

STOUFFVILLE WATER SYSTEM UPGRADES

**Stouffville Long-term Water Supply and Storage
Municipal Class Environmental Assessment Study— Online Open House
Phase 2 Public Consultation**

Date Published: August 6, 2020

Open to public comments until August 20, 2020



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 Stouffville Water System Upgrades Class EA

Please review this information package and provide feedback by either:

- Completing the interactive online survey
- Complete the form provided by email
- Contact the Project Manager (Luis Carvalho)

Any comments received will become part of the public record.

If you would like a printed copy of these slides or to provide feedback, please contact:

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Study Background

York Region is conducting a Schedule “B” Municipal Class Environmental Assessment (Class EA) to consider the water storage and water supply needs due to approved growth in the Community of Stouffville.

Growth in the community of Stouffville

With growth in the community of Stouffville, York Region is reviewing the water supply and storage needs to 2041.

York Region Water Infrastructure

York Region is reviewing the current water supply service to ensure supply and storage infrastructure is available to accommodate the community’s long-term needs.



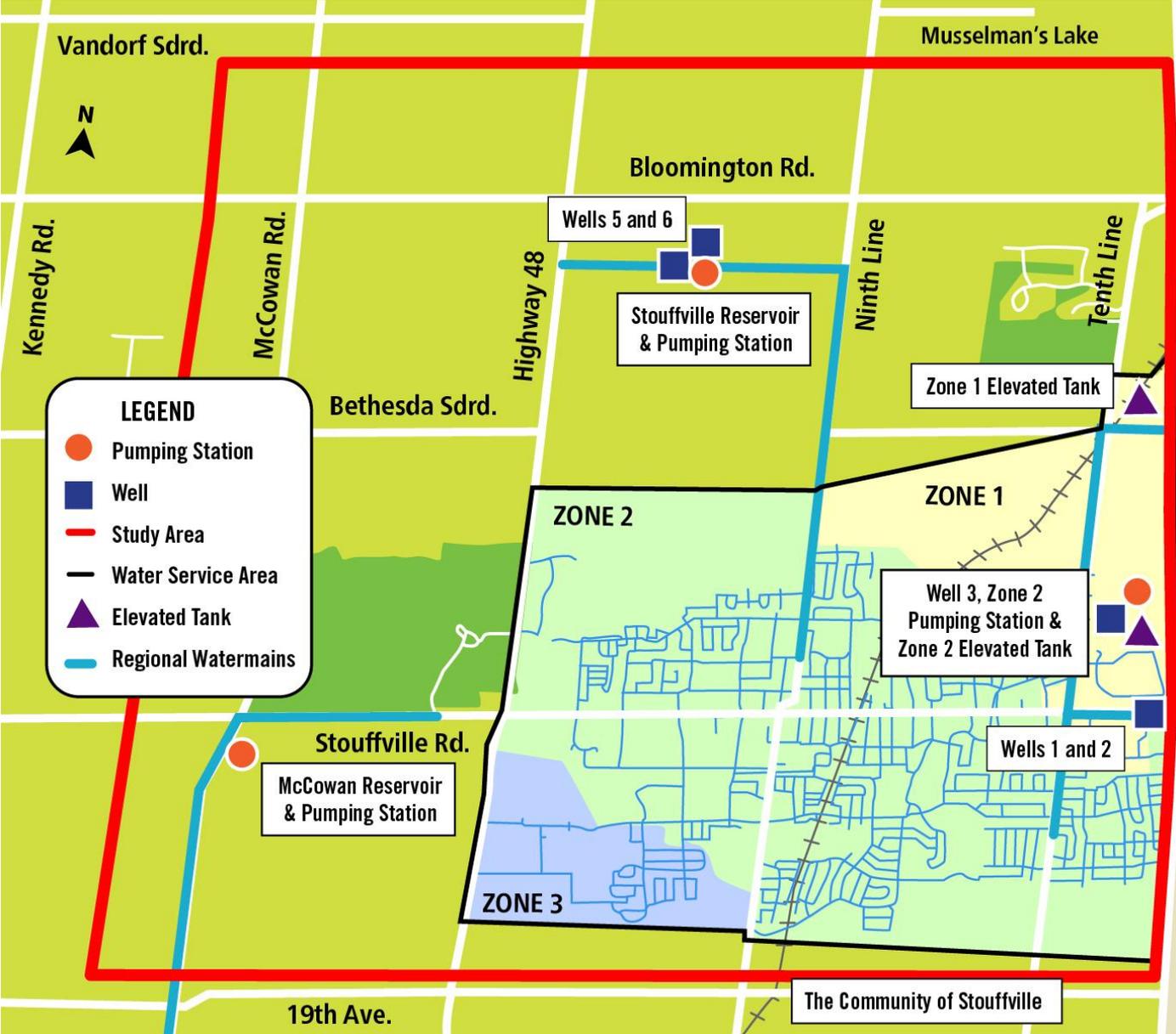
What is a Municipal Class Environmental Assessment?

