

APPENDIX L - PUBLIC INFORMATION CENTRE 2

MOVING ROADS FORWARD

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CONNECTING MORE PEOPLE TO MORE POSSIBILITIES



Regional Road 50 (Niagara Street) Bridge Reconstruction Municipal Class Environmental Assessment

City of Welland

Online Public Information Centre #2

June 21, 2021 to July 2, 2021



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Purpose of the Public Information Centre

The Niagara Region is conducting a Municipal Class Environmental Assessment (Class EA) to assess alternative solutions for the replacement of the Niagara Street Bridge in the City of Welland, as well as, alternative solutions for the extension of a transmission watermain along Niagara Street.

The purpose of this Public Information Centre (PIC) is to provide an update to the general public on the progress of the Class EA study, and provide an overview of the following:

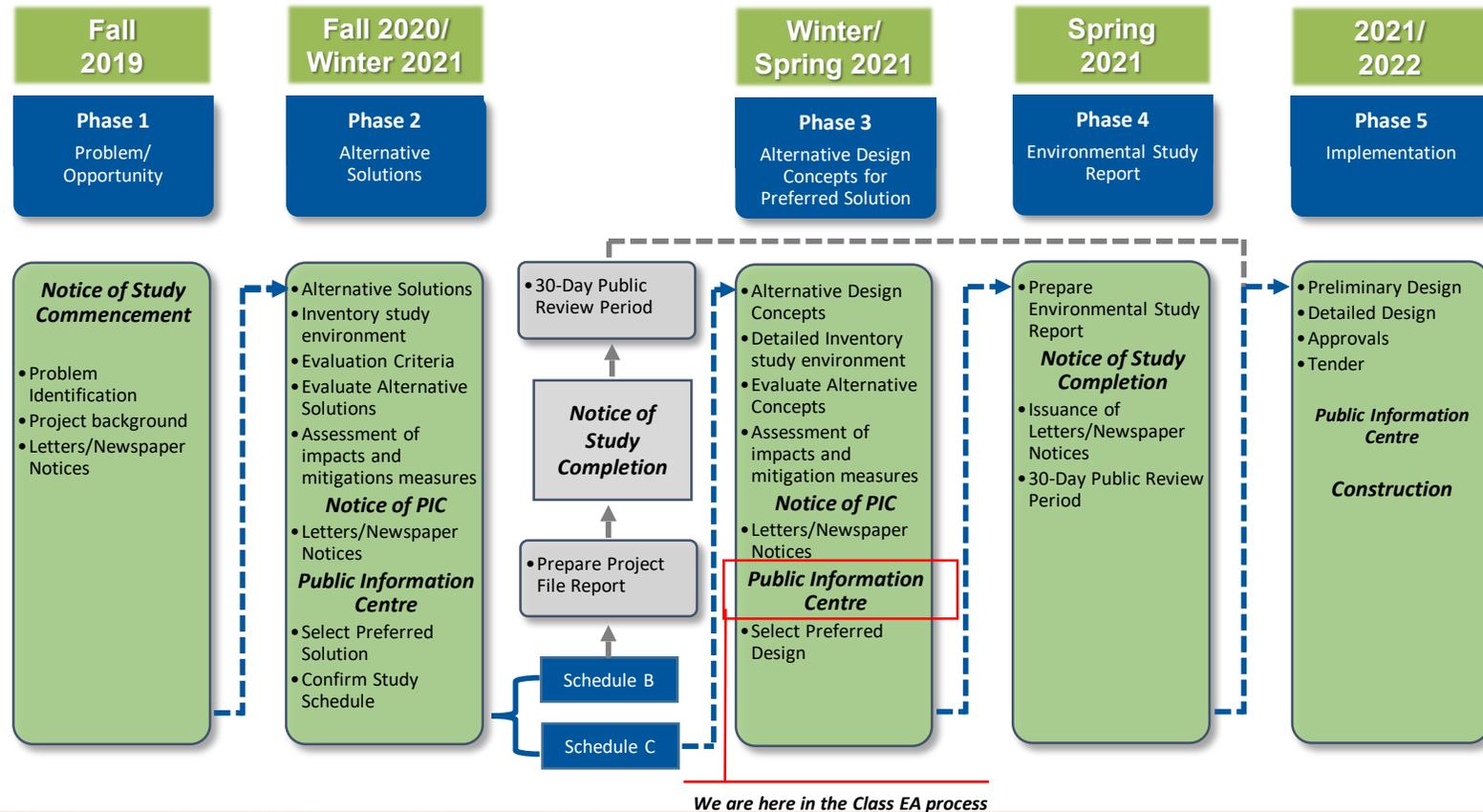
- Overview of the environmental assessment process;
- Problem/Opportunity being considered for this Study;
- Description of the bridge replacement alternative solutions;
- Evaluation criteria and process;
- Description of the watermain installation; and
- Next steps in the MCEA process.

