

Appendix 'T' – PIC #3 Materials



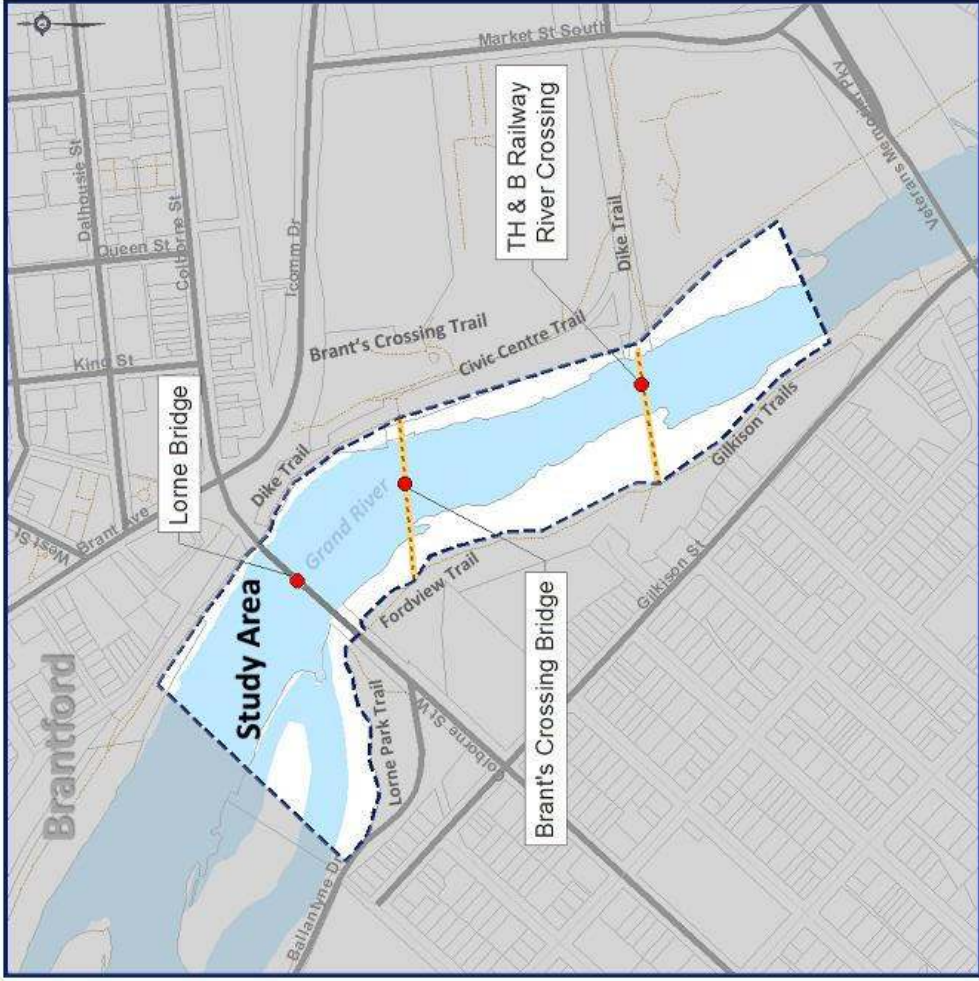


CITY OF BRANTFORD

THREE GRAND RIVER CROSSINGS MUNICIPAL CLASS EA

Virtual Public Information Centre October 2021

Project Overview and Background



The City of Brantford is conducting a Municipal Class Environmental Assessment (MCEA) to review alternatives for three bridges over the Grand River, including the Lorne Bridge, Brant's Crossing Bridge and the TH&B Crossing Bridge.

The purpose of this Virtual Public Information Centre (PIC) is to review design alternatives for the recommended solution that was presented in PIC #2 and offer an opportunity for interested parties to review and provide comments to the Project Team.

Project Overview and Background

Points of Contact

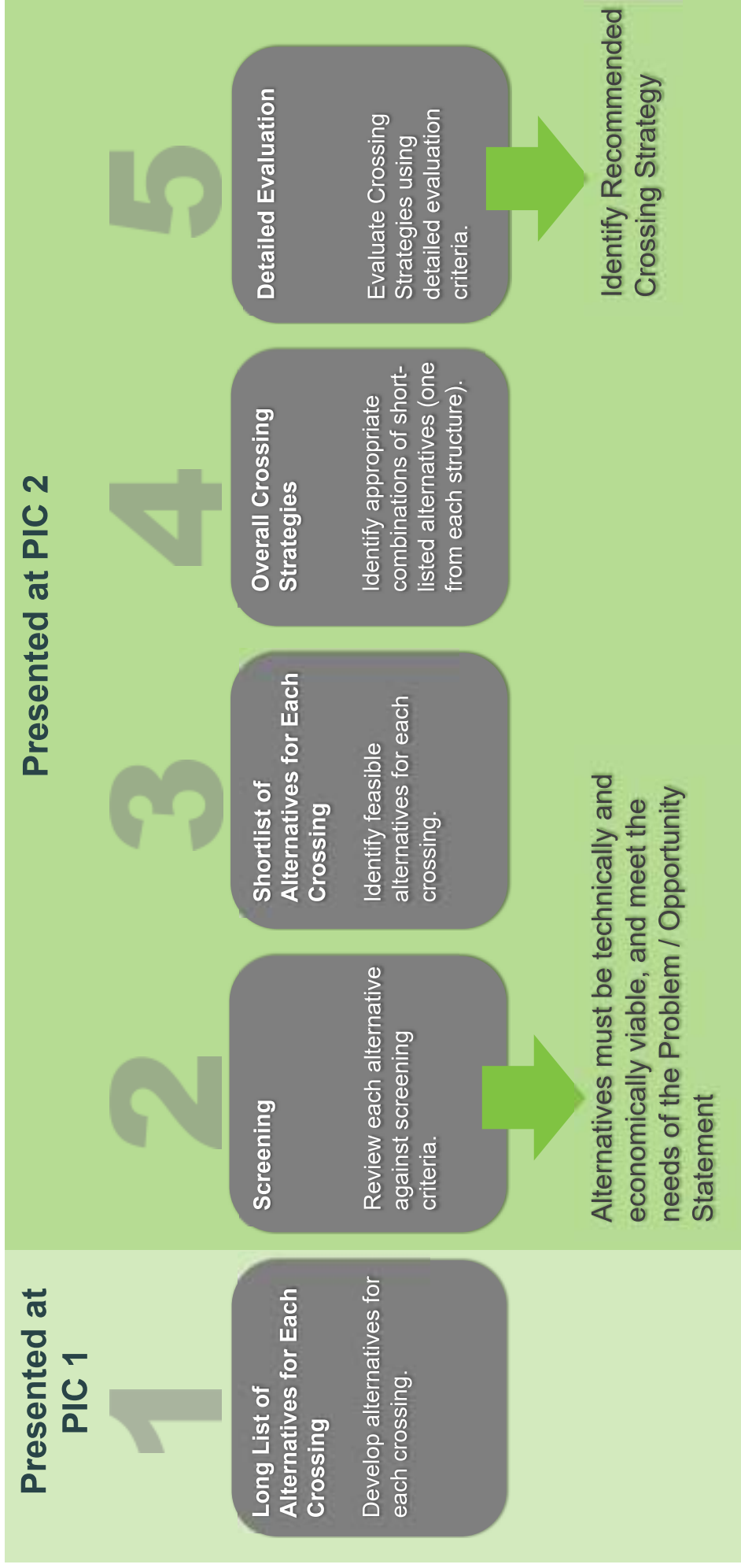
<input checked="" type="checkbox"/> 1)	Notice of Study Commencement	March 5, 2020
<input checked="" type="checkbox"/> 2)	Public Information Centre #1	May-July, 2020
<input checked="" type="checkbox"/> 3)	Public Information Centre #2	April 2021
<input checked="" type="checkbox"/> 4)	Notice of Class EA Schedule Change	October 7, 2021
5)	Public Information Centre #3	October 2021
6)	Notice of Study Completion	Winter 2021/2022

For information from the first two PIC's please visit:

