

APPENDIX K - PUBLIC INFORMATION CENTRE 1



WELCOME
VIRTUAL PUBLIC INFORMATION CENTRE
Regional Road 50 (Niagara Street) Bridge Reconstruction
City of Welland

Thursday March 4, 2021
6:00p.m.



PURPOSE OF THE PUBLIC INFORMATION CENTRE

The Niagara Region is conducting a Municipal Class Environmental Assessment (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 introduce the Class EA Study to the general public and stakeholders and provide an overview of progress to-date including:

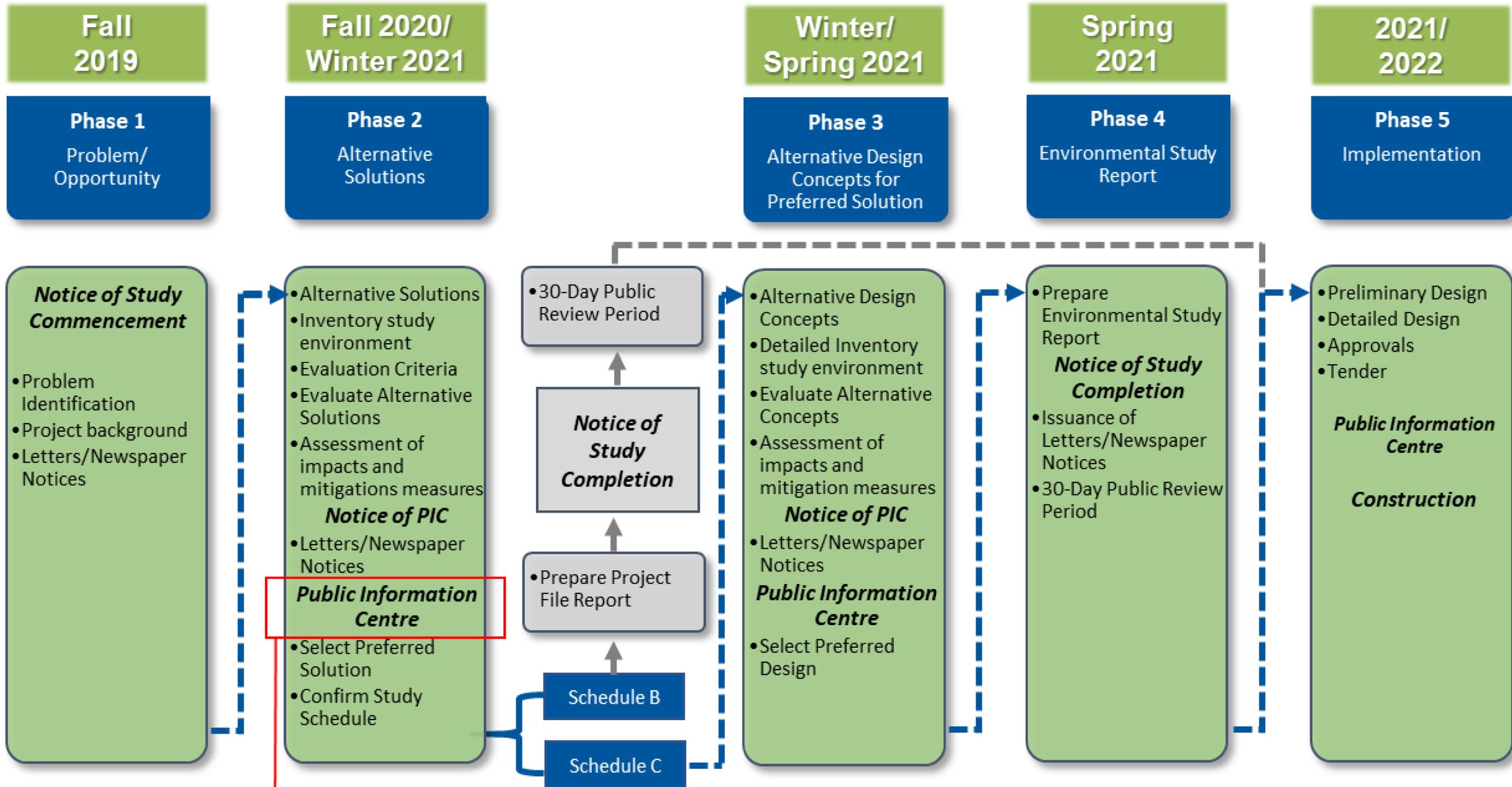
- Problem/opportunity being considered for the Study;
- Key considerations and issues associated with the Study Area;
- Existing conditions of the Study Area;
- Description of alternative solutions;
- Evaluation criteria and process; and
- Next steps in the Class EA process.

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

TIMELINE & 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 (Phases 1 through 5) as presented in the flow chart below.



We are here in the Class EA process



ABOUT THE STUDY

Defining the Problem:

- 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 the 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.
- Given the need to replace the Niagara Street bridge, there is an opportunity to address structural deficiencies, improve public safety of all modes of transportation (vehicular, cyclist, and pedestrian), and provide secure water supply to the surrounding area.

The Study Area includes the Niagara Street (Regional Road 50) Bridge and roadway approaches (between Riverbank Street and Mill Street).

STUDY AREA





KEY CONSIDERATIONS

Key issues and considerations for the Study Area include:

- Active transportation connectivity including cyclist and pedestrian facilities
- Security of water supply
- Environmental sensitivities
- Existing subsurface conditions
- Existing utilities
- Property acquisition
- Aesthetics

Several baseline condition studies have been completed, including the following:

- Structural Condition Assessment
- Cultural Heritage Assessment
- Archaeological Assessment
- Natural Environment Impact Assessment
- Geotechnical and Soils Investigation
- Hydrogeological Assessment
- Infrastructure Inventory

The findings and recommendations of the listed studies support the development of alternative solutions, design concepts and completion of the evaluation process.

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 (AADT) 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 2019.
- 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 a 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).





