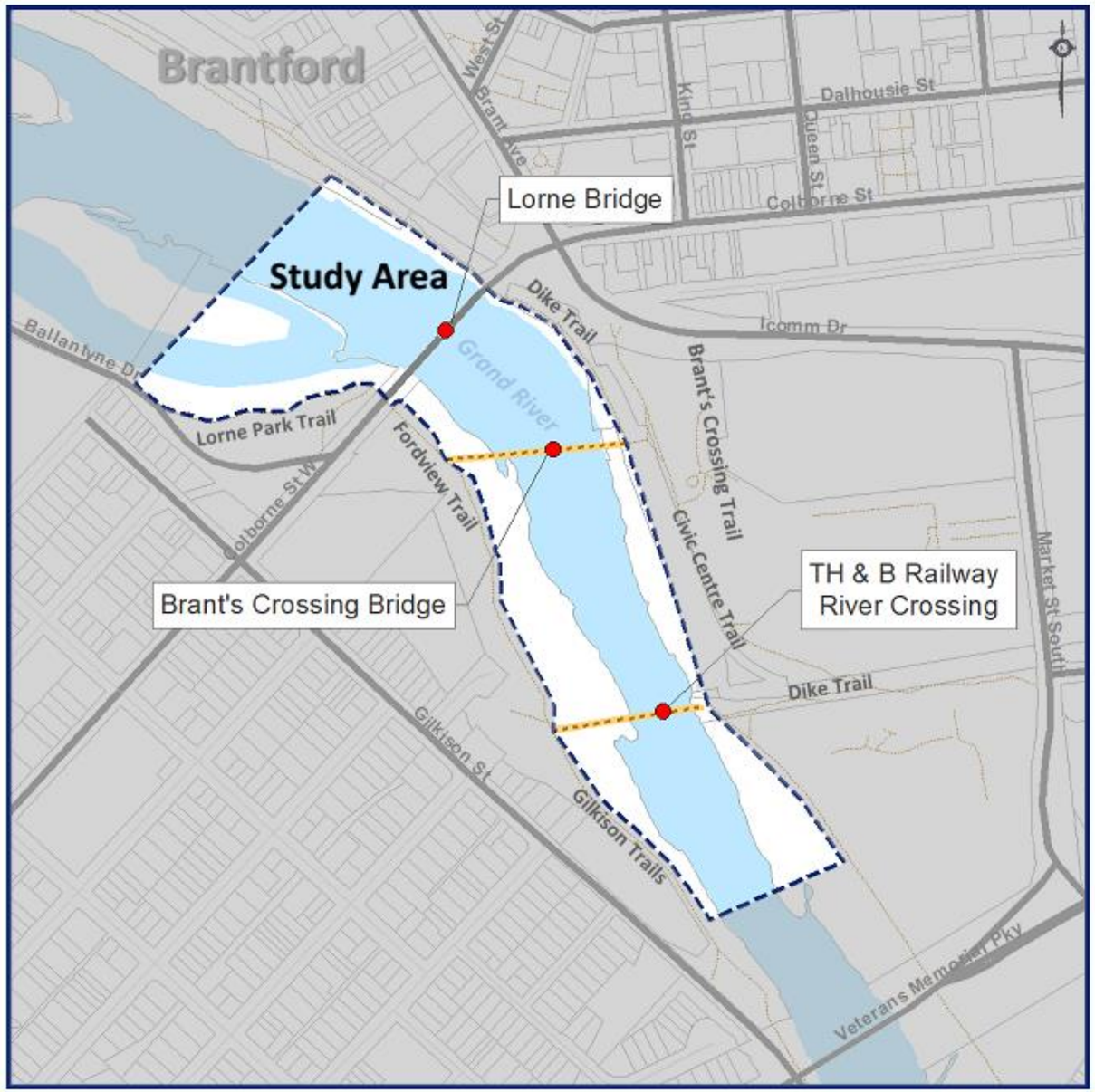
CITY OF BRANTFORD

# 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

| | | |
|---|---|---|
| ☑ 1) | Notice of Study Commencement | March 5, 2020 |
| ☑ 2) | Public Information Centre #1 | May-July, 2020 |
| ☑ 3) | Public Information Centre #2 | April 2021 |
| ☑ 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

**Presented at PIC 1**

**1**

**Long List of Alternatives for Each Crossing**

Develop alternatives for each crossing.

**Presented at PIC 2**

**2**

**Screening**

Review each alternative against screening criteria.

**3**

**Shortlist of Alternatives for Each Crossing**

Identify feasible alternatives for each crossing.

**4**

**Overall Crossing Strategies**

Identify appropriate combinations of short-listed alternatives (one from each structure).

**5**

**Detailed Evaluation**

Evaluate Crossing Strategies using detailed evaluation criteria.

Alternatives must be technically and economically viable, and meet the needs of the Problem / Opportunity Statement

Identify Recommended Crossing Strategy

# Recap of Public Information Centre #2

| Lorne Bridge | Brant's Crossing Bridge | TH&B Crossing Bridge | New Pedestrian & Cyclist Crossing |
|---|---|---|---|
| **Rehabilitate** | Decommission (Remove or Close) | Decommission (Remove or Close) | Construct |
| Replace | Rehabilitate | **Minor Rehab and Eventual Removal** | **Do Not Construct** |
| | Rehabilitate and Raise | Rehabilitate | |
| | **Replace & Raise** | Rehabilitate and Raise | |
| | | Replace & Raise | |