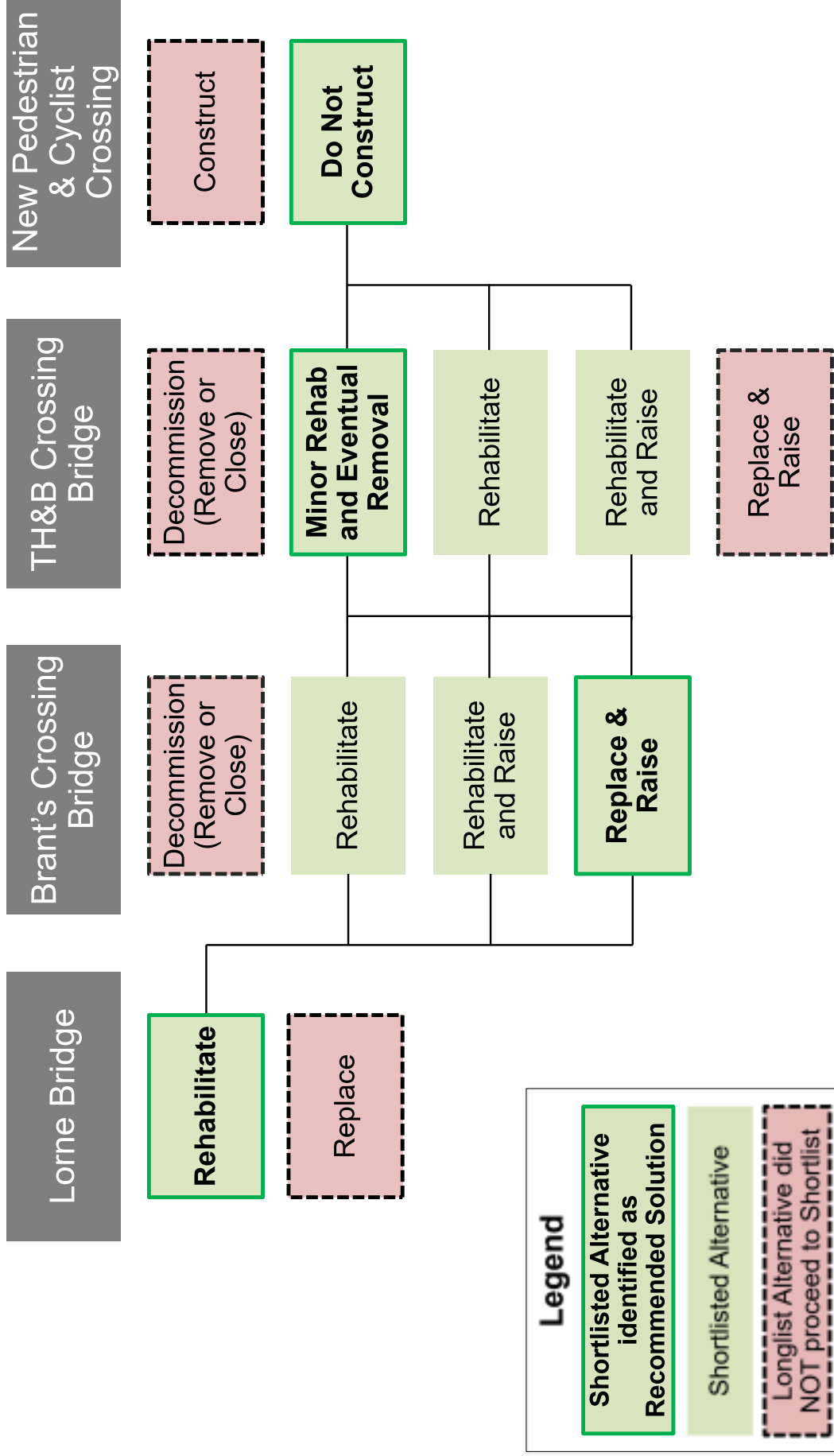
www.brantford.ca/ThreeGrandRiverCrossings

Recap of Public Information Centre #2

Evaluation Process



Recap of Public Information Centre #2



Legend

- Shortlisted Alternative identified as Recommended Solution
- Shortlisted Alternative
- Longlist Alternative did NOT proceed to Shortlist



Recommendations from PIC #2

LORNE BRIDGE

Recommended Solution: Rehabilitation



- Rehabilitate to maintain function as a vehicular crossing with sidewalks on each side.
- Rehabilitation would include concrete repairs through the structure, with the outward appearance of the structure remaining the same.
- Removal of 30 tonne winter load limit.

BRANT'S CROSSING BRIDGE

Recommended Solution: Replace and Raise



- Existing steel superstructure replaced with a new superstructure to convey pedestrian and cyclist traffic over the Grand River.
- Modifications to existing abutments and piers to raise the new bridge to reduce the risk of damage from flooding events.

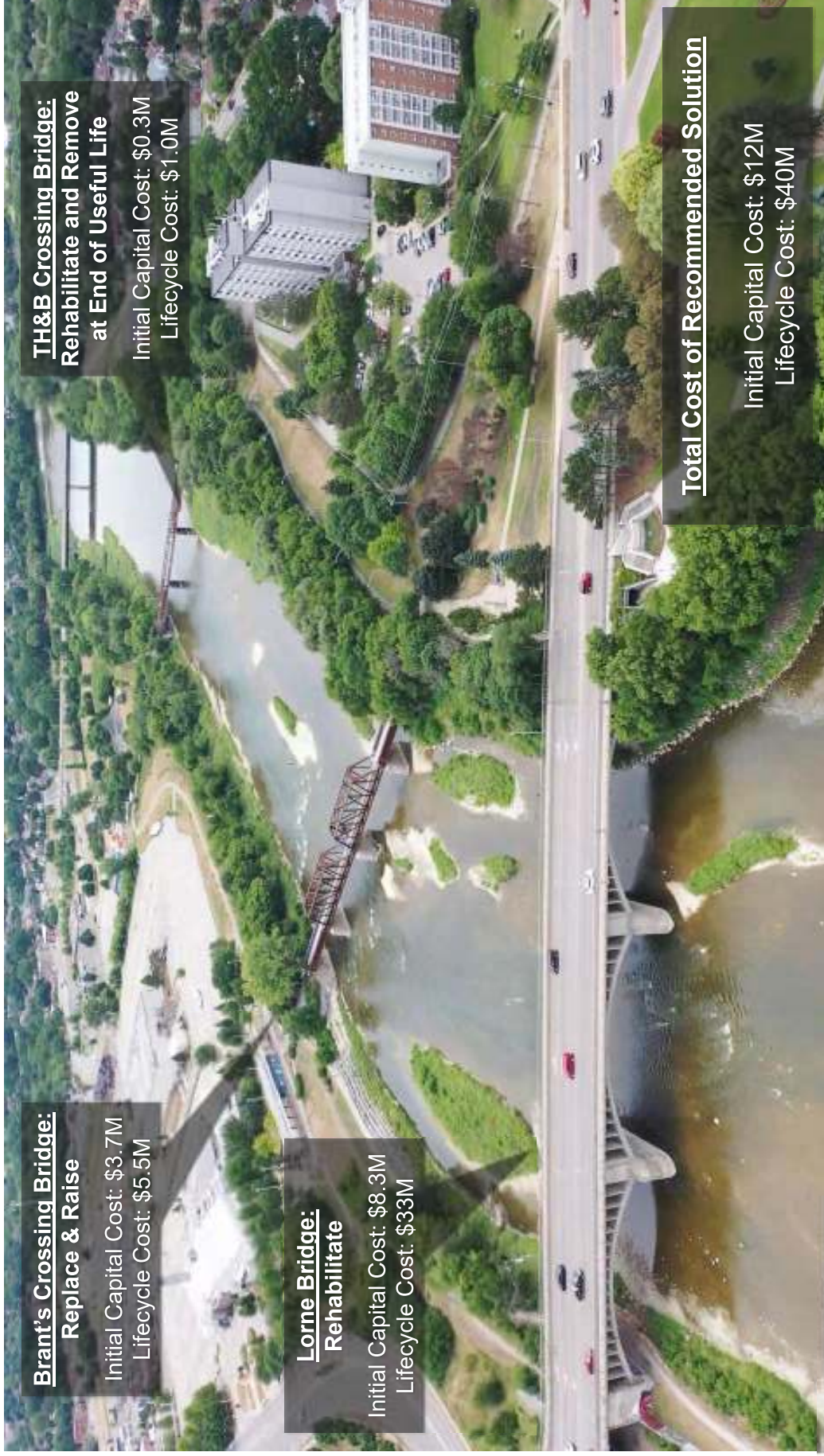
TH&B CROSSING BRIDGE

Recommended Solution: Minor Rehab and Eventual Removal



- Minor rehabilitation to maintain the structure for approximately 10 to 15 years with the intent of eventually removing the steel superstructure.
- Minor rehabilitation would include replacing the existing deck and other minor repairs.
- Existing foundations would remain in place following the removal of the superstructure.

