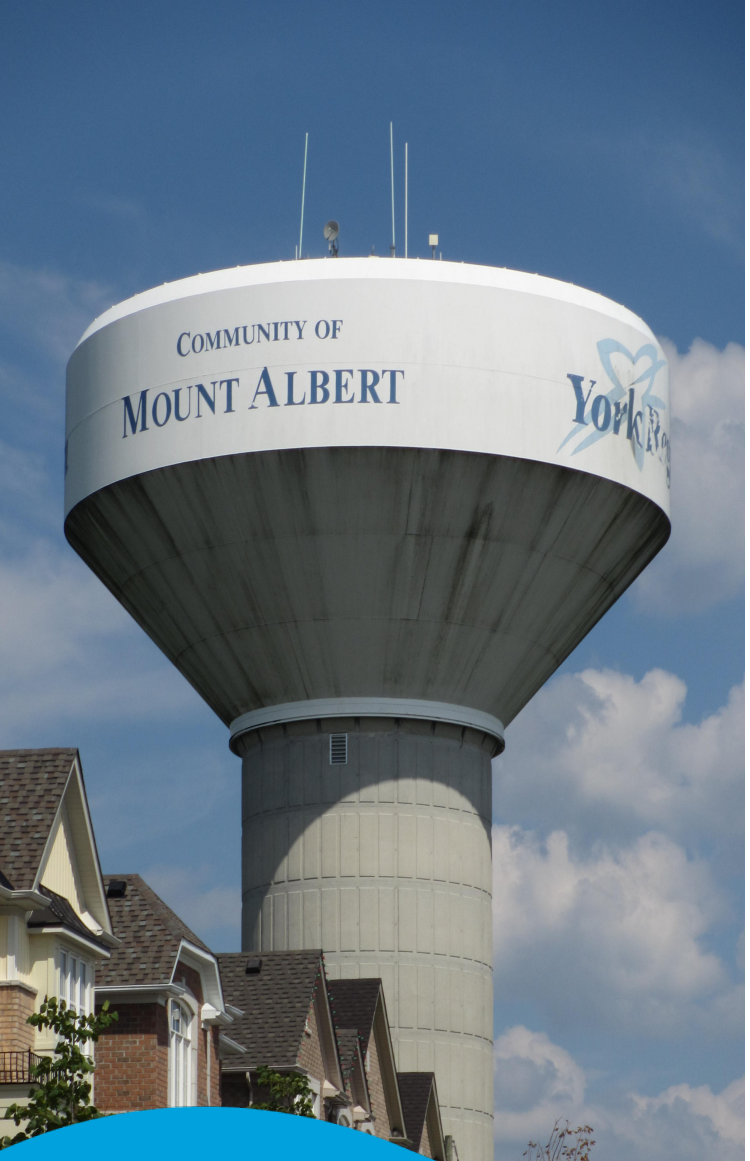


MOUNT ALBERT WATER SUPPLY UPGRADES

Schedule 'B' Municipal Class Environmental Assessment Study in the Town of East Gwillimbury Online Open House

Date Posted: October 30, 2020
Open to comments until November 13, 2020

York Region

Guidance for reviewing the information

Public Consultation is mandatory during the Class Environmental Assessment Process

This information package represents the second public consultation for the Mount Albert Water Supply Upgrades Class EA.

Visit york.ca/ea to view the Community Update and Survey records.

Please review this information and provide feedback by either:

- Completing the interactive online survey
- Contacting the Project Manager (Luis Carvalho)

If you would like a printed copy of these slides, please contact:

Luis Carvalho, P. Eng., M. Sc (Eng.) PMP.
Senior Project Manager
Email: luis.carvalho@york.ca
Phone: 1-877-464-9675 ext. 75015

Problem Statement

Environmental Assessments must have clear problem statements. The problem statement for this EA is:

"This EA Study provides an opportunity to improve water quality, enhance aesthetics and comply with future regulation. Preference will be given to treatment upgrades and improvements to overall system reliability and redundancy that are socially, environmentally and financially sustainable."

What does this mean for you?

Although the existing system has enough water supply and storage capacity to service growth in Mount Albert, the current iron and manganese treatment does not provide consistent control, resulting in deposition in the system. The North Elevated Tank cannot be taken out of service for a prolonged period.

