AND OTHER CONSTRUCTION ACTIVITIES SHALL NOT IMPOSE LOADS THAT EXCEEDS THE CAPACITY OF THE EXISTING STRUCTURE, AND THE TEMPORARY SUPPORT SYSTEM DESIGNED AND INSTALLED BY THE CONTRACTOR.
8. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF A TEMPORARY SUPPORT SYSTEM THAT IS CAPABLE OF CARRYING ALL LOADS DURING CONSTRUCTION AND WILL MAINTAIN THE STABILITY OF THE ORIGINAL STRUCTURE. THE CONTRACTOR SHALL SUBMIT THE STAMPED STRUCTURAL ANALYSIS RESULTS AND DESIGN CALCULATIONS TO THE CONTRACT ADMINISTRATOR FOR REVIEW.
9. SHRUT IN CONCRETE, WHERE DESIGNATED, SHALL BE 25mm DEEP OR TO THE FIRST LAYER OF REINFORCING STEEL, WHICHEVER IS LESS.
10. ABRASIVE BLAST CLEAN ALL EXISTING REINFORCING STEEL TO REMAIN.
11. ALL CONCRETE SURFACES AGAINST WHICH NEW CONCRETE IS TO BE PLACED SHALL BE ABRASIVE BLAST CLEANED AND ROUGHENED.
12. ALL DOWELS SHALL BE SECURED WITH MINISTRY APPROVED EPOXY RESIN DOWEL ADHESIVE.
13. IN–WATER WORKS SHALL ONLY BE CONDUCTED DURING WARM WATER FISHERIES WINDOW (JULY 1ST TO MARCH 15TH).
14. ALL ELEVATIONS ARE TO GEODETIC DATUM.

KEY PLAN

LEGEND
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Region of Waterloo

CONTROLLING N/A

FIELD BOOK No.

No.	REVISIONS/ISSUED	BY	DATE

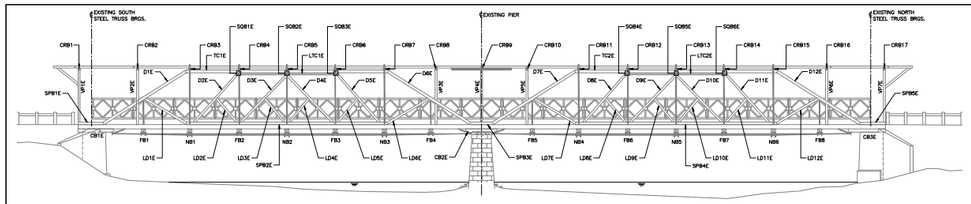
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REHABILITATION OF WEST MONTROSE COVERED BRIDGE

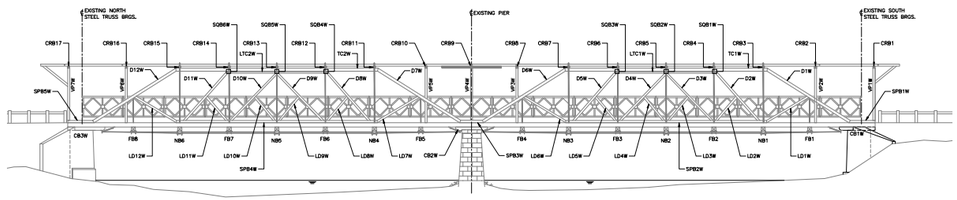
GENERAL ARRANGEMENT II

DRAWN BY: N/A	CONTRACT No.: 2022-XXX
CHECKED BY: Chris Kelly	SCALE: As Shown
DATE: JUNE 30, 2021	DRAWING No.: FILE NO
	SHEET No.: 4 OF XX

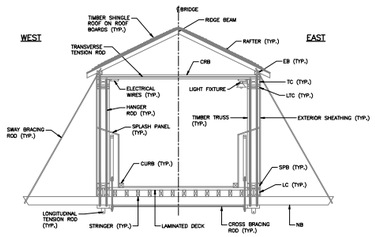
CAD FILE NAME: 20-091_002GA



EAST ELEVATION
1:100



WEST ELEVATION
1:100



EXISTING CROSS-SECTION
1:50

ABBREVIATIONS

CB – COMPRESSION BLOCK
CRB – CROSS BEAM
D – DIAGONAL
EB – EDGE BEAM
FB – FLOOR BEAM
LC – LOWER CHORD
LD – LOWER DIAGONAL
LTC – LOWER TOP CHORD
NB – NEEDLE BEAM
TC – TOP CHORD
SPB – SPACING BLOCK
SGB – SQUASH BLOCK
WP – VERTICAL POST

KEY PLAN



DESCRIPTION

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FOR REVIEW ONLY
NOT FOR CONSTRUCTION

DOUG DIXON & ASSOCIATES INC

Region of Waterloo

CONTROLLING BAR

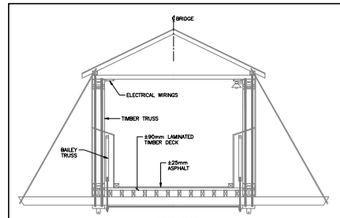
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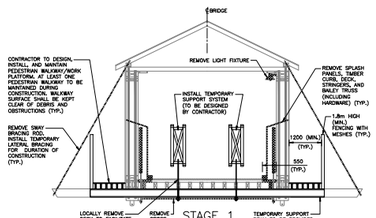
REHABILITATION OF WEST MONTROSE COVERED BRIDGE

COMPONENT DESIGNATION

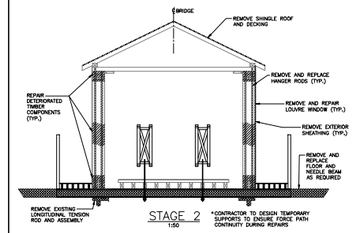
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CHECKED BY: Checked By	FILE No.: XX
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LAYOUT NAME:	20-081_003CD



EXISTING
1:50

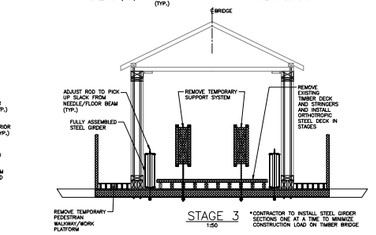


STAGE 1
1:50



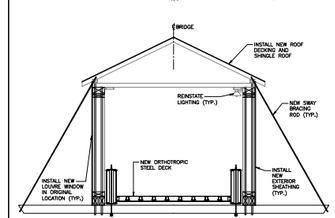
STAGE 2
1:50

*CONTRACTOR TO DESIGN TEMPORARY SUPPORTS TO ENSURE FORCE PATH CONTINUITY DURING REPAIRS



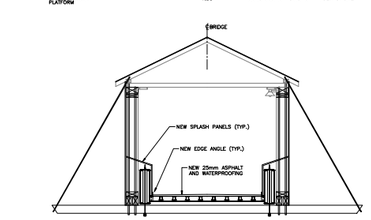
STAGE 3
1:50

*CONTRACTOR TO INSTALL STEEL GIRDER SECTIONS ONE AT A TIME TO MINIMIZE CONSTRUCTION LOAD ON TIMBER BRIDGE



STAGE 4
1:50

*PEDESTRIAN ACCESS SHALL NOT BE BLOCKED CONTINUOUSLY FOR MORE THAN 48 HOURS



FINAL
1:50

SUGGESTED CONSTRUCTION SEQUENCE

CONSTRUCTIO

CONTRACTOR SHALL PROVIDE STAMPED AND SEALED DRAWING SHOWING THE METHODS OF CONSTRUCTION, TEMPORARY SUPPORT SYSTEM, AND ANY RELEVANT DETAILS TO THE CONTRACT ADMINISTRATOR FOR REVIEW PRIOR TO THE START OF CONSTRUCTION.

PRE-STAGE 1

1. SURVEY SITE AND CONFIRM ALL POSITIONS AND ELEVATION OF THE TIMBER COMPONENTS OUTLINED IN SHEET --. CONFIRM POSITIONS AND ELEVATIONS OF THE SUBSTRUCTURE AND BRIDGE SPAN LENGTH.
2. INSTALL TRAFFIC CONTROL DEVICES.
3. PREPARE ACCESS TO SOFFIT OF THE BRIDGE AS REQUIRED. IN-WATER WORKING WINDOW TO BE FOLLOWED.

STAGE 1

1. PREPARE FOUNDATION FOR TEMPORARY SUPPORT SYSTEM. SEE SHEET -- FOR DETAILS.
2. INSTALL SENSORS TO MONITOR AND CONTROL BRIDGE MOVEMENT.
3. INSTALL TEMPORARY SUPPORT SYSTEM AND PEDESTRIAN WALKWAY/WORK PLATFORM.
4. INSTALL TEMPORARY CONCRETE BARRIERS AND REDIRECT PEDESTRIAN TRAFFIC.
5. REMOVE EXISTING SPLASH PANELS, TIMBER CURBS, A PORTION OF THE DECK AND STRINGER.
6. REMOVE EXISTING BAILEY TRUSS AND HARDWARE, BAILEY TRUSS BEARING AND FOUNDATION.
7. REMOVE EXISTING SWAY BRACING RODS AND CROSS BRACING RODS.
8. REMOVE AND SALVAGE EXISTING LIGHT FIXTURES. PROTECT AND MAINTAIN ALL ELECTRICAL WIRING.

STAGE 2

1. REMOVE EXISTING SHINGLE ROOF AND ROOF DECKING.
2. REMOVE EXISTING EXTERIOR SHEATHING.
3. REMOVE AND REPLACE FLOOR AND NEEDLE BEAMS AS IDENTIFIED BY THE CONTRACT ADMINISTRATOR.
4. REPAIR DETERIORATED SECTION OF THE TIMBER TRUSS AS IDENTIFIED BY THE CONTRACT ADMINISTRATOR.
5. STRENGTHEN TIMBER CONNECTIONS. SEE SHEET -- FOR DETAILS
6. JACK TIMBER BRIDGE AT ABUTMENT AND PIER.
7. REMOVE CONCRETE IN EXISTING ABUTMENTS AND WINGWALLS TO LIMITS SHOWN. REPAIR CONCRETE.
8. REPAIR POINTING AND STONES IN PIER.
9. INSTALL NEW ROCK PROTECTION AT NORTH ABUTMENT AND PIER.
10. CONSTRUCT NEW CONCRETE BEARING SLABS AND SEATS AT ABUTMENTS AND PIER.
11. REMOVE AND REPLACE TIMBER COMPRESSION BLOCKS AT ABUTMENT AND PIER.

STAGE 3

1. CONSTRUCT BEARINGS FOR STEEL GIRDER.
2. INSTALL STEEL GIRDER IN SECTIONS.
3. FIELD ASSEMBLE STEEL GIRDER.
4. INSTALL HANGER RODS AND ADJUST RODS TO PICK UP LOADS FROM BRIDGE.
5. REMOVE TEMPORARY SUPPORT SYSTEM.
6. REMOVE TEMPORARY PEDESTRIAN WALKWAY/WORK PLATFORM.
7. LOCALLY REMOVE EXISTING TIMBER DECK AND INSTALL STEEL ORTHOTROPIC STEEL DECK PANELS.

STAGE 4

1. INSTALL NEW ROOF DECKING AND SHINGLE ROOF.
2. INSTALL NEW EXTERIOR SHEATHING.
3. REINSTATE LOUVRE WINDOW IN ORIGINAL LOCATION.
4. REINSTATE LIGHT FIXTURES AND ELECTRICAL WIRING.

FINAL

1. INSTALL WATERPROOFING FOR ORTHOTROPIC STEEL DECK.
2. PAVE ASPHALT.
3. INSTALL TIMBER CURB.

KEY PLAN



DESCRIPTION

4. INSTALL SPLASH PANELS
5. REINSTATE TRAFFIC

PRELIMINARY.
FOR REVIEW ONLY
NOT FOR CONSTRUCTION

DOUG DIXON & ASSOCIATES INC

Region of Waterloo

CONTROLLING BAR

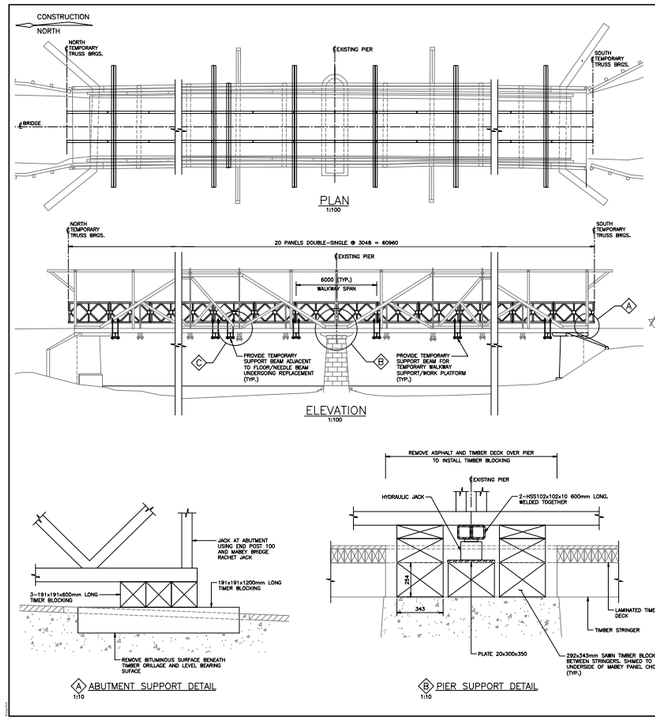
FIELD BOOK No's

No.	DESCRIPTION	BY	DATE
	25% REVIEW SET		2021-08-19

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

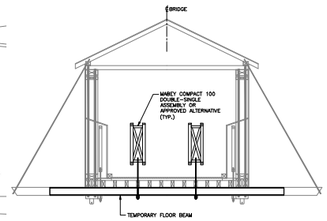
SUGGESTED CONSTRUCTION SEQUENCE

DRAWN BY: A.L.	CONTRACT No.: 2022-XXX
CHECKED BY: --	FILE NO
DATE: JUL 30, 2021	DRAWING NO
SCALE: AS SHOWN	SHEET No.: 6 OF xx
LAYOUT NAME:	20-081_004CS



NOTES

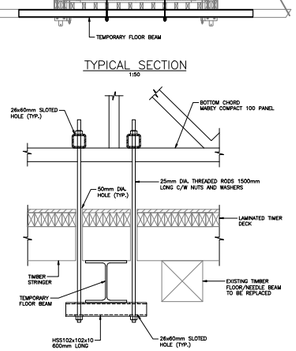
1. TEMPORARY SUPPORT SYSTEM SHOWN IN THIS DRAWING IS FOR SUGGESTION ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN, INSTALLATION, AND MAINTENANCE OF THE TEMPORARY SUPPORT SYSTEM.



TYPICAL SECTION
1:50

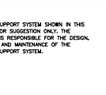
A ABUTMENT SUPPORT DETAIL
1:10

B PIER SUPPORT DETAIL
1:10



C TEMPORARY HANGER DETAIL
1:10

KEY PLAN



DESCRIPTION

PRELIMINARY.
FOR REVIEW ONLY
NOT FOR CONSTRUCTION

DOUG DIXON & ASSOCIATES INC

Region of Waterloo

CONTROLLING BdN.

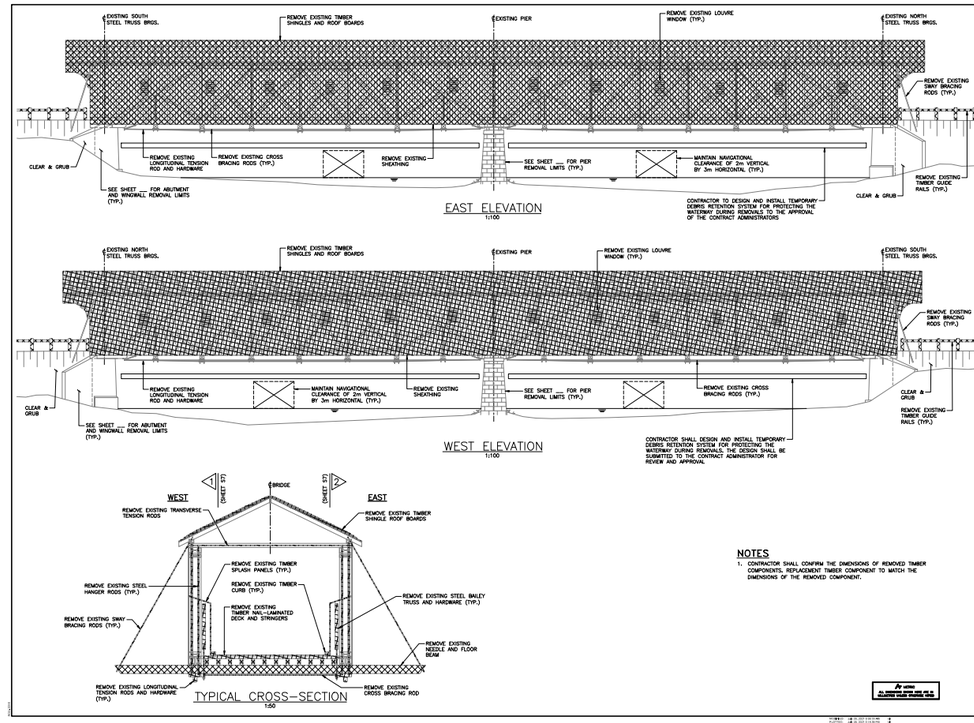
FIELD BOOK No.s

No.	DESCRIPTION	BY	DATE
	ORIGINAL ISSUE	DD	2021/08/19

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

SUGGESTED TEMPORARY SUPPORT

DRAWN BY: AJL	CONTRACT No.: 2022-XXX
CHECKED BY: Checked By	FILE No.: XX
DATE: JUL 30, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: 7 OF XX
LAYOUT NAME:	20-081_005TS



EAST ELEVATION
1:100

WEST ELEVATION
1:100

TYPICAL CROSS-SECTION
1:50

NOTES

1. CONTRACTOR SHALL CONFIRM THE DIMENSIONS OF REMOVED TIMBER COMPONENTS. REPLACEMENT TIMBER COMPONENT TO MATCH THE DIMENSIONS OF THE REMOVED COMPONENT.

KEY PLAN



DESCRIPTION

PRELIMINARY.
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DOUG DIXON & ASSOCIATES INC

Region of Waterloo

CONTROLLING BdN.

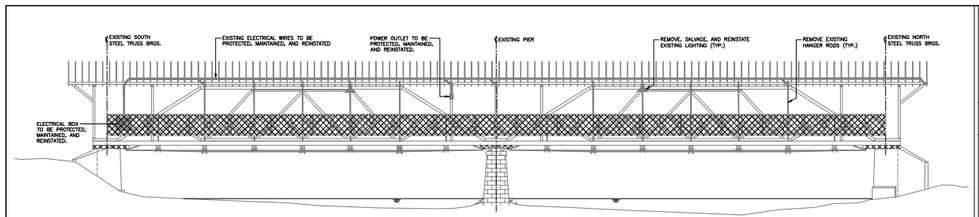
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No.	DESCRIPTION	BY	DATE
	ORIGINAL ISSUE	DD	2021/08/19

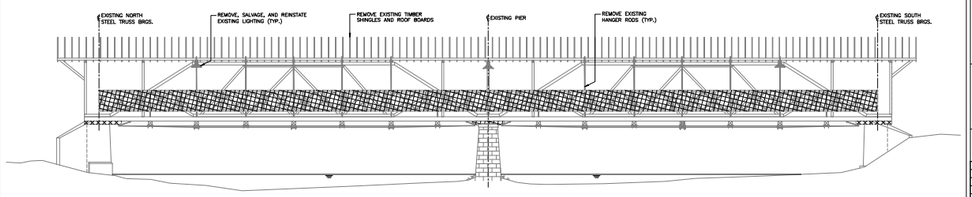
REHABILITATION OF WEST MONTROSE COVERED BRIDGE

REMOVALS I

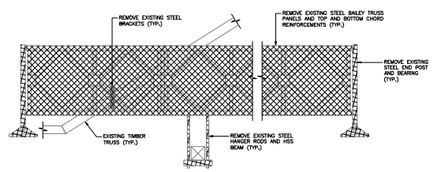
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CHECKED BY: Checked By	FILE No.: XX
DATE: JUL 30, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: - OF XX
LAYOUT NAME:	20-081_006RM1



1 WEST TRUSS INTERIOR
1:100 (SHEET 56)



2 EAST TRUSS INTERIOR
1:100 (SHEET 58)



TYPICAL BAILEY REMOVAL DETAIL
NTS

NOTES

1. CONTRACTOR SHALL CONFIRM THE DIMENSIONS OF REMOVED TIMBER COMPONENTS. REPLACEMENT TIMBER COMPONENT TO MATCH THE DIMENSIONS OF THE REMOVED COMPONENT.

KEY PLAN



LOCATION

PRELIMINARY.
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DOUG DIXON & ASSOCIATES INC

Region of Waterloo

CONTROLLING SURV.

FIELD BOOK No.

No.	ISSUE/REVISION	BY	DATE
1	50% REVIEW SET		2021/06/15

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

REMOVALS II

DRAWN BY: A.J.	CONTRACT No.: 2022-XXX
CHECKED BY: Checked By	FILE No.: XX
DATE: July 30, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: – OF XX
LAYOUT NAME:	20-081_007RM2

WORK IN PROGRESS

REMOVAL DETAILS FOR ALL MISCELLANEOUS STEEL HARDWARE

- SWAY BRACING ROD
- CROSS BRACING ROD
- LONGITUDINAL TENSION ROD
- HANGER RODS
- HANGER RODS CONNECTION AT TRUSS JOINTS
- TRANSVERSE TENSION ROD

KEY PLAN



LOCATION

PRELIMINARY.
FOR REVIEW ONLY
NOT FOR CONSTRUCTION

DOUG DIXON & ASSOCIATES INC

Region of Waterloo

CONTROLLING SURV.

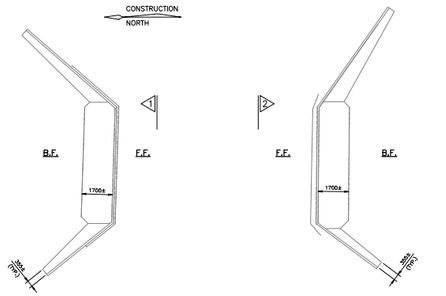
FIELD BOOK No.

No.	ISSUE/REVISION	BY	DATE
1	50% REVIEW SET		2021/06/15

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

REMOVALS III

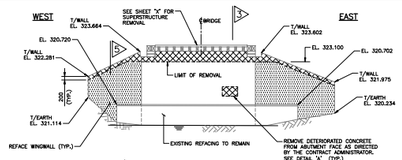
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DATE: July 30, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: – OF XX
LAYOUT NAME:	20-081_008RM3



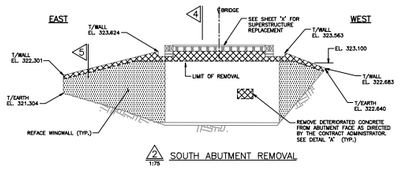
NORTH ABUTMENT AND WINGWALL

SOUTH ABUTMENT AND WINGWALL

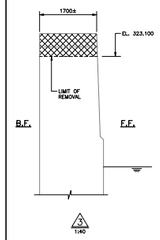
PLAN
1:75



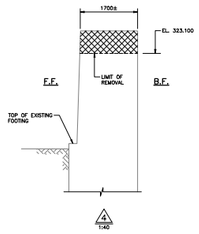
1 NORTH ABUTMENT REMOVAL
1:75



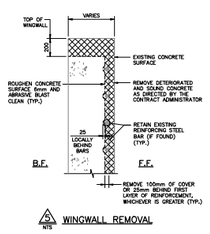
2 SOUTH ABUTMENT REMOVAL
1:75



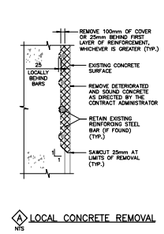
3
1:40



4
1:40



5 WINGWALL REMOVAL
NTS



A LOCAL CONCRETE REMOVAL
NTS

NOTES

1. DIMENSION OF EXISTING ABUTMENTS AND WINGWALLS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF THE PROPOSED WORK AND ALL DETAILS ON SITE AND REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR.
2. SAWCUTS SHALL BE 25mm DEEP OR TO THE FIRST LAYER OF REINFORCING STEEL, WHICH EVER IS LESS UNLESS NOTED AS SAWCUT FULL DEPTH.
3. ABRASIVE BLAST CLEAN ALL REINFORCING STEEL THAT IS TO BE RETAINED.

LEGENDS

- REMOVAL
- REFACING EXISTING CONCRETE
- EXISTING EARTH

METRIC
ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE

KEY PLAN



LEGEND

ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE LATEST EDITION OF THE ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS, AND ANY SPECIAL PROVISIONS AND SUPPLEMENTS THERETO, UNLESS OTHERWISE NOTED. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REGION OF WATERLOO'S STANDARD SPECIFICATIONS AND DETAILS, AND ANY SPECIAL PROVISIONS AND SUPPLEMENTS THERETO, UNLESS OTHERWISE NOTED.

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DOUG DIXON & ASSOCIATES INC

Region of Waterloo

CONTROLLING BM's

FIELD BOOK No's

No.	ELEVATION	BY	DATE

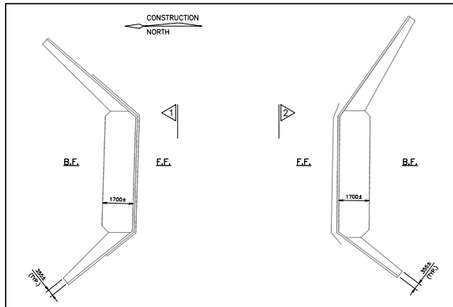
BENCHMARK SET — ELEVATION

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

REMOVAL IV

DRAWN BY: N.C.	CONTRACT No.: 2022-XXX
CHECKED BY: Checked By	FILE No.: XX
DATE: August 31, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: – OF XX
LAYOUT NAME:	20-081_000RM4

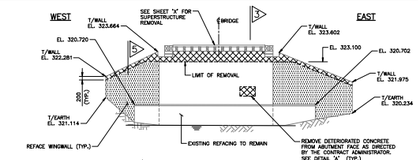
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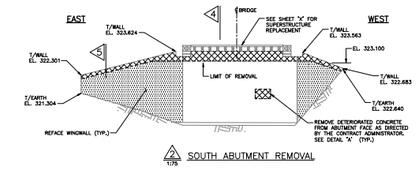
NORTH ABUTMENT AND WINGWALL

SOUTH ABUTMENT AND WINGWALL

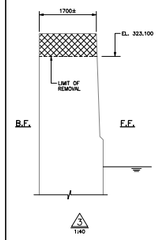
PLAN
1:75



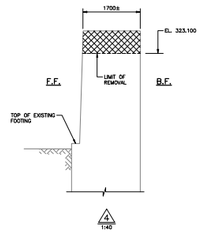
1 NORTH ABUTMENT REMOVAL
1:75



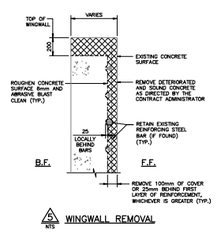
2 SOUTH ABUTMENT REMOVAL
1:75



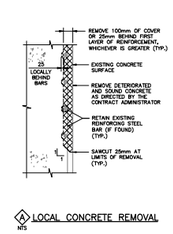
3
1:40



4
1:40



5 WINGWALL REMOVAL
NTS



A LOCAL CONCRETE REMOVAL
NTS

NOTES

1. DIMENSION OF EXISTING ABUTMENTS AND WINGWALLS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF THE PROPOSED WORK AND ALL DETAILS ON SITE AND REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR.
2. SAWCUTS SHALL BE 25mm DEEP OR TO THE FIRST LAYER OF REINFORCING STEEL, WHICH EVER IS LESS UNLESS NOTED AS SAWCUT FULL DEPTH.
3. ABRASIVE BLAST CLEAN ALL REINFORCING STEEL THAT IS TO BE RETAINED.

LEGENDS

- REMOVAL
- REFACING EXISTING CONCRETE
- EXISTING EARTH

METRIC
ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE

KEY PLAN



LEGEND

ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE LATEST EDITION OF THE ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS, AND ANY SPECIAL PROVISIONS AND SUPPLEMENTS THERETO, UNLESS OTHERWISE NOTED. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REGION OF WATERLOO'S STANDARD SPECIFICATIONS AND DETAILS, AND ANY SPECIAL PROVISIONS AND SUPPLEMENTS THERETO, UNLESS OTHERWISE NOTED.

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DOUG DIXON & ASSOCIATES INC

Region of Waterloo

CONTROLLING BM's

FIELD BOOK No's

No.	ELEVATION	BY	DATE

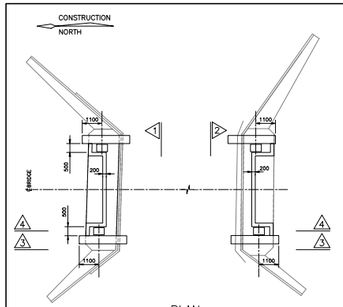
BENCHMARK SET — ELEVATION

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

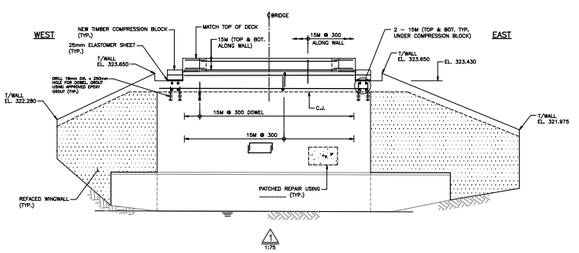
REMOVAL IV

DRAWN BY: N.C.	CONTRACT No.: 2022-XXX
CHECKED BY: Checked By	FILE No.: XX
DATE: August 31, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: – OF XX
LAYOUT NAME:	20-081_000RM4

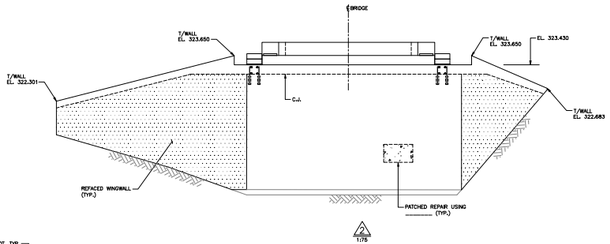
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PLAN
1:75

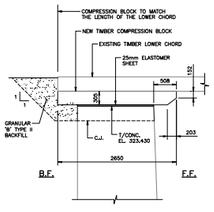


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1:75

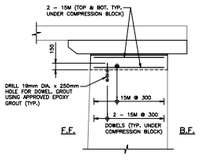


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1:75

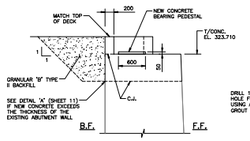
NOTES
1. xxx



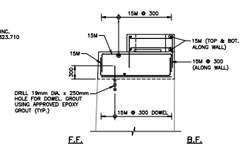
DIMENSION
3
1:30



REINFORCEMENT



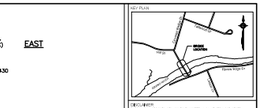
DIMENSION
4
1:30



REINFORCEMENT

ALL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT CONTRACT DOCUMENTS. ALL DIMENSIONS ARE TO BE CHECKED ON SITE BEFORE COMMENCEMENT OF ANY WORK OR SHOP DRAWINGS. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONS AND PROPERTY IN CONNECTION WITH THE WORK AND SHALL COMPLY WITH ALL APPLICABLE SAFETY REGULATIONS.

KEY PLAN



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DOUG DIXON & ASSOCIATES INC

Region of Waterloo

CONTROLLING BM.

FIELD BOOK No.

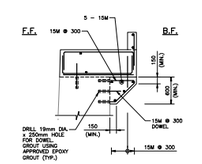
No.	REVISIONS / ISSUES	BY	DATE
	DESIGNED SET		2021/08/31

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

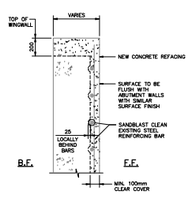
ABUTMENT DETAILS I

DRAWN BY: AJL	CONTRACT No.: 2022-XXX
CHECKED BY: Checkedby	REV No.: XX
DATE: JULY 30, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: – OF XX
LAYOUT NAME:	20-081_S10-AB1

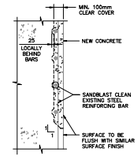
© THESE DRAWINGS ARE THE PROPERTY OF DOUG DIXON & ASSOCIATES INC AND MAY NOT BE REPRODUCED WITHOUT PERMISSION.



A CORBEL FOR THIN ABUTMENT WALL
1:30 (SHEET 10)



B WINGWALL REFACING
NTS (SHEET 10)



C LOCAL CONCRETE PATCHING
NTS (SHEET 10)

NOTES
1. xxx

ALL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT CONTRACT DOCUMENTS. ALL DIMENSIONS ARE TO BE CHECKED ON SITE BEFORE COMMENCEMENT OF ANY WORK OR SHOP DRAWINGS. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONS AND PROPERTY IN CONNECTION WITH THE WORK AND SHALL COMPLY WITH ALL APPLICABLE SAFETY REGULATIONS.

KEY PLAN



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Region of Waterloo

CONTROLLING BM.

FIELD BOOK No.

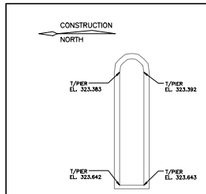
No.	REVISIONS / ISSUES	BY	DATE
	DESIGNED SET		2021/08/31

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

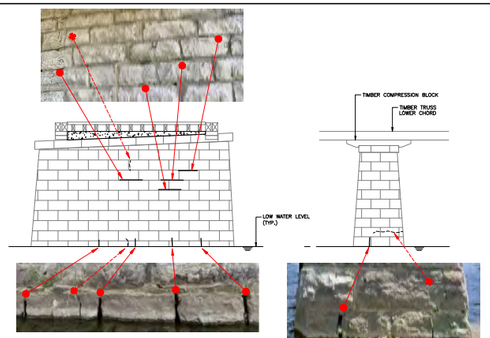
ABUTMENT DETAILS II

DRAWN BY: AJL	CONTRACT No.: 2022-XXX
CHECKED BY: Checkedby	REV No.: XX
DATE: August 31, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: – OF XX
LAYOUT NAME:	20-081_011AB2

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PLAN
1:75



NORTH FACE
NTS

WEST FACE
NTS

NOTES

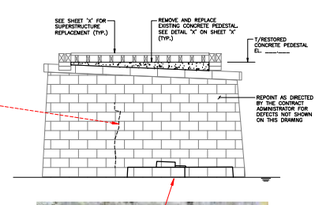
1. THE CONTRACTOR SHALL NOT COMMENCE THIS WORK UNTIL A PERMIT TO CARRY OUT MUSSEL RELOCATION IS OBTAINED AND MUSSEL RELOCATION HAS BEEN UNDERTAKEN. REFER TO CONTRACT SPECIAL PROVISION FOR DETAILS.
2. IN STREAM CONSTRUCTION WORKS ARE ALLOWED ONLY WHERE SPECIFICALLY PERMITTED AND ONLY WITHIN THE IN-WATER WORK WINDOW.

LEGENDS

STABILIZE CRACK

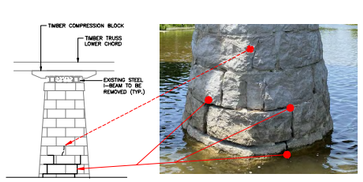
REPOINT







SOUTH FACE
NTS



EAST FACE
NTS

KEY PLAN



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DOUG DIXON & ASSOCIATES INC

Region of Waterloo

CONTROLLING BAR

FIELD BOOK No.

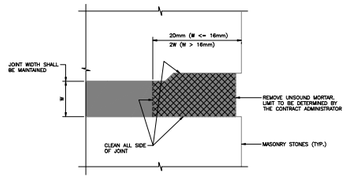
No.	REVISIONS/ISSUES	BY	DATE
	ORIGINAL ISSUE		2021/08/31

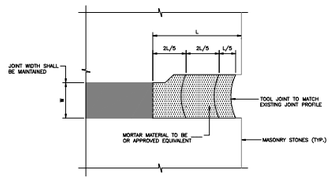
REHABILITATION OF WEST MONTROSE COVERED BRIDGE

PIER REPAIRS I

DRAWN BY: AJL	CONTRACT No.: 2022-XXX
CHECKED BY: Checked By	REV No.: XX
DATE: JUNE 30, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: — OF XX
LAYOUT NAME: 20-081_012PR1	

METRIC
ALL DIMENSIONS SHOWN ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED





TYPICAL REPOINTING DETAILS
N.T.S

KEY PLAN



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DOUG DIXON & ASSOCIATES INC

Region of Waterloo

CONTROLLING BAR

FIELD BOOK No.

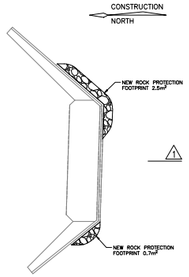
No.	REVISIONS/ISSUES	BY	DATE
	ORIGINAL ISSUE		2021/08/31

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

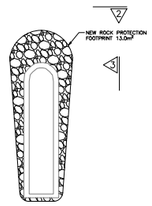
PIER REPAIRS II

DRAWN BY: AJL	CONTRACT No.: 2022-XXX
CHECKED BY: Checked By	REV No.: XX
DATE: JUNE 30, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: — OF XX
LAYOUT NAME: 20-081_013PR2	

METRIC
ALL DIMENSIONS SHOWN ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED



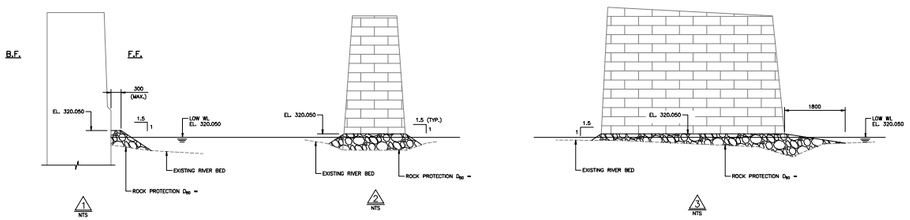
NORTH ABUTMENT PLAN



PIER PLAN

NOTES

1. THE CONTRACTOR SHALL NOT COMMENCE THIS WORK UNTIL A PERMIT TO CARRY OUT MUSSEL RELOCATION IS OBTAINED AND MUSSEL RELOCATION HAS BEEN UNDERTAKEN. REFER TO CONTRACT SPECIAL PROVISION FOR DETAILS.
2. IN STREAM CONSTRUCTION WORKS ARE ALLOWED ONLY WHERE SPECIFICALLY PERMITTED AND ONLY WITHIN THE IN-WATER WORK WINDOW.



KEY PLAN



DESIGNATED
THE BRIDGE IS DESIGNATED AS A HERITAGE BRIDGE UNDER THE ONTARIO HERITAGE ACT. ALL WORKS ARE TO BE UNDERTAKEN IN ACCORDANCE WITH THE ONTARIO HERITAGE BRIDGE GUIDELINES. THE CONTRACTOR SHALL ENSURE THAT ALL WORKS ARE CARRIED OUT IN A MANNER THAT PRESERVES THE HERITAGE ATTRIBUTES OF THE BRIDGE AND MINIMIZES DISTURBANCE TO THE SURROUNDING ENVIRONMENT. ALL WORKS SHALL BE UNDERTAKEN BY CONTRACTORS EXPERIENCED IN THE CONSERVATION OF HERITAGE STRUCTURES.

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Region of Waterloo

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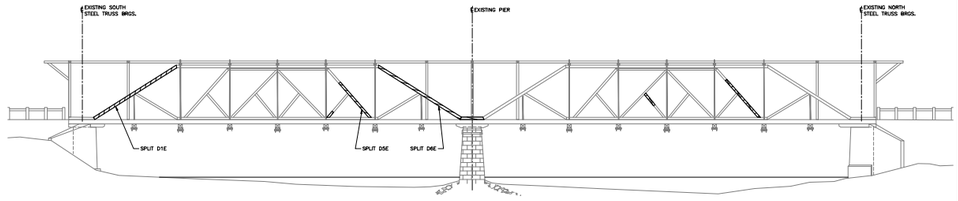
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No.	REVISIONS	BY	DATE
	30% REDESIGN SET		2021/05/19

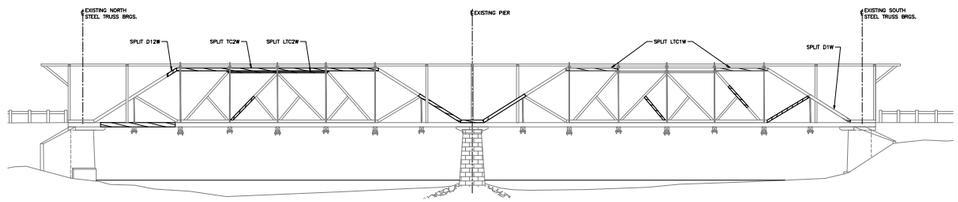
REHABILITATION OF WEST MONTROSE COVERED BRIDGE

ROCK PROTECTION

DRAWN BY: AJ	CONTRACT No.: 2020-XXX
CHECKED BY: Checked By	FILE No.: XX
DATE: July 30, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: — OF XX
LAYOUT NAME: 20-081_014RP	



EAST ELEVATION
1:100



WEST ELEVATION
1:100

NOTES

1. NOT ALL REPAIR LOCATIONS ARE SHOWN IN THIS DRAWING. THE CONTRACT ADMINISTRATOR SHALL IDENTIFY REPAIR LOCATIONS ON SITE.

KEY PLAN



DESIGNATED
THE BRIDGE IS DESIGNATED AS A HERITAGE BRIDGE UNDER THE ONTARIO HERITAGE ACT. ALL WORKS ARE TO BE UNDERTAKEN IN ACCORDANCE WITH THE ONTARIO HERITAGE BRIDGE GUIDELINES. THE CONTRACTOR SHALL ENSURE THAT ALL WORKS ARE CARRIED OUT IN A MANNER THAT PRESERVES THE HERITAGE ATTRIBUTES OF THE BRIDGE AND MINIMIZES DISTURBANCE TO THE SURROUNDING ENVIRONMENT. ALL WORKS SHALL BE UNDERTAKEN BY CONTRACTORS EXPERIENCED IN THE CONSERVATION OF HERITAGE STRUCTURES.

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FIELD BOOK No.

No.	REVISIONS	BY	DATE
	30% REDESIGN SET		2021/05/19

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

TIMBER TRUSS REPAIRS

DRAWN BY: AJ	CONTRACT No.: 2020-XXX
CHECKED BY: Checked By	FILE No.: XX
DATE: July 30, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: 13 OF xx
LAYOUT NAME: 20-081_015TR	

CONSTRUCTION NORTH

PLACE HOLDER DRAWING
WORK IN PROGRESS

KEY PLAN



KEY PLAN

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Region of Waterloo

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FIELD BOOK No.

No.	ISSUED/REVISED	BY	DATE

EAST ELEVATION
1:100

WEST ELEVATION
1:100

KEY PLAN

LEGEND

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FIELD BOOK No.

No.	REVISIONS / ISSUES	BY	DATE
	DRAWING SET		2021/08/31

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

SUPERSTRUCTURE REPAIR I
ROOF AND EXTERIOR SHEATHING

DRAWN BY: AJL	CONTRACT No.: 2022-XXX
CHECKED BY: Checked By	FILE No.: XX
DATE: JUL 30, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: – OF xx
LAYOUT NAME: 20-081_017RS	

RIDGE CAP DETAIL
N.T.S.

CROSS–SECTION
1:50

NOTES

1. CEDAR SHINGLES ARE TO BE 400mm WESTERN RED CEDAR GRADE NO. 1 SHINGLES.
2. NO AREA OF THE ROOF IS TO HAVE LESS THAN 3 LAYERS OF CEDAR SHINGLES WITH THE EXCEPTION OF THE STARTER COURSE.
3. ENSURE THAT NO TWO JOINTS IN ANY THREE ADJACENT COURSES ARE IN ALIGNMENT.
4. IF A KNOT OR SIMILAR DEFECT IS PRESENT IT SHALL BE TREATED AS THE EDGE OF THE SHINGLE AND THE 38mm SIDELAP WILL BE MAINTAINED.
5. THE MINIMUM WIDTH FOR SHINGLES IS 76mm AND THE MAXIMUM WIDTH IS 200mm. LARGER SHINGLES SHOULD BE SPLIT BEFORE INSTALLATION.
6. AT THE RIDGE OF THE ROOF INSTALL A CEDAR RIDGE UNIT, EITHER PREFABRICATED OR FABRICATED ON SITE. THE RIDGE UNIT SHOULD BE FABRICATED ACCORDING TO THE METHOD OUTLINED IN CHAPTER 9.3.7 OF THE CANADIAN ROOFING REFERENCE MANUAL.
7. INSTALL THE CEDAR RIDGE UNIT USING TWO NAILS ON EACH SIDE, PLACED ABOUT 178mm ABOVE THE BUTT EDGE. ENSURE THAT THAT NAILS USES ARE LONG ENOUGH TO PENETRATE THE SHEATHING.
8. GIVE EACH RIDGE UNIT THE SAME EXPOSURE AS THE ROOF SHINGLES (125mm)
9. OFFSET THE RIDGE JOINTS SO THAT THE RIDGE REMAINS WATERTIGHT IF SEVERAL JOINTS OPEN UP AS THE ROOF AGES.
10. ALL NAILS ARE TO BE 3D, 33mm TYPE 304 OR 316 STAINLESS–STEEL BOX NAILS UNLESS OTHERWISE NOTED.
11. NAILS SHALL BE LOCATED APPROXIMATELY 19mm FROM EACH EDGE OF THE SHINGLE. NAIL HIGH ENOUGH SO THAT THE NAILS ARE COVERED BY THE NEXT COURSE, BETWEEN 38 TO 50mm ABOVE THE BUTT LINE OF THE NEXT COURSE.
12. IF THE SHINGLE SPLITS NAILING AND THE CRACK OFFSETS THE JOINT IN THE SHINGLE BELOW AT LEAST 38mm, PLACE A NAIL ON EACH SIDE OF THE SPLIT. SPLIT SHINGLE CAN BE TREATED AS TWO SHINGLES. IF THE CRACK DOES NOT OFFSET THE JOINT IN THE SHINGLE BELOW, REMOVE THE SPLIT SHINGLE AND APPLY ANOTHER.

PLAN OF ROOF – SHINGLE LAYOUT
1:5

PLAN OF ROOF – WITHOUT CEDAR SHINGLE
1:10

KEY PLAN

LEGEND

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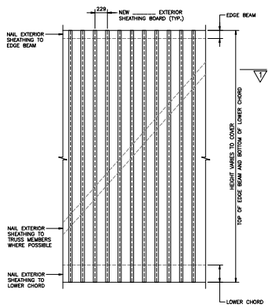
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No.	REVISIONS / ISSUES	BY	DATE
	DRAWING SET		2021/08/31

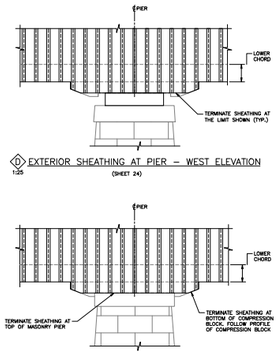
REHABILITATION OF WEST MONTROSE COVERED BRIDGE

SUPERSTRUCTURE REPAIR II
ROOF REPAIR DETAILS

DRAWN BY: AJL	CONTRACT No.: 2022-XXX
CHECKED BY: JC	FILE No.: FILE NO
DATE: JUL 30, 2021	DRAWING No.: DRAWING NO
SCALE: AS SHOWN	SHEET No.: – OF xx
LAYOUT NAME: 20-081_018RF	



A TYPICAL EXTERIOR SHEATHING INSTALLATION
1:25 (SHEET 24)

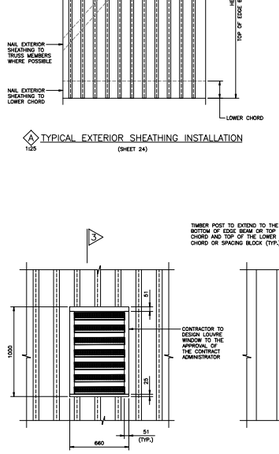


D EXTERIOR SHEATHING AT PIER – WEST ELEVATION
1:25 (SHEET 24)

E EXTERIOR SHEATHING AT PIER – EAST ELEVATION
1:25 (SHEET 24)

NOTES
1. TIMBER MATERIAL
2. PAINT COLOR
3. PRESERVATIVE TREATMENT
4. OTHERS

ABBREVIATIONS
I.F. – INTERIOR FACE
O.F. – OUTSIDE FACE



C LOUVRE WINDOW
1:15 (SHEET 24)

B DIAMOND WIRE MESH
N.T.S.

KEY PLAN

DESCRIPTION

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Region of Waterloo

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FIELD BOOK No.

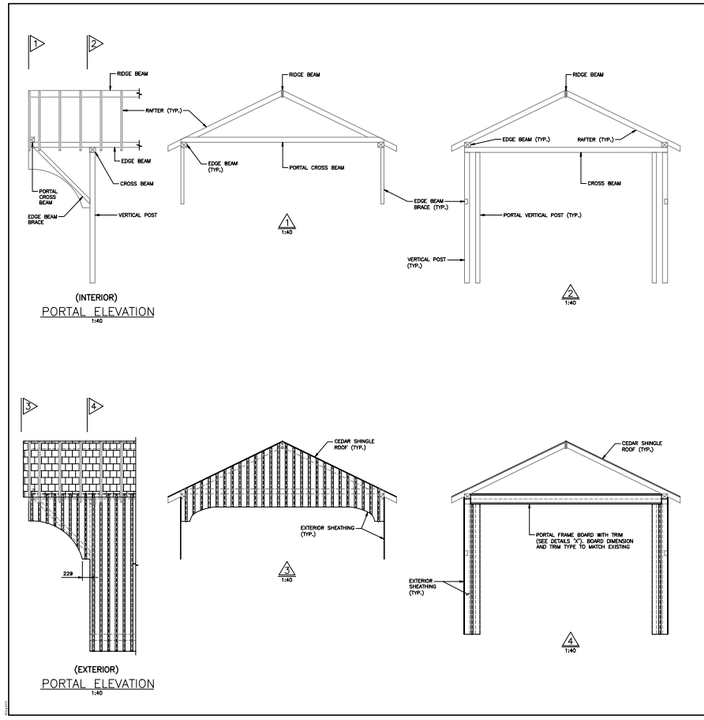
No.	BENCHMARK	BY	DATE
	ORIGINAL BENCHMARK		2021/08/19

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

SUPERSTRUCTURE REPAIR III
EXTERIOR SHEATHING DETAILS

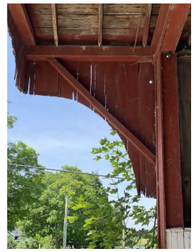
DRAWN BY: AJL	CONTRACT No.: 2022-XXX
CHECKED BY: Checkedby	FILE No.: XX
DATE: August 29, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: – OF xx
LAYOUT NAME:	20-081_019ES1

METRIC
ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED



(INTERIOR)
PORTAL ELEVATION
1:40

(EXTERIOR)
PORTAL ELEVATION
1:40



TYPICAL EXTERIOR SHEATHING AT PORTAL FRAME



AT TYPICAL PORTAL FRAME

KEY PLAN

DESCRIPTION

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Region of Waterloo

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FIELD BOOK No.

No.	BENCHMARK	BY	DATE
	ORIGINAL BENCHMARK		2021/08/19

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

SUPERSTRUCTURE REPAIR IV
PORTAL FRAME DETAILS

DRAWN BY: AJL	CONTRACT No.: 2022-XXX
CHECKED BY: Checkedby	FILE No.: XX
DATE: August 29, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: – OF xx
LAYOUT NAME:	20-081_020ES2

METRIC
ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED

WORK IN PROGRESS

- SPLASH PANEL ATTACHMENT DETAILS.
- PANEL DETAILS.
- HINGE DETAILS.

KEY PLAN



LEGEND

NOTES
1. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH THE REGION OF WATERLOO STANDARD SPECIFICATIONS AND CONSTRUCTION STANDARDS, THE LATEST EDITION OF THE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS, AND THE LATEST EDITION OF THE ONTARIO HIGHWAY BRIDGE DESIGN CODE UNLESS NOTED OTHERWISE.

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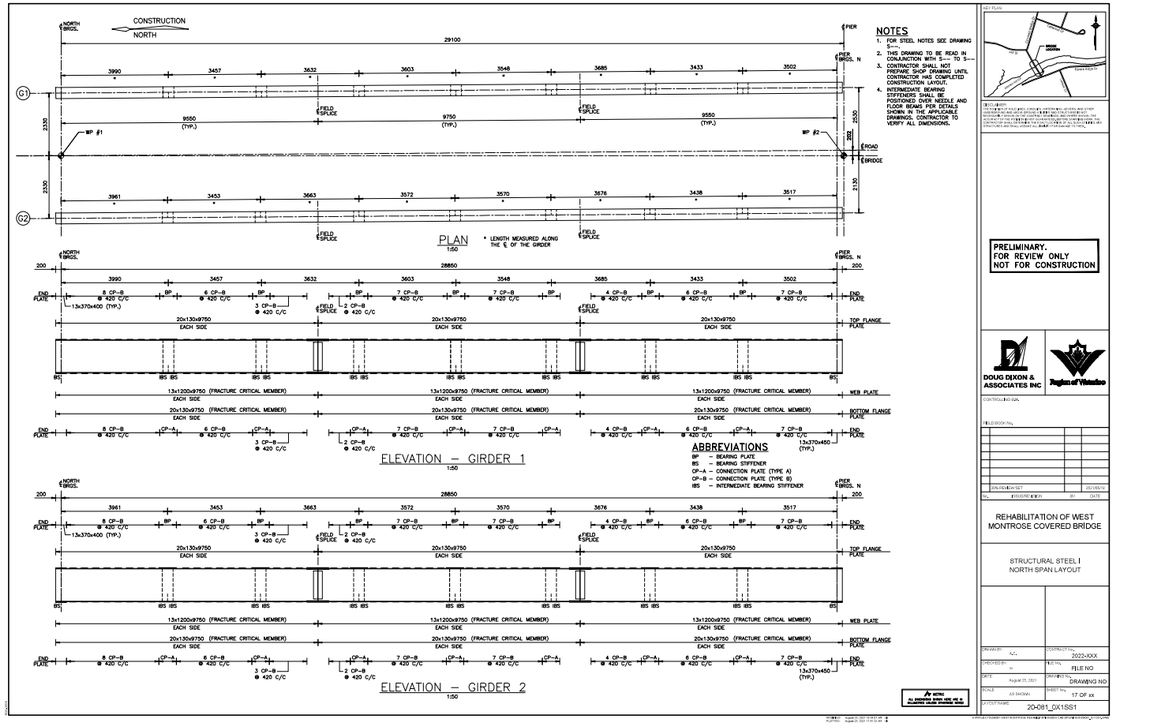
No.	REVISIONS / ISSUES	BY	DATE
	ENGINEER'S SEAL		2021/08/31

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

SUPERSTRUCTURE REPAIR V
SPLASH PANEL DETAILS

DRAWN BY: AJ	CONTRACT No.: 2022-XXX
CHECKED BY: Checked By	FILE No.: XX
DATE: July 30, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: – OF XX
LAYOUT NAME:	20-081_021SP

NOTE
ALL DRAWINGS SHALL BE READ IN CONJUNCTION WITH PS & ELASTIC HOLD TRIMMING NOTE



NOTE
ALL DRAWINGS SHALL BE READ IN CONJUNCTION WITH PS & ELASTIC HOLD TRIMMING NOTE

KEY PLAN

LEGEND

NOTES
1. FOR STEEL NOTES SEE DRAWING S–––
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH S––– TO S–––
3. CONTRACTOR SHALL NOT PREPARE SHOP DRAWING UNTIL REVIEWED AND ACCEPTED CONSTRUCTION LAYOUT.
4. INTERMEDIATE BEARING STIFFENERS SHALL BE POSITIONED OVER NEEDLE AND FLOOR BEAMS. REFER DETAILS ON STRUCTURAL REHAB DRAWINGS. CONTRACTOR TO VERIFY ALL DIMENSIONS.

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Region of Waterloo

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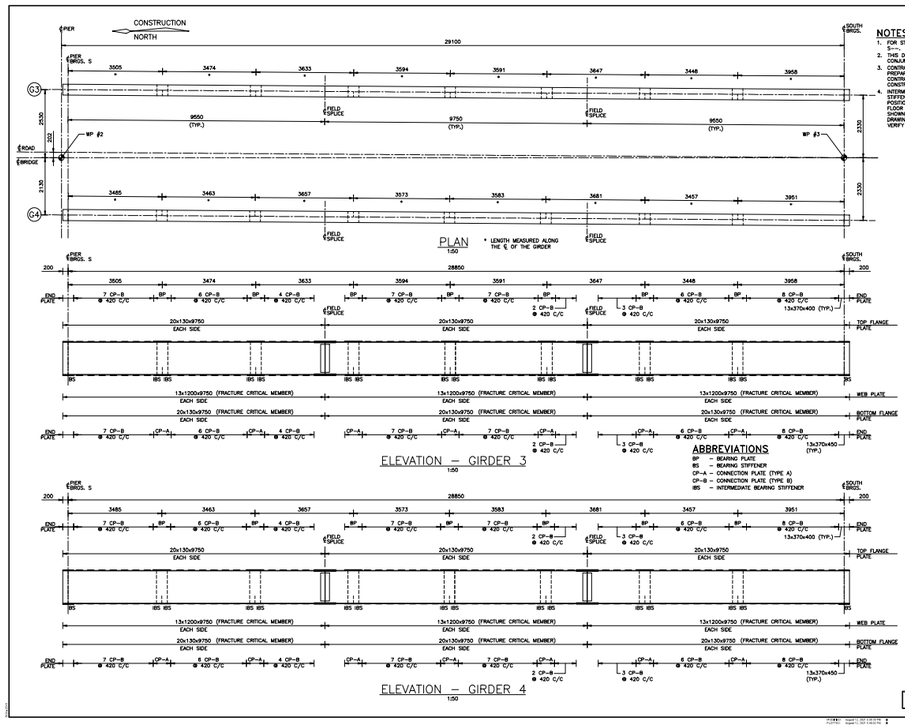
FIELD BOOK No's

No.	REVISIONS / ISSUES	BY	DATE
	ENGINEER'S SEAL		2021/08/31

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

STRUCTURAL STEEL I
NORTH SPAN LAYOUT

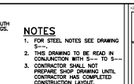
DRAWN BY: AJ	CONTRACT No.: 2022-XXX
CHECKED BY: –	FILE No.: FILE NO
DATE: August 31, 2021	DRAWING No.: DRAWING NO
SCALE: AS SHOWN	SHEET No.: 17 OF xx
LAYOUT NAME:	20-081_0X1SS1



NOTES

1. FOR STEEL NOTES SEE DRAWING S–––.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH S––– TO S–––.
3. CONTRACTOR SHALL NOT PREPARE SHOP DRAWING UNTIL THEY HAVE RECEIVED COMPLETED CONSTRUCTION LAYOUT.
4. INTERMEDIATE BEARING STIFFENERS SHALL BE POSITIONED OVER NEEDLE AND FLOOR BEAMS AT FLOOR LEVEL. SHOWN IN THE APPLICABLE DRAWINGS. CONTRACTOR TO VERIFY ALL DIMENSIONS.

KEY PLAN



LEGEND

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED. ELEVATIONS AND LEVELS ARE IN METRES. DO NOT SCALE DRAWINGS. REPORT ANY DISCREPANCIES TO THE CONSULTANT BEFORE PROCEEDING WITH THE WORK. ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE CODES AND REGULATIONS.

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Region of Waterloo

CONTROLLING BAR:

FIELD DESIGN No.:

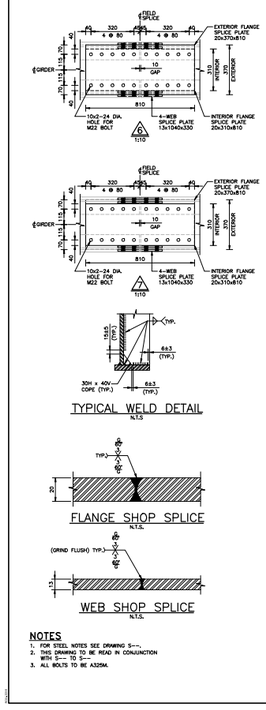
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	DESIGN/DRAWN/CHECKED/DATE		

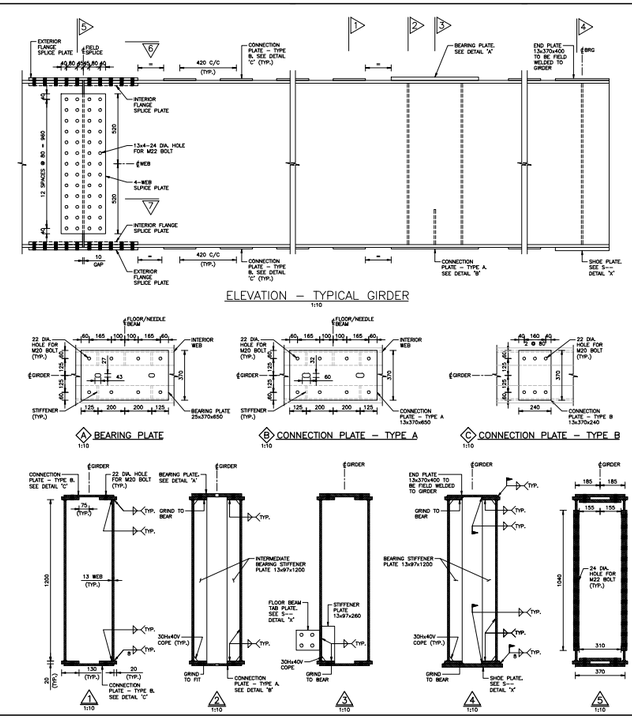
REHABILITATION OF WEST MONTROSE COVERED BRIDGE

STRUCTURAL STEEL II
SOUTH SPAN LAYOUT

DRAWN BY: AJL	CONTRACT No.: 2022-XXX
CHECKED BY: KF	FILE No.: FILE NO
DATE: August 12, 2021	DRAWING No.: DRAWING NO
SCALE: AS SHOWN	SHEET No.: 17 OF xx
LAYOUT NAME: 20-081_0X1SS1	

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KEY PLAN



LEGEND

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED. ELEVATIONS AND LEVELS ARE IN METRES. DO NOT SCALE DRAWINGS. REPORT ANY DISCREPANCIES TO THE CONSULTANT BEFORE PROCEEDING WITH THE WORK. ALL WORK SHALL CONFORM TO THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE CODES AND REGULATIONS.

PRELIMINARY.
FOR REVIEW ONLY
NOT FOR CONSTRUCTION

DOUG DIXON & ASSOCIATES INC

Region of Waterloo

CONTROLLING BAR:

FIELD DESIGN No.:

No.	REVISIONS/ISSUED	BY	DATE
	DESIGN/DRAWN/CHECKED/DATE		

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

STRUCTURAL STEEL III
GIRDER DETAILS

DRAWN BY: AJL	CONTRACT No.: 2022-XXX
CHECKED BY: KF	FILE No.: FILE NO
DATE: August 31, 2021	DRAWING No.: DRAWING NO
SCALE: AS SHOWN	SHEET No.: 19 OF xx
LAYOUT NAME: 20-081_0X3SS3	

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PLAN
N.T.S

JACKING LOAD (kN)			
		P1	P2
ABUTMENT	JACKING PERMANENT	0	0
	JACKING LIVE LOAD AT SLS	0	0
	TOTAL TEMP. SUPPORT LOAD AT ULS	0	0
PIER	JACKING PERMANENT	0	0
	JACKING LIVE LOAD AT SLS	0	0
	TOTAL TEMP. SUPPORT LOAD AT ULS	0	0

BEARING DATA			
LOCATION		ABUTMENTS	PIER
TYPE		RUBBER	RUBBER
SIZE (mm)		400x300x--	400x300x--
NUMBER REQUIRED		4	4
SERVICEABILITY LIMIT STATES	DEAD LOAD (kN)	210	210
	TOTAL LOAD (kN)	350	350
	MOVEMENT (mm)	±5	±5
	ROTATION (RADIAN)	0.02005	0.02005
	MAX. SHEAR RATE (kN/mm)	0.00	0.00
ULTIMATE LIMIT STATES	DEAD LOAD (kN)	250	250
	TOTAL LOAD (kN)	430	430

NOTES
1. FOR STEEL NOTES SEE DRAWING S-~.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH S-~~ TO S-~.
3. CONTRACTOR SHALL VERIFY ALL COORDINATES.