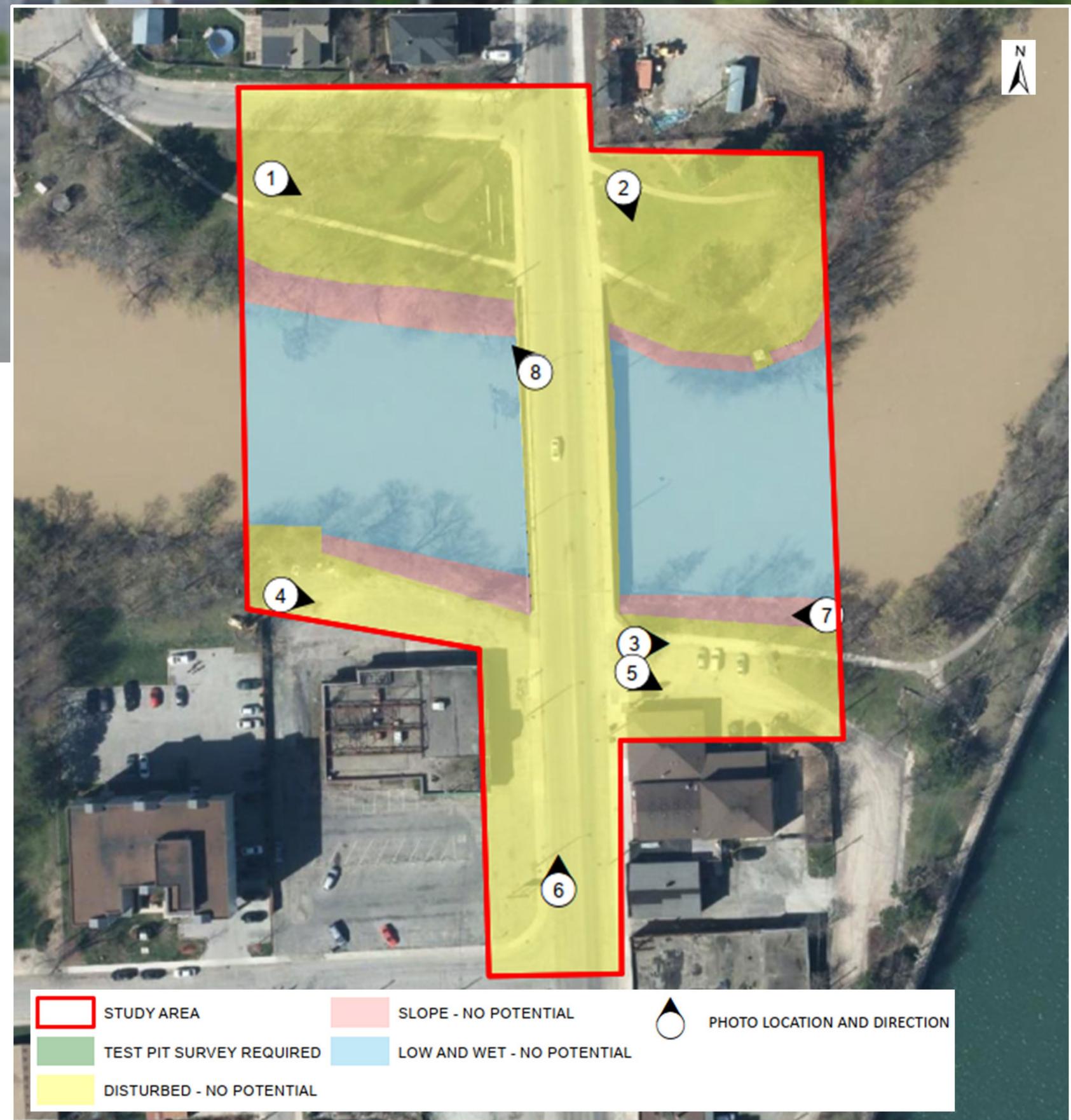
EXISTING CONDITIONS: CULTURAL HERITAGE

- A Cultural Heritage Resource Assessment (CHRA) and Cultural Heritage Evaluation Report (CHER) were completed for the Study Area.
- Five (5) potential features identified with cultural heritage value.
- The cultural heritage value of the bridge structure was evaluated and determined not to have any cultural heritage significance.



EXISTING CONDITIONS: ARCHAEOLOGICAL

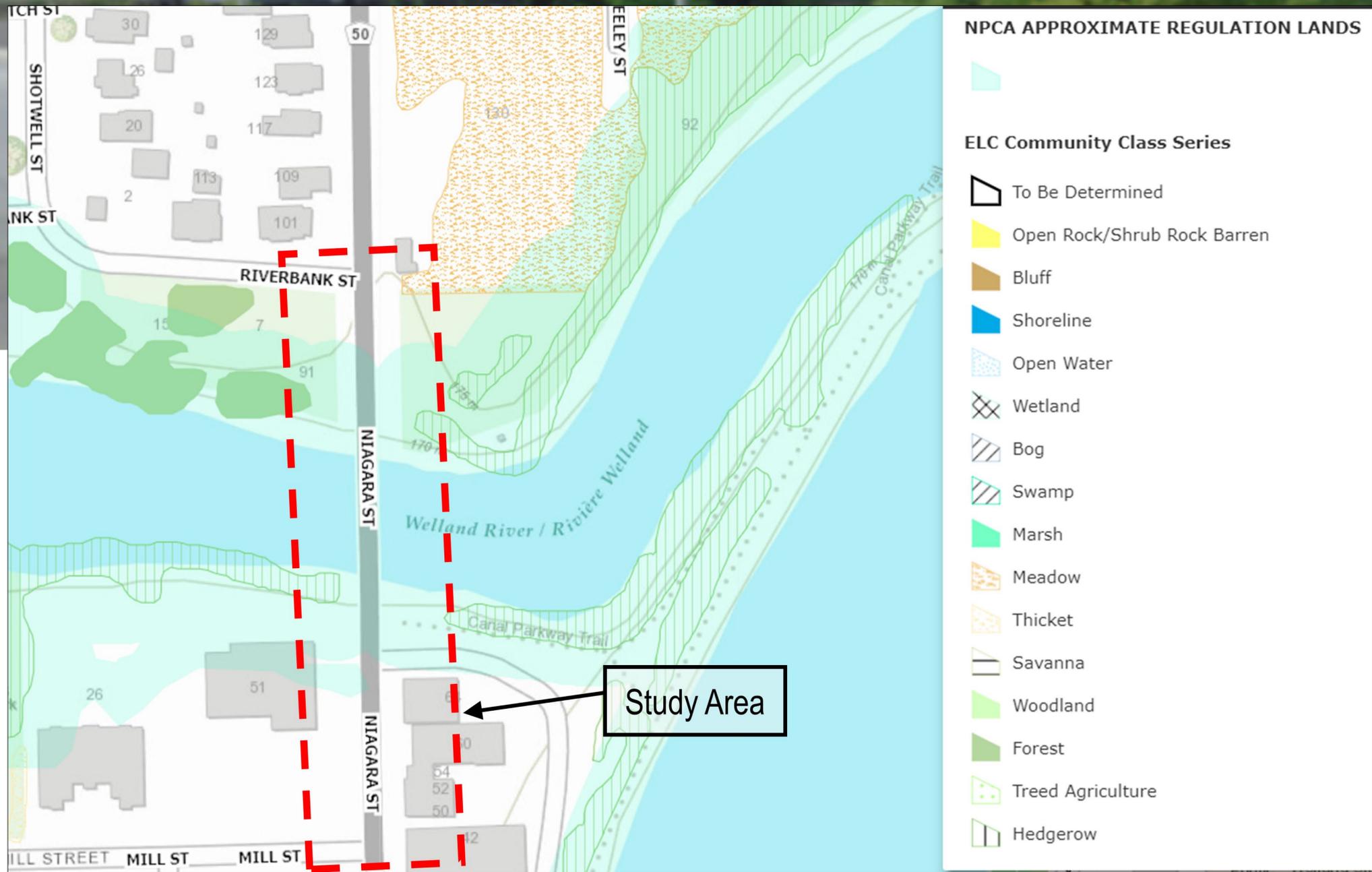
- A Stage 1 Archaeological Assessment was completed of the Study Area.
- The Study Area does not retain archaeological potential on account of deep and extensive land disturbance, low and wet conditions, or slopes in excess of 20 degrees.