The Class EA process will assess alternatives to **improve water quality** and **to improve maintenance of the North Elevated Tank** and recommend preferred alternative solutions.

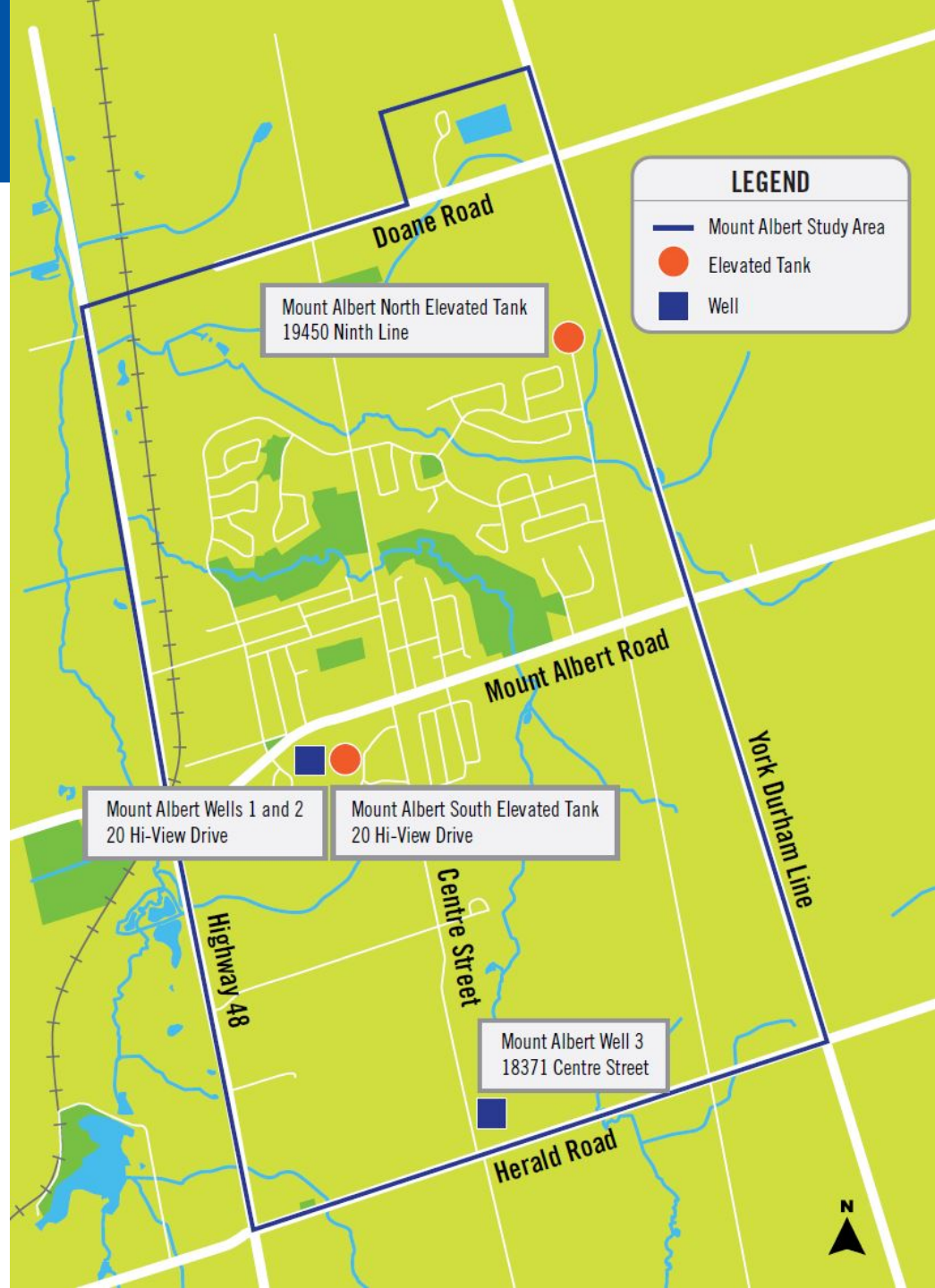
EA Study Area

The EA Study area includes residential and commercial land serviced by the Mount Albert Water Supply System, existing water supply infrastructure and existing Mount Albert Water Resource Recovery Facility.

The Class EA Study area is within the Town of East Gwillimbury limits.

What is a Municipal Class Environmental Assessment?