Recommendations from PIC #2



Brant's Crossing Bridge:
Replace & Raise

Initial Capital Cost: \$3.7M
Lifecycle Cost: \$5.5M

Lorne Bridge:
Rehabilitate

Initial Capital Cost: \$8.3M
Lifecycle Cost: \$33M

TH&B Crossing Bridge:
**Rehabilitate and Remove
at End of Useful Life**

Initial Capital Cost: \$0.3M
Lifecycle Cost: \$1.0M

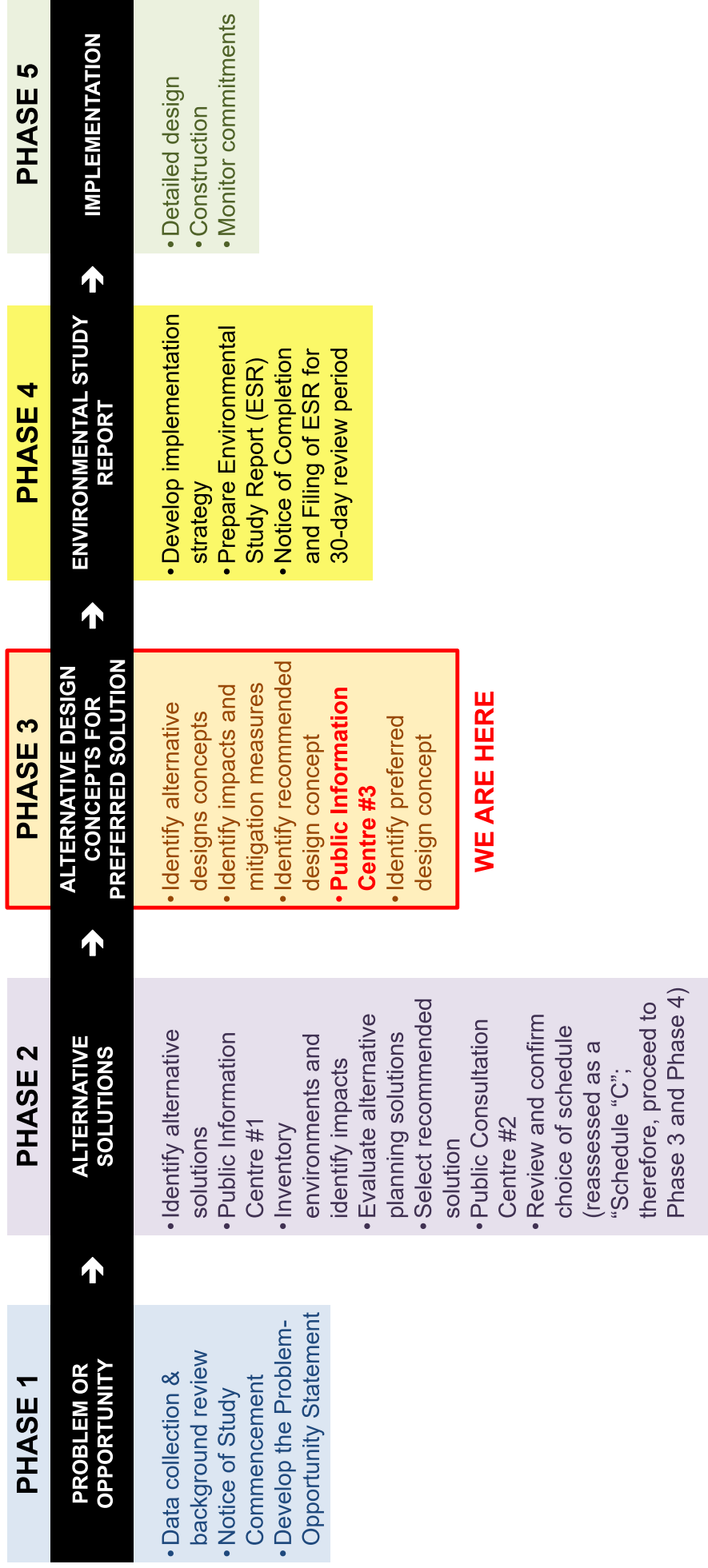
Total Cost of Recommended Solution

Initial Capital Cost: \$12M
Lifecycle Cost: \$40M

Note: All costs in 2020 dollars.

Next Steps in MCEA Process

Municipal Class EA Planning and Design Process



Alternative Design Concepts

The following alternative design concepts will be considered for each crossing:

Lorne Bridge

- Keep or Modify Existing Cross Section

Brant's Crossing Bridge

- Style of New Truss
- Width of Pathway over the Bridge
- Material of Bridge Deck
- Incorporation of a Lookout
- Incorporation of Lighting

TH&B Crossing Bridge

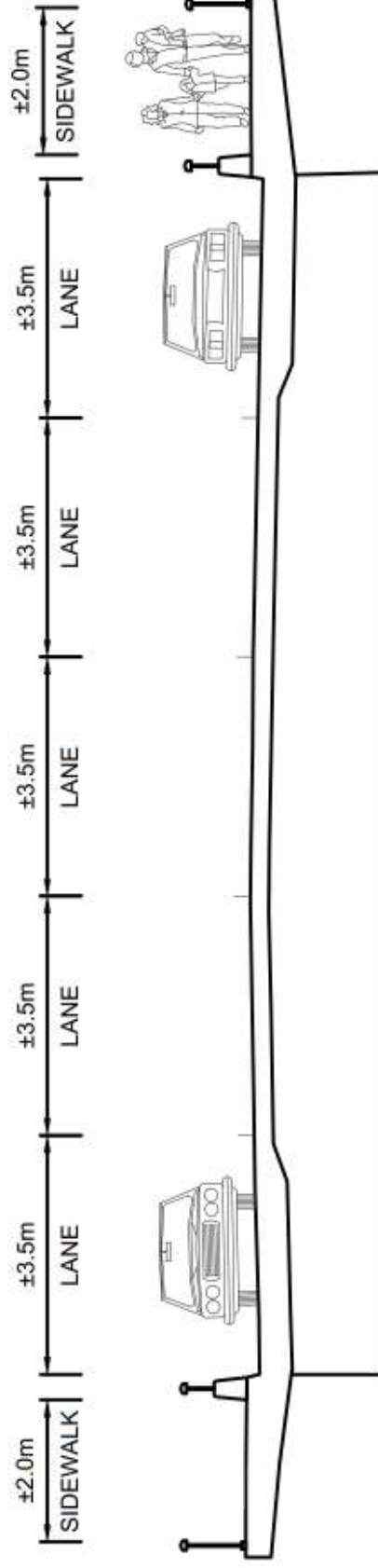
- Material of Bridge Deck
- Raising of Bridge Deck



Lorne Bridge

Existing Cross Section:

- Each existing sidewalk is approximately 2.0m wide and each existing vehicular lane is approximately 3.5m wide.
- Public feedback indicated the existing sidewalks were too narrow for simultaneous cycling and pedestrian use.



Lorne Bridge

Evaluation of Keeping or Modifying Existing Cross Section:

Wider Sidewalks:

- Existing vehicular lane widths (3.5m) are the minimum width recommended by the City's Transportation Master Plan for an arterial road and cannot be narrowed for a wider sidewalk.
- The bridge deck was widened in the 1980's and cannot be widened further to accommodate a wider sidewalk.

Cycling Lanes:

- The existing traffic volumes crossing the Lorne Bridge signify the need for separated cycling and vehicular facilities.
- Eliminating a vehicular lane for a cyclist lane is not recommended due to the traffic volumes.
- The adjacent Brant's Crossing Bridge provides strong connectivity across the Grand River, without introducing conflict points with motor vehicle and cyclist traffic.
- The replacement of the Brant's Crossing Bridge provides the opportunity to improve the accessibility for cyclist traffic in the general area.

Lorne Bridge

Recommendation:

- Maintain existing sidewalks and vehicular lane widths following rehabilitation.



Lorne Bridge

Brant's Crossing – Truss Style

Style of New Truss:

- To mitigate the negative impact of removing the heritage superstructure, the existing through truss spans at Brant's Crossing should be replaced with new prefabricated through trusses. The new trusses will be more slender than the existing trusses but will have a similar overall appearance to the existing through truss spans.
- The girder spans will also be replaced with either a "Through Truss" or a "Pony Truss" as shown on the next slides.

Girder Span

Truss Span

Truss Span

Girder Span

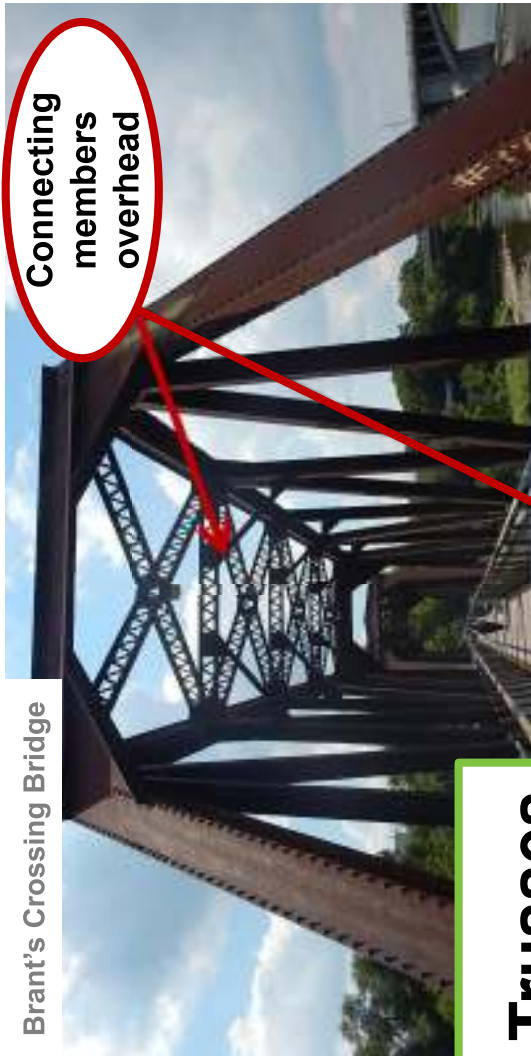


Brant's Crossing Bridge

Brant's Crossing – Truss Style



Brant's Crossing Bridge



Brant's Crossing Bridge

Connecting members overhead

Through Trusses



Craig's Crossing (Cambridge)

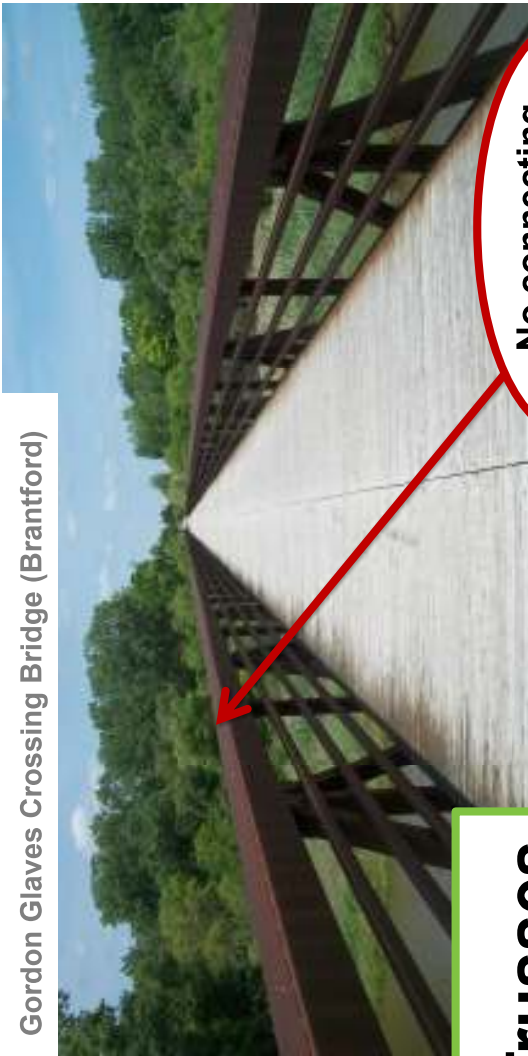


Craig's Crossing (Cambridge)

Brant's Crossing – Truss Style



Mount Joy Pedestrian Bridge (Markham)



Gordon Glaves Crossing Bridge (Brantford)