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.

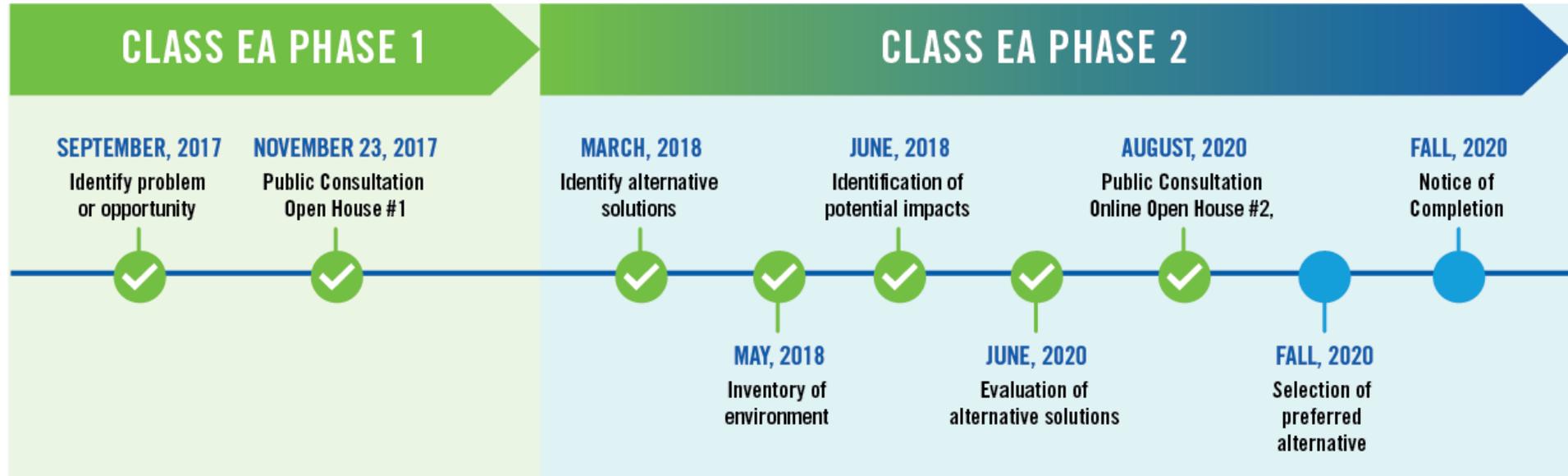
Class EA Study Area

The Class Environmental Assessment (EA) Study Area includes the water service area and the lands that could be impacted by any new facilities.

The Class EA Study Area is within the Town of Whitchurch-Stouffville limits.



Where are we in the EA process?



York Region met with the public for the first Open House on November 23, 2017. Since then, we have:

- ✓ Completed a detailed review of water supply and storage needs
- ✓ Confirmed the Region's intent to maintain the supply wells where feasible
- ✓ Elaborated on the previously-identified alternatives
- ✓ Evaluated the alternative solutions based on technical merit and potential socio-cultural and environmental impacts
- ✓ Completed evaluation of alternatives to determine preferred alternatives

Problem Statement

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

“The 2016 York Region Water and Wastewater Master Plan Update identified the need to construct additional water storage infrastructure in Zone 2 (elevated tank) and additional inter-zone water supply capacity (pumps and valves). The current water storage and supply infrastructure is reaching the end of their service life and new infrastructure is needed.