A Municipal Class Environmental Assessment Study is an evaluation of the possible positive and/or negative effects of a municipal infrastructure project on the surrounding community.



Class EA Alternatives and Input

During the Class EA study, a list of options that could provide resolution of the problem are created. These are known as the "alternative solutions" or "alternatives" for short.

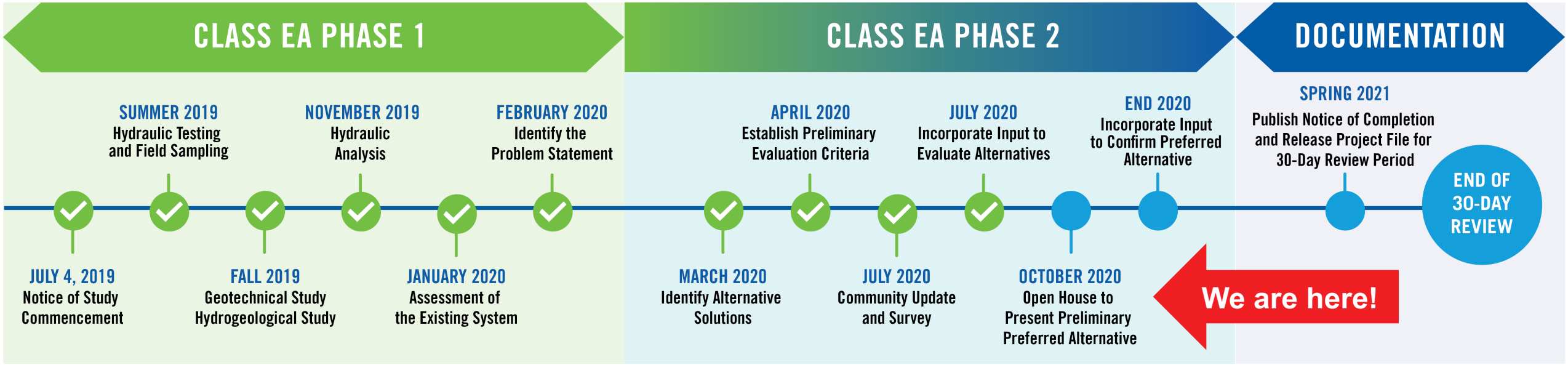
The alternatives are evaluated based on four types of criteria: technical, natural environment, socio-cultural and economic.

Through the Class EA process, there are several opportunities for the public and stakeholders to provide input. For this project, the following opportunities have occurred or are occurring:

- Notice of Commencement: Issued on July 4, 2019
- Phase 1 Consultation: Online Community Update and Survey published on July 2, 2020
- Phase 2 Consultation: **This Online Open House**
- Notice of Completion: Planned for Spring 2021

These are some of the typical considerations when alternatives are being evaluated.

Where are we in the Class EA process?