We invite you to share your comments and questions about the information presented by completing an online comment sheet, or by contacting the project team members identified on the *Next Steps* page.

Environmental Assessment Process

The Municipal Class Environmental Assessment Planning and Design Process (Class EA process) is used by Municipalities to ensure that the requirements of the *Environmental Assessment Act* are met when undertaking capital works projects.

The Niagara Street Bridge Replacement is being carried out as a Schedule C undertaking (Phase 1 through 5) as presented in the flow chart below.



About the Study

- The Niagara Region is conducting a Municipal Class Environmental Assessment (Class EA) to assess alternative solutions for the replacement of the Niagara Street Bridge in the City of Welland, as well as the extension of a transmission watermain along Niagara Street.
- The Niagara Street bridge structure (circa 1932) is a four span, 68m long, slab on concrete girder bridge that has been identified as needing replacement due to age and condition of the structure. Previous structural inspections of the bridge identified severe areas of concrete spalling, cracking and deterioration on the structure.
- In addition, to provide needed additional supply capacity to the area, an extension of the 600mm transmission main at Riverbank Street to the 600mm transmission main at Mill Street is required.



Study Area

The Study Area includes Niagara Street (Regional Road 50) Bridge and roadway approaches between Mill Street and Riverbank Street in the City of Welland



Existing Conditions: Niagara Street Bridge

- Carries Regional Road 50 (RR50), a major north-south arterial roadway, over the Welland River
- The bridge is located west of the downtown core, serves an average annual daily traffic of 12,400, and provides access to residential, commercial, and industrial uses
- The bridge structure was originally constructed in 1932, underwent extensive rehabilitation works in 1973, and interim repair works in early 2020
- The existing structure is 68m long with four spans and has a cross-sectional width of 18.3m consisting of two travel lanes (including shoulders) of 7m width each and sidewalks and parapet walls on both sides
- The superstructure is reinforced concrete slab on 28 pre-stressed concrete girders with an asphalt wearing surface which was reconstructed in 1973
- The substructure consists of reinforced concrete abutments and three concrete piers all supported by timber piles and are original (circa 1932)