The goal is to meet the long-term supply and storage needs for all three Stouffville water pressure zones while also considering what will best meet the needs of York Region and the community. Providing service to 2041 may require an increase in the storage volumes.”

What does this mean for you?

There is not enough water storage capacity to service growth in Stouffville and existing facilities are nearing the end of their service life.

The Class EA process will assess the water supply and water storage alternatives and recommend preferred alternative solutions.

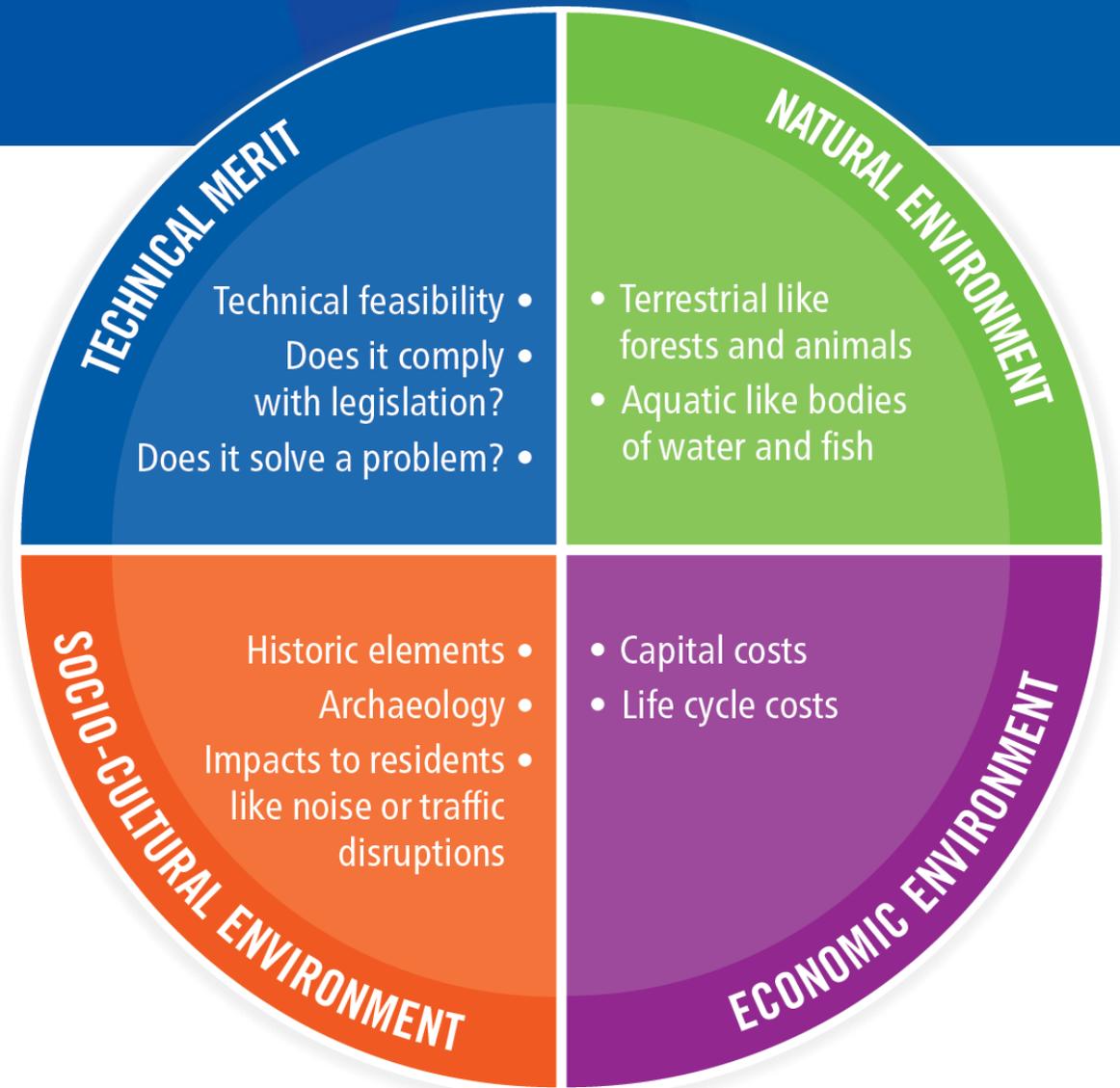
The Class EA Process Explained

As part of the Class EA process, a list of options (called “alternative solutions”, or “alternatives” for short) that could provide resolution to the problem statement are created.