Pony Trusses



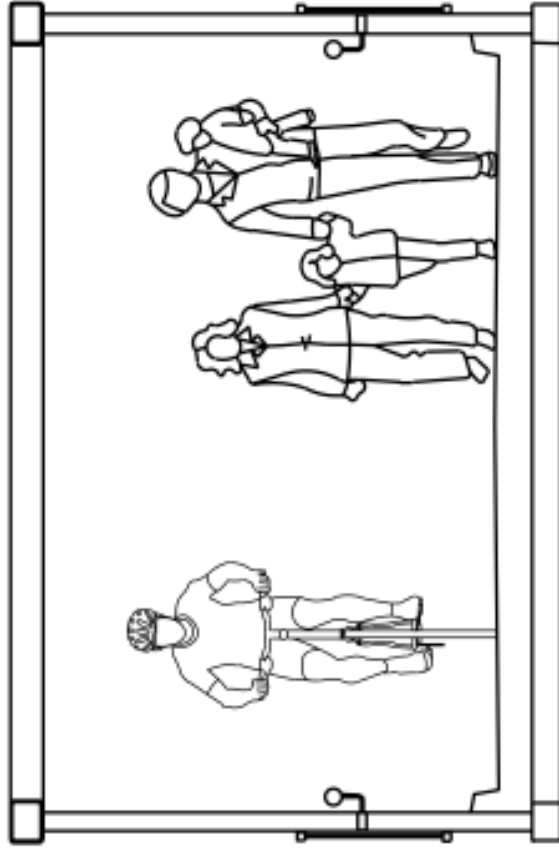
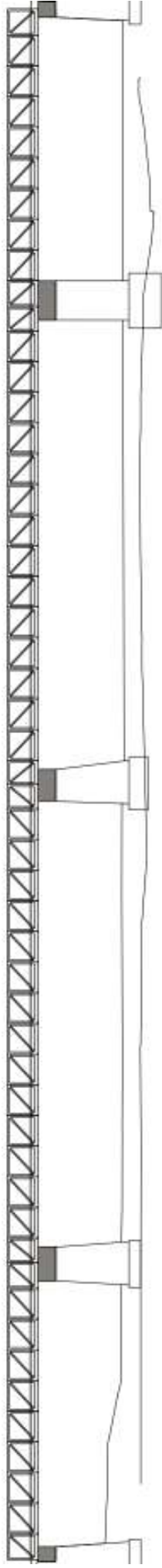
Homer Watson Blvd. Bridge (Waterloo)



Homer Watson Blvd. Bridge (Waterloo)

Brant's Crossing – Truss Style

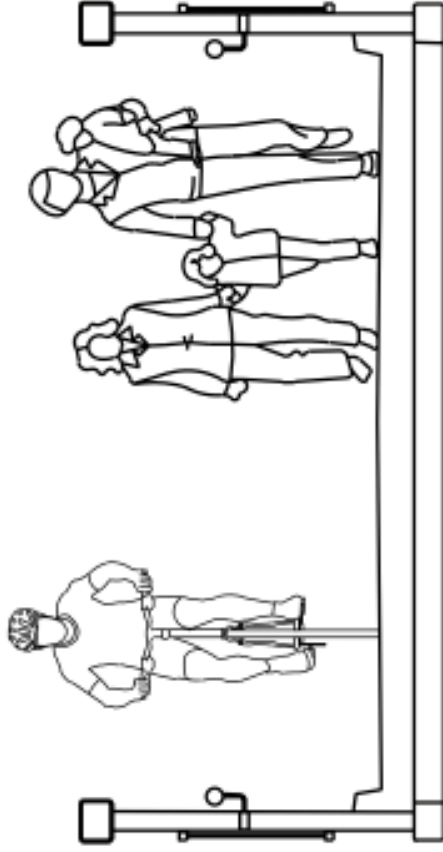
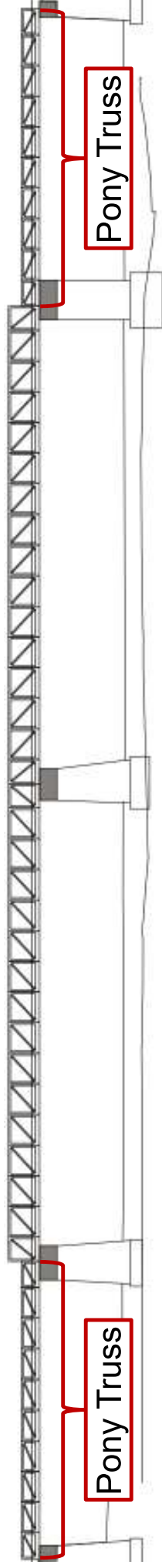
Option 1: Through Truss for All Spans



Craig's Crossing (Cambridge)

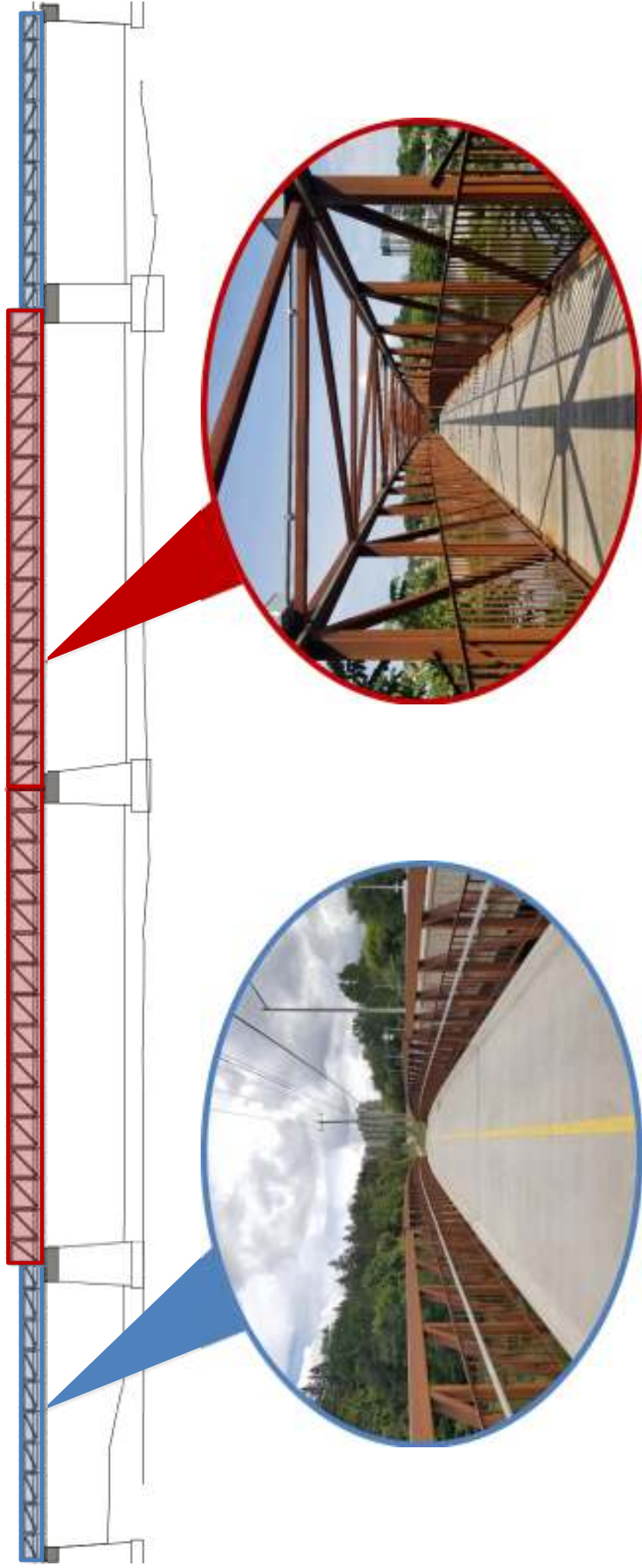
Brant's Crossing – Truss Style

Option 2: Pony Truss Spans at Each End



Brant's Crossing – Truss Style

Recommendation: Option 2 (Pony Truss Spans at Each End)