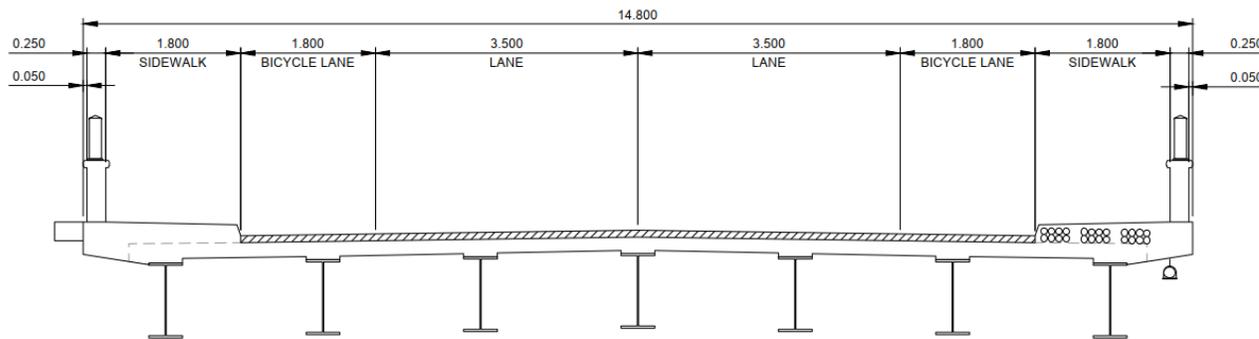
Public Information Centre #1 Recap

- The first PIC was held virtually on Thursday March 4, 2021
- As part of the first PIC, the following four (4) bridge replacement alternative solutions were presented:
 - Alternative #1 - Do Nothing
 - Alternative #2 - Replace superstructure utilizing the existing piers
 - Alternative #3 - Replace with new superstructure and substructure
 - Alternative #4 - Replace with new single span structure
- The preferred alternative solution was determined to be: **Alternative #3 - Replace with new superstructure and substructure**
- The following four (4) watermain crossing alternative solutions were also presented:
 - Alternative #1 - Trenchless crossing
 - Alternative #2 - Independent pipe bridge
 - Alternative #3 - Support watermain from Niagara Street Bridge
 - Alternative #4 - Install watermain inside steel tub girder bridge
- The preferred alternative solution was determined to be: **Alternative #3 - Support watermain from Niagara Street Bridge**

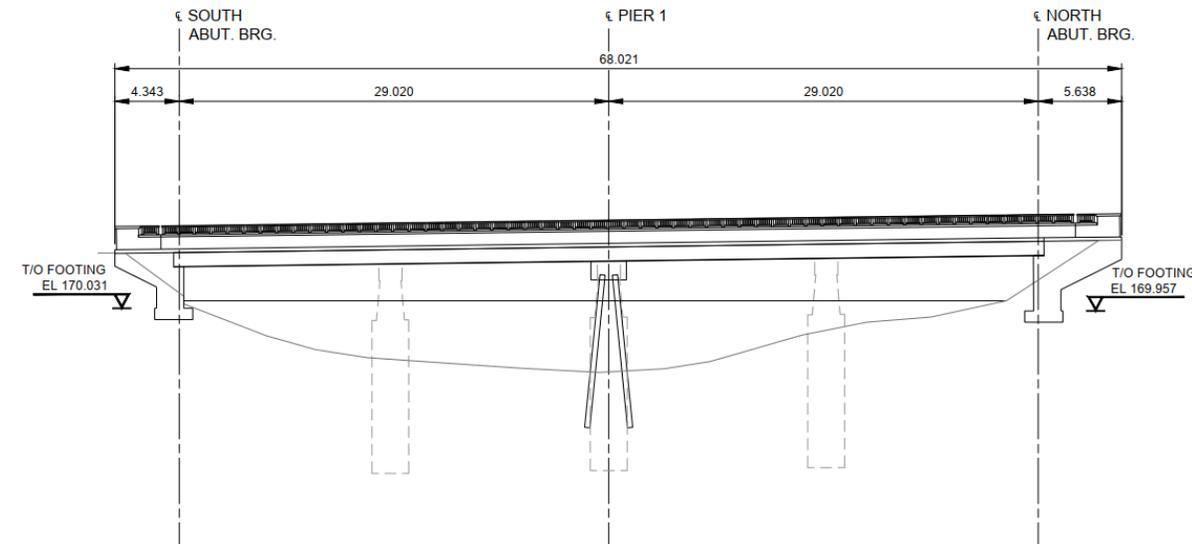
Alternative Bridge Design Options

Considering the Preferred Solution to replace the existing superstructure and substructure, several Alternative Bridge Design Options were developed.