These alternatives are then evaluated based on 4 types of criteria: technical, natural environment, socio-cultural, and economic.

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

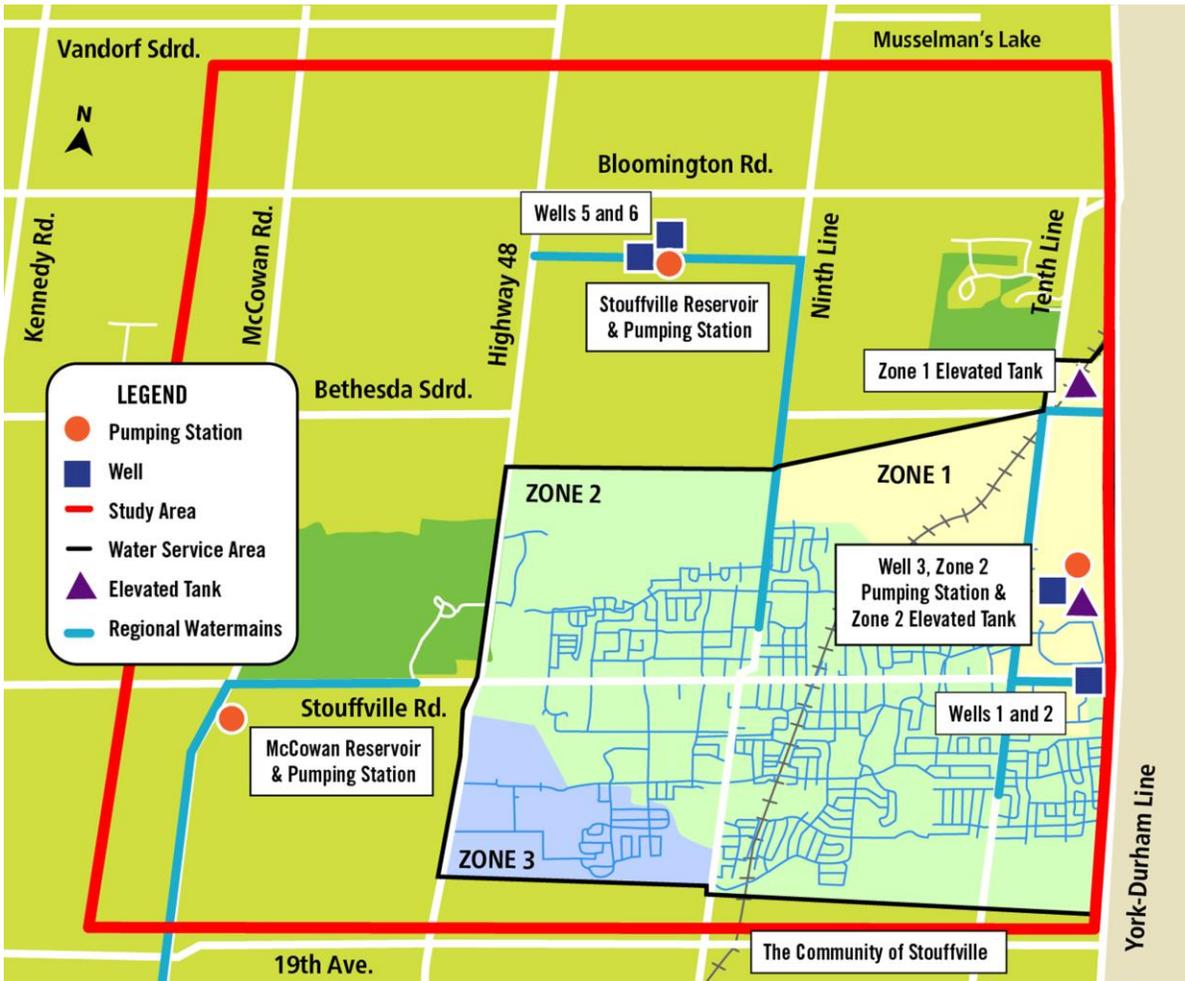
- Notice of Commencement (issued November 2017)
- Phase 1 Consultation: In-person Open House and occurred on November 23, 2017
- Phase 2 Consultation: **This Online Open House**
- Notice of Completion: Fall 2020



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

Existing Water Storage Facilities

York Region is responsible for water storage facilities. To be able to understand what York Region's future water storage needs are, we first need to know what we already have.