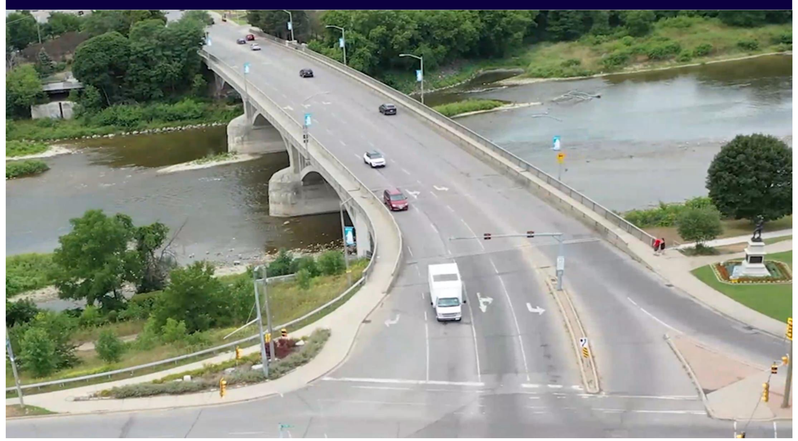
**Legend**

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

# Recommendations from PIC #2

## LORNE BRIDGE

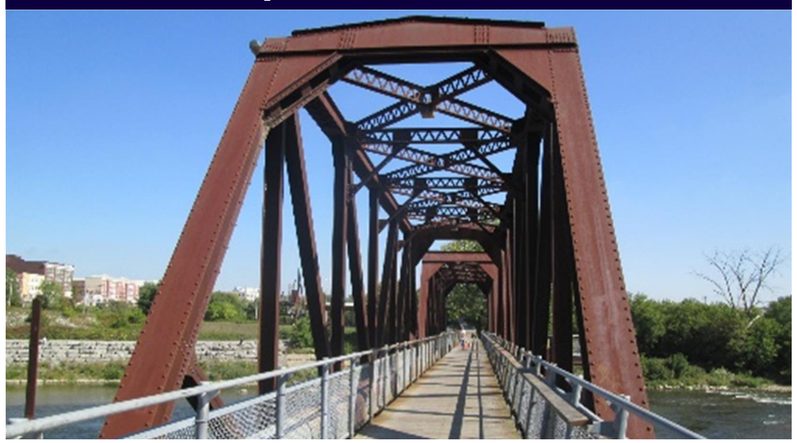
**Recommended Solution:**
**Rehabilitation**



- 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


Note: All costs in 2020 dollars.

# Next Steps in MCEA Process

## Municipal Class EA Planning and Design Process

| PHASE 1 | PHASE 2 | PHASE 3 | PHASE 4 | PHASE 5 |
|---|---|---|---|---|
| PROBLEM OR OPPORTUNITY → | ALTERNATIVE SOLUTIONS → | ALTERNATIVE DESIGN CONCEPTS FOR PREFERRED SOLUTION → | ENVIRONMENTAL STUDY REPORT → | IMPLEMENTATION |
| • Data collection & background review<br>• Notice of Study Commencement<br>• Develop the Problem-Opportunity Statement | • Identify alternative solutions<br>• Public Information Centre #1<br>• Inventory environments and identify impacts<br>• Evaluate alternative planning solutions<br>• Select recommended solution<br>• Public Consultation Centre #2<br>• Review and confirm choice of schedule (reassessed as a "Schedule "C"; therefore, proceed to Phase 3 and Phase 4) | • Identify alternative designs concepts<br>• Identify impacts and mitigation measures<br>• Identify recommended design concept<br>• **Public Information Centre #3**<br>• Identify preferred design concept<br><br>**WE ARE HERE** | • Develop implementation strategy<br>• Prepare Environmental Study Report (ESR)<br>• Notice of Completion and Filing of ESR for 30-day review period | • Detailed design<br>• Construction<br>• Monitor commitments |

# 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

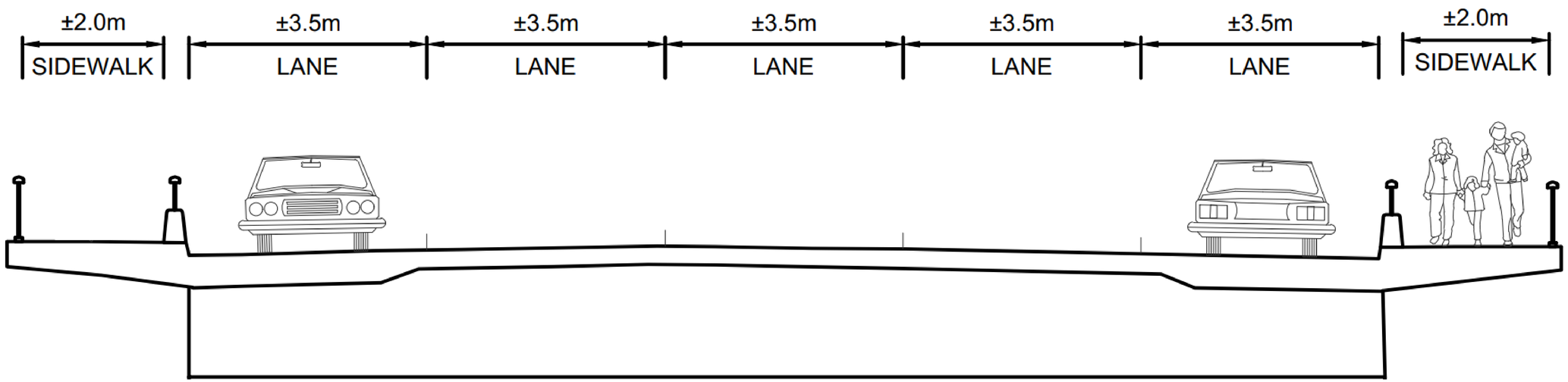
- Material of Bridge Deck
- Raising of Bridge Deck

# 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:

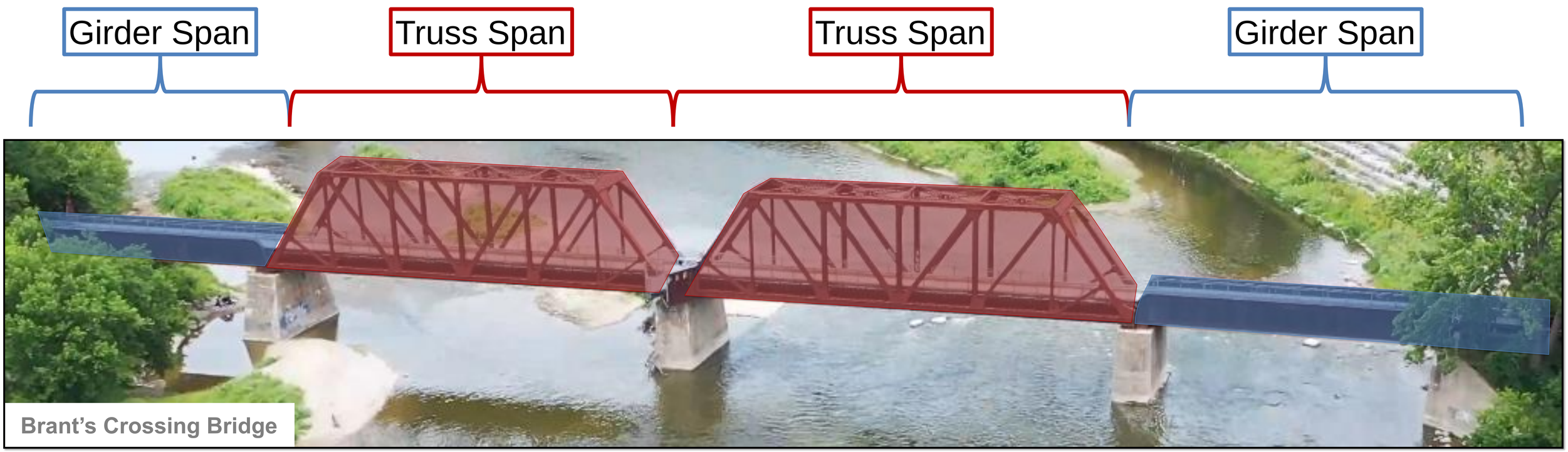
- Maintain existing sidewalks and vehicular lane widths following rehabilitation.


