



Concession Street Bridge Watermain Repair Schedule B Municipal Class Environmental Assessment

Virtual Public Consultation Centre #1 Presentation Transcript

Slide 1 – Title Slide

Hello and thank you for joining us for the Concession Street Bridge Watermain Repair Public Consultation Centre (or PCC). A PDF of this presentation including a transcript and additional information on the project is available on the Region of Waterloo's website if you would like to review it in more detail. A link to the website is provided in the video description below.

Slide 2 - Welcome

The purpose of this PCC is to provide an overview of the project and why it's important, describe the Municipal Class Environmental Assessment process, provide a description of the existing watermain location, provide an overview of the repair options and locations, an overview of preliminary study recommendations, and to provide you an opportunity to learn about the project and get involved.

We encourage you to review the information and contact a member of the project team by phone or email if you have any questions or would like to provide your thoughts to the project team. Contact information is provided at the end of this presentation and on the Region of Waterloo's website.

Slide 3 – Project Overview

To give you a better understanding of the project, we wanted to answer the following questions:

1. What are we doing?
2. Why are we doing it?
3. What does it mean to you?

To answer the first question, the Region is planning to repair or replace the Concession Street Bridge Watermain and this study is looking at the best way to undertake the repairs.

Why are we doing it? The watermain on the Bridge was damaged in 2018 by an ice jam. We are considering the best way to repair or replace the watermain to prevent similar damage from occurring in the future.

What does it mean to you? These upgrades will require the construction of a new watermain across the Grand River. It is expected that acquiring both temporary and permanent easements may be required for construction and maintenance. There may also be some construction-related impacts to Water Street South during construction.



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Slide 4 – The Municipal Class Environmental Assessment Process

The Municipal Class Environmental Assessment, or EA process, is a five-phase planning process that is approved under the Ontario Environmental Assessment Act. All Municipalities in Ontario are required to complete a Municipal Class EA when planning for major infrastructure projects. This project is being planned as a Schedule B project, which means it includes the completion of Phases 1 and 2 of the Class EA process.

These steps include:

- Identifying the problem or opportunity,
- Developing and evaluating alternative options, and,
- Identifying the preferred solution and documenting the process within a Project File.

We are currently in Phase 2 of the study and have identified alternative options and a preliminary recommended option for the replacement of the watermain. Following the PCC, the Project team will review input and prepare a Project File Report which will be placed on public record for a minimum 30-day review period.

Slide 5 – Existing Concession Street Bridge and Watermains

The Concession Street Bridge Watermain is a 600mm watermain which runs along the north side of the existing bridge structure. The existing watermain was installed in 1977 during construction of the Concession Street bridge. The watermain extends from Water Street West, across the Concession Street Bridge, to Grand Avenue South. The watermain is part of an interconnected system that conveys water throughout the City of Cambridge. This crossing of the Grand River is an important part of the distribution system and serves to provide redundancy and security of the water supply to areas west of the River.

Slide 6 – Alternative Options

We have considered and evaluated a number of options for repairing or replacing the damaged watermain:

- Do nothing – This would mean that the watermain would not be replaced and would remain offline. Areas to the west of the river would continue to be supplied through interconnections, but there would be less redundancy and security of supply to areas west of the River. We always consider the “do nothing” option as a baseline against other options.
- Reinstall watermain on the Bridge - This option would involve replacing/reinstalling the watermain on the Bridge. While this is a feasible option, the watermain would remain susceptible to ice damage during winter months and could potentially experience similar damage in the future.



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- Construct a new watermain crossing under river – This option would involve the construction of a new watermain under the Grand River using trenchless technology. This option protects the watermain from damage as it is below grade, while protecting aquatic habitats within the River; however, this option is more costly than reinstalling on the Bridge.

Next, we've looked at different trenchless technology alternatives, as well as alternative watermain routes for the new watermain.

Slide 7 – Trenchless Technology

For the identified alternative options that consider constructing a new watermain under the Grand River, there are two main construction methods that could be used. These methods include Horizontal Directional Drilling (HDD) or Microtunneling.