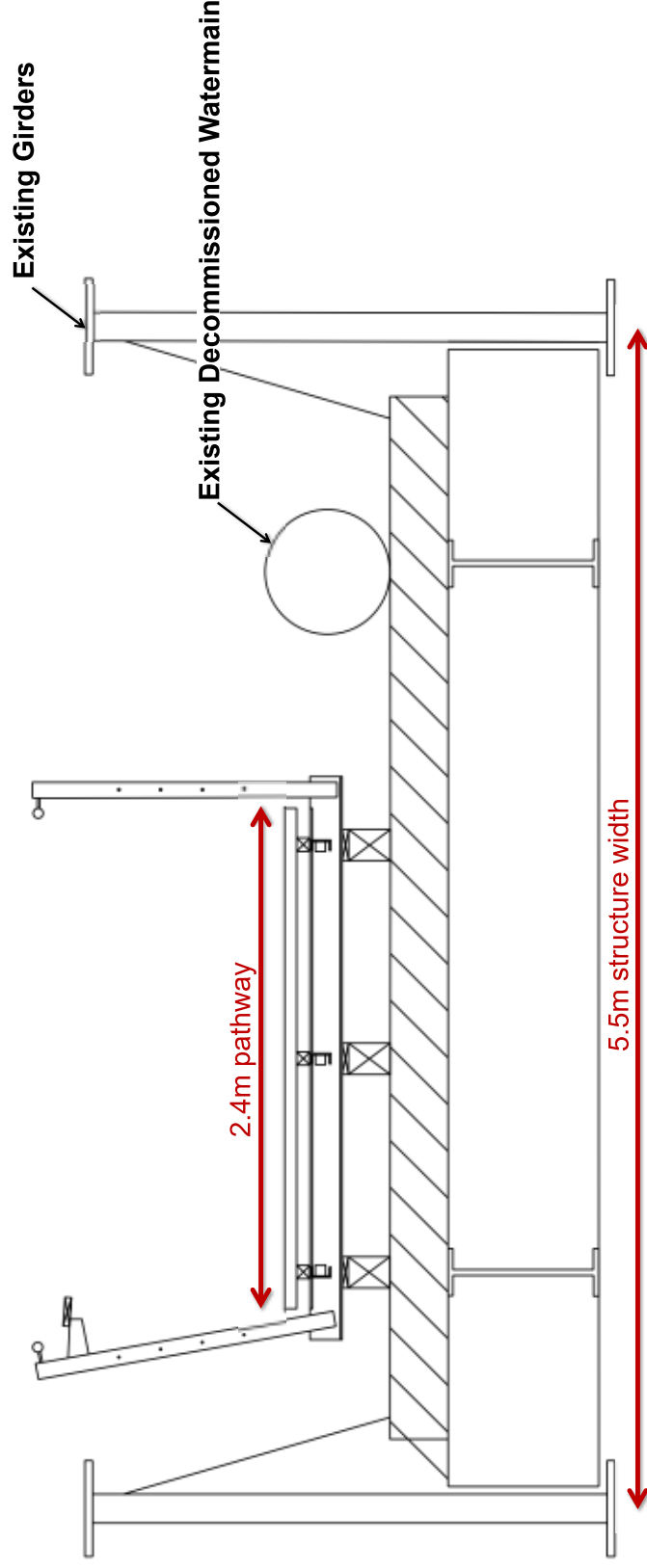
End Spans: Pony Trusses

Middle Spans: Through Trusses

Brant's Crossing – Pathway Width

Width of Existing Pathway over Bridge:

- The existing pathway at Brant's Crossing Bridge is 2.4m wide.
- Existing width is prohibitive to simultaneous pedestrian and cyclist use.
- The new bridge can be designed to have a wider pathway along the bridge.



Brant's Crossing – Pathway Width

Width of Pathway over Bridge:

- Separated cycling and pedestrian lanes are not recommended.
- Minimum width for a multi-use trail is 3.0m + a 0.5m buffer on either side = 4m width.
- Refer to the widths of some other active transportation bridges in the City below:

D'Aubigny Creek Trail Crossing

Pathway Width = 2.5m



Gordon Glaves Crossing Bridge

Pathway Width = 3.9m



TH&B Crossing Bridge

Pathway Width = 4.7m





A pathway width of 4 meters is recommended for the new structure:

- ✓ Meets trail design guidelines
- ✓ Preferred width for maintenance vehicles
- ✓ Avoids increased costs and construction complexity for pathway >4m wide

Brant's Crossing – Bridge Deck Material

Material of New Bridge Deck:

➤ The following materials in the table below have been evaluated as part of this MCEA:

	Wood Deck Boards	Steel Deck Panels	Concrete Deck	FRP*1 Deck Panels
	<p>Gordon Glaves Crossing (Brantford)</p> 	<p>Creighton Avenue Bridge (Guelph)</p> 	<p>Homer Watson Blvd. Bridge (Waterloo)</p> 	<p>Parry Bridge (Chatham-Kent)</p> 
Capital Cost	\$\$\$\$ (Approximately \$150,000)	\$\$\$\$ (Approximately \$250,000)	\$\$\$\$ (Approximately \$500,000)	\$\$\$\$ (Approximately \$750,000)
Service Life	10-15 years	10-25 years	25-40 years	50-75 years
Riding Surface	Slightly uneven	Slightly uneven	Smooth	Slightly uneven
Ease of Winter Maintenance	Issues with snowplow blades hitting joints between deck boards.	Issues with snowplow blades hitting joints between deck boards.	Most preferred from a winter maintenance perspective.	Minor issues with snowplow blades hitting joints between deck boards.
Maintenance Requirements	Routine maintenance to replace deck boards as needed.	Isolated replacement of deck panels may be required as steel rusts.	Isolated patch repairs may be required.	Isolated replacement of deck panels may be required.

*1 FRP = Fiberglass Reinforced Plastic

Brant's Crossing – Bridge Deck Material

Recommendation:

A Concrete Deck is Recommended for the New Bridge Deck...

- ✓ Long service life for initial capital cost
- ✓ Smooth riding service
- ✓ Most preferred for winter maintenance
- ✓ Minor maintenance requirements



Homer Watson Blvd. Bridge (Waterloo)

Brant's Crossing – Lookout

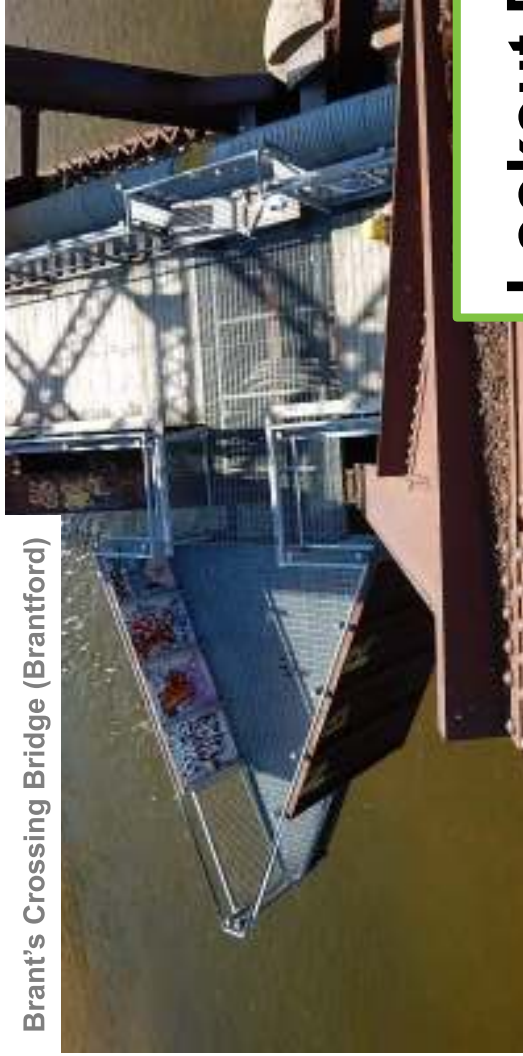
Incorporation of a Lookout:

- The existing lookout provides the opportunity for users to stop, rest and enjoy views of the Grand River and the surrounding natural environment.
- Improves marketability as a tourism destination for photography, bird watching, etc.
- The lookout could face upstream (towards the Lorne Bridge) or downstream (similar to the existing lookout).
- The additional cost for incorporating a lookout could range from \$200,000 to \$400,000, depending on size.



Brant's Crossing Bridge (Brantford)

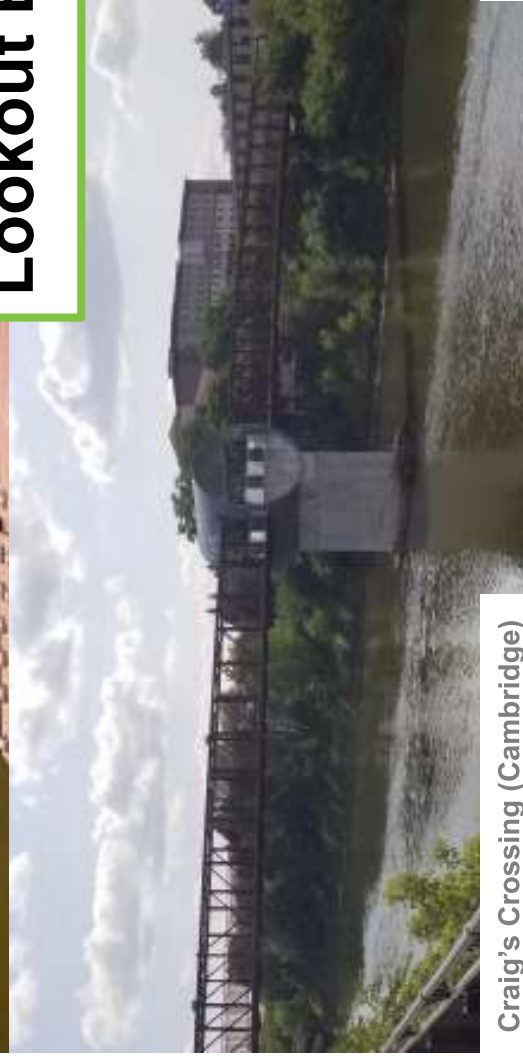
Brant's Crossing – Lookout



Brant's Crossing Bridge (Brantford)



Cayuga Grand Vista Bridge (Cayuga)



Craig's Crossing (Cambridge)



Craig's Crossing (Cambridge)

Lookout Examples

Brant's Crossing – Lookout

Recommendation:

It is recommended to incorporate a lookout into the new superstructure.



- ✓ Improves marketability as a tourism destination
- ✓ Provides enhanced views to the surrounding natural environment and the Lorne Bridge
- ✓ Provides an area to stop and rest as you are crossing the bridge

Brant's Crossing – Lighting

Incorporation of Lighting along Bridge:

- Existing trails at each end of the bridge include street lighting.
- Existing bridge has lights mounted along the top of the truss.
- Functional bridge lighting, similar to the existing, should be included in the new bridge, at a minimum.
- Aesthetic/accent lighting could also be incorporated into the new bridge, which could improve the marketability of the bridge as a tourism destination.
 - The additional cost for incorporating aesthetic/accent lighting could range from \$150,000 to \$500,000



Brant's Crossing – Lighting

Recommendation:

- At a minimum incorporate functional lighting for safety purposes.
- Incorporation of accent/aesthetic lighting will be considered at the detailed design stage.