Lorne Bridge

# Brant’s Crossing – Truss Style

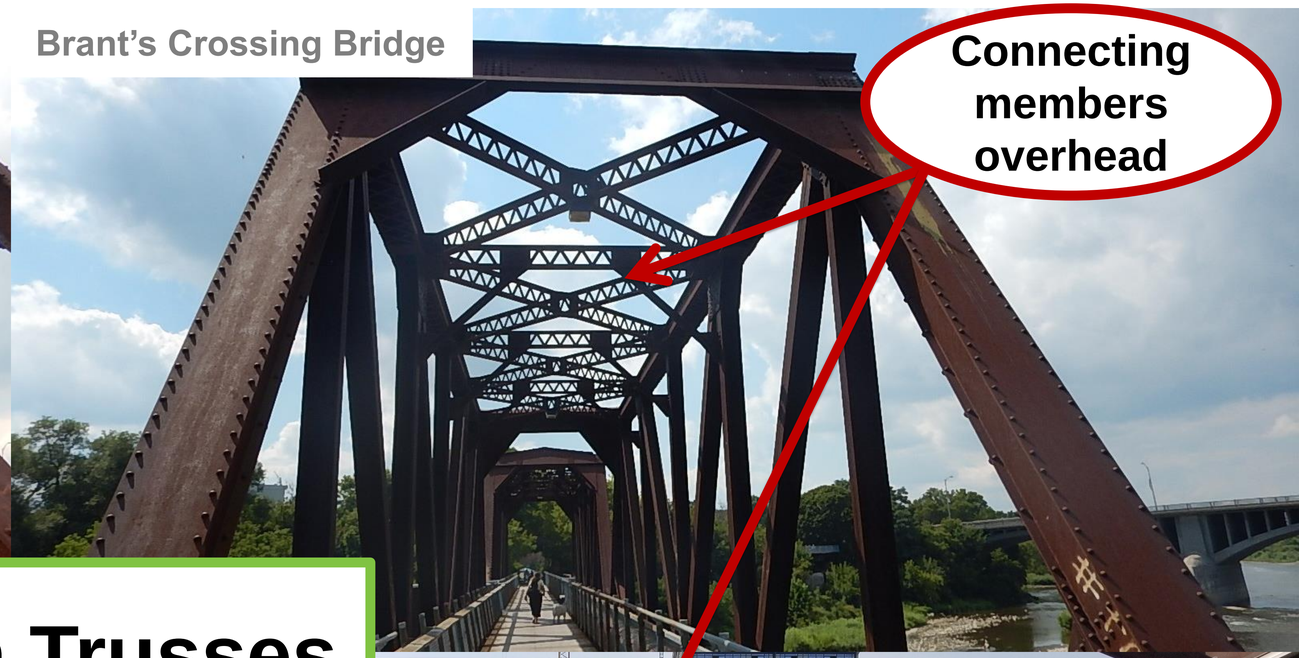
## Style of New Truss:

- 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.



# Brant’s Crossing – Truss Style

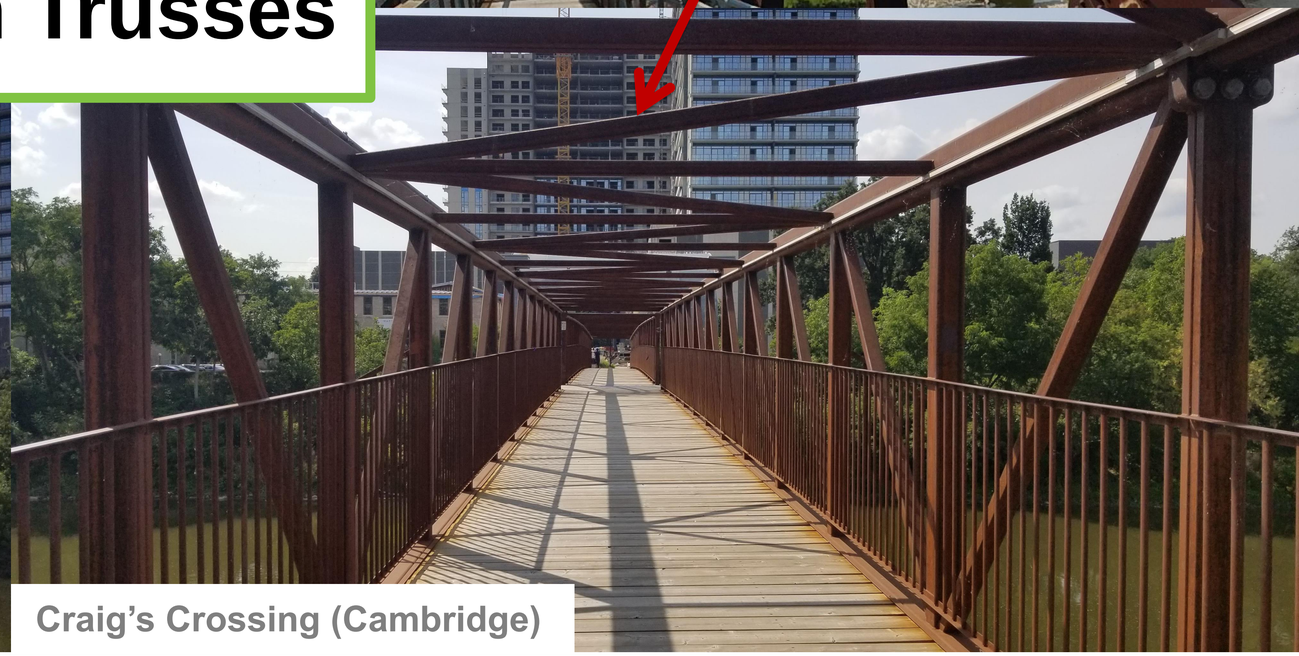
Brant’s Crossing Bridge




Brant’s Crossing Bridge

**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**

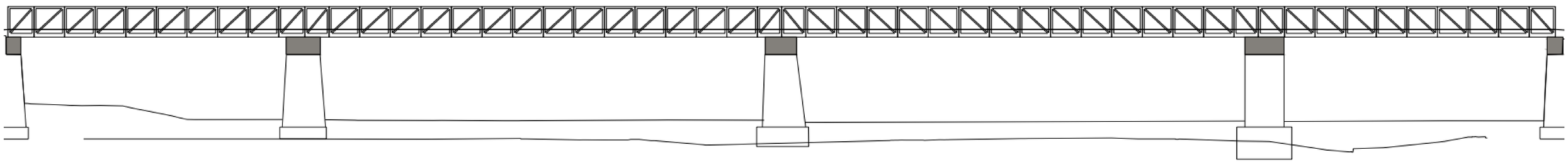
Homer Watson Blvd. Bridge (Waterloo)