- **Horizontal Directional Drilling (HDD):** HDD is an underground tunneling technique that utilizes a surface-launched drilling rig to install underground utilities. A pilot hole is first drilled along a directional path from one side of the Grand River to the other. This pilot hole is then enlarged to the same diameter of the desired pipe. Lastly, the pipeline is pre-assembled above ground and then pulled through the tunnel under the Grand River.
- **Microtunneling:** Microtunneling is an underground tunneling technique that utilizes an unmanned, remotely-controlled boring machine to construct utility tunnels. The machine is launched through an entry tunnel, at the appropriate depth underground, and pipes are pushed through the tunnel behind the machine. To ensure the tunnel and pipe are constructed at the correct depth, a work (entry) shaft and a reception shaft will be initially constructed at either side of the Grand River.

Slide 8 – Alternative Watermain Routes

We have considered a number of different alignments for the repair and/or replacement of the Concession Street Watermain:

- **Option 1A:** replace/reinstall the watermain in the same location on the upstream side of the bridge.
- **Option 1B:** replace/reinstall the watermain on the downstream side of the bridge, to reduce the potential for ice damage.
- **Option 2A:** Install a new watermain under the Grand River, north of the bridge, using the Horizontal Directional Drilling Trenchless Method
- **Option 2B:** Install new watermain under the Grand River, south of the bridge, using the Horizontal Directional Drilling Trenchless Method
- **Option 2C:** Install new watermain under the Grand River, south of the bridge, using the Microtunneling Trenchless Method



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Slide 9 – Evaluation Criteria

A number of criteria have been identified to evaluate environmental impacts of the project and alternatives in accordance with the Environmental Assessment process.

Social/Cultural Environmental: This group of criteria includes impacts on existing residences, businesses, and other planned land uses and developments; impacts to archaeological and cultural heritage resources, and health and safety considerations.

Natural Environment: This group of criteria includes impacts to environmental features, wildlife and species at risk, groundwater, streams, and rivers, and the consideration of climate change.

Technical/Regulatory: This group of criteria includes the requirement for property acquisition or easements, the ability to provide reliable service to meet existing and future needs, the alignment with planned infrastructure improvements, impacts to existing infrastructure, utilities, and other constructability considerations, and the ability to obtain appropriate permitting and approvals.

Financial: This group of criteria includes the consideration for both capital costs, and long-term operations and maintenance costs.

Slide 10 – Summary of Watermain Route Options Evaluation

We have evaluated the alternative site locations against the criteria identified. Based on this evaluation, Option 2B has been identified as the preliminary preferred alternative route for the watermain.

Slide 11 – Recommendations - Preferred Options

Option 2B: HDD Trenchless Installation South of the bridge was identified as the preferred option, with the highest overall score, based on the following:

- Least risk of damage from ice/flooding and least impact to the Bridge
- Manageable safety concerns – work is confined to specific work locations away from traffic and pedestrians
- Less maintenance – watermain is not exposed to weather and is protected underground over the long term
- Fewer traffic impacts during construction than bridge options
- Relatively equal Construction cost to the other options
- Higher lifespan (50+ years) than installing the watermain on the bridge (<40 years)
- Low lifecycle cost. re-installing the watermain on the bridge has between a 1% and 2% chance of incurring damage on any given year based on flow levels and weather conditions, which increases repair/replacement costs



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Slide 12 – Next Steps

The next step in the Study is to receive and review your input on the information presented today. We will also be undertaking additional environmental investigations including Built Cultural Heritage and Archaeological investigations within the study area. We will then document the decision-making process, including the stakeholder input we've received, environmental impacts and mitigation, and commitments to carry forward through design and construction within a Project File Report which will be made available for public review for at least 30 days.

Following the planning process, the Region will move forward with the design process and plans to start construction in 2021.

Slide 13 – Thank you

Do you have any questions about the information presented here? Would you like more information on the alternatives or evaluation process? There are many ways to get in touch with the project team:

- You can fill out a comment sheet available on the Region's website, and return via mail or email to a member of the project team; or
- You can contact a project team member directly by email, telephone, or mail.

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