RELAXED CAMBER DIAGRAM
N.T.S

KEY PLAN

LEGEND

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Region of Waterloo

CONTROLLED DATA

FIELD BOOK No's

No.	REVISIONS/ISSUED	BY	DATE
	DETAILED DESIGN		2021/05/14

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

STRUCTURAL STEEL IV
BEARING DETAILS

DRAWN BY: KJ	CONTRACT No.: 2022-XXX
CHECKED BY: H	FILE No.: FILE NO
DATE: August 12, 2021	DRAWING No.: DRAWING NO
SCALE: AS SHOWN	SHEET No.: 17 OF xx
LAYOUT NAME: 20-081_0X4SS4	

AECOM

BOLT TIGHTENING PROCEDURE
xxx

GIRDER HANGER
1/10

KEY PLAN

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DOUG DIXON & ASSOCIATES INC

Region of Waterloo

CONTROLLED DATA

FIELD BOOK No's

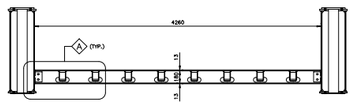
No.	REVISIONS/ISSUED	BY	DATE
	DETAILED DESIGN		2021/05/14

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

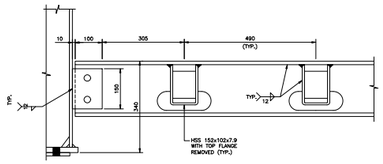
GIRDER HANGER DETAILS

DRAWN BY: KJ	CONTRACT No.: 2022-XXX
CHECKED BY: Checkede	FILE No.: xx
DATE: May 14, 2021	DRAWING No.: xx
SCALE: AS SHOWN	SHEET No.: 28 OF xx
LAYOUT NAME: 20-081_0X4SS4	

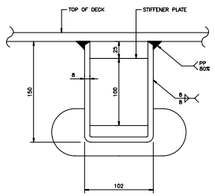
AECOM



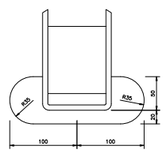
DECK ELEVATION
1:20



A
1:5



TYPICAL RIB DETAIL
1:2



TYPICAL CUTOUT DETAIL
1:2

KEY PLAN



DESIGNATED STRUCTURE UNDER THE ONTARIO HERITAGE ACT

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Region of Waterloo

CONTROLLING DATA

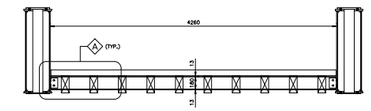
FIELD BOOK No.

No.	CONTRACT/DESCRIPTION	BY	DATE
	ORIGINAL ISSUE		2021/05/10

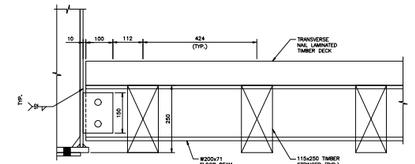
REHABILITATION OF WEST MONTROSE COVERED BRIDGE

OPTION I
ORTHOTROPIC STEEL DECK

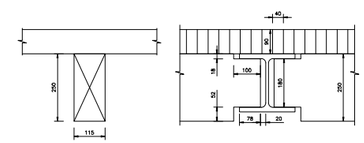
DRAWN BY: A.L.	CONTRACT No.: 2022-XXX
CHECKED BY: Checklife	FILE No.: xx
DATE: May 18, 2021	DRAWING No.: xx
SCALE: AS SHOWN	SHEET No.: 21 OF xx
LAYOUT NAME:	20-081_0X60SD



DECK ELEVATION
1:20

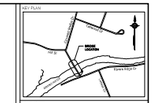


A
1:5



TYPICAL TIMBER DECK DETAIL
1:5

KEY PLAN



DESIGNATED STRUCTURE UNDER THE ONTARIO HERITAGE ACT

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Region of Waterloo

CONTROLLING DATA

FIELD BOOK No.

No.	CONTRACT/DESCRIPTION	BY	DATE
	ORIGINAL ISSUE		2021/05/10

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

OPTION II
TIMBER DECK

DRAWN BY: A.L.	CONTRACT No.: 2022-XXX
CHECKED BY: Checklife	FILE No.: xx
DATE: May 18, 2021	DRAWING No.: xx
SCALE: AS SHOWN	SHEET No.: 22 OF xx
LAYOUT NAME:	20-081_0X7TD

PLACE HOLDER DRAWING
WORK IN PROGRESS

KEY PLAN



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Region of Waterloo

CONTRACT No.

FILE BOOK No.

No.	ISSUE/REVISION	BY	DATE
	ENGINEER SEAL		2021/05/19

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

CIVIL WORKS

DRAWN BY: A.C.	CONTRACT No.: 2020-XXX
CHECKED BY: Checkedby	FILE No.: XX
DATE: May 19, 2021	DRAWING No.: 24
SCALE: AS SHOWN	SHEET No.: 24 OF xx
LAYOUT NAME: 20-081_DX8CT	

PLACE HOLDER DRAWING
WORK IN PROGRESS

KEY PLAN

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DOUG DIXON & ASSOCIATES INC

Region of Waterloo

CONTRACT No.

FILE BOOK No.

No.	ISSUE/REVISION	BY	DATE
	ENGINEER SEAL		2021/05/19

REHABILITATION OF WEST MONTROSE COVERED BRIDGE

CIVIL WORKS

DRAWN BY: A.C.	CONTRACT No.: 2020-XXX
CHECKED BY: Checkedby	FILE No.: XX
DATE: May 19, 2021	DRAWING No.: XX
SCALE: AS SHOWN	SHEET No.: 25 OF xx
LAYOUT NAME: 20-081_DX8XEL	

Appendix C

Public Consultation #1 Survey

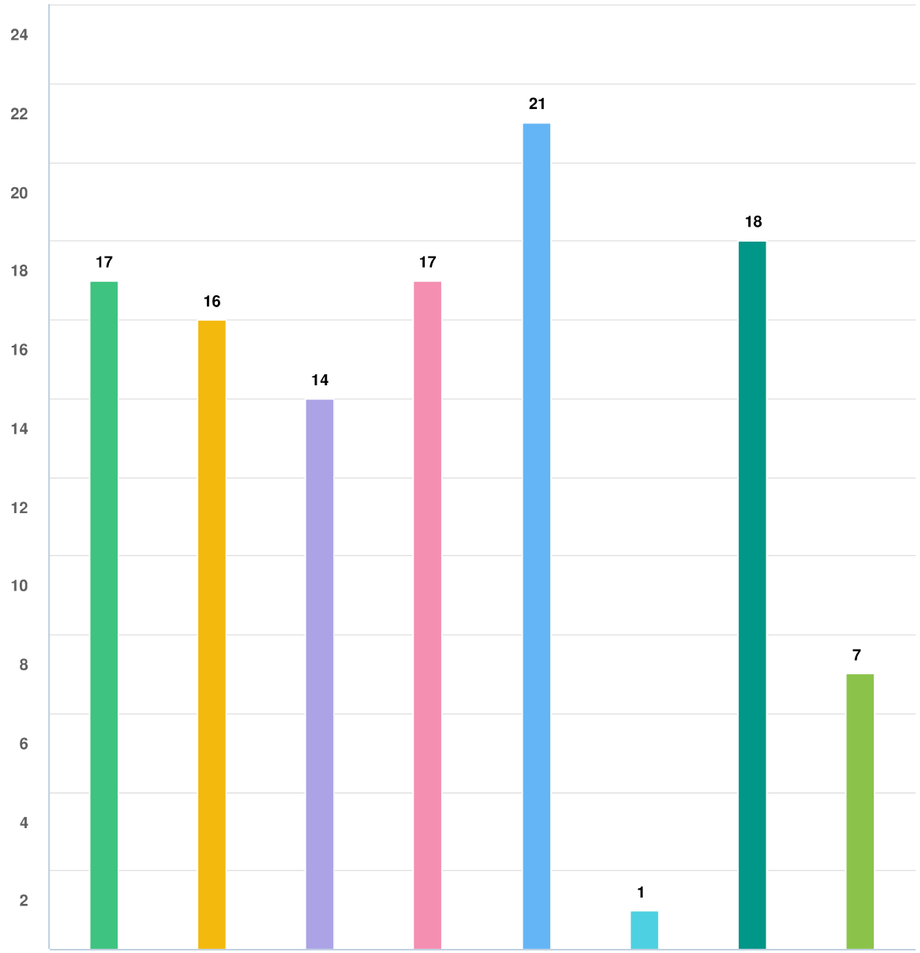
SURVEY RESPONSE REPORT
30 September 2021 - 31 December 2021

PROJECT NAME:
West Montrose Covered Bridge Rehabilitation - Woolwich



SURVEY QUESTIONS

Q1 What is your relationship to the West Montrose Bridge Rehabilitation (check all that apply)?

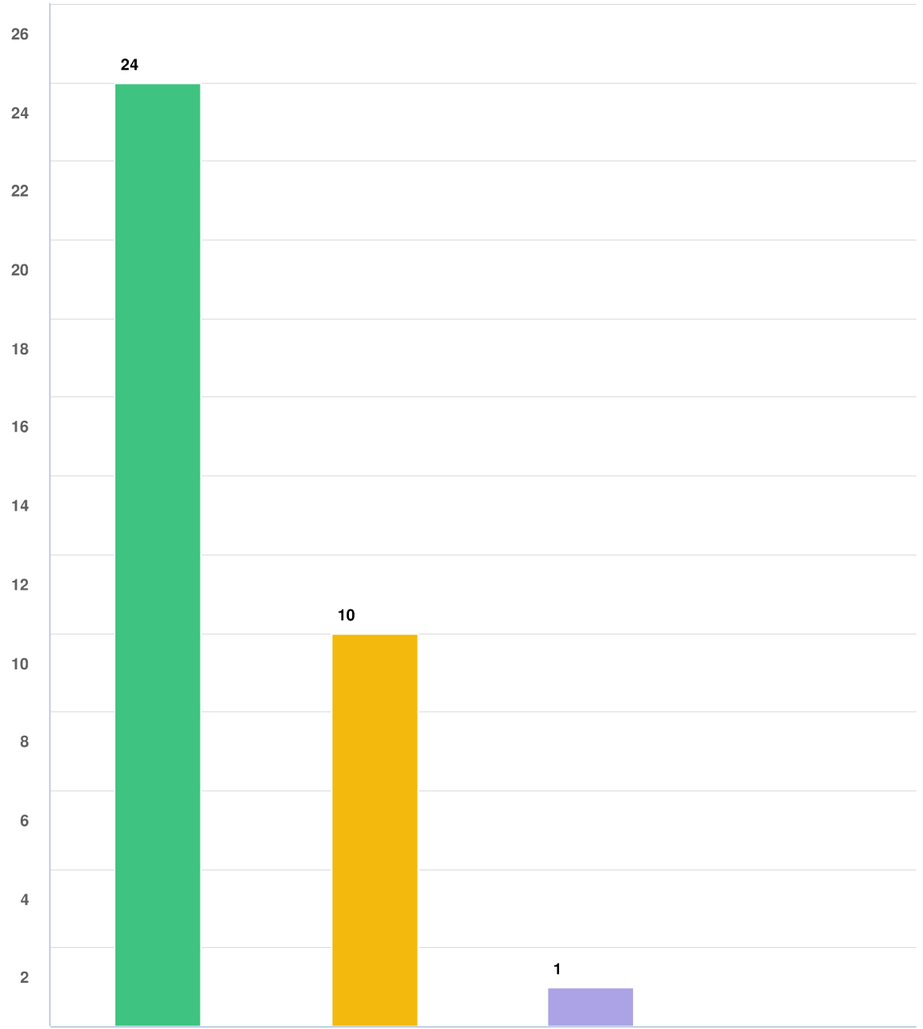


Question options

I live near the bridge. I visit the bridge to enjoy the view. I cross the bridge on my daily commute and/or for other purposes. I cross the bridge as a pedestrian. I cross the bridge as a cyclist. I cross the bridge as a horse & buggy user. I cross the bridge as a motorist. Other (please specify)

Optional question (35 response(s), 0 skipped)
Question type: Checkbox Question

Q2 Are you in favour of the general plan for the West Montrose Bridge Rehabilitation?

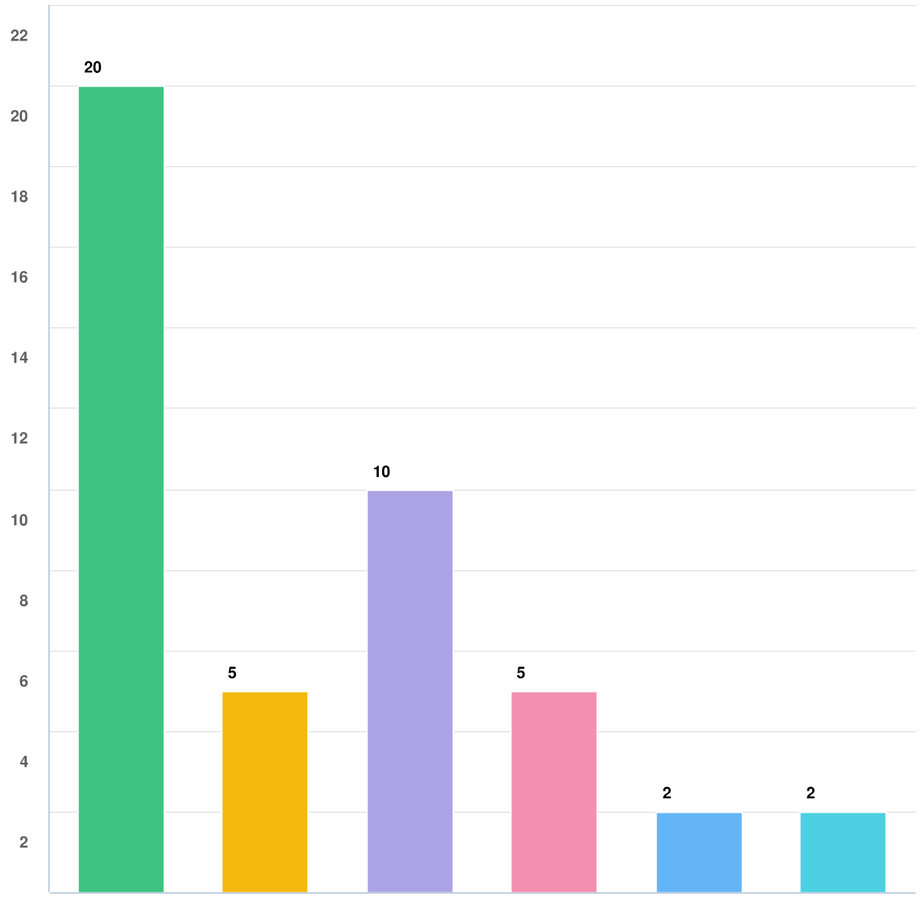


Question options

Yes. Not sure. Other (please specify) No.

Optional question (35 response(s), 0 skipped)
Question type: Checkbox Question

Q3 What are your feelings about the removal of the 1944 steel Bailey trusses and replacement with new purpose-built girders that will support the weight of the bridge (check all that apply)?

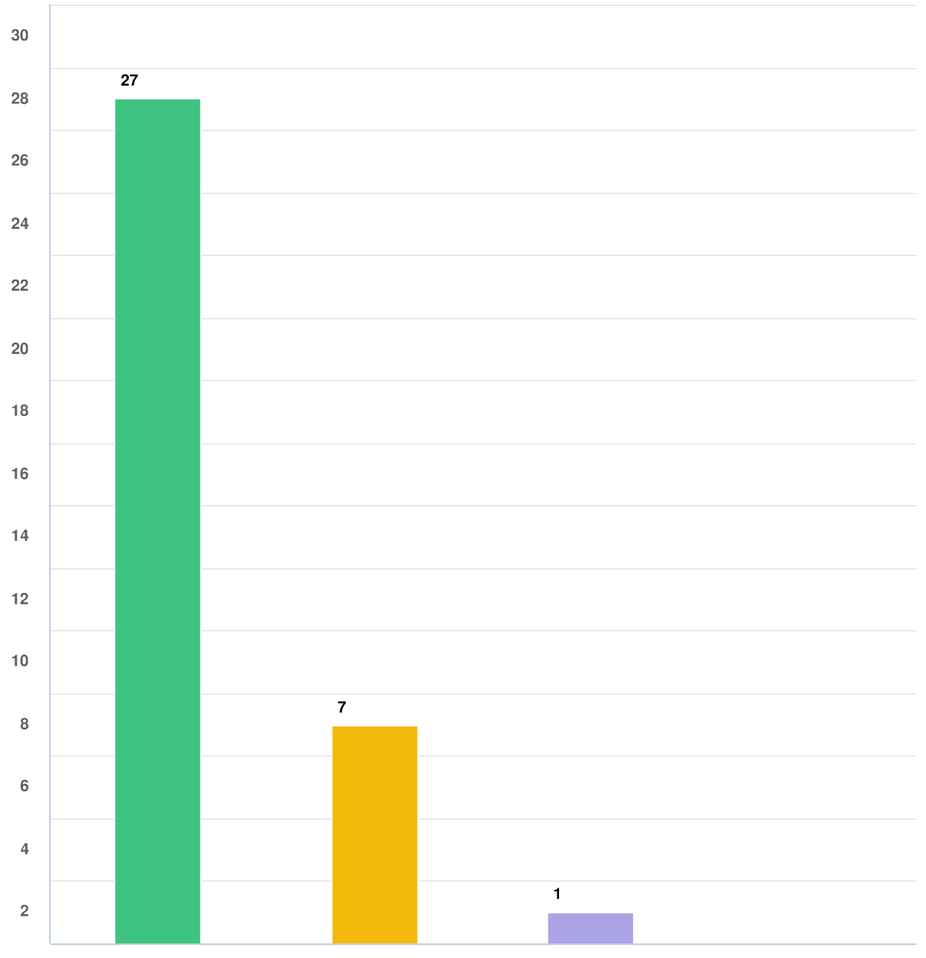


Question options

- I have no issues with this. The steel Bailey trusses are hidden from view anyway. Nobody even knows the trusses are there.
- I would prefer that the historic trusses be retained, but I understand that they are well past their intended life and not capable of supporting the bridge in the long run.
- I would like to see one or more sections of the steel Bailey trusses preserved for display near the bridge.
- I would like to see one or more sections of the steel Bailey trusses preserved for display in one or more of the Township and/or Region facilities (e.g. museum).
- Not sure / No preference.
- Other (please specify)

Optional question (35 response(s), 0 skipped)
Question type: Checkbox Question

Q4 Do you a preference regarding the deck system to be implemented?

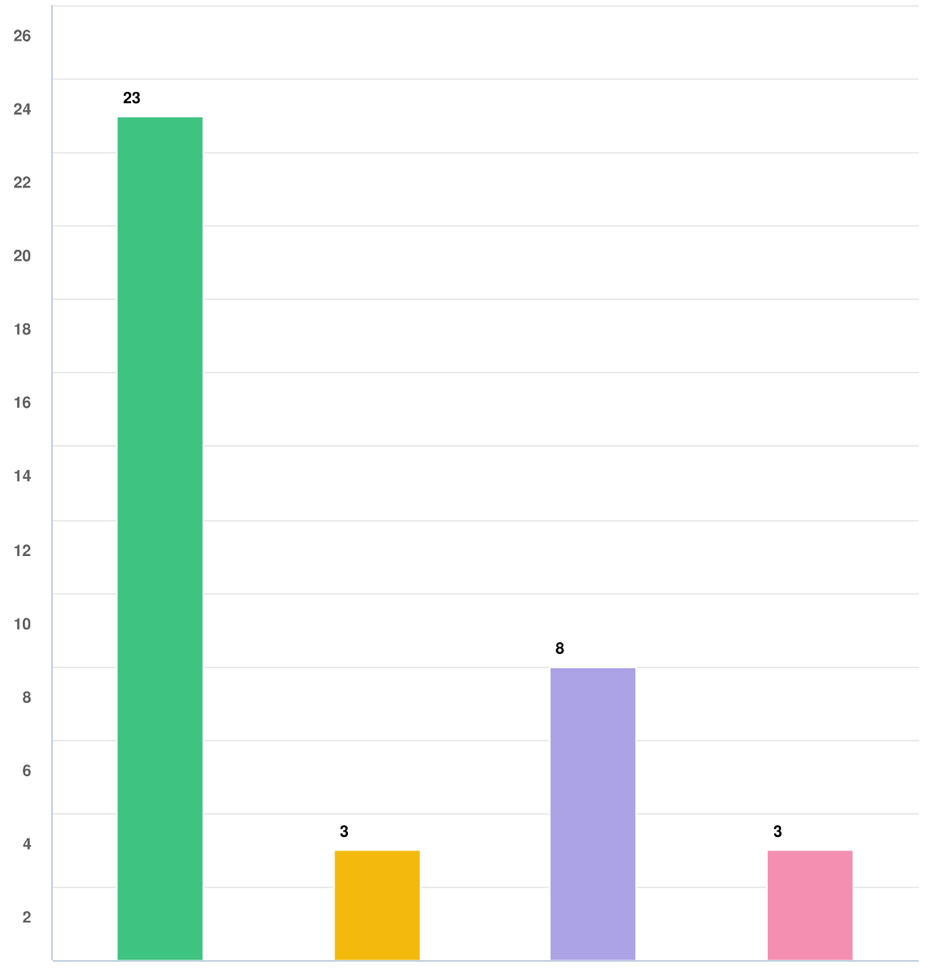


Question options

- Timber. The view from below the bridge should be as close to the existing condition, even if it means more frequent deck replacements every 25 years or so.
- Steel. The deck system will look the same to most users within the bridge in either case, but the steel system will last longer, though it will look somewhat different from below the bridge than the current timber deck.
- Other (please specify)
- Not sure / No preference.

Optional question (35 response(s), 0 skipped)
Question type: Checkbox Question

Q5 To prevent large vehicles from gaining access to the West Montrose Bridge, additional roadside features would be required. Are you in favour of this?

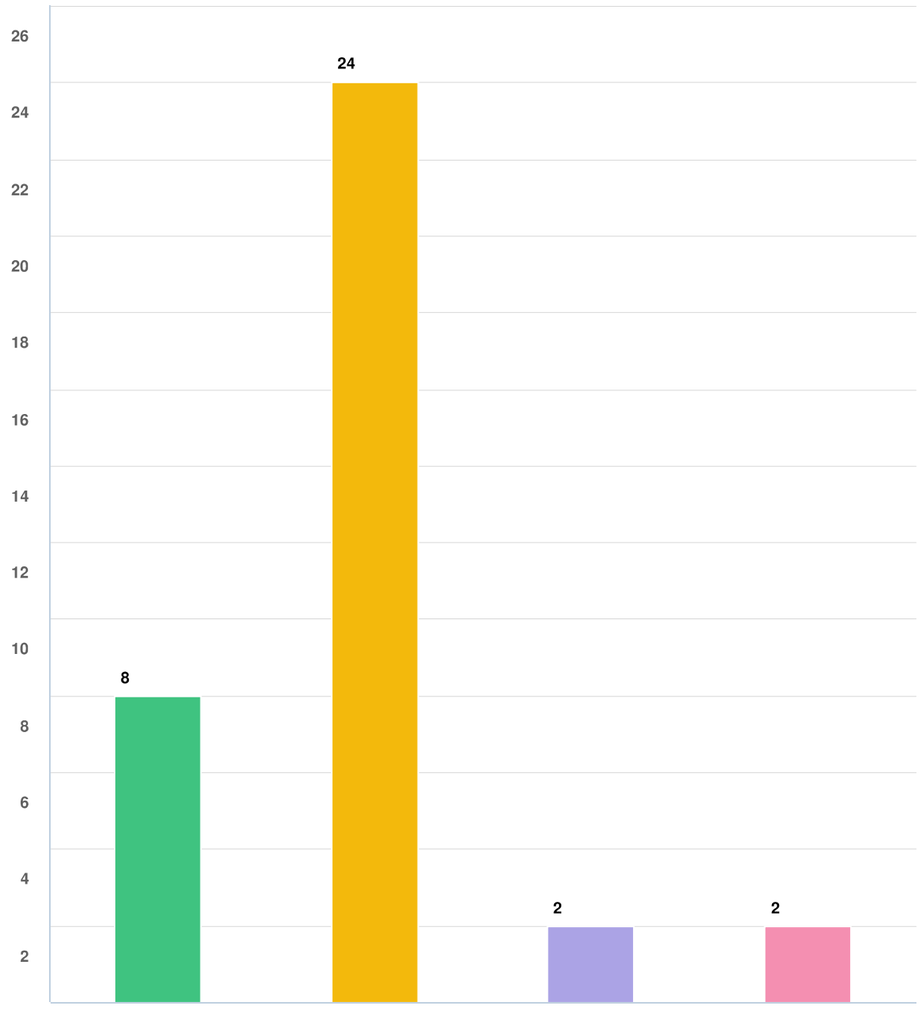


Question options

- Yes. I understand that this may require installation of roadside features designed to prevent access, but any change in the general setting will be minor and it will be worth it to exclude vehicles that could damage the bridge.
- No. I don't wish to see any new roadside features added to the existing setting.
- Not sure. I would need to see what the new roadside features would look like.
- Other (please specify)

Optional question (35 response(s), 0 skipped)
Question type: Checkbox Question

Q6 What are your thoughts on maintaining the existing sag in the roof line?

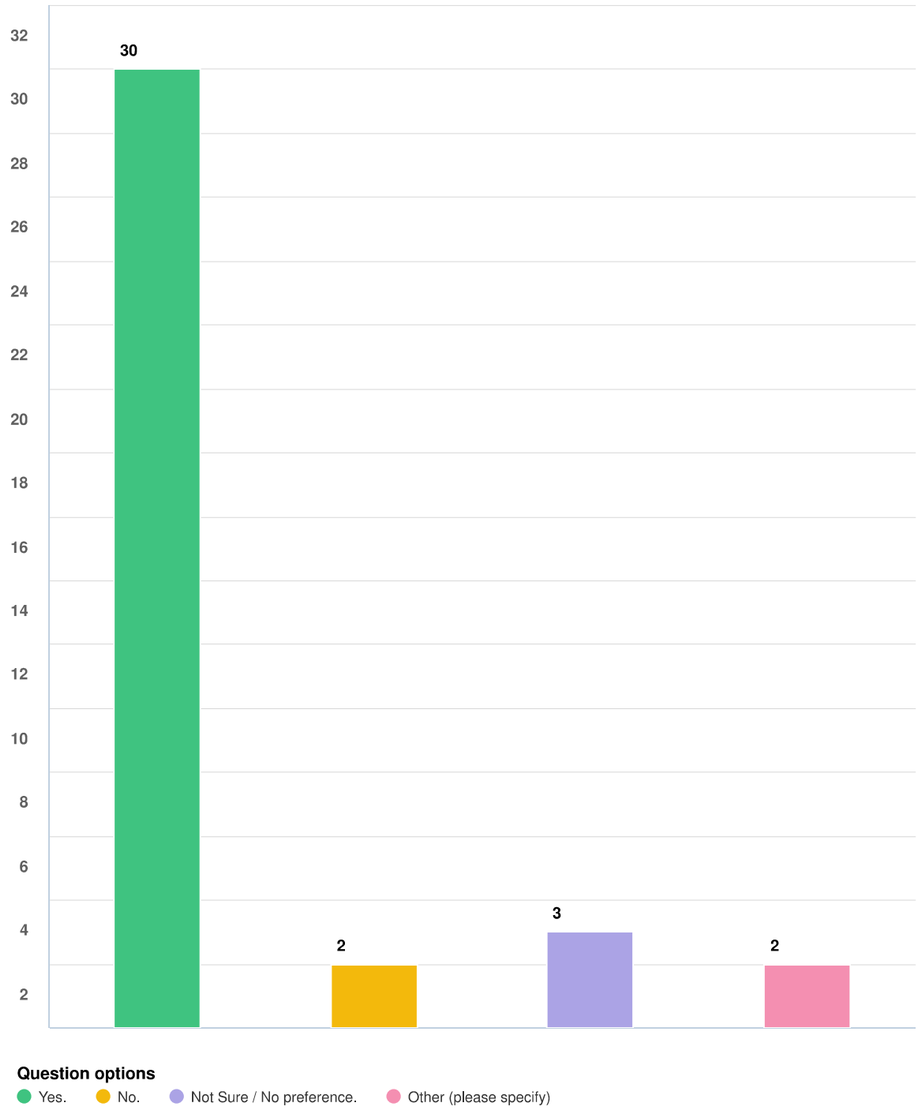


Question options

- Leave it as is. The sag has developed during the life of the bridge; therefore it is part of the history of the bridge.
- Eliminate the sag. It is not an original feature of the bridge.
- Not Sure / No preference.
- Other (please specify)

Optional question (35 response(s), 0 skipped)
Question type: Checkbox Question

Q7 The roadway within the bridge has developed a pronounced sag in each span, with a pronounced hump over the central pier. This has a negative impact on vehicle control, adds dynamic loads to the bridge and interferes with drainage. Would you support...



Optional question (35 response(s), 0 skipped)
Question type: Checkbox Question

Q8 Do you have any other comments regarding this project?

Screen Name Redacted 10/01/2021 11:36 AM	The addition of lighting for the interior is likely a requirement. But I would caution that an authentic, historically-appropriate design be chosen. Too often, technical people with no knowledge of local traditions and "vernacular" will pick a garish "period lamp" out of a catalogue of "vintage lighting" that Walt Disney might have recommended for Dearborn Village in Detroit, let's say. Our Waterloo County uniqueness deserves better! Replicas of coal oil lanterns, containing somewhat dim LED lighting, may not be readily available and be subject, of course, to stringent CSA and UL standards, but funding should be budgeted for this to be achieved. The Christmas-time singing of carols inside the bridge is a culturally-important event, and other celebrations like Indigenous commemorations also deserve an honest tribute to the bridge's past.
Screen Name Redacted 10/03/2021 08:52 AM	I personally would support functionality as a bridge over cosmetics. If it was strong enough to support heavy farm equipment that physically fits into the bridge, it would never be damaged by overweight loads. That would eliminate a lot of traffic controls as well. Farmers like to use the bridge as it allows them to reduce the amount their equipment would otherwise be on busier roads. As someone who lives very close to the bridge I can also tell you the most reckless users are the groups of road cyclists who go through at higher speeds than 90% of the vehicle traffic. with the blind corner at the south end of the bridge I have witnessed them create many close calls with pedestrians taking pictures and vehicles approaching.
Screen Name Redacted 10/03/2021 08:27 PM	Very happy you are maintaining pedestrian and cycling access during construction. Can you add safety features on hwy 86 when Mennonite buggy's have to enter traffic lane when crossing hwy bridge while the covered bridge is under construction? Many trucks and cars speed on this section of the highway.
Screen Name Redacted 10/16/2021 09:43 AM	A letter with additional comments will be sent to John Stephenson at the Region of Waterloo.
Screen Name Redacted 10/18/2021 02:19 PM	Additionally we: • Advocate for a fire suppression system, updating the lighting and add security cameras as must do items not optional later projects • Safety for detoured horse & buggy, cyclists and pedestrians on Line 86 examples: reducing speed, yield to buggy/walkers signage etc • Advocate for protection of the large Oak

tree in Letson Park during construction by not disturbing the center “island” and ring of posts • Advocate for not closing the parking in the parks to the public, as tourism will likely not decrease and may increase due to interest in the restoration work • Advocate for installation of accommodation for fiber optic cable to link the community to the fiber services working towards servicing West Montrose • Advocate that they should replace cladding only as absolutely necessary • Advocate that cross-cabling deemed non-functional be left in place as it is original if not negatively impacting the restoration • Are interested in repurposing historic materials being discarded such as portions of beams, cladding, other such types of materials - a great place to recycle them into an educational playground for the village residents and tourists to use. Learn while playing

Screen Name Redacted
10/18/2021 02:44 PM

The bridge needs a fire suppression system, updating the lighting and add security cameras as must do items not optional later projects · Safety for detoured horse & buggy, cyclists and pedestrians on Line 86 examples: reducing speed, yield to buggy/walkers signage etc ·protect the large Oak tree in Letson Park during construction by not disturbing the center “island” and ring of posts ·not closing the parking in the parks to the public, as tourism will likely not decrease and may increase due to interest in the restoration work causing tourist to park on my lawn · installation of accommodation for fiber optic cable to link the community to the fiber services working towards servicing West Montrose. high speed internet is vital · replace cladding only as absolutely necessary · cross-cabling deemed non-functional be left in place as it is original if not negatively impacting the restoration · the community is interested in repurposing historic materials being discarded such as portions of beams, cladding, other such types of materials

Screen Name Redacted
10/18/2021 03:25 PM

The bridge needs a fire suppression system, updating the lighting and add security cameras as must do items not optional later projects · Safety for detoured horse & buggy, cyclists and pedestrians on Line 86 examples: reducing speed, yield to buggy/walkers signage etc ·protect the large Oak tree in Letson Park during construction by not disturbing the center “island” and ring of posts ·not closing the parking in the parks to the public, as tourism will likely not decrease and may increase due to interest in the restoration work causing tourist to park haphazardly throughout the village · installation of accommodation for fiber optic cable to link the community to the fiber services working towards servicing West Montrose. high speed internet is vital for the community · replace cladding only as absolutely necessary · consider cross-cabling deemed non-functional be left in place if it is original, and if not negatively impacting the restoration or ice and/or river flow

in case of a flood· the community is interested in repurposing historic materials being discarded such as portions of beams, cladding, other such types of materials

Screen Name Redacted
10/18/2021 08:30 PM

- a fire suppression system, updating the lighting and add security cameras as must do items not optional later projects · Safety for detoured horse & buggy, cyclists and pedestrians on Line 86 examples: reducing speed, yield to buggy/walkers signage etc · protection of the large Oak tree in Letson Park during construction by not disturbing the center “island” and ring of posts · not closing the parking in the parks to the public, as tourism will likely not decrease and may increase due to interest in the restoration work · installation of accommodation for fiber optic cable to link the community to the fiber services working towards servicing West Montrose · should replace cladding only as absolutely necessary · cross-cabling deemed non-functional be left in place as it is original if not negatively impacting the restoration or causing additional risks during ice jams or flooding · Are interested in repurposing historic materials being discarded such as portions of beams, cladding, other such types of materials

Screen Name Redacted
10/19/2021 07:14 AM

The disruption will be worth it while the bridge is being rebabbed.

Screen Name Redacted
10/19/2021 09:20 AM

Providing fibre-optic nodes in West Montrose is a priority for the village. I believe that a fibre-optic node is available at the intersection of Riversedge and Letson. I suggest that the construction should be used to lay fibre-optic cable across the bridge at this point.

Screen Name Redacted
10/19/2021 11:18 AM

- Advocate for protection of the large Oak tree in Letson Park during construction by not disturbing the center “island” and ring of posts. Trees are very important! And should not be disturbed for this work. - Advocate for installation of accommodation for fiber optic cable to link the community to the fiber services working towards servicing West Montrose - this is so important with the pandemic, our kids trying to do online learning with our internet options in some areas is inequitable

Screen Name Redacted
10/19/2021 04:20 PM

Add a fire suppression system. Add security cameras. Update the lighting. Reduce the speed over the bridge, add safety signage. Do not close the parking in the parks during the restoration work. Add fibre optic cabling to the community. Replace cladding only if necessary. Leave cross cabling in place. Repurpose any materials removed but not reused under the restoration work.

Screen Name Redacted 10/30/2021 09:00 AM	I attended SS#6 Public School, grades 1-8, on Rivers Edge Drive, either walking or being driven (sometimes by horse and buggy) through the bridge. I moved away from this area at age 16 and returned in 1979 to purchase a house backing onto the river with a full view of the bridge when the leaves are off the trees and a part of the bridge when the trees are in leaf. My wife and I walk through the bridge several times a week for exercise and we drive through the bridge and along Rivers Edge Drive several times a week as we treasure this bridge and the view along the river. I suggest that new window slats be installed and new boards along the sides should be installed. If we are going to replace the support structure let's go all the way and make the bridge not only look good, but last a long time without much ongoing cost.
Screen Name Redacted 10/30/2021 07:54 PM	Use of steel girders to repair a wood truss bridge is neither structurally necessary nor historically appropriate. This plan needs to be fundamentally reconsidered. I recommend contracting a company that has experience with wood bridges to provide recommendations for construction In addition, use of Letson park to stage heavy construction materials will put a 100-140 year old oak tree as risk and will create a parking nightmare. I strongly recommend using a different staging area, and if that is deemed impossible, protecting the green space around the oak with additional wire fencing during construction.
Screen Name Redacted 11/01/2021 04:16 PM	looking for reduced speed on the section of Hwy 86, the will be used for cyclists, to get back onto the G2G Trail
Screen Name Redacted 11/01/2021 04:30 PM	Closing the bridge will impact the G2G Rail Trail's detour around the Grand River, leading users to prefer taking HWY 86. Put a lower speed limit on portion of HWY 86. Save lives of cyclists.
Screen Name Redacted 11/01/2021 04:39 PM	I have concerns about the rerouting of cyclist using the G2G trail along line 86, this is an unsafe route due to the lack of any cycling infrastructure on this section of Line 86. This is a concern that needs to be addressed before this project is started!
Screen Name Redacted 11/01/2021 06:24 PM	Access to the G2G trail during construction needs to be safe. Highway 86 is not safe. Traffic needs to be slowed down and/or a safe place to cross.

Screen Name Redacted 11/01/2021 07:37 PM	Please reduce the speed on Hwy 86 as this will be an alternative route for cyclists. This road is dangerous at the current speed limit. Thank you for your consideration of this request
Screen Name Redacted 11/01/2021 07:49 PM	Cyclists & pedestrians will be forced to use Hwy 86 while this project is under way, PLEASE reduce the speed limit on 86 as it is a hazard to G2G trail users! Motor vehicles drive frightfully fast & furious on this hwy. It's a tragedy waiting to happen!
Screen Name Redacted 11/01/2021 10:14 PM	Please provide a way for cyclists to safely access the G2G trail.
Screen Name Redacted 11/02/2021 01:14 PM	I understand that pedestrian, equestrian and bicycle traffic will have to be rerouted during this project. If the suggested detour is along Hwy 86, safety measures MUST be put in place before a serious incident happens. This should include signage, reduced speed limits and, if possible, some type of temporary barrier to protect vulnerable road users.
Screen Name Redacted 11/02/2021 04:35 PM	Need to provision a safe alternative for cyclists travelling the G2G trail, while the bridge is under construction.
Screen Name Redacted 11/04/2021 07:35 PM	I have concerns for the Mennonite community when the bridge gets closed for the renovations. The traffic on Line 86, especially at the Grand River bridge represents a significant risk to those traveling by horse and buggy.
Screen Name Redacted 11/04/2021 07:55 PM	· Advocate for a fire suppression system, updating the lighting and add security cameras as must do items not optional later projects · Safety for detoured horse & buggy, cyclists and pedestrians on Line 86 examples: reducing speed, yield to buggy/walkers signage etc · Advocate for protection of the large Oak tree in Letson Park during construction by not disturbing the center “island” and ring of posts · Advocate for not closing the parking in the parks to the public, as tourism will likely not decrease and may increase due to interest in the restoration work · Advocate for installation of accommodation for fiber optic cable to link the community to the fiber services working towards servicing West Montrose · Advocate that they should replace cladding only as absolutely necessary · Advocate that cross-cabling deemed non-functional be left in place as it is original if not negatively impacting the restoration or causing additional risks during ice jams or flooding · Are interested in repurposing historic materials being discarded such as portions of beams, cladding, other such types of

materials

Screen Name Redacted
11/04/2021 10:37 PM

- Restore the bridge using materials and design consistent with the original intent and function of the bridge for historical purposes. - Concern with increase in traffic generation and motorized vehicle impact to the structure over time as the bridge draws more tourists/visitors. Is there any opportunity to install permanent traffic monitoring/counting equipment (cameras, induction loops, sensors, etc.) that can collect data for input to future traffic control/mitigation measures?

Screen Name Redacted
11/05/2021 10:50 AM

November 5, 2021 Dear Mr. Stephenson and Mr. Dixon, We are writing regarding the West Montrose bridge project. We live at [redacted] which is next to Letson Park and steps from the bridge. We also own [redacted] with approximately 250 feet of river frontage directly upstream from the bridge. Our home at [redacted] is a 1860's stone cottage that, like the bridge, is part of the Cultural Heritage Landscape in West Montrose. We bought our home three years ago largely because of its historic value. Restoration of old homes is a life-long hobby for [redacted]. We value preservation of heritage structures. We also cross the bridge everyday several times. We are concerned for our Mennonite neighbors who often cross the bridge on foot or bikes and who must take a very long detour on a busy road when bridge is closed to foot traffic. In thinking about and discussing this project, we find that our desire for a safe bridge that can withstand the treats of a changing world often conflicts with our desire for conservation, preservation, and restoration of this very important cultural asset. Specifically, we are concerned that the bridge be secure in the face of the potential for a worsening of major floods especially when ice jamming is involved and more, heavier traffic. There is also the effect of tourism in the village on our quality of life to consider. Consequently, there are few clear answers for us in regard to this project. Yet, it is very important to us and we have been giving it a lot of thought. We provide an example of our quandary below. From our property, one can not help but notice the middle pier of the bridge which is made of old (original?) mortared stone. The pier now leans. If that pier goes out in an ice jam or flood, the entire bridge could be lost in the matter of hours. We understand that rebuilding the pier may not be practical so we are interested in how your plan to rebuild the bridge might mitigate against this type of catastrophic failure. For example, if the steel girders you discuss in your plan are long steel beams that go from riverbank to riverbank, then I might favor this over a rebuild of the original wood trusses which others are advocating. If the addition of new metal members doesn't reduce the chance of catastrophic failure, I don't think that I support it. Instead,

we would support the restoration of the original wood trusses or perhaps simply rebuilding the historic Baily trusses that are in the historic designation documents. They worked well for 60+ years. This is nearly half the life of the bridge. Restoration of the bridge to its 1959 state is also a laudable preservation goal. So, we are conflicted. We need more information because the details will determine the best path. In other words, this project is very important to us. We want to provide input. But, we lack enough specific information to make choices because they are nuanced choices. So, instead, we outline our goals/values in order of importance below. The bridge project should: 1. Provide increased assurance against catastrophic events that could quickly destroy the bridge including fire and ice jams. 2. Preserve all heritage aspects of the bridge in its current state or original state. Nothing should be added, removed or modified unless it is a clear structural/safety-based improvement. (For example, your document discusses removing (original) cross-bracing below the deck because it would be redundant under the proposal. The cross-bracing should not be removed even if it is redundant). 3. Restore heritage aspects that have been lost including wood trusses. We are open to limiting bridge traffic to buggies and pedestrians. 4. Maintain (not increase) the current load capacity of the bridge. 5. Maintain or improve, not diminish, the quality of life for the people who own property around the bridge both during and after the project including 1. Maintaining the current level of tourism through parking management and enforcement around the bridge and 2. Careful planning of staging for the project and 3. Ensuring that this project includes, from the beginning, running fiber optic cable that seems to be coming in from Winterbourne (Avetria) over the river at the bridge and thereby providing much needed internet access to the low houses around the bridge and outside the neighborhood. We can see no better time than during this project to push this related infrastructure project forward. Those of us who live around the bridge welcome people from all over Ontario nearly everyday. We deserve access to the same level of infrastructure as others in the region. The last point that we will make is that we are concerned about the placement of boulders around the base of the center pier. While protecting the pier makes sense, river flow is complicated, and we personally know of situations where such changes resulted in enormous, unexpected damage during the next flooding event. We would very much like to see experts consulted on how to address issues associated with the center pier. Sincerely, [redacted]

Screen Name Redacted
11/08/2021 07:01 AM

For the safety of all users who will be diverted to the HWY 86 (Buggy, Cyclist, Hike, Runners). Ensure to budget sufficient traffic calming between Middlebrook and Katherine. Consider working with G2G for

appropriate signage at the Trail heads, NOT just the HWY. Even if the above user groups have some ability to cross the bridge during construction - they will only do it once and than they will avoid the bridge until it is re-opened.

Optional question (28 response(s), 7 skipped)
Question type: Essay Question

Appendix D

West Montrose Residents Association – BridgeKeepers position on proposed Covered Bridge rehabilitation

Vision

WMRA would like to see the Covered Bridge in West Montrose restored in a manner more closely reflecting the original and unique hybrid Howie truss with rare use of needle beams design of the bridge. We applaud the Region of Waterloo for being open to a possible change in the restoration plan and feel that a restoration back to a more original state than current will enhance the cultural and heritage value of the bridge to the community and preserve a unique structure on Ontario's Landscape well into the future. We would like to see the Region of Waterloo and the Bridge Restoration Team seek the involvement of the National Society for Preservation of Covered Bridges (NSPCB) in the project planning. We also feel an emphasis on safety for cyclists, buggies and other low speed traffic detoured onto line 86 during the restoration work needs to be a priority.

Scope

In general, we would like to see a time-of-flight scan taken to assess the structural integrity of the existing wood elements to complement engineering assessments previously completed on behalf of the Region of Waterloo on the bridge, and using that to enable the removal of non-original steel components i.e. baileys and restore the bridge with a wood centric theme reinforced with low visibility, high strength fiber components as deemed necessary.

Key Benefits of Alternative Restoration Plan

We feel that a restoration in line with that proposed by Wood Research & Development and Timber Restoration Services has many benefits over the existing proposed plans.

- Lower capital cost of the restoration
- Similar lifespan of the alternate plan restoration of the bridge to that of the proposed steel element additions
- A once in a century opportunity to restore the bridge to a more true-to-design final result with higher cultural and historical value
- A greener project due to less needed materials and the use of renewable materials
- A smaller impact on the community and tourism due to the smaller project footprint – more available parking during the restoration and the protection of the Oak tree in Letson Park by not staging materials or equipment in the park(s)
- A possible shorter project timeline with less Bridge closures required. Dangers to cyclists and buggies detoured onto line 86 reduced.
- Likely improved load bearing capacity and/or safety factor on the bridge due to judicious use of modern materials reinforcing the existing timber elements.

Specific elements of the project WMRA feels are essential

Letson Park

- Protection for the large oak tree which likely dates from period of construction of the bridge and adds character to the Cultural Heritage Landscape of the hamlet.
- Accommodation for parking during the restoration

Bridge

- Removal of the baileys
- Removal of the wainscoting added to hide the baileys if not original a feature but warrants further investigation
- Lifting the bridge to induce the original camber of the deck and straightening the roof
- Use wood / composite bearing members where absolutely necessary to address structural function of the original bridge design as per the Milkish Inlet bridge. Replacement of structural timbers should be minimized to only those no longer suitable

- Increasing the load bearing capacity of the bridge as to make multiple cars traveling over at once safe (but don't broadly publicize it)
- Repair / replacement of cedar shake roofing
- Repair / replacement of cladding only where severely degraded/where strictly necessary
- Replacement of decking, if necessary, preferably with Oak – check plans to see what was original – lateral planking like we have now or longitudinal planking we see in many bridges. Possible use Glue-lam panels if in keeping with the look and spirit of the original design
- Not to use a steel deck and have the bridge deck and trusses function to carry the load as originally intended
- Potential longitudinal runners/wear plates to protect decking if this was historically correct to our bridge (it is common in CBs)
- Height restrictors only if in keeping with the spirit of the bridge design and ex Langley covered bridge in Michigan (we need to ensure this is feasible)
- Fire suppression is extremely important to protect the heritage value and economic investment being made on the restoration. Possible option of being fed by a cistern at Gole Park
- Retention of as much original / historic material as practical and only replacing timber elements were necessary to keep bridge structurally sound. Nothing should be removed unless absolutely necessary.

Community Engagement

WMRA will seek to engage with our community and membership to promote the preservation and enhancement of the Covered Bridge through the position presented and will seek to promote a successful partnership of the Region of Waterloo, WMRA, NSPCB and Heritage Committees from the various levels of government in preserving our past and protecting our future.

Image of the Bridge prior to installation of the steel Baileys



From: [redacted]
Date: Sat, Oct 30, 2021 at 5:34 PM
Subject: Kissing Bridge reconstruction project
To: jstephenson@regionofwaterloo.ca <jstephenson@regionofwaterloo.ca>
Cc: [redacted]

Dear Mr Stephenson,

I am writing to you to express my concern about the very old oak tree in Letson Park. My guess is that this tree is well over 100 years of age and may even be as old as the original Kissing Bridge itself. Its root system will likely go beneath the park roadway and into the green space adjacent to [redacted], and if this area is used for storage of construction supplies, the soil will become compacted and the root system of the tree will be compromised. This tree is already showing signs of decline, and any destruction of its vascular system could kill this magnificent specimen prematurely. If it is left undisturbed, however, it will remain vital for many more decades.

I suggest that another site be chosen for a construction material compound, and, at the very least, a wire fence should be strung around the existing fence posts surrounding the tree. If that isn't possible please consider using the smallest portion necessary of the park green space in order to protect this distinguished pillar of the community.

Sincerely,

[redacted]

Website | *Facebook* | *Instagram* | *Twitter*

Appendix E

National Society for the Preservation of Covered Bridges, Inc.

HELP PRESERVE OUR HERITAGE
www.coveredbridgesociety.org

William S. Caswell, Jr.
535 Second NH Tpke
Hillsboro, NH 03244
E-mail: nspcb@yahoo.com

October 16, 2021

John P. Stephenson, P.Eng.
Senior Engineer
Region of Waterloo
150 Frederick Street
Kitchener, ON N2G 4J3

Dear Mr. Stephenson,

Thank you for the opportunity to comment on the repairs planned for the West Montrose Covered Bridge, the only historic covered bridge in Ontario.

I am president of the National Society for the Preservation of Covered Bridges (NSPCB). The Society was incorporated in 1954 with a primary mission to promote the preservation of covered wooden truss bridges. Although we are an American organization, we are interested in covered bridges throughout the world. My wife and I have traveled to Ontario a few times over the years to visit this bridge and other sites in the province. The NSPCB has some Canadian members and many others like me who enjoy visiting historic covered bridges.

We realize the importance of providing a safe and efficient transportation network for residents and visitors. However, we feel it also important to protect the historic structures which are part of the heritage of those same residents, structures which draw visitors such as me and my family to see them and subsequently help to support local businesses within those areas.

The engineering company appointed for the job, Doug Dixon and Associates, does not appear to have previous experience repairing and restoring wood truss bridges. As a result, they are recommending a plan which we feel further impacts the historic integrity of a structure which was already significantly compromised by the repairs done in the 1950's.

We are not aware of any Canadian publications specifically addressing recommended methods for repair of historic covered bridges. However, in 2019 the US Secretary of the Interior published Guidelines for Rehabilitating Historic Covered Bridges. This document is an excellent resource and is available to download at https://www.nps.gov/hdp/project/coveredbridges/publications.htm.

Although I am not familiar with how earlier repairs may have affected the structure, when it was originally constructed, the timbers making up the floor system worked with the timbers of the wall trusses to support the bridge and the loads it carries. This appears to have already been compromised when the Bailey truss was added. However, replacement of the wooden floor system with steel is still removing more of the historic fabric of the bridge. Of the two options offered, maintaining a timber deck is at least closer to what was historically in the bridge than the steel deck option.

The document showing the two deck options states that the wooden deck is not as robust as the steel option. I disagree. I have no doubt that the wooden components could be repaired to be suitable for carrying the intended loads. A prime example of this stands in New Brunswick where recent repairs to the lower chords and floor system of the Milkish Inlet Covered Bridge have brought it up to a 30-tonne weight limit. That bridge is also outfitted with weight sensors, so stakeholders are alerted if a vehicle exceeding that capacity enters the bridge. See this CBC article for more details on that project - https://www.cbc.ca/news/canada/new-brunswick/covered-bridge-restoration-new-brunswick-1.5973947 I can provide more details if you are interested.





I am wondering why both decking options include asphalt topping. Why not have vehicles travel on a wooden floor? A layer of wood wide enough to accommodate the wheel locations of motor vehicles and horse and buggy traffic could be added over the wooden deck. When this top layer is worn, it can be replaced without a need to replace the entire floor. While this may require more frequent maintenance than an asphalt coating, it would enhance the historic appearance of the bridge. The example pictured here is the Roseville Bridge in Parke County, Indiana which we visited in September as part of a covered bridge tour hosted by our organization.

While we understand that some repairs and replacement of deteriorated wooden truss timbers may be necessary, we request that repair or replacement of the historic structural material be kept to the minimum amount possible. Ideally, we recommend that any replacement timbers be of a species of wood similar to what was used in the original construction.

Although the Bailey truss has been there so long, it is considered historic itself, it is not original to the bridge so we have no concerns about it being removed. There may even be options to replace the floor system with a timber option which could eliminate the need for this additional support structure allowing for a wider travel area within the bridge. I can provide more information on this if you are interested.

We recommend the inclusion of height barriers to restrict oversize vehicles. Although these are not always aesthetically pleasing, they are important to keep oversized vehicles from damaging the structure. I realize that this may also be difficult to construct due to the proximity of intersecting roads. There are instances where the height restrictors have been designed to be more visually appealing. An example of this is at the Langley Covered Bridge in Michigan



On behalf of the National Society for the Preservation of Covered Bridges, thank you for the opportunity to offer comments on this project. We look forward to continued involvement with this project. If we can be of any assistance, please let us know.

Sincerely,

NSPCB President

cc: NSPCB Executive Board
Tony Dowling, West Montrose Residents' Association, Inc.

Appendix F

PRESERVATION OPTIONS REVIEW FOR THE WEST MONTROSE COVERED BRIDGE

29 October 2021

SUBMITTED BY:
DAN TINGLEY, PhD | P.Eng. (CA) | MIEAust | CPEng | RPEQ (AU)



SUBMITED TO:
Region of Waterloo
J.P. Stephenson, P.Eng.
Senior Engineer
150 Frederick Street
Kitchener, ON N2G 4J3
519-575-4096
jstephenson@regionofwaterloo.ca

WRD
Wood Research and Development
37 Beachmere Road
Caboolture, QLD 4510
07 5432 3063
woodrandd.com

1.0 Background

The West Montrose Covered Bridge is a timber truss bridge originally constructed in 1881. As the only remaining operational covered bridge in Ontario, the structure is recognized as a Provincial Historic Site and is designated as a heritage resource by the Township of Woolwich. Extensive reinforcements, including supplemental steel Bailey trusses, were installed in the 1950s. These reinforcements are no longer functioning as intended.

The Regional Municipality of Waterloo (the Region) has committed to an extensive restoration project with the intent of extending the life of the structure for many more decades. The current proposal for this restoration is to replace the existing Bailey trusses with new custom-fabricated steel box girders. These girders would be designed both to carry traffic loads and to support the full dead weight of the original timber structure. As part of this process, the full deck and floor system would be removed and replaced by a new system, constructed of ether steel or timber and supported by the new steel girders.

Wood Research and Development (WRD) is an engineering firm with extensive experience restoring historic timber structures, particularly old timber trusses and timber covered bridges. We specialize in the design of timber structures and have a particular focus on inspection, evaluation, and restoration of timber bridges. For these purposes advanced timber inspection methods, including non-destructive testing and laboratory analysis, and modern restoration methods, including high-strength fibre reinforcement.

The Region has retained the services of Doug Dixon and Associates (DDA) to develop the restoration plan. DDA is an engineering firm which has an extensive background in bridge design and restoration, including a number of historic structures. The staff of WRD would welcome the opportunity to work with DDA to assist them in developing ideas for the restoration of the West Montrose Covered Bridge. The following report outlines a series of concepts and ideas with case studies showing how the West Montrose Bridge can be restored to its original capacity and even to much higher capacities utilized advanced methods that will allow the original elements to get the job done without helper trusses and steel beams. Timber is a unique material in many ways, and specialized knowledge is required to effectively design with timber. As the use of timber in

bridge construction has declined over the last several decades, a lack of knowledge and experience with timber has developed throughout the bridge design and construction fields. As a result, WRD believes that a number of the proposed solutions for the West Montrose Bridge restoration are inappropriate for a historic timber structure and the staff would welcome the opportunity to present our ideas in a public forum where these ideas are presented to the public to obtain their opinions.

WRD has reviewed the proposed restoration plan and has prepared the following commentary. The Region's commitment to extending the life of this structure is commendable, and WRD applauds these efforts. We believe that there are a number of missed opportunities within the current proposal that WRD can help local government with in it's quest to restore the bridge. We believe that these proposals could be improved to provide improved structural performance and durability while also being more sensitive to the historic character of the structure.

2.0 WRD Background

Wood Research and Development (WRD) is an engineering firm specializing in the design and restoration of timber bridges. WRD has facilities in Canada, the United States, and Australia, including our Canadian headquarters in Moncton, New Brunswick and in Saskatoon Saskatchewan. Along with our sister company Timber Restoration Services, WRD has worked on the restoration of many heritage timber structures throughout the world.

WRD has extensive experience inspecting and assessing existing structures. In addition to traditional inspection methods, the staff of WRD utilize specialty non-destructive testing methods, include Through Compression Stress Wave Timing (SWT), and laboratory analysis to evaluate the condition of timber. These systems allow us to identify areas of internal decay or other degradation of the timber and to accurately determine the structural capacity of individual members. This information allows the development of targeted repair strategies with minimal disruption to the historic structure.

WRD's senior engineer and wood technologist, Dr. Dan Tingley, is originally from New Brunswick, and he has extensive experience working on the many timber covered bridges in that region. A recent example is the restoration of the Milkish Inlet Covered Bridge for the New Brunswick Department of Transportation and Infrastructure. Similar to the West Montrose Bridge,

this was a single-lane, 2-span, timber covered bridge totalling 65m. Through the use of non-destructive testing, targeted repairs, and high-strength fibre reinforcement, the WRD team designed a retrofit to increase the load rating to 30 tonnes while maintaining the historic character of the structure. Other old timber trusses such as 154-foot clear span CNR Kiskatenaw Truss Under railway bridge in Dawson Creek and the famous Keystone Wyse in the Mount Rushmore area of South Dakota. See photos in the conclusion of this report.

3.0 Review of Proposed Modifications

WRD has reviewed the rehabilitation plan as currently proposed by the Region of Waterloo and Doug Dixon & Associates (DDA). While WRD applauds the Region's commitment to preserving this important heritage structure, the staff of WRD believe that there are a number of missed opportunities in the current proposal. In particular, WRD believe that the proposal to remove and replace the complete deck and floor system is both historically inappropriate and, likely, structurally unnecessary. Similarly, we believe that the proposal to install new steel girders to carry the full weight of the structure is not an appropriate solution. The correct solution is to place a light weight lift system on the bridge and raise it up to its originally design non dead load camber and restore the elements. Then subsequently use full length fiber five times the strength of steel at 1/5th the dead weight of steel to achieve the required load capacity.

3.1 Installation of Steel Girders

The current proposal for the upgrade of West Montrose Bridge includes installation of new steel box girders inside the bridge. Essentially, the proposal is to build an entirely new steel bridge inside the existing trusses. This new bridge would not only carry traffic loads, but would also be designed to support the self-weight of the existing timber bridge.

WRD does not agree with this strategy. We believe that this approach repeats the same mistakes that were made with the Bailey truss reinforcement in the 1950s. We believe that this approach would be detrimental to the historic character of the bridge and would be an ineffective structural solution.

3.1.1 Structural Compatibility

From a structural perspective, it is WRD's experience that installation of a secondary structure is rarely an effective strategy for preserving a timber structure, especially when the secondary system so dissimilar to the original structure. This approach does not address the root causes of the deterioration that has been observed; instead, it attempts to bypass those defects and allows the deterioration to continue.

When designing a secondary support system for an existing structure, it is very difficult to make the systems act in unison. The proposed steel girders will behave very differently than the existing timber trusses in regards to live-load deflection, vibration, long-term creep, response to changing temperature and humidity, and numerous other factors. These disparate responses can subject the timber structure to unexpected stresses it was never designed to resist, negatively impacting the longevity of the structure. These difficulties are apparent in the current bridge structure. The Bailey trusses, which were intended to work in unison with the timber trusses, have ended up carrying an ever increasing share of the load. The steel tension rods, which were apparently installed to reinforce the trusses in the 1950s, are now hanging loose and serving no structural function. Finally, these steel or metal structures typically lead to more moisture in and around the timber elements creating more and higher decay hazard days each year. Finally, a timber bridge with timber elements that are not working is typically not a healthy timber bridge! Timber bridges last longer when they work each day!

3.1.2 Heritage Characteristics

The proposed steel girder system also further degrades the heritage qualities of the structure. The proposed steel girders would be visible from below the bridge, noticeably altering character of the timber floor system. From inside the bridge, the steel beams would obstruct access to the timber trusses. While they would be hidden from view, similar to the existing Bailey trusses, they would nonetheless alter the appearance of the structure. The proposed girders are also substantially wider than the existing Bailey trusses, further encroaching into the traffic lane.

3.2 Removal and Replacement of Floor System

The current restoration proposal includes the removal and replacement of the deck system, including floor beams, needle beams, stringers, and decking. WRD believes that this full replacement is likely unnecessary. The published documents from the Region do not discuss any specific deficiencies within these elements to justify their replacement.

3.2.1 Condition of Existing Floor System

In WRD's experience, bridge designers and managers have a tendency to underestimate the capabilities of timber structures. The lifespan of timber bridges is often underestimated, and when deterioration is observed, the default response is to replace the effected elements. In many cases, this is unnecessary; advanced timber restoration practices can be used to upgrade and extend the life of the element without replacement. This not only reduces labor and material costs, but also preserves the historically significant components in the structure.

Through the use of non-destructive testing, it would be possible to identify any deficiencies within the deck system. Repairs could then be targeted at only the deficient elements. While WRD has not had the opportunity to conduct a thorough inspection of this structure, WRD is confident that much of the existing deck system is in sound condition and could be retained in the restored structure. This possibility does not seem to have been considered in the current restoration proposal.

3.2.2 Replacement Options

Two deck replacement option are currently being considered. Option 1 is replacement with a timber system similar in appearance to the existing, although the load path would be significantly altered. Option 2 is replacement with an orthotropic steel deck. The Region and DDA seem to be leaning toward Option 2. The comparison between the two options claims that a steel deck is more structurally robust and will offer significantly higher durability. WRD disagrees with this assessment. A properly designed and constructed timber deck can easily perform as well as a steel system.

If replacement is in fact necessary, WRD believes that a timber deck would be more appropriate both from a structural and heritage standpoint. The original bridge deck consisted of

oak planks. In the 1950s this was replaced with a nail-laminated spruce deck. Either of these systems can easily be designed to carry the required loads and would be much more historically appropriate. Modern timber systems utilizing engineered wood products, such as glulam or cross laminated timber deck panels, can provide structural can offer structural advantages while maintaining a similar character to the existing structure. These timber deck systems can be very durable if properly protected. The roof of a covered bridge offers excellent protection from moisture. When provided with a proper wear surface, modern preservative treatments, and careful detailing of connections, a timber deck can have longevity equal to that of steel.

Furthermore, even the timber option, as shown in DDA's 60% design drawings, represents a radical change to the structural behavior of the existing bridge. The proposed timber deck would be carried on steel transverse beams, supported by the new steel girders. This system would bypass the existing timber floor beams entirely. WRD believes this alteration of the existing structure is unnecessary.