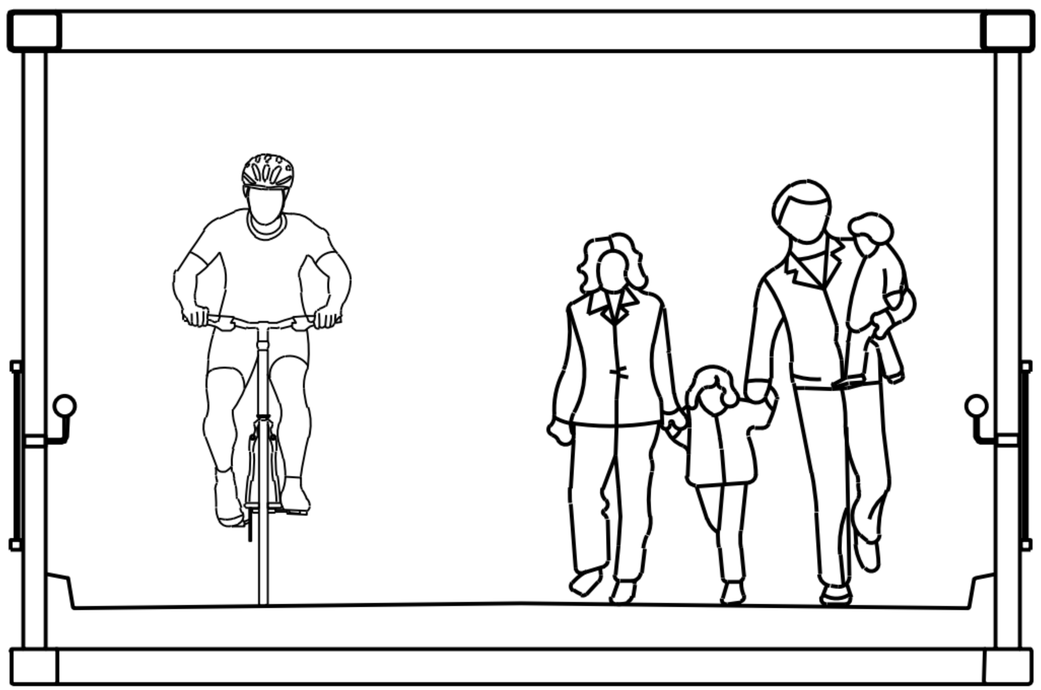
Homer Watson Blvd. Bridge (Waterloo)

**No connecting members overhead**

# Brant’s Crossing – Truss Style

## Option 1: Through Truss for All Spans

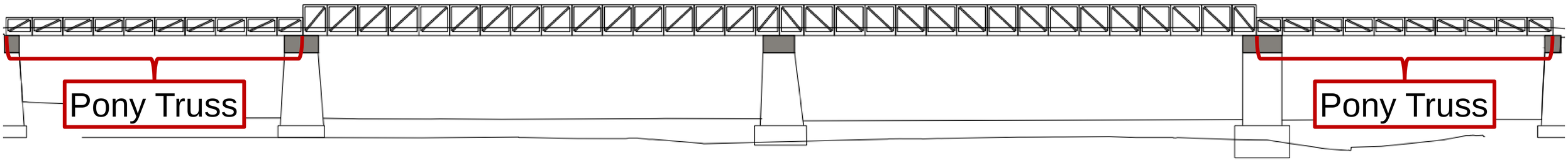


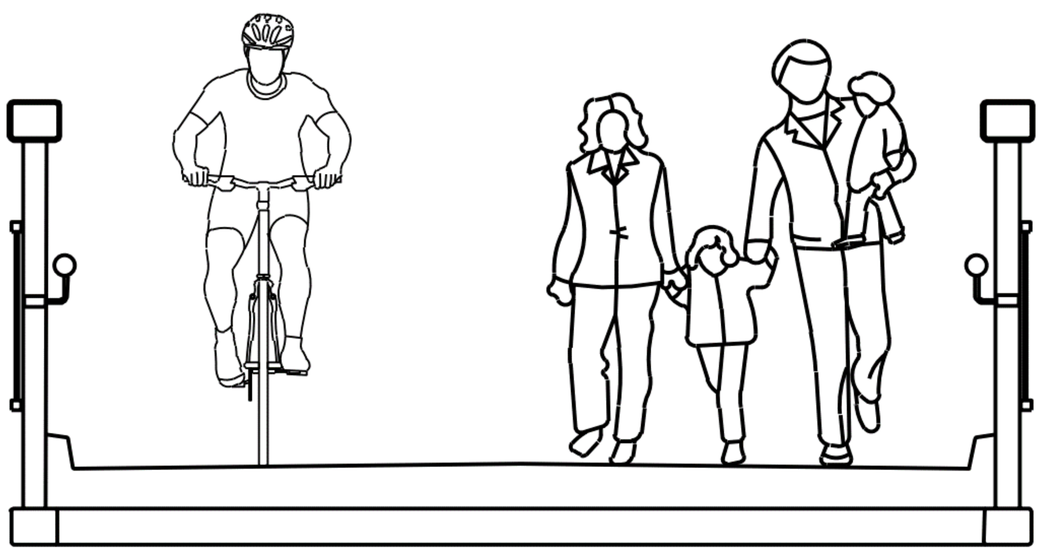


Craig’s Crossing (Cambridge)

# Brant's Crossing – Truss Style

## Option 2: Pony Truss Spans at Each End

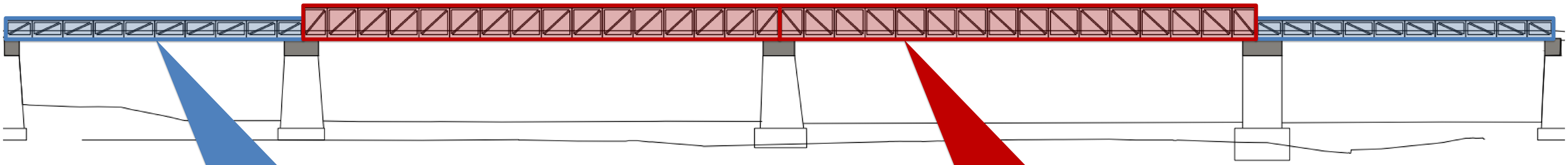



Homer Watson Blvd. Bridge (Waterloo)