Option # 1 - Two-Span Steel I-Girder Bridge: Replace existing bridge with new structure (superstructure and substructure). Bridge would have 14.8m wide cross-section including two 3.5m travel lanes, two 1.8m bicycle lanes, and two 1.8m wide sidewalks. The existing piers would be removed to riverbed with one (1) new concrete pier being constructed. The abutment walls would also be rebuilt due to existing deterioration. The new superstructure will be constructed with steel I-girders with concrete deck (225mm depth) and asphalt surface.



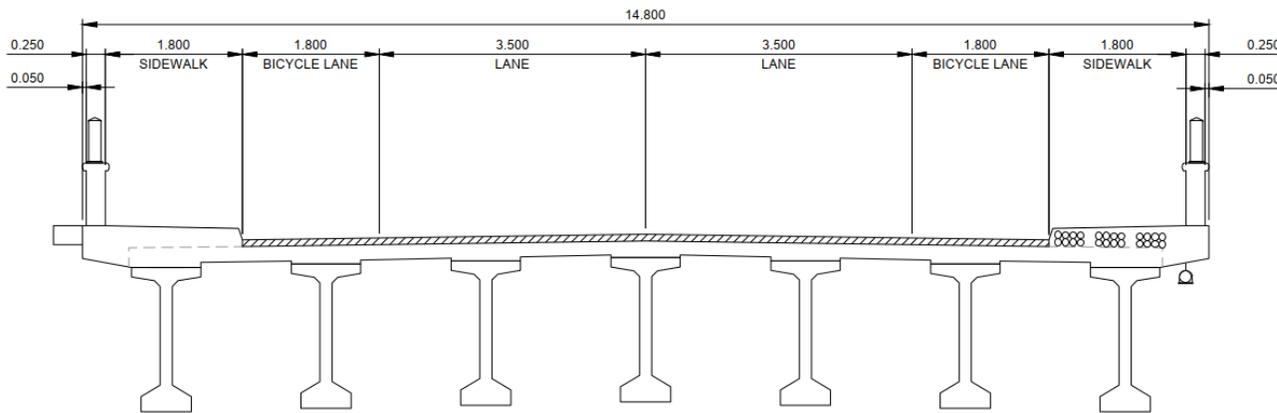
CROSS-SECTION OPTION 1



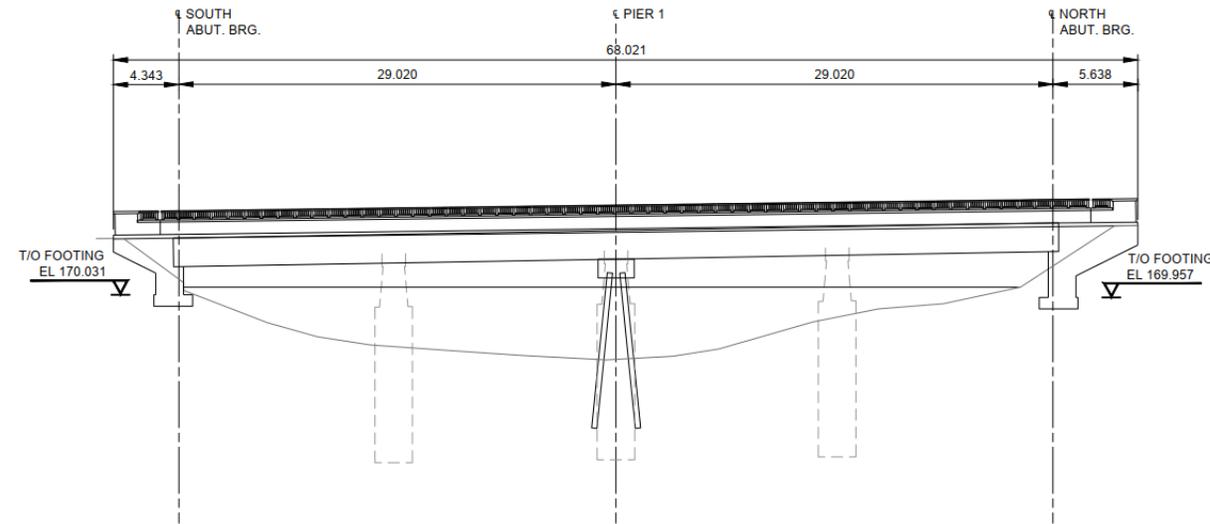
ELEVATION OPTION 1

Alternative Bridge Design Options

Option # 2 - Two-Span Pre-Stressed Concrete Girder Bridge: Replace existing bridge with new structure (superstructure and substructure). Bridge would have 14.8m wide cross-section including two 3.5m travel lanes, two 1.8m bicycle lanes, and two 1.8m wide sidewalks. The existing piers would be removed to riverbed with one (1) new concrete pier being constructed. The abutment walls would also be rebuilt due to existing deterioration. The new superstructure will be constructed with pre-stressed concrete girders (CPCI 1400) with concrete deck (225mm depth) and asphalt surface.