3.2.3 Self-Weight

One major advantage of timber as a bridge building material is its high strength to weight ratio. The self-weight of a timber bridge can be a fraction of that of an equivalent steel or concrete bridge. This is an important consideration when upgrading an existing structure, as any increase in dead-load directly reduces the live-load capacity of the structure. Rough calculations based on DDA's preliminary design drawings indicate that the self-weight of the proposed steel deck could be more than double the timber deck. The reduced dead load of a timber deck would allow the existing structure to carry larger vehicle loads. Further, increasing the dead weight of the new steel system will place a vast increase in demand on the piers and substructure. Removing the old bailey bridge and enhancing the old bridge system will remove more dead weight than the required live load from the old piers and substructure. This is an important modification to the bridge system. See Figure 3-1 below where a steel pony truss in Nappan Nova Scotia rusted out in 48 years. It was removed and replaced with a light weight high strength timber three pinned arch, three lane traffic bridge with 62.5 tonne rating that WRD designed. The clear span of the three lane three pinned timber arch was 40 m. The dead weight savings of the new timber three lane bridge was so

great that the 180-year-old piles used for three bridges were able to carry the full load and 35% of the old pile system was redundant and not needed.



Figure 3-1 Nappan three lane three pinned arch timber bridge 62.5 Tonne load rating (top photo), resting on old timber piles (bottom left) where 35% were not needed because the dead weight saving of removing the old steel bridge saved enough load capacity in the substructure to carry three lanes at 62.5Tonne with 35% less existing substructure needed. The span was 40 m clear span for the three pinned arch. The old steel arch lasted only 48 years. The old timber substructure is 180 years old and is not certified to go another 100 years and the new timber arch is rated for 100 years.

3.2.4 Wear Surfaces

Either a steel system proposed would require some form of wear surface. The current proposal would use asphalt paving for both options. This is a reasonable solution, and WRD has specified it on many timber bridges. However, other options may be considered. Asphalt paving significantly increases the dead-load of a timber bridge, and it is not true to the historic character of this heritage structure.

The most traditional, historically appropriate wear surface would be timber running planks. These are laid on top of the deck, typically in longitudinal strips only at the wheel lines. These act as a sacrificial surface; as they are worn down by tire wear, they can be easily replaced without damaging the structural deck.

Another options is to install a thin layer of an epoxy-based chip seal, sometimes called a high-friction surface course. This provides a similar durability and driving surface to asphalt paving, but with substantially lower dead-load. These systems have been used on many covered bridges in New Brunswick, including the recently restored Milkish Inlet Bridge.

3.3 Removal and Replacement of Cladding

The proposed repairs include removal and replacement of all of the existing wood shingles and siding. Documents do not discuss significant defects that would justify this replacement. While WRD has not conducted a thorough inspection of the structure, it is likely that much of this existing historic fabric can be maintained.

It is likely that a targeted repair of the timber trusses, utilizing advanced timber restoration methods, could be conducted without disrupting the existing cladding. WRD specializes in these targeted repair strategies which minimize impact on surrounding elements.

4.0 Alternative Restoration Options

WRD has extensive experience designing in-situ restorations of timber bridges. Timber is a unique building material in many ways; as such, it requires specialized knowledge to develop an effective restoration strategy. We believe the current proposal disregards a number of opportunities for restoration of the existing timber elements. As a result, we believe the proposal would unnecessarily degrade the historic integrity of this important heritage structure.

In addition to being more sensitive to the historic character, we believe that a targeted repair utilizing modern inspection and restoration methods would likely be much more cost effective than the current proposal. In fact, the West Montrose Covered Bridge Preservation Plan, prepared for Region by IBI Group in 2014, indicates that the kind-for-kind replacement cost to fully replicate the existing timber superstructure would be $1.4 million; this 65% less than the $4 million estimated cost for the proposed repair. In WRD's experience, targeted repairs of timber structures can typically be completed for substantially less than the kind-for-kind replacement cost. The staff of WRD estimates that the cost of restoration would be in a range of 1.8 to 2.8 million dollars based on the Milkish Inlet Covered Bridge restoration costs. A detailed inspection is needed to properly assess the condition state of each of the timber elements.

4.1 Non-Destructive Testing

WRD specializes in the inspection and analysis of existing timber structures. To facilitate this WRD uses a combination of visual inspection, non-destructive testing, and laboratory analysis to identify defects and problem areas in the structure. One of the primary non-destructive testing systems that is used is Stress Wave Timing (SWT). This system passes a compression wave through a timber member and measures the time of flight. The velocity of this wave indicates the condition of the wood it passed through. Elevated times indicate the presence of decayed wood or cavities in the path of the wave. Since this is a rapid, non-destructive test, it enables a much denser testing grid than traditional destructive tests, such as bore-sounding. This gives engineers a detailed picture of the condition of each member.

Utilizing this information, our engineers can then design a repair that targets the deteriorated areas and retains the sound elements. This minimized disruption of the structure and eliminates unnecessary work.

4.2 High Strength Fibre

WRD leads the civil infrastructure market place with high strength fiber reinforced wood and wood composites. This is particularly true in the field of high strength fibre reinforcing of existing timber structures. Fibre Reinforce Polymer (FRP) reinforcing can be applied in the high-tension or high-shear zones of timber elements to increase their capacity. The fibre is bonded to the timber using structure epoxy adhesives by licensed trained and certified Level II Technicians so that the two materials act as a composite section. This ensures that they two materials work in unison, fully utilizing the strength of both materials. Fibre reinforcing can be used on new structures to reduce member sizes, or it can be applied in the field to restore or upgrade an existing structures.

When used as part of a restoration strategy, these retrofits can greatly reduce the impact on the surrounding structure; for example, girders can often be retrofitted from below without having to remove the deck. This often makes it possible to upgrade a structure with little or no interruption to traffic.

4.2.1 Moment Reinforcement

A common application of FRP reinforcing is on the tension face of girders to resist bending stresses. Tension reinforcing panels consists of longitudinal glass, aramid, and/or carbon fibres. These panels are bonded to the tension face of the beam, or sandwiched between the bottom laminations of a glulam beam. In addition to providing its own tensile capacity, the FRP transitions tension and other applied stresses across localized defects such as knots, splits, and decay in the timber. This gives the composite section significantly increased bending capacity.

WRD frequently uses tension retrofits to upgrade girders and truss members. A prominent recent example is the Milkish Inlet Covered Bridge, where the tension chord was reinforce with multiple layers of fibre reinforcing. Ultimately, this allowed the bridge to be upgraded from a posted limit of 5 tonnes to a rating of 30 tonnes, while maintaining the original trusses.

4.2.2 Shear Reinforcement

Fibre reinforcing can also be used to increase the shear capacity of timber members. Examples of shear-controlled elements might include stringers in a railroad trestle or caps in a pile bent. In a truss, shear reinforcement might be required near the nodes or hanger connections. Shear panel reinforcements can also be used to repair splits, cracks, or crushing.

A typical shear reinforcement system employed by WRD consists of prefabricated FRP reinforced plywood panels which are bonded to the face of a timber element using epoxy adhesive.

4.2.3 Epoxy Injection

In cases of severe decay, internal cavities may form within timber members. This makes the members susceptible to crushing or buckling when loaded in compression. In these cases, WRD often utilizes high-strength epoxy grout to fill the cavities, restoring compressive capacity. The epoxies are specially design for bulk-filling of timber cavities. They are slow-cure formulas

to minimize heat generated by the exothermic curing reaction; they non-shrinking so they maintain bearing capacity over time; and they are 100% solids, so they don't trap moisture within the timber element. Epoxy injection may also be used to repair splits and cracks. It is often used in conjunction with FRP shear or tensile reinforcement.

4.3 Upgrade of Timber Trusses

WRD believes that by utilizing advanced testing and restoration methods, as discussed above, the existing timber trusses can be restored to carry the required loads while maintaining their historical integrity. Since the structure has been protected from moisture throughout its life, it is likely that much of the original timber is still in sound condition. In a truss such as this, we anticipate that most of the deterioration is concentrated at the truss joints. The sagging that has been observed in the bridge, is likely due to slipping and localised crushing at the connections rather than failure or weakening of the individual members. By targeting repairs at these areas – reinforcing members and tightening connections – the trusses can likely be restored to their original capacity with minimal intervention. The sag can be taken out of the trusses by installing temporary lift beams, jacking the truss back into position, and retensioning the vertical truss rods.

4.4 Deck Restoration

4.4.1 Floor Beams and Stringers

Documents provided by the Region indicate that the floor system is a weak point within the structure; however, much of it seems to remain in fair condition. Through the use of non-destructive testing, it would be possible to gain a greater understanding of the current condition and capacity of the floor system, including deck, stringers, and floor beams. If it turns out that the floor system is in fact insufficient for supporting the desired vehicle loads, it can be upgraded using high-strength fibre reinforcement. Documents indicate that the strength of the floor system is governed first by the transvers beams and second by the stringers. Both of the elements could easily be reinforced in-situ with tensile and shear retrofits on the bottom and side faces. The existing nail-laminated deck could likely remain in place throughout these upgrades with no modifications required.

4.4.2 Deck

If it is demined that replacement of the deck is appropriate, WRD would recommend a timber deck similar to the existing. The original bridge deck was made from oak planks, and in the 1950s this was replaced with a nail-laminated spruce deck. Both of these systems have been in use on timber bridges throughout North America for many decades; either would be an appropriate solution for this bridge. Modern engineered wood systems, such as glulam or cross laminated timber (CLT) panels, may also be considered. They have some advantages in regards to structural capacity, ease of construction, and durability, while maintaining the historic character of the bridge. While the construction methods are different for panelized systems like glulam and CLT, the end result is quite similar to the current nail-laminated deck.

5.0 Retrofit Case Study – Milkish Inlet Covered Bridge

WRD has developed restoration strategies for a number of structures similar to the West Montrose Covered Bridge. One recent example is presented here to demonstrate some of the options that may be considered for the restoration of Wets Montrose Covered Bridge.



Figure 5-1: Milkish Inlet Covered Bridge during the restoration project.

5.2 Background

Milkish Inlet Covered Bridge a 65m, 2-span, single-lane timber covered bridge, quite similar to the West Montrose Covered Bridge. Originally built in 1920, the bridge is owned and managed by the New Brunswick Department of Transportation and Infrastructure (NBDTI). Prior to the restoration, the bridge had been downgraded to a 5 tonne limit; following the restoration, completed in 2020, the bridge has been rated at 30 tonnes.

5.3 Inspection and Testing

In 2019, NBDTI commissioned WRD to conduct an in-depth inspection and analysis of the Milkish Inlet Bridge. This inspection included the use of a non-destructive testing (NDT) system known as stress wave timing (SWT). This system passes a compression wave through the wood and measures the time of flight through the element. The velocity of the wave is related to the presence of decay in the path of the wave. This provides a detailed understanding of the condition of each member.

The non-destructive testing revealed that a majority of the elements were in poor to very poor condition as a result of decay, resulting in significantly reduced capacity. Additionally, the visual inspection reveal many of the steel components and fasteners were highly corroded. The analysis determined that the bridge should be rated at 5 tonnes and the repairs should be completed in the near term to prevent further deterioration.

5.4 Truss Reinforcement

The inspection showed that both the steel and timber components in the trusses were significantly deteriorated. This has resulted in loss of capacity as well as substantial permanent deflection. The trusses had developed a sag of several inches resting on the hawg jaws.

The trusses were upgraded to increase their capacity. This involve installation of high-strength fibre reinforcement on the tension chords and some other timber elements as well as replacement of several of the steel components.



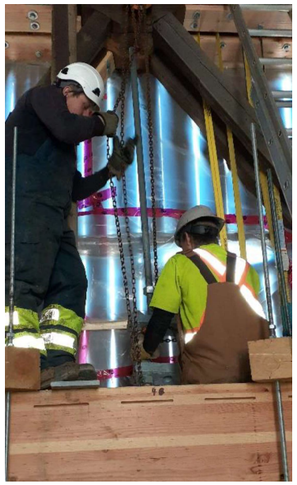
Figure 5-2: The girders were wheeled inside the bridge one at a time providing for a weight on the bridge that was under the reduced load rating and supported at the abutment and central pier. The low self-weight of the timber girders allowed them to be pushed into the bridge without overloading the existing structure.



Figure 5-3: Bracing was installed between the girders, and vertical hanger rods were installed on each side of the girder, passing through the deck.



Figure 5-4: The hanger rods pass through the deck and support the floor beams below. These rods were gradually tightened to transfer the weight of the bridge off of the trusses and onto the temporary girders. Through this process, the sag was taken out of the trusses.



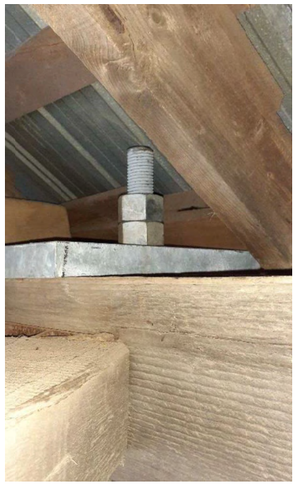
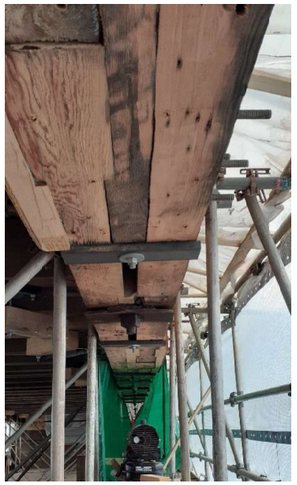




Figure 5-5: The vertical tension rods in the truss were replaced as needed and tightened to take slack out of the truss joints.



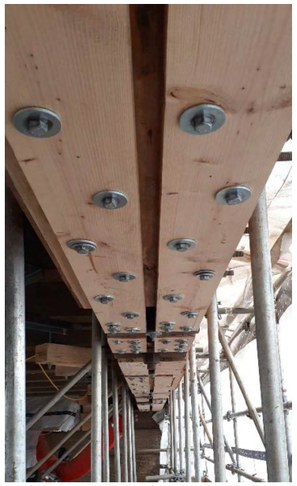






Figure 5-6: Finally, the tension reinforcing was installed on the bottom face of the tension chords. The reinforcing consists of multiple layers of timber packers followed by a layer of high strength fibre. Each layer is bonded to the previous with high strength epoxy adhesive to ensure the composite section acts in unison.



Figure 5-7: The ends of the tension chords were reinforced with high strength fibre shear panels to increase shear and bearing capacity.



Figure 5-8: After the first span trusses had been restored, the temporary girder were relocated to the second span to repeat the process. Finally, the girders were pulled back out of the bridge.

5.5 Deck Replacement

The deck system at Milkish Inlet Covered Bridge was a longitudinal nail-laminated deck supported on transverse timber floor beams which bear on the bottom chord of the truss. Due to the poor condition, and the desire to substantially increase the load rating, it was decided that the deck and floor beams would be replaced. The replacement was a panelized, longitudinal glulam deck and glulam transverse beams. This used modern, engineered wood products for improved strength, durability, and ease of construction, but the system is functionally and aesthetically quite similar to the original structure.





Figure 5-9: The original (left) and new deck and floor beams, viewed from below. The new system uses modern glue-laminated panels; however, it is visually very similar to the original. Note that the new system is secured with clip and fasteners from below, avoiding penetrations through the top face of the deck and beams; this improves longevity by preventing moisture from following the fasteners into the center of the timber members.



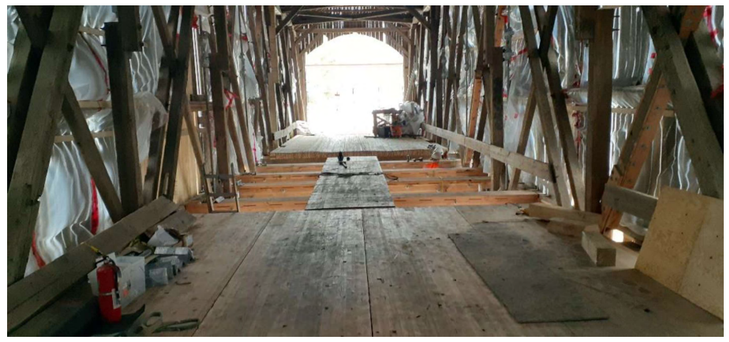


Figure 5-10: The new, panelized timber deck during installation.



Figure 5-11: The deck was finished with an epoxy-based chip seal wear surface. This system, consisting of an epoxy binder and gravel fine aggregate, has often been used on covered bridge decks by NBDTI and has been found to offer a high level of durability.



Figure 5-12: Deteriorated portions of the cladding were replaced in kind. The vast majority of the cladding was in fair condition and remained in place throughout the restoration process.


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Figure 5-13: Finished restored floor system with new cross braces, lateral galvanized tension strut rods and tension cord elements including the full-length high strength fiber with 5 times the strength of steel at a fifth of the dead weight as well as a matching Coefficient of Thermal Expansion so that the fiber will not separate from the wood under temperature change like steel. Steel bonded to wood expands three time more than wood under temperature change this then eliminates plane sections remaining plane which necessary for composite action. The restoration was accomplished by lifting the old bridge up to the original camber of the bridge before dead loads were applied.

6.0 Conclusions

WRD applauds the efforts of the Region of Waterloo at preserving the West Montrose Covered Bridge. This is bridge is not only a historic artifact, but it continues to serve as an important link in the community transportation network after more than 140 years. Restoring old timber trusses is an important part of preserving the heritage of our communities. It can be accomplished cost effectively while utilizing the old structural elements and not only restoring the structure to its original capacity but to increased capacities. See Figure 6-1 and 2 below where in the first figure from Dawson Creek in British Columbia shows the oldest active Howe Truss bridge still in service for Canadian National Railway -over 80 years old. This bridge is 154-foot clear

span and was downrated to 25T axle weight and was restored in 11 days using high strength fiber using a design created by WRD to a load capacity of 80T per axle when it was originally designed for 45T. The second Figure shows the historic Keystone Wyse Three pinned laminated glulam arche over 57 years old. When it reached 45 years old engineers without an understanding of timber bridges stated that the wood had reached the end of its use-by date. This was untrue and after the South Dakota Department of Transportation had WRD inspect the bridge we found that only three bad elements existed. The restoration design led to a restoration cost of 4.3 million versus a replacement cost of 23 million.









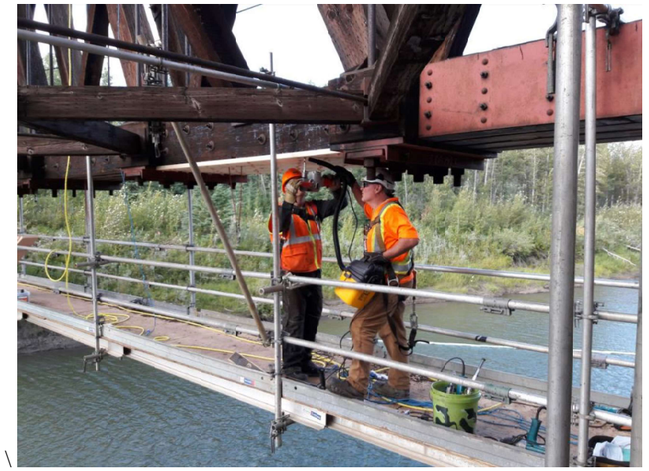


Figure 6-1: Kiskatinaw River Bridge, Dawson Creek, BC. The Howe truss under is the oldest timber truss still in service for CNR. The load rating had dropped to 25T per axle. It was restored in 11 days to 80T axle capacity. It was originally designed for 45T axle capacity.



Figure 6-2: Keystone Wyse Interstate interchange at Mount Rushmore. Over, 60-year-old three pinned arch was restored for 4.3 million versus a new interchange at 23 million. The full life of 100 years was restored and the concrete deck was replaced with a timber deck.

The staff of WRD feel that some important opportunities have been missed in the current proposal. WRD believes that some flaws within the proposed restoration would degrade the heritage aspects of this important landmark. WRD also believe that these flaws will shorten the eventual useful life of the structure.

The staff of WRD would recommend conducting an in-depth inspection of the structure, using advanced, non-destructive test methods, to determine the condition of individual elements within the structure. We would then recommend a restoration strategy that retains as much as possible of the existing historic elements. This includes the timber floor system and the trusses. WRD would recommend a strategy that restores the capacity of the original timber trusses, rather than bypassing these elements with a new, hidden steel structure. We expect that this restoration strategy, which maintains much more of the existing structure, can be achieved at a lower cost than the current proposal.

The staff of WRD also believes that with these changes, this restoration project has the opportunity to preserve and upgrade the West Montrose Covered Bridge, allowing it to continue serving the community for many more years. The old truss can be restored to its original glory and enhanced with high strength fiber to carry the required loading doing away with hawg jaws and helper trusses and steel beams hidden inside which hid the beauty of the old bridge. We look forward to helping this happen.

West Montrose Covered Bridge – Responses to Comments Received during Public Consultation Centre #1

The public was invited to participate in a virtual Public Consultation Centre in October 2021 on engagewr.ca. Plans for the West Montrose Covered Bridge were presented for public information, discussion and comment. Comments were received on the Engage website, by mail and e-mail. The Region would like to thank everyone who participated in PCC#1. Comments received from the public and responses to these comments have been summarized by common themes, below.

Theme #1: If restoration of missing or deteriorated elements is undertaken, can the Bailey truss simply be removed? If not, can an "all-wood" rehabilitation be undertaken in lieu of replacement of the Bailey trusses with steel girders?

Project Team Response: The Ministry of Transportation Ontario added the steel Bailey trusses to supplement the pre-existing wood trusses in the 1950's (Figure B6). Even if restored to their original condition or replaced in-kind with exact replicas, the wood trusses would not meet current Code standards, even for relatively low load postings. Accordingly, some form of rehabilitation work is required above and beyond simple restorative work.

A total of 20 out of 36 survey respondents indicated support for removal of the Bailey trusses and replacement with a custom-built steel girder that would be hidden from view by the interior white cladding. This method would achieve the objective of restoring the bridge to the way it looks today, and based on that criteria the all-wood option was not presented as an alternative during PCC #1. The steel girder option is referred to as **Alternative A**.

During PCC#1, the Region received input regarding the possibility of an all-wood rehabilitation method. This rehabilitation alternative represents a departure from the initially proposed steel girder. The correspondence made reference to the Milkish Inlet Covered Bridge in New Brunswick, which has recently been rehabilitated and strengthened. Region staff had previously spoken with New Brunswick officials regarding the Milkish Inlet Bridge but did not pursue the alternative further as noted above.

In response to comments from the public during and after PCC#1, Region staff re-engaged New Brunswick officials and reached out to industry experts in the field of wood trusses to further discuss the rehabilitation method used for the Milkish Inlet and the potential applicability at West Montrose. The Region's consultant, Doug Dixon & Associates, subsequently conducted a preliminary assessment of this rehabilitation method and concluded this method is feasible at West Montrose. This method is referred to herein as **Alternative B**.

Alternative B involves strengthening of the critical bottom chord of the original wooden truss and other members as necessary. This method employs a sheet of high-strength carbon fibre reinforced polymer (CFRP), sandwiched between layers of new timber. This CFRP/timber sandwich is then affixed to the underside of the existing wooden truss chord.

The carbon-fibre reinforced polymer is the key to restoration and improvement of the truss strength (Figure C4, PCC#2 Information Package). This method would increase the depth of the bottom chord of the pre-existing truss by approximately 300 mm (1 foot). In order to maintain the existing hydraulic clearance to the river, the resulting truss would have to be lifted by a corresponding amount. The physical height of the truss observable to the public would increase (Figure C6, PCC#2 Information Package).

The Project Team supports the restoration of the bridge using Alternative B and this is recommended as the Preferred Rehabilitation Alternative. However, this Public Consultation is to ensure that the public fully understands all implications of this rehabilitation method. Additionally, the above-noted physical changes to the structure would need approval from the Region's and Township's Heritage groups.

Theme #2: Does the Region's Project Team have the requisite expertise to carry out an "all-wood" rehabilitation? Is specialist expertise widely available?

Project Team Response: Staff from the Region's prime consultant, Doug Dixon & Associates have extensive experience in a variety of bridge types, including timber truss bridges, as well as bridge strengthening using fibre reinforced polymers (FRP). Nonetheless, the Region and DDA believe that supplemental specialist expertise could be a benefit to the engineering design effort. The Region has spoken with a number of Canadian engineering firms with extensive specialist expertise in wood bridges, including the use of FRP in timber bridge strengthening. Several firms have expressed interest in joining the Project Team in this regard. The Region will add specialized expertise to the Project Team at the applicable time in the detailed design process, in accordance with the Region's Purchasing Policy.

Theme #3: Are any formal and/or informal guidelines available that can be referenced in the refinement of the rehabilitation design?

Project Team Response: The Region values the heritage of the West Montrose Bridge and has undertaken several projects to maintain the bridge since the Province transferred ownership of the bridge to the Region. The Region has retained a specialist Heritage consultant to undertake research and make recommendations regarding the West Montrose Bridge proposed rehabilitation. The Ontario Ministry of Heritage, Sport, Tourism and Cultural Industries (MHSTCI) is on the Region's Agency circulation list for this project. Heritage considerations were discussed in PCC #1; however, given the expansion of the project scope to consider the "all-wood" (wood + high-strength fibre) rehabilitation (Alternative B), staff believes that further public consultation is required.
In addition to the applicable Bridge Codes, there are various guidelines that can be consulted in the refinement of the rehabilitation design. The Region supports the use of available guidelines to the extent practical, with full consideration of the Region's obligations under applicable bridge Codes, as well as the general and lawful duties of care owed to the public.
In Ontario, the Ministry of Transportation (MTO) has published the bridge-specific document

Ontario Heritage Bridge Guidelines for Provincially Owned Bridges, or OHBG. While the West Montrose Bridge is no longer provincially owned, these guidelines are still of value. Section 4.3 of these Guidelines, Conservation Options, provides the following hierarchy of "levels of desirability" for heritage bridges.

1. Retention of existing bridge with no major modifications undertaken;
2. Restoration of missing or deteriorated elements where physical or documentary evidence (e.g. photographs or drawings) exists for their design;
3. Retention of existing bridge with sympathetic modification;
4. Retention of existing bridge with sympathetically designed new structure in proximity;
5. Retention of existing bridge no longer in use for vehicular purposes but adapted for a new use. For example, prohibiting vehicle or restricting truck traffic or adapting for pedestrian walkways, cycle paths, scenic viewing, etc.;
6. Retention of bridge as a heritage monument for viewing purposes only;
7. Relocation of smaller, lighter single span bridges to an appropriate new site for continued use (see 4) or adaptive re-use (see 5);
8. Bridge removal and replacement with a sympathetically designed structure.

The original 1880 trusses require some form of supplemental strengthening. Accordingly, Level 2 is not achievable given that simple restoration of missing or deteriorated elements will not result in a structure capable of safely handling current and future demands.

The various actions taken by the MTO over the years (addition of Bailey trusses, addition of longitudinal tension rods, etc.) currently place the bridge at Level 3. Replacement of the Bailey truss with a steel girder (rehabilitation Alternative A) would preserve the Level 3 designation.

The Preferred Alternative B involves "retention of existing bridge with sympathetic modification" through the sympathetic addition of new wood and high-strength fibre elements to the pre-existing bottom chord (Level 3).

Theme #4: What other rehabilitation Alternatives has the Region considered?

Project Team Response:
In addition to Alternatives A and B, the Region considered the installation of post-tensioning strands to strengthen the bottom chord of the truss as a rehabilitation method. This option was not carried forward for structural and aesthetic reasons. Restricting the bridge to pedestrians and cyclists only was also considered, however, the bridge will require some form of major rehabilitation even if vehicular traffic was restricted from the bridge. These options were not carried forward in the detailed evaluation of the Alternatives.

Theme #5: Should measures be enacted to physically prevent oversize vehicles from getting access to the bridge?

Project Team Response:
A total of 23 out of 36 PCC #1 survey respondents indicated support for physical barriers to prevent oversize vehicles from gaining access to the bridge.
The Project Team supports the installation of a physical barrier as an appropriate means to protect the Region's significant investment on this heritage bridge and to prevent costly and disruptive damage in the future.

Two preliminary concept options for physical barriers to restrict oversize vehicles have been developed and are presented in the PCC Info package for the public to provide input on.

Theme #6: Can security cameras be installed on the bridge?

Project Team Response:
The Region does not support the installation of security cameras at this time. The Project Team would prefer to enact physical measures to prevent oversized vehicles from using the bridge. There are also privacy issues related to the installation of security cameras making the information difficult to enforce.

Theme #7: Can the capacity of the bridge be increased?

Project Team Response: The Project Team is not recommending an increase to the bridge capacity. The Project Team is instead recommending the use of height restriction devices to prevent heavy vehicles from using the bridge, as supported by the public in PCC#1.

The current posted capacity of the bridge is 3 tonnes (approximately 6,600 lbs). The current traffic volume on the bridge is approximately 250 vehicles per day. In recent years, the bridge has sustained localized damage to the transverse floor beams on a number of occasions when overweight vehicles have crossed the bridge. These floor beams, and their configuration, are considered to be an important heritage component of the bridge. Methods used to increase the capacity of the timber floorbeams could result in substantial aesthetic changes to these heritage elements.

Additionally, an increase in the global capacity of the structure could also require modifications to the top chords, diagonals and other elements. This could result in substantive aesthetic changes to the original truss. If the floorbeam capacity is increased substantively, it could allow for excessive loads to be transferred to the truss.
The loading on the abutments and pier will also be increased. Very little information exists regarding the foundation capacity of the abutments or piers. An increase in loading on the abutments and pier could require invasive investigation and strengthening methods that could have aesthetic impacts.
Finally, based on other examples (e.g., Milkish Inlet Bridge), if the capacity of the bridge is increased, it will attract more traffic and heavier traffic, even if the posted load limit is not changed.

Theme #8: In conjunction with the CFRP/Timber rehabilitation, could the interior white cladding be removed to expose the original truss?

Project Team Response:
The Preferred Alternative B proposes removal of the interior white cladding and the installation of a wooden guiderail to protect the truss. The interior white cladding is not original to the bridge. Archive photos show the cladding inside the bridge dating at least as far back as the early 1940s, before the installation of the steel Bailey truss. Staff has not found any documentation of the rationale for adding the cladding. The cladding was modified in the 1950's when the Department of Highways added the Bailey trusses.

Removal of the interior cladding would expose the critical truss elements to the risk of vehicle collision. In an extreme event, a major failure of the truss could occur. In order to mitigate this risk, some form of traffic rail is recommended, similar to that used on the renowned Hartland Covered Bridge in New Brunswick. This is depicted in Figure C6 of the PCC#2 Information Package.

Since the interior cladding is designated in the Heritage By-law, the above-noted physical changes to the structure would have to be approved by a number of Heritage groups.

Theme #9: Should the deck remain as a wood deck or be replaced with a steel deck with wearing surface?

Project Team Response:
The existing deck surface is transverse nail-laminated timber with a tar-and-chip wearing surface. A total of 27 out of 36 survey respondents indicated support for a wood deck. The Preferred Alternative B proposes a glue-laminated wooden deck, which is expected to have a lifespan of up to 50 years.

Theme #10: What type of wearing surface is proposed on the deck?

Project Team Response:
The Preferred Alternative proposes to reinstate the existing tar-and-chip wearing surface.
The Project Team does not support the use of timber planks as a wearing surface due to:

- Compatibility of the timber planks for multiple users including motorists, motorcyclists, cyclists, horse-and-buggy drivers;
- Higher maintenance costs;
- Grip and friction, and implications on the safety of users under varied conditions including hot/cold, wet/dry, etc., and
- Public safety and liability issues.

It is noted that on the Milkish Inlet Bridge rehabilitation in New Brunswick, the deck surface employs an epoxy-grit mixture bonded to the deck for traction and protection.

Theme #11: Can the underdeck cross-bracing be retained?

Project Team Response:
The under-deck cross bracing will be retained as part of the preferred Alternative.

Theme #12: Should the external sag in the roof be eliminated?

Project Team Response:
A total of 24 out of 36 PCC #1 survey respondents indicated support for elimination of the sag. A key component of the preferred Alternative B (reinforcement of the timber truss) is the "re-cambering" of the bridge to its original profile. Accordingly, the sag in the bridge will be eliminated.

Theme #13: Should the internal sag in the traveled deck be eliminated?

Project Team Response: A total of 30 out of 36 PCC #1 survey respondents indicated support for elimination of the deck sag. Elimination of the deck sag and hump is also important in minimizing the vertical dynamic loads associated with these features. The sag in the bridge deck and the hump at the pier will be eliminated as part of the preferred Alternative B.

Theme #14: Can the lighting in the bridge be improved?

Project Team Response:
The existing lighting will be salvaged and reinstalled as part of this rehabilitation project. The bridge currently has 5 interior sodium vapour lamps. The lighting was upgraded in 2018 and public consultation was undertaken at the time surrounding the new lighting fixtures and intensity. The Region may look at supplier options for LED bulbs within the existing light fixtures, which was not available at the time of the lighting upgrades.

Theme #15: Can fire retardant materials be used on the bridge? Will the existing fire detection system be maintained? Will the fire response protocol be reviewed?

Project Team Response:
The bridge is currently equipped with a fire detection system coupled with an alarm system. The use of fire retardant materials will be considered as part of the preferred alternative.

The parties most qualified to comment on and refine a fire alarm response protocol are the local Fire Departments. The Region will request that the fire alarm response protocol be reviewed, including any roles that the Fire Departments wish the Region and/or Township to undertake.

Theme #16: Can a fire suppression system be installed as part of the main rehabilitation contract?

Project Team Response:
The Region will continue to investigate options for the installation of a fire suppression system. Since the local watermain does not have sufficient pressure and/or flow capacity to drive a fire suppression system, a more in-depth review of alternative water sources and potential budget requirements will be completed as a separate undertaking. The preferred alternative rehabilitation method will not preclude the installation of a sprinkler system at a later date.

The Region's contacts in New Brunswick have noted that fire suppression systems can be very expensive. New Brunswick officials note that only one of New Brunswick's 50 covered bridges is equipped with a fire suppression system (Hartland).

By investigating the feasibility of a fire suppression system in a follow-up contract, the design can be removed from the critical path for the rehabilitation work. This also provides more time for the Region to identify and retain a firm interested in providing the design of the system.

Theme #17: With climate change and increasing severity of storms and flooding, is the bridge at risk of being washed away in a flood? Can the bridge be raised to provide better flood clearance?

Project Team Response:
The bridge has always been susceptible to flooding and the risk will become greater in the coming decades. Over the past several years, Region staff have worked with GRCA to review historic Grand River flood levels at West Montrose. On a number of occasions over the past 50 years, flood waters have risen high enough to contact the bridge. In addition to the substantial force of water, a major risk for low bridges is the additional lateral force that will occur if major debris such as uprooted trees gets caught on the bridge and begins to accumulate other debris. The existing clearance from the known 100-year flood level to the bridge is substandard. The bridge would have to be raised by approximately 3 meters (10 feet) to meet current guidelines.

The existing abutments and stone masonry pier would have to be modified to increase the elevation of their respective abutment seats. This could significantly alter the look of the bridge. While raising the bridge would increase hydraulic capacity under the bridge, raising the adjoining roads would have the effect of placing added material within the flood plain. Ironically, this could exacerbate flooding. Additionally, placement of additional fill in the flood plain would require approval from multiple regulatory Agencies.
Raising the bridge would lead to a cascade of negative impacts to the surrounding roads and homes. The reduction in the annual probability of flood water impacting the bridge does not appear to justify this set of negative impacts.

The preferred design alternative will investigate means to provide enhanced lateral restraint

to the bridge to further mitigate the impacts of flood water.

Theme #18: I have noticed that the stone masonry pier appears to have a “tilt”. Is that why the Region is proposing to place a rock “protection collar” around the base of the pier? Will that increase the likelihood of flooding? Is there some other way to “fix” the pier?

Project Team Response:
Very little information exists regarding the stone masonry pier. The exact reason for the “tilt” is not known, but it is believed to be related to some localized settlement after the pier was constructed. The tilt in the pier has existed for many decades and there does not appear to be evidence of any ongoing settlement.

Given the uncertainty of the composition of the pier foundation and the potential for damage due to scour during flood events, placement of a rock protection collar around the base of the pier is proposed. Other methods to protect the pier are available; however, they tend to be invasive, unattractive and costly. The Region will work with the GRCA and the Region’s consultant to run before/after hydraulic models to determine whether the rock protection collar would influence river levels under various flow conditions.

Theme #19: Can the Region avoid the use of Letson Park and Gole Park as staging areas?

Project Team Response:
The Project Team will investigate if alternative staging areas are available and whether the parks need to be used for this purpose. If use of the parks is required, the Region will reinstate the areas to existing or better than existing conditions. If Letson Park is required as a staging area, mitigation measures will be installed so that the existing oak tree is not disturbed. Access to the mailboxes at Gole Park will be maintained.

Theme #20: Can the Region install fibre-optic cabling and bring high-speed internet to the village as part of this project?

Project Team Response:
The Region will investigate options for placing conduits on, under, or within the bridge, such that these conduits are available in the event that a telecommunications firm wishes to install fibre-optics on the bridge. Township staff have noted that there are telecommunication companies interested in bringing service to the area that could make use of this conduit.

Theme #21: Can issues with visitor parking be addressed, both during and after construction?

Project Team Response:
Region staff will investigate alternative staging areas other than the parks so as to not

impact visitor parking in Gole and Letson Parks during construction. It appears that the demand for parking often exceeds the available spots in the parks.

While the Region of Waterloo owns the West Montrose Covered Bridge, the area roads are all local Township of Woolwich Roads.

Theme #22: Can safety on Line 86 be improved, especially for horse and buggy users?

Project Team Response:
Rehabilitation of the West Montrose Covered Bridge will require full closure of the bridge to motorists and horse-and-buggy users for a period of up to one year. The Line 86 bridge over the Grand River will be the nearest alternate route.

There are currently paved shoulders on Line 86 between Middlebrook Road/Covered Bridge Drive and Katherine Street North to accommodate horse and buggies and cyclists through this detour.

Theme #23: Can anything be done about cyclists travelling too quickly and recklessly on the bridge and adjoining road?

Project Team Response:
The actions of cyclists, motorists and other bridge users is not expected to be altered by the bridge rehabilitation project.

West Montrose Covered Bridge Rehabilitation - Public Consultation #2 Summary

Public consultation #2 was held as a virtual public consultation between October 1, 2021 and November 10, 2021. There was no in-person public meeting held due to COVID-19 restrictions. Public consultation materials were posted on the project website at the following link: https://www.engagewr.ca/west-montrose.

Signs were posted at the bridge, in local newspapers, on social media, and letters were mailed out to the residents of West Montrose. This information is provided in Appendix A. The Public Consultation #2 Information Package is provided in Appendix B.

A narrated video was posted at the following link:
https://youtu.be/pRFmhwPv194?si=wgD8BVkusg-UXtlz

Signs were posted at the bridge and notices were mailed/e-mailed out to relevant stakeholders and residents within the project limits. There were 99 visitors that viewed the project page at least once and 51 engaged visitors that participated in the survey or asked a question. A summary of the survey questions and responses is provided in Appendix C. The following community priorities and comments were raised during public consultation #2:

- Engage an expert in historic timber bridge restorations to evaluate the existing timbers to determine the level of reinforcement required
- Dislikes look of truss reinforcements and/or raising the bridge by 300mm
- Restore the bridge to the way it was built in 1881
- Reuse as much of the existing wood as possible
- Provide traffic calming for horse and buggies on Line 86 during construction
- Repair camber over the bridge
- Only repair/replace what is necessary for the exterior cladding and timber members
- Questions about the bridge design live load capacity
- Pre-qualification of Contractors is recommended

A letter was received from the BridgeKeepers/West Montrose Residents' Association (Appendix D) and the National Society for the Preservation of Covered Bridges (Appendix E) with input on the proposed design. The National Society for the Preservation of Covered Bridges expressed support for the use of height barriers to restrict oversized vehicles from using the bridge.

Region of Waterloo

Public Consultation
West Montrose Covered Bridge Rehabilitation
Township of Woolwich

We want your feedback

We invite you to share your comments and opinions with us as we present a preferred option for the West Montrose Covered Bridge Rehabilitation Project, Township of Woolwich.

This virtual public consultation is open from **June 7 to July 4, 2022 at** engagewr.ca/west-montrose.

What to expect

We will walk you through a presentation that explains the preferred option, other alternatives that were considered, and how we evaluated the alternatives to reach a preferred alternative.

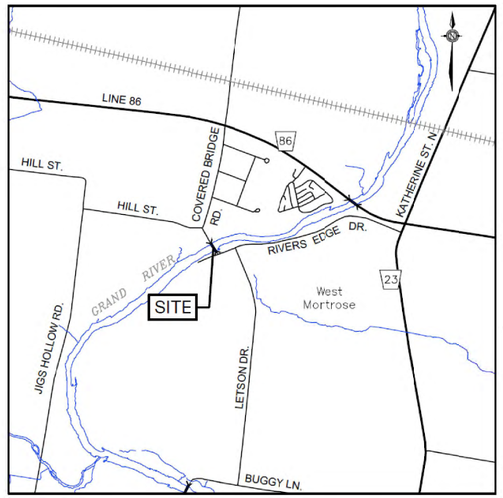
Public consultation

Visit our West Montrose Covered Bridge project page at engagewr.ca/west-montrose and share your comments by completeing the online survey by July 4. Project documents, including frequently asked questions, are also available.

If you have any questions about the project, please email or call Michelle Pinto or Doug Dixon.

Michelle Pinto, Region Project Manager
Region of Waterloo
mipinto@regionofwaterloo.ca
519-575-4400, ext. 3637

Doug Dixon, Consultant Project Manager
Doug Dixon & Associates
ddixon@dougdixonassociates.com
519-585-7316



All comments and information received from individuals, stakeholder groups, and agencies regarding this project are collected to assist the Region of Waterloo in making a decision. Under the "Municipal Act", personal information such as name, address, telephone number and property location that may be included in a submission becomes part of the public record.

2@ 60cm x 75cm

PUBLIC CONSULTATION CENTRE #2
West Montrose Covered Bridge
June 7 - July 4, 2022
Visit us at:
www.engagewr.ca/west-montrose

Region of Waterloo
For more information:
www.regionofwaterloo.ca
519-575-4400



A person finds some shade in Waterloo Park on May 31, when the mercury hit above 30 C for the first time this year.

WATERLOO REGION RECORD FILE PHOTO

This was the warmest May on record since 2018

WATERLOO REGION RECORD

WATERLOO May was hot and dry in Waterloo Region.

The mercury soared to 31.1 C on the hottest day of the month, which was the warmest May on record since 2018.

The first week of May had close to average temperatures, but the rest of the month was mostly well above average, according to the University of Waterloo weather station.

Five days, from May 11 to 15, were above 25 C and the first day topping 30 C was the last day of the month.

Overall, it was 1.3 degrees above average.

The last freezing day was May 8 — just a day later than the average in the past 20 years.

May was dry for most of the month, including a 10-day period with no measured precipitation.

With only two days that saw more than 10 millimetres of rain, the total rainfall of 60.6 millimetres was well below the average of 82.3.

This dry month puts the total precipitation for the year so far at 279.6 millimetres, well below the average of 340.2.

Speed

CONTINUED FROM A1

limits to 40 km/h on low traffic streets, coupled with 30 km/h speed limits imposed only in school zones.

"I continue to believe that 30 km/h is the appropriate limit for our residential streets," Coun. Royce Bodaly said.

Coun. Terille Bonsgaarde said she is "actively soliciting input from residents" and would not reveal the speed limit she favours.

"I certainly support lowering residential speed limits," she said.

Mayor Dave Jaworsky wouldn't say which speed limit he'll support. "There's differences in what citizens think can work," he said. "I think that's what will be key. We want something that will do the job, as opposed to be just a sign on the road."

He said "going 50 km/h on side streets and residential cul-de-sacs is not an appropriate speed."

Waterloo has already cut speed limits to 40 km/h in some neighbourhoods. Speeds fell by two to six km/h with the change, but not all drivers respected the lower limit.

A proposed city-wide reduction would affect more than 700 residential streets, excluding busier commuter and connector roads that would retain higher limits.

City traffic planners recommend a reduction to 40 km/h because people are less likely to be killed or hurt in collisions at lower speeds, and because 40 km/h has more support among people and agencies.

City hall conducted an online survey to find that 41 per cent of Waterloo respondents support a reduction to 40 km/h, 29 per cent support a reduction to 20 km/h, 24 per cent oppose both options and five per cent support either option. This represents only the opinion of 1,012 residents who responded to the unscientific survey.

Grand River Transit and the Waterloo fire department support a speed reduction to 40 km/h, while elementary schools and school bus operators support a bigger reduction to 50 km/h.

Waterloo has until now followed speed guidelines from the Transportation Association of Canada. Guidelines say speed limits under 40 km/h are "generally not practically achievable without significant traffic-calming devices" if imposed outside school zones, work zones or specific areas.

Kitchener has cut its residential speed limits to 40 km/h. Few communities have reduced speed limits to 30 km/h outside of specific zones or neighbourhoods. Supporters of a city-wide 30 km/h limit contend it is safer for all and does not significantly lengthen travel time.

City hall found a reduction to 30 km/h could increase travel times by eight per cent. It cites a trip between two Waterloo schools that are nine kilometres apart.

Each trip would take 86 more seconds at the 30 km/h limit. This would add 13 minutes, 56 seconds to a five-day commute between the schools, Monday to Friday.

Reduced speed limits may take four years to implement because of all the signs that must be replaced. The cost is estimated at between $403,000 and $456,000 depending on the speed limit chosen.

JEFF OUTHIT IS A WATERLOO REGION-BASED GENERAL ASSIGNMENT REPORTER FOR THE RECORD. REACH HIM VIA EMAIL: JOUTHIT@THERECORD.COM

SHORE taking over pregnancy support program

SHORE Centre will take over Stork Secrets from Our Place Family Resource and Early Years Centre on July 1

WATERLOO REGION RECORD

KITCHENER A new home has been found for a program run by the soon-to-close Our Place Family Resource and Early Years Centre.

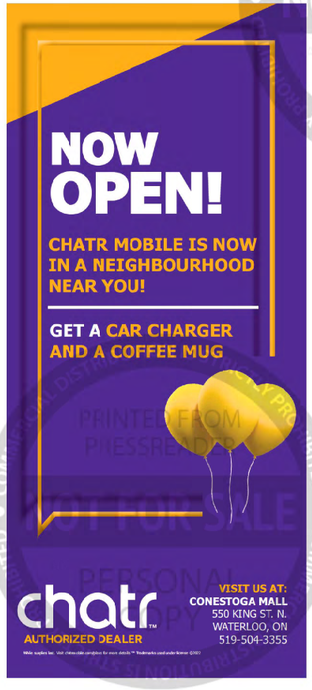
SHORE Centre will take over Stork Secrets from Our Place Family Resource and Early Years Centre on July 1, following Our Place's announcement in early May it was closing at the end of June due to funding cuts.

The Kitchener-based non-profit organization that had been serving families in Waterloo Region for more than four decades wanted to find a new place to host the Stork Secrets program, a pregnancy and postpartum peer-support program.

SHORE Centre's executive director is pleased to welcome Stork Secrets to the Kitchener centre, where it will be a good fit with the centre's other supports for pregnant women and new parents, including free counselling, outreach and advocacy.

"We are incredibly grateful to Our Place for their more than 40 years of service, and for trusting us with the Stork Secrets program," said TK Pritchard.

Our Place Family Resource and Early Years Centre — which was founded in 1979 by a group of women to help stay-at-home mums — provided supports and resources for young families and was a mobile operator with EarlyON Waterloo Region, run with local and provincial funding as well as donations.



Region of Waterloo
Public Notice

We Want To Hear From You
On These Upcoming Projects/Events In Your Area

The full details of any notices are available on our Public Notices webpage at www.regionofwaterloo.ca; click on the News and Public Notices link from the Regional Government drop-down menu.

If you have any trouble viewing this information or wish to obtain a full copy of any Public Notice, please contact the Regional Clerk's office at 519-575-4400 or email RegionalClerk@regionofwaterloo.ca

Public Consultation
King Street East and Coronation Boulevard Improvements
Bishop Street to Riespeler Road/Water Street, Cambridge

The Region of Waterloo is hosting a virtual Public Consultation **June 8 to July 6, 2022** as an opportunity for the public to share their comments with us as we plan for active transportation and road improvements on King Street East and Coronation Boulevard, Cambridge. The project team will post the two design concepts for improvements along King Street and two design concepts for Coronation Boulevard for your review and input. You will also have further input into the type of pedestrian and cycling facilities along both sides of King Street and Coronation Boulevard.

We want to hear your comments and ideas or how we can make improvements for all modes of transportation. Please visit our King and Coronation Boulevard project page at Engagewr.ca/king-and-coronation-improvements and complete the online survey by **July 6, 2022.**

If you have any additional questions please contact Greg Proctor, C.E.T., at gproctor@regionofwaterloo.ca for more details.

Under the "Municipal Act", personal information such as name, address, telephone number, and property location that may be included in a submission becomes part of the public record. Questions regarding the collection of this information should be referred to the person indicated above.

Public Consultation
West Montrose Covered Bridge Rehabilitation
Township of Woolwich

We invite you to share your comments and opinions with us as we present a preferred option for the West Montrose Covered Bridge Rehabilitation Project, Township of Woolwich.

This virtual public consultation is open from **June 7 to July 4, 2022 at** engagewr.ca/west-montrose.

If you have any questions about the project, please email or call Michelle Pinto at mpinto@regionofwaterloo.ca or Doug Dixon at ddixon@dougdixonassociates.com.

Under the "Municipal Act", personal information such as name, address, telephone number, and property location that may be included in a submission becomes part of the public record. Questions regarding the collection of this information should be referred to the person indicated above.

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LOCAL, A3
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SPORTS, A12

WEATHER HIGH 23 | CHANCE OF THUNDERSHOWERS | **MAP A17**

SATURDAY, JUNE 11, 2022



MATHEW MCCARTHY WATERLOO REGION RECORD

The 140-year-old iconic West Montrose covered bridge is due for a multimillion-dollar repair job.

West Montrose bridge slated for major repairs

Region wants input on work on Ontario's last covered bridge

JOHANNA WEIDNER
WATERLOO REGION RECORD

WEST MONTROSE The West Montrose covered bridge is slated for a major structural upgrade and the Region of Waterloo wants input from the public on proposed improvements to Ontario's only remaining covered bridge.

"This is one of the iconic structures in the region," said project manager Michelle Pinto.

Strengthening the 140-year-old wooden bridge is essential to preserve the landmark, Pinto said, and to ensure "visitors can continue to enjoy it for years to come."

Because the bridge is an iconic site that draws visitors to its covered span crossing the Grand River and even a film crew for a unique backdrop in the blockbuster movie "It," the aim of the repairs is to strengthen the bridge with minimal changes to its appearance.

"We want to maintain the look as much as possible," Pinto said.

Construction is expected to start in summer 2023 and likely take until 2024 to complete, if approved by council when recommendations are presented this fall.

The federal and provincial governments earmarked more than $4.5 million in April 2021 for its repair and rehabilitation.

The bridge was built in 1881 with wooden trusses, which were supplemented with steel trusses in 1950.

"They were installed to provide additional support to the bridge," Pinto said.

SEE BRIDGE, A2

COVID-19's lingering legacy

New UW study finds people who contracted virus reported workplace struggles even after recovering from infection

JOHANNA WEIDNER
WATERLOO REGION RECORD



WATERLOO People can struggle significantly with meeting their job demands after having COVID-19, a new University of Waterloo study has found.

People who contracted COVID-19 reported significantly more problems with memory, attention and concentration even after recovering enough to be able to return to work.

"The people who had COVID were more likely to say, 'Yes, I'm struggling to do my job,'" said James Beck, an associate professor in Waterloo's psychology department.

Beck and his graduate student, Arden Flow, surveyed 94 full-time working adults who either had or had not become infected with COVID-19 at least one month before the study.

"The group who had (COVID) reported significantly higher levels of those cognitive failures," Beck said.

Those workplace struggles meant people often rated their job performance more poorly and thought more about leaving their current job, researchers found.

Those affected may wonder if they can still handle the job or if they need to find something less demanding.

"If you find yourself in that position, that's going to seriously affect your ability to make a living," Beck said. "It could be very impactful on someone's life."

> **The people who had COVID were more likely to say, 'Yes, I'm struggling to do my job.'**
>
> JAMES BECK
> ASSOCIATE PROFESSOR AT UNIVERSITY OF WATERLOO

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Bridge

CONTINUED FROM A1

The province took over ownership of the bridge in 1937, and in 1998 that was transferred to the Region of Waterloo, which undertook major rehabilitation of the bridge in 1999, including upgrading the steel trusses and replacing various wooden components followed by more repairs in the subsequent years.

Several studies were done between 2012 and 2018 to assess the hybrid dual-truss system, ultimately concluding that the bridge should undergo a major rehabilitation to its load-bearing system for the safety of the structure and its users.

The aging original wood trusses are transferring load to the steel trusses, which are not capable of carrying the entire load of the bridge. If too much load is shifted to the steel trusses, they could be overloaded and the bridge could collapse.

"These need to be removed and replaced or the bridge needs additional reinforcement," Pinto said.

The recommended option, which was chosen based on criteria set by the regional team as well as input from the first round of public consultation, includes removing the steel trusses and strengthening the existing wooden trusses with high-strength fibre reinforcement, replacing the wooden deck and redoing the tar and chip surface, removing the interior white cladding and installing a timber guiderail.

The height of the bridge will increase by about 30 centimetres with the added bottom reinforcement.

Outside, a height-restriction bar will prevent heavy vehicles from using the bridge, and the roof shingles will be replaced along with the exterior red cladding.

"It will be new, so it will look brighter," Pinto said.

People can review the preferred design and provide feedback on the improvements being considered.

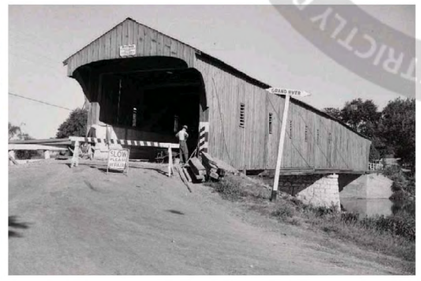
The survey is open at engagewr.ca/west-montrose until July 4 and people can also post questions on the Q&A tab.

JOHANNA WEIDNER IS A WATERLOO REGION-BASED REPORTER FOCUSING ON HEALTH AND EDUCATION FOR THE RECORD. REACH HER VIA EMAIL JWEIDNER@THERECORD.COM

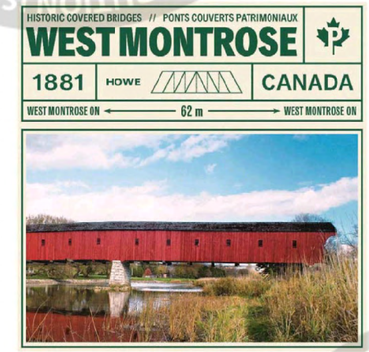


WARNER BROTHERS PICTURES

Sophia Lillis stars in a scene from the movie "It," which features the covered bridge in West Montrose.



The West Montrose bridge was closed in 1954 for repairs, taking it out of service for only the second time in its history.



CANADA POST

The landmark structure, known as the kissing bridge, was commemorated with a stamp from Canada Post in 2019.

CityNews Everywhere

Region seeking public consultation for West Montrose Bridge

By CityNews Kitchener Staff
Posted Jun 9, 2022 07:00:00 PM.

The region is seeking public opinion for the rehabilitation of one of Ontario's last remaining covered bridges.

Located in the Township of Woolwich, the West Montrose Covered Bridge was built in 1881 and has been maintained by the region since 1998. It's in need of a structural repair “to ensure it will continue to be part of the community for years to come.”

Region residents are invited to share their comments and opinions on the preferred option for the bridge's rehabilitation project.

The region has posted a video presentation explaining the preferred option, as well as other alternatives that were considered, and how they evaluated each option.

The virtual public consultation is open until July 4. The website also includes project documents and frequently asked questions.

You can email or call Michelle Pinto, project manager for the Region, if you have any questions about the consultation or project at mipinto@regionofwaterloo.ca, 519-575-4400, ext. 3637.

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Top Stories

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Region of Waterloo
8 June 2022 ·

We're looking at some options on how to rehabilitate the West Montrose Covered Bridge in the Township of Woolwich and we're asking for your feedback.

Find more details and complete the survey by July 4 at engagewr.ca/west-montrose



You and 31 others 20 comments 20 shares

Like Comment Share

Most relevant

Write a comment...

[redacted]
Love it just the way it is thanks. May just need some more structural help for its future.

Like Reply 1 y

Author

[redacted] We are looking to rehabilitate the bridge to preserve it so future generations can love it too! Learn more about the options being considered at engagewr.ca/west-montrose or watch the Public Consultation #2 recording here: htt... **See more**



ENGAGEWR.CA

West Montrose Covered Bridge Rehabilitation - Woolwich

Like Reply 1 y

[redacted]
It would be a shame to see it go. It's such a huge part of the area and used in many films.

Like Reply 1 y

Author

Waterloo
[redacted], The purpose of the survey is for residents to provide input on plans to rehabilitate the bridge to ensure safety and preservation of the structure so it can be conserved for many decades to come. It is not going anywhere!

6

Like Reply 1 y

[redacted]
Love this bridge. It's featured in so many movies including my all time fave "In the Mouth of Madness". It must be preserved!!!



3

Like Reply 1 y

Author

[redacted], the bridge is well loved! If you would like to share your feedback on how it will be preserved and rehabilitated, please check out engagewr.ca/west-montrose



ENGAGEWR.CA

West Montrose Covered Bridge Rehabilitation - Woolwich

Like Reply 1 y

[redacted]
Waist of taxpayers dollars.

[redacted]
Keep as many original structural components as possible

Like Reply 1 y

Author

[redacted], Please feel free to share your thoughts on the survey, find it here: https://www.engagewr.ca/.../public-consultation-centre



ENGAGEWR.CA

Public Consultation Centre #2 Survey

Like Reply 1 y

[redacted]
I just was there...

Like Reply 1 y

[redacted]
You should see how Hartland NB has maintained theirs 🥲 it's longer and in amazing shape!

Like Reply 1 y

[redacted]
Plz dont disturb the water my grandmas ashes were spread there

Like Reply 1 y

Author

[redacted], It is a beautiful location. The rehabilitation is happening so the bridge can be preserved for many years to come and can remain safe for bridge users. If you would like more information about what type of work may happen at t... **See more**



ENGAGEWR.CA

West Montrose Covered Bridge Rehabilitation - Woolwich

Like Reply 1 y

5 replies

"Most relevant" is selected, so some replies may have been filtered out.

"Most relevant" is selected, so some comments may have been filtered out.

Region of Waterloo

West Montrose Bridge engagement is now open

Posted on Thursday June 09, 2022 Subscribe

Waterloo Region – The West Montrose Covered Bridge is one of Ontario's last remaining covered bridge, located in Woolwich Township, and is owned and maintained by the Region of Waterloo.

Built in 1881 and maintained by the Region since 1998, the bridge is in need of structural repair to ensure it will continue to be part of the community for years to come.

Public consultation

We invite you to share your comments and opinions with us as we present a preferred option for the West Montrose Covered Bridge, Township of Woolwich, rehabilitation project. We have posted a video presentation that explains the preferred option, other alternatives that were considered, and how we evaluated the alternatives to reach a preferred alternative. Please complete the survey to share your comments.

This virtual public consultation is open until **July 4** at engagewr.ca/west-montrose. Project documents, including frequently asked questions, are also available on this webpage.

Please email or call Michelle Pinto, project manager for the Region, if you have any questions about the consultation or project at mipinto@regionofwaterloo.ca, 519-575-4400, ext. 3637.

-30-

Back to Search

Chat

Region of Waterloo

West Montrose Covered Bridge Rehabilitation
Township of Woolwich

Public Consultation Centre #2
Information Package
https://www.engagewr.ca/west-montrose

What: The Regional Municipality of Waterloo plans to rehabilitate the West Montrose Covered Bridge through a Schedule "A+" Municipal Class Environmental Assessment (Class EA).

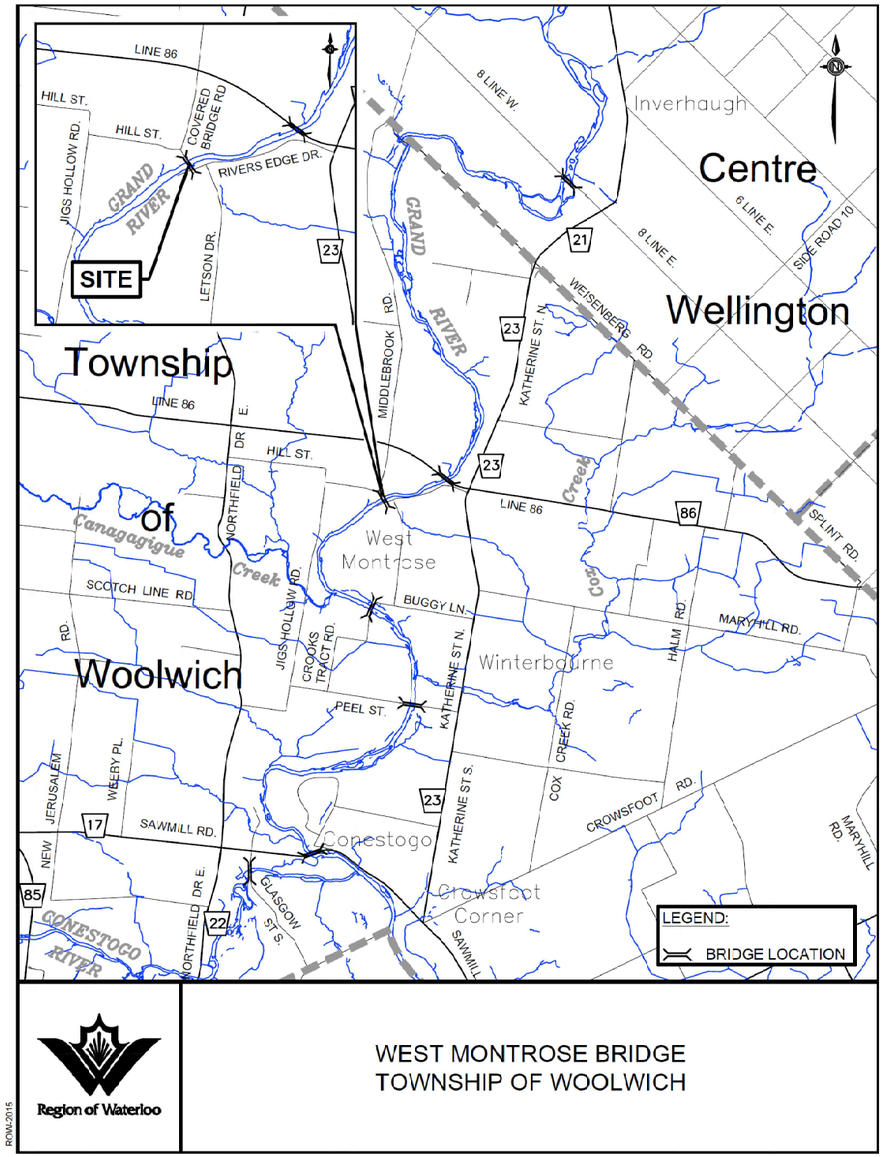
Where: Covered Bridge Road in the Township of Woolwich.

Why: To conduct a comprehensive structural rehabilitation of the West Montrose Covered Bridge to ensure safety and preservation of the structure over the long-term.

When: 2023 construction (tentative).