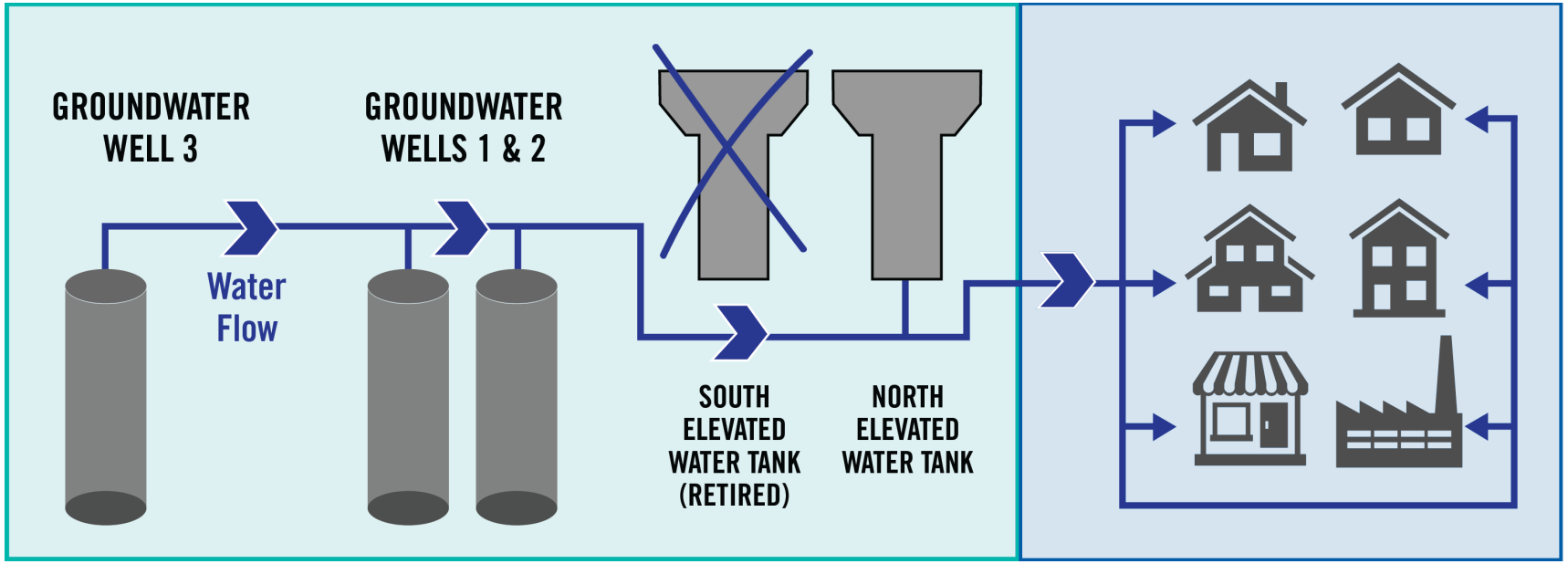


York Region provided an update to your community on July 2, 2020. Since then, we have:

- ✓ Elaborated on the previously-identified alternatives
- ✓ Incorporated community input and evaluated the alternative solutions based on technical merit and potential socio-cultural and environmental impacts
- ✓ Completed the evaluation of alternatives to determine preferred alternatives

Existing Mount Albert Water Supply System

York Region is responsible for drinking water production, treatment and storage. The Town of East Gwillimbury is responsible for distributing drinking water to residents.



Mount Albert water supply comes from groundwater with naturally occurring iron and manganese. While the Mount Albert water supply system meets all Ontario Drinking Water Standards and is safe to drink, the iron and manganese can cause yellow to red-brown discolouration at the tap and deposition of particles in the distribution system. Effectiveness of existing treatment is reduced because of the unique water characteristics of the Mount Albert wells.

Elevated tanks provide water storage. With only one elevated tank in service, it is challenging to perform maintenance.

Mount Albert Future Water Supply System Needs

The Class EA study horizon considers storage needs up to 2041. We know that:

- To service the projected growth to approximately 5,975 residents, the water production capacity required is 3.4 ML/day and storage volume required is 2,558 m3
- Existing wells capacity is sufficient through 2041 with all three wells in operation
- Existing storage volume is adequate through 2041 with only North Elevated Tank in service
- With regular maintenance and rehabilitation, the expected service life of the existing infrastructure, that is, the amount of time the infrastructure can be used before needing to be replaced, is beyond 2041

Since capacity, volume and service life are sufficient, study alternatives focus on improving drinking water quality, minimizing deposition of iron and manganese in the distribution system, accommodating potential future regulations, improving maintenance of the North Elevated Tank, and improving customer satisfaction.

Alternatives to Improve Water Quality (Alternatives "A")

The below alternatives were pre-screened and reviewed in detail through the evaluation process. Alternatives A1 through A3 were not considered viable and not carried forward for review.

A4. Continue with existing treatment at Wells 1, 2 and 3	Continue current treatment (sequestration) while implementing upgrades and optimization strategies for more effective treatment
A5. Upgrade Wells 1, 2 and 3 with iron and manganese removal technology	Provide iron and manganese removal technology for all wells to minimize iron and manganese reaching the customer *This alternative can be undertaken in several ways and a series of sub-alternatives was developed (see next slide)*
A6. Upgrade Wells 1 and 2 with iron and manganese removal technology	Provide iron and manganese removal technology for Wells 1 and 2 and continue current treatment (sequestration) for Well 3 while implementing upgrades and optimization strategies for more effective treatment
A7. Connect new well (MW18) to Mount Albert water supply system	Connect a new well to the system to replace existing wells, continue existing treatment (sequestration) where feasible and provide iron and manganese removal technology on remaining wells *This alternative can be undertaken in several ways, and a series of sub-alternatives was developed (see next slide)*

What is sequestration?

