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).

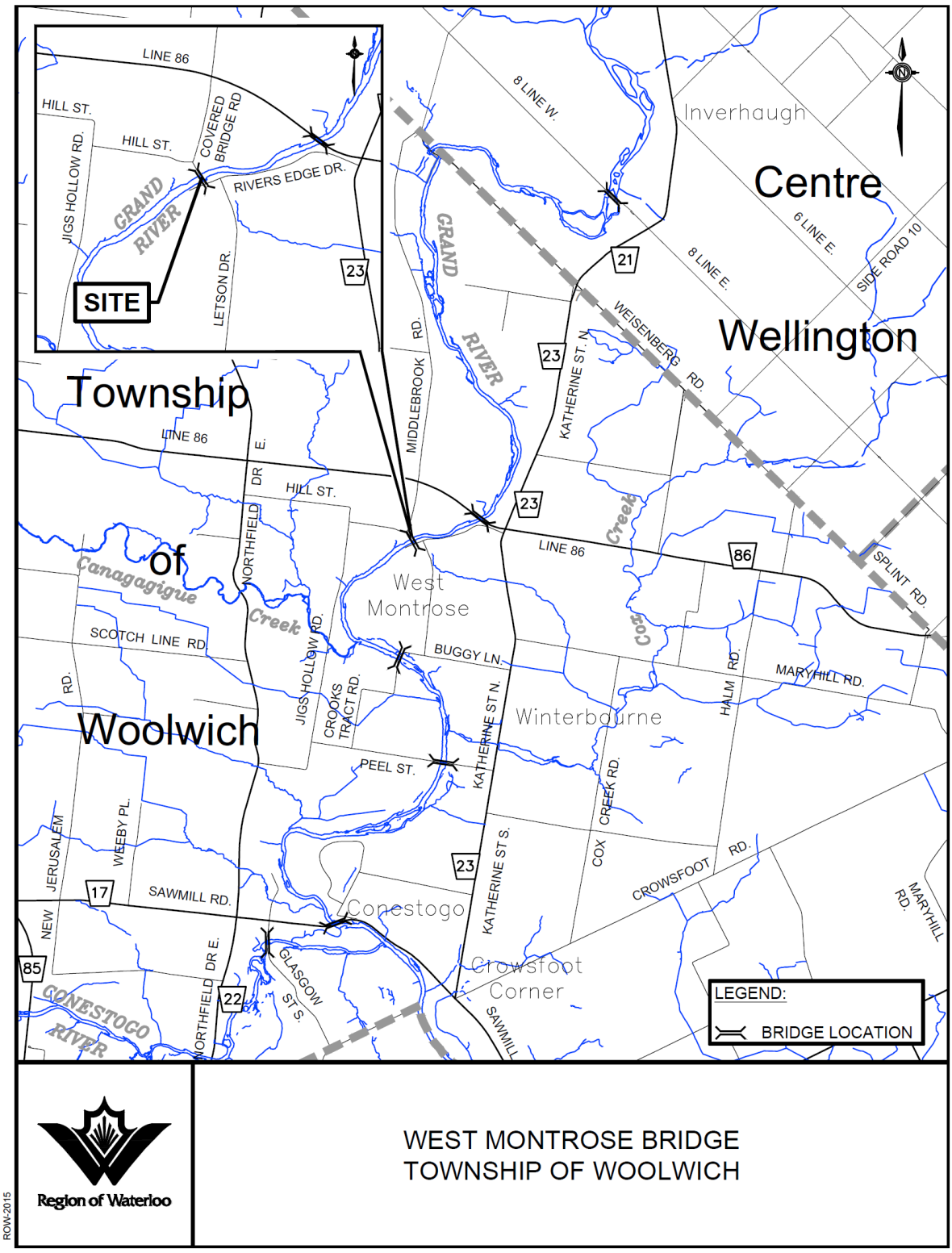
Where: Covered Bridge Road in the Township of Woolwich.

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
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MiPinto@regionofwaterloo.ca

KEY PLAN


LINE 86
HILL ST.
HILL ST.
COVERED BRIDGE RD
JIGS HOLLOW RD.
GRAND RIVER
RIVERS EDGE DR.
SITE
LETSON DR.
23
8 LINE W.
Inverhaugh
Centre
6 LINE E.
SIDE ROAD 10
8 LINE E.
21
WEISENBERG RD.
Wellington
KATHERINE ST. N.
MIDDLEBROOK RD.
GRAND RIVER
Township
LINE 86
HILL ST.
NORTHFIELD DR E.
of
Canagagigue Creek
West Montrose
Cox Creek
LINE 86
86
SPLINT RD.
SCOTCH LINE RD
BUGGY LN.
JIGS HOLLOW RD.
CROOKS TRACT RD.
Woolwich
Winterbourne
MARYHILL RD.
HALM RD.
PEEL ST.
KATHERINE ST N.
CREEK RD.
JERUSALEM
WEEBY PL.
NEW
17
SAWMILL RD.
Conestogo
KATHERINE ST S.
COX
CROWSFOOT RD.
MARYHILL RD.
85
CONESTOGO RIVER
NORTHFIELD DR E.
22
GLASGOW ST S.
Crowsfoot Corner
SAWMILL
LEGEND:
BRIDGE LOCATION
Region of Waterloo
ROW-2015
WEST MONTROSE BRIDGE
TOWNSHIP OF WOOLWICH

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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.

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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