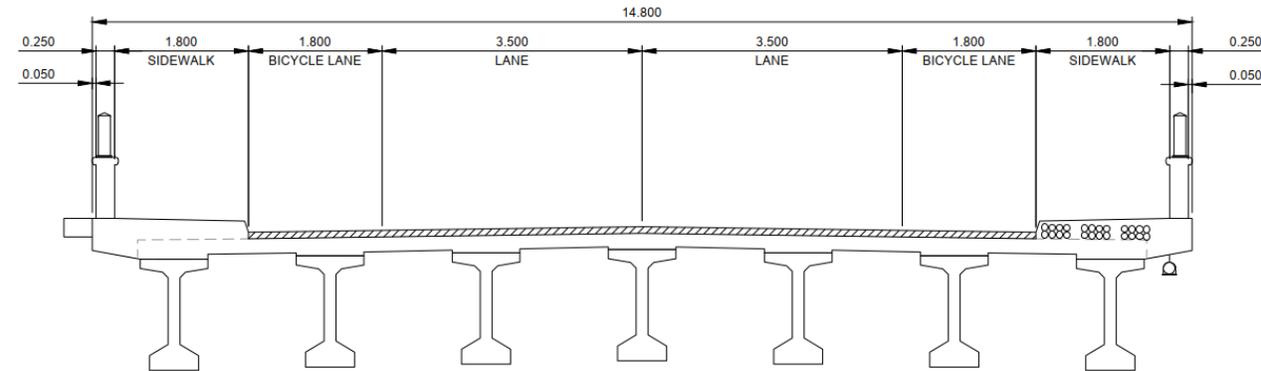
CROSS-SECTION OPTION 2



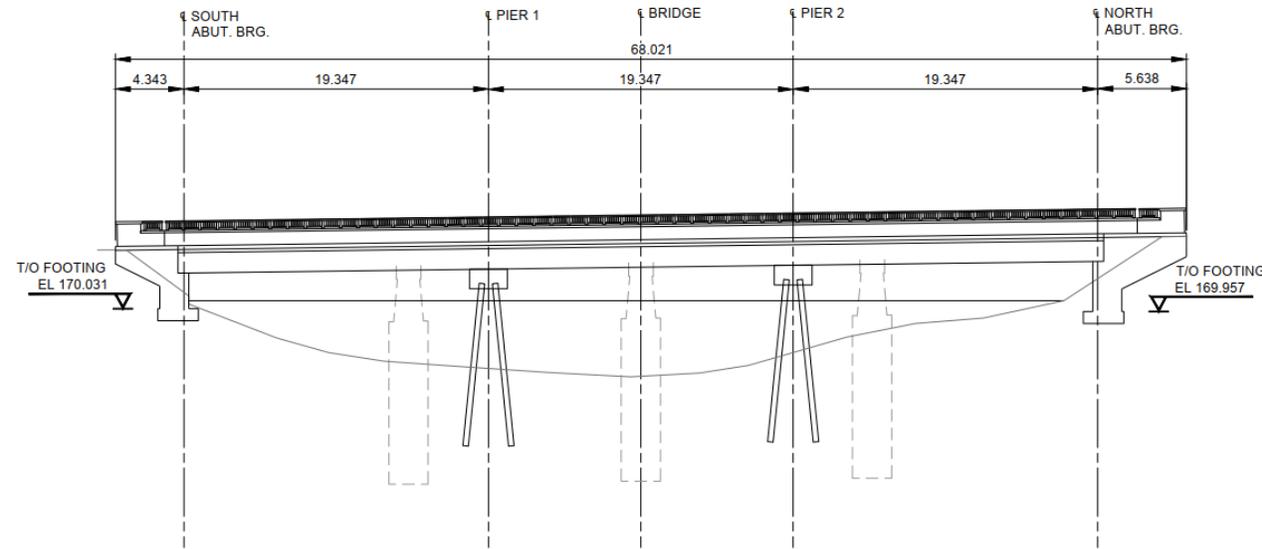
ELEVATION OPTION 2

Alternative Bridge Design Options

Option # 3 - Three-Span Pre-Stressed Concrete Girder Bridge: Replace existing bridge with new structure (superstructure and substructure). Bridge would have 14.8m wide cross-section including two 3.5m travel lanes, two 1.8m bicycle lanes, and two 1.8m wide sidewalks. The existing piers would be removed to riverbed with two (2) new concrete piers being constructed. The abutment walls would also be rebuilt due to existing deterioration. The new superstructure will be constructed with pre-stressed concrete girders (CPCI 900) with concrete deck (225mm depth) and asphalt surface.



CROSS-SECTION OPTION 3



ELEVATION OPTION 3

Evaluation Criteria

The evaluation criteria that was used to evaluate the alternative bridge design options includes:

Natural Environment

- Direct and indirect impacts on the existing vegetation, water quality, watercourse, and fisheries/wildlife habitat
- Hydraulic impact on Welland River
- Consideration for temporary impact to natural environment due to construction
- Consideration for long-term/permanent impact to environment due to new structure

Technical – Design Features

- Ability to address structural requirements
- Consideration for structural sustainability
- Consideration for ease of access to complete future bridge inspections
- Consideration for future maintenance needs

Technical – Construction

- Consideration for length of time to complete construction
- Constructability – consideration for the complexity or ease of the construction process
- Consideration for any special equipment required to complete the construction

Aesthetics

- Consideration for how visually appealing the alternative is

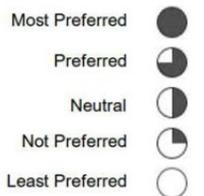
Cost

- Construction cost

Note: All factors relating to socio-economic and cultural environment were evaluated as part of the first PIC