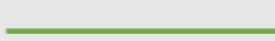
EXISTING CONDITIONS: NATURAL ENVIRONMENT

- The Study Area crosses the Welland River and is within NPCA regulated lands.
- NPCA and MNRF mapping identify wetlands and woodlots within the vicinity of the Study Area.
- Welland River West Wetland Complex (a Provincially Significant Wetland) is located upstream of the bridge (> 100m); however, likely no real potential for impacts.
- There is potential for Eastern Pondmussel (*Ligumia nasuta*), a freshwater mussel SAR (Species at Risk), in the Welland River.



- Observed Barn Swallow (*Hirundo rustica*) nests, a bird SAR, under the bridge.
- Mitigation will be required during construction to minimize impacts to natural environment sensitivities and SAR.

EXISTING CONDITIONS: INFRASTRUCTURE & UTILITIES

-  Study Limits
-  Transmission Main
-  Local Watermain
-  Sanitary Sewer
-  Storm Sewer
-  Combined Sewer
-  Enbridge Gas Main
-  Bell Conduits
-  Valve Chamber
-  Sanitary MH
-  Storm MH
-  Combined MH
-  Outfall



BRIDGE REPLACEMENT ALTERNATIVE SOLUTIONS

Throughout the Municipal Class EA process the following Alternative Solutions are being considered for the bridge replacement:

ALTERNATIVE #1: Do Nothing

The existing Niagara Street bridge structure remains in its existing condition. The interim bridge repairs completed in 2019 will prolong the bridge's service life for approximately 5 years, at which time additional bridge repairs or rehabilitation works will be required.

Due to the age and condition of the structure, this alternative is not considered feasible but has been considered as a benchmark for comparison.



NIAGARA STREET BRIDGE (UPSTREAM LOOKING EAST)

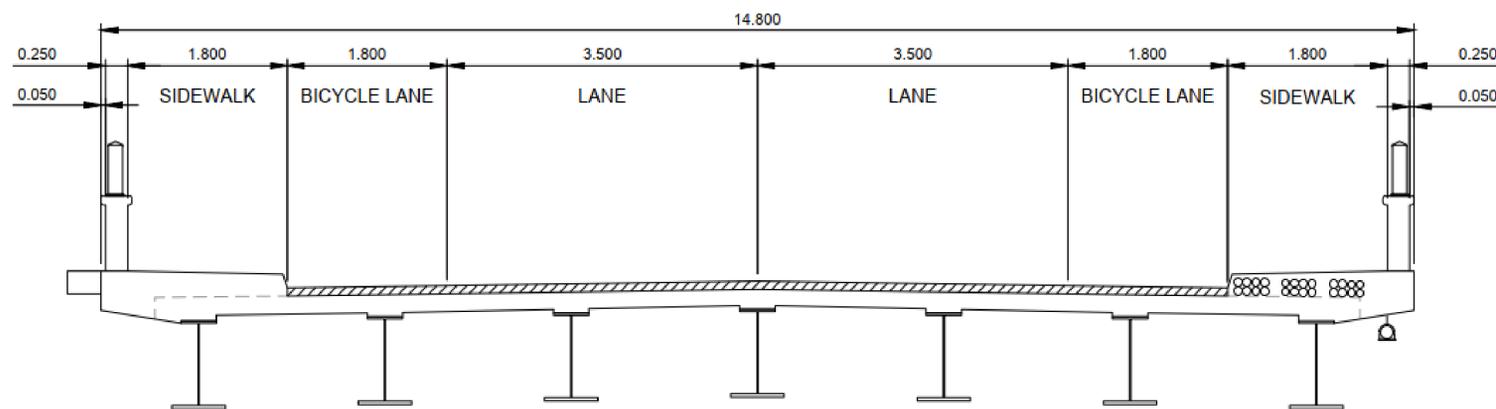


NIAGARA STREET BRIDGE (LOOKING NORTH)