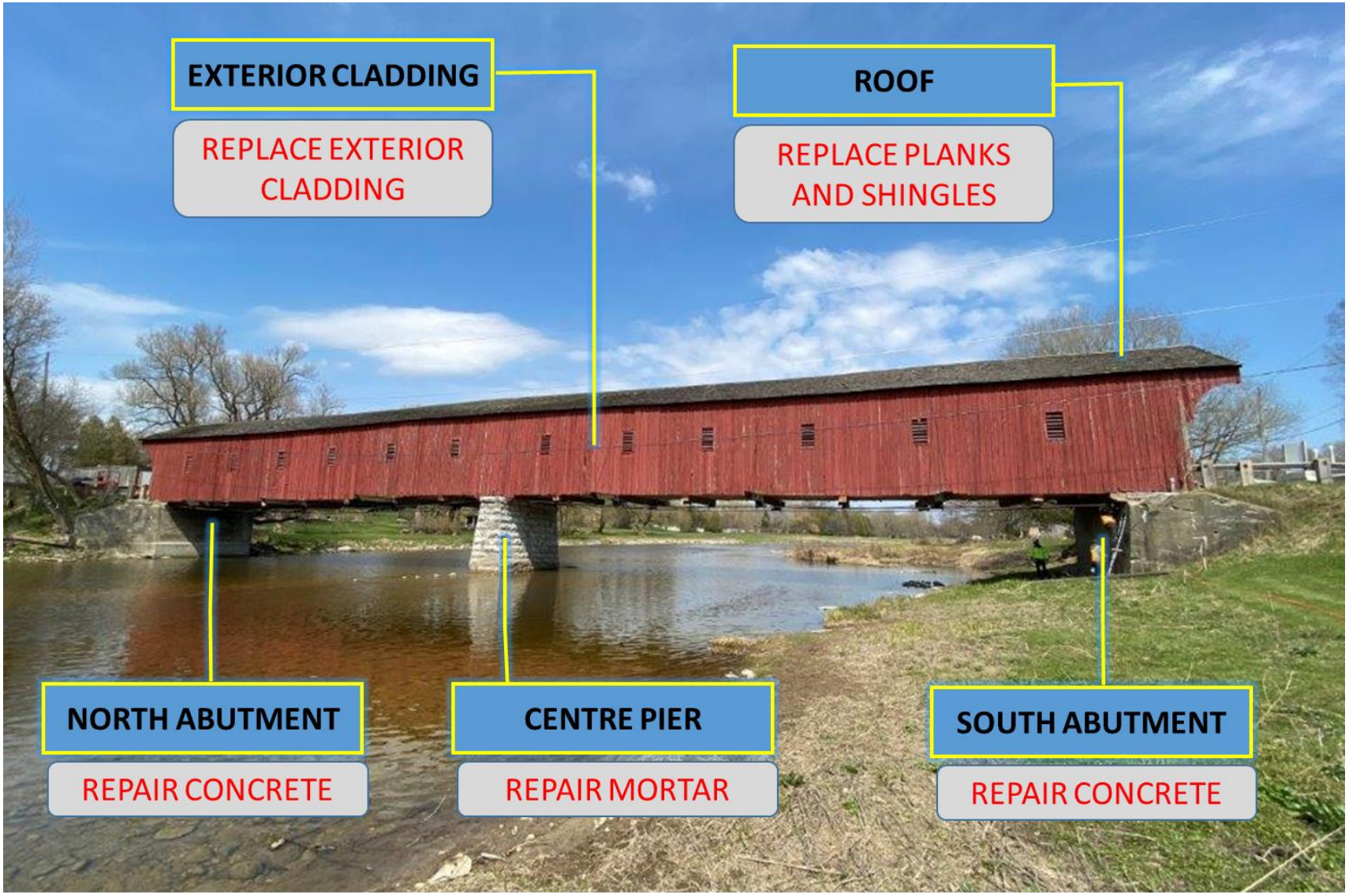


Figure B1: Elevation View – Bridge Components and Proposed Rehabilitation

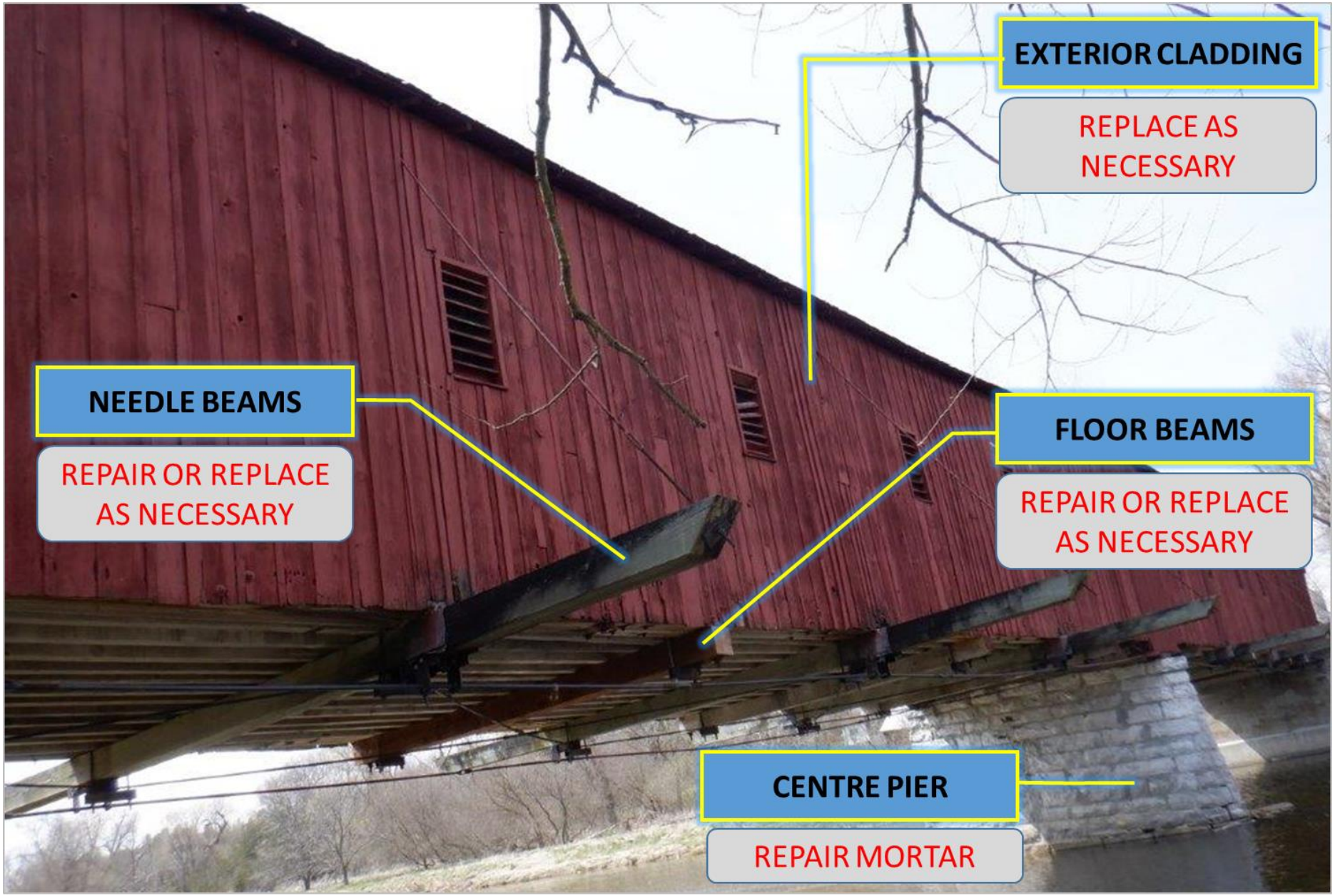


Figure B2: Exterior View – Bridge Components and Proposed Rehabilitation