Who: Region of Waterloo Project Manager
Michelle Pinto
519-575-4400 x3637
MiPinto@regionofwaterloo.ca

KEY PLAN



CONTENTS

Frequently Asked Questions
Survey

Appendix A – Brief History of Bridge
Appendix B – Existing Bridge Components and Planned Rehabilitation Measures
Appendix C – Rehabilitation Alternatives
Appendix D – Deck Replacement Options
Appendix E – Height Restriction Bar Options
Appendix F – Evaluation of Alternative Rehabilitation Methods
Appendix G – Proposed Access and Staging Areas

1. Why is the Region considering this project?

The West Montrose Covered Bridge requires a complete structural rehabilitation in order to ensure that the structure will continue to serve the public through the current century.

Between 2012 and 2018, the Region undertook a number of field studies and analyses to determine the long-term structural behaviour of the hybrid dual truss system (consisting of the original 1881 wood truss and the supplemental 1944 steel Bailey truss). The principal ultimate findings were as follows:

- The dead load (i.e. weight of the bridge itself) and live loads (i.e. weight of vehicles, pedestrians, snow, etc.), are being carried by both the original wooden truss and the steel Bailey trusses.
- As the original wood trusses age, they are “shedding” (transferring) load to the Bailey trusses.
- The Bailey trusses do not have sufficient capacity to carry the entire load of the bridge. Accordingly, if sufficient load is shed by the wooden trusses onto the Bailey trusses, the Bailey trusses could become overloaded leading to the collapse and loss of the bridge.
- The Bailey trusses (manufactured in 1944) are now 76 years old and cannot be readily retrofitted to achieve a strength sufficient to carry the entire load of the bridge.
- The life of the bridge and the safety of the bridge cannot be addressed through restriction of the bridge to pedestrian-only traffic. For example, a tour group of 40 adults on foot imposes a weight approximately equal to two passenger vehicles plus occupants.
- For the best assurance of safety of the structure and its users, the bridge should undergo a major rehabilitation intended to provide a single robust load bearing system capable of supporting all dead and live loads imposed on the bridge.

A brief chronology of the West Montrose Covered Bridge is presented in **Appendix A**.

Pictures of the bridge with labels of the various components can be found in **Appendix B**

2. Who is directing this project?

The planning and design for this project is being directed by staff from the Region of Waterloo and Township of Woolwich, along with Township of Woolwich Mayor Sandy Shantz and Township of Woolwich (Ward 3) Councillors Larry Shantz and Murray Martin. The consulting engineering firm Doug Dixon and Associates (“DDA”) has been

retained by the Region of Waterloo to provide preliminary and final design services for this project, as well as contract administration and inspection services through the construction phase.

3. How is this project being planned?

This project is being planned in accordance with the requirements of the Municipal Class Environmental Assessment (Class EA) process. The Municipal Class EA process is a planning and decision-making process approved under the Environmental Assessment Act that is used by municipalities to plan public infrastructure projects in order that potential environmental impacts are considered before a project is approved. It requires consultation with the public, involved stakeholders, and agencies in consideration of alternatives and their potential impacts on the project environment.

This project is being planned as a Schedule “A+” Class EA project which applies to projects that are classified as pre-approved under the Environmental Assessment Act, with the added requirement of public notification prior to implementation.

4. What is the purpose of this second public consultation?

The purpose of this second public consultation is to offer an opportunity for the public and interested stakeholders to provide input on the:

a) Alternatives that were considered by the project team for the major rehabilitation of the bridge.

b) Criteria used to evaluate the alternatives.

c) Project team preferred alternative rehabilitation strategy.

Responses to the comments received in PCC#1 can be found on the Engage website.

Updated information on this project, and a short survey to capture your comments, is available at EngageWR.ca (https://www.engagewr.ca/west-montrose).

Region and project consultant staff are available to answer questions. You can reach staff through the EngageWR site, email, mail, or telephone. Contact information is available in this Information Package.

All comments received, study and technical findings, best practices and all information received will be considered by the project team to complete the planning and design for this project.

5. What work has been completed on this project since the first Public Consultation Centre (PCC)?

Following Public Consultation Centre #1, the project team collected and summarized all comments and feedback received. A summary of those comments, complete with responses from the project team, are included on the EngageWR website for the West Montrose Covered Bridge Project.

Work is ongoing for the Natural Resource Assessment, Heritage Impact Assessment and Archeological Study required for this project. The Region has continued engagement with various stakeholders and agencies including the Grand River Conservation Authority (GRCA) and Fisheries and Oceans Canada (DFO).

After receiving feedback from members of the public during the first PCC, the project team has evaluated additional alternatives for the rehabilitation of the West Montrose Covered Bridge and has chosen a preferred alternative which includes strengthening of the existing wooden truss with high-strength fibre reinforcement. The project team is seeking feedback on the preferred rehabilitation alternative.

6. What rehabilitation actions are planned for this project?

The rehabilitation actions planned for this project include the following:

- Remove the existing steel 1944 Bailey trusses and strengthening of the existing wooden truss, designed and built specifically for the purpose of carrying the loads of the West Montrose Covered Bridge.
- Increase the height of the bridge by 300mm or one foot to facilitate reinforcing the bottom chord of the existing wooden truss.
- Remove the interior white cladding and installation of a timber guide rail to protect the wooden truss.
- Replace the deck system, including the longitudinal stringers and transverse nail-laminated wood deck with a timber glue-laminated deck (refer to Appendix D).
- Replace the roof system.
- Replace the external red timber cladding with new, longer cladding to match the new height of the bridge.
- Remove the non-functioning longitudinal tension-rod system installed by MTO in the 1950s.
- Install height restriction bars to prevent entry by unauthorized oversize/overweight vehicles (refer to Appendix E).

- Place a boulder “protection collar” around the base of the pier in order to guard against harmful scour effects associated with heavy river flows during flood events.

Please refer to Appendix **B** for figures showing the planned rehabilitation measures.

7. How is the natural environment being considered?

A Natural Resource Assessment is underway for this project by Ecotec Environmental. The relevant environmental review agencies including the Region of Waterloo, Grand River Conservation Authority (GRCA), Ministry of Natural Resources and Forestry (MNRF), Ministry of Environment Conservation and Parks (MECP), and Department of Fisheries and Oceans (DFO) will be liaised with for input in the environmental assessment/review process.

8. How is the Cultural / Heritage environment being considered?

The Region of Waterloo must apply to the Township of Woolwich for approval of any changes to the bridge that will impact heritage attributes identified in the Ontario Heritage Act Designation By-law.

The steel Bailey truss that was added internally to the bridge in a 1959 rehabilitation project is not supporting the bridge as intended and needs to be removed as part of this project. Archive photos show the cladding inside the bridge dating at least as far back as the early 1940s. The Bailey truss and interior white cladding are specifically identified in the Heritage Designating By-law for the bridge. As such, this by-law will need to be amended. It is anticipated that the amendment to the Designation By-law can occur either nearing the completion or after the rehabilitation and reconstruction work.

The rehabilitation and reconstruction project has been planned with retaining cultural heritage value as its central consideration. A Heritage Impact Assessment (HIA) will be prepared to assess potential impacts of the project and recommend mitigation measures for any identified negative impacts. Once completed, the HIA will be reviewed by the Region’s and Township of Woolwich’s Heritage Planning Committees.

A Conservation Plan that will build on 2014 Preservation Plan for the bridge and the recommendations of the HIA will also be developed. The Conservation plan will outline measures that may need to be undertaken during the bridge rehabilitation, as well as conservation measures for the short, medium and long-term to ensure timely and appropriate maintenance and conservation efforts.

While some negative impacts cannot be avoided, it is the sole purpose of this project to preserve the heritage bridge in perpetuity. The information gathered through the above

supporting studies will be used to make certain the rehabilitation project will be undertaken in the least impactful way and ensure that the West Montrose Covered Bridge will be conserved for many decades to come.

9. What alternatives are being considered regarding the planned rehabilitation actions? How were they evaluated?

There are two rehabilitation options currently under consideration:

Alternative A – Steel Girder Reinforcement. This option was presented to the public in PCC#1, and involves removal of the existing Bailey truss and replacement with new steel girders. The interior white cladding would be replaced and the new steel girder would be hidden from view, similar to the look of the bridge interior today.

Alternative B (Preferred) – Timber Truss Reinforcement. This option involves strengthening of the existing wooden truss with high strength fiber reinforcement. The height of the bridge would increase by approximately 300mm or one foot to facilitate reinforcing the bottom chord of the existing wooden truss. The interior cladding would be removed under this Alternative, and the addition of a timber guiderail would be required to protect the wooden truss from damage.

Please refer to **Appendix C** for figures showing the two rehabilitation alternatives.

A height restriction bar is proposed under both alternatives and was supported by the public in PCC#1. Please refer to **Appendix E** for the height restriction bar options that the project team is seeking input on during this round of public consultation.

Under both alternatives, the existing wooden deck would be replaced with a glue-laminated timber deck.

10. How have the bridge rehabilitation alternatives been evaluated?

The rehabilitation alternatives have been assessed against a set of evaluation criteria by the project team to determine which alternative is “Preferred” and is considered to best address the needs and opportunities for improvements to the West Montrose Covered Bridge.

The evaluation criteria included the following:

- Structural—compliance with design standards, level of redundancy, structural integrity and longevity.
- Constructability—consideration for the complexity or ease of the construction process and approval requirements.

- Heritage—does the alternative preserve the cultural heritage of the bridge? Is the alternative reversible?
- Aesthetics—how visually appealing is the proposed alternative?
- Sustainability—which alternative requires less energy to construct and produces the least amount of greenhouse gas emissions?
- Costs—what is the total cost of the alternative, including construction costs and the costs for future maintenance requirements?

Following PCC#1, the project team reviewed public input to develop and finalize the evaluation of the rehabilitation alternatives. Results of the project team evaluation of the rehabilitation alternatives was tabulated (**Appendix F**). The alternatives ranked closely for a number of criteria however, Alternative B was slightly preferred over Alternative A for aesthetic and sustainability reasons.

11. What is the project team’s preferred alternative?

Based on the evaluation of the rehabilitation alternatives, including public and agency input, as well as the various inventories and identified constraints, the project team’s preferred alternative includes the following:

- Remove the existing Bailey truss and strengthening of the existing wooden truss with high strength fiber reinforcement.
- Increase the height of the bridge by approximately 300mm (one foot), as a result of the increased depth of the bottom chord. This results in the need for new, longer exterior cladding.
- Install height restriction devices to restrict heavy vehicles from using the bridge.
- Reinstate the tar and chip wearing surface.
- Replace the existing wooden deck with a timber glue-laminated deck.
- Remove the interior white cladding and installation of a timber guiderail to protect the wooden truss.

Please refer to **Appendix C** and **Appendix D** to view the elements of the Preferred Rehabilitation Alternative in closer detail.

12. Will a fire suppression system be installed as part of the main rehabilitation contract?

The Region will continue to investigate options for the installation of a fire suppression system. Since the local watermain does not have sufficient pressure and/or flow capacity to drive a fire suppression system, a more in-depth review of alternative water sources and potential budget requirements will be completed as a separate

undertaking. The preferred alternative rehabilitation method will not preclude the installation of a sprinkler system at a later date.

The Region's contacts in New Brunswick have noted that fire suppression systems can be very expensive. New Brunswick officials note that only one of New Brunswick's 50 covered bridges (Hartland) is equipped with a fire suppression system.

By investigating the feasibility of a fire suppression system in a follow-up contract, the design can be removed from the critical path for the rehabilitation work. This also provides more time for the Region to identify and retain a firm interested in providing the design of the system.

13. Is any private property required for the preferred alternative?

The work will require access to the river near the bridge. The Region will seek to arrange for temporary access with adjacent property owners or seek to acquire necessary easements as required. Please refer to **Appendix G** for a plan view showing the proposed access locations.

14. What is the estimated cost of this project?

The recommended rehabilitation will cost approximately $4,000,000. Please note that this cost is only an estimate. The final cost will depend on the exact scope of work and details incorporated into the rehabilitation.

Funding for this project is being provided by the Investigating in Canada Infrastructure Program (ICIP).

15. What is the project schedule? When will construction occur?

Construction is currently scheduled to begin starting in summer 2023 and continue until summer 2024.

16. Will the bridge be closed to vehicles and pedestrians during construction?

Construction of the rehabilitation will require the full closure of the West Montrose Covered Bridge to all motorized vehicles and horse-and-buggy traffic for up to one full year.

It is currently believed that the bridge can remain open to pedestrians and cyclists for most of the construction period; however, there will be critical phases where the bridge

will be unavailable to pedestrians and cyclists for an estimated period of up to two weeks.

Detour routes will be established and efforts will be made to make these routes as convenient and safe as possible for all road users, including horse-and-buggy traffic, pedestrians, cyclists and motorists.

More detailed information will be made available prior to construction to adjacent property owners, tenants and the public.

17. How will I receive further notification regarding this project? How can I view project information following PCC#2?

Property owners and tenants abutting the project site and members of the public registering at this Public Consultation Centre will receive all forthcoming public correspondence, and will be notified of all future meetings.

Alternatively, you may visit https://www.engagewr.ca/west-montrose. Please "Subscribe" to the page to receive update notices.

The PCC display materials, and other relevant project information, notifications of upcoming meetings, and contact information are available by visiting https://www.engagewr.ca/west-montrose.

18. How can I provide my comments?

We want to hear from you!
Visit engagewr.ca and complete the survey to share your comments.
You can also mail, or email your comments to the project team leads as indicated below.

Thank you for your participation. Please contact Michelle or Doug if you have any questions or concerns.

Michelle Pinto, P.Eng., MBA
Engineer
Region of Waterloo
150 Frederick Street
Kitchener, ON N2G 4J3
519-575-4096
mipinto@regionofwaterloo.ca

Doug Dixon, P.Eng.
Consultant Project Manager
Doug Dixon & Associates Inc.
2 County Court Blvd #345
Brampton, ON L6W 3W8
647-405-0523
ddixon@dougdixonassociates.com

Survey on West Montrose Covered Bridge Rehabilitation
Due: Monday, July 4, 2022

Please feel free to select from any of the following options to complete and submit the survey.

Option 1 – On-line survey at www.engagewr.ca/west-montrose/

Option 2 – Email survey. Copy-and-paste the survey text into an email message and send it to MiPinto@regionofwaterloo.ca. Alternatively, you may print and complete a paper version of the survey and send a scan of the survey to same email address.

Option 3 – Mail-In survey. If you received a paper copy of the survey (or if you have printed your own copy), you may complete it and mail it to the Region at the following address.

Michelle Pinto, P.Eng., Engineer, Region of Waterloo
150 Frederick Street, Kitchener, ON N2G 4J3

If you would like to receive a paper copy of the survey, please contact Michelle Pinto at 519-575-4400, ext. 3637 or mipinto@regionofwaterloo.ca.

If you wish to complete the survey, we ask that you send it to the Region no later than **July 4, 2022**.

1. **What advantages do you see in moving forward with the preferred alternative?**

   (The Preferred Alternative involves strengthening the existing wooden truss using high strength fiber reinforcement. The height of the bridge would be increased due to the increased depth of the bottom chord of the truss. The interior cladding would be removed and a timber guide rail installed.)

2. **What challenges do you see in moving forward with the preferred alternative?**

3. **What are your thoughts on removing the white cladding in the interior to expose the wooden truss elements?**

   (The addition of a railing would be required to protect the wooden truss.)

- ☐ I support the removal of the interior white cladding to expose the wood truss and the addition of a timber railing as required to protect the truss.
- ☐ Leave it as is, regardless of which Alternative is recommended. The interior white cladding is part of the history of the bridge.
- ☐ Not Sure / No preference.
- ☐ Other (please specify) _____

4. Additional roadside features are required to prevent large vehicles from gaining access to the West Montrose Covered Bridge, causing damage to the floor beams. What advantages/disadvantages do you see with each option?

☐ Option 1 – Steel Goal Post

☐ Option 2 – Wooden Goal Post

☐ Other (please specify)

5.

5. Do you have any other comments regarding this project?

Please provide your contact information.

Name:

Address:

Postal Code:

Phone:

Email:

Collection Notice:

All comments and information received from individuals, stakeholder groups, and agencies regarding these projects and meetings are being collected to assist the Region of Waterloo in making a decision. Under the "Municipal Act", personal information (such as name, address, telephone number, and property location) which may be included in a submission becomes part of the public record. Questions regarding the collection should be forwarded to the staff member noted above.

APPENDIX A – BRIEF HISTORY OF THE WEST MONTROSE COVERED BRIDGE

1881. The original bridge constructed. The two span bridge employs wooden trusses to support weight on the bridge.

After 1900. Original wood abutments replaced with concrete abutments.

1933. The original wooden trusses are replaced.

1937 - 1998. The Ontario Department of Highways (DOH), now the Ministry of Transportation, assumes ownership of the bridge. The DOH undertakes miscellaneous work to strengthen the bridge, including the addition of steel World War II era bailey trusses, hidden from view by the use of white wood cladding.

1998. The Ministry of Transportation transfers ownership of the bridge to the Region of Waterloo.

1999 - 2014. The Region completes a number of major and minor rehabilitation projects. Long-term structural monitoring started in 2012.

2014 - 2019. The Region presents its 10-year Preservation Plan for the bridge. Improvement recommendations included: installation of fire and lightning protection ;regulatory and advisory signage improvements; approach barrier upgrades; bracing restoration; climate studies; survey sensor installation; sprinkler installation; illumination upgrades; floor beam strengthening; and overall structural strengthening. The Region begins to implement these recommendations.

2019. The Region completes the gathering of the long-term bridge monitoring data. A Structural Evaluation to the current Bridge Design Code is undertaken, using data gathered through long-term bridge monitoring.

2020. Region Council approves a structural rehabilitation plan for the bridge.

2020 - 2021. Detailed engineering design starts for the upgrades.

For a more detailed history of the bridge, please visit: https://www.engagewr.ca/west-montrose

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APPENDIX B – EXISTING BRIDGE COMPONENTS AND PLANNED REHABILITATION MEASURES

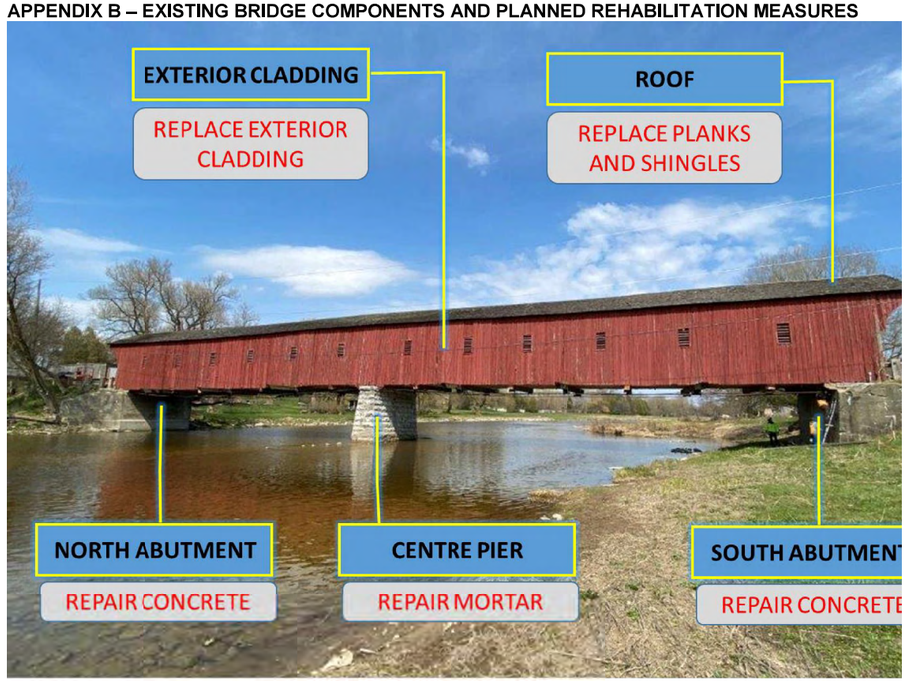


Figure B1: Elevation View – Bridge Components and Proposed Rehabilitat

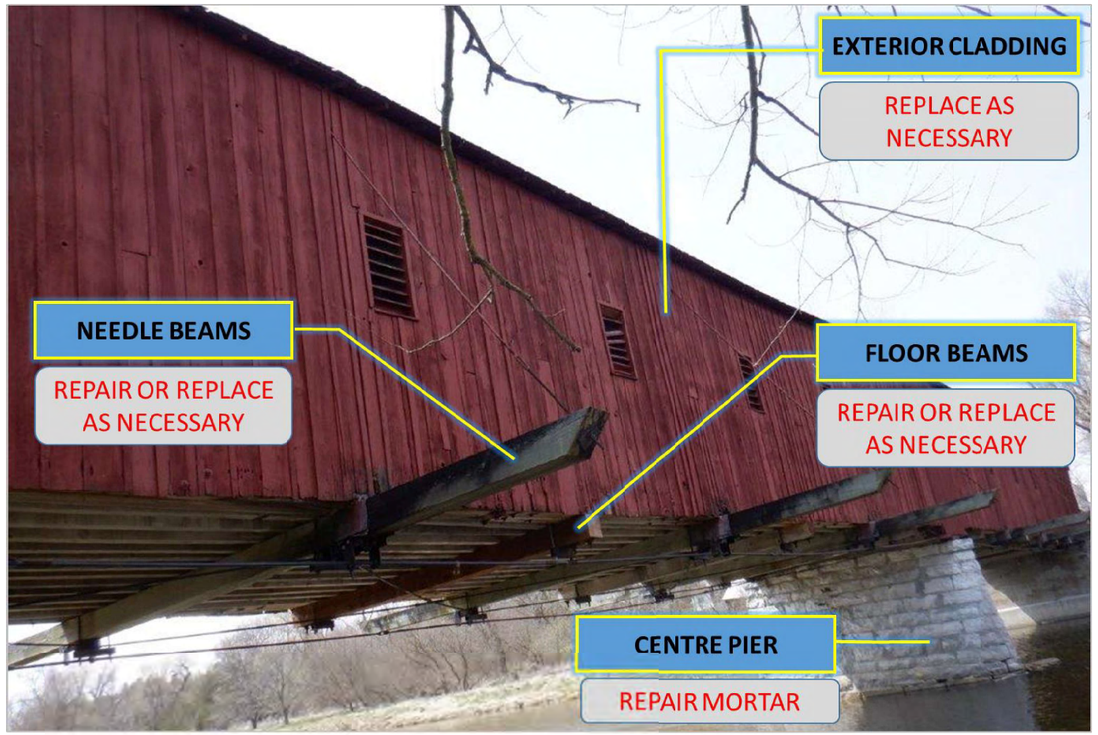


Figure B2: Exterior View – Bridge Components and Proposed Rehabilitation

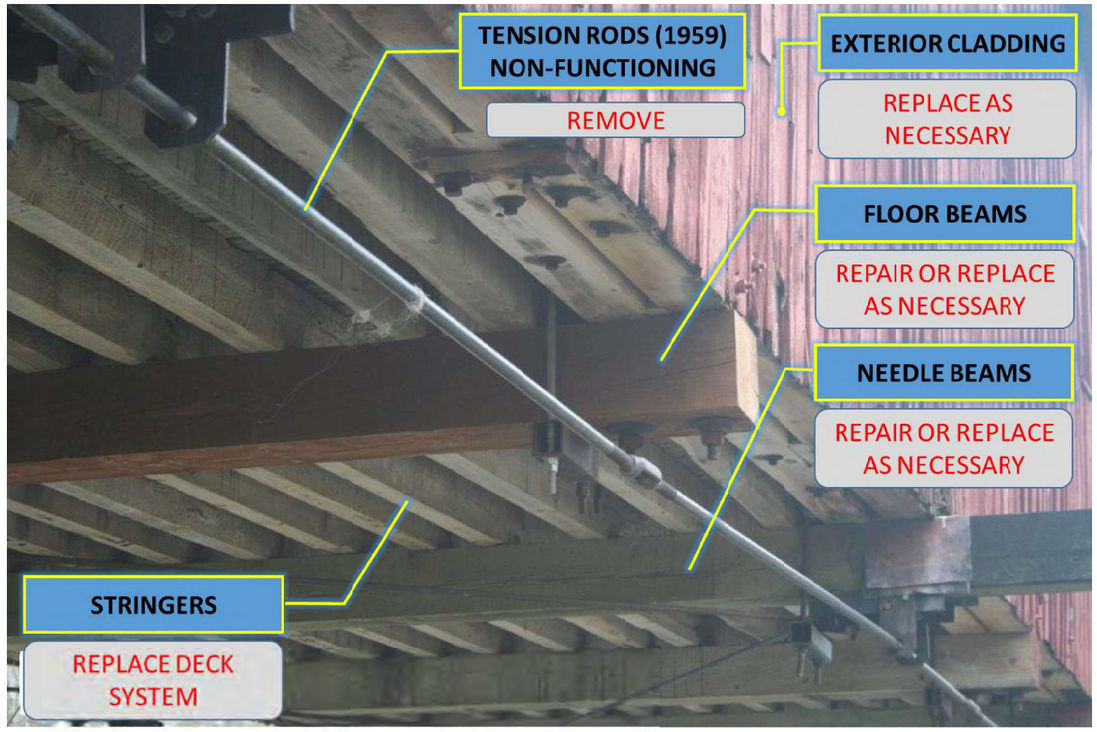


Figure B3: Exterior View – Bridge Components and Proposed Rehabilitation

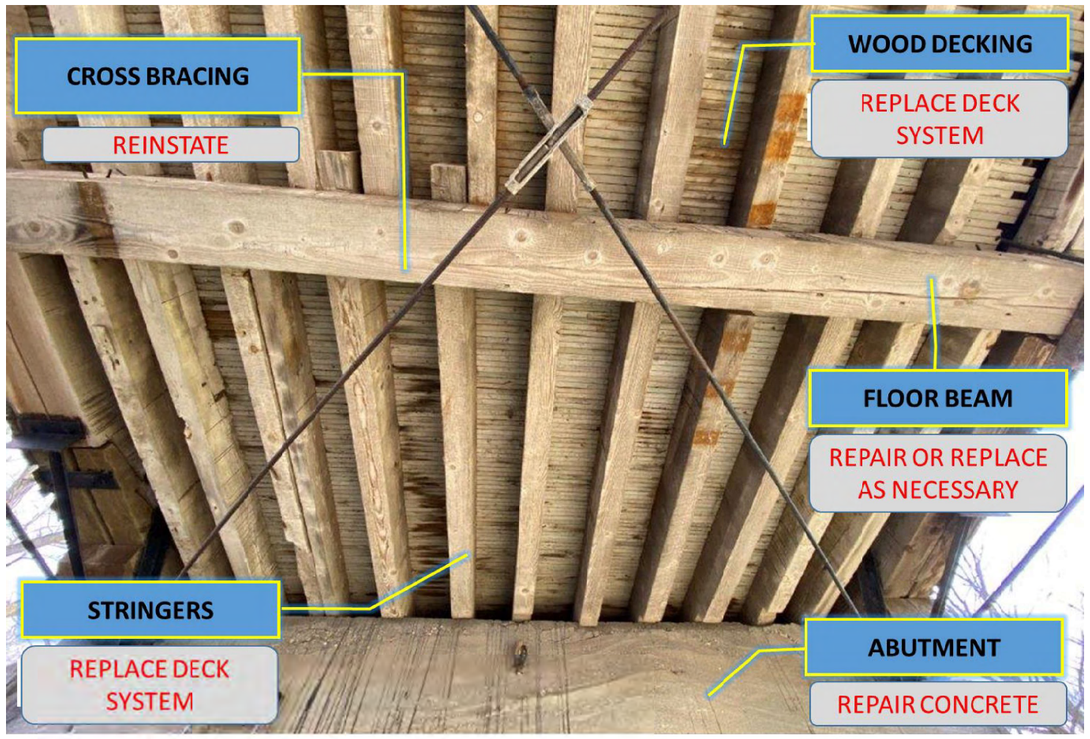


Figure B4: Underside View – Bridge Components and Proposed Rehabilitation

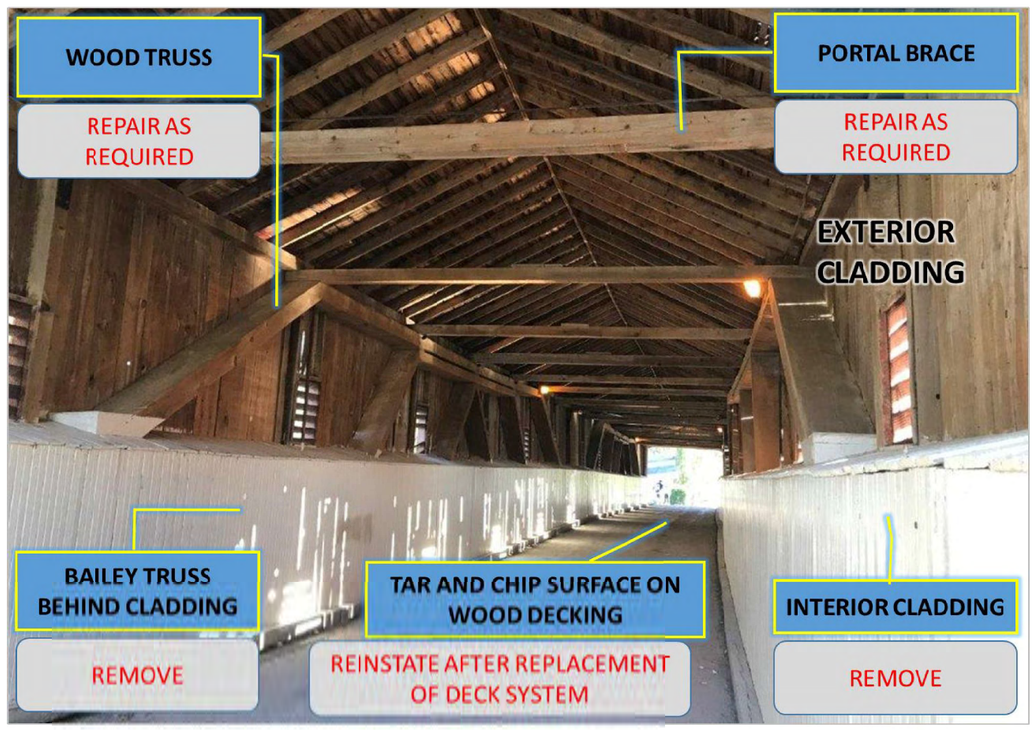


Figure B5: Interior View – Bridge Components and Proposed Rehabilitation

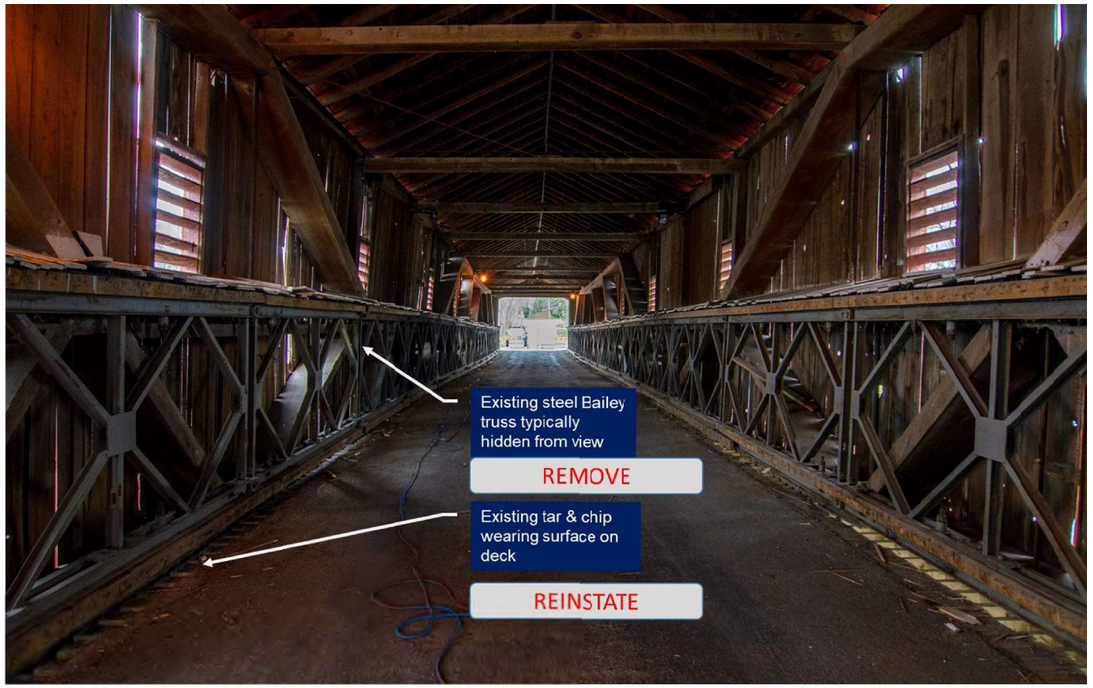


Figure B6: Interior View of Truss Systems – Existing – Interior Cladding Removed

APPENDIX C – REHABILITATION ALTERNATIVES

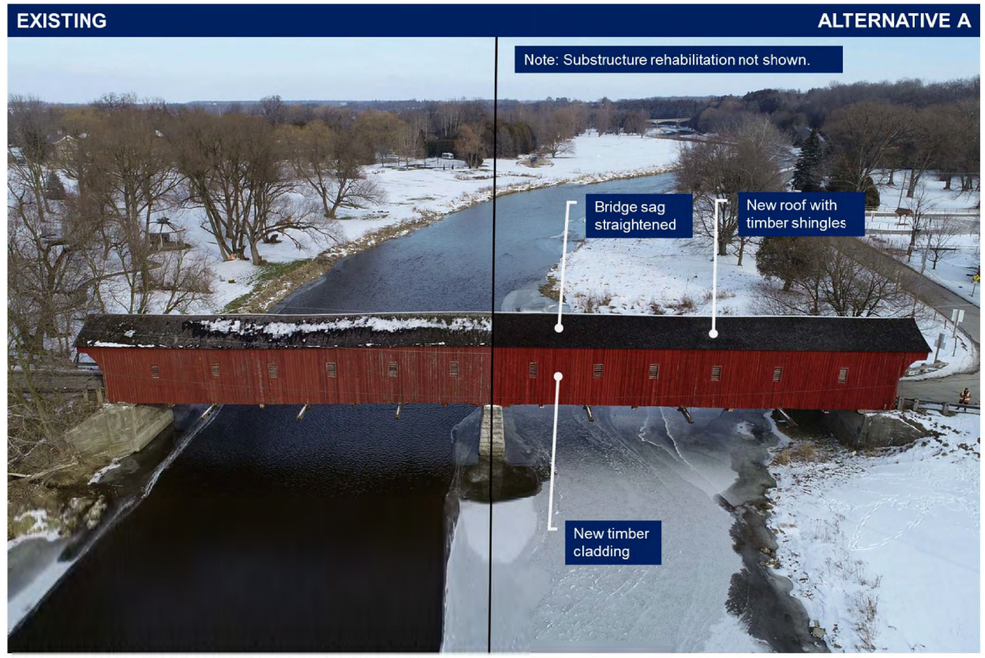


Figure C1: Elevation View – Existing and Alternative A (Steel Girder Reinforcement)



Figure C2: Elevation View – Existing and Alternative A (Steel Girder Reinforcement)

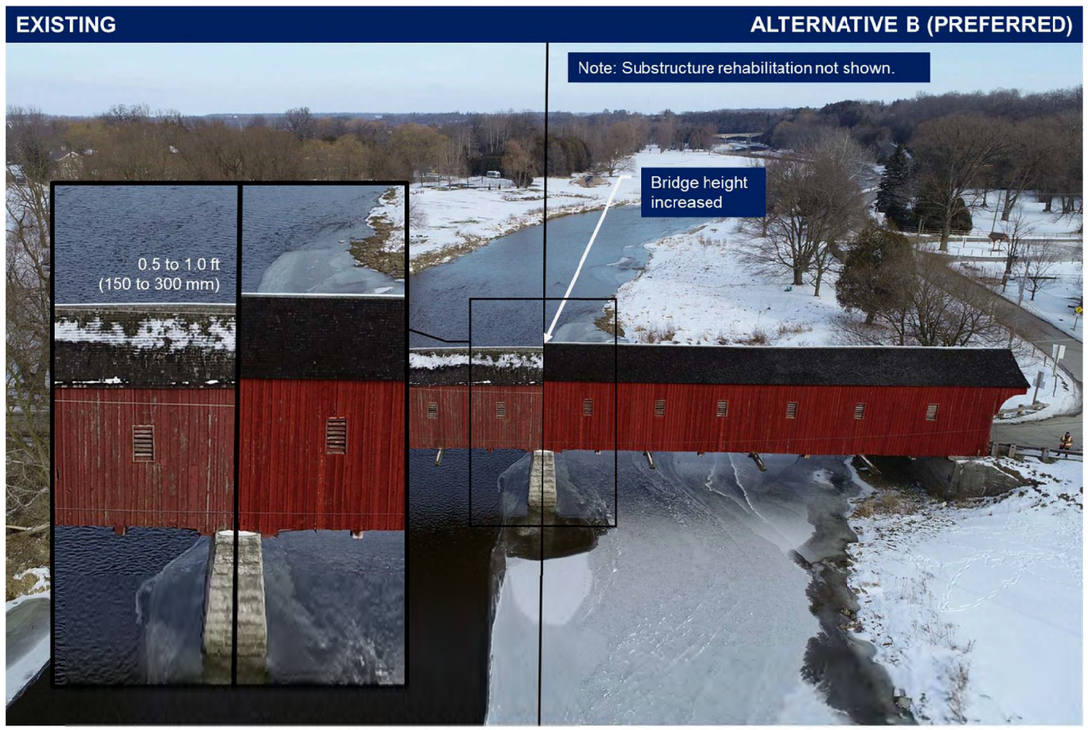


Figure C3: Elevation View – Existing and Alternative B (Timber Truss Reinforcement)

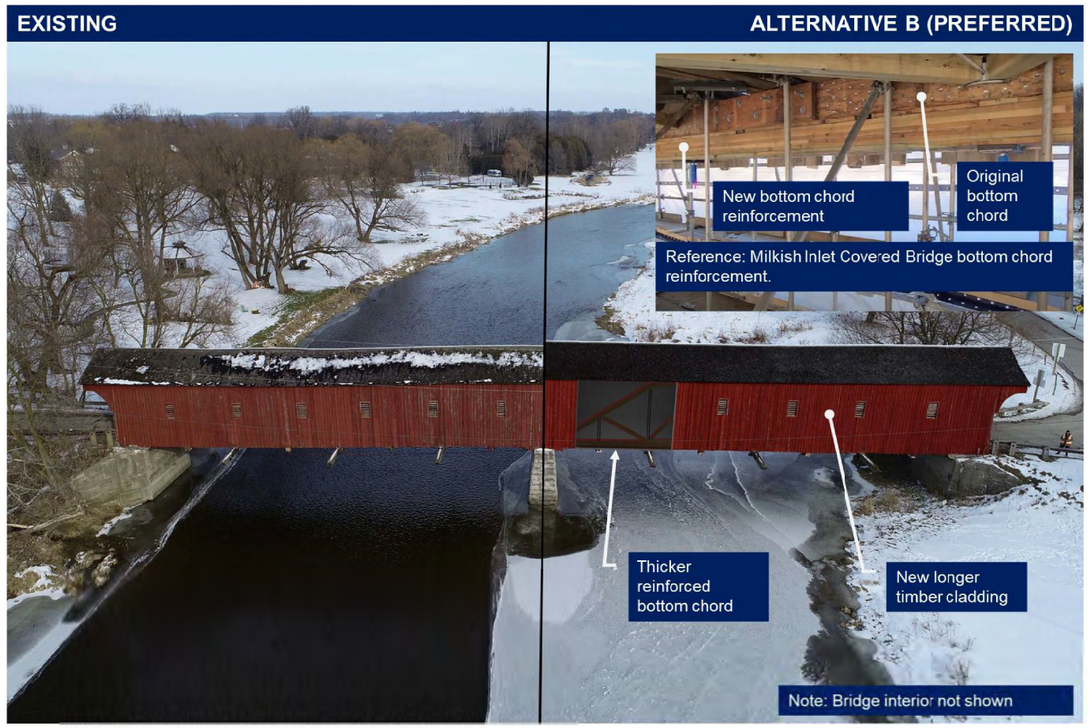


Figure C4: Elevation View – Existing and Alternative B (Timber Truss Reinforcement)

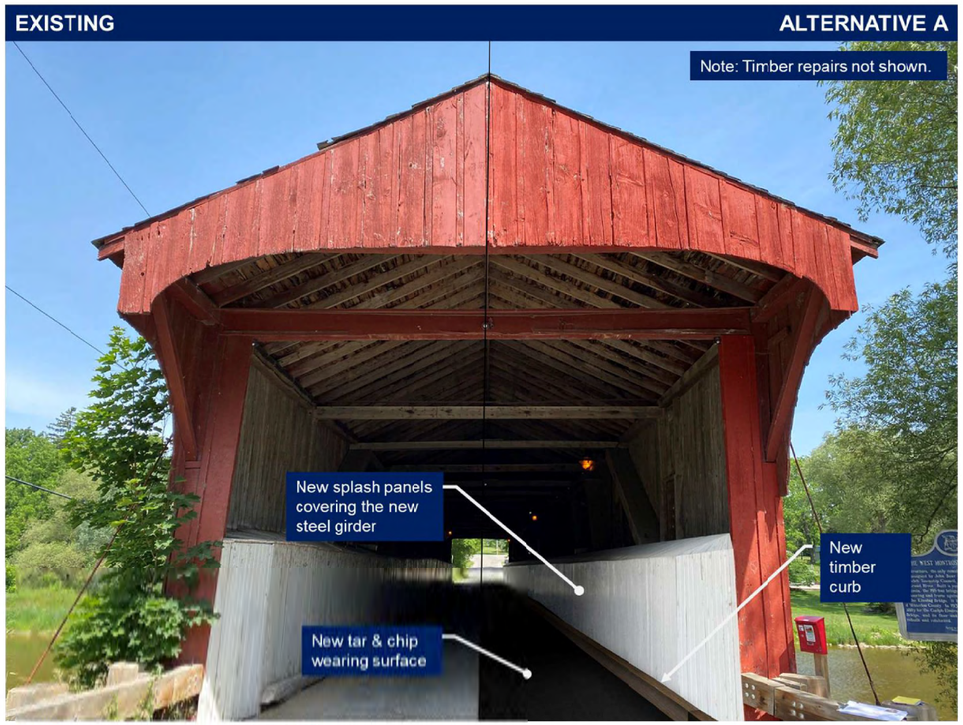


Figure C5: Front View – Existing and Alternative A (Steel Girder Reinforcement)

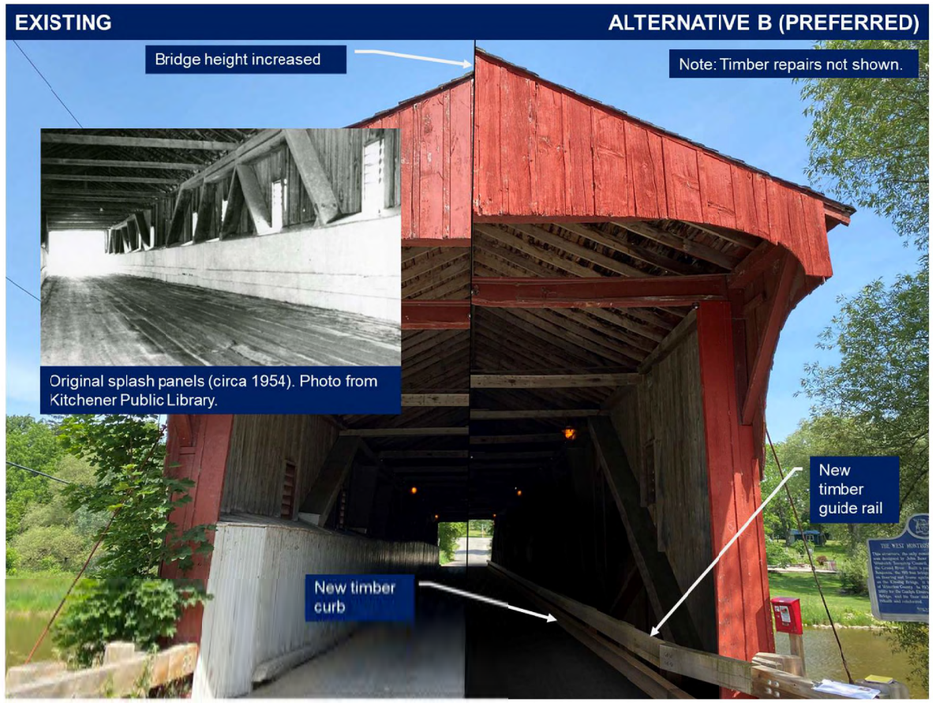


Figure C6: Front View – Existing and Alternative B (Timber Truss Reinforcement)

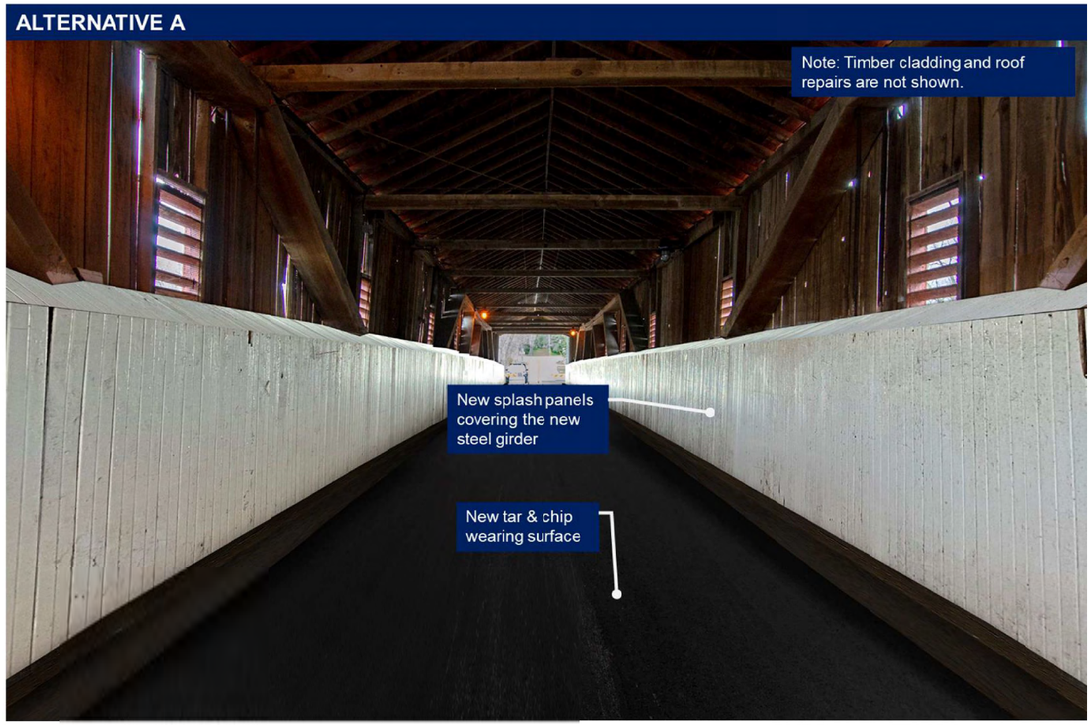


Figure C7: Interior View – Alternative A (Steel Girder Reinforcement)

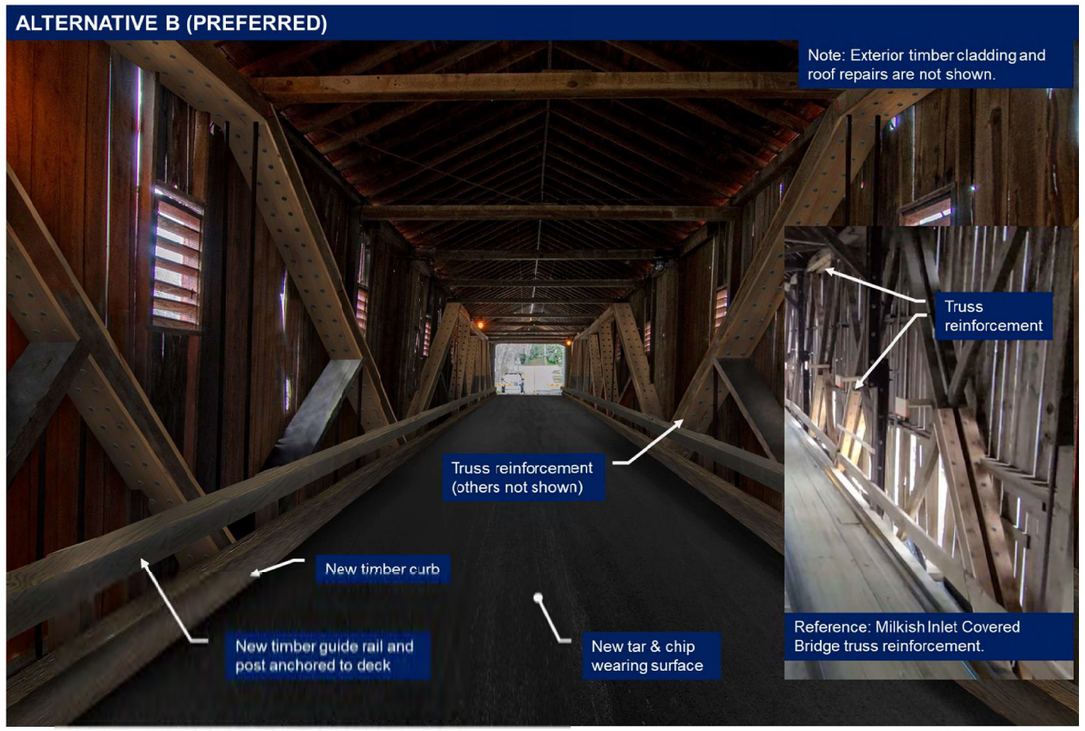
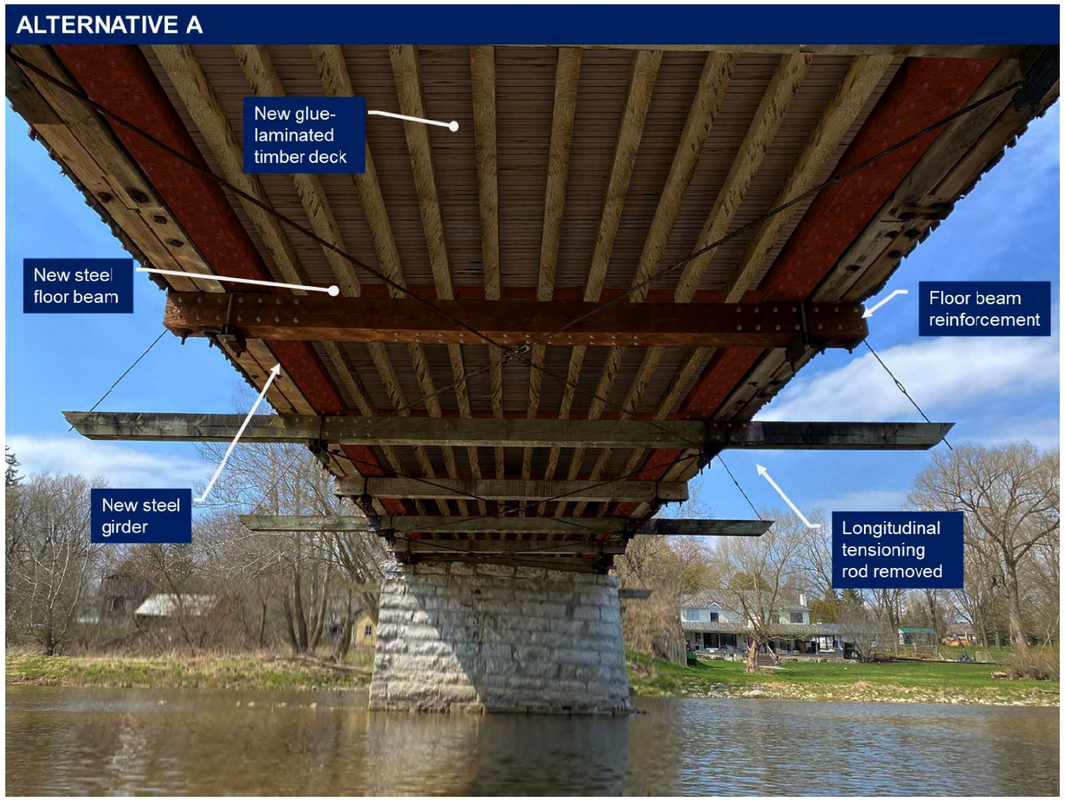


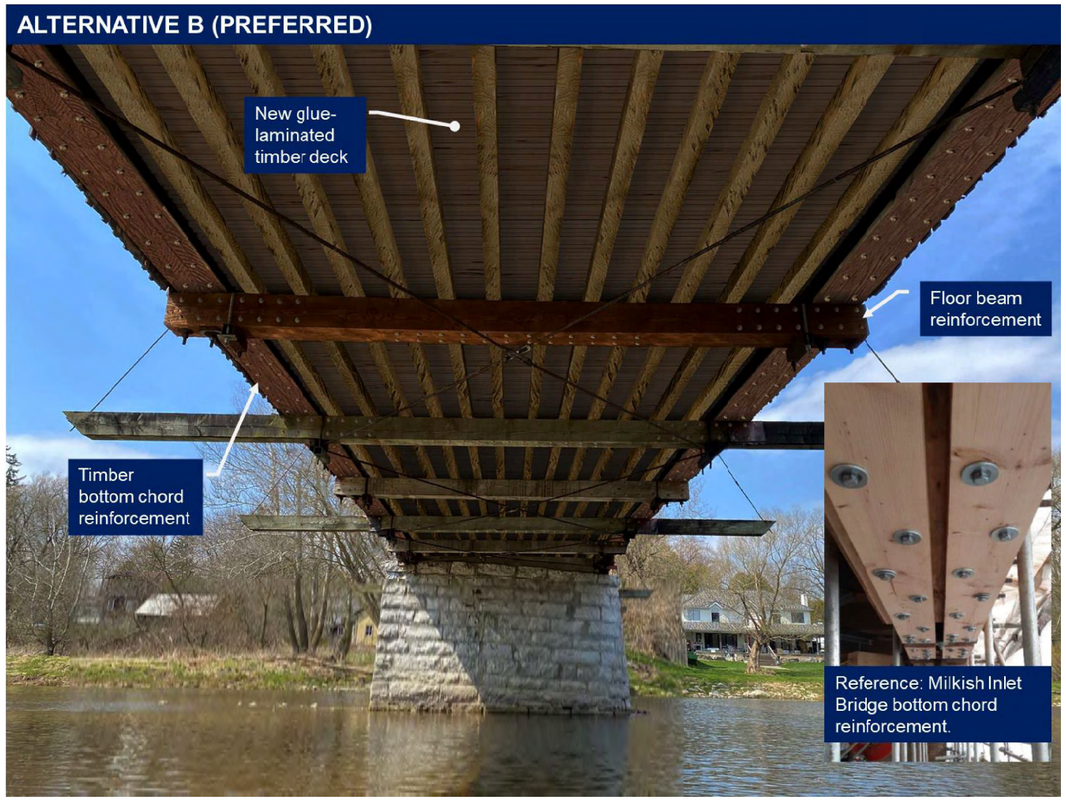
Figure C8: Interior View –Alternative B (Timber Truss Reinforcement)

APPENDIX D –DECK REPLACEMENT OPTIONS



Figure D1: Under-side View – Existing


ALTERNATIVE A
New glue-laminated timber deck
New steel floor beam
Floor beam reinforcement
New steel girder
Longitudinal tensioning rod removed


ALTERNATIVE B (PREFERRED)
New glue-laminated timber deck
Floor beam reinforcement
Timber bottom chord reinforcement
Reference: Milkish Inlet Bridge bottom chord reinforcement.

APPENDIX E – Height Restrictor Bar Options



Figure E1: Height Restriction Bar – Option 1



Figure E2: Height Restriction Bar – Option 2



Figure E3: Proposed Location of Height Restriction Bars

APPENDIX F – Evaluation of Alternative Rehabilitation Methods

Structural: compliance with design standards, level of redundancy, structural integrity and longevity

ALTERNATIVE A STEEL GIRDER REINFORCEMENT	ALTERNATIVE B TIMBER TRUSS REINFORCEMENT
Pros: • Increased reliability as the structure will not rot or weather. • More ductile than Alternative B. Overloading of the structure will cause large deformation which can be observed. Cons: • Due to the two distinct material properties used in the structural system, the steel structural system may not behave in unison with the timber structural system, leading to secondary stress in the timber truss • Increased dead loads due to weight of steel	Pros: • Pure timber truss system of Alternative B is lighter than Alternative A. This means less force on the foundation due to dead load. The excess capacity from the foundation can be used to carry additional live load if desired. Cons: • The original truss is over 140 years old. While it is currently in acceptable condition, of any member would be detrimental to the bridge. Therefore, it is prudent to install a **height-restriction device** to limit large (and usually over-weight) vehicles from entering the bridge as part of this alternative.
●	◕

Constructability: Consideration for the complexity or ease of the construction process and approval requirements

ALTERNATIVE A STEEL GIRDER REINFORCEMENT	ALTERNATIVE B TIMBER TRUSS REINFORCEMENT
• Pedestrian traffic can be maintained by installing a platform on the temporary support beams, apart from a short period to allow the installation of the new deck. • Nature of the work requires the installation of a work platform beneath the entire span of the bridge for the duration of construction. • Lead time for both materials are similar. • Impact on natural environment similar for both alternatives	
◕	◕

Aesthetics: how visually appealing is the alternative?

ALTERNATIVE A STEEL GIRDER REINFORCEMENT	ALTERNATIVE B TIMBER TRUSS REINFORCEMENT
• Bridge interior will look similar to the way it does today • Due to larger sized steel girders, the cross-section width of the interior splash panel is now larger and the roadway driving width is reduced. • Steel girder and steel floor beam is observable from the soffit (underside) of the bridge.	• Exposed timber truss could be seen as more visually appealing • Existing **bridge height** will be marginally **increased** to accommodate new timber truss reinforcement. • Timber truss chords and diagonal reinforcement will be noticeable from the bridge interior.
◕	●

Cultural Heritage: Does the alternative preserve the cultural heritage of the bridge? Is the alternative reversible?

ALTERNATIVE A STEEL GIRDER REINFORCEMENT	ALTERNATIVE B TIMBER TRUSS REINFORCEMENT
Pros: • Structure appearance from the bridge approaches and bridge deck will look similar to existing. • No changes to existing bridge dimensions. • Similar to the current bridge which has the steel bailey truss.	Pros: • Pre-bailey truss bridge interior can be restored. • Restores the historical structural system of the bridge. Cons: • Likely not reversible. Removal of epoxy-adhered reinforcements would be impractical and there will be numerous lag bolt holes in the original truss.
●	●

Sustainability: which Alternative requires less energy to construct and produces the least amount of greenhouse gas emissions?

ALTERNATIVE A STEEL GIRDER REINFORCEMENT	ALTERNATIVE B TIMBER TRUSS REINFORCEMENT
➢Using timber is generally more sustainable than steel.	
◕	●

Life-cycle Cost: What is the total cost of the alternative, including construction costs and the costs for future maintenance requirements ?

ALTERNATIVE A STEEL GIRDER REINFORCEMENT		ALTERNATIVE B TIMBER TRUSS REINFORCEMENT	
Construction cost: (Project Setup, General construction, deck replacement, cladding replacement, roof replacement, substructure work, including contingency)	$2,800,000	Construction cost (project setup, general construction, truss reinforcement, localized timber repairs, deck replacement, cladding replacement, roof replacement, substructure work, includes contingency)	$2,600,000
Miscellaneous Items (Fire suppression system, utility duct)	TBD	Miscellaneous Items (Fire suppression system, utility duct	TBD
➢ Under timber covers, steel elements will be protected and can be expected to last for 75+ years.		➢ Replacement elements will be preservative treated to slow down future decay. ➢ Rehabilitation will be designed to provide 75+ years of design life, however, if the bridge is not properly maintained, the life-span of the bridge may be less than 75 years. ➢ Removal of interior splash panels will more readily allow individuals to climb the truss and open up more areas of the bridge interior to vandalism and graffiti.	
●		●	

CRITERIA	ALTERNATIVE A REPLACE EXISTING BAILEY TRUSS WITH STEEL GIRDER	ALTERNATIVE B REMOVE EXISTING BAILEY TRUSS AND REINFORCE TIMBER TRUSS
STRUCTURAL	●	◕
CONSTRUCTABILITY	◕	◕
CULTURAL HERITAGE	●	●
AESTHETICS	◕	●
SUSTAINABILITY	◕	●
LIFE-CYCLE COST	●	●
RECOMMENDED ALTERNATIVE	Not Carried Forward.	Carried Forward as the preferred rehabilitation alternative. ✓

APPENDIX G – Proposed Access and Staging Areas



Public Consultation #2 Survey

SURVEY RESPONSE REPORT
18 May 2022 - 31 August 2022

PROJECT NAME:
West Montrose Covered Bridge Rehabilitation - Woolwich

BANG THE TABLE engagementHQ

SURVEY QUESTIONS

Q1 **What advantages do you see in moving forward with the Preferred Alternative?The Preferred Alternative involves strengthening the existing wooden truss using high strength fiber reinforcement. The height of the bridge would be increased due to the increased depth of the bottom chord of the truss. The interior cladding would be removed and a timber guide rail installed.Renderings of the Preferred Alternative: - Front View- Interior View- Elevation View- Underside View**

Screen Name Redacted 6/07/2022 01:51 PM	It becomes a more historically correct structure with modern engineering
Screen Name Redacted 6/07/2022 02:43 PM	The integrity of as close as possible to the original bridge seems paramount to me . Levelling the roof and deck surfaces will also add to the overall concept integrity as the original bridge hadn't "earned " THOSE CHARACTERISTICS UNTIL LATER .
Screen Name Redacted 6/07/2022 04:01 PM	These adjustments should be adequate for now.
Screen Name Redacted 6/07/2022 04:57 PM	I like that there is an attempt to preserve the existing character/construction of the bridge.
Screen Name Redacted 6/07/2022 09:11 PM	Before any alternative is brought forth, the timbers need to be inspected. Proposing a "cure" for the bridge without a proper evaluation upfront is negligent. Your alternatives do not hold up without knowing the condition of the wood beforehand. Money should be put into this first, then alternatives proposed.
Screen Name Redacted 6/07/2022 10:14 PM	This looks good!
Screen Name Redacted 6/08/2022 10:26 AM	n/a
Screen Name Redacted 6/08/2022 10:30 AM	NA
Screen Name Redacted 6/08/2022 11:07 AM	On the plus side - Increased load capacity for modern vehicles. Longer life span

Screen Name Redacted 6/08/2022 01:15 PM	I think this will look good. A bit taller but no one will notice once it's done
Screen Name Redacted 6/08/2022 01:45 PM	Love how much of the original the plan is to keep. Increasing the pitch of the roof structure will help with snow buildup.
Screen Name Redacted 6/08/2022 07:01 PM	Raising the height improves the utility of the bridge. The timber guides look nicer than the old white wainscoting. The preferred alternative also preserves the historical appearance of the structure.
Screen Name Redacted 6/08/2022 07:11 PM	i agree
Screen Name Redacted 6/09/2022 01:33 PM	The only advantage I see is a slightly lower cost.
Screen Name Redacted 6/09/2022 01:48 PM	Timber feels like a more traditional material that would have been used in the original construction of the bridge, which makes it feel like the most appropriate choice. I like that it will 'open up' the interior and make it feel less tight.
Screen Name Redacted 6/09/2022 02:18 PM	No problems
Screen Name Redacted 6/09/2022 10:40 PM	protects the cultural heritage perspective of the covered bridge
Screen Name Redacted 6/10/2022 08:54 AM	All suggested changes look good. I am concerned that nothing is mentioned about the stone foundations. It is obvious from some of these pictures that the foundation walls have moved. Rehabilitation of these is required before any topdeck work is done.
Screen Name Redacted 6/10/2022 11:33 AM	The advantage I see is that the bridge will be preserved and at the same time given added strength
Screen Name Redacted 6/10/2022 03:09 PM	it is good, will preserve the bridge and make it more traditional looking inside.