Current Water Storage:

Infrastructure	Year Constructed	Volume (m ³)
Stouffville Reservoir (East Cell)	1967	2,136
Stouffville Reservoir (West Cell)	1967	2,996
Zone 1 Elevated Tank (Water Tower)	2007	6,140
Zone 2 Elevated Tank (Water Tower)	1983	3,400
TOTAL		14,672

m³ = cubic metres

Future Water Storage Needs

As facilities age we need to maintain or replace the water storage capacity. As Stouffville grows, new facilities may be needed.

We also need to consider at what point do we stop reinvesting in aging facilities in favour of constructing new (and usually upgraded) facilities.

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

- Zone 1 Storage Volumes are adequate through 2041
- Zone 2 Storage Volumes are adequate until 2021. To provide the required storage to 2041 in Zone 2, York Region has considered the following to meet the service needs:
 - Pumping excess Zone 1 storage to Zone 2 as needed
 - Rehabilitate or replace the Stouffville Reservoir (current service life to about 2028)
 - Rehabilitate or replace Zone 2 Elevated Tank (current service life to about 2034)

Service life is the expected amount of time infrastructure can be used before needing to be replaced or rehabilitated

Water Storage Alternatives

The following Storage Alternatives were identified and reviewed in detail through the evaluation process:

1. Do Nothing*	Maintain existing storage system and reinvest in existing storage facilities, as necessary.
2. Limit Community Growth*	Limit growth so that additional storage facilities are not needed.
3. Implement Water Conservation	Defer capital investments in new storage facilities.
4. Facilitate Shared <u>Fire Storage</u>	Provide the needed fire storage to Zone 2 from excess fire storage in Zone 1 <i>This Alternative can be undertaken in several ways, and a series of sub-alternatives was developed (see next board)</i>

**These alternatives are always considered in Class EA Processes, as a 'baseline', by which the other solutions can be compared.*

What is Fire Storage?

York Region must be able to provide a specific amount of water at any time in the event of an emergency like a fire. This volume is calculated based on location and other factors (like how many homes are in an area), and is used when determining the volume of water a water tower is designed to hold.

Detailed Water Storage Alternatives

The following Storage Alternatives were identified and reviewed in detail through the evaluation process:

Option 4 - Facilitate Shared Fire Storage, was broken down into 4 different overarching alternatives, and each of those were broken down into different options, where applicable

A. No new storage facilities

i. Upgrade Stouffville Reservoir (west cell), maintain Zone 2 Elevated Tank; retire east cell of the Stouffville Reservoir; construct new pressure reducing valve (PRV) chamber

ii. Upgrade Stouffville Reservoir (east and west cells); maintain Zone 2 Elevated Tank; construct new PRV chamber

B. Retire Zone 2 Elevated Tank

i. Build a new storage facility, upgrade Stouffville Reservoir (west cell); retire east cell of the Stouffville Reservoir; construct new PRV Chamber

ii. Build a new storage facility; upgrade both cells at Stouffville Reservoir

C. Retire Stouffville Reservoir and High Lift Pumping Station (HLPS).

i. Build a new storage facility; maintain Zone 2 Elevated Tank; retire Stouffville Reservoir (both cells) and construct a new PRV chamber

D. Retire Stouffville Reservoir, High-Lift Pumping Station (HLPS) and Zone 2 Elevated Tank.

i. Build a new storage facility; retire Stouffville Reservoir (both cells); retire Zone 2 Elevated Tank and construct new PRV Chamber

Storage Alternative A – No New Storage Facilities

Option 4 - Facilitate Shared Fire Storage – Storage Alternatives “A”

i) includes:

- Upgrade the West Cell of the Stouffville Reservoir
- Retire the East Cell of the Stouffville Reservoir
- Rehabilitate the Zone 2 Elevated Tank
- Construct new PRV chamber to facilitate sharing the excess storage from Zone 1

ii) includes:

- Upgrade the West and East Cell of the Stouffville Reservoir
- Rehabilitate the Zone 2 Elevated Tank
- Construct new PRV chamber to facilitate sharing the excess storage from Zone 1

Storage Alternative B – Retire Zone 2 Elevated Tank

Option 4 - Facilitate Shared Fire Storage – Storage Alternatives “B”

i) includes:

- Upgrade the West Cell of the Stouffville Reservoir
- Retire the East Cell of the Stouffville Reservoir
- Retire Zone 2 Elevated Tank
- Build new storage facility at the existing Zone 2 elevated tank location or at the Stouffville Reservoir location
- Construct new PRV chamber to facilitate sharing the excess storage from Zone 1

ii) includes:

- Upgrade the West and East Cell of the Stouffville Reservoir
- Build new storage facility
- Retire Zone 2 Elevated Tank
- Construct new PRV chamber to facilitate sharing the excess storage from Zone 1

**Storage Alternative C –
Retire Stouffville
Reservoir and High Lift
Pumping Station (HLPS)**

**Option 4 - Facilitate Shared Fire Storage – Storage
Alternatives “C”**

i) includes:

- Retire the West and East Cell of the Stouffville Reservoir
- Build new storage facility
- Rehabilitate the Zone 2 Elevated Tank
- Construct new PRV chamber to facilitate sharing the excess storage from Zone 1

**Storage Alternative D –
Retire Stouffville
Reservoir, High-Lift
Pumping Station (HLPS)
and Zone 2 Elevated Tank**

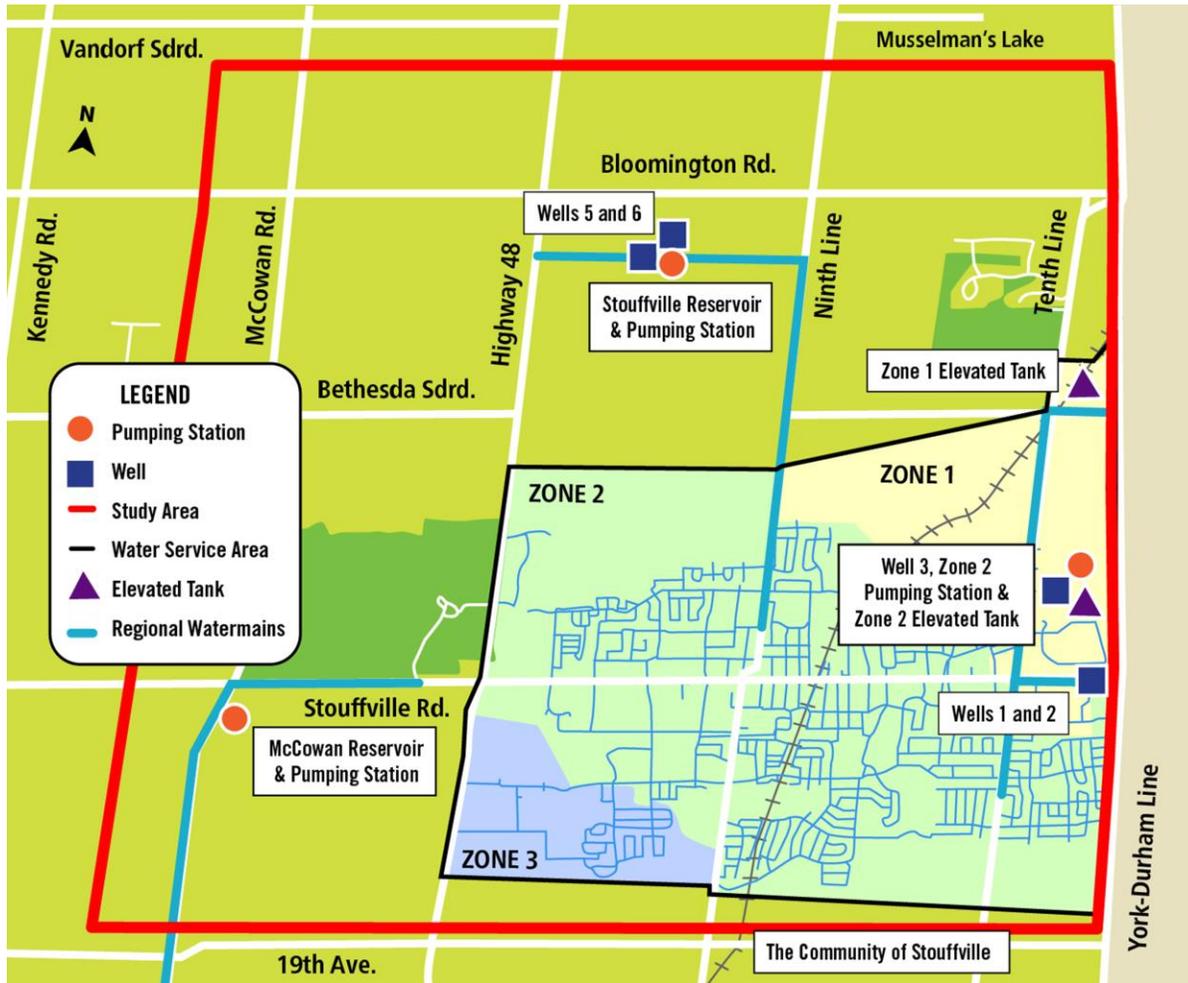
**Option 4 - Facilitate Shared Fire Storage – Storage
Alternatives “D”**