Sequestration is the addition of chemicals to groundwater aimed at controlling problems caused by iron and manganese without removing them.

Summary of Alternatives to Improve Water Quality

Some alternatives can be undertaken in several ways and a series of sub-alternatives was developed:

Alternatives		Well 1	Well 2	Well 3	New Well MW18
A4. Continue with Existing Treatment at Wells 1, 2 and 3		Sequestration	Sequestration	Sequestration	N/A
A5. Upgrade Wells 1, 2 and 3 with Iron and Manganese Removal Technology	**A5a. Centralized removal technology at Wells 1 & 2 Facility**	Iron/Manganese Removal at Wells 1&2 Facility	Iron/Manganese Removal at Wells 1&2 Facility	Iron/Manganese Removal at Wells 1&2 Facility	N/A
	A5b. Decentralized removal technology at both Facilities	Iron/Manganese Removal at Wells 1&2 Facility	Iron/Manganese Removal at Wells 1&2 Facility	Iron/Manganese Removal at Well 3 Facility	N/A
A6. Upgrade Wells 1 and 2 with Iron and Manganese Removal Technology		Iron/Manganese Removal at Wells 1&2 Facility	Iron/Manganese Removal at Wells 1&2 Facility	Sequestration	N/A
A7. Connect New Well (MW18) to Mount Albert Water Supply System	**A7a. Replace Well 1 with Well MW18 and continue existing treatment for all wells**	Retired	Sequestration	Sequestration	Sequestration
	A7b. Replace Wells 1 and 2 with Well MW18 and continue existing treatment for all wells	Retired	Retired	Sequestration	Sequestration
	A7c. Replace Well 1 with Well MW18, continue existing treatment for Wells 3 and MW18 and upgrade Well 2 with Iron and Manganese Removal Technology	Retired	Iron/Manganese Removal at Wells 1&2 Facility	Sequestration	Sequestration

Alternatives to dispose wastewater from iron and manganese removal (Alternatives "R")

The following alternatives were considered for disposing wastewater generated when the filters used for iron and manganese removal are washed.

R1. Discharge wastewater to sanitary sewer collection system	Pump wastewater to the Mount Albert Water Resource Recovery Facility for treatment through a new connection to the sanitary sewer collection system
R2. Treat wastewater to discharge to Vivian Creek and discharge the solids to sanitary sewer collection system	Provide treatment for the wastewater at the well facility. The treated wastewater would be discharged to Vivian Creek (via the storm sewer or directly) and the settled solids would be pumped to the Mount Albert Water Resource Recovery Facility for treatment through a new connection to the sanitary collection system
R3. Treat wastewater to discharge to Vivian Creek and haul solids	Provide treatment for the wastewater at the well facility. The treated wastewater would be discharged to Vivian Creek (via the storm sewer or directly) and the settled solids would be trucked to the Duffin Creek Water Pollution Control Plant when required

Proper disposal of the wastewater from cleaning the filters are required for Water Quality Improvement Alternatives A5a, A5b, A6 and A7c.