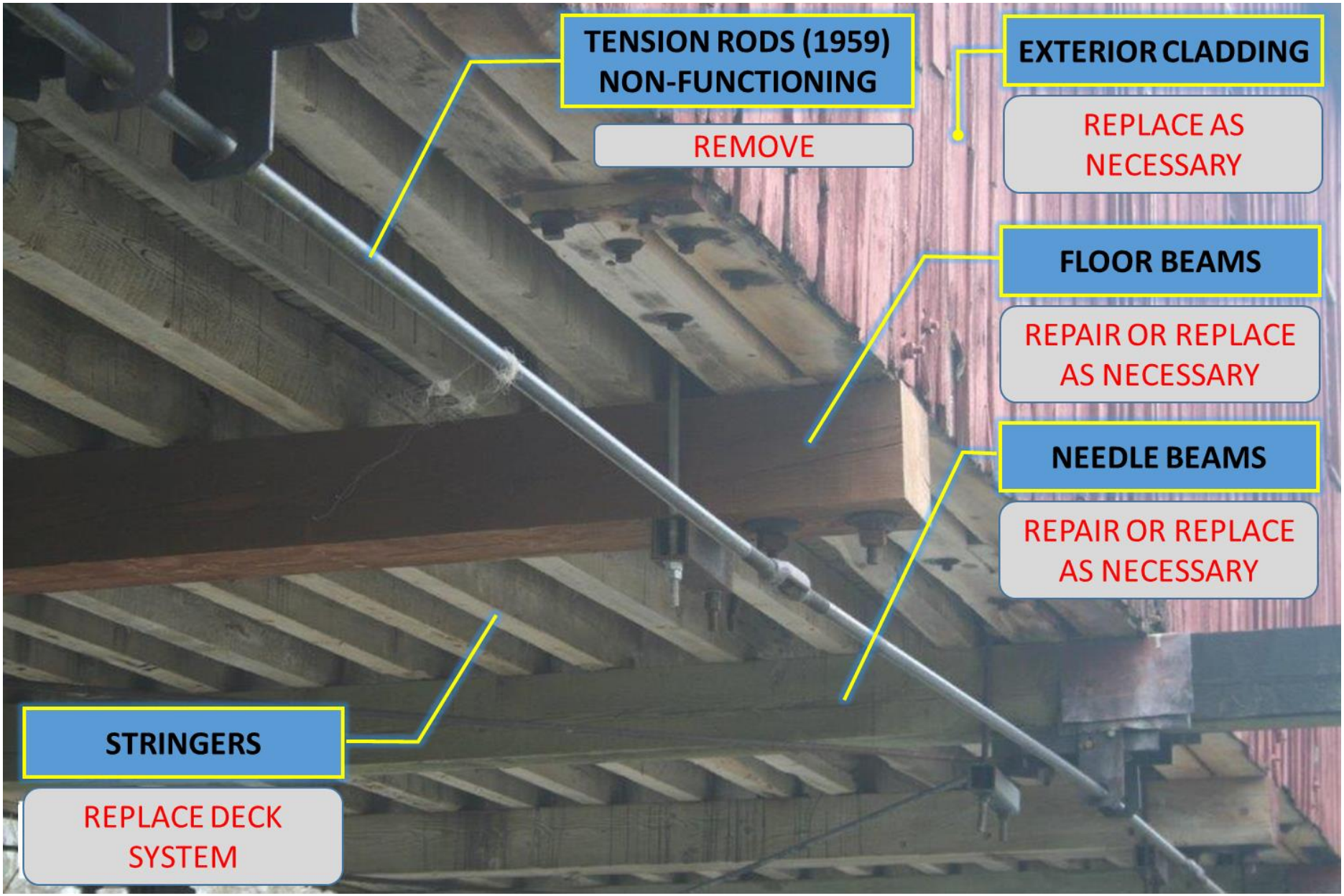


Figure B3: Exterior View – Bridge Components and Proposed Rehabilitation

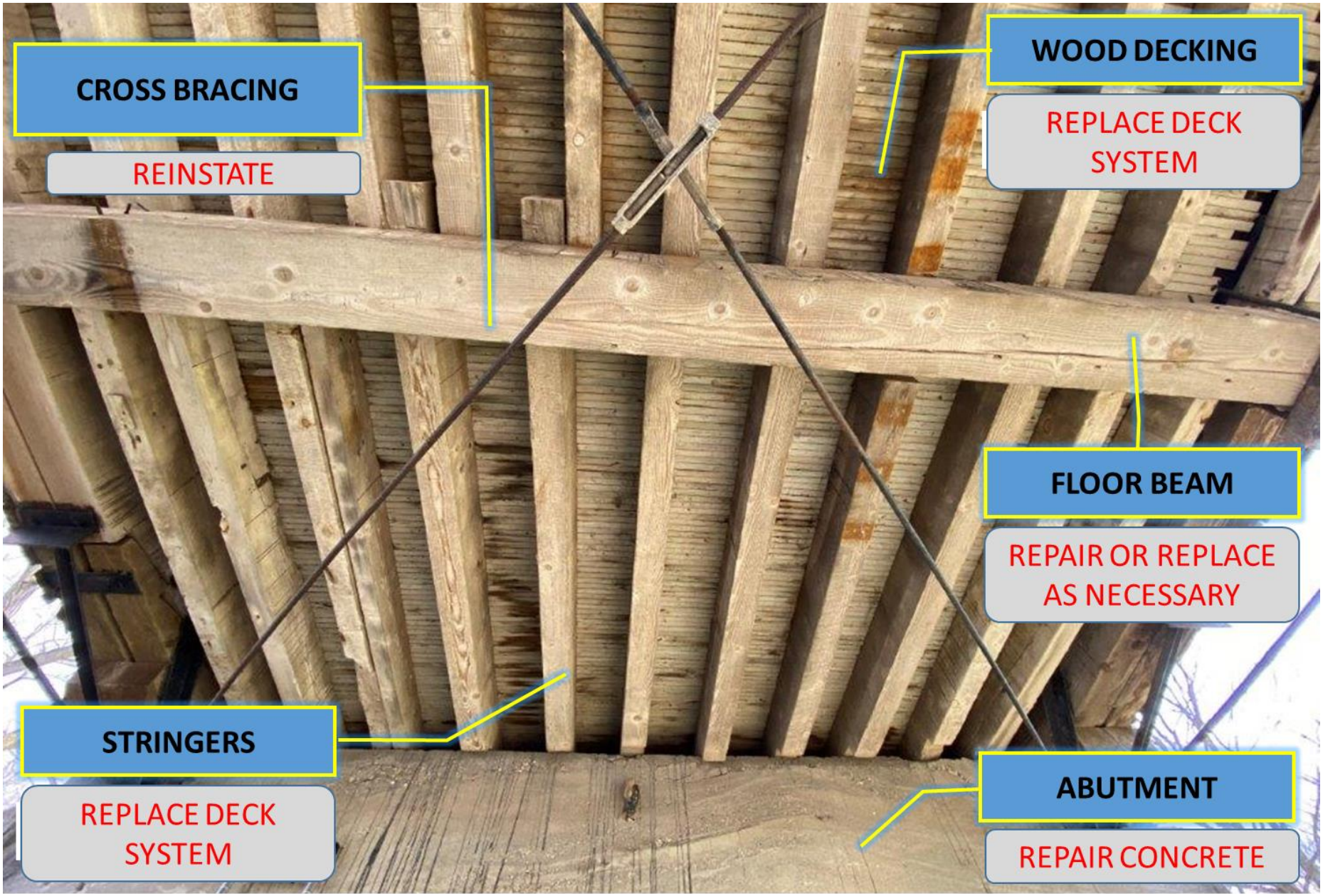


Figure B4: Underside View – Bridge Components and Proposed Rehabilitation

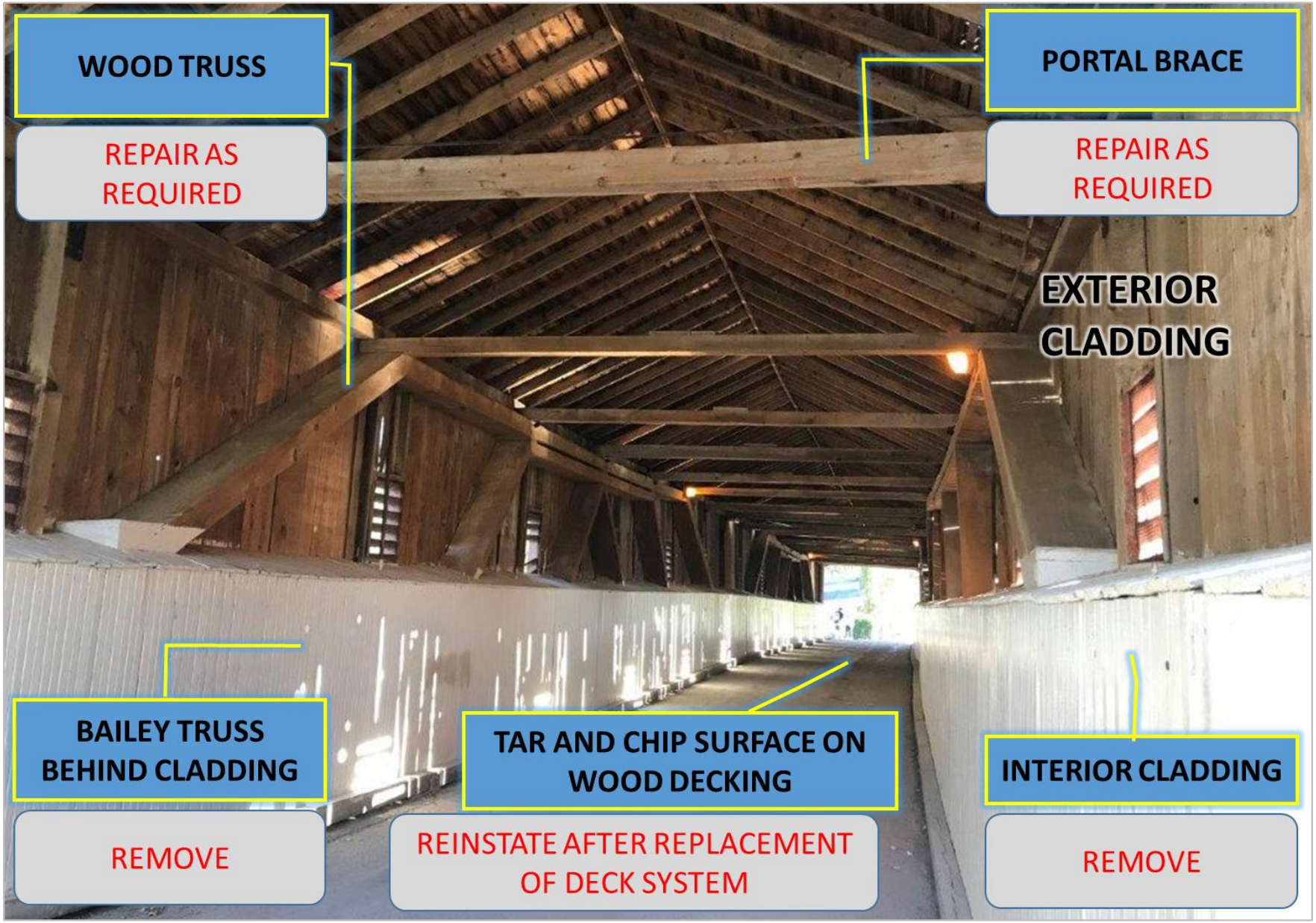