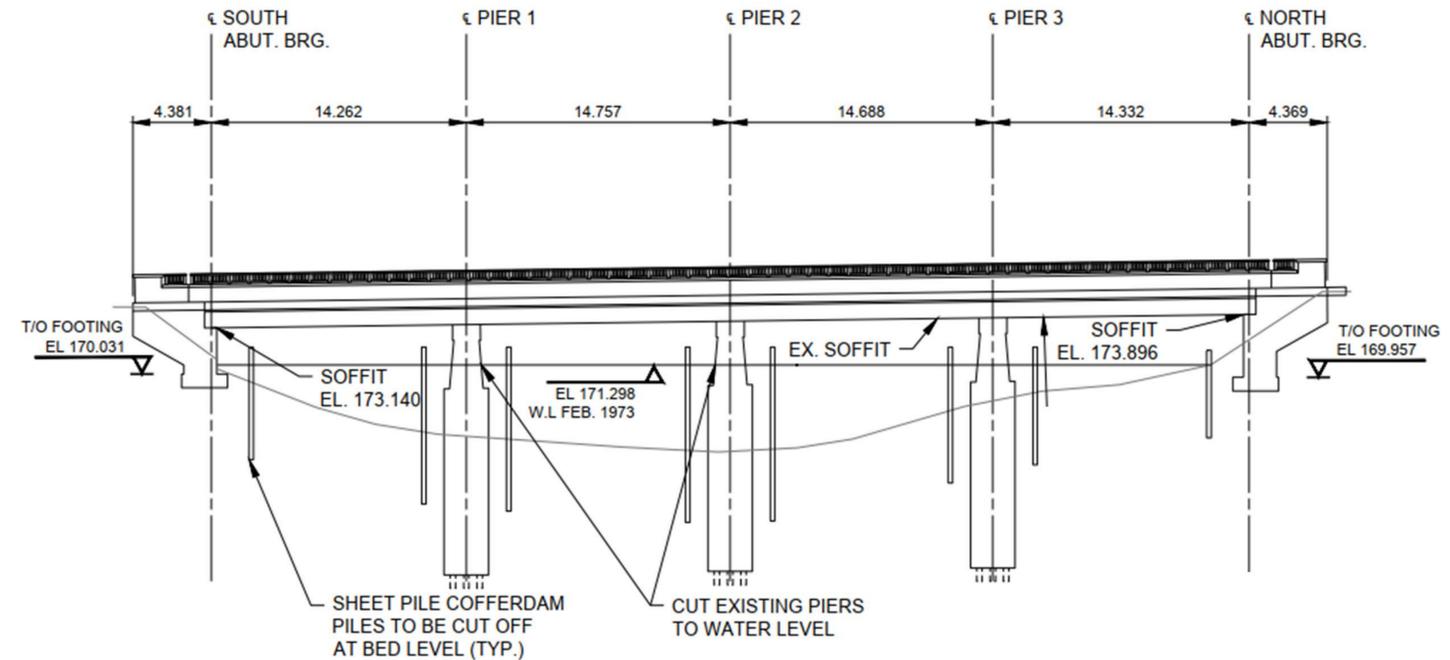
BRIDGE REPLACEMENT ALTERNATIVE SOLUTIONS

ALTERNATIVE #2: Replace superstructure utilizing existing piers

Remove and replace existing bridge superstructure with 14.8m wide cross-section. The cross-section would include two 3.5m travel lanes, two 1.8m bicycle lanes, and two 1.8m wide sidewalks. The new superstructure could consist of girders, concrete deck (225mm depth) and asphalt surface. The new superstructure would have negligible impact on the road vertical profile and available freeboard. This alternative would maintain the three (3) existing piers; however, the piers would be rebuilt from the sheetpiling (above waterline). The abutment walls would also be rebuilt due to existing deterioration.