# Brant's Crossing – Truss Style

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



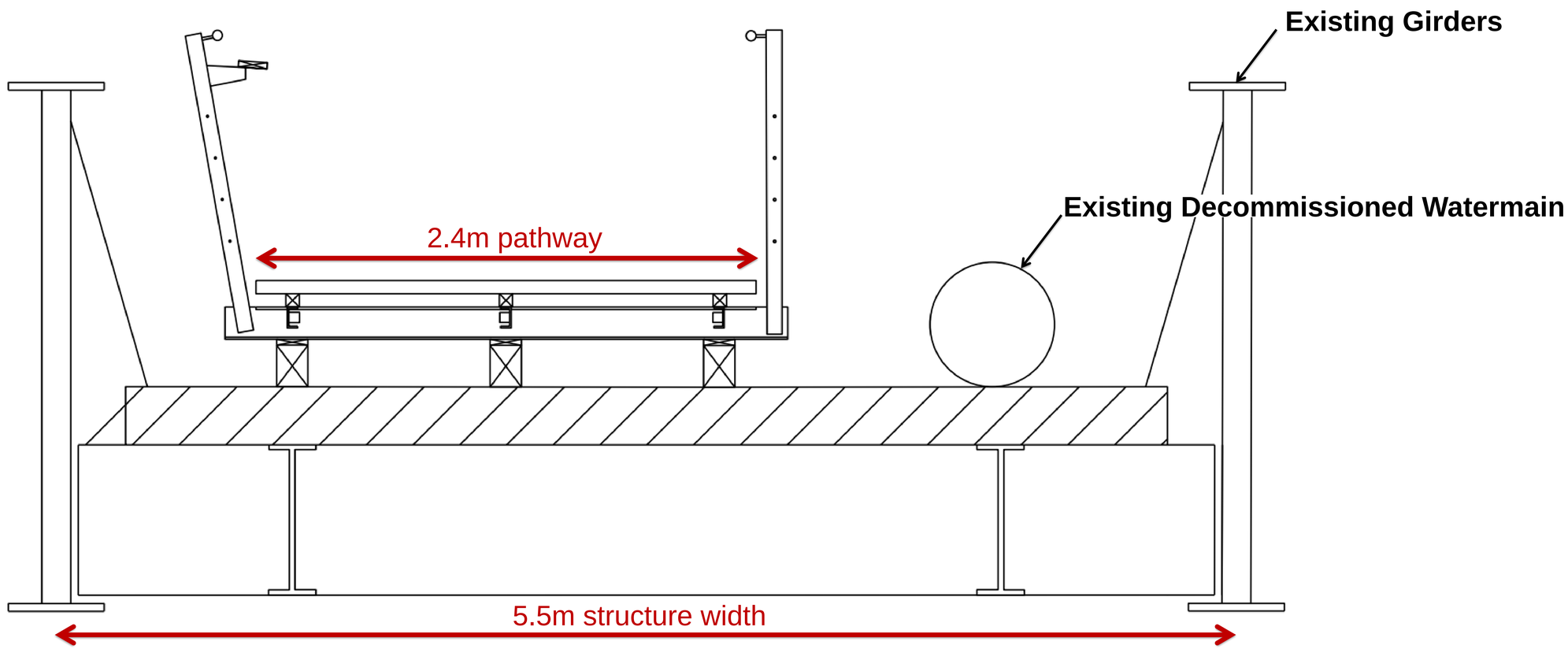
**End Spans: Pony Trusses**

**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.

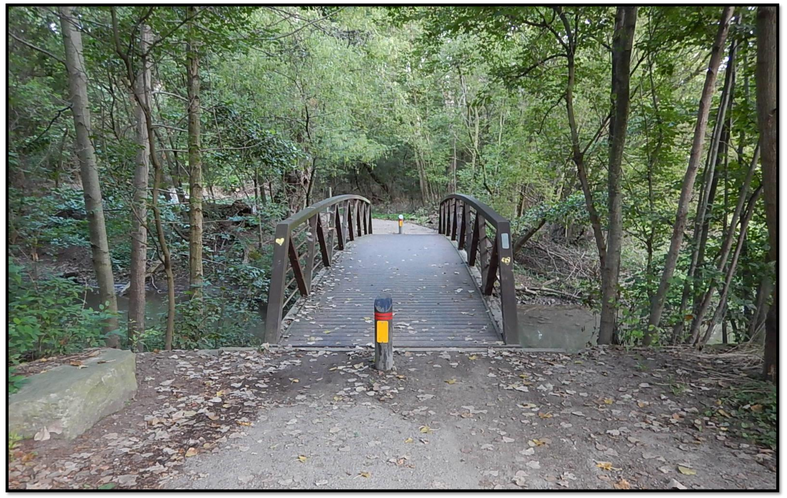


# Brant's Crossing – Pathway Width

## 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 |
|---|---|---|---|---|
| | Gordon Glaves Crossing (Brantford)  | Creighton Avenue Bridge (Guelph)  | Homer Watson Blvd. Bridge (Waterloo)  | Parry Bridge (Chatham-Kent)  |
| **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.