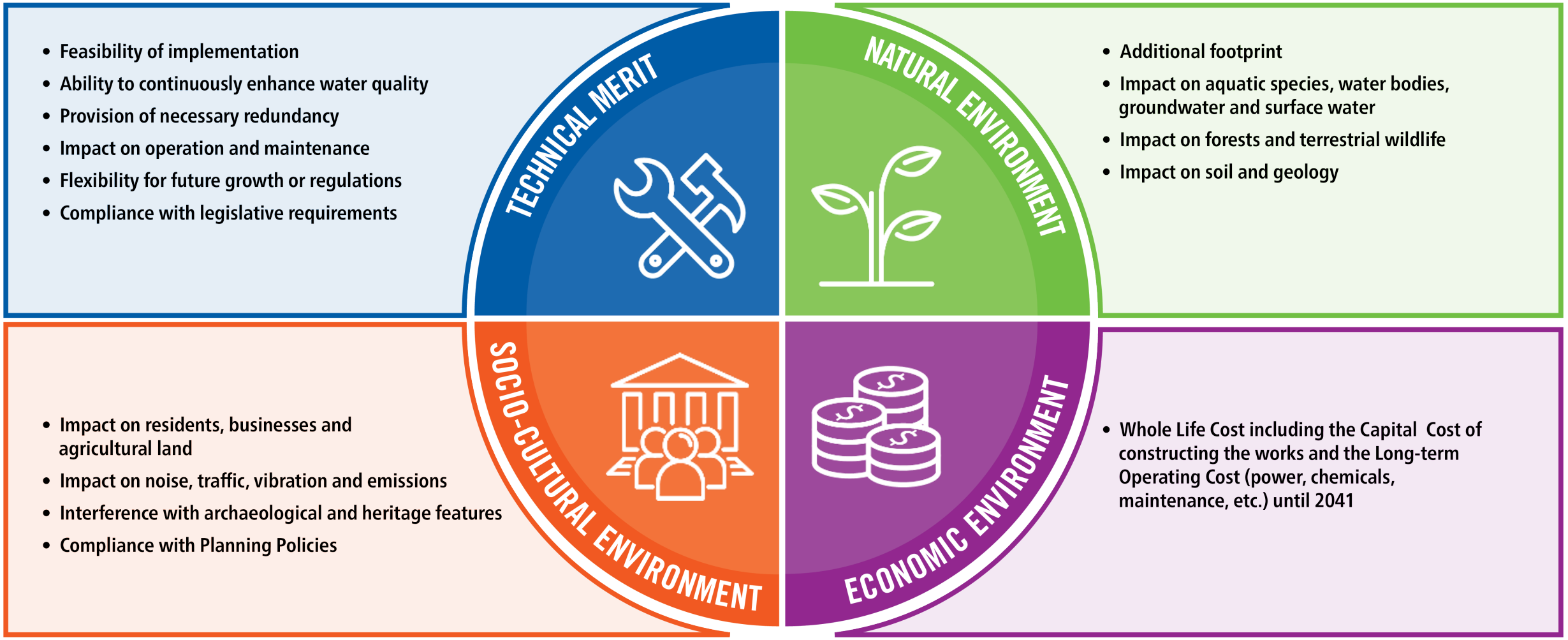
Alternatives to improve North Elevated Tank maintenance (Alternatives “B”)

The below alternatives were identified, pre-screened and reviewed in detail through the evaluation process. Alternative B1 was not considered viable and not carried forward for review.

B2. Major Rehabilitation of the South Elevated Tank and return it to service	Refurbish South Elevated Tank for temporary return to service while North Elevated Tank is maintained
B3. Operate the distribution system by-passing the North Elevated Tank	Minor well pump upgrades to maintain drinking water system pressures while the North Elevated Tank is out of service for maintenance

Evaluation Criteria

The evaluation criteria developed for this EA are summarized in this graphic:



Evaluation Methodology

How do I interpret the results?

- All alternatives were evaluated using technical, socio-economic, environmental and economic criteria shown on the previous slide
- Each alternative received a score between -1 and +1 for each criterion
- A score of +1 represents lowest impact / greatest benefit / most preferred
- A score of 0 represents moderate impact / moderate benefit / somewhat preferred
- A score of -1 represents greatest impact / least benefit / least preferred
- **All criteria are valued equally.**
- **The overall score for each alternative is the average of the evaluation criteria scores.**

-1	0	+1
Most Impacts/Least Benefits **LEAST PREFERRED**	Moderate Impacts/Moderate Benefits **MODERATELY PREFERRED**	Least Impacts/Mot Benefits **MOST PREFERRED**

Water Quality Improvements Evaluation Summary

All **Improve Water Quality** alternatives were evaluated based on the evaluation criteria and the summary of scores is below.