CROSS-SECTION: ALTERNATIVE 2

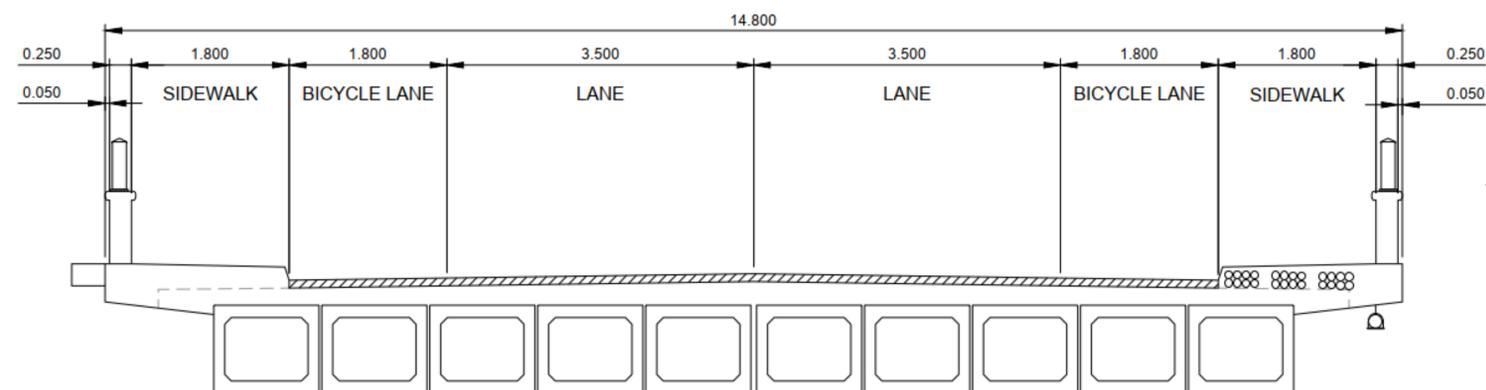


ELEVATION: ALTERNATIVE 2

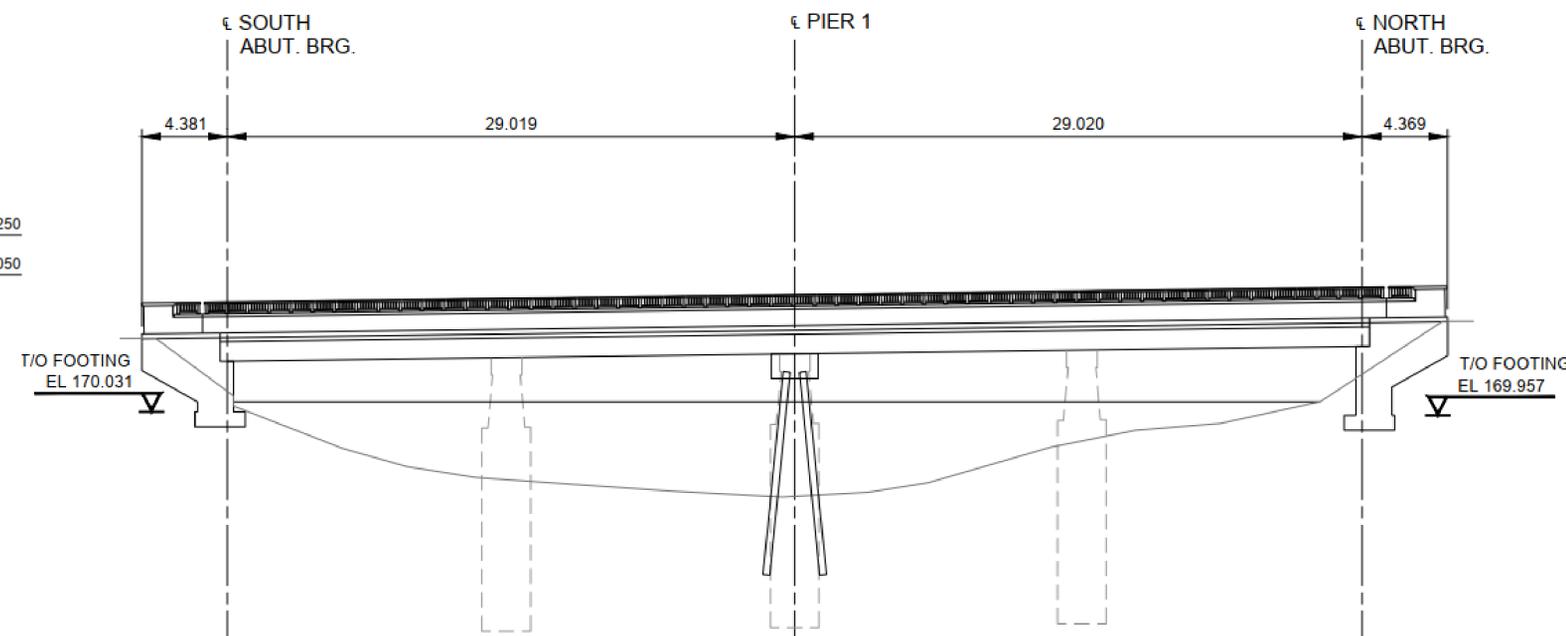
BRIDGE REPLACEMENT ALTERNATIVE SOLUTIONS

ALTERNATIVE #3: Replace with new superstructure and substructure

Replace existing bridge with new structure (superstructure and substructure). Bridge would have similar cross-section and width (14.8m) as Alternative 2. The existing piers would require complex removal to riverbed with new piers (1 or 2) being constructed. The abutment walls would also be rebuilt due to existing deterioration. The new superstructure could be either steel girder (950mm) or concrete box (B1000) with concrete deck (225mm depth with steel or 150mm depth with concrete) and asphalt surface. The new superstructure would have negligible impact on the road vertical profile and minor impact on the available freeboard.