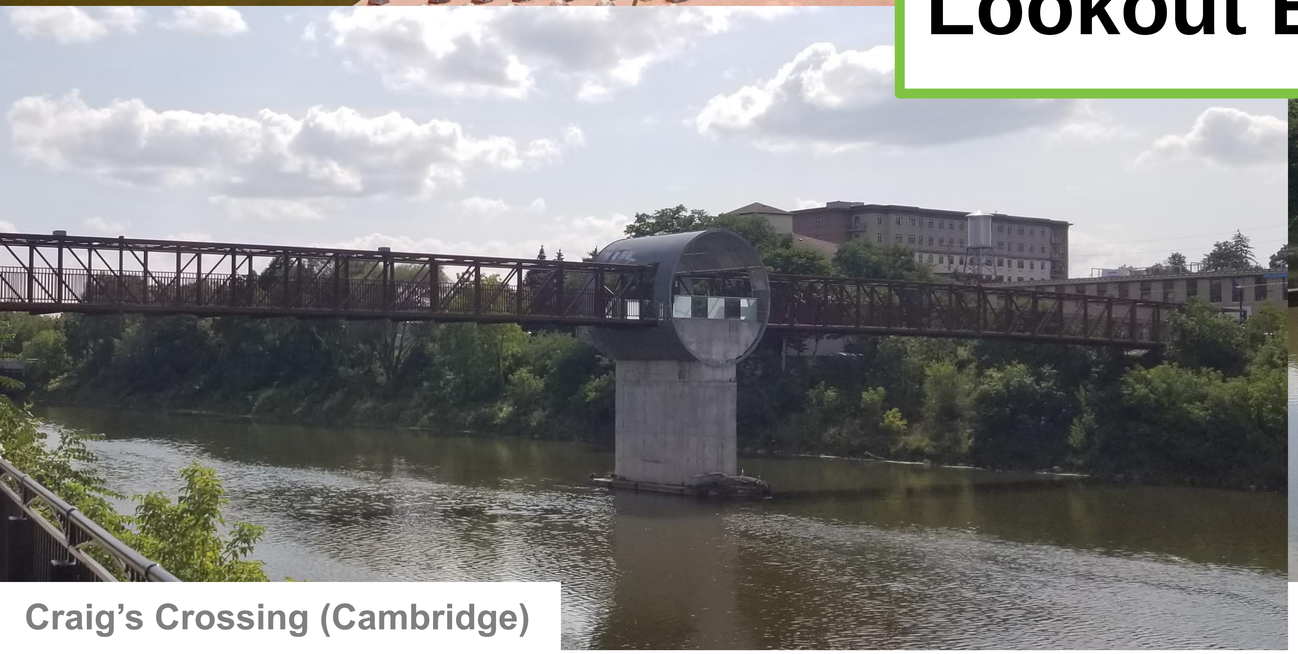

Brant's Crossing Bridge (Brantford)

# Brant’s Crossing – Lookout

Brant’s Crossing Bridge (Brantford)

Cayuga Grand Vista Bridge (Cayuga)

## Lookout Examples



Craig’s Crossing (Cambridge)

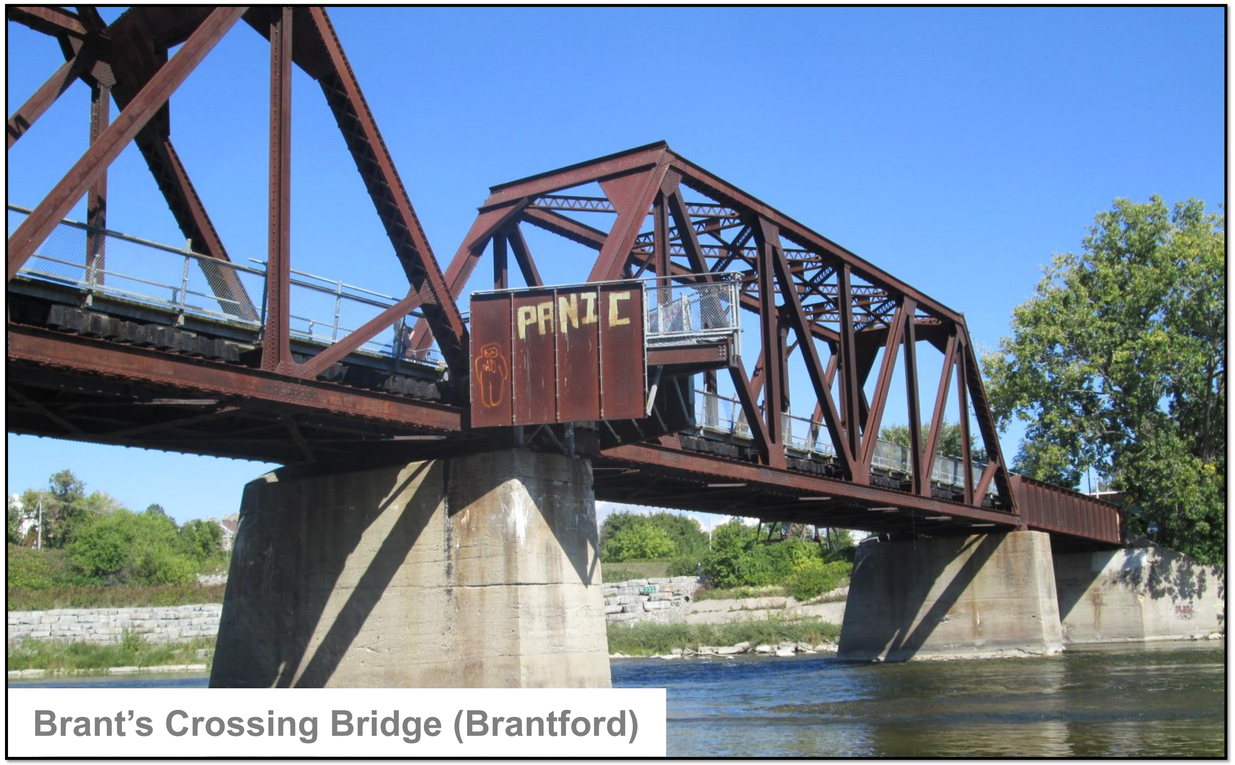
Craig’s Crossing (Cambridge)

# Brant's Crossing – Lookout

## Recommendation:

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

Brant's Crossing Bridge (Brantford)



Brant's Crossing Bridge (Brantford)

- ✓ 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

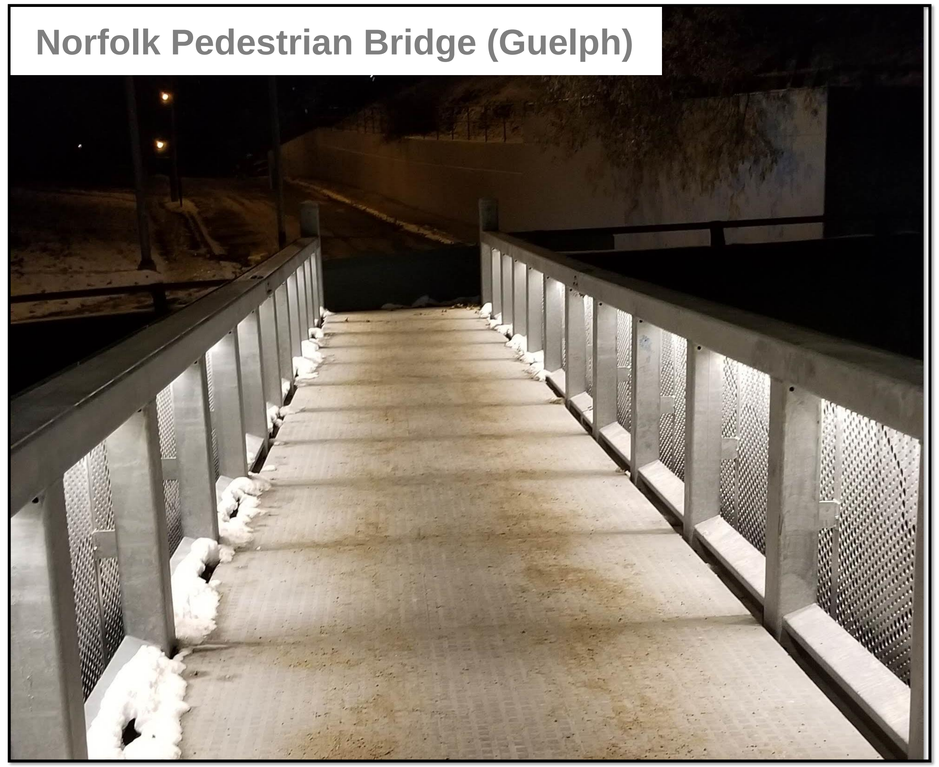
Brant's Crossing Bridge (Brantford)