Screen Name Redacted 6/10/2022 03:17 PM	Great ideas
Screen Name Redacted 6/10/2022 03:37 PM	I'd like to see other options!
Screen Name Redacted 6/10/2022 09:44 PM	I like the new look to the interior.
Screen Name Redacted 6/10/2022 10:57 PM	Whatever it takes to restore it and strengthen it for the future.
Screen Name Redacted 6/11/2022 07:52 AM	Na
Screen Name Redacted 6/11/2022 08:24 AM	Exposing the wooden interior. The first time I saw the inside of the bridge I couldn't understand why there were white panels in the sides. They looked very out of place. Now I know why they are there but would be happy to see them go. I found that they really made the wooden structure not look wooden. It was a bit disappointing.
Screen Name Redacted 6/11/2022 10:47 AM	Alternative looks good but is lack of splash guards a long term weakness?
Screen Name Redacted 6/12/2022 11:00 AM	Aesthetically fits with the environment and is a proven method
Screen Name Redacted 6/12/2022 07:23 PM	OK
Screen Name Redacted 6/13/2022 09:57 AM	Provides practical solutions to existing and potential problems but maintains much of the integrity of the original bridge.
Screen Name Redacted 6/13/2022 09:14 PM	more visually appealing, keeps to the spirit of the timber bridge
Screen Name Redacted 6/14/2022 12:26 PM	I like the planned improvements. My biggest concern would the bridge to look modern and not Historic looking. Any one can build a covered bridge then.

Screen Name Redacted 6/14/2022 06:52 PM	The lifespan of the bridge will be extended and safety considerations have been satisfied in large part (I'm not certain about fire suppression). I am happy that wood has been used instead of steel because it helps to retain the cultural character of the bridge and is more sustainable. The appearance of the interior is much more pleasing.
Screen Name Redacted 6/15/2022 11:26 PM	Look like great improvements
Screen Name Redacted 6/17/2022 07:20 PM	The changes do not overly affect the look of the bridge. They need done.
Screen Name Redacted 6/21/2022 12:34 PM	It keeps the character of the bridge and brings it up to more modern safety
Screen Name Redacted 6/24/2022 09:53 PM	Before any preference can be chosen, a proper assessment of the bridge needs to be completed. The assessment should be done by qualified experts that specialize in timber bridges and their engineering.
Screen Name Redacted 6/27/2022 09:59 AM	Structural Integrity
Screen Name Redacted 6/29/2022 09:03 AM	Maintaining the exterior of the bridge is a good idea.
Screen Name Redacted 6/29/2022 12:52 PM	Bridge re-enforment for safety
Screen Name Redacted 7/03/2022 11:05 AM	I like that the bailey trusses have been removed and the bridge interior more closely reflects what the bridge appeared like when first constructed. I like that the bottom of the deck also appears to more closely match the original construction. I strongly dislike the look of the truss reinforcements.
Screen Name Redacted 7/03/2022 03:50 PM	I am encouraged by the move to restore an historical wooden bridge with wood, and to restore the structure to something like its original form.

Screen Name Redacted 7/04/2022 10:01 AM	1. Exposure of the interior trusses, which would be historically correct, and a good learning platform for tourists, residents, students and engineers. 2. Improved structural integrity. 3. Would overcome the lack of structural and aesthetic maintenance over the past several years. 3. Removal of longitudinal tension rods, which are unsightly and a potential catching point for ice and trees during ice jams and flooding.
Screen Name Redacted 7/04/2022 02:12 PM	A version of this is the way to go, however I do not understand why the bridge needs to be raised 300mm. Proper High Strength Reinforcement is a much thinner and stronger product. The reinforcement on the truss elements in the photo's do not show everything being covered as the renderings show. What must be done first is, an in depth non-destructive testing by trained timber experts to determine exactly what is wrong with the bridge. Once that has been completed then a true design strategy needs to be implemented by a timber bridge design expert. My concern is it does not appear the current designer has any Timber bridge design experience or timber bridge design restoration/inspection experience. These fixes seem impractical for the low load rating they would be offering with this solution. I know more can be done with the fixes using high strength fiber to have the project look better, carry more load, save costs, and increase longevity of the bridge. Just need to use the right team of highly skilled timber experts.
Screen Name Redacted 7/04/2022 04:52 PM	a) It keeps the bridge in its original design and construction, with no cladding and trusses exposed. All covered bridges that I've seen in Quebec and New Brunswick have no cladding on the interior walls. b) Adding carbon fibre will provide necessary strength and will not be visible to the general public crossing the bridge. c) Shorter construction time. d) Substantially lower cost for construction.
Screen Name Redacted 7/04/2022 05:53 PM	The reinforcement should not need to be 300 mm if the load rating remains the same and the heritage features of the bridge should be conserved including the dimensions of the bridge opening. Doing non-destructive testing of the wood would allow a wood restoration with warranted use of high strength fiber only where required not used on all timbers unessarily
Screen Name Redacted 7/04/2022 08:10 PM	Save as much of the original wood timber and materials as possible. Minimize the replacement with new laminates and products that take away from the heritage nature of the structure. The amount of truss reinforcements look very bulky. Is there such a need for the thickness of trusses and bottom reinforcements? Could the load capacity of the

bridge be lowered by reducing the size of the members? We have lived with a low load capacity bridge for a very long time, why do we need to increase the capacity by so much? If needed, could we not just ban motorized vehicles from using the bridge?

Screen Name Redacted
7/04/2022 08:16 PM

It's closer to a heritage rehabilitation which better suits the community and tourism. However, I'm not sure that extensive reinforcement is needed throughout the bridge components; non-destructive analysis of the existing wood structure would allow more reuse of existing, historical components. I'm also not sure the height needs to be increased as the bridge does not need to have an upgraded load rating.

Screen Name Redacted
7/04/2022 09:42 PM

We are appalled by your "preferred" design. From a historic preservation perspective, there is very little good about it and many critical flaws. The main draw this plan seems to have for others is that the bridge will carry an increased/modern load limit on wood (and carbon fiber and bolts) rather than on steel beams. That is not relevant from a historic preservation perspective. What is relevant from a historic preservation perspective are things like keeping the original dimensions of the bridge, keeping as much original materials as possible and generally ensuring that changes are reversible so that when repairs fail, or better approaches are developed, changes can be made. The option with the steel beams is better for these reasons. PLEASE see Canadian governmental recommendations for conservation and preservation of historic structures in the document https://www.historicplaces.ca/en/pages/standards-normes This bridge is not only the center of the town's Cultural Heritage Landscape, it is on the Canadian Register of Historic Places. There is only one other building in West Montrose on the Register and that home retains most of its original form and materials. The bridge SHOULD BE CONSERVED. This plan has nothing to do with conservation or preservation of this historic structure. From my perspective, the whole "preferred" plan is disgusting. Honestly, I'm heartbroken. What exactly do people think will be left of any historic significance after this project is complete? On what grounds do you give this plan a higher "historic preservation" score than the steel beam plan? Was there anyone with real historic preservation experience involved?

Screen Name Redacted
7/05/2022 12:55 PM

I am happy with these changes.

Screen Name Redacted
7/05/2022 01:12 PM

In terms of the replacement of exterior cladding and roofing materials; this had been done before, and I believe can be done again with like materials that respect the bridge's original appearance.

Mandatory Question (51 response(s))
Question type: Essay Question

Q2 What challenges do you see in moving forward with the preferred alternative?

Screen Name Redacted
6/07/2022 01:51 PM

None.

Screen Name Redacted
6/07/2022 02:43 PM

1. Addressing the increased height of the deck at the east end as the road grade is quite steep already . 2. Ensuring that the added bottom chord beam is authentic looking ... the glue lam example photo is NOT done in an attractive manner . IF required for strength can a rough cut beam face be added to the sides and continuous boards be adhered to the bottom to get rid of the heartwood / sapwood appearance ?

Screen Name Redacted
6/07/2022 04:01 PM

Funding? Time closed.

Screen Name Redacted
6/07/2022 04:57 PM

If it is higher and there is a ramp going into/out of the bridge, that may cause noise from vehicles entering/exiting which may be a nuisance to neighbouring people/wildlife.

Screen Name Redacted
6/07/2022 09:11 PM

The timber needs to be inspected first. You are showing an overkill version as if every timber is in trouble without full knowledge of the wood and wooden bridge restoration.

Screen Name Redacted
6/08/2022 10:30 AM

Exposure to elements

Screen Name Redacted
6/08/2022 11:07 AM

The only down side I see is the detour

Screen Name Redacted
6/08/2022 01:15 PM

Could be costly

Screen Name Redacted
6/08/2022 01:45 PM

None

Screen Name Redacted 6/08/2022 07:01 PM	I don't see any challenges with the preferred alternative.
Screen Name Redacted 6/09/2022 01:33 PM	The exposed interior trusses make it vandalism a higher risk.
Screen Name Redacted 6/09/2022 01:48 PM	At some point, when can we say this is no longer the original bridge, when so many parts of it have been replaced?
Screen Name Redacted 6/09/2022 02:18 PM	Maintaining patina of existing structure
Screen Name Redacted 6/09/2022 10:40 PM	costs
Screen Name Redacted 6/10/2022 08:54 AM	Foundation walls have moved. Rehabilitation of these is required before any topdeck work is done.
Screen Name Redacted 6/10/2022 03:09 PM	I hope wooden guard rails will protect the bridge from vehicles
Screen Name Redacted 6/10/2022 03:17 PM	I don't see any issues
Screen Name Redacted 6/10/2022 03:37 PM	I'd like to see the bridge essentially remain as it is. Replace the rotting wood with new reinforced wood and supplement with steel where necessary!
Screen Name Redacted 6/10/2022 09:44 PM	None
Screen Name Redacted 6/10/2022 10:57 PM	Money
Screen Name Redacted 6/11/2022 10:47 AM	None
Screen Name Redacted 6/12/2022 11:00 AM	None, all seem to have been taken into account

Screen Name Redacted 6/12/2022 07:23 PM	None
Screen Name Redacted 6/13/2022 09:14 PM	added height may be seen as a negative change to the bridge
Screen Name Redacted 6/14/2022 12:26 PM	Must maintain the appearance of an antique bridge.
Screen Name Redacted 6/14/2022 06:52 PM	Disruption to neighbours during construction, removal of the Bailey trusses and raising the height of the bridge could damage the structure if care is not taken
Screen Name Redacted 6/15/2022 11:26 PM	Closing the bridge for repairs will impact tourism, transportation, and the surrounding neighbourhoods but will be worth it for preserving the bridge; a local landmark.
Screen Name Redacted 6/17/2022 07:20 PM	Keeping the BIG trucks off this bridge.
Screen Name Redacted 6/21/2022 12:34 PM	Long closure duration
Screen Name Redacted 6/24/2022 09:53 PM	The proper people will not be restoring/preserving our bridge. The engineering company that should be doing the work should be one that is a timber bridge specialist and has restored/ preserved many wooden bridge structures.
Screen Name Redacted 6/27/2022 09:59 AM	Aesthetic
Screen Name Redacted 6/29/2022 09:03 AM	Keeping the bridge constructed the way it was intended when built doesn't seem to be under consideration. Consultations with organizations that specialize in the restoration of timber built bridges needs to be done to see if there is a 3rd option to preserve the architectural significance the bridge has.
Screen Name Redacted 6/29/2022 12:52 PM	This does not necessarily address the unseen issues with the timber
Screen Name Redacted	The truss reinforcements negatively affect the interior appearance of

7/03/2022 11:05 AM	the bridge. Raising the bridge by 300 mm will affect the slope on the south side making it steeper than it already is. Closing the bridge for the restoration will have a big impact on the old order mennonite community's safety since it will direct their horse and buggy traffic to the Line 86 bridge which has a higher traffic speed and limited shoulders.
Screen Name Redacted 7/03/2022 03:50 PM	As far as I can tell, this option is a bastardized version of the rehabilitation that was completed at Milkish Inlet. However, the designer has not understood the role of the reinforcement of the bottom chord that two span bridge, which a. was not supported on the stone pilings and therefore did not require "increasing the height of the bridge" and b. was of that thickness to move the Milkish bridge from 5 tonne to 30 tonne capacity. The fiber reinforcement that is mentioned is also not of the type recommended for use with wood timbers. In other words, it appears that your engineer does not understand what was done at Milkish or rehabilitation of wood bridges, and what might need to be done here. Second, what reasoning is used to arrive at the decision the cladding should all be altered to hide the engineering? Why would we replace possibly original materials of an historic structure for this reason? Has there been historical consultation on this issue? Please get a qualified wood engineer experienced with historic covered bridges to lead both the evaluation and implementation of this rehabilitation.
Screen Name Redacted 7/04/2022 10:01 AM	1. No objectives have been stated for: a. The period to which the bridge would be restored. b. The desired live load capacity. 2. The structure has not been inspected and evaluated by a qualified timber expert to determine if this alternative is superior to others, or even feasible. 3. There is no science to suggest that the deck must be raised by 300 mm. This assumption is based on lack of and / or inferior timber engineering knowledge.* Raising the deck by this amount would be problematic for the approaches and approaching roadways, particularly for horse and buggy traffic exiting the south end of the bridge. 4. There is no rationale for replacing the exterior cladding.* 5. There is no rationale for the amount of reinforcement shown on the interior trusses, nor on the floor beams.* 6. There is no mention of removing the sags from the spans and restoring the camber of the spans. This would raise the decks and reduce the risk of the bridge catching ice or tree limbs during ice jams or flooding. 7. There has been inadequate research into the type and style of height restrictors that would be required or preferable. * 3, 4 and 5 cannot be addressed until 1 and 2 are resolved.
Screen Name Redacted	Nowhere in the submittal does it talk about dealing with the decay in

7/04/2022 02:12 PM	the structure or where it is. I think this is one of the most important items. Where is it? How Bad is it? How will it be addressed? Also Camber should be restored in the bridge. The bridge should not be raised 300mm as it does not need to be. The use of High Strength fibre to strengthen weak points in the bridge is awesome but the items which are still good should remain untouched. A non destructive test will be the best way to determine this.
Screen Name Redacted 7/04/2022 04:52 PM	a) Convincing the neighbouring property owners to accept the increased height of one foot. b) Noise during construction - with either alternative.
Screen Name Redacted 7/04/2022 05:53 PM	I strongly recommend an evaluation of the existing timbers by a wood engineer before proceeding any further. Non-destructive evaluation of the timbers can be easily completed using a stress wave timer to determine time-of-flight, and will reveal hidden areas of decay that may not be identified in the randomly placed destructive samples that seem to be currently planned. “Alternative B” as presented proposes replacing timber as necessary, and wrapping a large majority of the existing timber with fibre-embedded reinforcements which is likely unnecessary but without doing the testing overuse of fiber is likely. There is no plan to address current existing decay. what is the plan to stop and prevent further wood rot.
Screen Name Redacted 7/04/2022 08:10 PM	Insufficient information and assessment to determine how much original timber materials can be salvaged. Moving forward requires appropriate analyses with a wood and timber expert.
Screen Name Redacted 7/04/2022 08:16 PM	Without non-destructive analysis by an experienced wood bridge engineer, it is impossible to proceed with any plan that may miss existing rot/other damage that may cause problems going forward. Non-destructive analysis would allow for complete inspection of all components, preventing missed damage and unnecessary reinforcement.
Screen Name Redacted 7/04/2022 09:42 PM	Has this plan been discussed with federal and provincial historic preservation experts? If not, I argue that the Region of Waterloo and Woolwich Township are negligent to go forward with a plan that is IRRESVERIBLE and DISTROYS what is left of the original materials current still present in the only remaining covered bridge in Ontario. Historic preservation experts operate under the principle that changes, including repairs, should be reversible. The steel beam option meets this requirement. Putting a bunch of bolts through

original timbers and covering them with high strength adhesive does not! In addition, to be irreversible, the methods proposed are basically unproven, especially in this application. (One bridge with different load requirements done a few years ago does not make this a proven approach.) Again, this is not something historic preservationists do. How are you going to fix this repair when it fails? What evidence do you have the repairs will last as long as (the person who wants to get the contract) says they will? Or you say they will? In ten years, you could have a failed repair that now requires basically a complete rebuild of the bridge. I honestly feel like we have a few people who think they run West Montrose and who get to make decisions for everyone else. The opinions of four or five people is not the opinion of "the community". These people do not speak for me. I'm not going to fight with my neighbors over this, but this really looks like a big mistake to me. Please just stop this whole project right now until you can address historic preservation concerns.

Screen Name Redacted
7/05/2022 12:55 PM

The challenges will be people in the community who don't want/understand the need for it to be upgraded.

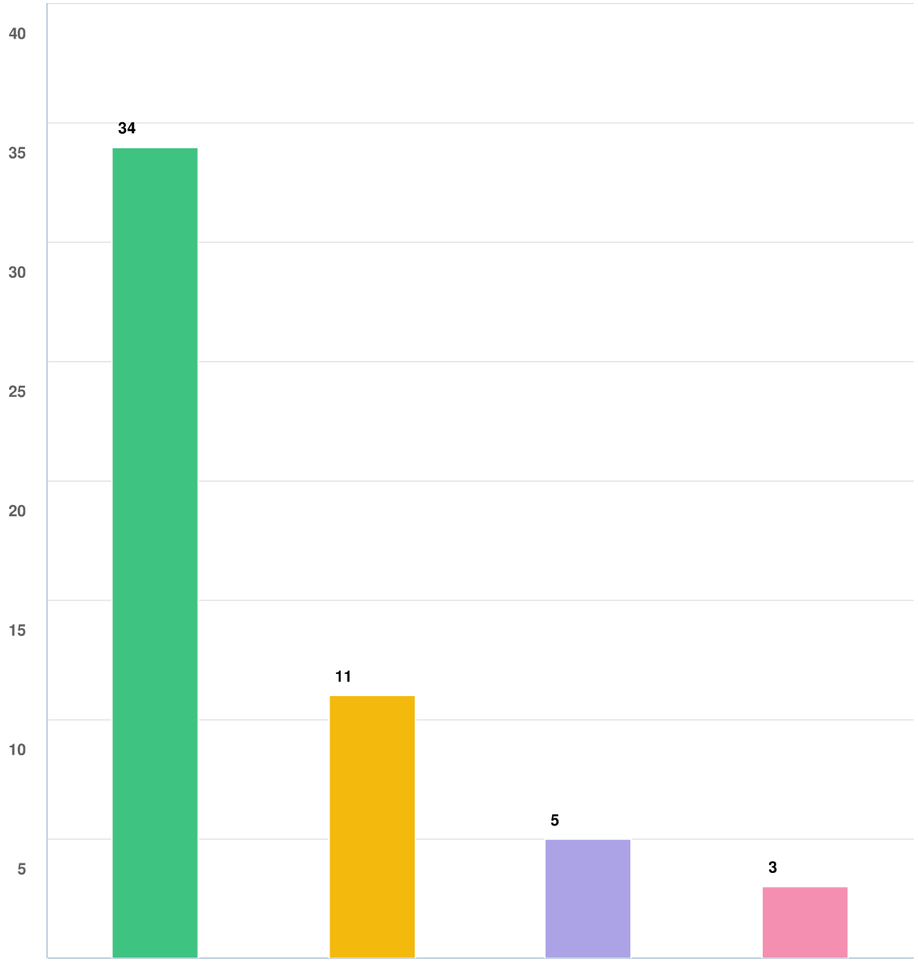
Screen Name Redacted
7/05/2022 01:12 PM

Archival photography shows that the internal white panelling has been in place since the 1930s, if not before. Keeping this is in line with both the Ontario Heritage Trust's principle of "Do not destroy later additions solely to restore it to a single time period" and the Canada Historic Place's standard of "Conserve changes to an historic place that, over time, have become character-defining elements in their own right." I agree that the Bailey Bridge should be removed, but the original wooden trusses were actually replaced in the 1930s (probably when the interior white cladding was added), so exposing the truss members reverses a change that has been in place longer than what the bridge may have originally appeared as. Exposing the trusses also almost creates a false sense that the trusses being seen are the "originals", rather than replacements. I also find myself questioning the proposed height restriction bar, planned for both approaches to the bridge. These both feel as if they don't respect the location and siting of the structure, and I think there might be a better option which won't affect the view corridors to the bridge as adversely. My main point of contention/confusion/questioning is in regard to the proposed structural changes to the bridge. As noted by the Heritage Trust "Alterations should be able to be returned to original conditions" and "New work should be distinguishable from old." These regulations were predominantly written with buildings in mind, rather than historic pieces of infrastructure, being used in a much different way than they were originally designed for. In the newest proposal by the Region, I am really pleased that they have chosen to use mass timber elements as floor beam and bottom chord reinforcements, as well as

a glue laminated deck (this could also be made of nail-laminated timber in order to reduce the use of non-traditional adhesives). However, the use of fibre-reinforcements is where I think I am most leery. This is where the tensions in the project as rehabilitation versus restoration begins to become much more evident. If I remember correctly, Dr. Tingley noted that it may be possible to restore the bridge to a similar bearing capacity by only introducing a few new elements that would be primarily steel or timber. The fibre reinforcements, on the other hand, would I think be minimally visually intrusive, but completely stray from the engineering of the original structure. I recognize that this would be irreversible, but I think it fits within the Historic Places standard of "Repair rather than replace character-defining elements." ie. This would still engage the large truss members, rather than the original proposal of just using a huge steel beam. I think, if done correctly, this addition would also fit Historic Places standard of: "Conserve the heritage value and character-defining elements when creating any new additions to an historic place or any related new construction. Make the new work physically and visually compatible with, subordinate to and distinguishable from the historic place." Ideally this renovation would be able to be reversed, however as the bridge is an engaged piece of infrastructure, any new work is going to impact it in a way that may not be reversible. I believe the main point is that the fibre system would be visually subordinate too, yet distinguishable from, the original trusses. These should also decrease the maintenance requirements for the bridge as, at the end of the day, it remains at the mercy of the Region's annual budget. Also, this new system may compliment the bridge's description in the Ontario Heritage Act: that it is actually representative of an evolution of bridge technology. I may be overstating this, but once again, if there is another option whereby the original system is able to do the job, with a less invasive intervention, I would be all for it!

Optional question (44 response(s), 7 skipped)
Question type: Essay Question

Q3 What are your thoughts on removing the white cladding in the interior to expose the wooden truss elements?The addition of a railing would be required to protect the wooden truss.



Question options

- I support the removal of the interior white cladding to expose the wood truss and the addition of a timber railing as required to protect the truss
- Leave it as is, regardless of which Alternative is recommended. The interior white cladding is part of the history of the bridge
- Not sure / No preference
- Other (please specify)

Optional question (50 response(s), 1 skipped)
Question type: Checkbox Question

Q4 Additional roadside features are required to prevent large vehicles from gaining access to the West Montrose Covered Bridge, causing damage to the floor beams. What advantages/disadvantages do you see with each option?Option 1 - Steel Goal Post

Screen Name Redacted 6/07/2022 01:51 PM	Does not 'go with' the historical look of the bridge and surroundings
Screen Name Redacted 6/07/2022 02:43 PM	Move the goal posts as far away from the actual bridge structure as possible , painted black with the yellow indicator only in the middle as shown .
Screen Name Redacted 6/07/2022 04:01 PM	The signage on the upper left is too intrusive to surroundings. I prefer the metal goal post.
Screen Name Redacted 6/07/2022 04:57 PM	I think it is a good safety measure but it is somewhat of an eyesore for those who may wish to visit the bridge and photograph it. Is there anyway to move the bar further away from the bridge and if not, I would suggest using a bar that blends in with the surroundings except for the 'Max Height 3m' which should be highlighted in yellow.
Screen Name Redacted 6/07/2022 09:11 PM	There definitely should not be metal posts, but I don't believe any are necessary. It totally detracts from the bridge. It would be very hard to do this on the south side of the bridge with the slope and width of the roadway. The signage for the most part has detracted overweight vehicles. With the restoration, you will be increasing the tonnage so damage would not happen as easily.
Screen Name Redacted 6/07/2022 10:14 PM	Distracts visually from the bridge. Not pretty
Screen Name Redacted 6/08/2022 10:26 AM	Awfully ugly...
Screen Name Redacted 6/08/2022 10:30 AM	Nope
Screen Name Redacted 6/08/2022 11:07 AM	Prevention is less expensive than repair. There will always be some idiots who don't read height or weight warnings

Screen Name Redacted 6/08/2022 01:15 PM	Will last longer/ doesn't look as nice as the wood
Screen Name Redacted 6/08/2022 01:45 PM	It looks like an eye sore
Screen Name Redacted 6/08/2022 07:01 PM	It is a necessary feature. Large and heavy vehicles destroy structures that are not designed for such a load. Heavy vehicles can use Line 86 to bypass the bridge. The steel goal post is more durable and resistant to collision.
Screen Name Redacted 6/09/2022 01:33 PM	Both these options are eye sores. If you have to add a height restriction create something marking the location and history (eg. Westrose Covered Bridge established 1804) vs. a utility sign.
Screen Name Redacted 6/09/2022 01:48 PM	Not the ideal look. Too industrial looking.
Screen Name Redacted 6/09/2022 02:18 PM	Ugly
Screen Name Redacted 6/09/2022 10:40 PM	Need to protect investment in said refurbishment of structure; not as aesthetically pleasing as the 'wooden goal post' alternative
Screen Name Redacted 6/10/2022 08:54 AM	Should be installed. People don't read signs and many have no idea of their load heights! Steel or Wood would be fine - Wood would be preferred from the astectic perspective.
Screen Name Redacted 6/10/2022 11:33 AM	I agree that Height restriction bars will prevent damage, but these examples look like an eyesore.
Screen Name Redacted 6/10/2022 03:09 PM	Steel is effective, but less attractive than wood
Screen Name Redacted 6/10/2022 03:17 PM	The steel post style would hold up better and may be less likely to get damaged as easily but it doesn't match the character of the bridge.
Screen Name Redacted 6/10/2022 03:37 PM	Any height restriction barrier will damage the view of the bridge for pictures and is really destructive of any "romantic" notion people have of the West Montrose bridge. Why not just post signs? Speed

	bumps?
Screen Name Redacted 6/10/2022 09:44 PM	I prefer this option. You need something that will be strong and handle contact by a vehicle.
Screen Name Redacted 6/10/2022 10:57 PM	Agree.
Screen Name Redacted 6/11/2022 08:24 AM	I like the top left example where the goal post is made to look like an introduction to the bridge rather than an eye sore. It would still need the max height yellow sticker on it though to ensure people know that is also functional and not so fancy that it can't be sacrificial.
Screen Name Redacted 6/11/2022 10:47 AM	A goal post is certainly necessary but should be moved as far away as possible to protect bridge site line.
Screen Name Redacted 6/12/2022 11:00 AM	Ugly!
Screen Name Redacted 6/13/2022 09:57 AM	Does not fit with the bridge
Screen Name Redacted 6/13/2022 09:14 PM	too modern, doesnt fit the character
Screen Name Redacted 6/14/2022 12:26 PM	This should look more rustic not modern. Looks very out of place.
Screen Name Redacted 6/14/2022 06:52 PM	not congruent with the structure of the bridge
Screen Name Redacted 6/15/2022 11:26 PM	The steel goal post does not align with the historic look of the bridge
Screen Name Redacted 6/17/2022 07:20 PM	I like steel, it is stronger. we also need something to rise out of the road to stop a truck if it decides to crash through the steel structure.
Screen Name Redacted 6/21/2022 12:34 PM	I like the top left one as it could be used as an appealing safety element. People come to this bridge to see it, not ugly traffic signs.

Screen Name Redacted 6/24/2022 09:53 PM	An eye sore that would hide something so beautiful
Screen Name Redacted 6/27/2022 09:59 AM	Protects the bridge but ruins the charm.
Screen Name Redacted 6/29/2022 09:03 AM	Not a big fan of the steel, it looks industrial and doesn't fit with the bridge.
Screen Name Redacted 6/29/2022 12:52 PM	eye sore
Screen Name Redacted 7/03/2022 11:05 AM	The goal post negatively affects the look of the bridge. Although it would prevent tall, and likely heavy, vehicles from entering the bridge, it is not visually appealing. This is a historic structure that thousands of tourist take pictures of every year. Ideally, the chosen solution would have a smaller effect on the visual aspects of the bridge.
Screen Name Redacted 7/03/2022 03:50 PM	This option might be durable, but is hideous.
Screen Name Redacted 7/04/2022 10:01 AM	This option is unsightly. There are better options available. Any option chosen should have a breakaway feature to prevent destruction of the entire structure.
Screen Name Redacted 7/04/2022 02:12 PM	This is an excellent Idea
Screen Name Redacted 7/04/2022 04:52 PM	This is a wooden covered bridge so why would a visible steel post be added to the project? It doesn't fit into the theme of a wooden covered bridge. Steel detracts from the overall appearance.
Screen Name Redacted 7/04/2022 05:53 PM	the metal looks terrible and will forever change the heritage features of the views of the bridge. this should not be done
Screen Name Redacted 7/04/2022 08:10 PM	Very ugly and does not fit with the heritage and aesthetic nature of the bridge.

Screen Name Redacted 7/04/2022 08:16 PM	Absolutely not. This does not match the heritage features .
Screen Name Redacted 7/04/2022 09:42 PM	Gross. Totally gross. If we go with steel beams do we have to have the ugly barriers?
Screen Name Redacted 7/05/2022 12:55 PM	The height restriction bar is frankly, just hideous. It entirely ruins the picturesque nature of the bridge. I live right by the bridge and have not seen over height vehicles enter it. If anything, weight would be an issue for vehicles pulling trailers.
Screen Name Redacted 7/05/2022 01:12 PM	These are totally out of character with the area, materially and visually. It hugely aversely impacts the approach to the bridge and feels like a very poor solution to the current problem.

Optional question (48 response(s), 3 skipped)
Question type: Essay Question

Q5 Option 2 - Wooden Goal Post

Screen Name Redacted 6/07/2022 01:51 PM	This is preferred if goal posts are required. Ultimately my preference is for no goal posts.
Screen Name Redacted 6/07/2022 02:43 PM	Too large a mass which is a distraction to the actual bridge .
Screen Name Redacted 6/07/2022 04:01 PM	It looks nice, but maybe signage that needs replacing more often.
Screen Name Redacted 6/07/2022 04:57 PM	I like this option much better, but again, if it could be moved further back, I think that would be better.
Screen Name Redacted 6/07/2022 09:11 PM	There should be no goal posts.
Screen Name Redacted 6/07/2022 10:14 PM	Better than the first option. Blends in better with the woodstructure.
Screen Name Redacted	This at least fits with the character of the bridge

6/08/2022 10:26 AM

Screen Name Redacted
6/08/2022 10:30 AM
Better but no

Screen Name Redacted
6/08/2022 11:07 AM
Too easy to destroy

Screen Name Redacted
6/08/2022 01:15 PM
Looks nicer/ won't last as long as the steel & a truck could probably take it down if they hit it

Screen Name Redacted
6/08/2022 01:45 PM
Much better, it's more rustic and natural looking

Screen Name Redacted
6/08/2022 07:01 PM
The wooden goal post will require a lot more maintenance than the steel goal post. Id a rustic look is desired the steel goal post could be camouflaged as a wooden goal post.

Screen Name Redacted
6/08/2022 07:11 PM
wooden goal post would be my preference

Screen Name Redacted
6/09/2022 01:33 PM
Both these options are eye sores. If you have to add a height restriction create something marking the location and history (eg. Westrose Covered Bridge established 1804) vs. a utility sign.

Screen Name Redacted
6/09/2022 01:48 PM
The better of the two options. Ideally, I would like to see the height posts moved further away from the bridge, although I understand that's difficult due to the homes nearby. Having it too close to the bridge itself will diminish the sightlines to the bridge, and potentially lessen its draw as a tourist attraction.

Screen Name Redacted
6/09/2022 02:18 PM
Much better, but will likely need more frequent replacement

Screen Name Redacted
6/09/2022 10:40 PM
yes do this one

Screen Name Redacted
6/10/2022 08:54 AM
Should be installed. People don't read signs and many have no idea of their load heights! Steel or Wood would be fine - Wood would be preferred from the astectic perspective.

Screen Name Redacted
6/10/2022 11:33 AM
Wood fits better into the aesthetics

Screen Name Redacted
6/10/2022 03:09 PM
wooden option looks better

Screen Name Redacted
6/10/2022 03:17 PM
The wooden post matches the character of the bridge but might be at more risk of getting damaged.

Screen Name Redacted
6/10/2022 03:37 PM
I don't like it. The lovely view of the bridge and the river is completely wrecked.

Screen Name Redacted
6/10/2022 09:44 PM
Not in favour of this option.

Screen Name Redacted
6/10/2022 10:57 PM
Not as effective as steel.

Screen Name Redacted
6/11/2022 08:24 AM
Wood works too. It's more appropriate thematically but the to left steel example looked like wood too. Again, it would be nice if it's styled as an introduction to the bridge as well as a warning.

Screen Name Redacted
6/11/2022 10:47 AM
Wood goal probably not as visible in low light conditions.

Screen Name Redacted
6/12/2022 11:00 AM
Fitting with the environment - wood is always more pleasing than grey steel!

Screen Name Redacted
6/12/2022 07:23 PM
It looks a bit less like a McDonald's or Tim Hortons drive through than option A.

Screen Name Redacted
6/13/2022 09:57 AM
Better design but would prefer if they could be moved as far away from the bridge as practical. Perhaps at the edge of the park on one side and just below the general store on the other. This reduce the visual impact of the goal posts when approaching the bridge as seen in the photos above.

Screen Name Redacted
6/13/2022 09:14 PM
fits the character of the bridge

Screen Name Redacted 6/14/2022 12:26 PM	Much better - more blended in. May cause issues with the natural view of the bridge.
Screen Name Redacted 6/14/2022 06:52 PM	Better aesthetics, more sustainable
Screen Name Redacted 6/15/2022 11:26 PM	This is visibly more appealing than the steel option, but still an eyesore, taking away the charm of the bridge itself. While large vehicles crossing the bridge may be a concern, I don't believe there is currently signage warning of max vehicular height near the bridge. Perhaps better signage could be added instead of physical goal posts.
Screen Name Redacted 6/17/2022 07:20 PM	too easy to remove
Screen Name Redacted 6/21/2022 12:34 PM	I think this option will better suit the architecture of the bridge. Should ensure it will be strong enough to stop a transport before damage is caused to the bridge.
Screen Name Redacted 6/24/2022 09:53 PM	As as above, just an eye sore
Screen Name Redacted 6/27/2022 09:59 AM	Slightly better, but still ruins the feel of the bridge
Screen Name Redacted 6/29/2022 09:03 AM	I prefer the wood option, seems to fit better with the bridge.
Screen Name Redacted 6/29/2022 12:52 PM	timber goes with the wooden bridge theme
Screen Name Redacted 7/03/2022 11:05 AM	The goal post negatively affects the look of the bridge. Although it would prevent tall, and likely heavy, vehicles from entering the bridge, it is not visually appealing. This is a historic structure that thousands of tourist take pictures of every year. Ideally, the chosen solution would have a smaller effect on the visual aspects of the bridge.
Screen Name Redacted 7/03/2022 03:50 PM	This is a much better solution.

Screen Name Redacted 7/04/2022 10:01 AM	This option is unsightly. There are better options available. Any option chosen should have a breakaway feature to prevent destruction of the entire structure.
Screen Name Redacted 7/04/2022 02:12 PM	This is even better than the Steel Idea, use as much wood as possible to help maintain the feel of the timber structure
Screen Name Redacted 7/04/2022 04:52 PM	I support this alternative.
Screen Name Redacted 7/04/2022 05:53 PM	This also will change the heritage features of the views of the bridge. The National Society of Preservation Of Covered Bridges should be consulted to see how often these interventions are used. the cost of damaging the views should be weighted against any potential advantage
Screen Name Redacted 7/04/2022 08:10 PM	This looks no better than Option 1 even though it is a wooden structure. Neither of these options are desirable.
Screen Name Redacted 7/04/2022 08:16 PM	Better than metal, but still an obstruction of the bridge and surrounding heritage landscape.
Screen Name Redacted 7/04/2022 09:42 PM	Just gross, not totally gross. If we go with the steel beam option do we have to have this barrier?
Screen Name Redacted 7/05/2022 12:55 PM	If I have to choose, this is better than the steel post. The inset photo of the Langley bridge would be a bit more photogenic with the bridge name attached.
Screen Name Redacted 7/05/2022 01:12 PM	This is also a very-slightly more desirable version of a not-very desirable solution.

Optional question (50 response(s), 1 skipped)
Question type: Essay Question

Q6 Other Goal Post Options (please specify)

Screen Name Redacted 6/07/2022 01:51 PM	Lower the height of the end gable so the entrance to the bridge is too low for larger vehicles?
Screen Name Redacted 6/07/2022 04:57 PM	Use a wooden goal post, but put it further away from the bridge if possible.
Screen Name Redacted 6/07/2022 09:11 PM	None.
Screen Name Redacted 6/08/2022 10:26 AM	Maybe a wooden goalpost painted in the same red as the bridge?
Screen Name Redacted 6/08/2022 10:30 AM	Something with the name of the bridge would be nicer similar to the sign at Riverside Park in Cambridge
Screen Name Redacted 6/08/2022 11:07 AM	steel is better
Screen Name Redacted 6/08/2022 07:01 PM	A stone arch which limits the size of vehicles able to approach the bridge.
Screen Name Redacted 6/09/2022 01:33 PM	If you have to add a height restriction create something marking the location and history (eg. Westrose Covered Bridge established 1804) vs. a utility sign.
Screen Name Redacted 6/09/2022 01:48 PM	I think that making this structure out of natural materials to 'fit' the feel of the bridge would be best.
Screen Name Redacted 6/09/2022 10:40 PM	road massive bollards to prevent large vehicles access would be useful
Screen Name Redacted 6/10/2022 08:54 AM	Should perhaps also include a hanging element, at just below the 3M height as a warning indicator that you are near the max. height.
Screen Name Redacted 6/10/2022 03:09 PM	goal post should be as far back from the bridge as possible
Screen Name Redacted	Signage, not barriers. . . . or make the bridge so that only pedestrians,

6/10/2022 03:37 PM	cyclists and horse/buggies can pass through. This could be done. Cars don't really need to use this bridge.
Screen Name Redacted 6/10/2022 09:44 PM	None
Screen Name Redacted 6/11/2022 07:52 AM	Can you put the steel one further up the road? Both are ugly that close to the bridge. Maybe the whole neighbourhood has such a restriction in height.
Screen Name Redacted 6/11/2022 10:47 AM	No comments
Screen Name Redacted 6/12/2022 11:00 AM	None
Screen Name Redacted 6/12/2022 07:23 PM	Maybe a metal reinforcement behind the post to help reduce the risk of idiots going past the idiot proofing. Although, it is not possible to idiot proof against all idiots.
Screen Name Redacted 6/14/2022 06:52 PM	It would be great to mimic the roofline of the bridge (keeping the horizontal crossbar but adding a peak above it.)
Screen Name Redacted 6/15/2022 11:26 PM	Is there an option to have vertical post(s) but not a crossbar? Could there be a sensor on that reads vehicle height and then lights up if too high, or an alarm sounds?
Screen Name Redacted 6/21/2022 12:34 PM	Place it as far from the structure as possible.
Screen Name Redacted 6/24/2022 09:53 PM	But cameras in the bridge and track the vehicles that try to go into the bridge that shouldn't . Press charges to the companies and drivers that "break " the bridge. IF you need to add the goal posts, put them up the road on either side, further away from the bridge. Hire special garbage and road cleaning companies, whose vehicles are smaller and lighter, to maintain the services to the houses within the barriers
Screen Name Redacted 6/27/2022 09:59 AM	Heavily reinforce and lower the bridge entrances. Clad with historic materials and colour. (Integrate the "goal post" into the bridge)

Screen Name Redacted 6/29/2022 09:03 AM	What about using some logs or rough-cut timbers? This is a good question to ask of a designer who specializes in the time period when the bridge was built.
Screen Name Redacted 7/03/2022 11:05 AM	I would suggest moving the goal posts back further away from the bridge - closer to the corner with Hill St and closer to Letson Park. The design would have to be changed to more of an inverted "L" that crosses only the right lane for traffic approaching the bridge. This would allow for garbage trucks, moving trucks, etc to drive around the goal post to access residential properties beyond it while still keeping most other tall vehicles from passing it. Being located closer to the nearest intersection also makes it easier for this undesirable traffic to divert before ending up directly in front of the bridge. Appropriate signage would be needed to inform drivers of any penalties that could be laid if they inappropriately drive around the goal post. If no penalties are currently appropriate, a new by-law should be passed to assign significant penalties for driving around the goal post.
Screen Name Redacted 7/04/2022 10:01 AM	There are options that mimic the portals of the bridge and would be more aesthetically acceptable. I'm also uncertain that height restrictors are entirely necessary. The bridge has done without them for 141 years.
Screen Name Redacted 7/04/2022 05:53 PM	none would be best. the restored bridge should be able to accommodate overweight vehicles in the case one crosses by accident.
Screen Name Redacted 7/04/2022 08:10 PM	Please get a better design that fits the look and feel of a heritage bridge. Alternatively, do not have any barrier and ban the use of motorized vehicles on the bridge.
Screen Name Redacted 7/04/2022 08:16 PM	What is used on other historical bridges? If the bridge is rehabilitated and able to take a higher load (not increased posted load rating) would the occasional over (posted) weight vehicle be a concern? Doesn't the height of the bridge itself limit the vehicle size that can pass through? While a hanging beam would also interfere with the historical landscape, it may be viewed as less invasive than "goal posts", but again, I'd be interested to know what experienced professionals in the field have to say.
Screen Name Redacted 7/04/2022 09:42 PM	None

Screen Name Redacted 7/05/2022 12:55 PM	Unfortunately I don't have a good answer for this. Both sides of the bridge have driveways that need to be accessible for larger vehicles to access homes so setting the height restriction posts farther back isn't an option. I would prefer there be more observation of the bridge, and the vehicles crossing it, to see if they are actually needed.
Screen Name Redacted 7/05/2022 01:12 PM	I feel there must be some sort of better option. Maybe it is hanging an alarmed wire from two posts that would go off in the event that a vehicle that was too tall engaged it (almost like a trip-wire). The current options are highly incongruous with the surrounding cultural heritage landscape and would significantly detract from the local aesthetic if constructed.

Optional question (32 response(s), 19 skipped)
Question type: Essay Question

Q7 Do you have any other comments regarding this project?

Screen Name Redacted 6/07/2022 01:51 PM	I am happy to hear the Region is taking the extra time to review the renovations to the bridge. An historically accurate restoration/renovation that uses modern techniques to improve strength and durability is the ultimate way to keep this bridge in use for another hundred years.
Screen Name Redacted 6/07/2022 02:43 PM	As a tax payer this an example of where the significance of the structure and the cost to restore it authentically over weighs the cost , although I understand that the now preferred wood option is not more costly ? ... BONUS .
Screen Name Redacted 6/07/2022 09:11 PM	The Region should spend the money upfront to thoroughly examine the wood elements in the bridge before proposing solutions. This money will need to be spent anyway. It is imperative it is done now. As much as possible the existing elements should be preserved and not replaced or covered up. There are wood bridge experts that should be consulted now and not later. The expertise is needed now.
Screen Name Redacted 6/07/2022 10:14 PM	Lets try to make it visually like the original structure - at least on the inside. Get rid of the white wood covering the Bailey reinforcement.
Screen Name Redacted	signage could emphasize historical significance? Not biased one way

6/08/2022 11:07 AM	or the other.
Screen Name Redacted 6/08/2022 07:11 PM	my concern is with the covered bridge being closed - the horse and buggies would need to use highway 86 - there is no real wide shoulder for the buggies on highway 86 when specifically crossing the bridge on the highway- can stop lights be installed at the bridge? Can be the speed limit be lowered from Katherine Street to Covered Bridge Road - all cars and trucks travel so fast - we need to keep the horse and buggies safe along that stretch of the highway
Screen Name Redacted 6/09/2022 01:33 PM	I prefer Option A to B.
Screen Name Redacted 6/09/2022 01:48 PM	Really glad to see that the region is taking proactive care of heritage buildings, especially one as unique as the Kissing Bridge.
Screen Name Redacted 6/09/2022 10:40 PM	nice to see that the region is trying to preserve some historical elements within the placeless faceless urbanity of the region, i.e., an appendage of the GTA
Screen Name Redacted 6/10/2022 08:54 AM	I belive it is well worth the investment to the community and the revenues generated through tourist dollars.
Screen Name Redacted 6/10/2022 03:09 PM	the bridge is a heritage asset well worth preserving
Screen Name Redacted 6/10/2022 03:37 PM	Please leave it as much as possible "as is" and restrict the tonnage going over it. . . . I think people will understand if it is left as a pedestrian/cyclist/buggy bridge. And that will also preserve its character as an antique.
Screen Name Redacted 6/10/2022 09:44 PM	No
Screen Name Redacted 6/10/2022 10:57 PM	It's a scenic bridge that attracts tourists. If it's better to limit cars and encourage bikers and pedestrians, even better.
Screen Name Redacted 6/11/2022 07:52 AM	Don't force comments please

Screen Name Redacted 6/11/2022 08:24 AM	Nice work! I'm excited by the alternative. I think that, overall, it will be an improvement to the look of the bridge (and obviously it's structure).
Screen Name Redacted 6/11/2022 10:47 AM	Speed over bridge should be 15 km max recognizing extensive sharing by horse and buggy, cyclists and pedestrians. As a final caveat before proceeding with this investment I would like to know that the adjacent gravel pit application will never be reserected since it's antithetical to the entire project goals. Overall I strongly support the preservation of the bridge as a vital part of our local history.
Screen Name Redacted 6/12/2022 11:00 AM	It's about time something was done!
Screen Name Redacted 6/14/2022 12:26 PM	Please try to keep it as authentic as possible and consider cameras to view any vandalism.
Screen Name Redacted 6/14/2022 06:52 PM	I support using wood materials as much as possible to return the bridge to as close as possible to the original while still upgrading the safety features and durability. I attended the presentation on June 6 or 7 in W. Montrose and found the presentation to be very convincing and the presenter to be very knowledgeable. This bridge is a very important aspect of Woolwich (and Ontario) cultural heritage.
Screen Name Redacted 6/15/2022 11:26 PM	I think the restoration will lengthen the life of this beautiful gem in the region. Thank you for seeking input.
Screen Name Redacted 6/17/2022 07:20 PM	I also feel there should be a goal post further from the bridge to let trucks know they are not allowed any further.
Screen Name Redacted 6/24/2022 09:53 PM	This is your one chance to do things right. Adding steel to an 150 year old bridge, will just rot the wood where the two touch. Didn't any of you understand or learn from Dan Tingley's 400 slide presentation to the region last winter? I watched the whole presentation and learned a great deal. Please do what is right and preserve our historic bridge by using the proper people to do the job. But start with a proper assessment done by a Timber expert. This is your only chance.
Screen Name Redacted	Thank you for your commitment to this historic landmark.

6/27/2022 09:59 AM

Screen Name Redacted
6/29/2022 09:03 AM

Ideally, the bridge should be restored in a manner that honours the history of the bridge. The use of steel and other modern materials will only takeaway from the historical significance of the bridge. Something can be done to preserve the heritage of the bridge and renovate the bridge using the techniques and materials of the time period.

Screen Name Redacted
6/29/2022 12:52 PM

I was present for Dr Tingley presentation and feel that his approach is ideal. I would like to see the options re-evaluated to ensure we are getting the best project experience

Screen Name Redacted
7/03/2022 11:05 AM

I attended a meeting where Dr. Dan Tingley Ph.D., P. Eng. MIEAust, CPEng, RPEQ of Wood Research and Development (WRD) spoke about his thoughts on the restoration of the bridge. He appears to be very knowledgeable and experienced with timber bridge restorations. At a minimum, I would advise that Dr. Tingley be used to review any proposed restoration work. Ideally, I think that he should be directly involved.

Screen Name Redacted
7/03/2022 03:50 PM

I am quite concerned about how the design contract was awarded, and the apparent lack of input from both historical and wood engineer experts. We have one chance to get this right, and the design and evaluation should be completed by those with expertise.

Screen Name Redacted
7/04/2022 10:01 AM

1. The Region should investigate whether the duration of the project and related closures to traffic can be shortened. 2. Proper measures must be taken to ensure the safety of horse and buggy traffic and trail users, who will have to detour onto Line 86 and across the narrow bridge across the Grand River. I would suggest caution signage on Line 86, along with a reduction of the speed limit from 80 km. / hr. to 60 km. / hr., from 200 m. west of Covered Bridge Drive to 200 m. east of Katherine Street.

Screen Name Redacted
7/04/2022 02:12 PM

A thorough non destructive inspection should be done before any decisions on how to fix it should be made. This test needs to be done by someone who is qualified to work on timber structures and specializes in restoration of these types of structures. Have the bridge fixed properly by someone who has extensive experience in working on these types of structures as well is critical to the longevity and rehabilitation of this very important bridge.

Screen Name Redacted
7/04/2022 04:52 PM

a) It is noted that the Preferred Alternative proposes a tar and chip road base. The existing tar and chip base has been considerably damaged by the horse and buggy traffic, exposing the wood floor deck completely across the bridge. This is from the steel horse shoes. Possibly installing an asphalt base over the floor deck would prevent this from happening in future years. b) I was very impressed with the presentation made by Mr. Tingley, P. Eng. on the Milkish Inlet Covered Bridge. In my opinion, this type of construction would work for the West Montrose Covered Bridge and keep the original Heritage of the bridge.

Screen Name Redacted
7/04/2022 05:53 PM

We respectfully request answers to the following questions in order understand how these alternatives were arrived at: 1. What are the overall objectives of the project and how are they prioritized (i.e., are the historical features of the bridge valued above or below that of its load-bearing capacity?). We note that the West Montrose covered bridge is a designated heritage structure, and therefore, the work should be considered primarily as an historical rehabilitation rather than a simple bridge repair. We applaud the region's move in this direction, but are concerned about wholesale alterations and replacements of possibly original timber material presented in both restoration alternatives, which seem to have been planned in the absence of an evaluation of the integrity of these components. We would strongly ask that any restoration option minimize the use of new materials or elements that are irreversible, and keep the original wood timber wherever possible. 2. What is the targeted live load capacity? The answer to this question will strongly influence the preferred alternative, and the amount of reinforcement required if Alternative B is chosen. This will in turn impact the aesthetics of the bridge. 3. To what time period, structurally and aesthetically, should the bridge ideally be restored? Has advice from historical experts been sought, and if so who are they, what are their qualifications and can their evaluations be made available? 4. Have any highly qualified and experienced timber bridge restoration experts been engaged to this point? If so, who are they, what are their qualifications, and can their conclusions be made available? We note that the engineering firm engaged by the Region to lead this project, Doug Dixon & Associates, is primarily a concrete and steel bridge engineering firm, and has little or no experience in the restoration of historic timber bridges. 5. Has a thorough inspection and analysis of the bridge timbers and the status of the structure been conducted? If so, when, by whom, and can their conclusions be made available? The results of such an inspection and analysis will strongly influence the preferred alternative, and the amount of reinforcement required if Alternative B is chosen. The amount of reinforcement may in turn impact the aesthetics of the bridge (see below) 6. Since the restoration plan for Alternative B differs significantly from the apparent

exemplar of the Bayswater Bridge at Milkish Inlet, NB, what are the unique features of the West Montrose bridge that require such deviations? We are most interested to understand why it would be necessary to elevate the height of the deck at West Montrose but not at Milkish Inlet. 7. Why is the Region not considering repairing the camber of the bridge? If clearance above the river in flood conditions is a concern (and it should be), repairing the bridge camber would provide such space, while simultaneously improving the structural support. 8. Alternative B proposes that all exterior cladding be replaced. Is this to cover the 300 mm. reinforcement of the lower chord? If so, is that really an important aesthetic consideration? In any event, without knowing the target live load capacity, we don't know how much reinforcement will be required. If we target a 10-12 tonne capacity, a 75 mm reinforcement may be adequate, and aesthetic considerations may not apply. 9. Why is a height restrictor suggested for Alternative B but not Alternative A? We respectfully request that consideration of any alternatives be deferred until 1) these questions and concerns are addressed, and 2) a thorough inspection and analysis of the bridge is conducted by a highly qualified and experienced timber covered bridge expert using modern nondestructive methods. The answers to these questions and the results of an inspection and analysis will most likely significantly impact the appropriateness of any alternative for restoration, and should be addressed before the opportunity for public input is closed.

Screen Name Redacted
7/04/2022 08:10 PM

Please provide more information on how the bridge can be rehabiliated without altering its heritage nature. By using as much of the in-situ timber materials as possible, could there be a savings in project time duration impacts and costs?

Screen Name Redacted
7/04/2022 08:16 PM

We respectfully request answers to the following questions in order understand how these alternatives were arrived at: What are the overall objectives of the project and how are they prioritized (i.e., are the historical features of the bridge valued above or below that of its load-bearing capacity?). We note that the West Montrose covered bridge is a designated heritage structure, and therefore, the work should be considered primarily as an historical rehabilitation rather than a simple bridge repair. We applaud the region's move in this direction, but are concerned about wholesale alterations and replacements of possibly original timber material presented in both restoration alternatives, which seem to have been planned in the absence of an evaluation of the integrity of these components. We would strongly ask that any restoration option minimize the use of new materials or elements that are irreversible, and keep the original wood timber wherever possible. What is the targeted live load capacity? The answer to this question will strongly influence the

preferred alternative, and the amount of reinforcement required if Alternative B is chosen. This will in turn impact the aesthetics of the bridge. To what time period, structurally and aesthetically, should the bridge ideally be restored? Has advice from historical experts been sought, and if so who are they, what are their qualifications and can their evaluations be made available? Have any highly qualified and experienced timber bridge restoration experts been engaged to this point? If so, who are they, what are their qualifications, and can their conclusions be made available? We note that the engineering firm engaged by the Region to lead this project, Doug Dixon & Associates, is primarily a concrete and steel bridge engineering firm, and has little or no experience in the restoration of historic timber bridges. Has a thorough inspection and analysis of the bridge timbers and the status of the structure been conducted? If so, when, by whom, and can their conclusions be made available? The results of such an inspection and analysis will strongly influence the preferred alternative, and the amount of reinforcement required if Alternative B is chosen. The amount of reinforcement may in turn impact the aesthetics of the bridge (see below) Since the restoration plan for Alternative B differs significantly from the apparent exemplar of the Bayswater Bridge at Milkish Inlet, NB, what are the unique features of the West Montrose bridge that require such deviations? We are most interested to understand why it would be necessary to elevate the height of the deck at West Montrose but not at Milkish Inlet. Why is the Region not considering repairing the camber of the bridge? If clearance above the river in flood conditions is a concern (and it should be), repairing the bridge camber would provide such space, while simultaneously improving the structural support. Alternative B proposes that all exterior cladding be replaced. Is this to cover the 300 mm. reinforcement of the lower chord? If so, is that really an important aesthetic consideration? In any event, without knowing the target live load capacity, we don't know how much reinforcement will be required. If we target a 10-12 tonne capacity, a 75 mm reinforcement may be adequate, and aesthetic considerations may not apply. Why is a height restrictor suggested for Alternative B but not Alternative A?

Screen Name Redacted
7/04/2022 09:42 PM

Yes. I know you hate this, but the siding on the bridge is original and almost certainly locally cut. It is absolutely not true that you MUST replace it all. This is just not true and will make the bridge look and smell new. The boards will look brand new on the inside for at least 20 years. By Canadian historic preservation recommendations you should patch the siding with similar materials removing as little of the original siding (now red) as possible. If you disagree that the siding boards are mostly original to the bridge, please provide some evidence to support that position.

Screen Name Redacted 7/05/2022 12:55 PM	I would prefer the bridge be fixed now, instead of small fixes that slightly extend the life. For those who oppose it, how can we guarantee if major changes aren't done, that it won't just be taken down or turned into a pedestrian only bridge in the future? It needs the steel reinforcements. The cars aren't an issue, it's the horse and buggies that weaken the integrity of the wooden structure. The bridge shakes much more from horses crossing it than cars. In order for them to continue using it, it needs to be upgraded.
Screen Name Redacted 7/05/2022 01:12 PM	This new proposal is definitely heading in the correct direction. I think there are some issues that need to be ironed out and looked at in more detail. Altogether the approach to the project should really seek to revisit the central mandate at each step: ensuring that the bridge is an operational piece of infrastructure that is also a highly unique and important heritage site, and deserves a historically respectful, detailed and well-informed decisions and implementations.

Optional question (37 response(s), 14 skipped)
Question type: Essay Question

Appendix D

Date: June 23, 2022
To: Regional Municipality of Waterloo Council
CC: Michelle Pinto, Region of Waterloo Project Manager
Re: West Montrose Covered Bridge Restoration

We are writing on behalf of the West Montrose Residents' Association, Inc.; (a.k.a. BridgeKeepers) regarding the proposed restoration of the West Montrose covered bridge. BridgeKeepers was founded in 2008 to formalize an ad hoc group of local residents and supporters of the covered bridge. Our signature is "*Preserving Our Past… Protecting Our Future*", and our mission is "*to preserve the covered bridge experience*". We consider ourselves to be the most substantial stakeholder in the West Montrose covered bridge. Our "stake" is driven very deep into the local landscape and its cultural heritage, and has grown strong roots over many decades. Please see our list of bridge support activities attached to the end of this letter. While our organization was formalized in 2008, our work with the bridge spans three decades.

We have some serious concerns regarding the process by which restoration alternatives are being considered by the Region of Waterloo. First, as we previously communicated in our letter of November 10, 2021, our primary concern is that options are being developed and presented for comment in the absence of thorough knowledge of the condition of the timber components of the bridge. We strongly recommend an evaluation of the existing timbers by a wood engineer before proceeding any further. Non-destructive evaluation of the timbers can be easily completed using a stress wave timer to determine time-of-flight, and will reveal hidden areas of decay that may not be identified in the randomly placed destructive samples that seem to be currently planned. Our inquiries indicate that such an evaluation would only cost 2.5% of the total estimated budget for this project (~$100,000 of the $4 million). An evaluation will need to be completed as part of the restoration process anyway and therefore will also not delay the project completion.

Second, the Regional Municipality of Waterloo has presented two alternatives for restoration of the covered bridge:

"Alternative A" proposes concealing steel girders behind wooden cladding in the interior of the bridge, and installing steel floor beams on the underside of the bridge; largely leaving the timber chords and trusses intact and not addressing the continuing deterioration of the existing timber and steel.

"Alternative B" as presented proposes replacing timber as necessary, and wrapping a large majority of the existing timber with fibre-embedded reinforcements.

In our opinion, neither of these alternatives, as currently presented, are the best solution or even very good, and we submit that the Region's request for the public to provide preferences for these alternatives is premature.

Alternative A will leave the timber chords and trusses intact, but it will not address the continuing deterioration of the existing timber and steel, involves the removal of existing timbers that may be in good condition, and has not been evaluated with respect to accelerating further degradation. Alternative B proposes a 300 mm thick reinforcement under the lower chords, raising of the bridge deck by a corresponding 300 mm (1 foot), and replacing all exterior cladding. Neither option appears to address correcting the camber of the bridge. We note that the supporting photograph for Alternative B was borrowed from the Bayswater Bridge restoration at Milkish Inlet, NB. That bridge was restored from a 5 tonne to a 30 tonne load capacity. The reinforcement was hung from the lower chord; the lower chord was not loaded on top of the reinforcement, and the reinforcement did not significantly impact

the height of the deck. Therefore, we suspect that there has been some confusion regarding the engineering involved, and moreover, the extent of the reinforcement required.

We respectfully request answers to the following questions in order understand how these alternatives were arrived at:

1. What are the overall objectives of the project and how are they prioritized (i.e., are the historical features of the bridge valued above or below that of its load-bearing capacity?). We note that the West Montrose covered bridge is a designated heritage structure, and therefore, the work should be considered primarily as an historical rehabilitation rather than a simple bridge repair. We applaud the region's move in this direction, but are concerned about wholesale alterations and replacements of possibly original timber material presented in both restoration alternatives, which seem to have been planned in the absence of an evaluation of the integrity of these components. We would strongly ask that any restoration option minimize the use of new materials or elements that are irreversible, and keep the original wood timber wherever possible.
2. What is the targeted live load capacity? The answer to this question will strongly influence the preferred alternative, and the amount of reinforcement required if Alternative B is chosen. This will in turn impact the aesthetics of the bridge.
3. To what time period, structurally and aesthetically, should the bridge ideally be restored? Has advice from historical experts been sought, and if so who are they, what are their qualifications and can their evaluations be made available?
4. Have any highly qualified and experienced timber bridge restoration experts been engaged to this point? If so, who are they, what are their qualifications, and can their conclusions be made available? We note that the engineering firm engaged by the Region to lead this project, Doug Dixon & Associates, is primarily a concrete and steel bridge engineering firm, and has little or no experience in the restoration of historic timber bridges.
5. Has a thorough inspection and analysis of the bridge timbers and the status of the structure been conducted? If so, when, by whom, and can their conclusions be made available? The results of such an inspection and analysis will strongly influence the preferred alternative, and the amount of reinforcement required if Alternative B is chosen. The amount of reinforcement may in turn impact the aesthetics of the bridge (see below)
6. Since the restoration plan for Alternative B differs significantly from the apparent exemplar of the Bayswater Bridge at Milkish Inlet, NB, what are the unique features of the West Montrose bridge that require such deviations? We are most interested to understand why it would be necessary to elevate the height of the deck at West Montrose but not at Milkish Inlet.
7. Why is the Region not considering repairing the camber of the bridge? If clearance above the river in flood conditions is a concern (and it should be), repairing the bridge camber would provide such space, while simultaneously improving the structural support.
8. Alternative B proposes that all exterior cladding be replaced. Is this to cover the 300 mm. reinforcement of the lower chord? If so, is that really an important aesthetic consideration? In any event, without knowing the target live load capacity, we don't know how much reinforcement will be required. If we target a 10-12 tonne capacity, a 75 mm reinforcement may be adequate, and aesthetic considerations may not apply.
9. Why is a height restrictor suggested for Alternative B but not Alternative A?

We respectfully request that consideration of any alternatives be deferred until 1) these questions and concerns are addressed, and 2) a thorough inspection and analysis of the bridge is conducted by a highly qualified and experienced timber covered bridge expert using modern nondestructive methods. The answers to these questions and the results of an inspection and analysis will most likely significantly impact the appropriateness of any alternative for restoration, and should be addressed before the opportunity for public input is closed.

Respectfully,

West Montrose Residents' Association, Inc.

BridgeKeepers' Background:

- For over three decades we, along with the Kiwanis Club of Elmira, have hosted the annual Covered Bridge Carol Sing.
- We own two 5' wreaths which we partner with the Township to install for the Christmas season.
- We hosted a Millenium celebration at the bridge on December 31st, 1999 / January 1st, 2000. Memorabilia from the village was encrypted near the bridge for future generations to discover and enjoy.
- We partnered with the Region in 2012 to paint the interior of the bridge.
- We participate annually in Adopt-a-Road to clean the roads around the bridge.
- We remove the graffiti from inside the bridge and, in the past, we have cleaned the interior of the bridge. (The Region has since assumed those duties.)
- In 2011, we hosted a 130th anniversary gala attended by close to 150 guests.
- We delegated to the Region in 2012, advocating for restoration and better maintenance of the bridge.
- We were very involved in the work done by the University of Waterloo's Heritage Resources Centre to consider and ultimately recommend the area around the bridge be designated as a Cultural Heritage Landscape. We advocated to the Township to adopt that recommendation.
- We host tours of the bridge and surrounding area for Doors Open Waterloo Region.
- We steward a portion of the Kissing Bridge Trail which passes through the bridge.
- We advocated to the public and the Township of Woolwich to deny an application for a 120 acre open pit gravel mine proposed to be located 120 metres from the bridge. This effort required hundreds of thousands of dollars and thousands of hours of work on our part. The applicant withdrew the application in 2013, saving the bridge and the community from this incursion.
- We own and maintain a 50' covered bridge float which we have featured in the Elmira Santa Claus Parade and the K-W Oktoberfest Parade to promote the bridge.