- ✓ Potential to improve marketability as a tourism destination
- ✓ Continues lighting from trails at each end
- ✓ Improves safety across bridge at night

Brant's Crossing – Cost Estimate

The Capital Cost Estimate of \$3.7 million presented in PIC #2 was based on:

- 4m wide pathway
- Steel deck panels
- No lookout
- Functional lighting

As presented in this PIC, the preferred solution was refined to include the following design features:

Concrete Deck:



Lookout:



Based on the additional cost for these recommended features, the Recommended Design Concept for Brant's Crossing is estimated to be approximately \$4.4 million.

TH&B Crossing – Bridge Deck Material

Can the existing wood deck be replaced to improve the pathway across the bridge?

- The minor rehabilitation to the TH&B Crossing Bridge will include installing a new wood deck.
- To reduce the likelihood of the wood boards deteriorating, the new deck will be designed to minimize damage from maintenance equipment.
- More expensive deck systems such as concrete or FRP are **not recommended** as the intent is to eventually remove the structure in 10-15 years.



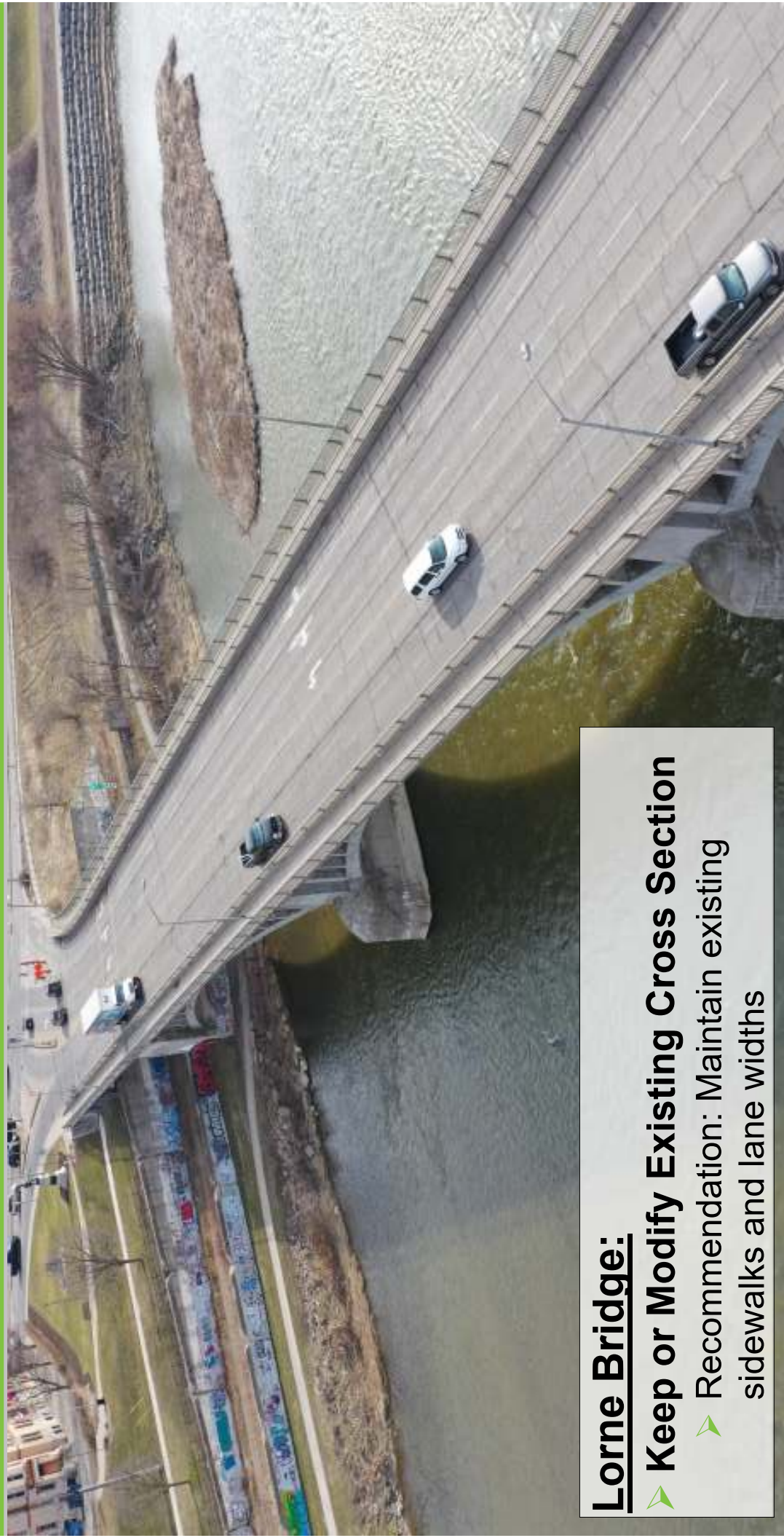
TH&B Crossing – Raising of Bridge Deck

Can the existing deck be raised so it is easier to see over the sides of the bridge?



- The existing deck is approximately 1.5m below the sides of the bridge.
- The sides of the bridge need to be a minimum of 1.37m above the deck to protect cyclists.
- Raising the deck by approximately 130mm (5") is possible but would be approximately double the cost of the standard replacement.
- As the intent is to eventually remove the structure in 10-15 years, it is **not recommended** to invest additional funds into raising the deck.

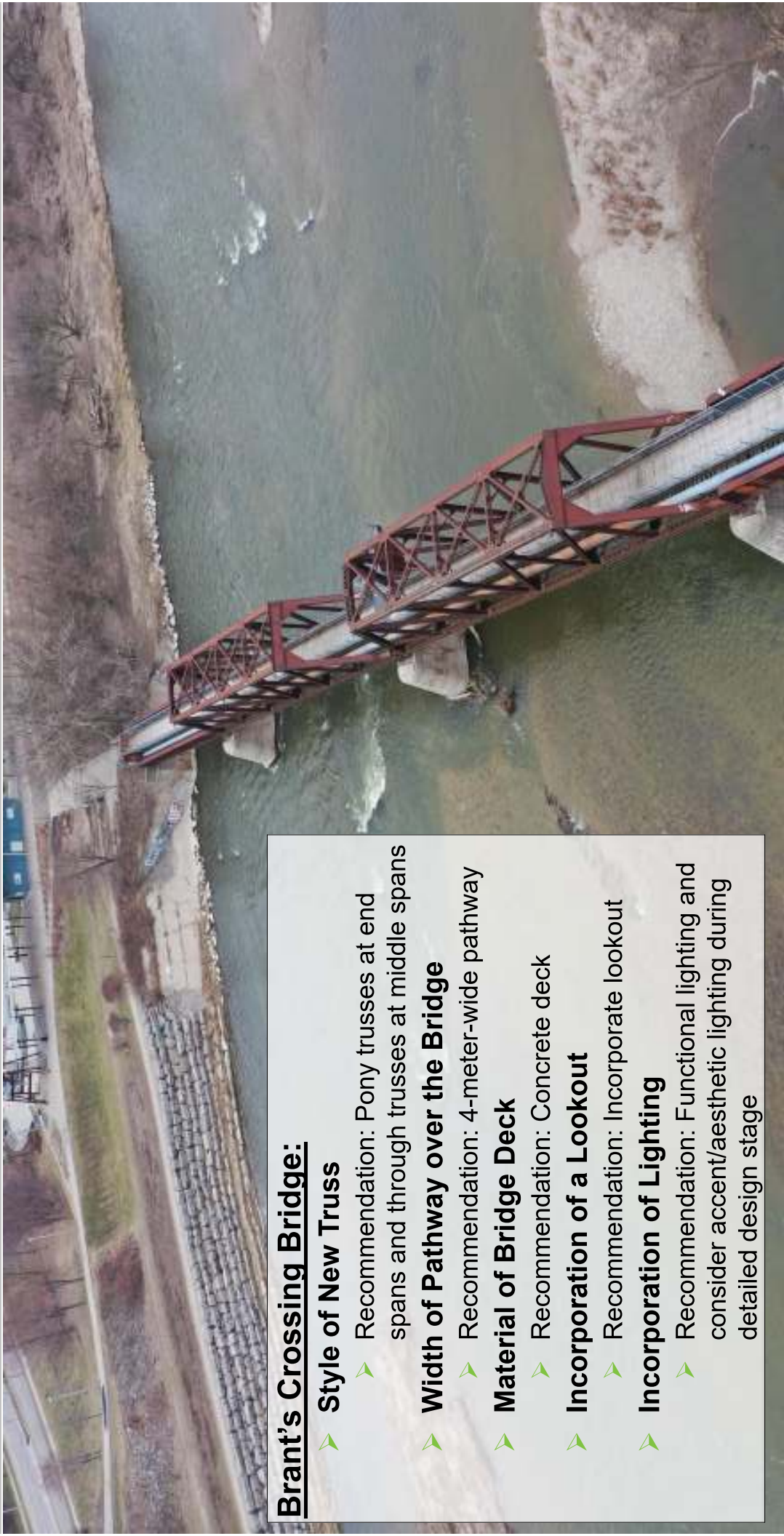
Summary of Design Concept Recommendations



Lorne Bridge:

- **Keep or Modify Existing Cross Section**
- Recommendation: Maintain existing sidewalks and lane widths