Figure B5: Interior View – Bridge Components and Proposed Rehabilitation

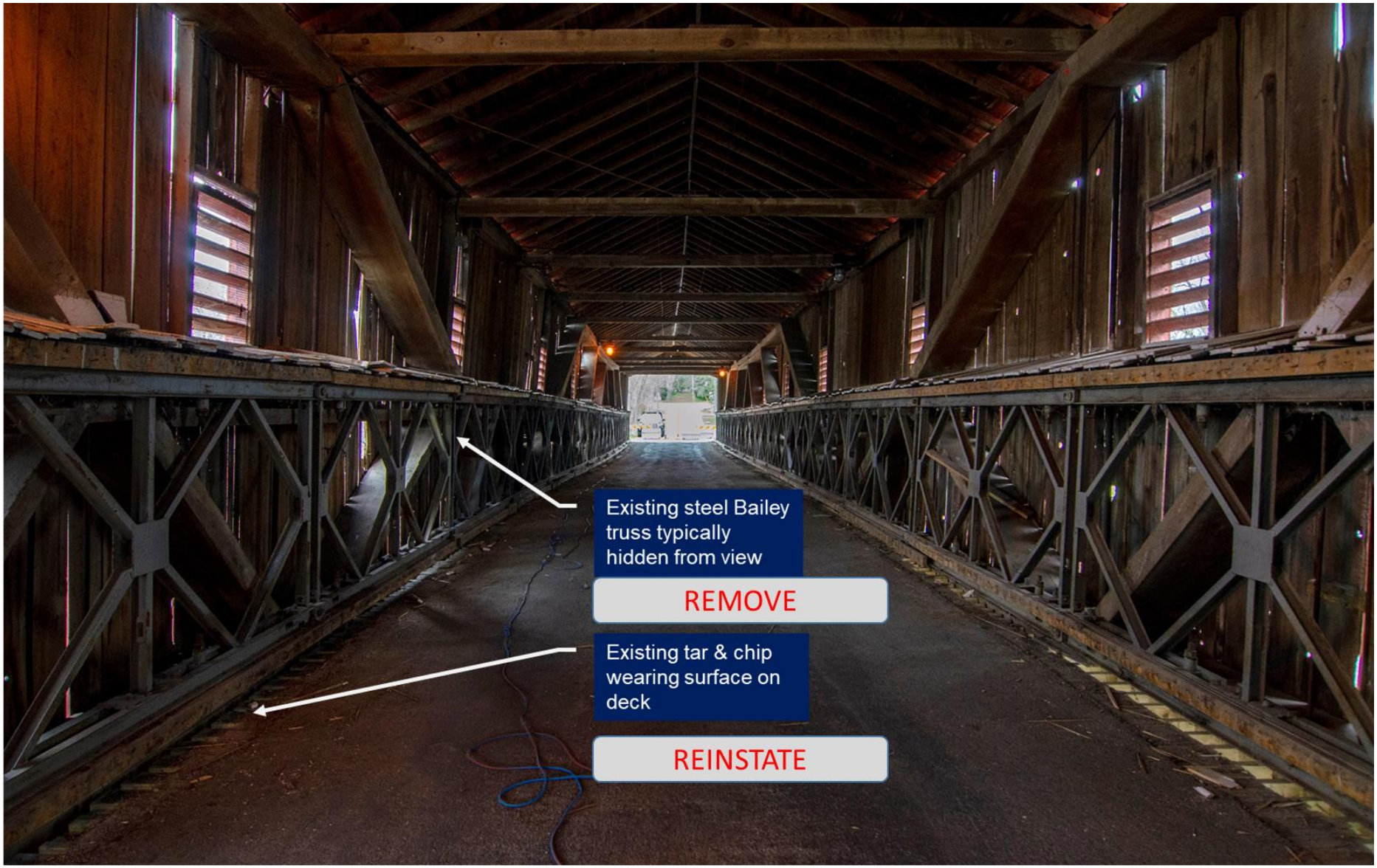


Figure B6: Interior View of Truss Systems – Existing – Interior Cladding Removed

APPENDIX C – REHABILITATION ALTERNATIVES