i) includes:

- Retire the West and East Cell of the Stouffville Reservoir
- Retire the Zone 2 Elevated Tank
- Build new storage facility
- Construct new PRV chamber to facilitate sharing the excess storage from Zone 1

Existing Water Supply

York Region is responsible for water supply. To be able to understand what York Region's future water supply needs are, we first need to know what we already have.



Current Water Supply Capacity

- Five groundwater supply wells
- Existing lake-based supply from the McCowan Reservoir and Zone 2 Pumping Station (PS)

Infrastructure	Year Constructed	Permitted Capacity (m ³ /d)
Well No. 1	1999	2,946
Well No. 2	1999	2,946
Well No. 3	1983	2,946
Well No. 5	1967	3,110
Well No. 6	1967	2,290
Stouffville Zone 2 Pumping Station	2009	15,000
TOTAL		29,238
FIRM CAPACITY		26,128

“Firm capacity” considers the capacity to the system assuming that the largest well is not available (for example: shut down for scheduled maintenance)
“Permitted Capacity” considers the maximum allowable capacity from the Ministry-issued Permit To Take Water (PTTW)
 m³/d = cubic metres per day

Future Water Supply Needs

As facilities age, we need to maintain or replace the capacity of the water supply infrastructure.

The Class EA considers water supply needs up to 2041. We know the following:

Wells 1 and 2:

- Service life extends beyond the horizon of this study (2041)
- *No immediate need to consider any changes to this water source*

Wells 3:

- Expected Service life roughly coincides with study horizon (2043)
- Observed decreasing well production over time, requiring more frequent maintenance activities
- *Class EA should consider alternatives to this water source*

Wells 5 and 6:

- Service life extends to 2027
- *No immediate need to consider any changes to this water source*



Although Wells 5 & 6 have a service life that extends to 2027, with regular maintenance and rehabilitation these Wells are expected to provide required capacity for the EA horizon (2041)

Water Supply Alternatives

The following Supply Alternatives were identified and reviewed in detail through the evaluation process:

1. Do Nothing*	Maintain existing supply system and rehabilitate existing wells, as necessary.
2. Limit Community Growth*	Limit growth to the capacity of the existing supply.
3. Implement Water Conservation	Defer capital investments in new supply facilities by reducing demand
4. Retire Well 3	Replace this supply capacity at an existing well site (either as a new well, or by increasing the supply capacity of a combination of the other four wells)

**These alternatives are always considered in Class EA Processes, as a 'baseline', by which the other solutions can be compared.*