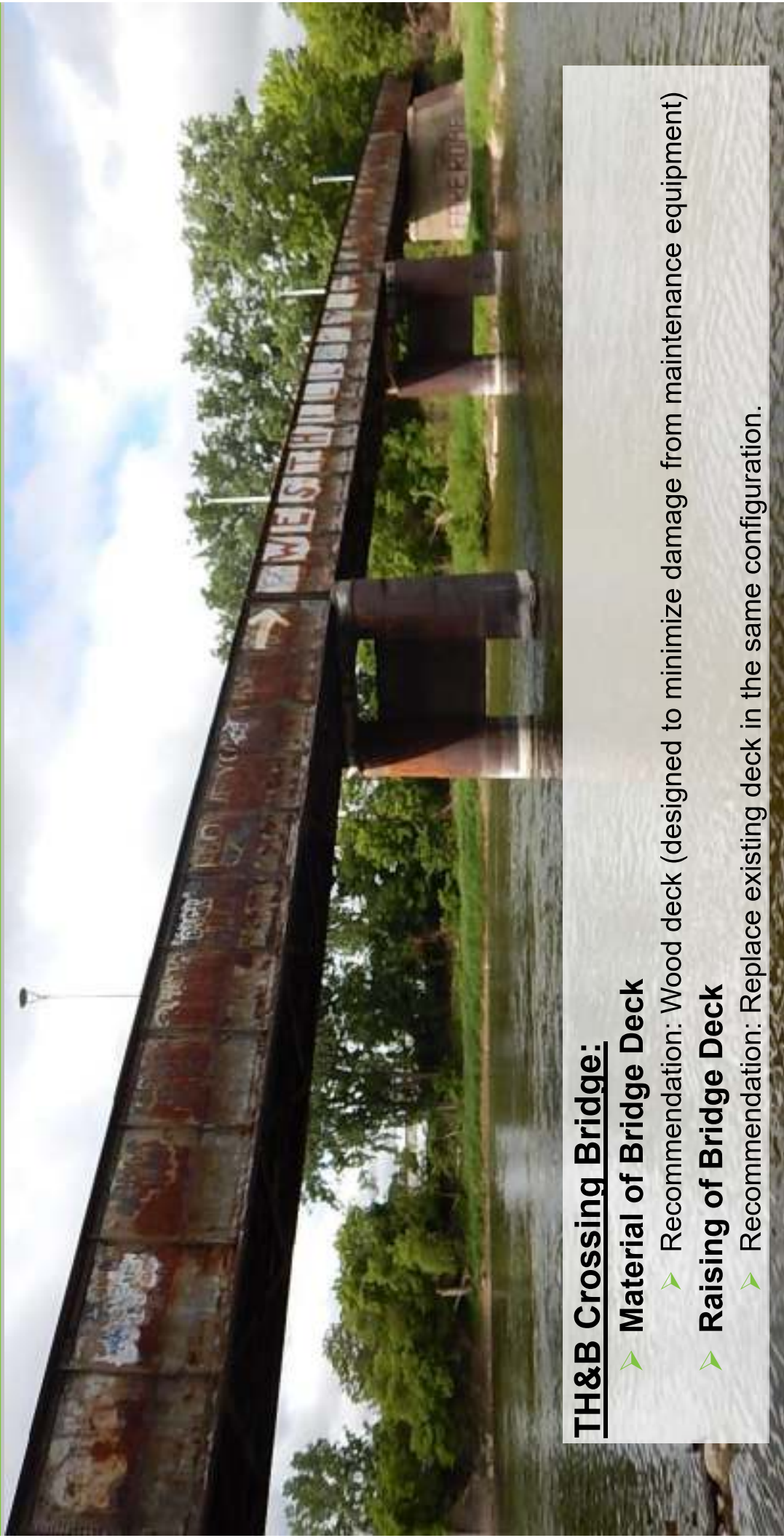
Summary of Design Concept Recommendations



Brant's Crossing Bridge:

- **Style of New Truss**
 - Recommendation: Pony trusses at end spans and through trusses at middle spans
- **Width of Pathway over the Bridge**
 - Recommendation: 4-meter-wide pathway
- **Material of Bridge Deck**
 - Recommendation: Concrete deck
- **Incorporation of a Lookout**
 - Recommendation: Incorporate lookout
- **Incorporation of Lighting**
 - Recommendation: Functional lighting and consider accent/aesthetic lighting during detailed design stage

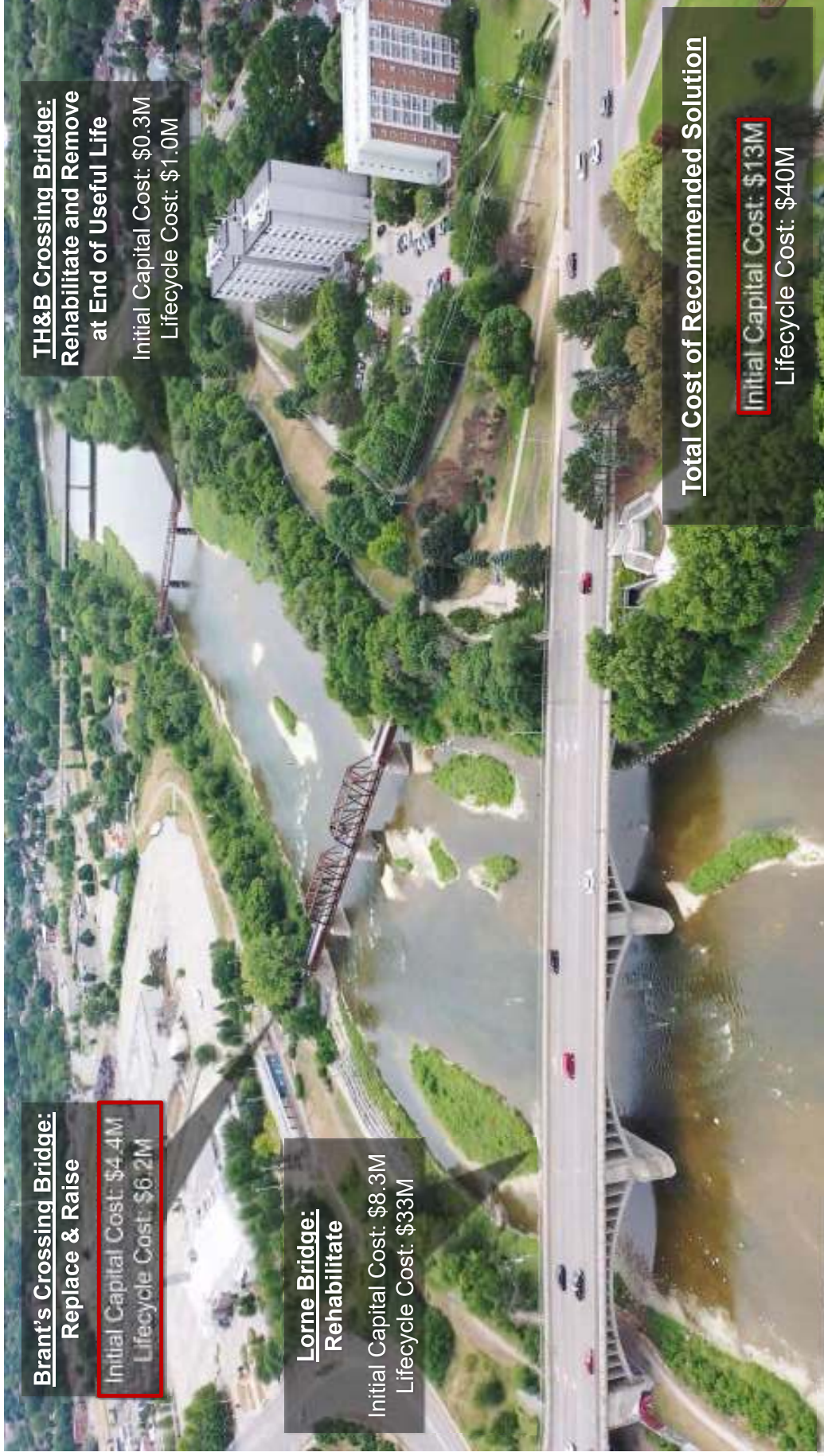
Summary of Design Concept Recommendations



TH&B Crossing Bridge:

- **Material of Bridge Deck**
 - Recommendation: Wood deck (designed to minimize damage from maintenance equipment)
- **Raising of Bridge Deck**
 - Recommendation: Replace existing deck in the same configuration.

Updated Cost Estimates



Brant's Crossing Bridge:
Replace & Raise

Initial Capital Cost: \$4.4M
Lifecycle Cost: \$6.2M

Lorne Bridge:
Rehabilitate

Initial Capital Cost: \$8.3M
Lifecycle Cost: \$33M

TH&B Crossing Bridge:
Rehabilitate and Remove
at End of Useful Life

Initial Capital Cost: \$0.3M
Lifecycle Cost: \$1.0M

Total Cost of Recommended Solution

Initial Capital Cost: \$13M
Lifecycle Cost: \$40M

Note: All costs in 2020 dollars.



PIC #3 Process

1)	Notice of PIC #3 first published	October 7, 2021
2)	PIC #3 material posted to project webpage	October 14, 2021
3)	Live PIC #3 Presentation	October 21, 2021 at 6:00pm
4)	Public Comment Period	October 21 – November 4, 2021
5)	Question List and FAQs with answers posted to project webpage	November 11, 2021

We Want to Hear from You!

Thank you for participating in the Virtual Public Information Centre.