# 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.


Craig's Crossing (Cambridge)



Norfolk Pedestrian Bridge (Guelph)

- ✓ 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:**

Homer Watson Blvd. Bridge (Waterloo)

**Lookout:**

Craig's Crossing (Cambridge)

**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 Bridge

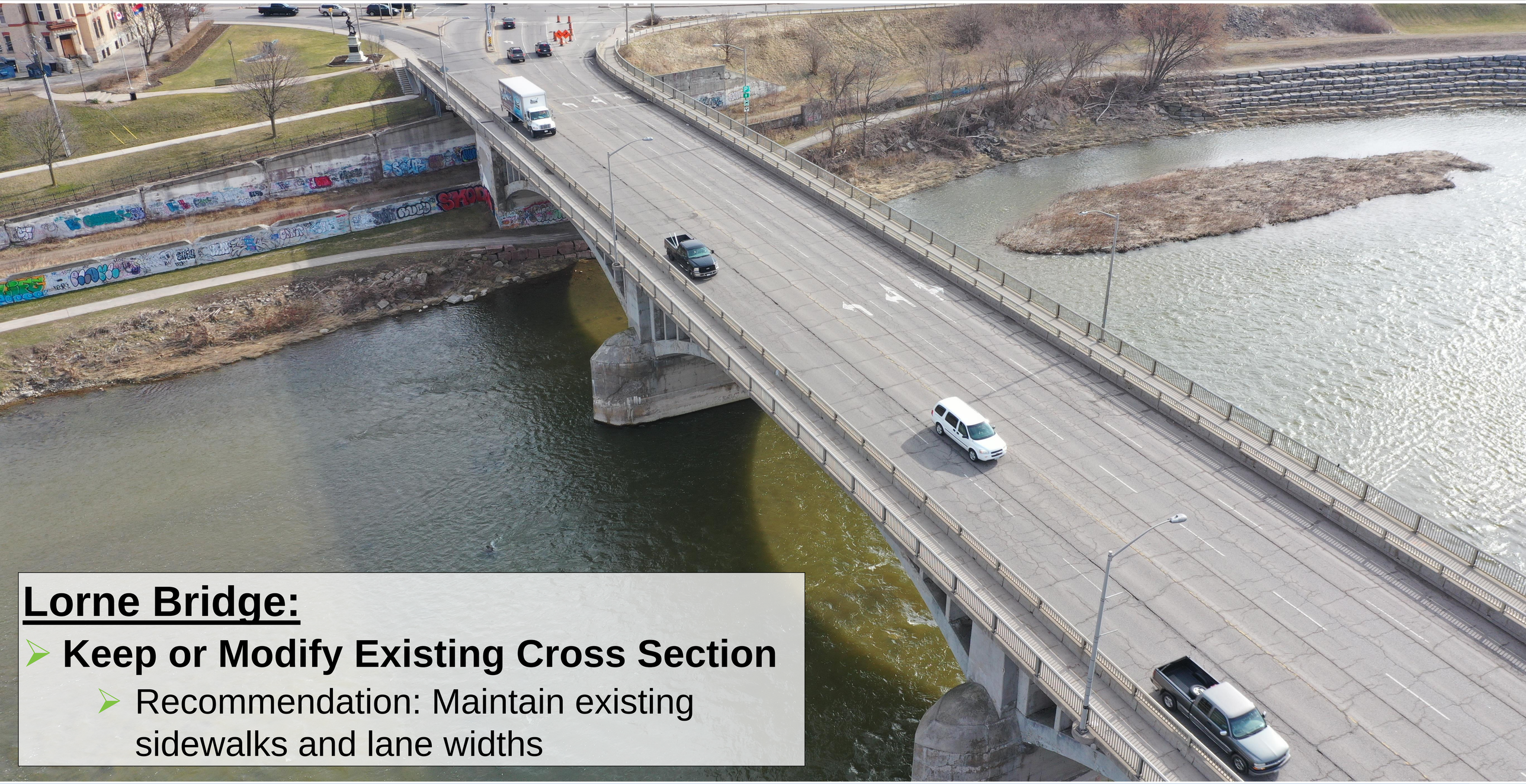
# TH&B Crossing – Raising of Bridge Deck

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

TH&B Crossing 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.