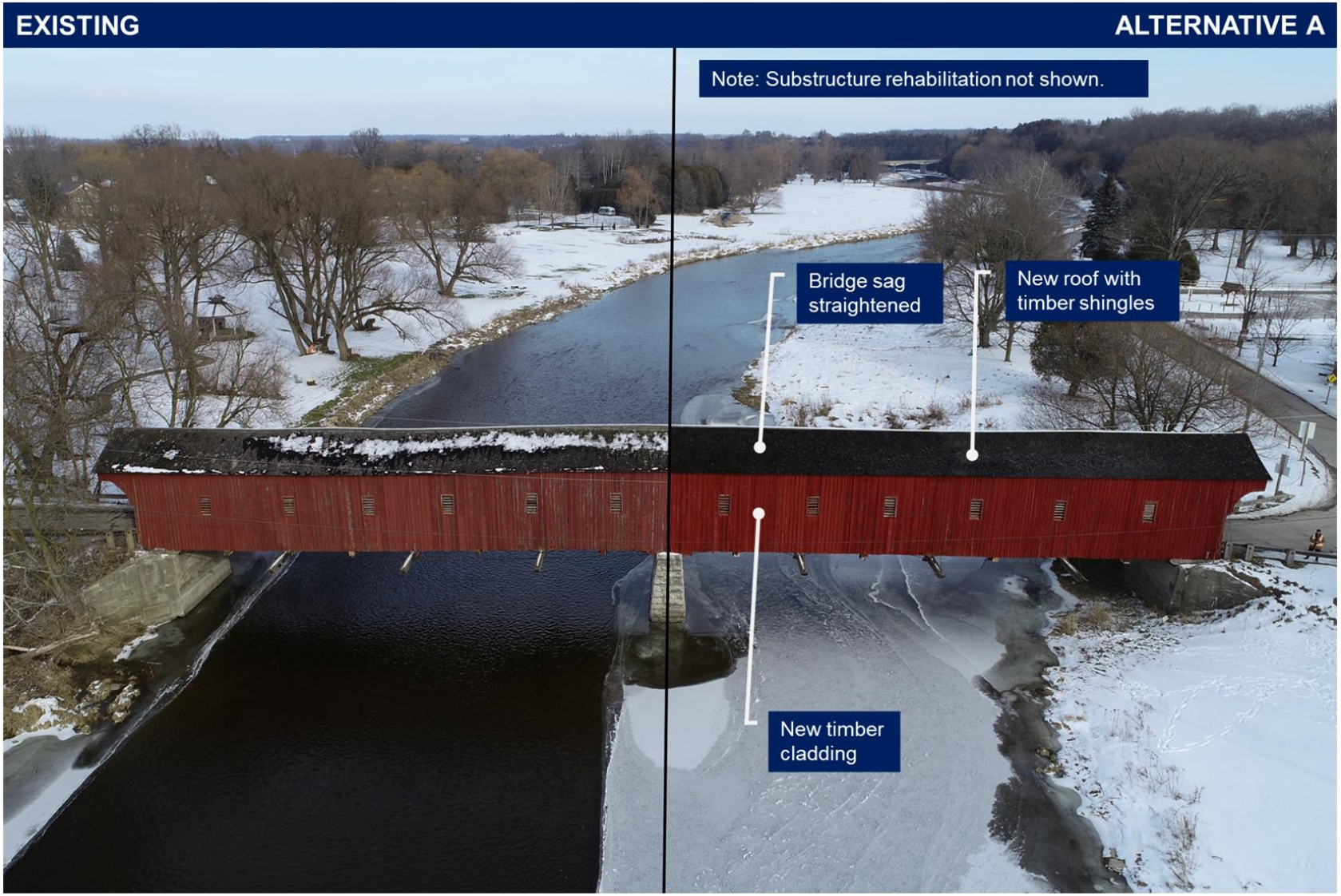


Figure C1: Elevation View – Existing and Alternative A (Steel Girder Reinforcement)

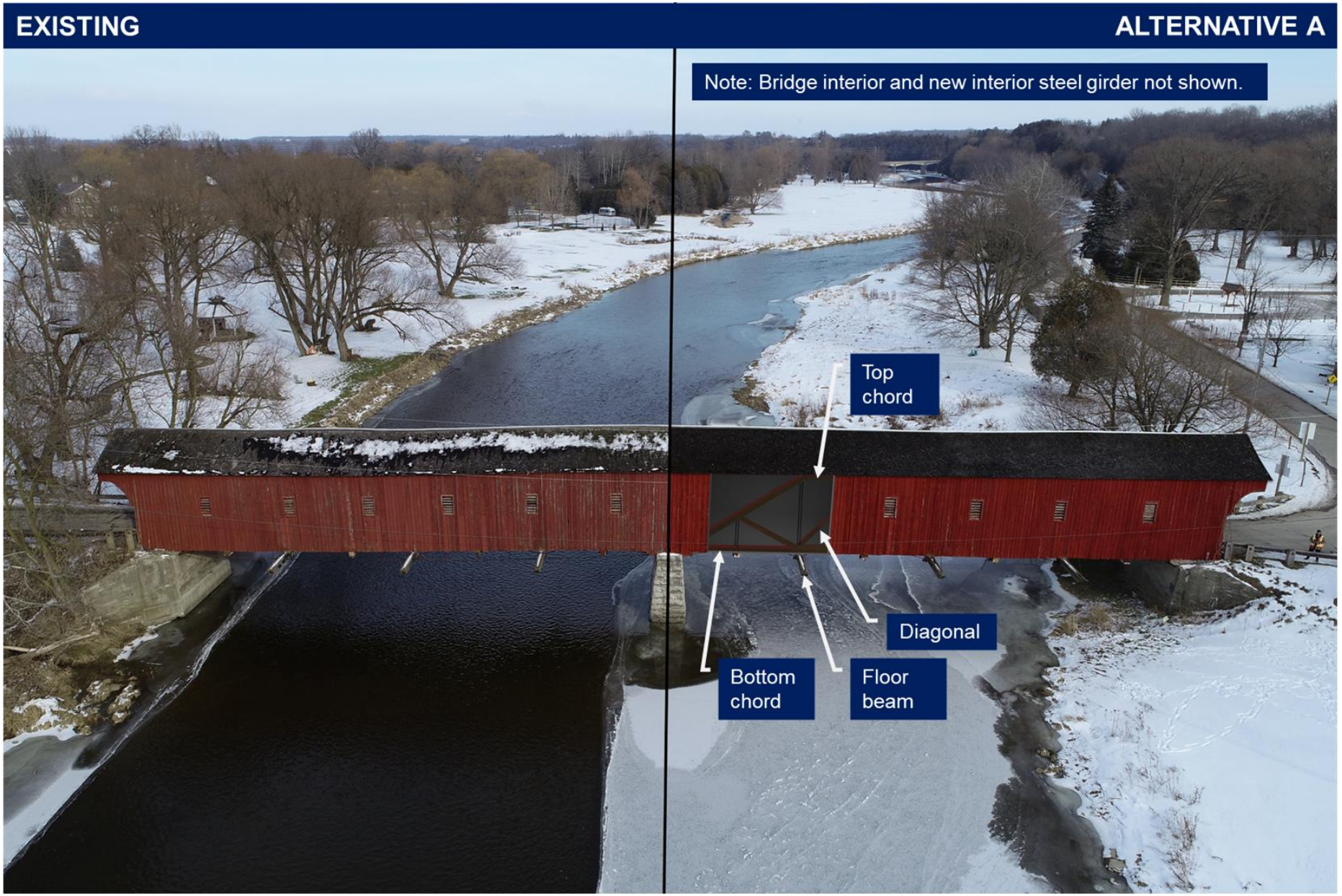


Figure C2: Elevation View – Existing and Alternative A (Steel Girder Reinforcement)