Evaluation Summary – Alternative Bridge Design Options

Weight	Evaluation Criteria	Alternative 1: Two Span Steel I-Girder Bridge	Alternative 2: Two Span Pre-Stressed Concrete Girder Bridge	Alternative 3: Three Span Pre-Stressed Concrete Girder Bridge
15%	Environment	 <ul style="list-style-type: none"> Significant in-water works for removal and construction of abutments and pier Reduced number of piers from existing structure will improve river hydraulics and natural environment footprint Two spans allow the girder depth to be small enough to not significantly impact the hydraulic opening 	 <ul style="list-style-type: none"> Significant in-water works for removal and construction of abutments and pier Reduced number of piers from existing structure will improve river hydraulics and natural environment footprint Two spans allow the girder depth to be small enough to not significantly impact the hydraulic opening 	 <ul style="list-style-type: none"> Most substantial in-water works for removal and construction of abutments and piers Reduced number of piers from existing structure will improve river hydraulics and natural environment footprint Three spans allows the shallowest girder depths, minimizing the impact to the hydraulic opening
25%	Technical - Design Features	 <ul style="list-style-type: none"> Steel girders less durable meaning more maintenance will be required Steel girders provide inspectability of girders and soffit 	 <ul style="list-style-type: none"> CPCI girders more durable meaning less maintenance will be required CPCI girders provide inspectability of girders and soffit 	 <ul style="list-style-type: none"> CPCI girders more durable meaning less maintenance will be required CPCI girders provide inspectability of girders and soffit Additional inspection effort will be required due to having a second pier in water
25%	Technical - Construction	 <ul style="list-style-type: none"> Delivery and erection of girders less expensive and complex as they are lighter than concrete girders Approx. 10 month construction schedule Barge may be required for in-water works 	 <ul style="list-style-type: none"> Delivery and erection of girders more expensive and complex as concrete girders are heavier than steel Approx. 10 month construction schedule Barge may be required for in-water works 	 <ul style="list-style-type: none"> Delivery and erection of girders more expensive and complex as concrete girders are heavier than steel, however girders are lighter than Alternative 2 due to shorter span Approx. 12 month construction schedule Barge may be required for in-water works More complex construction due to increased in-water works for second pier
10%	Aesthetics	 <ul style="list-style-type: none"> Steel girders provide standard bridge appeal, one pier allows for minimized disruption to natural environment aesthetic 	 <ul style="list-style-type: none"> Concrete girders provide standard bridge appeal, one pier allows for minimized disruption to natural environment aesthetic 	 <ul style="list-style-type: none"> Concrete girders provide standard bridge appeal, two pier causes more disruption to natural environmental aesthetic
25%	Cost	 <p>Construction: \$3.7M</p>	 <p>Construction: \$4.0M</p>	 <p>Construction: \$4.4M</p>
	OVERALL	MOST PREFERRED 80	NOT PREFERRED 70	LEAST PREFERRED 45



Watermain Crossing

As determined during Phase 2 of the Class EA process, the new 600mm diameter watermain crossing will be supported from the Niagara Street bridge structure after replacement. Key considerations in design will include protection of the crossing from freezing and vandalism.

No further design options were developed for the watermain crossing as part of the Class EA study. Design details will be confirmed during implementation of the preferred solution (detailed design and construction).



EXAMPLE: CEMENT PLANT ROAD WATERMAIN SUPPORTED TO BRIDGE (PORT COLBORNE)



Next Steps

- Integration of feedback received through this public consultation
- Documentation of Class EA process including consideration for detailed design to be carried forward
- Filing of the Environmental Study Report for 30-day public review (Summer 2021)

For any comments or question, please contact:

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HOW YOU CAN GET INVOLVED



Submit questions and input by completing an online comment sheet or reaching out to project team members



Visit the project webpage at www.niagararegion.ca to view study material



Review the Environmental Study Report (Summer 2021)

Comment period will be open until **Friday July 2, 2021**

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**Regional Road 50 (Niagara Street) Bridge Reconstruction
Schedule C Class Environmental Assessment Study**

COMMENT SHEET

**Online Public Information Centre
(PIC) #2
June 21, 2021 to July 2, 2021**

Comment Period: June 21, 2021 to July 2, 2021

Name:

Address:

Postal Code:

Phone:

Email:

Public input is encouraged and will be given consideration during the planning and design of this project. Please provide any comments you may have in the space provided below.

Please complete this Comment Sheet and submit via email to either of the Study Team members below on or before **July 2, 2021**. Your input and comments are appreciated.

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Niagara Region and Associated Engineering thank you for your involvement in this Municipal Class Environmental Assessment Study for Regional Road 50 (Niagara Street) Bridge Reconstruction. Personal information collected or submitted in writing at public meetings will be collected, used and disclosed by members of Regional Council and Regional staff in accordance with the *Municipal Freedom of Information and Protection of Privacy Act* (MFIPPA). The written submissions including names, contact information and reports of the public meeting will be made available. Questions should be referred to the Privacy Office at 905-980- 6000, ext. 3779 or FOI@niagararegion.ca.