IF YOU WISH TO SUBMIT COMMENTS OR WOULD LIKE TO BE ADDED TO THE PROJECT MAILING LIST, PLEASE CONTACT:

Gagan Batra
City Project Manager
City of Brantford
58 Dalhousie Street
Brantford, ON N3T 2J2
519.759.4150 ext. 5426
gbatra@brantford.ca

Jack Turner, P.Eng.
Consultant Project Manager
GM BluePlan Engineering Limited
650 Woodlawn Road West, Block C, Unit 2
Guelph, ON N1K 1B8
519.824.8150 ext. 1237
jack.turner@gmblueplan.ca

Comment Sheets are available at the Three Grand River Crossings website:
www.brantford.ca/ThreeGrandRiverCrossings

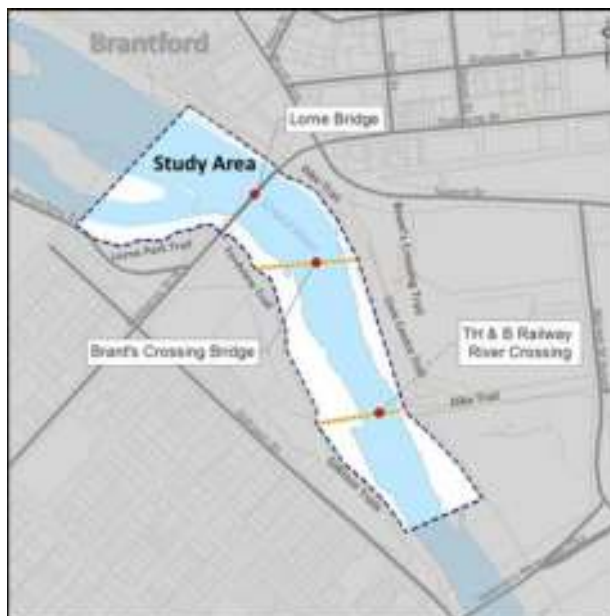
Comments submitted by **November 4th, 2021** will be considered for the FAQ list posted on November 11, 2021



CITY OF BRANTFORD
**THREE GRAND
RIVER CROSSINGS**
MUNICIPAL CLASS EA

**VIRTUAL PUBLIC INFORMATION CENTRE (PIC) 3
FREQUENTLY ASKED QUESTIONS (FAQ) DOCUMENT
FIRST POSTED ON NOVEMBER 11, 2021**

INTRODUCTION



In March 2020, the City of Brantford initiated a Municipal Class Environmental Assessment (EA) for three crossings over the Grand River, including the Lorne Bridge, Brant's Crossing Bridge and the TH&B Crossing Bridge. The study encompasses an area approximately 175 metres wide starting 200 metres north of Lorne Bridge to 200 metres south of the TH&B Crossing Bridge along the Grand River. The study is intended to identify the short and long-term plans for the three Grand River Crossings. The previous Virtual Public Information Centre (PIC #2) was held between March and April 2021.

Presentation slides for PIC #3 were posted to the project webpage on October 14th, 2021. A live presentation for PIC #3 was hosted virtually on October 21st, 2021. PIC #3 presented design alternatives for the recommended solutions.

All documents presented during PIC #1, PIC #2, and PIC #3 can be accessed at:

www.brantford.ca/ThreeGrandRiverCrossings

As detailed during PIC #3, the recommended Overall Crossing Strategy includes the following recommendations for each crossing:

- **Rehabilitate Lorne Bridge (\$8.3 million initial capital cost and \$33 million lifecycle cost):**
 - Maintain existing sidewalks and lane widths
- **Replace and Raise Brant's Crossing Bridge (\$4.4 million initial capital cost and \$6.2 million lifecycle cost):**
 - Pony trusses at end spans and through trusses at middle spans
 - 4m (13ft) wide pathway over bridge
 - Concrete deck
 - Incorporate a lookout
 - Incorporate basic lighting and consider aesthetic lighting during detailed design
- **Minor Rehabilitation and Eventual Removal of TH&B Crossing Bridge (\$0.3 million initial capital cost and \$1.0 million lifecycle cost):**
 - Wood deck designed to minimize damage from maintenance equipment
 - Replace existing deck in the same configuration (do not raise deck)

This document provides a consolidated question and answer list for comments submitted to the Project Team throughout the PIC #3 process. More information and background are available through the material provided for the previous PICs, including previous FAQ documents.

FREQUENTLY ASKED QUESTIONS

Several questions and comments have been submitted to the Project Team throughout the third Virtual Public Information Centre process. The questions and comments received throughout PIC #3, up to November 4th, 2021, have been responded to in the below.

1. How was the long-term vision for the City of Brantford considered during this EA, including considerations for tourism within the Study Area?

This EA supports the long-term vision for the City of Brantford as described in the City's Official Plan and the Transportation Master Plan. These Plans, in turn, align with Provincial policies and legislations regarding land use and growth planning.

As detailed in PIC #3, this EA includes recommendations to improve the marketability of the Brant's Crossing Bridge as a tourism destination, including the incorporation of a lookout into the new bridge, widening the bridge deck, and considerations for aesthetic lighting as part of the detailed design phase.

2. How were impacts to the natural environment considered during this study?

As part of this Class EA, a Natural Environment Report was prepared to investigate vegetation, wetlands and significant valleys, wildlife and wildlife habitats, threatened and endangered species, and fish and fish habitat within the Study Area. The report also details possible impacts to the natural environment based on the alternative solutions being considered as well as recommended mitigation measures. Overall, impacts to the natural environment for the recommended solution are anticipated to be temporary and can be mitigated. The details on the mitigation measures for the recommended solution will be prepared following completion of this EA, during the design phase, which will include obtaining permits from regulatory agencies such as the Grand River Conservation Authority, Departments of Fisheries and Oceans, and the Ministry of Natural Resources and Forestry.

3. How will this Environmental Assessment (EA) ensure that trail connectivity is maintained for cyclists and pedestrians when the TH&B Crossing Bridge is removed?

The Transportation Study completed as part of this EA recommended that at least one of the existing active transportation crossings in the Study Area be maintained.

Based on public feedback and active transportation counts completed prior to its closure in 2018, the large majority of people prefer the Brant's Crossing Bridge

location. The recommended solution would provide for vehicle-isolated, accessible and convenient crossing for both pedestrians and cyclists at the current Brant's Crossing Bridge location. The replacement bridge would allow for a wider deck that would provide cyclists with space to ride across the bridge with pedestrian traffic present.

The recommended solution also includes minor repairs to the TH&B Crossing Bridge in the interim which will provide the cyclist facilities over the Grand River and ensure a connection is available until the structure is removed.

4. Can lighting be incorporated into the Brant's Crossing Bridge?

The existing bridge has lighting mounted on the top of the trusses that provided basic lighting to improve safety across the bridge at night, similar to the streetlights along the trails at the approaches to the bridge.

This EA supports the incorporation of functional lighting for safety purposes into the new Brant's Crossing Bridge. It is noted that the addition of accent or aesthetic lighting on the bridge has the potential to improve the marketability of the Brant's Crossing Bridge as a tourism destination. It is recommended that the incorporation of aesthetic lighting be considered during the detailed design phase.

5. Can the bridge deck on Brant's Crossing Bridge be widened to improve access for a variety of users, including pedestrians, cyclists and E-Bikes?

As part of this EA, it is recommended that the pathway over the new Brant's Crossing Bridge be 4m (13ft) wide, which is the recommended width of a Multi-use Pathway in the City of Brantford. Multi-use Pathways allow for a broad range of people-powered mobility uses such as: running, walking, cycling, cycling with children, rollerblading, skateboarding, wheelchairs, etc.

Note that E-Bike are not allowed on any multi-use path or trail in the City of Brantford.

6. Would a lookout on Brant's Crossing Bridge impede the flow of traffic across the bridge?

It is recommended that the new lookout on Brant's Crossing Bridge protrude from the travelled pathway on the bridge, similar to the existing lookout on the bridge. A lookout protruding out from the travelled pathway gives the opportunity for users to stop, rest, and enjoy views of the Grand River and the surrounding natural environment without impeding the flow of traffic across the bridge.

7. Could a painted line down the centre of the new pathway on the new Brant's Crossing Bridge be added to cue users of the bridge to stay to their right?

The addition of a painted line down the centre of the new pathway on the new Brant's Crossing Bridge will be reviewed as part of the detailed design phase.

8. Will this project be responsible for ramps to access the raised Brant's Crossing Bridge?

The need for ramps and re-grading of the approaches to the Brant's Crossing Bridge following the raising of the bridge was a consideration of this EA. Due to the anticipated geometry of the new trusses, it is expected that only minor re-grading and/or ramps will be required to access the raised structure, but will ultimately be confirmed during the detailed design phase.

9. Could a suspension bridge be used as a replacement structure for the Brant's Crossing Bridge or TH&B Crossing Bridge?

It is recommended to replace the existing superstructure at Brant's Crossing Bridge with new prefabricated through trusses to pay homage to the existing through truss spans. As detailed in the PIC #3 materials, it is recommended that the end spans adjacent to the riverbanks are replaced with pony truss spans, and that the middle spans be replaced with through truss spans.

The recommended solution for the TH&B Crossing Bridge is to complete a minor rehabilitation to maintain the structure for 10 to 15 years, and then remove it as the end of its useful life. Replacement of this structure is not included in the recommendation.

10. Can the TH&B Crossing Bridge be improved and/or repaired to make the riding surface smoother?

Staff will work to have the bridge deck fixed as soon as possible and will be bringing the project forward through the capital budget process.

11. The side walls of the TH&B Crossing Bridge are tall and difficult to see over as you travel across the bridge. Is it possible to lower these walls to provide a more accessible view of the area?

The recommended solution for the TH&B Crossing Bridge is to complete minor repairs to the structure, and eventually remove the structure at the end of its useful life. As the walls of this bridge are the structural element of the bridge, they cannot be opened up to provide better views. Raising the bridge deck was also explored; however, for the anticipated remaining service life of the structure, it was assessed to not be an efficient investment.

12. What is a load limit and how do you remove the Lorne Bridge load limit without replacing the bridge?

Loading in this context refers to the weight that a structure can carry. When a structure is unable to support current day loading, whether through deterioration over time or the ever-increasing weight of vehicles, load restrictions are placed on them to prevent them from being damaged from oversized loads. This damage can cause premature deterioration and decrease the service life of the structure.

In most instances of load restrictions, these limit the size and weight of vehicles that are allowed to use a bridge. In the case of the Lorne Bridge, due to its unique construction and the impacts of colder weather, a load restriction limiting certain truck traffic was placed on this bridge during the winter months. We anticipate that repairs and strengthening of certain components of the bridge will allow the removal of this load restriction. Also note the Brant's Crossing Bridge will not have a limit on the number of people who can use the bridge at any one time.