CROSS-SECTION: ALTERNATIVE 3

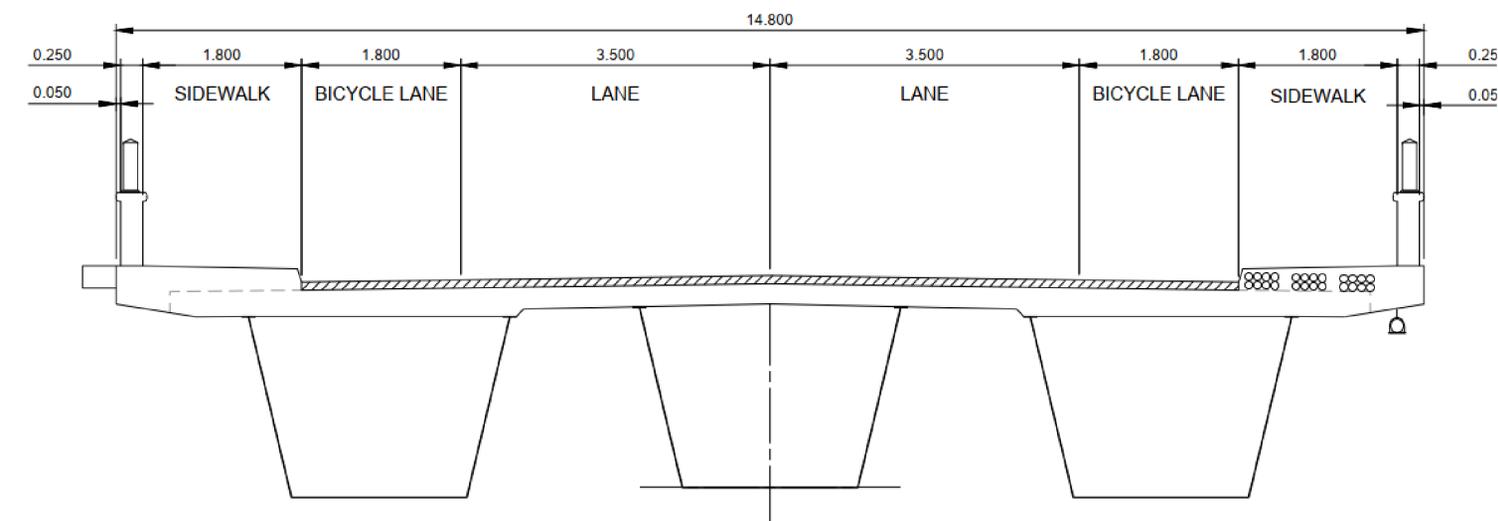


ELEVATION: ALTERNATIVE 3

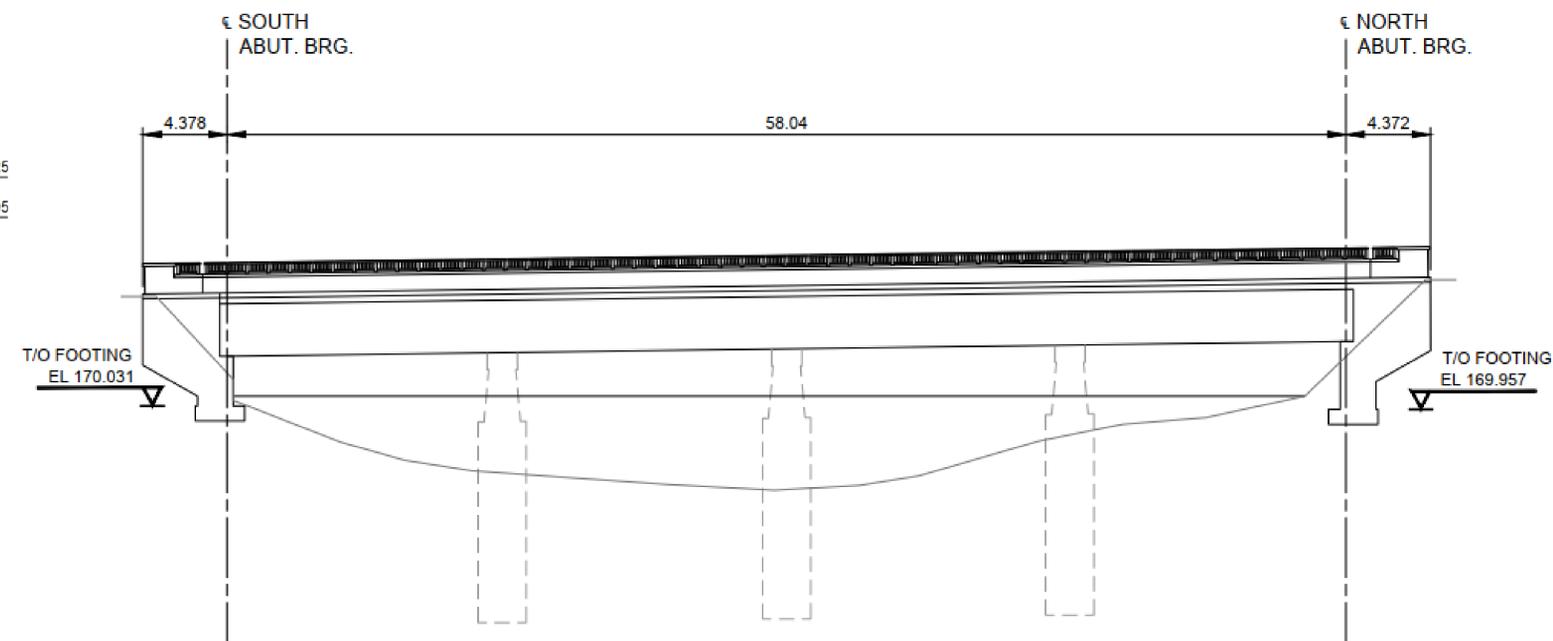
BRIDGE REPLACEMENT ALTERNATIVE SOLUTIONS

ALTERNATIVE #4: Replace with new single span structure

Replace existing bridge with new single span structure (superstructure and substructure). Bridge would have similar cross-section and width (14.8m) as Alternative 2. The existing piers would require complex removal to riverbed and the abutment walls would also be rebuilt due to existing deterioration. The new superstructure could be either steel girder (3000mm) or steel tub (2700mm) with concrete deck and asphalt surface. The new superstructure would impact the road vertical profile and available freeboard due to the increased depth of the superstructure.



CROSS-SECTION: ALTERNATIVE 4



ELEVATION: ALTERNATIVE 4



EVALUATION CRITERIA – BRIDGE ALTERNATIVE SOLUTIONS

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

TRANSPORTATION

- Ability to serve the existing and future vehicular, pedestrian and cycling traffic needs

TECHNICAL

- Ability to address technical requirements (structural load, etc.)
- Ability to construct the replacement in a cost-effective manner
- Consideration to constructability and complexity of construction
- Consideration for construction length and detouring/staging

NATURAL ENVIRONMENT

- Direct and indirect impacts on the existing vegetation, water quality, watercourse, fisheries/wildlife habitat
- Consideration for hydraulic impact on Welland River

SOCIO-ECONOMIC ENVIRONMENT

- Impacts on the local community including property requirements
- Impacts on utilities
- Impact on the local businesses, residents and road users

CULTURAL ENVIRONMENT

- Potential adverse effects on the existing archaeological and heritage resources

FINANCIAL

- Capital cost of the alternative

EVALUATION SUMMARY – BRIDGE ALTERNATIVE SOLUTIONS

Weight	Evaluation Criteria	Alternative 1: Do Nothing	Alternative 2: Replace superstructure utilizing existing piers	Alternative 3: Replace with new superstructure and substructure	Alternative 4: Replace with new single span structure
10%	Transportation	 <ul style="list-style-type: none"> Continued deterioration Lack of delineated cycle facilities 	 <ul style="list-style-type: none"> New cross-section accommodates all modes of transportation Negligible impact on road geometrics 	 <ul style="list-style-type: none"> New cross-section accommodates all modes of transportation Negligible impact on road geometrics 	 <ul style="list-style-type: none"> New cross-section accommodates all modes of transportation Impact on road vertical profile
35%	Technical	 <ul style="list-style-type: none"> Structural issues not addressed Bridge would continue to deteriorate 	 <ul style="list-style-type: none"> Risk associated with utilizing the existing substructure as condition below waterline unknown Staged construction with occasional night closures <ul style="list-style-type: none"> 6 to 8 months construction period (assuming cutting piers to sheet pile) Negligible hydraulic change Maintain soffit elevation 	 <ul style="list-style-type: none"> No risk associated with utilizing existing structure(s) Full closure with detour would be required <ul style="list-style-type: none"> ~10 month construction period In-water works required for complex removal of piers to river bed Hydraulic capacity would be improved with reduced number of piers <ul style="list-style-type: none"> Soffit elevation lower (minor) 	 <ul style="list-style-type: none"> Full closure with detour would be required <ul style="list-style-type: none"> ~8 month construction period In-water works required for complex removal of piers to river bed Hydraulic capacity would be improved with no piers within watercourse <ul style="list-style-type: none"> Soffit elevation lower due to increased superstructure depth Ideal for long-term maintenance as no in-water works would be required Complex launching sequence required (pre-qualify contractors recommended)
15%	Natural Environment	 <ul style="list-style-type: none"> No impacts to surrounding environmental features 	 <ul style="list-style-type: none"> Minor in-water works for abutments Recommended in-water investigation of substructure 	 <ul style="list-style-type: none"> Significant in-water works required for pier and abutment removal and construction Reduced number of piers would improve river hydraulics and natural environment footprint 	 <ul style="list-style-type: none"> Significant in-water works required for pier and abutment removal and abutment construction Improves long term ecological footprint with no piers within watercourse Improves hydraulics of watercourse with no piers
10%	Socio-economic Environment	 <ul style="list-style-type: none"> Continued deterioration of the bridge may lead to impacts on traffic and local businesses No direct impact on private property 	 <ul style="list-style-type: none"> Bridge would maintain same footprint with all works within existing ROW <ul style="list-style-type: none"> No property required Staging construction would maintain traffic flow - one-direction <ul style="list-style-type: none"> Completed in one construction season 	 <ul style="list-style-type: none"> All works would be within existing ROW <ul style="list-style-type: none"> No property required Full closure with detour will be required - impact to local traffic and residents/businesses <ul style="list-style-type: none"> Completed in one full construction season 	 <ul style="list-style-type: none"> Full closure with detour will be required - impact to local traffic and residents/businesses <ul style="list-style-type: none"> Completed in one construction season Possible property acquisition to address elevation changes of road vertical profile
10%	Cultural Environment	 <ul style="list-style-type: none"> No impacts 	 <ul style="list-style-type: none"> No impacts 	 <ul style="list-style-type: none"> No impacts 	 <ul style="list-style-type: none"> No impacts
20%	Financial	 <ul style="list-style-type: none"> Deteriorating bridge structure would result in increased maintenance and future reconstruction costs 	 <ul style="list-style-type: none"> Approximate capital cost \$3.5M 	 <ul style="list-style-type: none"> Approximate capital cost \$5.0M (number of piers will impact cost) 	 <ul style="list-style-type: none"> Approximate capital cost \$6.0M (additional costs associated with property acquisition)
OVERALL		58 NOT PREFERRED	76 PREFERRED	83 MOST PREFERRED	60 LEAST PREFERRED