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

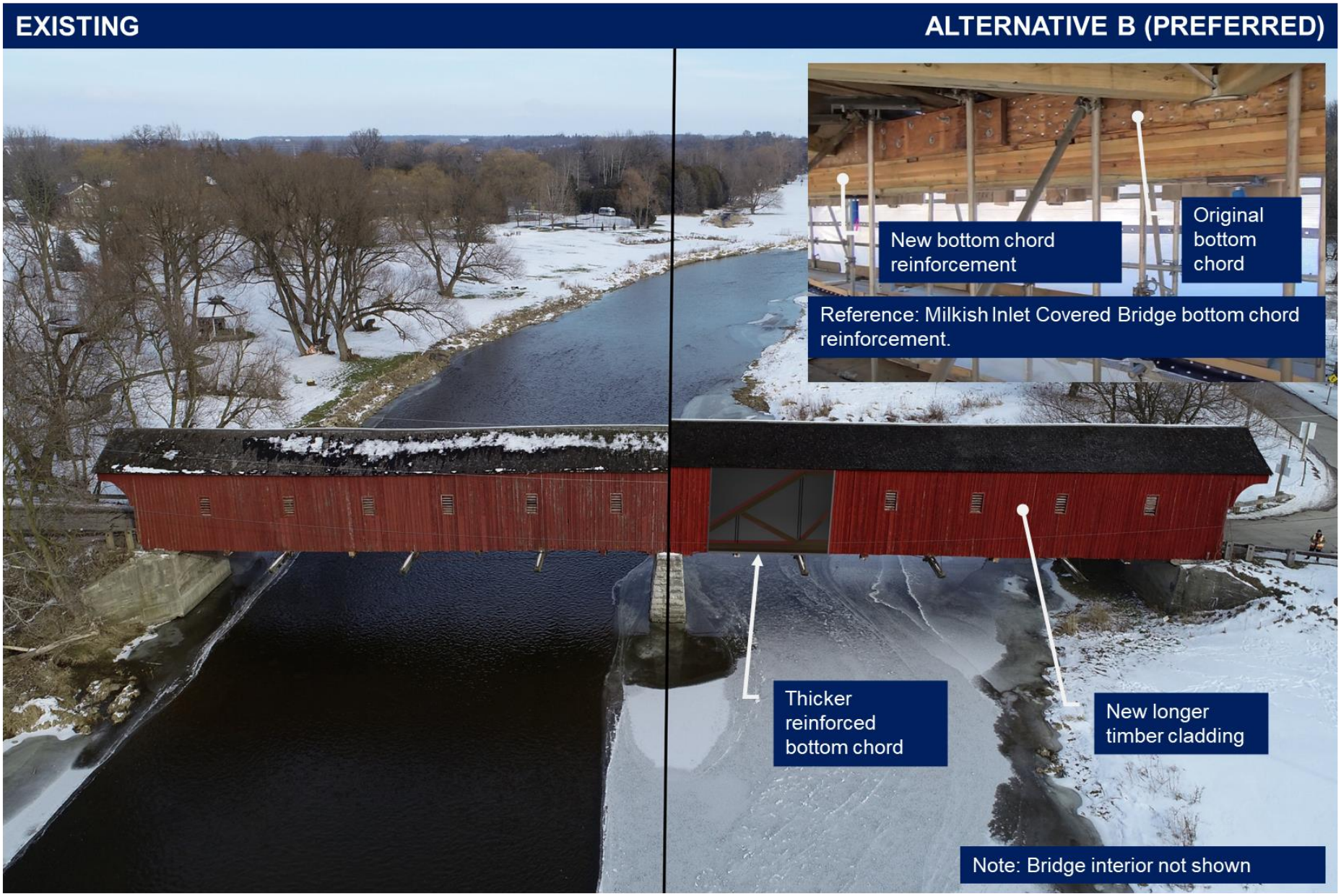


Figure C4: Elevation View – Existing and Alternative B (Timber Truss Reinforcement)

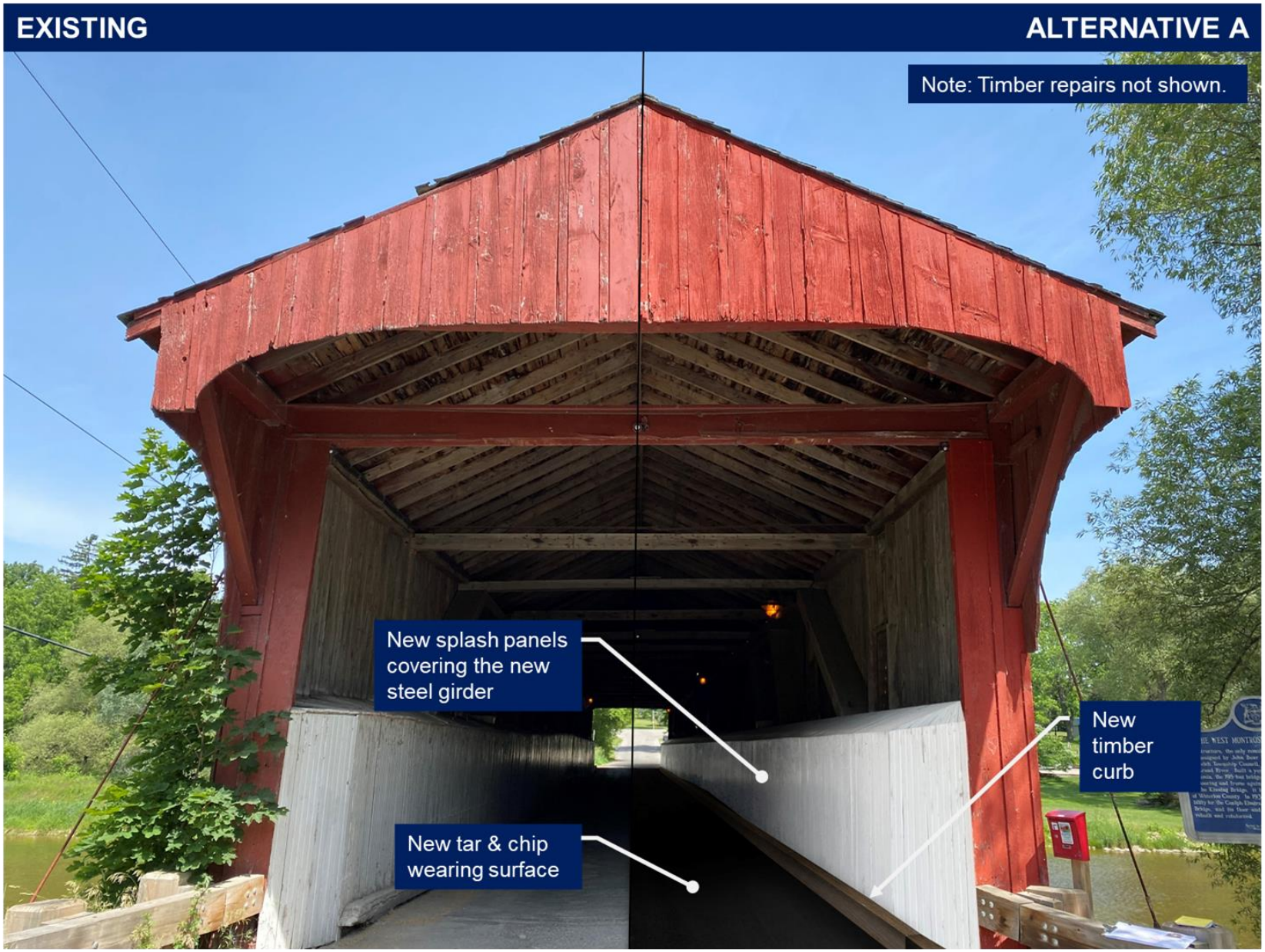


Figure C5: Front View – Existing and Alternative A (Steel Girder Reinforcement)