Appendix E

National Society for the Preservation of Covered Bridges, Inc.

HELP PRESERVE OUR HERITAGE
www.coveredbridgesociety.org

William S. Caswell, Jr.
535 Second NH Tpke
Hillsboro, NH 03244
E-mail: nspcb@yahoo.com

June 30, 2022

Michelle Pinto, Region of Waterloo Project Manager

Dear Ms. Pinto,

Thank you for the opportunity to comment on the repairs planned for the West Montrose Covered Bridge, the only historic covered bridge in Ontario.

I am president of the National Society for the Preservation of Covered Bridges (NSPCB). The Society was incorporated in 1954 with a primary mission to promote the preservation of covered wooden truss bridges. Although we are an American organization, we are interested in covered bridges throughout the world. My wife and I have traveled to Ontario a few times over the years to visit this bridge and other sites in the province. The NSPCB has some Canadian members and many others like me who enjoy visiting historic covered bridges.

We realize the importance of providing a safe and efficient transportation network for residents and visitors. However, we feel it also important to protect the historic structures which are part of the heritage of those same residents, structures which draw visitors such as me and my family to see them and subsequently help to support local businesses within those areas. Knowing that the bridge is a designated heritage structure, we appreciate all efforts to preserve as much of its historic integrity as possible. We note that the engineering firm involved with this project, Doug Dixon & Associates, is primarily a concrete and steel bridge engineering firm, and has little or no experience in the restoration of historic timber bridges.

We are not aware of any Canadian publications specifically addressing recommended methods for repair of historic covered bridges. However, in 2019 the US Secretary of the Interior published *Guidelines for Rehabilitating Historic Covered Bridges*. This document is an excellent resource and is available to download at https://www.nps.gov/hdp/project/coveredbridges/publications.htm.

I have not visited the bridge recently, but a couple of our members have expressed concerns about the project which I am conveying to you. The primary concern is regarding the present condition of the structural timbers of the bridge. If it has not already been done, I strongly recommend an evaluation of the existing structure by an experienced timber engineer. Non-destructive evaluation of the timbers can be done with tools such as a stress wave timer which can identify areas of decay that may not be located by collecting a few physical samples. Our inquiries indicate that such an evaluation would only cost 2.5% of the total estimated budget for this project (approximately $100,000 of the $4 million). An evaluation will need to be completed as part of the restoration process anyway so it would seem that doing it during the design phase would not delay the overall project.

While we understand that some repairs and replacement of deteriorated wooden truss timbers may be necessary, we request that repair or replacement of the historic structural material be kept to the minimum amount possible including methods of only replacing deteriorated portions of timbers when most of it is still structurally sound. Ideally, we recommend that any replacement timbers be of a species of wood similar to what was used in the original construction.

I see that there was a mention of including height barriers to restrict oversize vehicles. Although these are not always aesthetically pleasing, they are important to reduce the risk of oversized vehicles damaging the structure. I realize that this may also be difficult to construct due to the proximity of intersecting roads. There are instances where the height restrictors have been designed to be more visually appealing. An example of this is shown in my photo of the Langley Covered Bridge in Michigan. It is recommended that the barrier have some form of breakaway supports so it can be easily reset or repaired when struck. There is a fine example of this in Cobb County, Georgia and I can provide contact details if you wish more information. We have seen barriers embedded into bridge approaches and wing walls which have led to considerable and costly damage to those approaches when the barrier is struck by an oversize vehicle.



We reviewed the two alternatives currently posted on the Engage website and have concerns with both of them.

“Alternative A” proposes to replace the existing Bailey structure with new steel girders behind wooden cladding, essentially replicating the appearance today. While this does limit the replacement of potentially historic material, it does not address any deterioration of the existing timbers or methods of deterring future deterioration.

“Alternative B” as presented proposes a 300 mm thick reinforcement under the lower chords, raising of the bridge deck by a corresponding 300 mm (1 foot), and replacing all exterior cladding due to the increased height. As presented, this appears to be more than needed to accommodate the loads expected on this bridge. It also seems to assume a worst-case situation where most of the structural timbers will need the additional support.

We respectfully request answers to the following questions to better understand the intent of these alternatives:

1. What live load capacity are you planning to achieve? Being familiar with and having referenced the work on the Milkish Inlet Bridge in New Brunswick in my previous letter of October 16, 2021, I recognized the photos of that project being used as examples for “Alternative B” of this project. That work was done to increase its capacity to 30 tonnes. What is the desired weight capacity for this bridge? With an alternative route nearby for large vehicles, it doesn’t seem like there would be a need to accommodate the same loads as the Milkish Inlet Bridge.

2. We did not see mention of repairing the camber of the bridge. Is that part of the plan? Returning the camber to its original state (as best can be determined unless original plans and data are available) will help reduce strain on truss joints which may have developed over the years by sagging of the bridge.

3. Has an expert in historic timber bridge restoration been contacted for input on the project? If so, is their assessment available for review?

4. The Bailey truss has been in place so long that one could argue that it is historic. Has an expert in the historic preservation field been contacted for advice regarding whether the bridge should be restored to the way it was initially constructed or how has appeared for the past few decades? If so, is their evaluation available for review? We are not historic preservation experts, but our preference would be to remove the Bailey structure to expose the wooden truss with a timber guide rail as you mentioned in your recommendations.

5. Will potential contractors be pre-qualified before being allowed to bid on the project? As a designated heritage structure, you would want to choose a contractor who already has experience working on historic structures.

We respectfully request that a thorough inspection and analysis of the bridge using nondestructive methods is conducted by an expert in restoring historic timber frame structures. Although that won't eliminate the possibility of unexpected surprises when concealed sections of timbers are exposed during the repairs, any efforts to identify trouble spots during the design process will reduce the overall impact on the project schedule.

On behalf of the National Society for the Preservation of Covered Bridges, thank you for the opportunity to offer comments on this project. We look forward to continued involvement as the design evolves. If we can be of any assistance, please let us know.

Sincerely,

NSPCB President

cc: NSPCB Executive Board
Tony Dowling, West Montrose Residents' Association, Inc.

Region of Waterloo

Public Consultation No. 3 Summary Report

Region of Waterloo
Waterloo West Montrose Covered Bridge Environmental Assessment Study

February 15, 2024

Submitted by:
Entuitive/BT Engineering Inc.
509 Talbot Street
London, ON N6A 2S5
519-672-2222

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Appendix C Public Consultation No. 3 Comment Sheets
Appendix D West Montrose Residents' Association Meeting Minutes
Appendix E Responses to Frequently Asked Questions

1.0 INTRODUCTION

The purpose of Public Consultation No. 3 was to engage the public, stakeholders, and Indigenous Peoples on the preferred rehabilitation alternative, mitigation measures and next steps.

The third Public Consultation presented the following:

- An introduction to the Study.
- Overview of the MCEA Process.
- Proposed Rehabilitation Alternatives and Evaluation.
- Recommended Rehabilitation Strategy.
- Next Steps.

Public consultation materials and a survey were posted on the project website at the following link: https://www.engagewr.ca/west-montrose .

All members of the public and interest groups were invited to participate in the Public Consultation, to view the presentation material, and to discuss the project. The Public Consultation No. 3 exhibits are included in **Appendix A**.

An in-person Open House for Public Consultation No. 3 was held on:

Date: Wednesday, November 22, 2023
Time: 6:30 pm to 9:00 pm (drop-in format)
Location: West Montrose United Church
42 Covered Bridge Drive, West Montrose, ON N0B 2V0

The Region and consultant representatives were available to respond to any inquiries.

2.0 PUBLIC AND AGENCY CONSULTATION

One of the key aspects of the project is to provide the public, interested parties and affected agencies with the opportunity for input. To ensure this objective is met, a public and agency notification program was undertaken. The program includes several communication mechanisms, discussed in the following sections.

2.1 Public Consultation Notice

Notice of Public Consultation No. 3 was first issued on November 14, 2023 on the Region's website and on the Township of Woolwich website. The notice was subsequently sent by email to the study contact list including members of the public, agencies, stakeholders, and Indigenous Peoples. The notice was posted in the local newspapers and hard copy letters were delivered to the residents of West Montrose. Posts were made on the Region's social media pages about the public consultation.

The Public Consultation notice and newspaper ads are provided in **Appendix B**.

A narrated video presentation was posted at the following link:
https://www.youtube.com/watch?v=T8BmZasU0fw

Signs were posted at the bridge and notices were mailed and e-mailed out to relevant stakeholders and residents within the project limits.

2.2 Mennonite Community Engagement

Engagement with the Mennonite Community included several visits to the Lost Acre Variety Store near the bridge to hand out paper copies of the survey. 4 surveys were completed and returned. The community was also engaged through phone calls and visits with a local community contact provided by the Township of Woolwich to discuss the project and any potential concerns from the Mennonite community.

2.3 West Montrose Reisdents' Association/BridgeKeepers

A meeting was held with members of the West Montrose Residents' Association and National Society for the Preservation of Covered Bridges on October 19, 2023, prior to Public Consultation #3. A summary of the meeting can be found in Appendix D.

2.4 Indigenous Engagement

The following First Nations groups were engaged throughout the project and during Public Consultation #3: Six Nations of the Grand River, Mississaugas of the Credit First Nation and the Haudenosaunee Development Institute (HDI). Letters were sent out to the various Indigenous groups advising them of the Public Consultation, and the Stage 1 Archaeological Assessment and Natural Environment Report was circulated.

3.0 PUBLIC CONSULTATION COMMENTS

The survey was open from November 22 until December 17, 2024. Ten (10) comment sheets and 141 online surveys were received during the 4-week public consultation comment period. There were 1,087 visitors that viewed the project page at least once. Copies of the comments, excluding personal information, are provided in **Appendix C**. The comments and discussions are summarized in the following sections.

3.1 Summary of Comments

The results of the comments received, and discussions held during Public Consultation No. 3 are listed below in **Table 1**. The comments have been summarized by general subject matter.

Table 1: Summary of Comments
Public Consultation No. 3

Comment	No. Comments Received
No additional comments on the Preferred Design Concept	74
Support the Preferred Design Concept	39
Does not support the 10 tonne load limit	6
Allowing motorized vehicles is part of the experience	6
Concerns with enforcement of non motorized vehicle restriction	4
Concerns about height restriction bar blocking view of bridge	22
Suggest use of asphalt for surface treatment, instead of tar and chip	2
Dislikes look of truss reinforcement, would prefer replacement instead	2
Agrees with removal of Bailey truss and going to an all wood design	5
Reduce speed limit on Line 86	3
There are a lot of holes in the roof of the bridge and cladding.	2
Do not support physical height restrictors.	1
Bridge can be brought to certain load ratings by increasing the size of the bottom chords and the use of horizontal rods.	1
If restored correctly, no vertical sag would occur for years after.	3
Review the lower chord on the west side.	3
Why is the moisture content for the stringers so high? (30%+) How can it be avoided?	1
Avoid decay of connection points between members in the future?	1
Routine annual maintenance recommended.	4
Concern about weight of tar and chip wearing surface.	1
Support for cladding inside the ends of the structure (shelter panels).	4
Recommend fire retardant for the entire interior.	3
Alternative idea to no overhead heigh restriction bar - redo road geometry on south side to a 3-way stop with narrow guardrails to restrict large vehicles from making the turn.	1
Road asphalt on the bridge deck would last longer than tar and chip. Horse traffic has worn out the existing tar and chip into the wood 2x6 below.	1

Table 1: Summary of Comments Public Consultation No. 3	
Comment	**No. Comments Received**
Dislike for the support beams appearance and truss that are connected with structural lagging.	1
Can added supports be laminated without mechanical fasteners.	1
Does 10-tonne design significantly increase the design? What would the structural changes look like if it was designed for 8 tonnes or even 5 tonnes?	1
Concern for potentially historic material being replaced. Many replacement pieces may have been replaced before, emphasizing preserving any original pieces that remain.	1
Consider splicing floor joists for additional preservation (refer to the plans for the Beechfork Bridge in Washington County, Kentucky).	1
With 10-tonne limit would emergency vehicles be allowed to cross if necessary?	1
Option #3 over-height limit sign is too expensive to repair than other options.	1
Bailey Truss considered for removal can be used and repurposed for construction of the over-height barrier.	1
There are drainage issues on the approach to the bridge that should be addressed to abate water entering private properties.	2

4.0 CONCLUSIONS AND NEXT STEPS

The public expressed support for the general recommendations which are to focus on timber member strengthening or size increases as needed to avoid modern strengthening (such as glu-lam members).

There is support for and against closing the bridge to motorized vehicles. 47% of survey respondents prefer that motorized vehicles continue to be allowed on the bridge, 29% of people are in favour of a motor vehicle restriction, and 24% of respondents did not have a preference. The Project Team is not recommending a restriction of motorized vehicles on the bridge at this time. The closure can be a decision post construction as it does not change the design approach for the rehabilitation.

The public was in favour of height restriction bar option #3 by 58%, also opting for the bar to be further distant from the bridge for minimal visual obstruction of the bridge aesthetic.

Following the Public Consultation, all comments were reviewed, and refinements made to the Preferred Alternative, based on these comments, before a recommendation was brought forward to Regional Council. Responses to the comments received were provided in a Frequently Asked Questions section on the project Engage page and are also provided in Appendix E.

The Project Team updated the Preferred Alternative to narrow the road at the south approach of the bridge to eliminate the need for the height restriction bar on this approach. After implementation, if narrowing the road on the south approach proves to not be effective or requires ongoing maintenance due to damaged guiderails, an overhead height restriction bar could be installed on the south approach of the bridge at a later time.

Appendix A

Public Consultation No. 3 Exhibits

BT ENGINEERING

West Montrose Covered Bridge Rehabilitation

Public Consultation #3







Township of Woolwich, Region of Waterloo

November 2023

ENTUITIVE

BT ENGINEERING BTE

Region of Waterloo

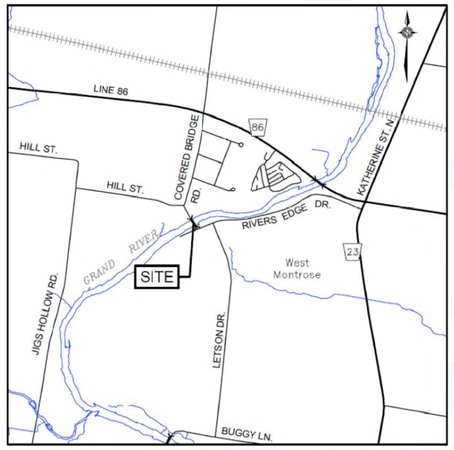
Study Introduction

Project Purpose

The West Montrose Covered Bridge requires a complete structural rehabilitation to ensure the structure will continue to serve the public through the current century.

This study follows the Municipal Class Environmental Assessment (EA) process and is classified as a Schedule C Project.

Project Location



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Introduction
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Project Need and Opportunities

The 2014 Preservation Strategy for the West Montrose Covered Bridge and ongoing structural monitoring of the bridge has identified the need to:

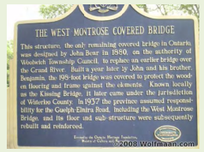
- Remove the Bailey truss system and provide a single robust load bearing system capable of supporting all loads on the bridge.
- Repair the roof and exterior cladding.
- Mitigate other risk factors to the bridge including damage by oversize vehicles, loss by fire, flooding, ice and/or snow damage.

Structural Rehabilitation



Strengthen the overall structural system to support bridge loads and ensure public safety

Heritage Conservation



Preserve the heritage designation of the bridge

Ongoing Maintenance



Minimize future maintenance requirements

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Existing Challenges



Natural risks (wind, flood, snow, and ice damage)



Overloading of the bridge by oversize vehicles



Risk of Vandalism



Water supply for a fire suppression system



Deterioration of the timber truss, with time



Protection of the wooden truss

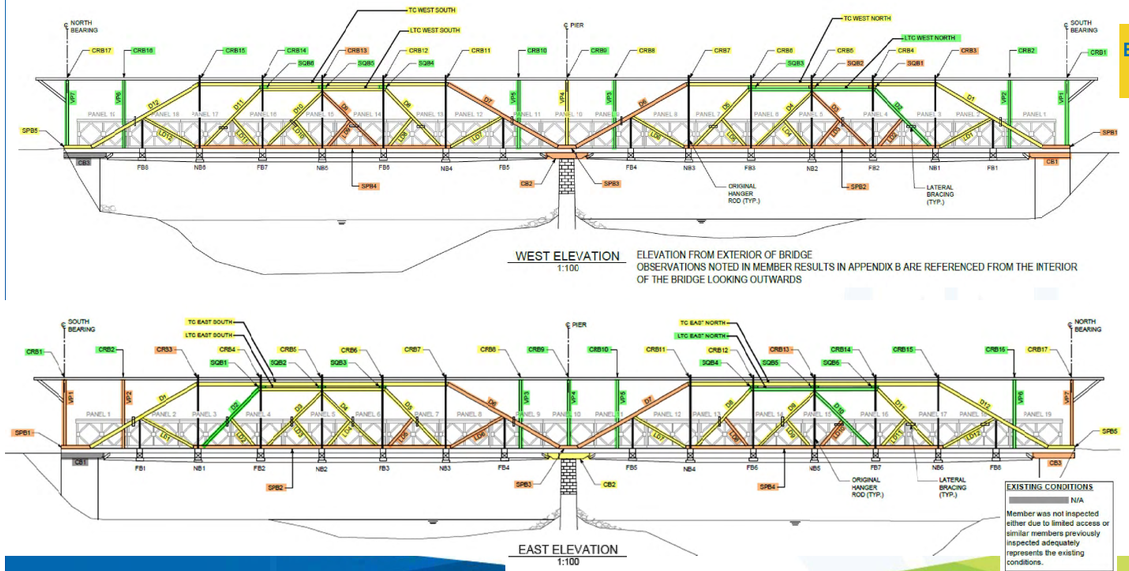
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Background Studies

Study	Considerations
Natural Environment Study	Potential impacts on terrestrial species, vegetation, birds, amphibians, bat habitat, aquatic habitat, and fish
Stage 1 Archaeological Assessment	Potential impacts on sites with archaeological potential
Heritage Impact Assessment	Cultural heritage conservation of the bridge
Hydraulic Assessment	Assessment of flood water levels and scour
Geotechnical Study	Composition of the pier, abutments and the underlying soil

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Background Studies – Timber Truss Assessment



Background Studies – Existing Wooden Truss Conditions

Elements recommended for replacement **based on condition**:

- Roof shingles
- Exterior red cladding
- Deck
- Stringers
- Floor beams and needle beams
- Bottom chord
- Steel hanger rods
- Sway bracing
- Bottom lateral bracing
- End diagonals at the pier
- Replace the following items as necessary:
  - Tie beams
  - Squash blocks
  - Vertical posts
  - Roof sheathing and rafters





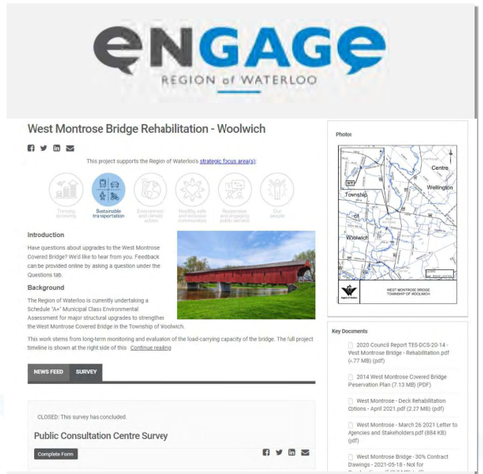


Public Consultation

Public Consultation Centre #1
October 2021
- 36 Surveys and comments received

Public Consultation Centre #2
June 2022
- 51 Surveys and comments received through EngageWR website and email

Public Consultation Centre #3
November 2023



- Public Consultation Centre #1 and #2 were hosted on the Region's EngageWR Website
- Participants were encouraged to complete the survey, submit questions via the Question and Answer (Q&A) page, submit comment forms / emails and Contact the project team

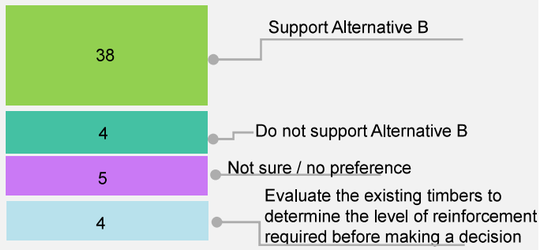
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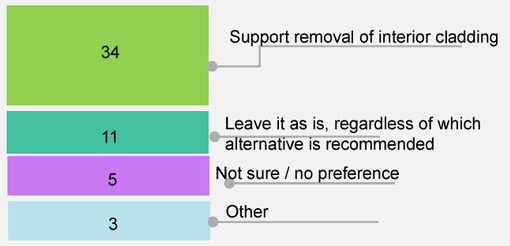
Public Feedback

Public Consultation Centre #2 – June 2022

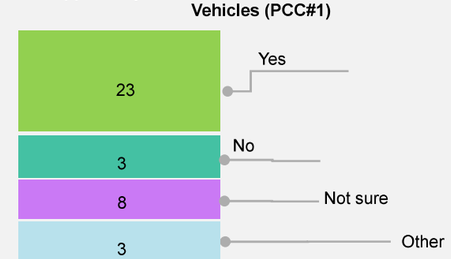
Support for Alternative B – Timber Truss Reinforcement



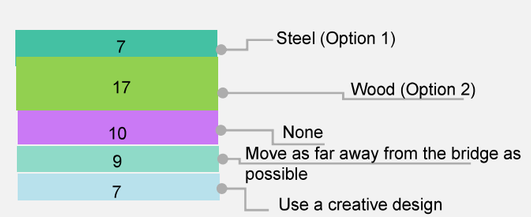
Support for removal of Interior White Cladding



Support Physical Roadside Features to Restrict Oversized Vehicles (PCC#1)



Physical Height Restriction Bar Options



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Public Feedback

Public Consultation Centre #2 – Community Priorities

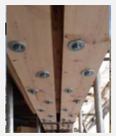


Engage an expert in historic timber bridge restorations to evaluate the existing timbers to determine the level of reinforcement required



Restore the bridge to the way it was built in 1881

Reuse as much of the existing wood as possible



Dislikes look of truss reinforcements and/or raising the height of the bridge

Bridge capacity and load limit (posted and design)

Provide traffic calming for horse & buggies on Line 86

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Proposed Rehabilitation – Common to All Alternatives

Existing

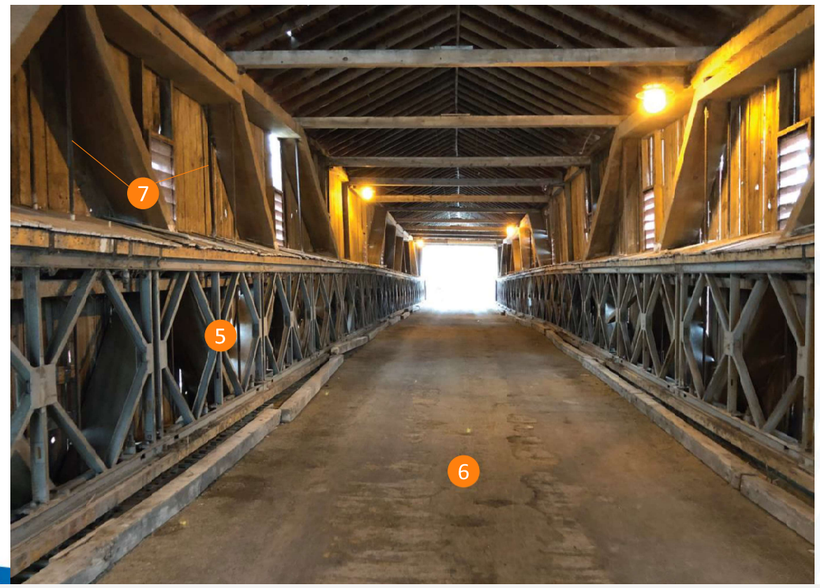
Post rehabilitation



1. Bridge sag reduced
2. Replace roof with new cedar shingles
3. Replace exterior wood cladding
4. Replace window louvres

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Proposed Rehabilitation – Common to All Alternatives



5 Remove steel Bailey truss

6 Re-instate tar and chip wearing surface after replacement of nail-laminated deck

7 Replace steel hanger rods

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Proposed Rehabilitation – Common to All Alternatives



8 Replace rafters as necessary

9 Replace tie beams as necessary

10 Replace wood curbs

11 Replace light bulbs as necessary

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Proposed Rehabilitation – Common to All Alternatives

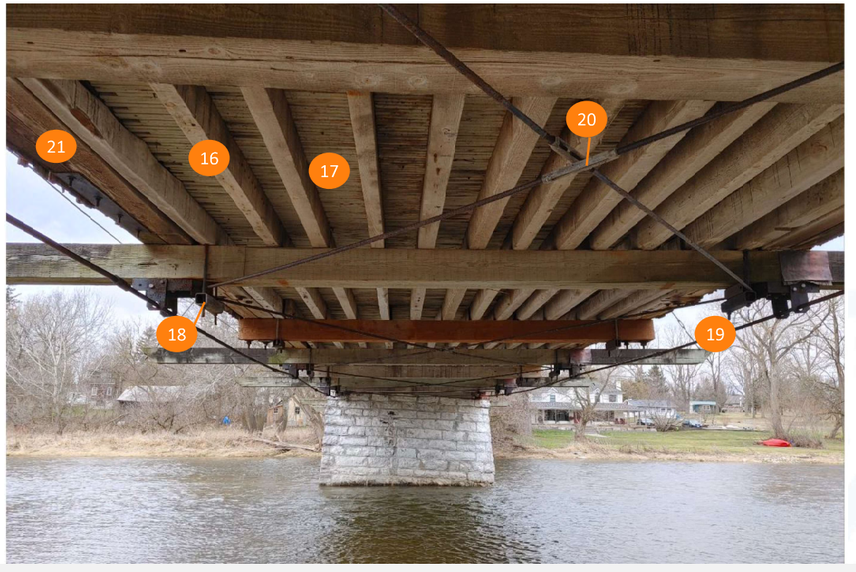


12 Replace needle beams
13 Replace floor beams
14 Repairs to center pier
15 Replace sway bracing

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Proposed Rehabilitation – Common to All Alternatives



16 Replace stringers
17 Replace nail-laminated deck
18 Remove Bailey truss hanger system
19 Remove non-functioning tension rods (1959)
20 Replace Bottom lateral bracing
21 Replace bottom chord

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Proposed Rehabilitation – Common to All Alternatives

22) Concrete repairs to bridge abutments
23) Bridge deck elevation and approach grades will remain the same
24) Height restriction bars to prevent oversized vehicles from using the bridge
25) Fire retardant materials applied to various bridge elements

3 tonne posted load limit to be maintained



✓ Small Cars, SUVs, Horse & Buggies	1 - 3 tonnes
✓ ✗ Pick-up Trucks	1.7 – 3.5 tonnes
✗ EMS Vehicles	4 - 8 tonnes
✗ School Bus/Small Truck	6 - 12 tonnes
✗ Large truck	13+ tonnes

Rehabilitation Alternatives

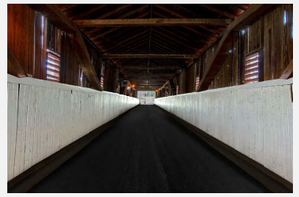
The following alternatives were evaluated by the Project Team:

Alternative	Description
A	Steel Girder Reinforcement Presented at Public Consultation #1 and #2
B	Timber Truss Reinforcement with Fiber Reinforced Polymer (FRP) Presented at Public Consultation #2 as the Preferred Alternative
C1 to C4	Repairs to wooden truss members to achieve a design vehicular live load limit of:
C1	12 tonnes
C2 (Preferred)	**10 tonnes**
C3	8 tonnes
C4	6 tonnes

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Alternative A – Steel Girder Reinforcement

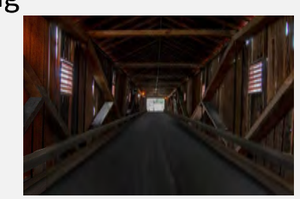
- Remove Bailey trusses and replace with new steel girders
- New steel girders would be the primary structural system
- Replace interior white cladding
- Bridge interior would look similar to the way it looks today
- Width of driving lane would become slightly more narrow
- Includes new steel floor beams
- Can accommodate a design live load of approximately 15 tonnes





Alternative B – Timber Truss Reinforcement with Fibre-reinforced Polymer (FRP)

- Remove Bailey truss and strengthen the existing wooden truss with high-strength fibre reinforcement attached to the bottom chord
- Reinforce deteriorated truss members
- Remove interior white cladding
- Install timber guardrail to protect wooden truss
- FRP bonding to the bottom chord of the truss was determined to be **unsuitable** due to the deteriorated condition of the bottom chord discovered during the timber inspection. The bottom chord is recommended for replacement.







Alternatives C1 to C4 – Wood Repairs

- Remove existing steel Bailey truss and repair/replace deteriorated wooden truss members
- Level of intervention to various truss members varies based on the design live load, as outlined in the table below
- Remove interior white cladding and reinstate in small sections at each end
- Install overhead lateral bracing inside the bridge

Truss Element	Alt. C1 – 12 tonnes	Alt. C2 - 10 tonnes (Preferred)	Alt. C3 - 8 tonnes	Alt. C4 - 6 tonnes
Stringers	Replace with new sawn wood stringers			
Floor and Needle Beams	Replace with new 16" x 16" sawn wood Douglas Fir beams. The current beams are 12" x 12".			
Bottom Chord	Replace with new Douglas Fir chord			
Top Chord	No action			
Lower Top Chord	Make composite with top chord by adding wood plate between top chord and lower top chord and fastening together			No action
End Diagonals	Repair by fastening on new 4 1/2" (102mm) thick wood plank	Repair by fastening on new 4" (89mm) thick wood plank	Repair by fastening on new 3" (64mm) thick wood plank	
Interior Diagonals	Repair by fastening on new 2" (38mm) thick wood plank	No action		
Lower Diagonals	No action			

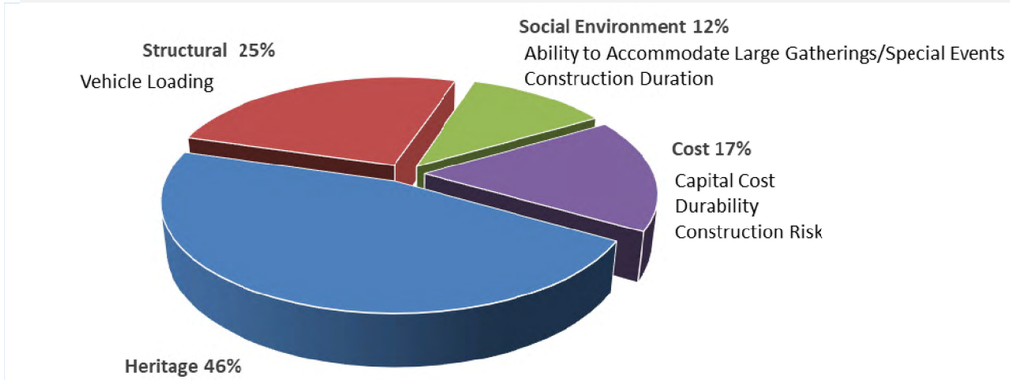
Alternatives Evaluation – Multi-Attribute Trade-off System (MATS)

- Alternatives were assessed using a comprehensive evaluation methodology referred to as the Multi Attribute Trade-off System (MATS) method.
- Four evaluation factor groups were considered: Heritage, Structural, Social Environment and Cost.
- Factor groups are made up of measurable criteria (sub-factors) used to identify relevant benefits and impacts and the relative differences between alternatives.
- The alternatives were evaluated based on the following criteria:

Criteria	Cultural Heritage	Structural Performance	Social Environment	Life-cycle Cost
Sub-Factors	• Visual Character – Reinforcing/Replacing Members • Visual Character – view to the bridge from Banks of Grand River • Retain Original Bridge Dimensions • Flexibility for Interior Cladding Dimensions • Level of Intervention (Reversibility) • Visibility of Original Truss Structure • Floor System	• Vehicle Loading	• Ability to accommodate large gatherings/ special events • Construction Duration	• Capital Cost • Durability • Constructability

Alternatives Evaluation - MATS

The criteria were assigned weightings in the evaluation by the Project Team:

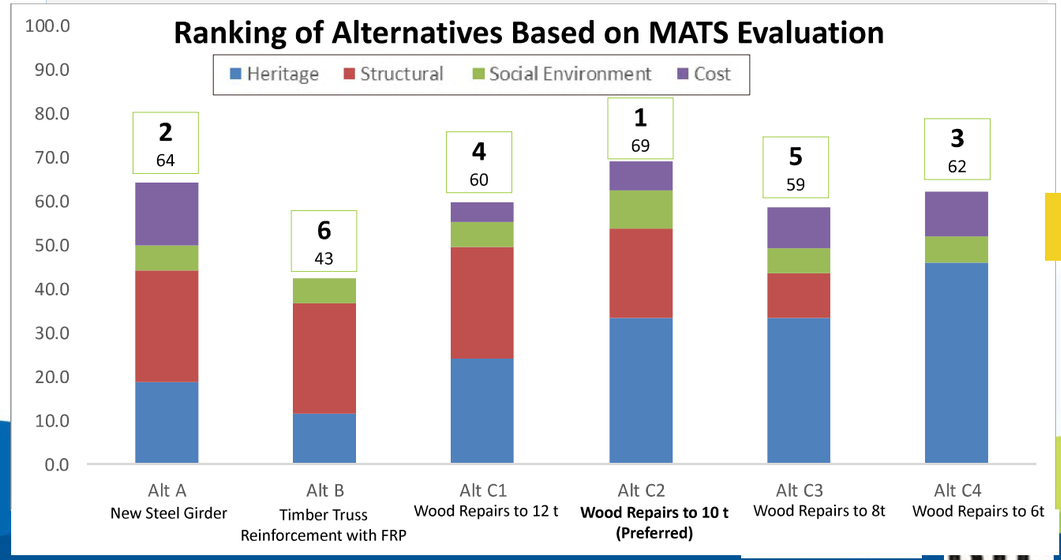


Visual Character - Reinforcing/Replacing Members
Visual Character - Views to the Bridge from Banks of Grand River
Retain Original Bridge Dimensions
Flexibility for Interior Cladding Dimensions
Level of Intervention (Reversibility)
Visibility of Original Truss Structure
Floor System

Alternatives Evaluation - MATS

Alternative scores are determined through the use of a mathematical relationship to equate impacts to scores.

The results of the MATS evaluation are illustrated on the following exhibit.



Alternatives Evaluation – Sensitivity Testing

- Sensitivity testing was conducted to determine if the nature of the evaluation is sensitive to the weights assigned to each criterion.
- A series of tests were completed varying the weight for each global factor.
- Following this series of tests, the results were reviewed to assess whether the preferred alternative changed when the weights were varied.
- The results of the sensitivity test illustrate the trade-offs of the structural and heritage characteristics of the alternatives.
- Alternative A performs best structurally, with trade-offs for impacts to the heritage attributes. Alternative C4 performs best for the heritage attributes, but has the lowest structural loading capacity.
- Alternative C2 provides the best balanced alternative, balancing the structural loading capacity and the heritage attributes of the structure.

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Recommended Rehabilitation Alternative

Removal of the existing Bailey truss and strengthening of the existing wooden truss to a **10 tonne design live load**, by replacing and/or strengthening specific wooden truss members, including:

- Replace floor beams and needle beams with new 16"x16" Douglas fir beams
- Replace bottom chord with new Douglas Fir members
- Make lower top chord composite with top chord by adding wood plate between top chord and lower top chord and fastening together
- Strengthen end diagonals by fastening on new 4" (89mm) thick wood planks
- Remove interior cladding and reinstate in short sections in each corner



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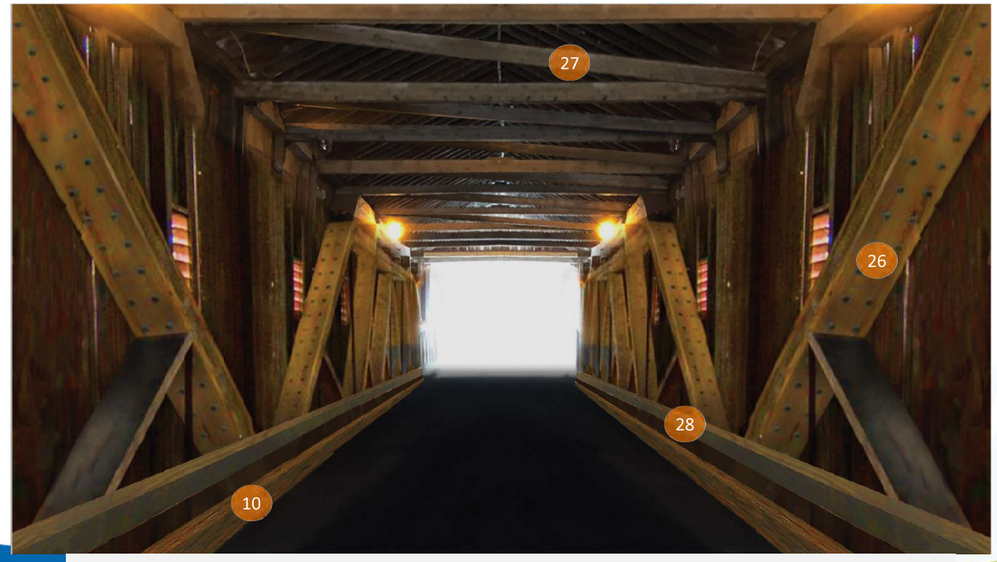
Recommended Rehabilitation Alternative



- 12 New Douglas Fir 16"x16" needle beams
- 13 New Douglas Fir 16"x16" floor beams
- 16 New sawn wood stringers
- 17 New nail-laminated wood deck
- 20 New steel rod cross-bracing
- 21 New Douglas Fir bottom chord member

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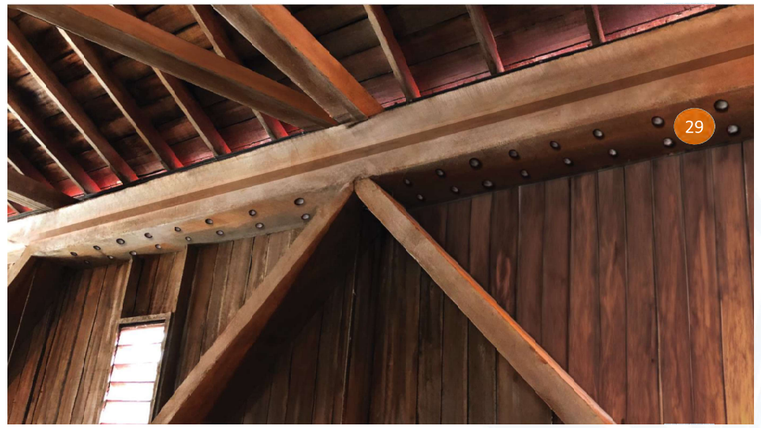
Recommended Rehabilitation Alternative



- 10 New wood curbs
- 26 Replace end diagonals at pier and strengthen end diagonals at abutments
- 27 New overhead wood lateral bracing
- 28 New timber guiderail

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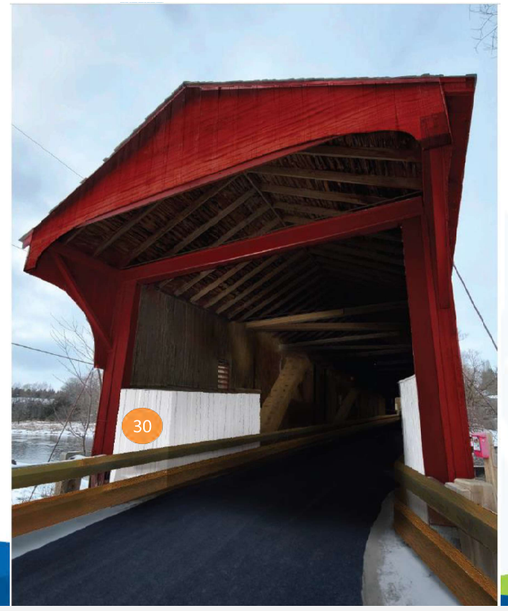
Recommended Rehabilitation Alternative



29 Reinforce top chord with lower top chord

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Recommended Rehabilitation Alternative – Interior Cladding



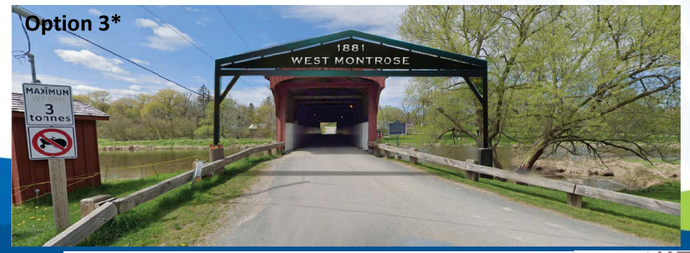
30 Reinstate interior cladding in short sections at each end of the bridge

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Proposed Improvement #25 – Height Restrictor Bar Options for Public Input



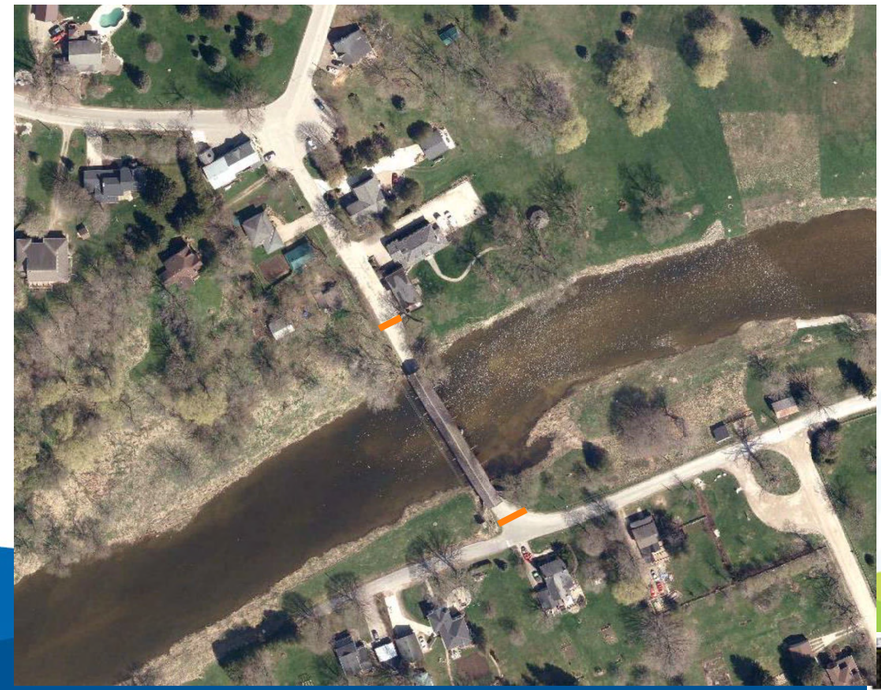




*Option 3 details to be finalized with the input of an architect

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Proposed Location of Height Restrictor Bars



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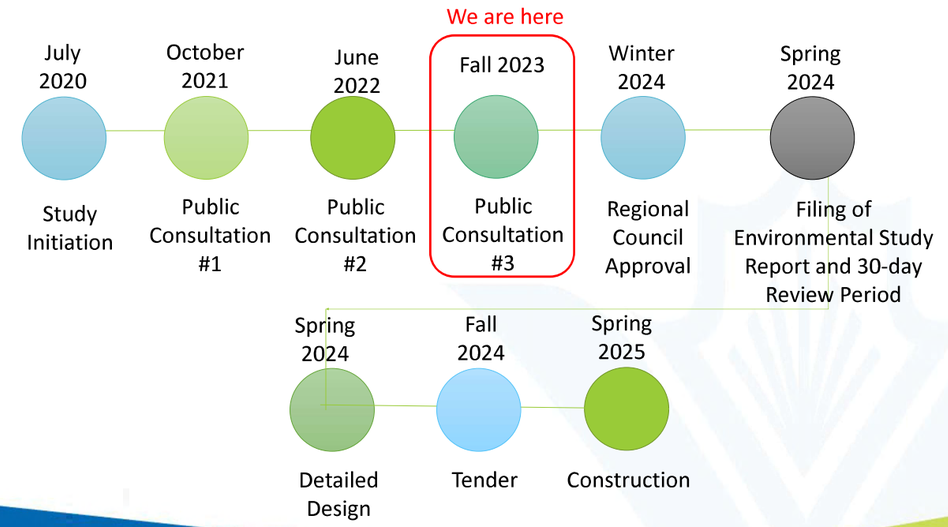
Motorized Vehicle Restriction for Public Input

- We are asking for public input on whether signage should be posted to restrict motorized vehicles from using the bridge
- Horse and buggies, pedestrians and cyclists would still be permitted across the bridge
- This would not change the recommended Preferred Alternative C2, to rehabilitate the bridge to a 10 tonne load limit



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Thank you!

Follow the project at: engagewr.ca/west-montrose

Join our mailing list and complete the survey by December 13, 2023

A public Open House is planned on **November 22, 2023** from 6:30p.m. – 9:00p.m. at the West Montrose United Church located at 42 Covered Bridge Drive, West Montrose

Project Contacts:

Michelle Pinto, P.Eng., M.B.A. Engineer Region of Waterloo mipinto@regionofwaterloo.ca (519) 575-4400 ext. 3637	**Steve Taylor**, P.Eng., M.Eng., CVS-LIFE, P.E. Chief Executive Officer BT Engineering stevenj.taylor@bteng.ca 519-672-2222	**Andrew Lehan**, P.Eng., M.A.Sc. Senior Engineer Entuitive andrew.lehan@entuitive.com 437-219-4715

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Appendix B

Public Consultation No. 3 Notice and Newspaper Ads

Region of Waterloo

Public Open House - West Montrose Covered Bridge Rehabilitation, Township of Woolwich

Posted on Tuesday November 14, 2023 Subscribe

Share your comments with us as we continue to plan for the rehabilitation of the West Montrose Covered Bridge.

Open house and survey

We're hosting an in-person open house on November 22, 2023 from 6:30–9:00 p.m. at the West Montrose United Church, 42 Covered Bridge Drive, West Montrose, to share our latest updates and answer any questions.

You can also share your comments with us through a survey posted at engagewr.ca/west-Montrose **between November 20 and December 13, 2023.** Feedback can also be provided by email, mail, or by telephone.

What's changed

We've made revisions to the preferred rehabilitation alternative and we're looking for your feedback. The revised preferred alternative includes removal of the existing steel Bailey truss, replacement of deteriorated truss members, recommended after a detailed inspection of the truss, and reinforcement of selected members to accommodate a 10-tonne design vehicular live load. This is preferred instead of the previous option we shared with you at the last public consultation, which considered reinforcing the bridge with fiber-reinforced polymers. We will maintain the three-tonne load limit and a height restriction bar is proposed to prevent damage to the bridge from oversized vehicles.

More info

Visit our West Montrose Covered Bridge project page on EngageWR.ca to see project documents and frequently asked questions.

Project background

Chat

The Region of Waterloo is conducting a Schedule [illegible] Environmental Assessment for the West Montrose Covered Bridge in the Township of Woolwich. This rehabilitation will address deteriorating structural needs and provide an opportunity to preserve the heritage of the bridge.

Contacts

Michelle Pinto, P.Eng., M.B.A.

Project Manager

Region of Waterloo

150 Frederick Street, 6th Floor

Kitchener, ON N2G 4J3

519-575-4400 ext. 3637

mipinto@regionofwaterloo.ca

Steve Taylor, P.Eng., M.Eng., CVS-LIFE, P.E.

Consultant Project Manager

BT Engineering

509 Talbot Street

London, ON N6A 2S5

519-672-2222

stevenj.taylor@bteng.ca

All comments and information received from individuals, stakeholder groups, and agencies regarding this project are collected to assist the Region of Waterloo in making a decision. Under the "Municipal Act", personal information such as name, address, telephone number and property location that may be included in a submission becomes part of the public record.

Attachments

West Montrose Covered Bridge site map

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Chat

ENGINEERING AND
ENVIRONMENTAL SERVICES
Design and Construction
150 Frederick Street
Kitchener Ontario N2G 4J3 Canada
Telephone: 519-575-4400
TTY: 519-575-4608
Fax: 519-575-4430
regionofwaterloo.ca

Refer to:
Michelle Pinto, 519-575-4606

File No:
07626

Date:
November 8, 2023

To: Property Owners/Residents

Re: West Montrose Covered Bridge Rehabilitation, Township of Woolwich
Public Consultation Centre #3

Last year, we reached out to you with a preferred alternative for the West Montrose Covered Bridge rehabilitation at a public consultation in June. After a detailed inspection and evaluation of the timber truss, we have revised the preferred alternative. The revised preferred alternative includes removal of the existing steel Bailey truss, replacement of deteriorated truss members and bridge elements, recommended from the inspection, and reinforcing select members to accommodate a 10-tonne design vehicular live load. This is preferred instead of the previous option we shared with you, which considered reinforcing the bridge with fiber-reinforced polymers. The three-tonne load limit will be maintained and a height restriction bar is proposed to prevent damage to the bridge from oversized vehicles.

Before presenting the preferred options to Council in early 2024, we'd like to hear from you.

Save the date – November 22, 2023
We have scheduled an in-person public Open House for November 22, 2023 from 6:30p.m.–9:00p.m. at the West Montrose United Church, located at 42 Covered Bridge Drive, West Montrose. You are welcome to drop in to learn more about the preferred rehabilitation alternative and to ask the project team questions.

You can also share your comments from November 20 to December 13, 2023, at engagewr.ca/west-montrose. We have posted project information, including the preferred designs on the EngageWR project page. Please subscribe to our project page for updates and engagement notifications. You can also contact us directly with any comments or questions.

Michelle Pinto, P.Eng.
Region Project Manager
Region of Waterloo
Telephone: 519-575-4400 ext. 3637
mipinto@regionofwaterloo.ca

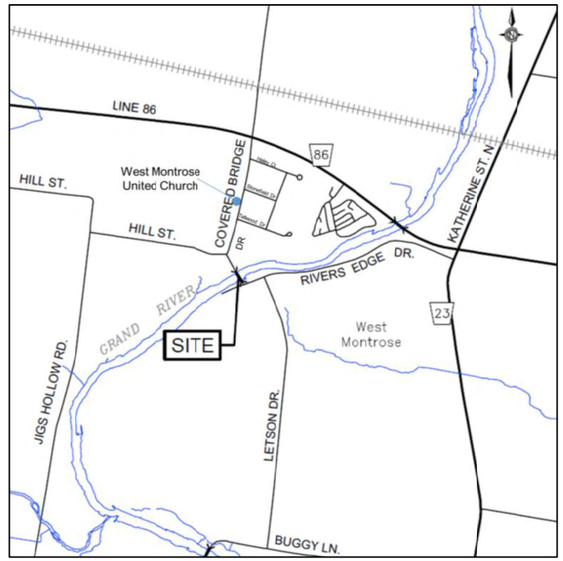
Steve Taylor, P.Eng.
Consultant Project Manager
BT Engineering
Telephone: 519-672-2222
stevenj.taylor@bteng.ca

We collect all comments and information regarding this project to assist the Region of Waterloo in making a decision. Under the Municipal Act, personal information, such as name, address, telephone number, and property location will become part of the public record in compliance with the Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990.

Best Regards,

Michelle Pinto

Michelle Pinto, Project Manager
Region of Waterloo



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If it matters to you. It matters to us.

News tips are always welcome.

Email: newsroom@woolwichobserver.com

Online: observerxtra.com/tips

Church Street reopens

The source of many detours and alternate routes, construction work on Church Street East in Elmira is now largely completed, with the road open to two-way traffic. The region expects some minor work will be carried out this month, with the contractor returning in the spring to deal with deficiencies and complete the surface asphalt.

From the archives

The former Stone Crock Restaurant building in Elmira will become the new home of the MCC thrift shop in a $700,000 deal that closes Dec. 15. Currently located on Samuel Street, at the corner of Snyder Avenue, the shop has less than 3,000 square feet and limited parking. The new site houses an 8,200-sq.-ft. building on two acres of land.

From the Dec. 4, 2004 editionof The Observer

Christmas lists shouldn't include pets

Animals aren't an appropriate gift, says Humane Society, which already has a full plate

Bill Atwood
Observer Staff

THE KITCHENER WATERLOO HUMANE SOCIETY has a message for those thinking of giving pets as gifts this holiday season: don't do it.

"We don't actually allow people to come into the center and adopt a pet that they would be giving to another person. The person who's going to be the primary caregiver, that individual couple or family needs to be involved in that adoption process. And so we wouldn't just allow say myself to walk in and purchase a cat for my mom, that's not how that works," said Calla James, director of community engagement and outreach for the Humane Society of Kitchener Waterloo & Stratford Perth (HSKWSP).

Instead they suggest the option of purchasing a gift card that can be used towards the adoption fee, or gifting pet supplies for someone who is planning on adopting a pet.

"They still have to go through the exact same process as every other adopter. They still have to submit their application. They have to go through a meet and greet and they have to be approved for that pet – the process doesn't change at all," James said.

"The person who's going to be looking after a pet and selecting their pet companion, they know what they're looking for in that pet and a personality and what fits with their home. And so that really ensures that the match is good and that it's going to be a long term commitment to pets going to be staying in their home."

The Humane Society is currently holding the annual Hope for the Holidays campaign. Right now the shelter has 200 animals in its care, with 100 more on their waiting list between its centres, James said.

"Our shelters are already operating in a crisis standpoint. We never normally use crisis lightly and it isn't something we are using lightly now," she said, noting that the current levels have been ongoing for several months.



One of the many pets available for adoption is three-year-old Cleo, who has been at the Humane Society shelter in Kitchener since October. Bill Atwood

There are two reasons for the increase, James said. The first is that the increased cost of living means pet owners are having to make choices about feeding their families or feeding their pets. The second is that they are seeing an increase in large breed dogs that come to the shelter untrained and unsocialized, James explained.

"We're seeing just really big, goofy boys who need a lot of extra time and attention when it comes to the training and manners. So we encourage our communities that if you are obtaining a dog, please make sure that you're also seeking out training services in your communities," she said.

Besides monetary donations, the campaign invites those who are able to consider becoming a foster caregiver. Donations of their most needed

→ PETS 5

Woolwich boosts range of fees for its services

Steve Kannon
Observer Staff

DEATH AND TAXES MAY BE the only certainties in life, but you can certainly count on the cost of both to increase with regularity.

Woolwich already has its eye on a large tax hike for 2024, and next year a whole host of fees are also on the rise, including those related to cemeteries and funerals.

If you use township facilities or services – from renting a soccer pitch to going for a dip in the WMC pool – you'll be digging deeper into your pocket next year. Most fees and charges are slated to go up by two to six per cent, in keeping with the general tax rate increase set last month by Woolwich council.

Meeting Tuesday night, councillors passed the new charges with little debate.

The likes of pool rental rates jump by six per cent. New fees have been approved for community centre rentals, and for facilities such as ball diamonds.

The price of a tag for your dog remains unchanged ($30 or $40, depending on neutering and spaying), but it will cost more if you've got a kennel. An application for a new for-profit kennel will cost $200 rather than $175, and renewing a licence will go up $100 plus $26 per dog, from $50 and $25 per dog.

Want to set off some fireworks? Approval's going to cost you $120 rather than $110.

Region still looking for input on West Montrose bridge

Bill Atwood
Observer Staff

PLANS TO REVITALIZE THE WEST Montrose covered bridge remain in flux as regional staff continue to weigh options ahead of presenting recommendations to council early next year.

Approaches for preserving the last of the covered bridges in the province have been varied. The region has got an earful, including at the latest public meeting last month.

While six different options for rehabilitation have been examined through the process, the most recent preferred alternative will reinforce the timber truss while maintaining a 10-tonne load limit. However, signage will be posted indicating a limit of three tonnes.

Each of the options have 25 renovation items that are common among them, though there are five items that are unique to the new preferred alternative. That list includes replacing the end diagonals at the pier and strengthening of the end diagonals at the abutments, adding new overhead wood lateral bracing, adding a new timber guiderail, reinforcing the top chord with the lower top chord and removing the interior cladding and reinstatement in short sections at each end of the bridge.

According to Michelle Pinto, region project manager, the new plan came out on top when examining the criteria categories (heritage, structural, social environment and cost) that were used to evaluate the plans. Heritage was given a weighting of 46 per cent in the evaluation.

"Just based on in comparison to the other alternatives that were considered, this one performed reasonably well from a heritage perspective. Things like the visual character, the original bridge dimensions, certain attributes

→ BRIDGE 9

Wednesdays is Senior's Day - Receive 20% Discount*
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Your Total Health is Our Goal
Always Fast, Friendly & Professional Services
· Compression Stockings (Standard & Customized
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BRIDGE: No consensus yet about what rehabilitation will look like

→ FROM 3

are being conserved. Heritage was given the most weight in the evaluation," Pinto said.

"The condition inspection recommended that certain things be replaced based on their deteriorated condition. And we need to take that into consideration when we're forming these recommendations," she added.

The visual characteristics of the bridge were given strong consideration, however it was not the only determining factor in the heritage category, Pinto said.

"The visual character and that is one of the defining elements in the heritage designation that is like the visual character and the look and the view of the bridge," she said noting that the interior cladding and original dimensions were also considered.

"We looked at the level of intervention, the reversibility of the proposed alternatives, whether it's reversible in nature or not, and in the literature and the best practices that are out there," she explained. "So it really came down to the alternatives that were being considered, with that baseline of the condition inspection, knowing that certain things are in deteriorating condition, let's say, and need replacement on that basis."

Woolwich Coun. Bonnie Bryant, chair of the Woolwich Heritage Committee, said the chosen alternative is the one the committee prefers. They would also like the bridge closed to vehicular traffic.

"We find a lot of times vehicles don't always obey signs, and as a result, you'll get overloaded vehicles that will try to cross it or oversized and that can damage bridges," Bryant said.

Such occurrences have at times forced the closure of the span for emergency repairs.

Beyond pedestrians and cyclists, the committee is also asking for the bridge to be open to horse-drawn buggy traffic.

That presents a challenge, says Pinto, because the width needed for buggies is similar to what would be used by a small car.

"It's not impossible but it is a challenge that we'll have to consider," she said, noting that the use of signage is an option. "We couldn't physically actually prevent them. Some people might ignore the sign, so it would come down to enforcement as well."

The region is seeking feedback from the public on the use of cars on the bridge on the preferred alternative until December 13. A survey and more information on the rehabilitation can be found online at www.engagewr.ca/west-montrose.

POLICE REPORT

Stuff-a-Cruiser campaign underway

Waterloo Regional Police are now carrying out their Stuff-a-Cruiser campaign to collect new, unwrapped toys for those in need this holiday season.

Now in its 14th year, the Stuff-a-Cruiser event is a partnership between police and the Knights of Columbus' New Toys for Needy Kids campaign.

To date, the campaign has collected more than $98,000 and 77,000 toys.

Throughout December, the WRPS' Auxiliary Unit, joined by members from across the service, will accept donations of new, unwrapped toys at several event locations. The public can also donate toys at any police division until December 21.

The Walmart store in St. Jacobs is among the drop-off locations on December 9 and 16 (10 a.m. to 5 p.m.)

"We are proud to have the opportunity to work together with our partners to help bring some holiday magic to those in need," said Chief Mark Crowell in a release. "There is no better time to come together as a community and engage in the spirit of giving."

Once collected, donations will be distributed through community agencies and given to families throughout the region.



Emergency crews responded to a two-vehicle collision Nov. 30 on Arthur Street North. Bill Atwood

NOVEMBER 29

6:48 AM | Police responded to reports of two vehicles in the ditch in the area of Hemlock Hill Drive and Three Bridges Road in Woolwich Township. Officers determined that two separate single-vehicle collisions had occurred. Roads in the area at the time were snow and ice-covered. In one of the collisions, the driver of a stolen Ford SUV lost control of the vehicle, resulting in the vehicle rolling several times before coming to a stop in a field. The driver of the stolen vehicle, a 56-year-old York Region man, was transported to an out-of-region hospital by air ambulance with serious injuries. The driver was subsequently charged by York Regional Police with several offences in relation to the stolen vehicle and was also arrested on an outstanding warrant. In the second collision, a vehicle was located that had slid off the roadway to due road conditions. The driver in this collision did not sustain any physical injuries.

9:31PM | Police received a report of a vehicle damaged by two horses pulling a buggy in St. Jacobs. The horses and buggy struck the corner of a truck that was stopped at a red light at Farmers Market Road and King Street North. It was determined that the horses had been tethered at a local business when they broke loose. There were no physical injuries reported. The owner of the buggy was located and attended to collect the horses.

November 30

4:12 PM | A man was airlifted from the scene of a collision on Arthur Street North at Cedar Springs Road. A delivery van travelling east on Cedar Springs Road failed to stop at a stop sign. The van collided with a pickup truck going north on Arthur Street North causing both motor vehicles to leave the roadway. Both vehicles suffered extensive damage. The driver of the pickup truck, a 50-year-old male from out of the region, suffered serious but non-life-threatening injuries. He was taken to an out-of-region hospital by air ambulance. Anyone who may have witnessed the collision or has dash camera footage is asked to call the Waterloo Regional Police Traffic Services Unit at 519-570-9777, ext 8856.

DECEMBER 1

3:38 AM | Waterloo Regional Police responded to a report of a collision in the area of Chilligo Road and Woolwich Guelph Townline in Woolwich Township. There were no physical injuries reported. The driver was charged with 'careless driving.'

9:57 AM | Police received a report that at approximately 5 a.m., unknown suspect(s) attended a business on Line 86 in Woolwich Township and stole property. Anyone with information is asked to contact police at 519-570-9777 or Crime Stoppers at 1-800-222-8477.

DECEMBER 3

5:06 PM | Waterloo Regional Police responded to a report of a single-vehicle collision in the area of Boomer Line and Moser Young Road in Wellesley Township. The collision involved property damage only and there were no physical injuries reported. There were no charges laid.

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TWO TRUTHS + A LIE

How is your BS detector?

1. "Friends-giving" is a holiday inspired by the 1990's TV show "Friends" that combines binge-watching the popular show and Thanksgiving.
2. Potluck style and non-traditional dishes are common for Friendsgiving gatherings to add interest and alleviate the burden for the host.
3. Bailey's Irish Cream was the first product to market to the Friendsgiving crowd.

LAST WEEK:

Truth: Eyewitness News in Buffalo referred to the Cabbage Patch Kids as the Riots of 1983. The hysteria ended only to be replaced by Beanie Babies and Tickle Me Elmo.

Truth: In the 1950's, the police in the city of Philadelphia used the term to describe the chaos that ensued the day after Thanksgiving when hordes of shoppers flooded into the city in advance of the Army-Navy football game.

Lie: Macy's began its Thanksgiving Day Parade in the 1920s attracting large crowds to its New York store and capitalized off the foot traffic with special discounts. This tradition spread to other retailers across the US.

You can play online at www.observerxtra.com. Vote for the lie and be notified if you are correct immediately.

Region of Waterloo

Public Notice

Public Open House
West Montrose Covered Bridge Rehabilitation
Township of Woolwich

Share your comments with us as we continue to plan for the rehabilitation of the West Montrose Covered Bridge.