Alternatives			Technical	Natural	Socio-Cultural	Economic	TOTAL SCORE
A4. Continue with Existing Treatment at Wells 1, 2 and 3			-1	1	1	1	**2**
A5. Upgrade Wells 1, 2 and 3 with Iron and Manganese Removal Technology	A5a. Centralized removal technology at Wells 1 & 2 Facility	R1. Discharge wastewater to sanitary sewer collection system	1	1	0	0	**2**
		R2. Treat wastewater to discharge to Vivian Creek and discharge the solids to sanitary sewer collection system	0	0	0	0	**0**
		R3. Treat wastewater to discharge to Vivian Creek and haul sludge	0	0	0	0	**0**
	A5b. Decentralized removal technology at both Facilities	R1. Discharge wastewater to sanitary sewer collection system	1	1	0	-1	**1**
		R2. Treat wastewater to discharge to Vivian Creek and discharge the solids to sanitary sewer collection system	0	-1	-1	-1	**-3**
		R3. Treat wastewater to discharge to Vivian Creek and haul sludge	0	-1	-1	-1	**-3**
A6. Upgrade Wells 1 and 2 with Iron and Manganese Removal Technology		R1. Discharge wastewater to sanitary sewer collection system	0	1	0	0	**1**
		R2. Treat wastewater to discharge to Vivian Creek and discharge the solids to sanitary sewer collection system	-1	0	-1	0	**-2**
		R3. Treat wastewater to discharge to Vivian Creek and haul sludge	0	0	0	0	**0**
A7. Connect New Well (MW18) to Mount Albert Water Supply System	A7a. Replace Well 1 with Well MW18 and continue existing treatment for all wells		0	1	0	0	**1**
	A7b. Replace Wells 1 and 2 with Well MW18 and continue existing treatment for all wells		-1	1	0	0	**0**
	A7c. Replace Well 1 with Well MW18, continue existing treatment for Wells 3 and MW18 and upgrade Well 2 with Iron and Manganese Removal Technology	R1. Discharge wastewater to sanitary sewer collection system	-1	1	-1	-1	**-2**
		R2. Treat wastewater to discharge to Vivian Creek and discharge the solids to sanitary sewer collection system	-1	0	-1	-1	**-3**
		R3. Treat wastewater to discharge to Vivian Creek and haul sludge	-1	0	-1	-1	**-3**

The preferred alternative is A5a-R1 with a score of 2. This alternative minimizes iron and manganese reaching the customers while the wastewater is pumped to the existing sanitary sewer collection system. Although both A4 and A5a-R1 have the same overall score, A5a-R1 has been selected as the preferred alternative as it provides for a consistent and more reliable solution to the EA problem statement with minimized operator intervention and system monitoring.

North Elevated Tank Maintenance Improvements Evaluation Summary

All Improve North Elevated Tank Maintenance alternatives were evaluated based on the evaluation criteria and the summary of scores is below.

Alternatives	Technical	Natural	Socio-Cultural	Economic	TOTAL SCORE
B2. Major Rehabilitation of the South Elevated Tank and Return it to Service	-1	1	1	-1	0
B3. Operate the distribution system by-passing the North Elevated Tank	1	0	1	1	3

The preferred alternative is B3 with a score of 3.

This alternative allows for taking the North Elevated tank out of service for maintenance purposes, while maintaining the drinking water supply with small upgrades.

Next Steps in the Class EA Process

The next steps in the Class EA process are to confirm the preferred alternatives and to file the Notice of Completion and Project File Report

NOW

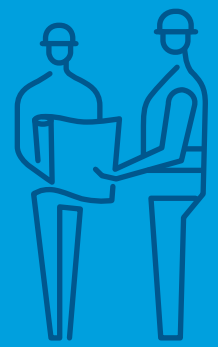
Present the preliminary preferred alternatives

Present the alternative evaluations and preliminary preferred alternatives to the public and stakeholders. Request feedback.

END OF 2020

Confirm the preferred alternatives

Following the review of any comments and feedback, assess whether the preferred alternatives need to be modified.

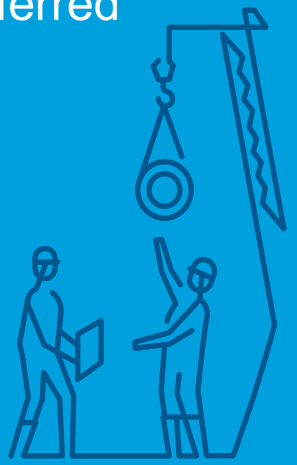


SPRING 2021

Notice of Completion and Project File Report

Document the process and confirm preferred alternatives.

File Notice of Completion for public and stakeholders 30-day review period.



Thank you for taking the time to participate in our Online Open House!

Your feedback is very important. Let us know what you think.

Complete the interactive survey
The interactive survey is available online. All responses will be reviewed and considered. All responses will become part of the public record and Project File Report.

Continue to follow the Class EA Study
Information will be updated at york.ca/ea

Comments or questions can also be directed to:
Luis Carvalho, P. Eng., M. Sc. (Eng.), PMP.
Senior Project Manager
York Region, Environmental Services
Email: luis.carvalho@york.ca
Phone: 1-877-464-9675 ext. 75015

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