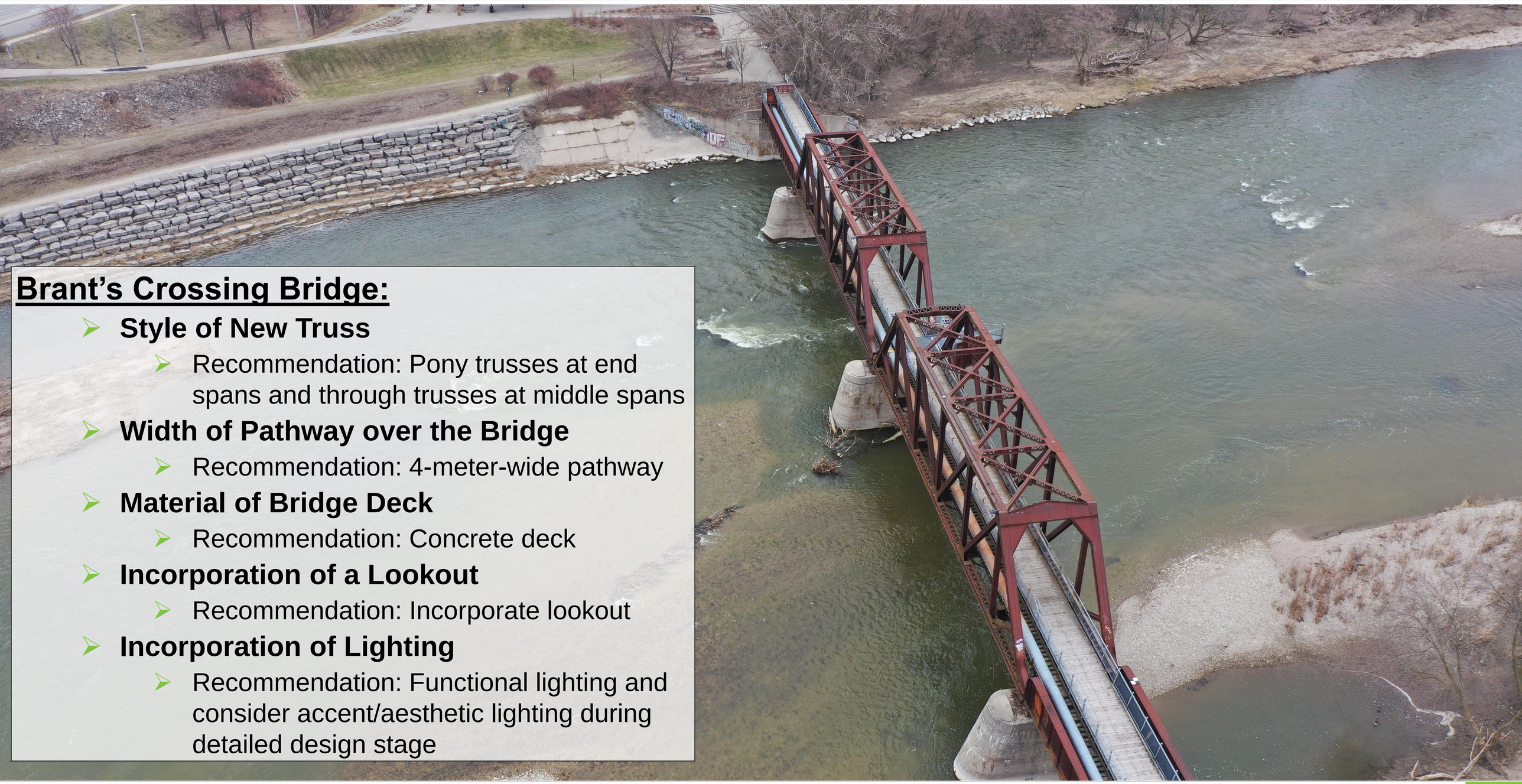
# Summary of Design Concept Recommendations



**Lorne Bridge:**

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

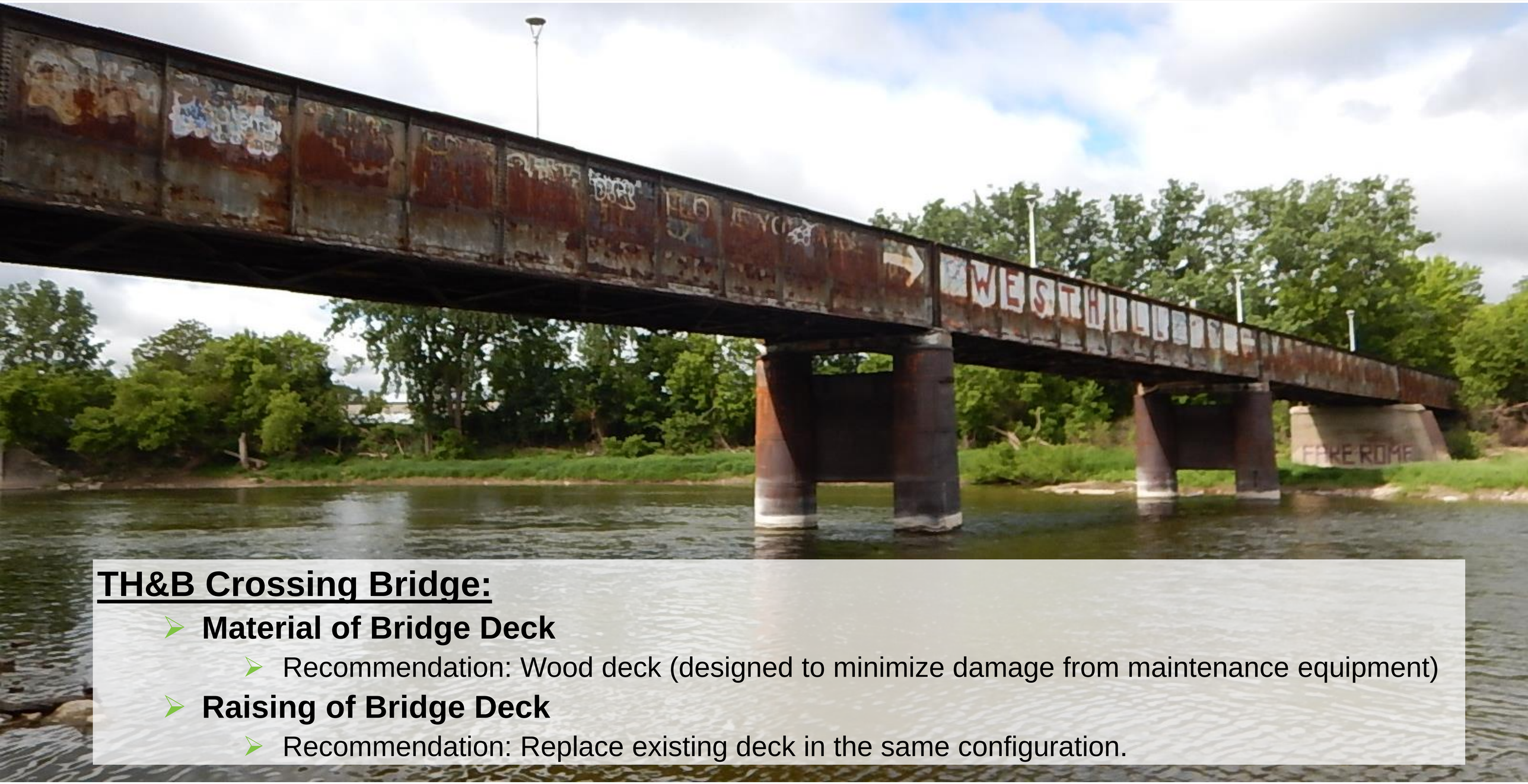
# Summary of Design Concept Recommendations



**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


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.**

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

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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