Open house and survey

We're hosting an in-person open house on November 22, 2023 from 6:30–9:00 p.m. at the West Montrose United Church, 42 Covered Bridge Drive, West Montrose, to share our latest updates and answer any questions

You can also share your comments with us through a survey posted at engagewr.ca/west-montrose **between November 20 and December 13, 2023.** Feedback can also be provided by email, mail, or by telephone.

What's changed

We've made revisions to the preferred rehabilitation alternative and we're looking for your feedback. The revised preferred alternative includes removal of the existing steel Bailey truss, replacement of deteriorated truss members, recommended after a detailed inspection of the truss, and reinforcement of selected members to accommodate a 10-tonne design vehicular live load. This is preferred instead of the previous option we shared with you at the last public consultation, which considered reinforcing the bridge with fiber-reinforced polymers. We will maintain the three-tonne load limit and a height restriction bar is proposed to prevent damage to the bridge from oversized vehicles.

More info

Visit our West Montrose Covered Bridge project page on EngageWR.ca to see project documents and frequently asked questions.

Project background

The Region of Waterloo is conducting a Schedule C Municipal Class Environmental Assessment for the West Montrose Covered Bridge in the Township of Woolwich. This rehabilitation will address deteriorating structural needs and provide an opportunity to preserve the heritage of the bridge.

Contacts

Michelle Pinto, P.Eng., M.B.A.
Project Manager
Region of Waterloo
150 Frederick Street, 6th Floor
Kitchener, ON N2G 4J3
519-575-4400 ext. 3637
mipinto@regionofwaterloo.ca

Steve Taylor, P.Eng., M.Eng., CVS-LIFE, P.E.
Consultant Project Manager
BT Engineering
509 Talbot Street
London, ON N6A 2S5
519-672-2222
stevenj.taylor@bteng.ca



All comments and information received from individuals, stakeholder groups, and agencies regarding this project are collected to assist the Region of Waterloo in making a decision. Under the "Municipal Act", personal information such as name, address, telephone number and property location that may be included in a submission becomes part of the public record.

■ Going local in tackling climate change

LETTER TO THE EDITOR

To the Editor,

I just read an article about a man who declares himself to be inflation-proof because he has electrified his immediate world. With solar panels he produces enough electricity to run his all-electric house, and his electric car. Imagine?

As my first step towards energy efficiency, in 2008 I insulated the walls, basement, and attic of my old house; thank you for the prompt, provincial government incentive. Not glamorous, but between the insulation and a new efficient methane gas furnace (2004), my gas bill was cut in half. Next, came solar hot water; thank you for the incentives both levels of upper government. Next, my rooftop solar panels arrived: no moving parts, easy maintenance. They provided all the electricity that I needed to run my house at the time.

My methane gas furnace quit in 2021 so now I have an air source heat pump; thank you for the incentive, federal government. And in between times I changed to an electric vehicle; thank you for the incentive, provincial government. Along the way I also got the old cistern up and running; no incentive and thus, no professional advice – I bungled it with three expensive mistakes before I began showering in rainwater. The second advantage of government incentives is the professional advice one is guaranteed.

By my calculations, averaged over 15 years, my personal expenditures work out to about $5,920 per year, the incentives cost the governments about $1,506/year, and the money in my pocket is from reduced expenses is about $7,159/year. That's about a 12 per cent return of cash in hand, plus the comfort of a well insulated sturdy house. And I have eliminated about 12.6 tonnes per year from my contribution to our local GHG emissions.

With increasing prices, I'm now saving about $10,000 a year on household and car expenses. So, I might not be inflation-proof exactly, but I'm on my way.

I liked hiring local folks for all the work done on my property. And I do like spending those extra dollars, boosting the economy in our treasured Woolwich. I'm creating my own small ripple effect.

I'd like readers to consider the bigger picture of economic thinking. Within Woolwich Township, our businesses, farms, and residents, send at least $81 million a year (2014 figures) out of Ontario for fossil fuels. We buy gasoline for our cars, fuel oil, propane, kerosene, natural gas, all imported from elsewhere, for space and water heating, drying clothes and cooking.

That's $81 million a year that we send to Texas, Montana, Alberta, Saskatchewan, from our own Woolwich incomes, and out of our own provincial economy. Living in the past, we are enriching other economies instead of producing our own clean energy right here. Check out at all those big flat rooftops you see. See all those new subdivisions of houses with new roofs?

Looking to the future, Woolwich will produce its own clean energy at scale. The sooner, the better, I say. Every year we wait, we send millions out of our local economy. It's almost inconceivable to imagine how secure Woolwich Township would be if it had even part of an additional $81 million floating around in our local economy. Now that'd be an entire community that is inflation-proof!

Whenever there's an opportunity, choosing to use electricity will keep money in our Ontario economy. When businesses, farms, residences, and the municipality begin creating our own clean energy, we will keep millions in our Woolwich economy. Sooner or later, it's a choice.

Sandra Bray
ELMIRA

KANNON: Tread lightly when it comes to book bans

→ FROM 9

tronic entertainment, it is more than a little ironic that a small group of "concerned" parents want to ban books that have brought the joy of reading to millions of kids.

The banning of books has been calling a movement for illiteracy by Harvey J. Graff, professor emeritus of English and history at Ohio State University and author of The Legacies of Literacy.

"Parents of school-age children are confused. The young, supposedly in the name of their protection, face the greatest threat to intellectual and psychological development. That danger is most severe for the racially and gender diverse, who see themselves being erased or banned," he said of the subject in a 2022 piece for Publishers Weekly.

Having come through a Pride flag imbroglio a couple of years ago, the board will certainly not welcome being caught up in the culture wars.

DYER: Yet another one destined to crash and burn

→ FROM 8

the future of their country after six years of extreme polarization and division in Argentina that kind of division goes back generations.

The price Argentina has paid for this kind of politics is very high. In 1895 it was, per capita, the richest country in the world, and even as late as the 1920s it ranked among the top five. Now it ranks 66th, below Mexico and just above Russia and China.

Perhaps even more aggravating is the fact that Argentina has also fallen behind its neighbours: GDP per capita in Uruguay and Chile is 60 to 70 per cent higher. Moreover, the divisions between rich and poor in Argentina are probably wider than in either of its peers.

Other poor countries handle their poverty with some dignity and seek rational ways to escape it, but they haven't fallen so far from such a great height. Argentines are not fools, but many of them are very angry about what has happened to their country – and that traps them in exactly the kind of politics that did the damage in the first place.

The result is that they are very likely to vote Javier Milei into the presidency on Sunday. It will probably be close, but recent polls show him ahead of Sergio Massa by a margin of around five per cent of the vote.

And then, after a couple of years, like all the would-be national saviours before him, he will crash and burn, taking another chunk of the country's economy and its self-respect with him as he goes. The vicious circle Argentina is caught in must be broken one day, but it won't be this time around.

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Population growth will mean continued increased demand. People who call an ambulance because they can't get health care through a family doctor or other way also create pressure

Ambulance

CONTINUED FROM A1

The median duration for code reds was 14 minutes, 31 seconds, up from 13:48 in 2022. Code yellows had a median duration of 31:22, up from 23:42 in 2022.

"Our assessment is that this is because we have more resources, so we do not go into code red or yellow as often, but when we do get there, there are a number of factors that contribute to making it more challenging to get out," said Hsiu-Li Wang, the region's commissioner of public health and paramedic services.

Challenges include spikes in call volume, hospitals struggling with patient volumes — which leads to off-load delays — as well as staff shortages from sick leave and vacation, Wang said.

The region's master plan for paramedic services calls for a unit utilization rate of 35 per cent. Paramedic services is currently at 48 per cent, which is a significant spike from a low of 40 per cent earlier this year, Wang noted.

Early analysis of the October data shows a spike in the frequency and duration of code reds and yellows, with significant challenges on weekends.

Although call volume is not up a lot compared to 2022, demand continues to be very high when compared to 2021 and earlier.

In 2015, call volume was at 46,200 and steadily increased to 64,000 by 2021. The number of calls jumped to 70,600 in 2022.

Ambulance calls jumped more than 11 per cent in 2022 compared to 2021, "and we continue to feel the pressures from that increase," Wang said.

Population growth will mean continued increased demand. People who call an ambulance because they can't get health care through a family doctor or other way also create pressure.

The region plans to add 20 paramedics in the new year and another 20 in the fall of 2024.

Other upgrades include several new ambulances and equipment, fleet support staff as well as several supervisors and managers.

Among the new positions are a scheduler and logistics programas-sistant that are critical to supporting the current deployment model, Wang noted.

"The challenge is that we're providing a service in which we don't control the input, in terms of the 911 call, and we also don't control the outpu, in terms of what happens to those patients at the hospital," John Riches, chief of paramedic services, told council.

The region received $1.65 million in provincial funding earlier this year for an off-load nurse program at all three regional hospitals to help free up paramedics.

The new dispatch system being rolled out by the province isn't expected to be activated in Wateloo Region until 2026, Riches said.

"That's probably the biggest thing we'll see," Riches told council.

"I would suggest to you that the current provincial dispatch system we deal with makes all of our responses have to respond lights and sirens," he said

"The challenge with that is it doesn't properly pick out which calls we need to get to right away and which calls we can delay, so that we can get to the other calls right away."

Riches, who came aboard as chief earlier this year, said he believes the ambulance service is in a much healthier, more sustainable position operationally than before the pandemic.

"I think that this council has made really, really courageous decisions to invest in paramedic services at a time where probably in previous years, we weren't getting those investments," he said.

"We still are playing catch-up now, but it's getting better."

Other enhancements to the service in 2024 include a new mental-health strategy for paramedics as well as expansion of the community paramedicine program that's fully funded by the province.

The improvements will add about $6 million to next year's tax levy.

Educating first responders about people with dementia who go missing

UW group creates tool kits for emergency services

CHEYENNE BHOLLA
WATERLOO REGION RECORD

WATERLOO — A University of Waterloo research group has created tool kits for emergency services and neighbours to address the issue of people with dementia who go missing.

Lili Liu leads the research group which received $2.1 million in federal funding last year to come up with ways to prevent and address seniors with dementia going missing.

In Canada, dementia largely affects older women, and often involves memory loss.

More than 600,000 Canadians live with dementia, according to the Alzheimer Society of Canada, and that number could near 1 million by 2030.

Alzheimer's disease is the most common of more than 25 diseases and conditions that cause dementia, a term used to describe a set of symptoms caused by disorders that affect the brain. Dementia is largely incurable.

Going missing is a common problem — and fear — for people with dementia: about 60 per cent of those with dementia will wander away at least once.

If they are not found within 12 hours, there is a 50 per cent chance that they will be found injured or dead, Liu said after her team compiled seven years of research on the condition.

The team is now wrapping up the three-year project, which produced results presented at three separate conferences on dementia in Toronto this fall.

The group is beginning to distribute tool kits, with tips on what to do when someone with dementia goes missing, to first responders, neighbours and hospital workers, Liu said.

Tips include advice for first responders to look in small spaces when looking for people who have gone missing.

"They go out and they do a search, but they don't realize that (the missing person is) still in the house, maybe in the furnace room, or somewhere wedged between somewhere," said Liu.

"They don't think of looking in places like between garbage bins that are in narrow alleyways or in shrubs and hedges because they think a person can't be there, the space is too small," said Liu.

But Liu said it is common for the people who go missing to walk into a tight space and keep going until they can't move anymore.

In the hours just after a person is reported missing, the person is often in the same house or building they went missing from, she said.

In 2020, 8.4 per cent of Canadians over 65 had some form of dementia, and more than half of those affected were women. That's expected to rise to 13.2 per cent in 2050.

The group has also made two videos aimed at Indigenous communities.

"In Indigenous communities, there is no word for 'dementia,'" said Liu.

"For them, it's just a part of aging and when someone is showing memory issues, they just pull the community together and say, 'Our elder is very, very old, and so let's all get together and keep an eye out for the person and provide the resources we need.'"

The research had several different goals: to strengthen national co-ordination and prevention efforts, to create resources for Indigenous communities, to look at data to understand missing person incidents and the behaviours of Canadians with dementia and, finally, to make a guide for first responder interviews carried out after the person is found.

The research group worked with police services and search and rescue organizations across the country, including Waterloo Regional Police, Kahnawake Peacekeepers and British Columbia Search and Rescue Association.

The group is hoping to find more funds when its federal funding ends in March 2024.

For now, the team is delivering tool kits to the roughly 400 colleges and programs across the country that are involved in educating first responders on response to people with dementia.

"A well-informed community makes it safer for people to enjoy a better quality of life and still live with dementia," said Liu.

CHEYENNE BHOLLA IS A WATERLOO REGION-BASED REPORTER AT THE RECORD. REACH HER VIA EMAIL: CBHOLLA@THERECORD.COM

Charges laid after 'noxious substance' sprayed at pair

WATERLOO REGION RECORD

A 42-year-old Kitchener man has been charged after two people were sprayed with a "noxious substance."

Waterloo regional police said on Nov. 9, at approximately 7 a.m., a 40-year-old man and 44-year-old woman told officers they were sprayed with the substance by an unknown person on Ardelt Avenue.

The pair, police said, received minor physical injuries however they were not required to go to hospital.

The man was arrested and charged with possession of a weapon for a dangerous purpose and possession for the purpose of trafficking.

Police believe the involved parties are familiar with each other.

The man is being held in police custody for a bail hearing.



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Region of Waterloo
Public Notice

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On These Upcoming Projects/Events In Your Area

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If you have any trouble viewing this information or wish to obtain a full copy of any Public Notice, please contact the Regional Clerk's office at 519-575-4400 or email regionalclerk@regionofwaterloo.ca

Public Open House
West Montrose Covered Bridge Rehabilitation
Township of Woolwich

Share your comments with us as we continue to plan for the rehabilitation of the West Montrose Covered Bridge.

We're hosting an in-person open house to share our latest updates and answer any questions.

Where: West Montrose United Church, 42 Covered Bridge Drive, West Montrose
When: November 22, 2023 from 6:30–9:00 p.m.

You can also share your comments with us through a survey posted at engagewr.ca/west-montrose **between November 20 and December 13, 2023.**

Feedback can also be provided by contacting:

Michelle Pinto, Project Manager
Region of Waterloo
519-575-4400 ext. 3637
mipinto@regionofwaterloo.ca

Steve Taylor, Consultant Project Manager
BT Engineering
519-672-2222
steven.taylor@bteng.ca

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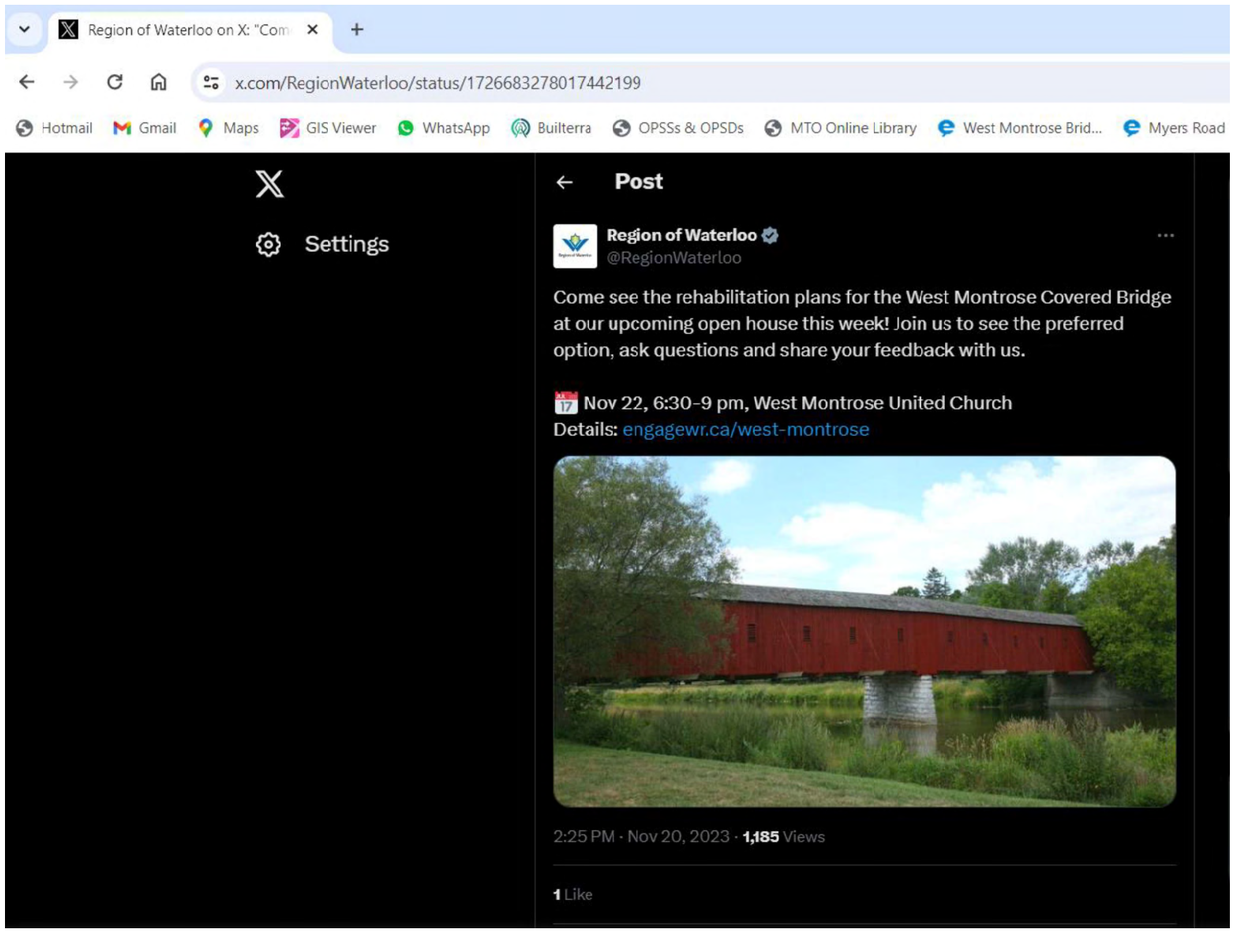
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Write a comment...

Region of Waterloo
20 November 2023 ·

Come see the rehabilitation plans for the West Montrose Covered Bridge at our upcoming open house this week! Join us to see the preferred option, ask questions and share your feedback with us.

📅 Nov 22, 6:30-9 pm, West Montrose United Church
Details: http://www.engagewr.ca/west-montrose



Michelle Pinto

From: Engage <notifications@engagementhq.com>
Sent: November 10, 2023 2:00 PM
To: Michelle Pinto
Subject: Public open house — November 22

Follow Up Flag: Follow up
Flag Status: Flagged

****EXTERNAL ALERT** This email originated from outside the Region of Waterloo.**

Public open house - November 22, 2023, 6:30 - 9 p.m.

Hi MPinto,

Please join us on November 22 between 6:30 and 9 p.m. for an in-person open house at the West Montrose United Church, 42 Covered Bridge Dr., as we share the preferred alternative to rehabilitate the West Montrose Covered Bridge. Drop in and view the plans, ask our project team questions, and leave your comments.

We will be taking the preferred alternative to Regional Council in early 2024.

Visit our EngageWR project page for more information and share your comments on the preferred alternative by December 13, 2023.

Please get in touch with Michelle Pinto, Regional Project Manager at 519-575-4400 ext. 3637 or at mipinto@regionofwaterloo.ca if you have any questions or need accommodation to join this open house.

Kind regards,

The Project Team

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Appendix C

Public Consultation No. 3 Comment Sheets

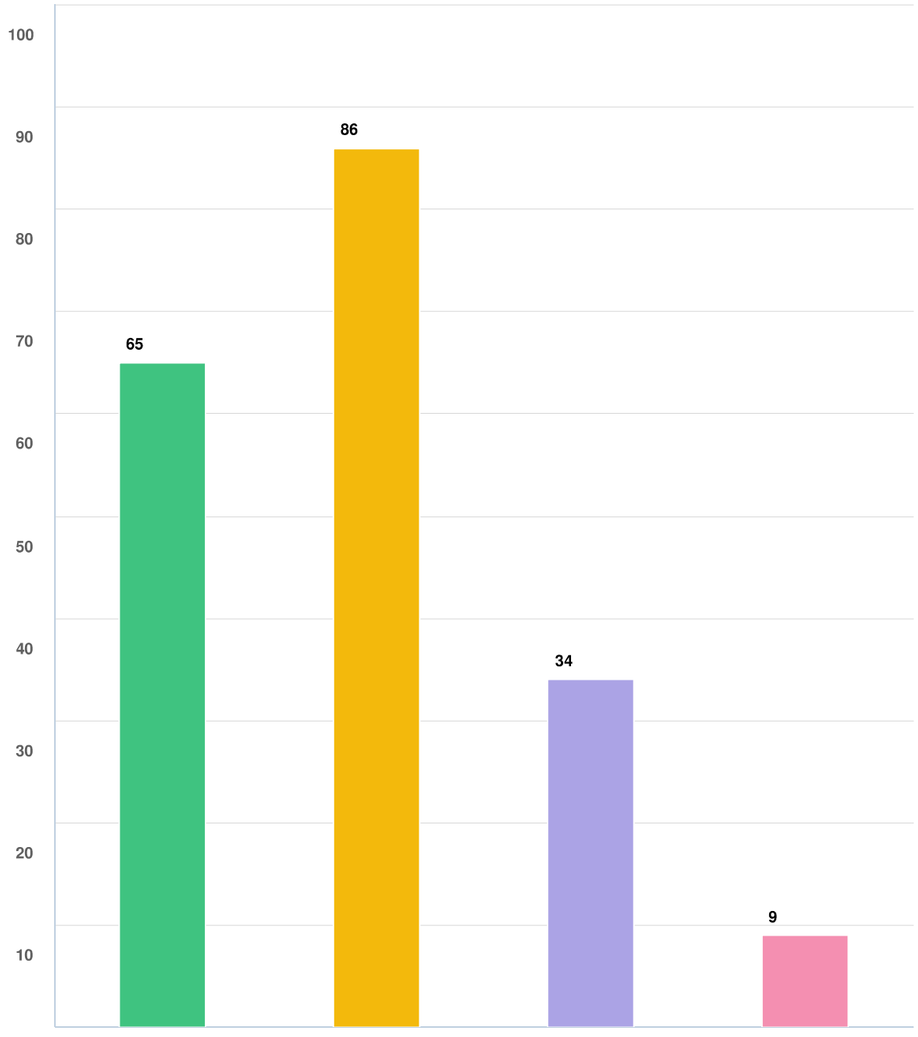
Public Consultation #3 Survey - November 2023

SURVEY RESPONSE REPORT
15 August 2018 - 06 May 2024

PROJECT NAME:
West Montrose Covered Bridge Rehabilitation - Woolwich

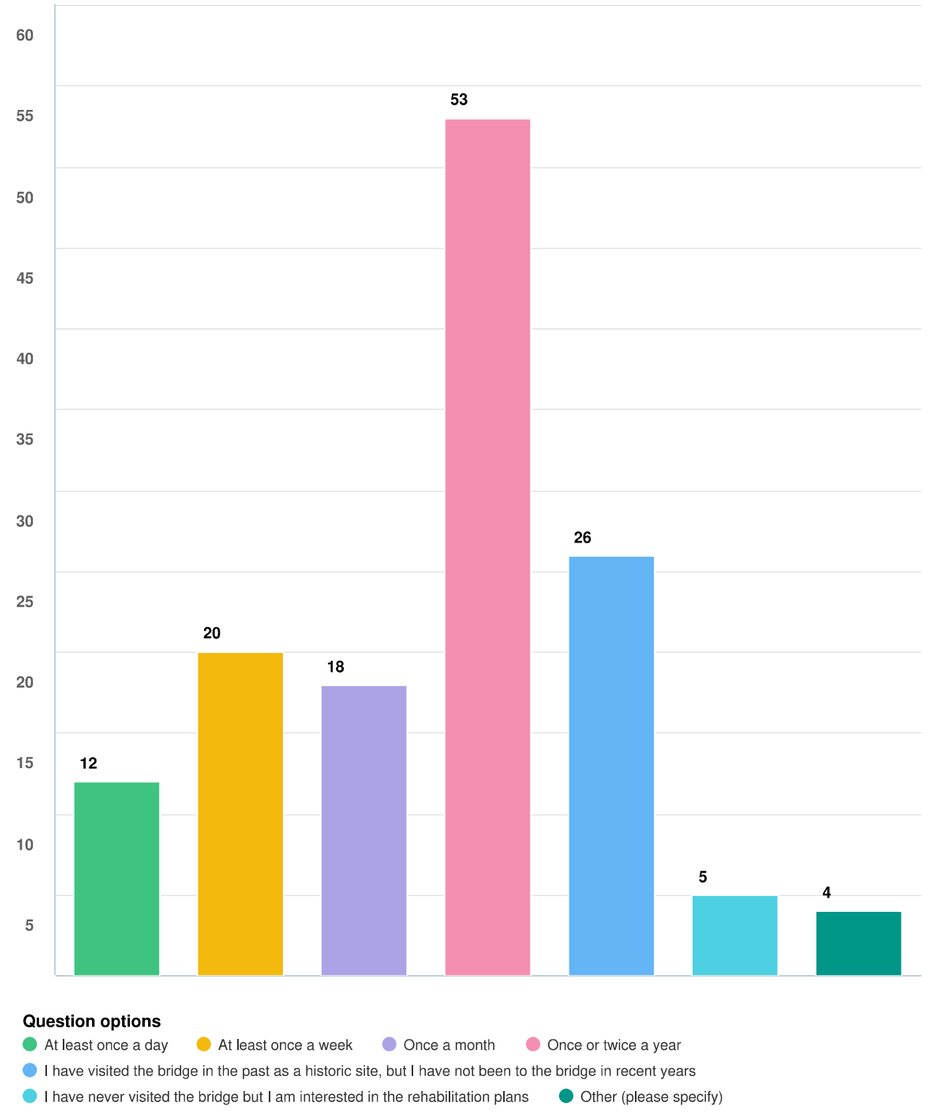
SURVEY QUESTIONS

Q1 Which mode of travel do you typically use to cross the bridge? Please select all options that apply.



Mandatory Question (134 response(s))
Question type: Checkbox Question

Q2 How often do you visit and/or cross the bridge? Please select the most applicable option.



Mandatory Question (134 response(s))
Question type: Checkbox Question

Q3 **Do you have any comments to share with the Project Team about the recommended Preferred Alternative C2? The preferred alternative includes removing the existing steel Bailey truss, replacing the deteriorated truss members and bridge elements, as recommended from the inspection, and reinforcing select members to accommodate a 10-tonne design vehicular live load.**

Screen Name Redacted 11/22/2023 07:56 PM	No
Screen Name Redacted 11/23/2023 07:29 PM	Top notch communication through Region staff, especially Michelle Pinto. She has represented the Region extremely well. Kudos to her and the project team!
Screen Name Redacted 11/26/2023 05:38 PM	I prefer that the traffic over the bridge be restricted to non-motorized vehicles and pedestrians therefore the 10-tonne load is not necessary.
Screen Name Redacted 11/26/2023 07:34 PM	No comments
Screen Name Redacted 11/30/2023 05:10 PM	This seems to be a great way to rehabilitate the bridge and restore it closer to its original structure.
Screen Name Redacted 11/30/2023 08:55 PM	I agree with the move to remove the Baily truss and go back to the original design. I do not agree with designing for an increased load limit. The historic bridge should not be redesigned to accommodate a larger load. As far as I can tell, your preferred alternative will require replacing nearly every piece of the entire bridge. Community members and visitors value coming into contact with original materials, and these comprise some of the historical value of the bridge. While some bridge components have experienced decay and need replacement, it is pretty difficult to understand the wholesale replacement that is currently being proposed. It seems likely that this large scale replacement is being driven by the higher load limit and the long timeframe for service (50 years). We need to respect the original design. If the regional would like a new 10 tonne bridge, why don't they build it somewhere else? I don't know who was considered in your "best option" selection process, but it clearly did not include any of the community members who use the bridge every day. Moreover, tt is disingenuous for the region to to talk about best options when none of the community pleas for maintenance in the past 10 years have resulted in action. The proposed height restrictors will be an ineffective eyesore. The bridge is at risk from overweight vehicles which will easily pass underneath (e.g. Ford 350s)

Screen Name Redacted 12/04/2023 06:43 AM	yes, recommend the bridge accommodate 10-ton vehicle load to be used.
Screen Name Redacted 12/05/2023 03:08 PM	N/A
Screen Name Redacted 12/05/2023 05:31 PM	If the bridge can be restored in such a way that it can handle passenger vehicles, that is all I care about. Make it safe for passenger vehicles. Please. I understand wanting to use wood to maintain the historical look and feel of the bridge. As long as engineers say wood will be safe I'm okay with that.
Screen Name Redacted 12/05/2023 07:50 PM	You are proposing to spend too much money to allow vehicular live load. Preserve the bridge longer by not allowing vehicles.
Screen Name Redacted 12/05/2023 11:30 PM	The bridge deserves to be maintained and reconstructed as needed to support the 10 tonne load.
Screen Name Redacted 12/05/2023 11:32 PM	It just needs to have the ability to accept typical vehicle traffic
Screen Name Redacted 12/05/2023 11:42 PM	No
Screen Name Redacted 12/06/2023 09:43 AM	I agree.
Screen Name Redacted 12/06/2023 10:43 AM	None
Screen Name Redacted 12/06/2023 12:42 PM	Suggest paving instead of chip top.
Screen Name Redacted 12/06/2023 01:54 PM	It's lasted over 100 years the way it was built... Modern engineering combined with 21st century century building materials has proven to be mediocre at best in most cases.

Screen Name Redacted 12/06/2023 02:44 PM	Please restore the bridge to the most original looking wooden bridge. Fireproofing is a no brainer!
Screen Name Redacted 12/06/2023 03:46 PM	Go for it
Screen Name Redacted 12/06/2023 04:02 PM	Seems like alot of changes, which I feel in the long run could damage the overall structure of the bridge. The different fixes from different eras should be considered as part of the history of the bridge and used to show the different methods used through the years.
Screen Name Redacted 12/06/2023 04:21 PM	While it would be nice to have the bridge support that load, I'd still like to see no vehicles allowed.
Screen Name Redacted 12/06/2023 05:38 PM	Sounds good!
Screen Name Redacted 12/06/2023 05:49 PM	The Preferred Alternative C2 should be good. As long as lighter vehicular traffic is allowed.
Screen Name Redacted 12/06/2023 09:50 PM	Add items 28, 30
Screen Name Redacted 12/07/2023 04:31 PM	I cannot express enough how much I dislike the look of the reinforcement method that is proposed. The addition of wood plank sistering on two sides of the members and the exposed bolts will dramatically alter the look of the bridge. It will no longer look like a historic bridge with these alterations. It the bridge were a piece of art, I might say that the bridge would then be a "modern interpretation of a historic bridge." Assuming that these members must be replaced and/or reinforced, my first choice would be to replace them with heavier and stronger (even if different species of wood) lumber so that the sistering and visible bolts would not be required. My second choice, if the sistering and bolts are required, is to wrap the members with a facade that covers the 3 visible sides of the members. Kind of like how fake wooden beams are wrapped around steel beams in houses, etc. This way it would still look like wood without the "modern interpretation" look.
Screen Name Redacted	I think making it so larger vehicles can’t drive through is good but

12/08/2023 07:47 AM	small cars, SUVS and trucks should be allowed to continue driving through.
Screen Name Redacted 12/08/2023 07:58 AM	I believe the preferred alternative is a great idea to ensure structural soundness and enhance safety
Screen Name Redacted 12/08/2023 08:06 AM	This work needs to be done, so get it done asap.
Screen Name Redacted 12/08/2023 08:25 AM	I agree to reinforce it but please don't take away from the heritage of this amazing sight seeing location in our region.
Screen Name Redacted 12/08/2023 09:01 AM	Upgrading to a 10 tonne load limit would be a much stronger structure and add years to the life of the bridge.
Screen Name Redacted 12/08/2023 11:30 AM	Not at this time.
Screen Name Redacted 12/08/2023 11:57 AM	Whatever alternative is chosen MUST allow for vehicular access. A limit of 3 tonnes should be adequate. This is of EXTREME importance to those on Rivers Edge Drive. Nonresidents may not understand the importance of this.
Screen Name Redacted 12/08/2023 12:40 PM	Go with alternative
Screen Name Redacted 12/08/2023 12:58 PM	sounds good
Screen Name Redacted 12/08/2023 01:50 PM	not at this time
Screen Name Redacted 12/08/2023 02:18 PM	Needs to allow cars for sure!
Screen Name Redacted 12/08/2023 04:26 PM	I think you should add a fenced walkway on the outaide of the bridge for walkers and keep vehicles going through the inside. It would be beautiful scenery and safe for pedestrians

Screen Name Redacted 12/08/2023 09:27 PM	Sounds appropriate.
Screen Name Redacted 12/08/2023 09:35 PM	Thank you for keeping the bridge wood. (no metal and no glulam) Having a wood bridge specialist on the team (Dan Tingley) would give the "shareholders" more confidence that the work on the bridge will be done correctly. No one at the public meeting has ever worked on a historical bridge before. You have one chance to fix this right. Please have the best people possible working on the rehabilitation so the bridge will last for at least another 150 years.
Screen Name Redacted 12/09/2023 12:31 AM	6 Generations of my family have used this bridge. Please keep it as original as possible.
Screen Name Redacted 12/09/2023 09:34 AM	The original wood on the outside should stay the same. If it needs to be reinforced, add new wood on the inside to strengthen the existing wood.
Screen Name Redacted 12/09/2023 07:50 PM	The use of 16x16 Douglas fir beams is a very positive design element and the consideration of the study team in making this recommendation to maintain key timber elements is much appreciated. Some comments related to the construction of the restoration work: 1. Provide safe alternative route(s) or make accommodations for pedestrians and cyclists during construction including consideration for a lower speed limit on Line 86. 2. Depending on time and budget available, consider any opportunity for a pedestrian/cycling bridge crossing over the Grand River using the old rail corridor and existing piers integrating with the G2G Trail system. 3. Inform tourist bus operators of the shutdown and construction schedule as early as possible to avoid busloads of disappointed visitors. 4. Please initiate restoration construction in 2025 or earlier, and do whatever is feasibly and physically possible close the bridge for one construction season only. Any further delay or prolonging of the works will significantly impact the area residents and businesses. Thank you for this opportunity to provide the input.
Screen Name Redacted 12/10/2023 07:50 AM	I will be sending more detailed comments in a separate letter. In general, I prefer this alternative to the others presented previously although it is unfortunate that they indicate that so much of the historic truss components need to be replaced.
Screen Name Redacted 12/10/2023 08:49 PM	Sounds goood

Screen Name Redacted 12/11/2023 10:17 AM	Fine with me
Screen Name Redacted 12/11/2023 12:01 PM	After hearing all the alternatives, We believe Bill Oliver's method is best and far cheaper than other methods You should let him and his group restore the bridge as his method has been proven in New Brunswick where they have many wooden covered bridges. We have lived near the bridge, [redacted], for 37 years.
Screen Name Redacted 12/11/2023 02:22 PM	No comment
Screen Name Redacted 12/11/2023 02:29 PM	Nothing to add
Screen Name Redacted 12/11/2023 02:55 PM	Bridge is very important to the Mennonite community. Needs to be maintained and appropriate for Buggies.
Screen Name Redacted 12/11/2023 02:56 PM	I hope that the bridge stays as much as possible, as is. at least the look and design of it.
Screen Name Redacted 12/11/2023 02:56 PM	.
Screen Name Redacted 12/11/2023 03:07 PM	Sounds good
Screen Name Redacted 12/11/2023 03:17 PM	Keep vihecle access
Screen Name Redacted 12/11/2023 03:22 PM	No comments
Screen Name Redacted 12/11/2023 03:25 PM	N/A
Screen Name Redacted 12/11/2023 03:35 PM	No comments

Screen Name Redacted 12/11/2023 03:42 PM	No comments, acceptable choice.
Screen Name Redacted 12/11/2023 03:43 PM	N/A
Screen Name Redacted 12/11/2023 03:46 PM	If you carry out all of what you have listed in the 30 item list, then you might as well start over. It sounds like almost everything will be replaced so I'm not sure what will be left. The cost of doing all of this will be significant. Is it not possible to do minimal repairs to it to allow pedestrians, horses and buggies to pass through? Also, I recall that the bridge was closed for repairs this last year -- what did they do and why do you have to do more?
Screen Name Redacted 12/11/2023 03:46 PM	I support all methods that will help preserve the structure for the long haul WITHOUT undermining it's visual appeal. Regardless, I think retaining the max. 3-tonne and prohibiting all motorized vehicles from travelling across the bridge are essential for preserving the historical quality of the setting.
Screen Name Redacted 12/11/2023 03:48 PM	Provide as much heritage restoration to keep the bridge preserved, its a wonderful bridge and should be cherished.
Screen Name Redacted 12/11/2023 03:52 PM	The preferred alternative sounds good.
Screen Name Redacted 12/11/2023 03:58 PM	I have no concerns with replacement of the roofing, exterior cladding and deck. I am in favour of removing the interior wainscoting, but replacing shorter sections and both ends. This would expose the majority of the trusses while still paying homage to the less historic wainscoting and protecting the chords and trusses from splash. As much of the original or historic structural timber as practical should be retained or repaired. Timber that has a serviceable life of 20 years or more should not be replaced simply to maintain parallel service lives". Where timber must be replaced, it should be replaced with timber as similar to the original in dimension and species as practical. I have concerns that increasing the dimension of the floor and needle beams as proposed will add about three tonnes to the dead load of the bridge. Has this been accounted for in the planned capacity of the other members? The sag should be removed from both spans, and I would be in favour of adding a slight camber. Given the distance from fire stations and the long lead time to get equipment and volunteer firefighters on site, fire prevention is critical. Fire retardant should be applied to all timber and cladding as practical. I would also

	recommend considering an onsite fire suppression system; either an innocuous chemical system within the bridge, or a piped sprinkler system (perhaps from a reservoir at Gole Park). I am not in favour of height restrictors. I think the examples provided are “optimistic” renderings. I expect any solid structure like those pictured will have to have black and yellow chevrons across the top and down the sides. They are not going to be tasteful rustic wooden structures. I don’t believe anything like these would pass a cultural heritage impact assessment. The viewscapes to and from the bridge are to be preserved and protected, as they are central to the CHL. Putting large unattractive obstructive structures at both ends of the bridge would be unacceptable. Moving the restrictors further from the bridge is impractical, because they would prevent garbage, fire and delivery trucks from getting to homes near the bridge (and fire trucks to the bridge itself). The Region should consider solar-powered horizontal laser sensors on Rivers Edge Drive at Letson Park, and approximately 50 metres north of the bridge on Covered Bridge Drive. Any vehicle above that height would trip the sensor and light up a sign that reads “OVERSIZE! STAY OFF BRIDGE!” Fire, waste collection and delivery vehicles would know the warning does not apply to them. Anyone else would be very aware they are to stay off the bridge.
Screen Name Redacted 12/11/2023 04:50 PM	No comments, this seems like the right idea.
Screen Name Redacted 12/11/2023 05:10 PM	C22
Screen Name Redacted 12/11/2023 05:37 PM	The entire bridge is being rebuilt then?
Screen Name Redacted 12/11/2023 05:56 PM	Support removing the existing steel Bailley truss. I want the replacement of deteriorated truss members and bridge elements to be "in kind" hand-hewn lumber if it is at all possible to do so. If the Region needs a 10-tonne limit, then the discrete (as much as possible) reinforcement of select members is acceptable. I only marked #1 on the height restrictor section as you have no option that says none at all or none of the above. This is not acceptable. What is shown is your group's ideas only. You are not showing what would be approved by the Highways Traffic Act which would most likely have black and yellow chevrons all over it. Please pass these designs through the Act and present what would be the potential actual look. The restrictors will take away from views of the bridge in the Cultural Heritage Landscape. Some gate system or laser sensor at Letson Park and at some reasonable point on Covered Bridge Drive would

	be the best option. I feel more discussion is necessary.
Screen Name Redacted 12/11/2023 06:23 PM	No comments
Screen Name Redacted 12/11/2023 06:46 PM	No
Screen Name Redacted 12/11/2023 07:48 PM	No
Screen Name Redacted 12/11/2023 07:53 PM	Stay with the 10-tonne option.
Screen Name Redacted 12/11/2023 08:29 PM	I think it is good to have a 10-tonne load but restrict use to a lower limit.
Screen Name Redacted 12/11/2023 08:45 PM	No
Screen Name Redacted 12/11/2023 08:50 PM	No
Screen Name Redacted 12/11/2023 09:51 PM	n/a
Screen Name Redacted 12/11/2023 10:01 PM	Steel lasts longer than wood.....shouldn't have more than a 5 ton limit.
Screen Name Redacted 12/11/2023 10:07 PM	None
Screen Name Redacted 12/11/2023 10:11 PM	Any change or additions will make changes, wish there was a way not to ruin the look.
Screen Name Redacted 12/11/2023 10:43 PM	No I leave the requirements up to the professionals but it would be a shame to lose the look and feel of that bridge with modern elements vs modified modern elements

Screen Name Redacted 12/11/2023 10:44 PM	Sounds reasonable
Screen Name Redacted 12/11/2023 11:28 PM	No comment
Screen Name Redacted 12/11/2023 11:39 PM	No other comments
Screen Name Redacted 12/12/2023 04:16 AM	No. I agree with the PT's decisions.
Screen Name Redacted 12/12/2023 07:21 AM	No
Screen Name Redacted 12/12/2023 07:26 AM	no
Screen Name Redacted 12/12/2023 07:37 AM	As long as the facade and style of bridge is kept. The reinforcing of the bridge to make it more universal for our time I agree with. We should make it accessible but also hold the same history and feel it has since being built.
Screen Name Redacted 12/12/2023 07:41 AM	I very much support this option!
Screen Name Redacted 12/12/2023 08:10 AM	I am not a licensed engineer so I will trust the professional judgement of the team.
Screen Name Redacted 12/12/2023 08:43 AM	Sounds good to me.
Screen Name Redacted 12/12/2023 10:09 AM	No comments.
Screen Name Redacted 12/12/2023 10:20 AM	No
Screen Name Redacted 12/12/2023 10:23 AM	I am sure these changes are based on a balance of required engineering and an attempt to maintain the original structure as much as possible.

Screen Name Redacted 12/12/2023 11:33 AM	No
Screen Name Redacted 12/12/2023 12:40 PM	N/A
Screen Name Redacted 12/12/2023 02:04 PM	I feel that whatever it takes to be able to keep small vehicles crossing the bridge is what should be done. I'm not fussy about how that happens.
Screen Name Redacted 12/12/2023 02:25 PM	I believe that the bridge should be rehabilitated in whichever method makes the most common sense.
Screen Name Redacted 12/12/2023 03:23 PM	It seems to not block the view of the bridge too much. The natural look of the wooden truss seems to fit in well
Screen Name Redacted 12/12/2023 05:12 PM	Let's make it safe while staying historic
Screen Name Redacted 12/12/2023 07:49 PM	No comments
Screen Name Redacted 12/12/2023 08:04 PM	No
Screen Name Redacted 12/12/2023 08:45 PM	none of the height restrictor options are great and would be better without them. At the least re-work the south side into a T intersection to allow the restrictors to be further from the bridge. This would preserve the historic views detailed in the heritage bylaw. I support the removal of most of the white interior with some left to act as splash panels at the ends. I support the general plan but if more historic material ie lower cord could be preserved and strengthened rather than replace4d with larger timbers it should be. The comment has been made numerous times that the original design doesn't meet "code" but what part of the design and what code is not being met with keeping the replacement timbers the same size as originally there. There needs to be speed reduction on line 86 during the project to protect pedestrian and horse and buggy users forced to detour onto line 86. The region doesn't need to wait until there is an accident or death to take this prudent and necessary step to protect residents and visitors to the region.

Screen Name Redacted 12/12/2023 09:50 PM	It should stay as historical looking as possible.
Screen Name Redacted 12/12/2023 09:54 PM	Reinforce it to make it last.
Screen Name Redacted 12/13/2023 09:49 AM	What steps have been taken to allow the drainage of water run off along Covered Bridge Drive to flow into the river and what sort of protection will be used to mitigate the effects of rain and snow on the wooden structure?
Screen Name Redacted 12/13/2023 12:21 PM	It is important that changes are supported by the Woolwich heritage committee.
Screen Name Redacted 12/13/2023 01:25 PM	Replace deteriorating parts of the bridge & continue with yearly upkeep.
Screen Name Redacted 12/14/2023 04:57 PM	There should be a hanging unobtrusive sign stating the height limit of the bridge. Option #3 is the nicest but completely blocks the view of the bridge so a lot of tweaking would have to be done for any signage to look nice. Why not just post a sign on the front of the bridge?
Screen Name Redacted 12/14/2023 08:40 PM	No
Screen Name Redacted 12/14/2023 09:06 PM	not qualified to make that choice.
Screen Name Redacted 12/15/2023 09:04 AM	No
Screen Name Redacted 12/15/2023 09:29 AM	I support the preferred option.
Screen Name Redacted 12/15/2023 09:31 AM	No.
Screen Name Redacted 12/15/2023 09:36 AM	I'm in favour of this.

Screen Name Redacted 12/15/2023 10:13 AM	No comment
Screen Name Redacted 12/15/2023 12:16 PM	Sounds fine
Screen Name Redacted 12/15/2023 12:36 PM	No
Screen Name Redacted 12/15/2023 03:05 PM	no
Screen Name Redacted 12/15/2023 06:33 PM	No comment.
Screen Name Redacted 12/16/2023 07:47 AM	No
Screen Name Redacted 12/17/2023 01:16 PM	Nope
Screen Name Redacted 12/17/2023 01:28 PM	No.
Screen Name Redacted 12/17/2023 01:46 PM	I don't know what a Bailey truss is.
Screen Name Redacted 12/17/2023 02:44 PM	Yes
Screen Name Redacted 12/17/2023 02:47 PM	My suggestion would be to leave sufficient spacing between the bridge and the overhead sign/barrier to not have the sign/barrier take away the ambiance of the historic bridge.
Screen Name Redacted 12/17/2023 04:37 PM	No
Screen Name Redacted 12/17/2023 05:15 PM	No

Screen Name Redacted 12/17/2023 06:54 PM	No
Screen Name Redacted 12/17/2023 07:23 PM	N/a
Screen Name Redacted 12/17/2023 07:55 PM	N/a
Screen Name Redacted 12/17/2023 09:03 PM	No
Screen Name Redacted 12/17/2023 09:45 PM	No
Screen Name Redacted 12/18/2023 01:34 AM	Nope
Screen Name Redacted 12/18/2023 04:26 AM	No comment.
Screen Name Redacted 12/18/2023 08:14 AM	Why wouldn't accommodate a 10 tonne load if you're considering banning vehicular traffic?

Mandatory Question (134 response(s))
Question type: Essay Question

Q4 Do you have a preference for whether signage should be posted to restrict all motorized vehicles from using the bridge? Horse and buggies, pedestrians and cyclists would still be permitted across the bridge. This would not change the recommended Preferred Alternative C2, to rehabilitate the bridge to a 10 tonne load limit.

Screen Name Redacted 11/22/2023 07:56 PM	Please continue to allow motorized vehicles up to 3 tonnes across the bridge.
Screen Name Redacted 11/23/2023 07:29 PM	I'd rather leave this decision up to the professional engineering staff with the Region to ensure signage decisions align with Region standard. Option 3 , no contest for the proposed below. It's like know you need 3 to get quotes but you know who's getting the job.

Screen Name Redacted 11/26/2023 05:38 PM	YES! Please restrict traffice to non motorized vehicles and pedestrians. I have concerns about the level of noise that comes from vehicles crossing the bridge, especially cars and motorcycles that rev their engines - this is annoying to residents, frightening for horses and pedestrians and reverberates through the village. I am also concerned that the height restriction bars will result in visitors trespassing on private property to take photos without the restriction bar blockng the view.
Screen Name Redacted 11/26/2023 07:34 PM	I am fine in not allowing motorized vehicles to use bridge.
Screen Name Redacted 11/30/2023 05:10 PM	I feel that such signs are likely to be ignored unless physical impediments are also added.
Screen Name Redacted 11/30/2023 08:55 PM	This is just not possible. How can you allow horse and buggies and restrict vehicles? What sort of restrictor could possibly be used??
Screen Name Redacted 12/04/2023 06:43 AM	no if the design preference is made as 10 ton, motorized vehicles shall be able to use the bridge
Screen Name Redacted 12/05/2023 03:08 PM	Proper signaged & barriers to restrict motorized vehicles
Screen Name Redacted 12/05/2023 05:31 PM	Please, please, please allow passenger vehicles to continue to cross! Preferably ambulances as well. Using Riverside Drive to get out to Katherine Street in the winter is not a great option. The only option other than Riverside Drive to Katherine Street is Letson Drive to Katherine Street - and that's a gravel road that frequently has a soft wet spot on a hill in the spring. It's an even worse option than Riverside Drive to Katherine Street! The people who live on Riverside Drive and go to Elmira regularly will have to use a narrow road that's on the side of a very steep hill - and has a river at the bottom. That's not safe, especially in the winter. The Heritage Committee might want motorized vehicles off the road - but it isn't worth forcing people to risk their lives driving a narrow hillside road. Please ... put lives and people's safety over heritage concerns! PS. One family who lives at the [redacted] of Riverside has a couple in their 70's as members of the family. Does the Heritage Committee want to be responsible for a delay in emergency vehicles reaching them safely if there's a medical emergency? Because if no motorized vehicles are allowed to cross the bridge, this is a VERY real and potential scenario. If they want motorized vehicles off the bridge, then they need to be aware of the

	very real risk they are asking people to take.
Screen Name Redacted 12/05/2023 07:50 PM	Restrict all motorized vehicles.
Screen Name Redacted 12/05/2023 11:30 PM	I grew up in the village. I've seen large tractors pulling various things, large RV's, straight trucks, and occasionally tour buses, drive through the bridge. Perhaps the height restriction should be 2.5 meters. Although there are benefits to restrict motorized traffic, the bridge deserves to be maintained and operated as a bridge for motorized vehicles as well.
Screen Name Redacted 12/05/2023 11:32 PM	It just needs to have the ability to accept typical vehicle traffic
Screen Name Redacted 12/05/2023 11:42 PM	All vehicles should and must continue to be able to use the bridge. Any solution which prevents this is completely wrong and unjust!
Screen Name Redacted 12/06/2023 09:43 AM	If signage says "NO MOTORIZED VEHICLES", is there legislation to support this, or is this just a nice suggestion (i.e. there is no repercussion and the bridge could be damaged again). p.s. I prefer a total prohibition of cars, etc. including heavy penalties for violations.
Screen Name Redacted 12/06/2023 10:43 AM	I think it's beneficial to maintain motorized vehicle access, as it's an interesting experience to travel through the bridge, and a quick visit is easily achieved travelling in a vehicle.
Screen Name Redacted 12/06/2023 12:42 PM	Limited motor vehicles should be allowed.
Screen Name Redacted 12/06/2023 01:54 PM	Limit the load. And restrict the height. Keeps tractors and big trucks off it which is more likely to damage it.
Screen Name Redacted 12/06/2023 02:44 PM	Limited weight to prevent damage is a no brainer!
Screen Name Redacted 12/06/2023 03:46 PM	I think it's pretty neat that cars can cross
Screen Name Redacted	No 10 ton limit needed on a historical bridge. Might aswell build a

12/06/2023 04:02 PM	new bridge in different location.
Screen Name Redacted 12/06/2023 04:21 PM	I would support no motorized vehicles, just make signage so that it doesnt interfere with photos of the bridge.
Screen Name Redacted 12/06/2023 05:38 PM	Terrible idea in regards to safety, the area is a floodplain in an emergency it could limit escape routes or impede emergency services from reaching the homes closest to the bridge. It also limits driving in the winter to the steep, winding alternate that is not the first cleaned in a storm.
Screen Name Redacted 12/06/2023 05:49 PM	Under NO circumstances should all motorized vehicles be prohibited from using the bridge. Residents living on Rivers Edge Dr NEED the bridge as an escape route during times of high water, as Rivers Edge Dr can be covered by several feet of water as well as icebergs during spring breakup. To deny this route could put residents property and lives at risk.
Screen Name Redacted 12/06/2023 09:50 PM	No restrictions to 10 tonne.
Screen Name Redacted 12/07/2023 04:31 PM	Again, I strongly dislike all three options. All three of them add ugly structures that obstruct the views and pictures of the bridge. The bridge also happens to be a somewhat popular tourist site and these structures will negatively affect tourist pictures of the bridge. My recommendation is to move the structures back and away from the bridge so that most views of the bridge remain unaffected. For the most part, I believe that oversized vehicles that cross through the bridge do so because of a mistake and not because of an intentional act. As such, we only need to make it significantly harder to make this mistake instead of physically limiting access to the bridge. Instead of the inverted U shape for the restriction bar, I propose more of an inverted L - basically the right half of the proposed barriers. These inverted L's would then be installed on Rivers Edge Dr near Letson Park and on Covered Bridge Drive close to the Lost Acre store. These inverted L barriers would restrict oversized vehicles from passing underneath them and through to the bridge. As such, a mistaken crossing of the bridge by these vehicle becomes unlikely. However, by only covering the right side of the road, garbage and recycling trucks, moving vans, etc would be allowed to drive around the barrier to access the homes that are beyond the barriers. And finally, by moving the barriers away from the bridge, they can be littered with signs, etc that warn drivers about the bridge restrictions without negatively impacting most views of the bridge.

Screen Name Redacted 12/08/2023 07:47 AM	I think driving through the bridge is a good thing for people to be able to do. Especially if all this work is happening to reinforce it, why would you stop local cars from driving on it? I want to drive through as our business is located on the one side but can be seen by the other side as well, we wish to be able to drive through still.
Screen Name Redacted 12/08/2023 07:58 AM	I believe vehicles should still be able to cross so long as it is safe. Potentially, a "one car at a time" sign could be useful to ensure pedestrians safety - it does get loud in the bridge when a car is likewise driving through as one is walking
Screen Name Redacted 12/08/2023 08:06 AM	Yes signage should be posted.
Screen Name Redacted 12/08/2023 08:25 AM	Driving across the bridge gives a special feeling and I feel that vehicles should be allowed.
Screen Name Redacted 12/08/2023 09:01 AM	Automobile traffic should be allowed for the sake of tourism. All commercial vehicles over 4,500 kg Gross Combined Weight should be prohibited.
Screen Name Redacted 12/08/2023 11:30 AM	Cars and trucks should be permitted.
Screen Name Redacted 12/08/2023 11:57 AM	Keep signage to an absolute minimum! And again do NOT prohibit all motorized vehicles from using the bridge. During spring breakup Rivers Edge drive can become impassable due to high water and icebergs pushed up on the street. Residents on Rivers Edge Drive NEED the bridge as a route to get out in case of emergency. Cutting this route off can have serious consequences to property and life. In todays litigious society, cutting off bridge access to motorized vehicles in case of emergency would seem unwise.
Screen Name Redacted 12/08/2023 12:40 PM	Cars should still be allowed, keeping the 10 tonne linit
Screen Name Redacted 12/08/2023 12:58 PM	Prefer that cars are allowed. If cars are restricted, I would like to see accommodations for parking so tourists can still experience the bridge.

Screen Name Redacted 12/08/2023 01:50 PM	I would like to see trucks restricted from crossing
Screen Name Redacted 12/08/2023 02:18 PM	No signage
Screen Name Redacted 12/08/2023 04:26 PM	Do not restrict vehicle, just make it safer for pedestrians by adding walkways on the outside of the bridge.
Screen Name Redacted 12/08/2023 09:27 PM	I would prefer for motorized vehicles to have access to the bridge.
Screen Name Redacted 12/08/2023 09:35 PM	The bridge should still be open to vehicles. If horses and buggies can cross, then cars and trucks will be able to also. The West Montrose community use the bridge daily to get to work, the store, the mailbox, visit neighbours and friends. The Mennonite community use it daily also and more frequently on Sundays and funeral days. Please put signs up limiting the traffic to one vehicle on the bridge at at time / one horse and buggy on the bridge at a time. It may slow traffic down on weekends, but the bridge will last longer because of it.
Screen Name Redacted 12/09/2023 12:31 AM	Please keep the bridge as original as possible- signage visible but not so it detracts from the bridge.
Screen Name Redacted 12/09/2023 09:34 AM	Do not restrict vehicle access. It was originally built so EVERYONE could cross, whether it is a vehicle, pedestrian or other modes of transportation. Ton limit should stay at 3 even though it can hold 10 to keep the building structurally sound for years to come.
Screen Name Redacted 12/09/2023 07:50 PM	Yes, I prefer posted signage to restrict all motorized vehicles from using the bridge and permitting only horse and buggies, pedestrians and cyclists accross the bridge. Emergency vehicles should be exempted. I do not believe it will inconvenience the general public or area residents significantly and would only re-route their vehicular travel time by 5-10 minutes. However, preserving and prolonging the lifespan of the bridge structure with the motorized vehicle restrictions would be a great benefit. Now is the best opportune time to initiate this either permenantly or as a pilot. Although enforcement would be limited, it is still better than allowing all motorized vehicles to cross the bridge with higher potential wear and tear. Having the signs would at least discourage the majority of the drivers from driving over the bridge. Most visitors and community residents are pretty considerate

	and will abide by the signage if implemented just like the "No Parking" signs some residents put up on their property. Even with enforcement, we know there will be rule breakers so you can never discourage 100% of the motorized vehicles from crossing the bridge anyways.
Screen Name Redacted 12/10/2023 07:50 AM	Personally, I would like to see the bridge restricted to non-motorized vehicles. However, with a 10 tonne limit, an ambulance or similar emergency vehicles should also be allowed to pass over it if necessary. I am not a resident of the area so I am only sharing my opinion. The residents should determine whether or not it is restricted because they are the ones who will be most impacted by the decision.
Screen Name Redacted 12/10/2023 08:49 PM	Yes, restricting vehicular traffic is a good idea. Active transportation and horse and buggy are appropriate uses of the road.
Screen Name Redacted 12/11/2023 10:17 AM	I oppose this idea Also opposed to height restriction bar
Screen Name Redacted 12/11/2023 12:01 PM	prefer C2 to a 10 ton limit and have cars be allowed to use the bridge
Screen Name Redacted 12/11/2023 02:22 PM	No comment
Screen Name Redacted 12/11/2023 02:29 PM	No
Screen Name Redacted 12/11/2023 02:55 PM	Cars and pickup trucks can still be allowed.
Screen Name Redacted 12/11/2023 02:56 PM	I wouldnt mind that only Horse and Buggies, pedestrians and cyclists.
Screen Name Redacted 12/11/2023 02:56 PM	Yes. Signage to restrict motorized vehicles
Screen Name Redacted 12/11/2023 03:07 PM	I think cars should still be able to use it at least
Screen Name Redacted	No

12/11/2023 03:17 PM	
Screen Name Redacted 12/11/2023 03:22 PM	Motorized vehicles should be banned
Screen Name Redacted 12/11/2023 03:25 PM	N/A
Screen Name Redacted 12/11/2023 03:35 PM	Need to allow vehicles on the bridge
Screen Name Redacted 12/11/2023 03:42 PM	Usage should be restricted unless Line 86 bridge has to be closed.
Screen Name Redacted 12/11/2023 03:43 PM	N/A
Screen Name Redacted 12/11/2023 03:46 PM	After 100 years of use, why do you need to put aggressive overhead signage up? Are vehicles crossing which should not be? I think any of the signage takes away from the original design and feel of this historical structure. But then again if you are replacing everything anyways, what does it really matter if there is also a sign there?
Screen Name Redacted 12/11/2023 03:46 PM	Placing signage is appropriate. Make it big and make it bold for the sake of preserving the historic integrity of this site for future generations BUT please place them along the roadways far enough away from the actual bridge in both directions that they do not ruin the views of this beautiful historical structure. (Height restriction bar excepted -- I understand that this needs to be close to the bridge.
Screen Name Redacted 12/11/2023 03:48 PM	No motorized vehicles should be using this bridge so yes signage should be posted.
Screen Name Redacted 12/11/2023 03:52 PM	Signage should be installed to restrict all motorized vehicles.
Screen Name Redacted 12/11/2023 03:58 PM	I am not in favour of any attempt to restrict all motorized vehicles from using the bridge. The bridge connects the residents to each other. Closing the bridge to motorized vehicles would reduce traffic to the general store, as residents often stop there on their way through the bridge to work or home. People would tend not to detour to stop by the store. We also often stop to say hello to neighbours as we drive

	over the bridge and through the village. This option is unnecessary and undesirable. Closing the bridge to motorized vehicles would tend to divide and harm the community.
Screen Name Redacted 12/11/2023 04:50 PM	I used to live in the area and limiting the bridge to non-motorized vehicles/pedestrians could significantly impact residents who need to travel to the other side of the river. It's a significant drive to the other available crossings.
Screen Name Redacted 12/11/2023 05:10 PM	No motorized vehicles, only horse and buggy, pedestrian and cycling
Screen Name Redacted 12/11/2023 05:37 PM	New design should reflect the ability for motor vehicles to use the bridge.
Screen Name Redacted 12/11/2023 05:56 PM	I disagree with restricting all motorized vehicles. It ties the community together to be able to drive across. A highlight for tourists is to be able to drive across. And cannot see how this could be enforced.
Screen Name Redacted 12/11/2023 06:23 PM	Yes, I agree with restricting motorized vehicles
Screen Name Redacted 12/11/2023 06:46 PM	No
Screen Name Redacted 12/11/2023 07:48 PM	Put the cross bar on magnets and a tether,, if it's hit, it will trip over and hang ,, hopefully causing the reporting of an accident, instead of hit and run Widen the road to allow a single lane to make a 90 to approach the bridge allowing overheads height restrictions bar to be out of tourist camera view… for old cameras that can't remove items in the view. It would end up leaving the road to residences the same adding a right hand turn lane barrier'd off to allow buggys, bicycle and walkers Charge admission to the feature as waterfall parks in Hamilton region do Put it on hydraulic piers so as a lift bridge during the 100yr floods expected during climate change
Screen Name Redacted 12/11/2023 07:53 PM	Allow motorized vehicles.
Screen Name Redacted 12/11/2023 08:29 PM	Ideally signage should be posted. But, I do not live close enough to use the bridge regularly, so do not want to impose my preference on

	those who live right there and use it all the time.
Screen Name Redacted 12/11/2023 08:45 PM	As long as it is far enough from the bridge
Screen Name Redacted 12/11/2023 08:50 PM	Would prefer no motorized vehicles. The obstacle should be further away from the bridge so the view is not obstructed for photographs and enjoyment.
Screen Name Redacted 12/11/2023 09:51 PM	move the signage as far away as possible from the bridge. It's an eye sore to the bridge heritage.
Screen Name Redacted 12/11/2023 10:01 PM	The limit should be 5 tons, allowing private personal transportation, there is no need for commercial transportation to use this bridge other than municipal repair or service trucks on a limited occasional basis. Pedestrians, cyclists, motorcyclists or buggies are not damaging anything.
Screen Name Redacted 12/11/2023 10:07 PM	The height bar should be made of red painted words to resemble the bridge structure itself
Screen Name Redacted 12/11/2023 10:11 PM	Yes! No motorized vehicles would be the best.
Screen Name Redacted 12/11/2023 10:43 PM	If you are going to add sign to restriction use of the bridge then I suggest you take into account the significance of the bridge and the aesthetic that it has. You can visit the bridge any time from spring to fall on weekends to see dozens of people taking photos walking through. If you don't that this into account you will destroy the value of the bridge visually
Screen Name Redacted 12/11/2023 10:44 PM	Motorized vehicles should be allowed to continue to use the bridge
Screen Name Redacted 12/11/2023 11:28 PM	Horse and buggies, bicycle traffic and passenger vehicles should be allowed. Trucks, motor coaches and buses should be prohibited.
Screen Name Redacted 12/11/2023 11:39 PM	If the limit is 10 tonne then signage to restrict anything above.