Most Preferred 
 Preferred 
 Neutral 
 Not Preferred 
 Least Preferred 

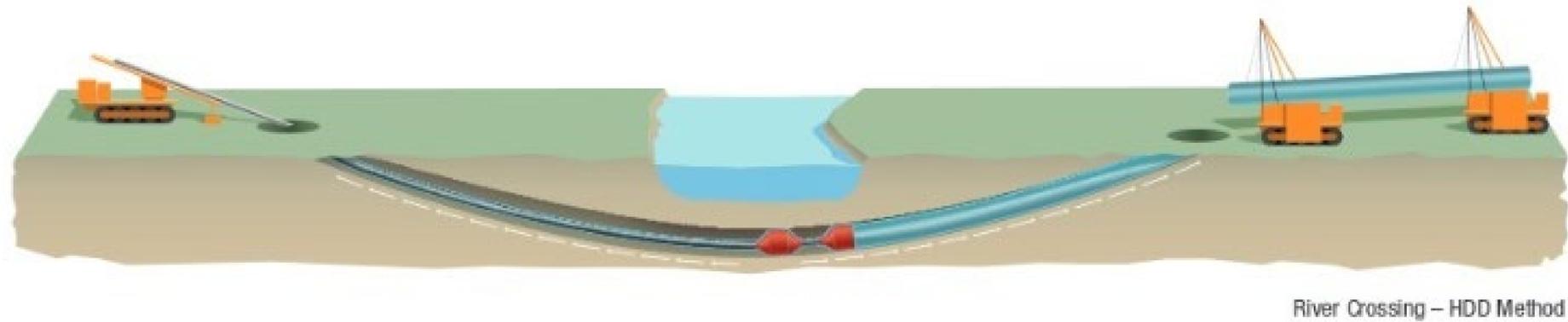


WATERMAIN CROSSING ALTERNATIVE SOLUTIONS

Throughout the Municipal Class EA process the following Alternative Solutions are being considered for the watermain crossing:

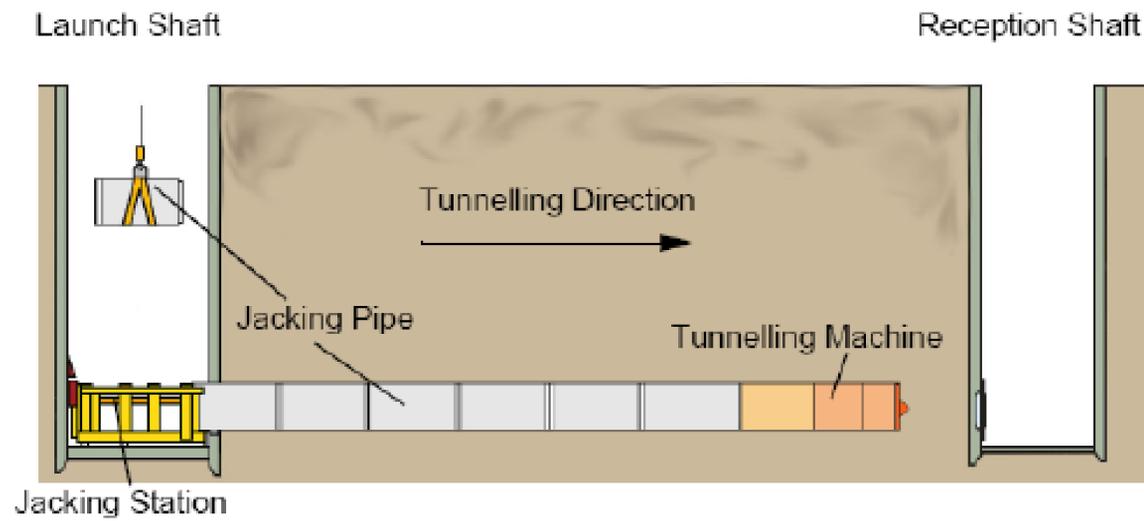
ALTERNATIVE #1: Trenchless Crossing

The new 600mm diameter watermain crossing would be installed via trenchless technologies. Trenchless technologies to be explored as feasible methods include Horizontal Directional Drilling (HDD) and micro-tunneling (MTBM). Key considerations will include watermain alignment, entry and exit locations and soil/ground conditions.



River Crossing – HDD Method

HORIZONTAL DIRECTIONAL DRILLING SCHEMATIC



MICRO-TUNNELING SCHEMATIC



WATERMAIN CROSSING ALTERNATIVE SOLUTIONS

ALTERNATIVE #2: Independent Pipe Bridge

The new 600mm diameter watermain crossing will be installed on an independent pipe bridge located upstream or downstream of the Niagara Street bridge structure. Key considerations include location of pipe bridge, ability to accommodate additional utilities (i.e.: Enbridge), functionality of bridge (utility crossing only, pedestrian crossing, etc.) and aesthetic of bridge structure.



EXAMPLE: PIPE BRIDGE AT WELLAND WTP

WATERMAIN CROSSING ALTERNATIVE SOLUTIONS

ALTERNATIVE #3: Support watermain from Niagara Street bridge

The new 600mm diameter watermain crossing would be supported from the Niagara Street bridge structure, after replacement. Key considerations will include protection of the crossing from freezing and vandalism.



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



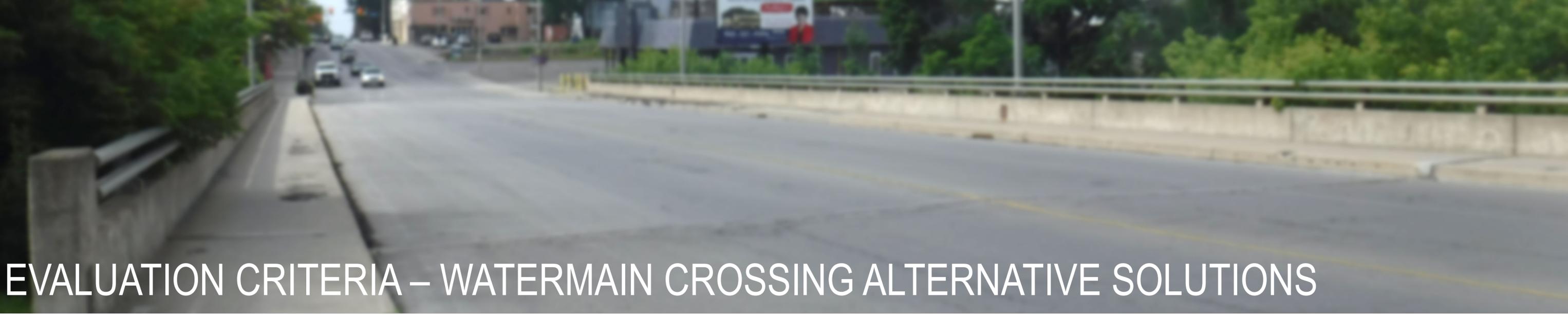
WATERMAIN CROSSING ALTERNATIVE SOLUTIONS

**ALTERNATIVE #4:
Install watermain inside
steel tub girder bridge**

The new 600mm diameter watermain crossing will be installed inside the steel tub girders of the new Niagara Street bridge structure. Key considerations include accessibility for maintenance and if steel tub girders are the preferred bridge type (Bridge Alternative #4).