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

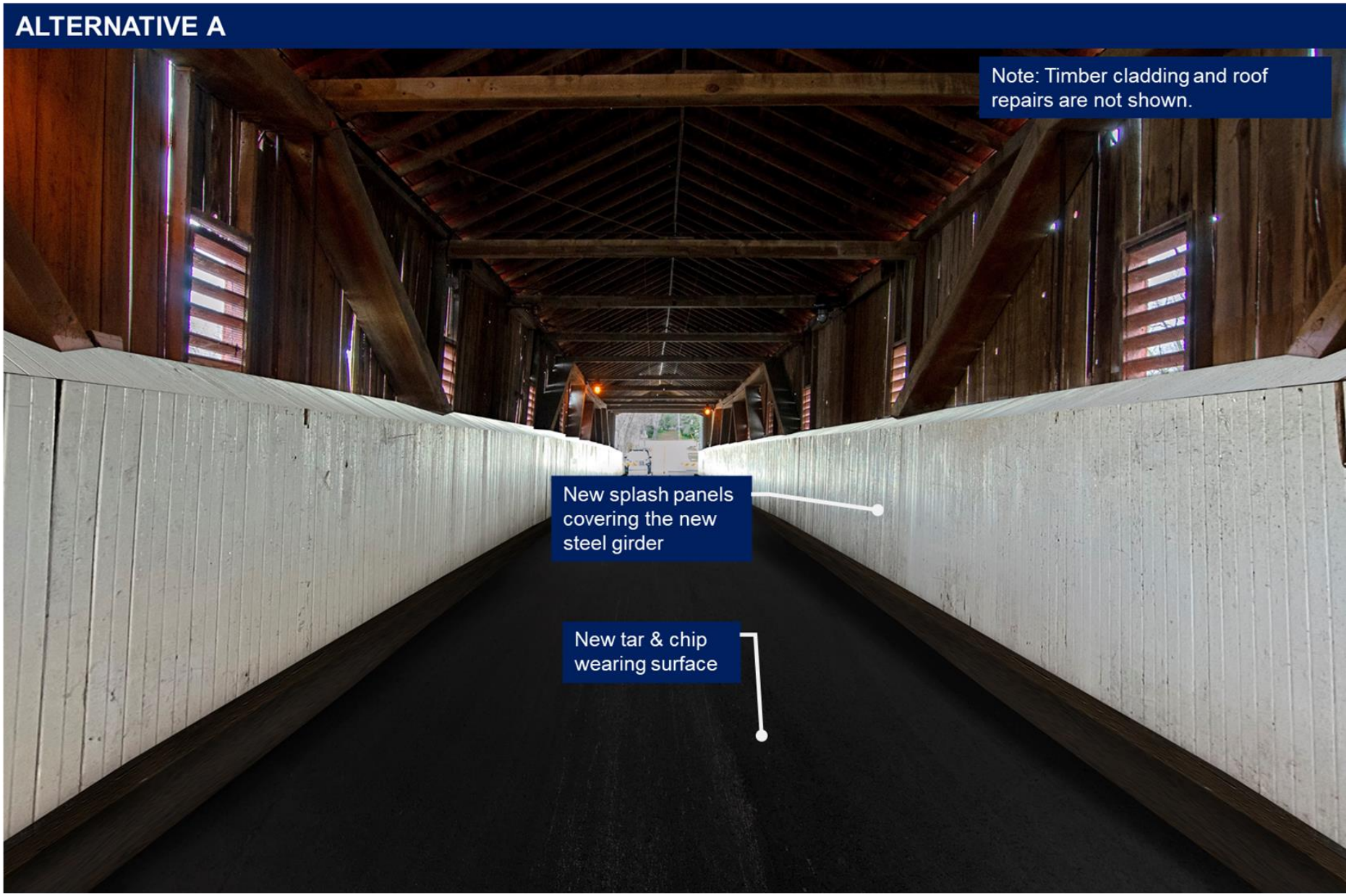


Figure C7: Interior View – Alternative A (Steel Girder Reinforcement)