Screen Name Redacted 12/12/2023 04:16 AM	I agree with restricting all motorized vehicles and placing signage.
Screen Name Redacted 12/12/2023 07:21 AM	This is an important crossing for local residents and closing it to MVs is extremely inconvenient.
Screen Name Redacted 12/12/2023 07:26 AM	option 3
Screen Name Redacted 12/12/2023 07:37 AM	I don't have a preference but would like cars to be allowed. Just for accessibility purposes.
Screen Name Redacted 12/12/2023 07:41 AM	I would prefer that the bridge is still able to be used by motor vehicles. As a village resident we regularly use it to cross from one side of the grand to the other, especially in the summer. Also, of the heigh restriction bar options shown, I prefer #1. I like that #3 has some design flair to it, however I fear that it will obscure the view of the bridge. #1 appears to be the least intrusive option, however I still think it's maybe a little too "in your face".
Screen Name Redacted 12/12/2023 08:10 AM	No strong preference. I have only ever crossed by bike and if that is most common then I'd support a restriction.
Screen Name Redacted 12/12/2023 08:43 AM	I would still prefer vehicles could still go across for seniors who have issues with walking the distance.
Screen Name Redacted 12/12/2023 10:09 AM	No preference.
Screen Name Redacted 12/12/2023 10:20 AM	No
Screen Name Redacted 12/12/2023 10:23 AM	Unless vehicle traffic is damaging or stressing the bridge, I would like to see it still allowed. I don't know how onerous a detour around it would be for the local population but it feels like closing it to traffic would be removing a long established travel route. And driving over the bridge would be part of the attraction for tourists.
Screen Name Redacted 12/12/2023 11:33 AM	No

Screen Name Redacted 12/12/2023 12:40 PM	N/A
Screen Name Redacted 12/12/2023 02:04 PM	I strongly disagree with that type of signage. I live in the village of West Montrose and why would I not want to be able to drive my car across the bridge? Heritage committees don't always use practical common sense!
Screen Name Redacted 12/12/2023 02:25 PM	I strongly disagree with having signage that restricts motorized vehicles from crossing the bridge. I live in the village of West Montrose and I admit that I did not get to any of the information meetings. However, I never was under the impression that it was even an option to not allow motorized vehicles to use the bridge. I would be extremely disappointed if that is the route that is taken. I live here. Why would I not want to be able to drive my car across the bridge? I believe that Heritage committees don't always use practical common sense!
Screen Name Redacted 12/12/2023 03:23 PM	I don't have a preference. I would probably lean towards not permitting motorized vehicles, but the voice of locals should decide this
Screen Name Redacted 12/12/2023 05:12 PM	no preference the height limit signs should be as far back from the bridge as possible so as to retain the view.
Screen Name Redacted 12/12/2023 07:49 PM	Yes, post signage
Screen Name Redacted 12/12/2023 08:04 PM	No
Screen Name Redacted 12/12/2023 08:45 PM	I do not support spending 5 million plus dollars and doing the same level of intervention to end up with a pedestrian bridge. The bridge should be kept as a vehicular bridge. The bridge connects the hamlet and allowing horse and buggy and not cars is not workable.
Screen Name Redacted 12/12/2023 09:50 PM	Yes, motor vehicles should be restricted.
Screen Name Redacted	Be clear and state each: NO: car, truck, motorcycle. motorized

12/12/2023 09:54 PM	vehicle. YES: bicycle, pedestrian, horse & buggy.
Screen Name Redacted 12/13/2023 09:49 AM	Signage should be posted to restrict all motorized vehicles from using the bridge except for EMS Vehicles. Signage accompanied with a stop sign should be located at the intersection of Hill Street and Covered Bridge Drive and along Rivers Edge Drive prior to approaching the bridge to allow vehicles to turn around as well as to ensure the safety of pedestrians and non motorized vehicles.
Screen Name Redacted 12/13/2023 12:21 PM	Posting signage may keep motorists off the bridge, at least those who respect its historic significance. The signage should not be placed where visually takes away from the structure. There will always be those who don't think rules apply to them, sadly.
Screen Name Redacted 12/13/2023 01:25 PM	Allow all
Screen Name Redacted 12/14/2023 04:57 PM	Motorized vehicles should still be able to use the bridge in my opinion
Screen Name Redacted 12/14/2023 08:40 PM	If you're taking the time to renovate this to make it better and stronger, and it currently accepts cars, why would the new changes not allow cars?? That doesn't make sense at all. I dislike all three options listed in question 5. The first one is just embarrassing and shouldn't even be listed, nevermind as option one! This is a historic site - please put some care into this to make it stand out as something special, not just a few 4x4 beams with a yellow max height sticker on it. This beam thing is going to be in many pictures of this special site for years to come. Make this part of memories, not an eye sore. I love the idea of adding the name and year it was established - it helps for placemaking. I would like something that had a connection to the place - could it match a bit better - where did the green come from for option 3? Could something be made by a local wood artisan, maybe of Mennonite heritage? Let the people create something beautiful for you - you don't even need to do it or come up with the mock ups! Put the requirements out there - I'm sure you'd have a line up of applications for this!
Screen Name Redacted 12/14/2023 09:06 PM	make people aware of the restrictions, without making it garish.
Screen Name Redacted 12/15/2023 09:04 AM	Any signage should not undermine the charm of this local heritage site. Let's not ruin a good thing.

Screen Name Redacted 12/15/2023 09:29 AM	Prefer a restriction based on vehicle weight. Not a total motor vehicle restriction. Enforcement will be costly if there is an overall restriction; complaints about compliance will not be helpful.
Screen Name Redacted 12/15/2023 09:31 AM	It feels dangerous to allow motor vehicles on the bridge since drivers tend to be aggressive in a tight space. At busy times, drivers create (loud) traffic and safe passing is more challenging for non-motorized users. All motorized vehicles should be restricted from using the bridge. From a maintenance perspective, restricting heavy vehicles seems like an obvious choice to extend the life of the bridge.
Screen Name Redacted 12/15/2023 09:36 AM	I think it should still be available for lighter vehicles, but not for transport trucks or anything like that. Unless it will mean the bridge deteriorates more quickly, I think allowing traffic will keep it accessible.
Screen Name Redacted 12/15/2023 10:13 AM	I'm in favour of restricting vehicle traffic
Screen Name Redacted 12/15/2023 12:16 PM	Yes, motor vehicle traffic should be removed. This should involve more than signage though. For example, you might re-pave the approach in a way that indicates that the roadway doesn't go to the bridge, with a narrower gravel path suitable for pedestrians, bikes, and horse & buggy, perhaps with a modal filter and signage.
Screen Name Redacted 12/15/2023 12:36 PM	I like this option, but wish no sign would restrict how the bridge looks. No photos possible that don't mainly show a sign.
Screen Name Redacted 12/15/2023 03:05 PM	no
Screen Name Redacted 12/15/2023 06:33 PM	Yes I have a strong opinion to please continue to allow cars to use the bridge! It's shorter for us to get out as I live nearby -also it would cut the village in half if we can't drive over it the store will suffer business! Tourists on this side won't drive across to the store then. For us, it's a safety issue in the spring flood time. We need to get our vehicles out when the river floods. If the ice jams we onle have SECONDS to reach the bridge with our cars to safety.The other road floods sooner and icebergs can be on it, making it impossible for us to evacuate if needed or emergence vehicles to reach us. We NEED

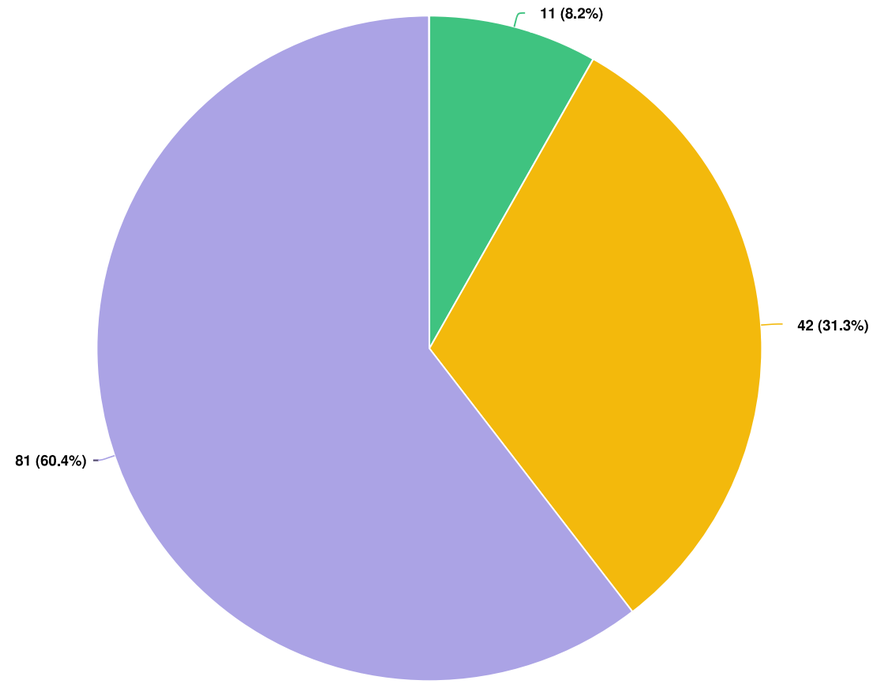
	more than one exit from our homes! In the winter the hilly Rivers Edge Drive does not get plowed as soon to give us safe exit. So we NEED to be able to DRIVE over the bridge to get out! It is being restored to be lots strong enough for cars! The rubber tires are not nearly as hard and jarring to the structure as horse hooves - so please let the bridge continue to be used for what it's intended purpose is! It's a BRIDGE!
Screen Name Redacted 12/16/2023 07:47 AM	I notice that in the photos of the height restriction bar, they all block the view of the bridge. Can the be placed further back
Screen Name Redacted 12/17/2023 01:16 PM	Nope
Screen Name Redacted 12/17/2023 01:28 PM	Yes: do it.
Screen Name Redacted 12/17/2023 01:46 PM	Preference to still allow light vehicles, if possible. Or add nearby parking on both sides to allow for tourists to park and walk across.
Screen Name Redacted 12/17/2023 02:44 PM	Yes
Screen Name Redacted 12/17/2023 02:47 PM	I would leave access and signage as it currently is. Restricting all motorized vehicles will be unenforceable and would leave cyclists, walkers etc with a false sense of security that no vehicles will be encountered as even with a total vehicle ban there will motorist who ignore it, thus endangering the unspecting cyclists, walkers etc.
Screen Name Redacted 12/17/2023 04:37 PM	Yes it should be posted, no vehicles
Screen Name Redacted 12/17/2023 05:15 PM	No
Screen Name Redacted 12/17/2023 06:54 PM	Yes
Screen Name Redacted 12/17/2023 07:23 PM	N/a
Screen Name Redacted	N/a

12/17/2023 07:55 PM

Screen Name Redacted 12/17/2023 09:03 PM	Prefer to offer motor vehicles an option to cross
Screen Name Redacted 12/17/2023 09:45 PM	These bridge height signs are awful, they block its beauty and simplicity. Just pit a sign to the side on a post saying height and weight.
Screen Name Redacted 12/18/2023 01:34 AM	No cars is good:)
Screen Name Redacted 12/18/2023 04:26 AM	No signage.
Screen Name Redacted 12/18/2023 08:14 AM	I'm surprised this historic bridge is still used for motorized vehicles. But since the work is being done to accommodate that kind of traffic i don't know why we'd stop it now - unless it affects the lifespan of the repairs/rework.

Mandatory Question (134 response(s))
Question type: Essay Question

Q5 **Please select your preference for the overhead height restriction bar:Option 1:Option 2:Option 3:*Option 3 to be further refined and finalized with input from an architect**



Mandatory Question (134 response(s))
Question type: Radio Button Question

Comment Sheet 3

[redacted]

Good Morning All - Sorry for my delay in response - just recovering from my first bout with COVID.

To some of [redacted] points above - When repaired correctly, there is very little load on the sway bracing. It maybe cut too long.

We have several contracts for annual cleaning of some New England bridges. My team goes in and cleans the dirt, sand, animal homes and waste etc., from both top and bottom chords as well as any connections or places where
a build up may occur. Compressed air, brooms, shovels, etc accomplish this task. It is one of the most important maintenance items for the longevity of the bridge.

SAG-Usually, maybe even always, the vertical sag is caused by joint failure. This can be caused by overload by poor shoring. Often, the bridge was not supported in a manner that allowed the lower chord members to be free of horizontal
and vertical load during the splicing process. Often the splicing consisted of a half lap with two bolts per joint. If restored correctly, the bridge should not have sag for 100 years. I have restored many covered bridges in my career and if the
framing is cut correctly then the bridge will not lose camber or have vertical sag. Bridges I have restored over 65 years still do have measurable loss of camber (vertical slag). Bridges may not have a measurable amount of camber
at the beginning of their life, but I have never seen a new bridge with vertical sag.

I also want to address the non flammable treatment. It is my experience that even large, green timbers can burn if fueled. When I apply the treatment, I use a large sprayer and it is best to treat the entire structure. Overspray is always beneficial.

I am concerned about the testing- Will the resonance testing be realistic readings at the intersection of the chord and the post? This area is quite well boxed and is the most important joint.

I am not a fan of using glu-lam. I believe that the bridge can be brought to certain load ratings by increasing the size of the bottom chords and the use of horizontal rods. I think this could be accomplished.

Thank you for the opportunity to have input.

[redacted]

Comment Sheet 4

[redacted]

Hello everybody - Thank you for the opportunity to attend the meeting and to share knowledge-[redacted] is an extraordinary resource for covered bridge restoration. He would not say that-he leaves that to me as his wife.

[redacted]

On Fri, Oct 20, 2023 at 10:06 AM Andrew Lehan <andrew.lehan@entuitive.com> wrote:

> Hi [redacted]
>
> Thank you very much to yourself, [redacted] and [redacted] for joining last night. We appreciated your inputs and look forward to your forthcoming additional comments.
>
> The detail suggested by [redacted] is a sensible one. It's a mechanically joint beam. Should we not be able to source timbers larger than 12x12s, then a mechanically jointed beam made of sawn wood becomes the next best solution.
>
> Tony, to respond to the question you just asked about the fasteners in another email, you can find an image of them via the following link. I copied Kitson too.
>
> https://mtcsolutions.com/products/assy-vg-cyl/
>
> They're a Canadian product made by MTC Solutions (formerly MyTiCon). The company is relatively young and has grown quite significantly in the past decade. They are known for producing high quality, high strength fasteners used for applications like mechanically jointed beams.
>
> Regards,
>
> Andrew
>
> **Andrew Lehan** P.Eng., M.A.Sc.
> Senior Engineer
> (He/Him)
> **Mobile +1.437.219.4715**
>
> **Entuitive** | **Vancouver + Calgary + Edmonton + Toronto + Ottawa + New York**
>
> **At Entuitive we are purpose-driven to build a better world.** Watch here.
>
> [redacted]
>
> Andrew & Steve,
>
> The [redacted] asked me to forward the attached drawings of work on the Beech Fork Bridge in Kentucky to you. As [redacted] noted below, the detail [redacted] was describing last night is on page 8.

Unfortunately, that structure was lost to arson on March 9, 2021.

Thank you for inviting us to the presentation last night. We look forward to helping in any way we can. I will have a few comments to pass along later.

[redacted]

Region of Waterloo

West Montrose Covered Bridge Public Consultation #3 Survey

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Please provide us with your contact information below if you wish to receive future project updates.

Name: [redacted]

E-mail:

Phone Number: [redacted]

Address
(to receive letters by mail) [redacted]

Survey Questions:

1) **Which mode of travel do you typically use to cross the bridge? Please select all options that apply.**
   a. Walking
   b. Motor Vehicle
   c. Biking/Rollerblading/Skateboarding/etc.
   d. Other

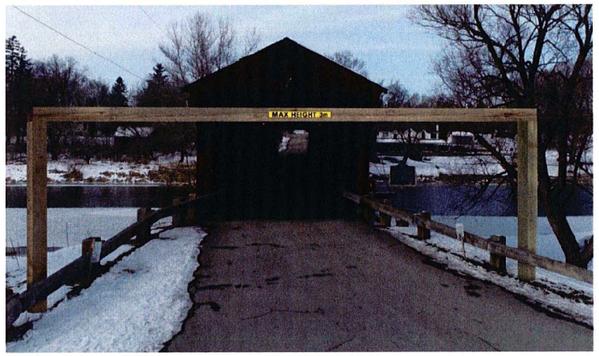
2) **How often do you visit and/or cross the bridge? Please select the most applicable option.**
   a. At least once a day
   b. At least once a week
   c. Once a month
   d. Once or twice a year
   e. I have visited the bridge in the past as a historic site, but I have not been to the bridge in recent years
   f. I have never visited the bridge but I am interested in the rehabilitation plans
   g. Other (Please specify)

3) **Do you have any comments to share with the Project Team about the recommended Preferred Alternative C2? The preferred alternative includes removing the existing steel Bailey truss, replacing the deteriorated truss members and bridge elements, as recommended from the inspection, and reinforcing select members to accommodate a 10-tonne design vehicular live load.**

4) **Do you have a preference for whether signage should be posted to restrict all motorized vehicles from using the bridge? Horse and buggies, pedestrians and cyclists would still be permitted across the bridge. This would not change the recommended Preferred Alternative C2, to rehabilitate the bridge to a 10 tonne load limit.**

5) Please select your preference for the overhead height restriction bar:

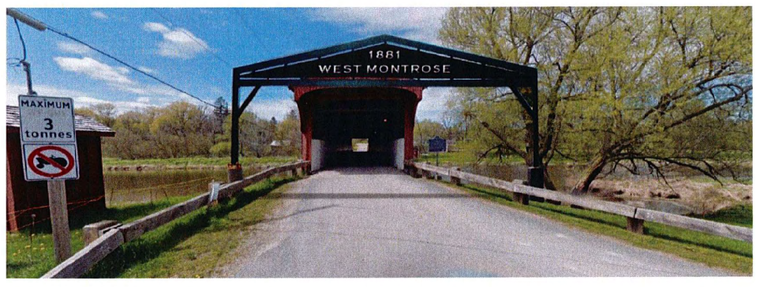
Option 1



Option 2



Option 3



*Option 3 to be further refined and finalized with input from an architect

Region of Waterloo

Comment Sheet 6

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Please provide us with your contact information below if you wish to receive future project updates.

Name: [redacted]
E-mail:
Phone
Addres
(to rec

Survey Questions:

1) **Which mode of travel do you typically use to cross the bridge? Please select all options that apply.**
   a. Walking
   b. Motor Vehicle
   c. Biking/Rollerblading/Skateboarding/etc.
   d. Other

2) **How often do you visit and/or cross the bridge? Please select the most applicable option.**
   a. At least once a day
   b. At least once a week
   c. Once a month
   d. Once or twice a year
   e. I have visited the bridge in the past as a historic site, but I have not been to the bridge in recent years
   f. I have never visited the bridge but I am interested in the rehabilitation plans
   g. Other (Please specify) ~~I~~ I LIVE AT [redacted] SINCE JULY 1979. I DRIVE OR WALKED THROUGH THE BRIDGE NEARLY EVERY DAY. I WALKED & DROVE THROUGH WHEN GOING TO GRADE SCHOOL ON RIVERS EDGE DRIVE, AS A KID GRADES 1 – 8. WE LOOK AT THE BRIDGE EVERY DAY FROM OUR HOME

3) **Do you have any comments to share with the Project Team about the recommended Preferred Alternative C2? The preferred alternative includes removing the existing steel Bailey truss, replacing the deteriorated truss members and bridge elements, as recommended from the inspection, and reinforcing select members to accommodate a 10-tonne design vehicular live load.**

BASICLY AGREED WITH WHAT HAS BEEN SUGGESTED. GLAD TO SEE THE SAG WILL BE TAKEN OUT OF THE BRIDGE.

I THINK ROAD ASPHALT ON THE BRIDGE DECK WOULD LAST MUCH LONGER THAN TAR & CHIP. WHEN LOOKING AT THE EXISTING FLOOR DECK, HORSE SHOES FROM HORSE TRAFFIC, HAVE WORN THROUGHT THE EXISTING TAR & CHIP INTO THE WOOD 2 X 6 BELOW.

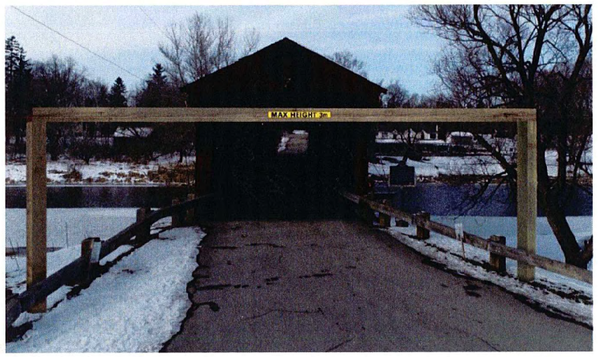
4) **Do you have a preference for whether signage should be posted to restrict all motorized vehicles from using the bridge? Horse and buggies, pedestrians and cyclists would still be permitted across the bridge. This would not change the recommended Preferred Alternative C2, to rehabilitate the bridge to a 10 tonne load limit.**

MOTOR VEHICLES SHOULD DEFINATELY BE ALLOWED TO CONTINUE TO USE THE BRIDGE. I AM DEFINATELY OPPOSED TO RESTRICTING MOTORIZED VEHICLES FROM USING THE BRIDGE.

RESTRICTOR BARS COULD BE ERECTED TO STOP LARGER TRUCKS, TRACTORS, ETC.

5) **Please select your preference for the overhead height restriction bar:**

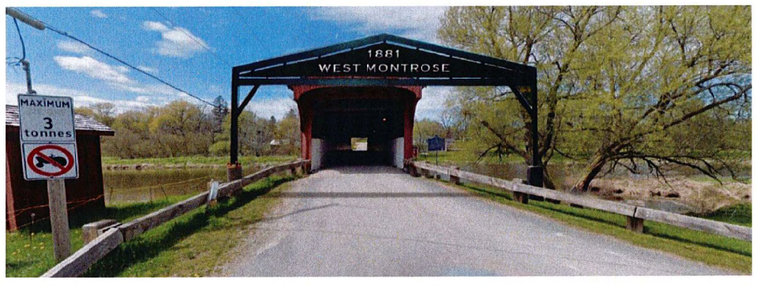
Option 1



Option 2



Option 3



*Option 3 to be further refined and finalized with input from an architect

Region of Waterloo

Comment Sheet 7

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Please provide us with your contact information below if you wish to receive future project updates.

Name:	[redacted]
E-mail:	
Phone	
Addres (to rec	

Survey Questions:

1) **Which mode of travel do you typically use to cross the bridge? Please select all options that apply.**
   a. Walking
   b. Motor Vehicle
   c. Biking/Rollerblading/Skateboarding/etc.
   d. Other

2) **How often do you visit and/or cross the bridge? Please select the most applicable option.**
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   f. I have never visited the bridge but I am interested in the rehabilitation plans
   g. Other (Please specify)

3) **Do you have any comments to share with the Project Team about the recommended Preferred Alternative C2? The preferred alternative includes removing the existing steel Bailey truss, replacing the deteriorated truss members and bridge elements, as recommended from the inspection, and reinforcing select members to accommodate a 10-tonne design vehicular live load.**

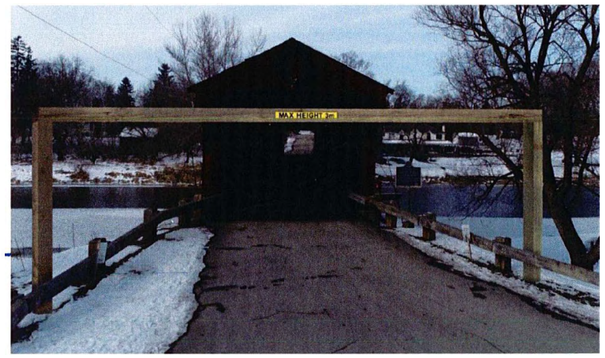
- Bridge maintenance is required more regularly.
- It's a shame how far the Region has let the Bridge deteriorate. Holes in the roof, siding falling apart etc
- Any alternative is better than the current state of the Bridge
- I am ok with removing the Bailey Bridge, replacing the trusses and associated elements
- I know the wainscotting is not original so removing it is ok.
- I don't like the look of the support beams + truss that are connected with structural lagging
- Can the added supports be laminated without mechanical fasteners?
- The lagging pattern is very intrusive and completely changes the look of the Bridge
- Is 10 tonne design required? If vehicles are restricted from entering why such a high load?
- Does the 10-tonne design significantly increase the design? What would the structural change look like if it was designed for 8-tonne or even 5 tonne?
- I understand the need to design the load to be higher than the posted limit

4) **Do you have a preference for whether signage should be posted to restrict all motorized vehicles from using the bridge? Horse and buggies, pedestrians and cyclists would still be permitted across the bridge. This would not change the recommended Preferred Alternative C2, to rehabilitate the bridge to a 10 tonne load limit.**

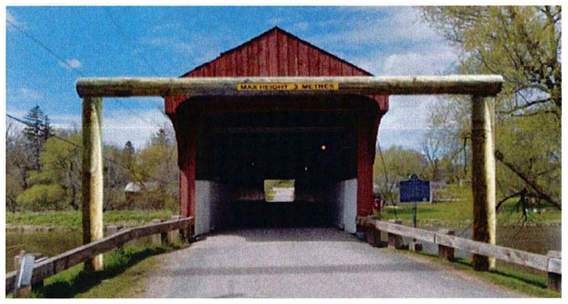
- Restricting motorized vehicles is not needed.
- Redoing the road geometry on the south side to a 3-way stop with narrow guardrails to restrict longer vehicles from making the turn. This would eliminate the need for height restrictions as large overweight vehicles could not make the turn.

5) **Please select your preference for the overhead height restriction bar:**

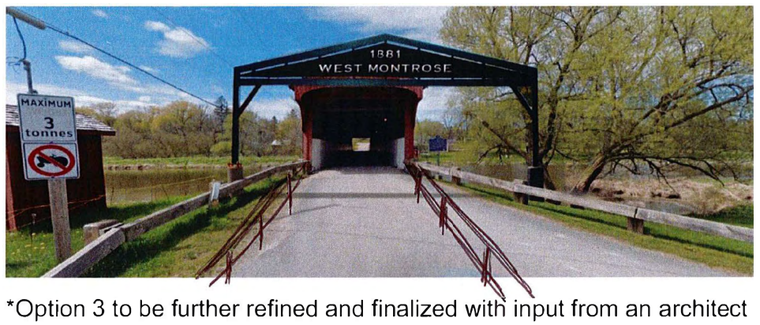
Option 1



Option 2



Option 3



*Option 3 to be further refined and finalized with input from an architect

option 4 - reduce the width of the road to a 3 way stop
- tight turns prevent large vehicles from crossing
- no need for the height restrictions bar

Region of Waterloo

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   a. Walking
   b. Motor Vehicle
   c. Biking/Rollerblading/Skateboarding/etc.
   d. Other

2) **How often do you visit and/or cross the bridge? Please select the most applicable option.**
   a. At least once a day
   b. At least once a week
   c. Once a month
   d. Once or twice a year
   e. I have visited the bridge in the past as a historic site, but I have not been to the bridge in recent years
   f. I have never visited the bridge but I am interested in the rehabilitation plans
   g. Other (Please specify)

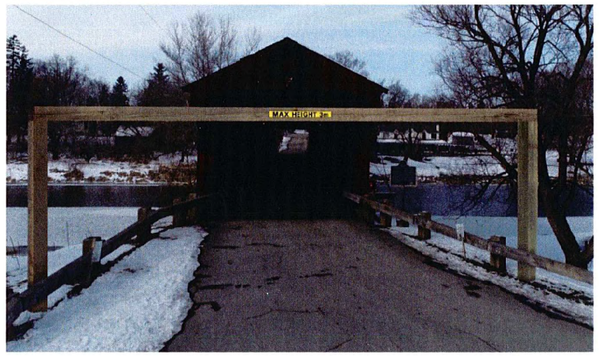
3) **Do you have any comments to share with the Project Team about the recommended Preferred Alternative C2? The preferred alternative includes removing the existing steel Bailey truss, replacing the deteriorated truss members and bridge elements, as recommended from the inspection, and reinforcing select members to accommodate a 10-tonne design vehicular live load.**

4) **Do you have a preference for whether signage should be posted to restrict all motorized vehicles from using the bridge? Horse and buggies, pedestrians and cyclists would still be permitted across the bridge. This would not change the recommended Preferred Alternative C2, to rehabilitate the bridge to a 10 tonne load limit.**

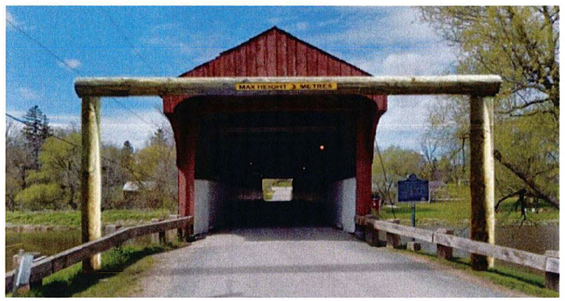
Keep small vehicles crossing with the others - obstruct the large vehicles -

5) Please select your preference for the overhead height restriction bar:

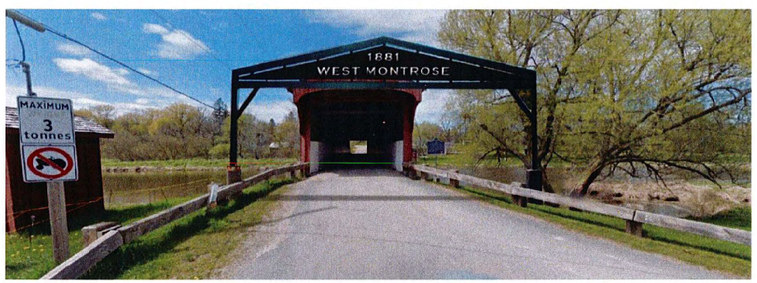
Option 1



Option 2



Option 3



*Option 3 to be further refined and finalized with input from an architect

Option 4 move further away from bridge

[redacted]

December 10, 2023

Michelle Pinto, P.Eng., MBA, Project Manager
Region of Waterloo
150 Frederick Street, 6th Floor
Kitchener, ON N2G 4J3

Re: West Montrose Covered Bridge Repairs

Ms. Pinto,

First, let me say that I appreciate the time that the Region has put into gathering and reviewing public input into this project. In any good compromise, no one gets everything they want. The material available about this project has been reviewed by myself as head of the National Society for the Preservation of Covered Bridges, [redacted] who has over 60 years' experience working on covered bridges and engineer [redacted].

Know that with our following comments we do not intend any disrespect for the engineers on the project or for their efforts up to this point. Our organization makes recommendations based on the information we have available, but, except for [redacted] are admittedly mostly amateurs doing our best to interpret preferred preservation practices.

We are most uncomfortable with the amount of potentially historic material being replaced. However, there are some unknowns here that we need to factor in such as, how many of the existing structural components are original to the bridge? While we are advocating to preserve as much as possible, many of the pieces slated for replacement may have already been replaced before. The engineers have researched the documentation of former projects available and made assessments based on that limited information. I hope they will place additional emphasis on preserving any pieces which may be part of the original construction.

Of particular concern was the drawing in the engineer's report showing the condition of each member where the lower chord on the west side is reported to be in serviceable condition yet it is on the list to be replaced "to maintain parallel service lives." Maybe this is an area where an alternative solution might be able to keep this chord in service. While I concur with the statement that "replacement of the bottom chord members has been noted to be a common occurrence for wood covered bridges", I don't want people to get too comfortable offering that as a solution without making a concerted effort to seek other solutions.

Some additional preservation may be achieved by reviewing the method of splicing floor joists offered by [redacted] shown on page 8 of the plans for the Beechfork Bridge in Washington County, Kentucky.

Thank you for revising the proposal to reverse the sag which has developed over the years.

The recommendation is to bring the bridge up to a 10 tonne limit. One of the questions on the survey asks about closing it to motor vehicle traffic and leave it open for buggy and pedestrian traffic. With the 10 tonne limit, would emergency vehicles still be allowed to cross if necessary? With a bypass nearby, it doesn't seem like restricting motor vehicle traffic would cause a serious hardship on the community who would need to detour around the bridge. However, I also feel that decision should be left up to the area residents who would be impacted by this restriction.

Proposing to add cladding for the first few metres inside the ends of the structure is beneficial for protecting the ends of the truss which would otherwise be exposed to the weather.

We recommend fire retardant be applied to the entire interior of the bridge, not just selected components as others have suggested. We may be able to help if cost is a concern.

Once repairs are completed, a plan needs to be established for routine maintenance for the longevity of the bridge. Each year, the bridge should be cleaned to remove dirt, sand, animal homes and waste etc., from both top and bottom chords as well as any connections or places where build up may occur. The can be done with common tools such as compressed air, brooms, shovels although some form of lift would be needed to access the upper chord. Keeping the truss members and joints clean will slow decay at connection points between members. Keeping the roof and cladding in good repair will further reduce potential for decay.

On the over-height limit sign, option #2 would be a nice natural-looking alternative. Option #3 is an attractive option, however, as shown it would likely be damaged if the bridge remains open to motor vehicle traffic and be more costly to repair than other alternatives. The frame this is modeled after in St. Joseph County, Michigan, has a pipe hanging from the top which would be struck by over-height vehicles. Flashing lights on the sign might help get driver's attention, but I am hesitant to recommend that knowing the bridge is in a residential area.

If there aren't other plans for the Bailey truss that is to be removed, maybe some of its components could be repurposed for construction of the over-height barrier. While we feel the visitor's experience will be enhanced with it removed from the covered bridge, the Bailey bridge is also historic and represents an advancement in engineering technology. Maybe there is some other use for it.

Thank you for this opportunity to be part of the design process. We look forward to continuing our involvement through the construction phase.

Sincerely,

[redacted]

cc: [redacted]

Appendix D

West Montrose Residents' Association Meeting Minutes

ENGINEERING AND ENVIRONMENTAL SERVICES

Design and Construction
150 Frederick Street, 6th Floor

MEETING MINUTES

West Montrose Covered Bridge Rehabilitation Project Update with the BridgeKeepers/West Montrose Residents' Association

Meeting Date/Time/Location:	October 19, 2023 at 6:30p.m. at the Township of Woolwich Administration Office, Council Chambers. A virtual Teams link was also provided.
Meeting Attendees:	Mayor Sandy Shantz, Karen Cummings, Tony Dowling, Kitson Morden, Hans Pottkamper, Richard Hui, Michelle Pinto (Region), Andrew Lehan (Entuitive), Steve Taylor (BTE), Wendy Shearer (Cultural Heritage Specialist), Skylar van Kruistum (Region) Virtual attendees: Bill Caswell (National Society for the Preservation of Covered Bridges), Shawn Buckley (Region), Kim Cuddington, Arnold and Meg Graton

Meeting materials:

Field Summary Inspection Report can be found at the following link: https://www.engagewr.ca/19909/widgets/79240/documents/115481

The following presentation was provided to the group as an update to the project: DOCS 4507306.

The following questions were raised after the presentation:

1) **What will be left of the original material after the proposed replacements are complete? The national registry does not accept replicas. Glulam is not an original material.**

   - Many of the members recommended for replacement have been replaced in the past and are not original to the bridge, including the: floor beams, needle beams, some of the stringers, the deck, some of the tie-beams, some of the exterior cladding, and sections of the bottom chord.

- Items recommended by the consultant for replacement were a result of the condition inspection and the level of reinforcement necessary to achieve the design vehicular live load selected
- The Project Team's preference is to replace members in kind, or with sawn wood members, where feasible
- Upsizing of members may be necessary to achieve necessary strength to accommodate design loads
- An option to restrict motorized vehicles from the bridge was investigated. The Bridge Code recommends that for pedestrian bridges wider than 3.0 metres, that the bridge be designed to accommodate an 8 tonne design live load for maintenance vehicles
- The bridge today in existing conditions is designed to hold 8 tonnes with the steel Bailey trusses in place
- Generally, replica structures do not reflect tangible heritage values and are not candidates for designation or listing on the municipal register of properties with potential heritage value. The replacement of materials that have deteriorated or lost if guided by documentation is appropriate and is recommended to keep the heritage resources in use. In the case of the West Montrose Bridge, it is a continuing evolved structure and repair and select replacement is necessary because of the existing conditions that were found upon close inspection. The historic bridge is more than a collection of individual construction details and its scale, form and cultural landscape setting has heritage significance and are to be considered in the conservation plan. The opportunity to have more of the interior structure visible and experienced by the visitor celebrates the overall historic design.

2) **Can EMS vehicles still get through if they need to with the height restriction bar in place?**

   The exact height of the height restriction bar has not been determined yet and will be confirmed during detailed design. Fire trucks will not be permitted across the bridge as they would be too heavy (they weigh more than 10 tonnes). EMS vehicles are expected to be accommodated by the 3 tonne load limit and height restrictor, as they are less than 3.0 metres in height on average.

3) **What load limit is necessary to accommodate a horse and buggy?**

   A horse and buggy can be accommodated within the current 3 tonne posting. The BridgeKeepers noted it is common to see two buggies with two horses side by side on Sundays. A typical buggy weighs about 0.8 tonnes and a typical buggy horse weighs around 0.6 tonnes. A sampling of buggy and horse weights and from the local community may be necessary to ensure all horse and buggy configurations are properly considered.

4) **Aren't some of these original materials so rotted that they are soft to touch?**

Yes, a high moisture content and active decay was noted for several members during the inspection including the floor beams, needle beams and stringers, and portions of the bottom chords.

5) **Can we go back to an exposed wooden deck for a wearing surface?**

It was noted that there are exposed wooden decks in place in many covered bridges throught the U.S. and that does not seem to be an issue there.

The Region does not support an exposed wooden deck for public safety reasons. Experience with a wooden deck on past projects has lead to collisions and the need to switch to add an asphalt wearing surface. An example of this was on Hespeler Road. The Region also has industry colleagues that have been involved with lawsuits for municipalities resulting from an exposed wooden deck. Wooden decks are more slippery and are not preferred for horse and buggies. Looking at Buggy Lane, there has been a higher friction wearing surface applied to the wooden deck. Staff will note that they are not in support of a wooden deck when bringing this forward to Council for approval, for these potential liability and safety reasons.

Bill Caswell noted he respects the Region's position with respect to the use of an exposed wooden deck.

6) **Concerns were expressed about the use of a tar and chip wearing surface and the horse hooves causing accelerated deterioration of the asphalt, as they have in the past. Also, the additional dead load weight from an asphalt wearing surface. Has epoxy and chip been considered?**

The Project Team will investigate a thin epoxy and chip wearing surface during detailed design, and assess the pros and cons of a tar and chip wearing surface vs. epoxy and chip.

7) **Can the Region undertake roof replacements starting next year in advance of the major reconstruction work?**

The Region will replace the roof during the major rehabilitation project. It will not be replaced in advance. The roof requires repairs in a number of different locations. If the roof was replaced in advance, then it would need to be taken off again during the major rehabilitation project and put back on, in order to inspect and replace the roof rafters as necessary. Thus, there would be throwaway costs and this is not the preferred strategy.

8) **Can the speed limit on Line 86 between Katherine Street N and Covered Bridge Drive be reduced during construction when horse and buggies will be detoured? Will pedestrians be able to use the bridge during construction?**

The Region's intention is to work with the Contractor and make every attempt possible to accommodate pedestrians and horse and buggies across the bridge during construction. However, accommodating horse and buggies may not be feasible with the Contractor's equipment in place. The Region will need to investigate whether provisions can be made in the Contract to accommodate horse and buggies on a certain day of the week, for example on Sundays, at a reasonable cost/premium.
There will be times during construction when it will not be possible to accommodate pedestrians and horse and buggies. For example, when the deck is being replaced.
If detouring to Line 86 during construction is necessary, Transportation staff will monitor the conditions on Line 86 during construction to determine if any changes to the speed limit are necessary.

9) **The height restriction bars are more "which one do we hate the least?" Can we move them as far away from the bridge as we can, narrow the road and create a stop controlled T-intersection in front of Tony's house? That way these height restriction bars do not interfere with pictures at the bridge. Can we have a public contest for the design of the height restriction bars?**

The goal is to move the height restriction bars as far away from the bridge as possible. At this point we are asking for public input on the three options presented, however, we are open to either having a public contest for this or having this professionally designed, with input from heritage experts. The suggestion to narrow the roadway will be investigated in more detail. The alignment can be tightened to allow the height restrictor to be shifted farther away from the bridge.

10) **Why is glulam necessary for the floor beams and needle beams now? Why have we replaced beams with sawn wood in the past and that seemed to work?**

Sawn wood replacements of the same size have been possible in the past because the support and loading conditions for these beams is different with the Bailey trusses in place than with them removed. Also, the floor beams are needle beams are now being designed for a heavier design load than the posted 3t load limit. Finally, it has been confirmed that the floor beams and needle beams can be replaced using 16" x 16" solid sawn wood timbers. The existing beams are 12" x 12" members. The increase in beam size will preclude the use of glulam.

11) **Why has deterioration accelerated on some of the truss members?**

Some of the interior truss members have likely been repeatedly exposed to water, snow, and animals for long periods. Diagonal members closest to the pier require replacement. It would be beneficial to clear snow off the interior truss members if this condition is noticed.

12) **Can the process be accelerated in any way so construction can begin as soon as possible?**

It is the Region's goal to proceed to construction as quickly as possible. The timeline presented is necessary to allow time to go back to the public for input, go to Council for approval in early 2024, complete the mandatory EA process including public review, work on the detailed design package, pre-qualify Contractors, and then issue a tender for construction. Once the Contractor is awarded, they will need to order materials and design their temporary works to jack up and support the bridge during construction. Depending on lead times, and whether it is feasible to undertake construction over the winter, this would put us to a construction start in 2025.

13) **Can we consider a 25 year service life instead of 50 years?**

It is the Region's intention to perform a major intervention during this rehabilitation project that is intended to last, instead of coming back to complete piecemeal replacements over the years. Many of the recommendations for repairs/replacements are from the condition assessment.

14) **What is the plan to reduce the noticeable sag in the bridge?**

The original bridge did not have camber, per the drawings that we have available to us. The public has expressed support during past surveys to reduce or eliminate the sag. Entuitive has noted that it may be difficult to reduce/eliminate the sag permanently because of time-dependent deflections in wood (i.e. creep). If the bridge can be cambered upward sufficiently, then the propensity to sag downwards below a level condition can be mitigated.

General Comments from Bill Caswell and Arnold and Meg Graton

- Preference is to see the floor beams/needle beams replaced with sawn wood, but can appreciate the limitations with sourcing members of this size and that glulam is more readily available in this regard
- The larger the wood gets, the more deficiencies and knots it has
- 16x16 is potentially difficult to source in sawn timbers
- If necessary, a larger size of wood is preferred for the floor beams and needle beams instead of glulam, no one will notice the size increase when standing next to the bridge
- Milkish inlet used glulam in the repairs
- Arnold asked about the possibility of using a resin joint filler to fill any voids that may arise in the truss joints when the sag is reduced. Entuitive is aware of and open to this approach.

Document Number: 4507287 Version: 1B

- Have we considered an option that involves sistering wood pieces to the joints using threaded structural fasteners? Arnold to provide drawings of how this was applied to another bridge in Kentucky
- The bridge will be jacked up during construction – this will be an opportunity to introduce camber if desired

Meeting ended at 9:00p.m.

Appendix E

Responses to Frequently Asked Questions

FAQs

Where are we with this project?
What rehabilitation alternatives were considered?
How were the alternatives evaluated?
What criteria was considered to evaluate the alternatives?
Why was a design live load of 10 tonnes selected?
Will sawn wood be used for replacement of the truss members?
Can the bridge be closed to motorized vehicles?
Will the posted load limit be increased?
What will be left of the original truss once this rehabilitation takes place?
Can a fire suppression system be installed?
Will camber be introduced?
Will the roadway elevation be raised?
Why was a tar and chip wearing surface recommended? Can an exposed wooden deck or an epoxy chip seal wearing surface be considered?
Will potential contractors be pre-qualified before being allowed to bid on the project?
To what time period, structurally and aesthetically, should the bridge ideally be restored?
Can the bridge be restored to the way it was initially constructed?
Where will the staging area be located during construction?
What is the timeline for construction?
What is the estimated cost of construction?
What are the next steps after this public consultation?
What happens if we don't do this major rehabilitation?
Will I be able to use the bridge during construction?
Can the speed limit on Line 86 be reduced to 50km/h during construction?
Why was a service life of 50 years selected?
What experience does the Project Team have that is relevant to this project?
Upsizing the floor and needle beams as proposed would add approximately 3 tonnes to the dead load of the bridge. Has this extra load been factored into the rest of the proposed design?
Instead of height restriction bars, can solar powered horizontal laser sensors be located further from the bridge, with the sensors linked to a digital sign that would flash when tripped by a vehicle over a determined height?
Will the view to and from the bridge be preserved?
Does the lower chord on the west side need to be replaced?
Has splicing the floor beams been considered?
Would emergency vehicles be allowed to cross the bridge if necessary?
Can the interior diagonals be replaced instead of reinforced?

Where are we with this project?

Last year, we reached out to you with a preferred alternative for the West Montrose Covered Bridge rehabilitation at a public consultation held in June 2022. After a detailed inspection and evaluation of the timber truss, we have revised the preferred alternative. The revised preferred alternative includes removal of the existing steel Bailey truss, replacement of deteriorated truss members and bridge elements, as recommended from the inspection, and reinforcing select members to accommodate a 10-tonne design vehicular live load. This is preferred instead of the previous option we shared with you, which considered reinforcing the bridge with fiber-reinforced polymers. The three-tonne load limit will be maintained and a height restriction bar is proposed to prevent damage to the bridge from oversized vehicles.

We are asking for public input on the preferred alternative before we make a recommendation to Regional Council in early 2024.

What rehabilitation alternatives were considered?

top of the page

The following Alternatives were considered:

- Alternative A: Steel Girder Reinforcement - Presented at Public Consultation #1 and #2
- Alternative B: Timber Truss Reinforcement with Fiber Reinforced Polymers (FRP) - Presented at Public Consultation #2 as the Preferred Alternative
- Alternatives C1-C4: Repairs to wooden truss members to achieve a design vehicular live load limit of:
  - C1 – 12 tonnes
  - **C2 (Preferred Alternative) – 10 tonnes**
  - C3 – 8 tonnes
  - C4 – 6 tonnes

How were the alternatives evaluated?

top of the page

The alternatives were evaluated through a quantitative assessment that used a weighted additive scoring method to mathematically evaluate the options being considered using various factors. The methodology is referred to as the Multi Attribute Trade-off System (MATS). This approach focuses on the differences between the alternatives and provides a traceable decision-making process. Overall scores are assigned to each alternative and the option with the highest score is selected as the preferred alternative to complete the evaluation. Sensitivity tests were also performed to determine trade-offs between each alternative.

What criteria was considered to evaluate the alternatives?

top of the page

The criteria that alternatives were evaluated and assessed with using the MATS methodology includes global groups of factors, followed by the selection of a number of sub-factors under these global groups under which measurements could be made. Four global factors were selected for the evaluation of the bridge rehabilitation alternatives: Heritage, Structural, Social Environment and Cost.

Why was a design live load of 10 tonnes selected?

top of the page

Alternative C2, which involves rehabilitating the bridge to a 10 tonne load limit, performed the best overall in the MATS evaluation and was determined to be the preferred alternative based on the global factors and sub-factors that were considered.

There are a number of bridge elements recommended for replacement from the condition inspection. These elements require replacement regardless of which alternative is recommended as preferred because of their condition.

Alternatives involving a 6, 8, 10 and 12 tonne load limit were assessed in order to understand the various levels of intervention required for each loading scenario. There are marginal differences when comparing the level of intervention required for a 6 tonne load limit versus a 10 tonne load limit. These differences are outlined as follows:

- For the 8 and 10 tonne load limits, the lower top chord needs to be made composite with the top chord by adding a wood plate between the top chord and lower top chord and fastening them together. This is not required for the 6 tonne load limit.
- A new 4” wood plank is required to be fastened to the end diagonals for a 10 tonne load limit, instead of a 3” plank that would be necessary for the 6 and 8 tonne load limits

All other recommended improvements are required for the 6, 8, 10 and 12 tonne design live load levels. It should be noted that the bridge can currently support an 8 tonne load limit with the steel Bailey truss in place, and up to 11 tonnes in the absence of snow loads.

Will sawn wood be used for replacement of the truss members?

top of the page

Yes, replacement of the truss members will be with sawn wood.

Can the bridge be closed to motorized vehicles?

top of the page

The proposed preferred Alternative C2 does not preclude closing the bridge to motorized vehicles. If motorized vehicles were to be restricted from using the bridge, the level of intervention necessary to rehabilitate the bridge would be consistent with at least the 8 tonne load limit to accommodate pedestrian and horse and buggy loads. Closing the bridge to motorized vehicles would improve the long-term durability of the bridge. While we can post signage that restricts motorized vehicles from using the bridge, it would be difficult to physically prevent all vehicles from accessing the bridge while maintaining adequate passage for horse & buggies.

Based on the public feedback received during public consultation #3, the project team is not recommending a restriction of all motorized vehicles on the bridge at this time.

Will the posted load limit be increased?

top of the page

The legal posted load limit of 3 tonnes will be maintained after the proposed bridge rehabilitation. The Region and Township do not wish to attract more and heavier vehicles to West Montrose, therefore, the intention is not to design the West Montrose Covered Bridge for heavy vehicles. The existing bridge on Line 86 serves this purpose.

What will be left of the original truss once this rehabilitation takes place?

top of the page

A number of the elements recommended for replacement are not original to the bridge and have been replaced over time. This includes the deck, floor beams and needle beams, segments of the bottom chord and some of the stringers. The rehabilitation plans to maintain original truss members where possible and to only replace what is necessary.

Can a fire suppression system be installed?

top of the page

Fire retardant materials are proposed to be applied to various elements of the bridge.

A water source would be required for a typical sprinkler system. The local watermain does not have sufficient pressure to provide fire suppression capabilities. The Region will continue discussions with the Fire Department and any necessary environmental agencies to further investigate options for fire suppression.

Will camber be introduced?

top of the page

The original construction drawings of the West Montrose Covered Bridge do not indicate any cambering of the bridge. However, the Region believes that there is benefit to reducing the visible sag in the structure and this is part of the recommended preferred alternative.

Will the roadway elevation be raised?

top of the page

The roadway elevation of the bridge will not be raised, as the floorbeam/deck elevation can be held constant. No adjustment of the approach road elevations will be required and the approach roads will meet the bridge deck at the same elevation as they do now.

Why was a tar and chip wearing surface recommended? Can an exposed wooden deck or an epoxy chip seal wearing surface be considered?

top of the page

The Region does not support an exposed wooden deck for public safety reasons. Wooden decks are more slippery for pedestrians and cyclists and are not preferred for horse and buggies. Staff are not in support of a wooden deck for these potential liability and safety reasons. An epoxy chip seal wearing surface

will be considered as an alternative treatment to tar and chip during detailed design.

Will potential contractors be pre-qualified before being allowed to bid on the project? top of the page

Yes, the Region intends to pre-qualify potential Contractors bidding on the project.

To what time period, structurally and aesthetically, should the bridge ideally be restored? top of the page

The Region is not undertaking a historical restoration, the Region is conserving the bridge through rehabilitation and repair. The West Montrose Covered Bridge is an example of an evolved structure that has functioned as the builder intended to date. The beauty of this wooden structure and other historic bridges in Woolwich Township is that as structural components reach the end of their useful lives they can be repaired and replaced without a full-scale removal or demolition of the bridge. The Bridge has evolved through various repair and renewal projects. The ongoing repairs and replacements to the West Montrose Covered Bridge throughout its lifetime have been extremely well documented. However, determining the character defining elements of the bridge that should continue to be conserved was central to the recommendations of our heritage consultants, and those elements have been conserved as much as possible in the proposed rehabilitation alternative.

The Preferred Alternative C2 incorporates the conservation methodology of Ontario Heritage Toolkit's Eight Guiding Principles in the Conservation of Historic Properties and of Parks Canada's Standards and Guidelines for the Conservation of Historic Places in Canada. Alternative C2 may be considered a sympathetic conservation approach for the rehabilitation of the bridge that meets the requirements of the Canadian Highway Bridge Design Code.

Can the bridge be restored to the way it was initially constructed? top of the page

No. The original 1881 design of the bridge would not meet the Canadian Highway Bridge Code, even for modest traffic loads.

Where will the staging area be located during construction? top of the page

The work will require a staging area to allow for storage of materials and equipment, assembly of components, and a site trailer. Letson Park and/or Gole Park is proposed to be used for this purpose. These areas will be restored to original or better condition upon completion of the project. The existing oak tree at Letson Park will be protected during construction. Access to the mailboxes at Gole Park will be maintained.

The properties on the four corners of the bridge are privately owned. The bridge will need to be accessed via these properties during construction. The Region will contact the property owners to discuss this access.

What is the timeline for construction? top of the page

Construction is currently expected to start in the Spring of 2025 and be complete by Spring 2026.

What is the estimated cost of construction? top of the page

The draft 2024 - 2033 Transportation Capital Program contains a budget of $5,655,000 for this project. This is a high-level estimate and will be updated as detailed design proceeds. This project is being partially funded by the Investing in Canada Infrastructure Program with a 33.33% contribution from the provincial government and a 40% contribution from the federal government.

What are the next steps after this public consultation? top of the page

The preferred design will be brought forward to Regional Council for approval in early 2024. Following Council approval of the preferred design concept, the Environmental Study Report will be filed for a 30 day public review period. Detailed design will then proceed, and construction is expected to commence by Spring 2025 and be completed by Spring 2026.

What happens if we don't do this major rehabilitation? top of the page

If the major rehabilitation is not undertaken, the key structural systems will continue to deteriorate to the point where the bridge will no longer be able to safely carry even its own weight.

The bridge must undergo major rehabilitation if is to carry us through the current century.

Will I be able to use the bridge during construction? top of the page

Construction will require a full closure of the bridge to all motorized vehicles and horse-and-buggy traffic for up to one full year.

The Region will work with the successful Contractor to look for opportunities to make efforts to accommodate pedestrians and cyclists during construction, where possible. However, there will be critical phases where the bridge will be unavailable to pedestrians and cyclists.

Detour routes will be established and efforts will be made to make these routes as convenient and safe as possible for all road users.

More detailed information will be made available prior to construction, through letters to adjacent property owners, sign boards and postings to the Region's website and/or the Region's engagewr.ca platform.

Can the speed limit on Line 86 be reduced to 50km/h during construction? top of the page

The Region will monitor traffic conditions on Line 86 during construction and assess whether any changes to the posted speed limit are necessary.

Why was a service life of 50 years selected? top of the page

The current project recommendations do not include a wholesale replacement of the existing wood members. Recommendations have been made on the basis of the current bridge conditions and the design live load of 10 tonnes. The recommendations would not be different if the rehabilitation cycle were reduced to 25 years.

What experience does the Project Team have that is relevant to this project? top of the page

The Project Team is multi-disciplinary, consisting of recognized technical experts in bridge engineering, timber rehabilitation, construction engineering, cultural heritage preservation of structures, Environmental Assessments, value engineering, archeological and environmental impacts. This full complement of skills is critical to delivering a successful project.

Bridge Engineering

Bridge engineering will be performed by Doug Dixon and Associates, for the substructure design, and Entuitive, for the superstructure design.

Doug Dixon has more than 38 years of Bridge Engineering experience in the public and private sectors. Doug is a member of three Technical Subcommittees for the Canadian Highway Bridge Design Code (CHBDC) for the development of the CSA-S6 and has been since 2000. Doug is also one of the voting members of the CHBDC Technical committee.

Entuitive's Bridge Engineering team is led by Stephen Brown, P.Eng., and Andrew Lehan, P.Eng. Stephen Brown is a structural engineer with over 42 years of experience. He is known in the industry for successfully integrating constructability considerations into permanent bridge designs. Stephen has worked on many timber rehabilitation projects of heritage significance, including the strengthening of the roof trusses of the Ontario Legislature Building at Queen's Park and the stabilization of Daniel Stong's Grain Barn at the Black Creek Pioneer Village open-air museum. He was the recipient of an Ontario WoodWorks Award for his timber truss design at the Mount Pleasant Cemetery Visitation Centre Chapel. Andrew Lehan is a structural engineer with over 13 years of experience. He is the Vice-Chair of the Technical Subcommittee on Section 9 (Wood Structures) for the Canadian Highway Bridge Design Code. He was also a primary co-author of the Ontario Wood Bridge Reference Guide.

Entuitive, and Doug Dixon and Associates are qualified under a number of categories under the Ontario Ministry of Transportation's Registry, Appraisal, and Qualifications (RAQs) system. Qualification represents the highest degree of bridge engineering skill acknowledged by the Ministry.

Timber

David Moses is the Project Team's timber bridge expert. David is the founder of Moses Structural Engineers and holds a PhD in structural engineering specializing in timber from the University of British Columbia. David is a recognized leader, designer, teacher, researcher, writer and invited lecturer. He has over 25 years of experience in timber engineering and has been involved in hundreds of structural engineering projects across Canada and the United States, including the assessment and retrofit of numerous heritage timber structures like the CMHC buildings on Granville Island, the Alaska Ferries Terminal in Prince Rupert, and the Roger's Pass Monument reconstruction. David is a long-standing member of the Timber Frame Engineering Council of the Timber Framers Guild, which celebrates and promotes traditional timber framing techniques. David is also a member of the Technical Subcommittee on Section 9 (Wood Structures) for the Canadian Highway Bridge Design Code and the CSA O86 Engineering Design in Wood Technical Subcommittees on System Design and Connections. He has received numerous Ontario WoodWorks awards including the prestigious Wood Advocate and Wood Champion awards. He was also a primary co-author of the Ontario Wood Bridge Reference Guide. David is very familiar with the West Montrose Covered Bridge, having performed the most recent detailed timber condition assessment for the bridge in 2017.

Cultural Heritage

Preserving the heritage of the West Montrose Covered Bridge is of paramount importance to the team. The Project Team includes nationally recognized senior cultural heritage experts, Richard Unterman and Wendy Shearer, who are providing support and direction for best practices of the heritage restoration. These experts are focusing on best practices to maintain the working timber trusses. Best practices in heritage conservation require that alterations or additions to a recognized heritage resource be made so that the character-defining elements of tangible and intangible heritage value are safeguarded and integrated in any preferred solution.

Richard Unterman has over 40 years of professional experience in the cultural heritage landscape and built heritage resource field, undertaking projects for both private and public sector clients. He is one of the founding members of the Canadian Association of Heritage Professionals. Richard's work as Principal of Unterman McPhail Associates (UMA) has contributed to a better understanding and recognition of cultural heritage resources through the many documents he has produced, including: heritage impact statements, cultural heritage evaluation reports, statements of cultural heritage value or interest, heritage inventories as well as cultural heritage assessment reports. UMA will be completing the Cultural Heritage Evaluation Report and Conservation Plan for the West Montrose Covered Bridge.

Wendy Shearer is also supporting the Project Team as a cultural heritage expert. She is a member of the College of Fellows of the Canadian Society of Landscape Architects and a longstanding member of the Canadian Association of Heritage Professionals. She was the first recipient of the Lifetime Achievement Award from the Canadian Association of Heritage Professionals and has subsequently worked on projects in Yukon, Nova Scotia and Ontario that have received national, provincial, and local heritage awards. She was an appointed member of the Executive Committee of the Board of Directors of the Ontario Heritage Trust, Ontario's heritage agency. For 10 years, she taught a course at the University of Victoria that focused on applying the theory of heritage conservation to a range of sites. Wendy has been involved in heritage planning for more than 20 National Historic Sites as well as numerous sites of provincial and local heritage significance. She has been involved with several historic bridge projects including the crossing of the Rideau Canal in Ottawa within the World Heritage Site. She was invited to participate as a heritage professional with the preparation of the National Standards and Guidelines for the Conservation of Historic Places in Canada by Parks Canada. This document includes a process to be used in planning for varied heritage resources and is now adopted by all provinces and most municipalities as a best practice in heritage conservation.

Environmental Assessments and Value Engineering

BTE brings project management, community consultation, environmental assessment and value engineering expertise to the team. BTE's community consultation expertise is particularly important to the West Montrose Covered Bridge project given the significant community interest. Steve Taylor, P.Eng., of BTE has successfully delivered over 1500 roadway projects and 100 bridge projects. He uses the Multi-Attribute Trade-Off System (MATS) to measure the performance and environmental effects of competing alternatives and to quantify/rank the various alternatives. This approach is important to the project because of the many competing criteria and alternatives, such as the need to strengthen to bridge while using techniques and materials that fit within the heritage fabric of the structure.

Environmental

Drainage

Sanchez Engineering will be responsible for the hydraulic analysis to estimate design floods and to complete the hydraulic design of the bridge. The firm has experience with the hydraulic design of structures varying in size from short span reinforced concrete and metal culverts to long span and multi-span, multi-lane bridges. They have prepared a number of of hydrology reports for approval of bridges, including design and recommendations of structure span, skew, vertical clearance, lateral loads and scour protection.

Natural Heritage

EcoTec Environmental Consultants Inc. has 20 years of experience providing environmental services considering the protection, restoration, and enhancement of the natural environment. Their expertise in the fields of aquatic biology, terrestrial ecology, fluvial geomorphology, and ecosystem restoration is valuable to the Project Team. Their knowledge and understanding of the natural environmental and environmental legislation ensures comprehensive and economic solutions to any environmental challenge. EcoTec will be supporting the Project Team with co-ordinating approvals from Fisheries and Oceans Canada and the Ministry of the Environment, Conservation and Parks.

Archeological

ASI is one of the largest archeological consulting firms in Ontario, with over 30 years of experience in conducting archeological studies and Indigenous engagement. ASI has completed the Stage 1 Archeological Assessment for this project and has provided support with First Nations' consultation.

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Upsizing the floor and needle beams as proposed would add approximately 3 tonnes to the dead load of the bridge. Has this extra load been factored into the rest of the proposed design?

The additional weight will not have a significant effect on the rehabilitation design.

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Instead of height restriction bars, can solar powered horizontal laser sensors be located further from the bridge, with the sensors linked to a digital sign that would flash when tripped by a vehicle over a determined height?

This approach is not preferred because it is considered another advanced form of signage, providing less assurance that the historic structure will be protected in comparison to a height restriction bar, and would not physically stop an oversized vehicle from proceeding through the bridge.

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Will the view to and from the bridge be preserved?

The Project Team has revised the Preferred Alternative to eliminate the need for the height restriction bar on the south approach by narrowing the road to make it difficult for oversized vehicles to make the turn onto the bridge. The proposed height restriction bar has been moved as far away from the bridge as possible on the north approach to avoid impacts to the view of the bridge. A drawing of this revised concept can be found at this link.

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Does the lower chord on the west side need to be replaced?

The west bottom chord is recommended for replacement. Early onset decay was noted at several locations and its condition is expected to worsen from fair to poor condition before conclusion of the 50-year rehabilitation design life. Moreover, the existing Eastern Hemlock material comprising the west bottom chord is not strong enough to resist the applied tensile demand resulting from the 10-tonne design live load.

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Has splicing the floor beams been considered?

The floor and needle beams are recommended for replacement due to their condition. These items have been replaced over time and are not original to the bridge. Also, splicing the floor beams would alter the look of the bridge from the side view and underneath, which is not desirable.

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Would emergency vehicles be allowed to cross the bridge if necessary?

The proposed oversized vehicle restrictions would not permit emergency vehicles to use the bridge. It has been confirmed that emergency vehicles do not currently use the bridge as part of their route.

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Can the interior diagonals be replaced instead of reinforced?

Reinforcement is proposed instead of replacement, where feasible, because of the desire to maintain as much of the original wood as possible. This approach is recommended in both Federal and Provincial Standards and Guidelines for the Conservation of Historic Places.

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