EXAMPLE OF UTILITY INSTALLED INSIDE BRIDGE GIRDER



EVALUATION CRITERIA – WATERMAIN CROSSING ALTERNATIVE SOLUTIONS

The proposed evaluation criteria to be used to evaluate the watermain crossing alternative solutions includes:

TECHNICAL

- Ability to address technical requirements (demand, isolation, etc.)
- Ability to construct the crossing in a cost-effective manner
- Consideration for future maintenance and access
- Consideration for construction duration

NATURAL ENVIRONMENT

- Direct and indirect impacts on the existing vegetation, water quality, watercourse, fisheries/wildlife habitat

SOCIO-ECONOMIC ENVIRONMENT

- Impacts on the local community including property requirements
- Impacts on utilities
- Impact on the local businesses, residents and road users

CULTURAL ENVIRONMENT

- Potential adverse effects on the existing archaeological and heritage resources

FINANCIAL

- Capital cost of the alternative

EVALUATION SUMMARY – WATERMAIN CROSSING ALTERNATIVE SOLUTIONS

Weight	Evaluation Criteria	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
40%	Technical	 <ul style="list-style-type: none"> • Soil conditions likely not conducive to trenchless installation due to fill from canals (TBD by geotech) • HDD installation considerations include bending radius and significant lay-down area required • Micro tunneling considerations include casing size (likely 1200mm diameter), depth of shafts, depth of cover under Welland River (~3m); <ul style="list-style-type: none"> • Maintenance issues due to inaccessibility of watermain • Longest and most complex construction period 	 <ul style="list-style-type: none"> • Soil conditions will require extra consideration for foundation/piles design for bridge • Pre-fab design would require less installation time for bridge structure • Heat tracing and insulation and associated power would be required <ul style="list-style-type: none"> • ~2 months construction - independent of bridge construction • Access for maintenance needs to be considered <ul style="list-style-type: none"> • Susceptible to freezing and vandalism 	 <ul style="list-style-type: none"> • Heat tracing, insulation would be required • Watermain on bridge may interfere with future bridge maintenance and rehabilitation <ul style="list-style-type: none"> • Stainless steel pipe would be required • Minor accessibility issues for maintenance <ul style="list-style-type: none"> • Susceptible to freezing and vandalism • 1-2 months construction which would proceed after bridge construction 	<ul style="list-style-type: none"> • This alternative is only viable if single-span bridge with girders (Bridge Alternative #4) is chosen as preferred alternative for bridge replacement • Since Bridge Alternative #4 will not be pursued this Watermain Alternative is not carried forward due to feasibility
20%	Natural Environment	 <ul style="list-style-type: none"> • Impacts to vegetation depending on alignment and work area required for trenchless installation <ul style="list-style-type: none"> • Restore/enhance post construction 	 <ul style="list-style-type: none"> • Impacts to vegetation due to works within park/natural areas <ul style="list-style-type: none"> • Restore/enhance post construction 	 <ul style="list-style-type: none"> • No impacts to natural environment due to watermain installation • Any impacts would be associated with replacement of Niagara Street bridge 	
10%	Socio-economic Environment	 <ul style="list-style-type: none"> • Will require property easements • Potential full road closure to complete connections <ul style="list-style-type: none"> • Construction within park areas will impact recreational users 	 <ul style="list-style-type: none"> • Property easement required as pipe bridge would be outside of Region ROW <ul style="list-style-type: none"> • Potential full road closure to complete connections • Construction within park areas will impact recreational users • Potential to improve active transportation facilities within area if make bridge a pedestrian bridge • Opportunity to transfer utilities to pipe bridge and off Niagara Street bridge 	 <ul style="list-style-type: none"> • All work would be completed within ROW, no property required • Watermain installation proceeds after bridge construction • Potential full road closure to complete connections 	
10%	Cultural Environment		 <ul style="list-style-type: none"> • No impacts 		
20%	Financial	 <ul style="list-style-type: none"> • ~80m trenchless installation • Microtunnel installation ~\$1.5M • HDD installation ~\$500K 	 <ul style="list-style-type: none"> • ~70m bridge length • \$575K 	 <ul style="list-style-type: none"> • ~80m installation • \$300K 	
	OVERALL	38 LEAST PREFERRED	60 NOT PREFERRED	90 MOST PREFERRED	NOT CARRIED FORWARD

- Most Preferred 
- Preferred 
- Neutral 
- Not Preferred 
- Least Preferred 



NEXT STEPS

- Integration of feedback received through this public consultation
- Refinement of the Preferred Solution(s) and development of Alternative Design Options to be presented during a second Public Information Centre
- Documentation of Class EA process including considerations for detailed design to be carried forward
- Filing of the Environmental Study Report for 30-day public review (Spring 2021)

HOW YOU CAN GET INVOLVED



Ask questions and provide input at this PIC or reach out to project team members (contacts below)



Visit the project webpage at www.niagararegion.ca



Sign-up for our contact list by contacting a member of the project team



Attend the next event (Spring 2021)

FOR ANY COMMENTS OR QUESTIONS, PLEASE CONTACT:

MELISSA TOMASCIK, C.TECH.

Project Manager, Transportation Engineering

Niagara Region

1815 Sir Isaac Brock Way

Thorold, ON L2V 4T7

T: (905) 980-6000 EXT. 3189

E: melissa.tomascik@niagararegion.ca

ANDREA LAPLANTE, P.ENG.

Environmental Assessment Coordinator

Associated Engineering (Ont.) Ltd.

509 Glendale Avenue East, Suite 300

Niagara-on-the-Lake, ON L0S 1J0

T: (289) 434-4804

E: laplantea@ae.ca



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

COMMENT SHEET

**Virtual Public Information Centre
(PIC) #1
Thursday March 4, 2021**

Comment Period: March 4, 2021 to
March 18, 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 **March 18, 2021**. Your input and comments are appreciated.

Melissa Tomascik, C.Tech
Project Manager
Niagara Region – Public Works
905.980.6000 x3189
Melissa.tomascik@niagararegion.ca

Andrea LaPlante, P.Eng.
Environmental Assessment Coordinator
Associated Engineering Ltd.
289.434.4804
laplantea@ae.ca

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.