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

APPENDIX D –DECK REPLACEMENT OPTIONS

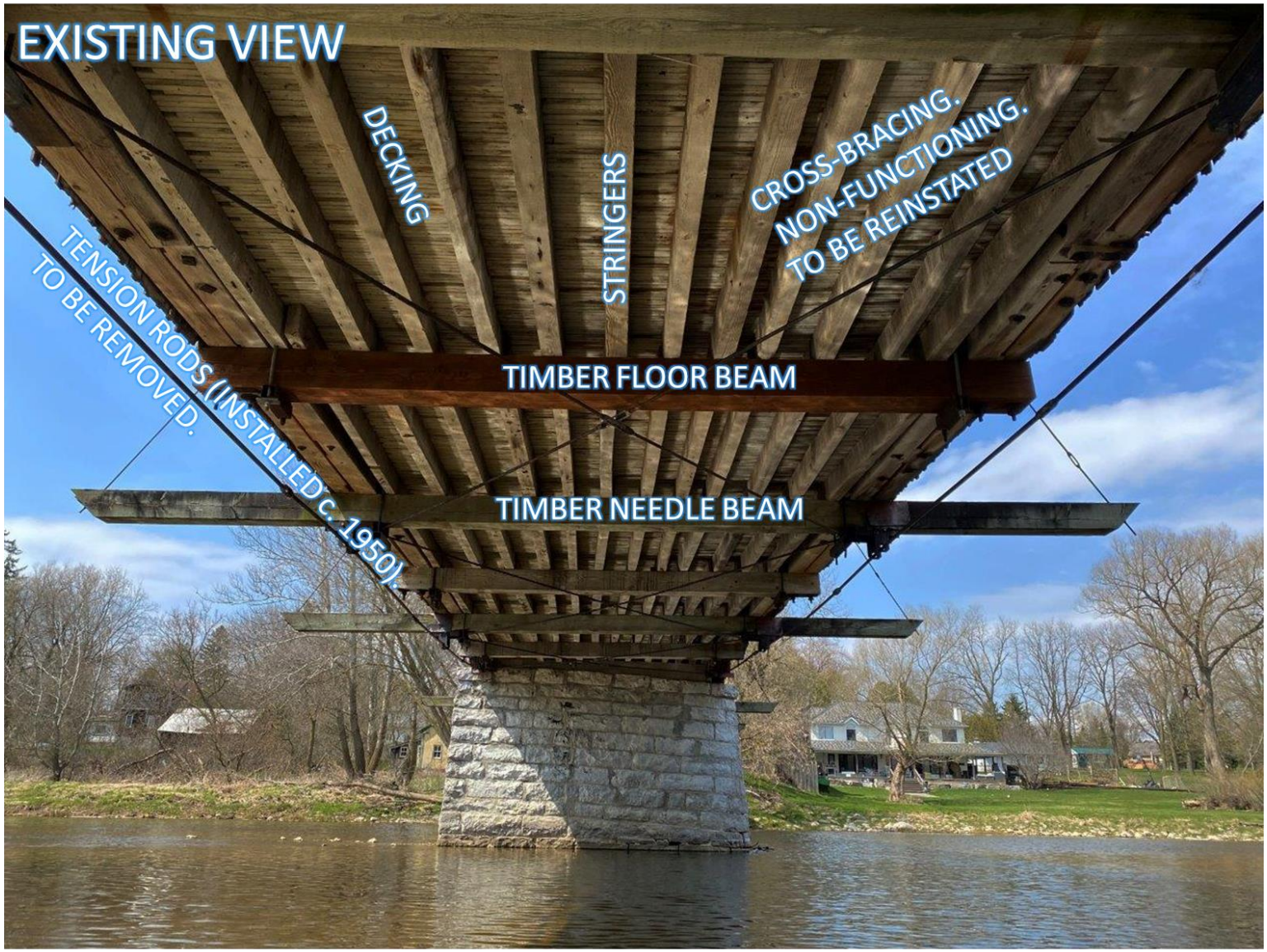
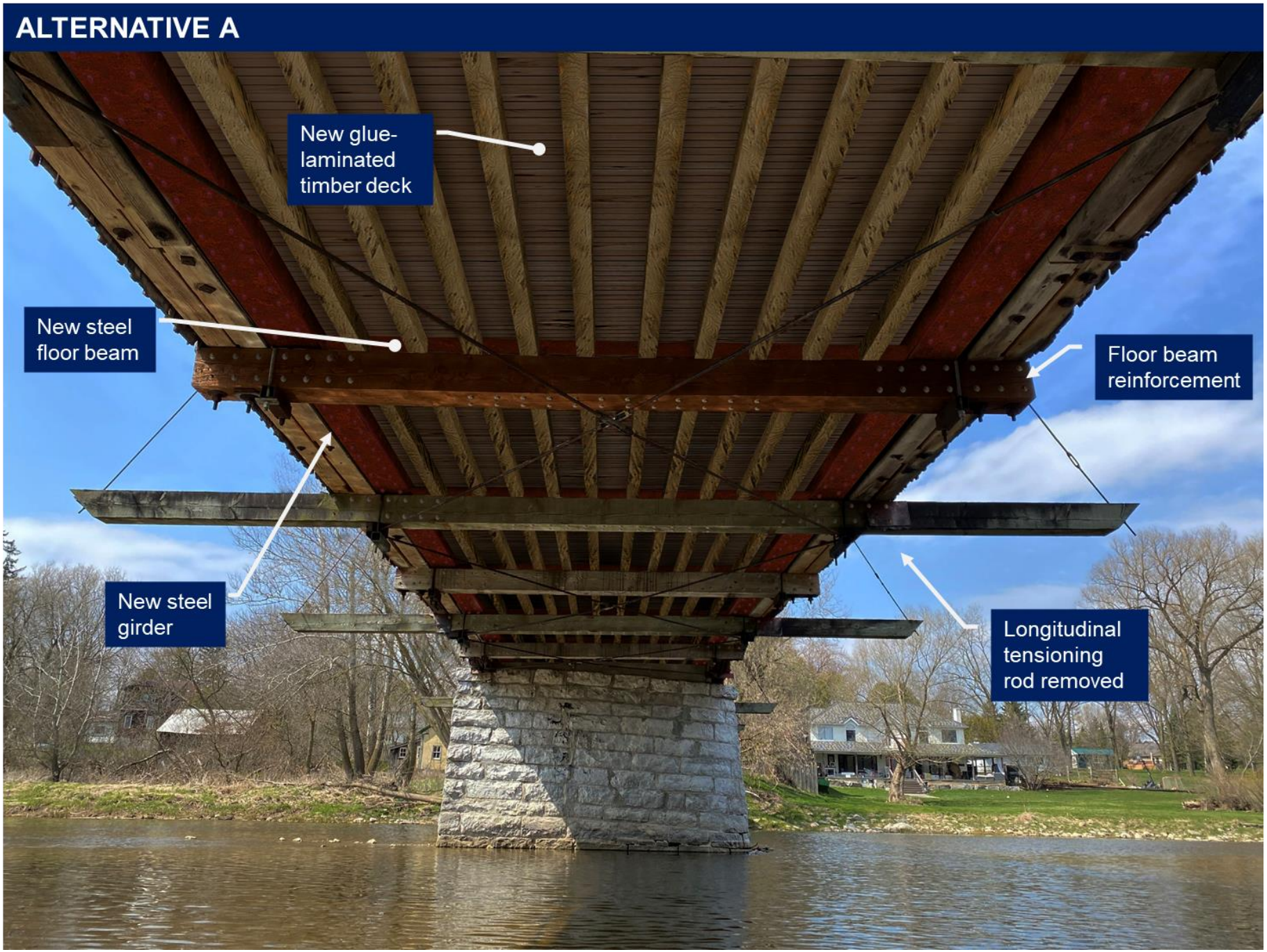
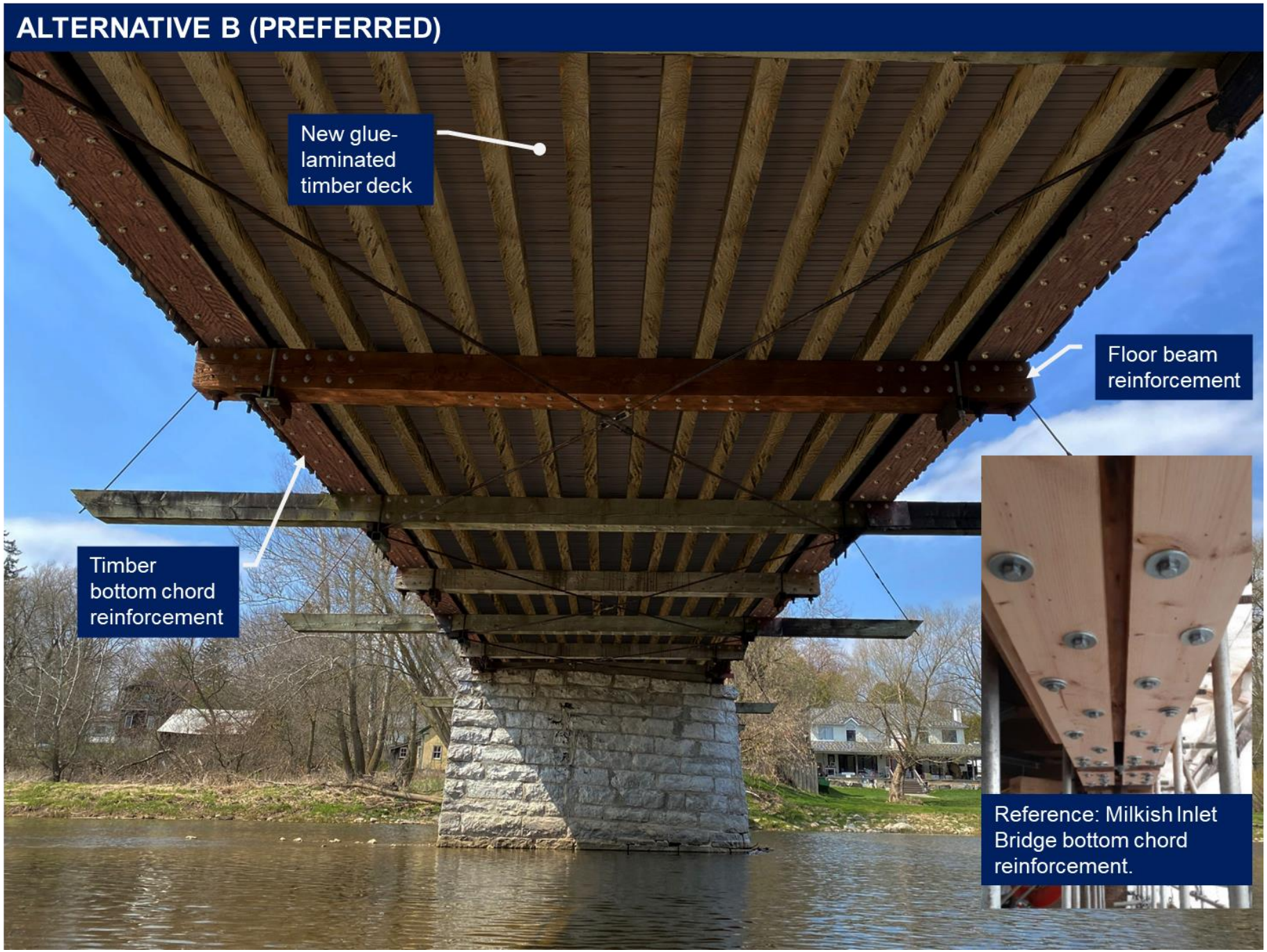


Figure D1: Under-side View – Existing


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