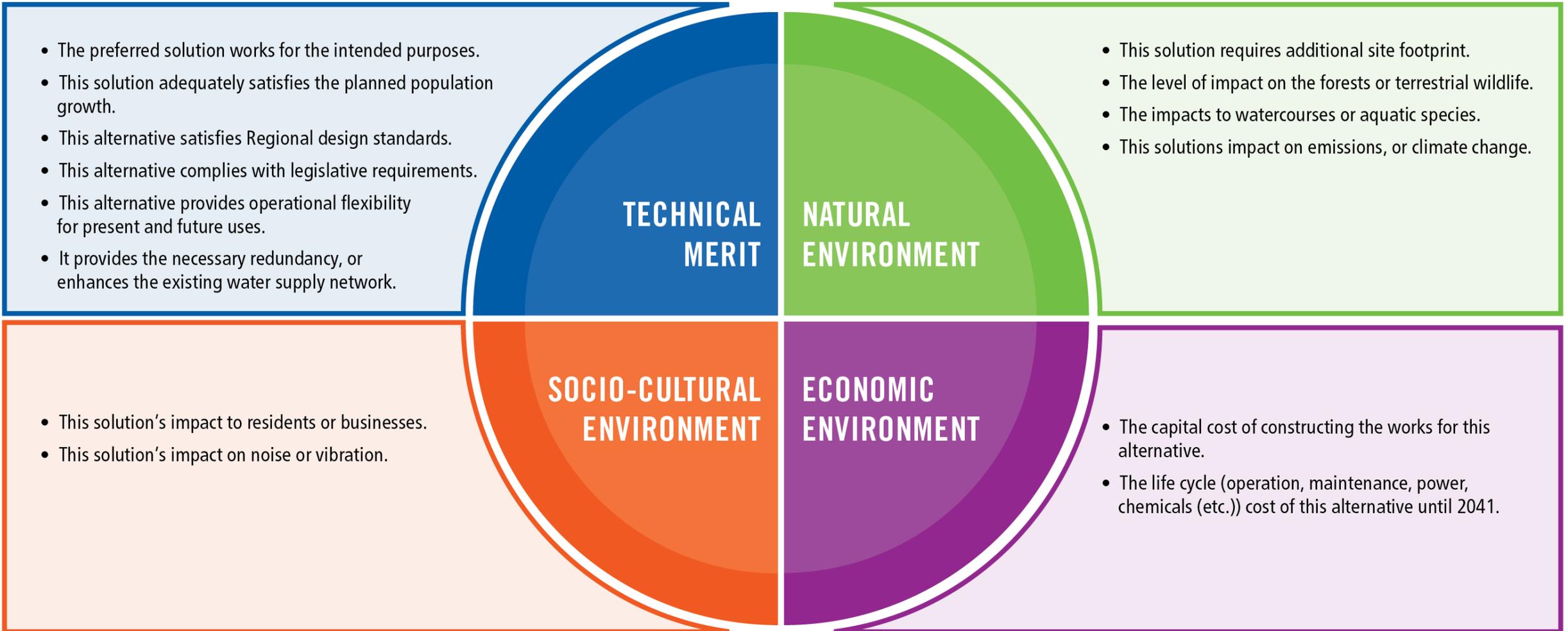
Supply Alternative 4 — Retire Well 3

Supply Alternative 4 includes:

- Retire Well 3
- Upgrade existing wells to replaces the Well 3 supply

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 4 for each criterion.
- A score of 1 represents lowest impact / most preferred
- A score of 2 represents moderate impact / somewhat preferred
- A score of 3 represents high moderate impact / somewhat least preferred
- A score of 4 represents greatest impact / least preferred
- **All criteria are valued equally.**
- **The overall score for each alternative is the average of the evaluation criteria scores.**



Water Storage Evaluation Summary

All water storage alternatives were evaluated based on the evaluation criteria and the summary of scores is below.

Alternative	Technical Feasibility	Satisfies Planned Growth	Satisfies Design Standards	Complies with Legislative Regulations	Provides Operational Flexibility	Impact on Natural Environment	Impact on Socio-Cultural Environment	Capital Costs	Life Cycle Costs	SCORE
1. Do Nothing	4	4	4	1	4	1	2	1	1	2.44
2. Limit community growth	4	4	3	1	4	1	4	1	1	2.56
3. Implement Water Conservation	4	4	4	1	4	1	2	1	1	2.44
4. a) i) Rehabilitate 1 reservoir cell and Zone 2 ET	1	1	1	1	1	1	2	2	2	1.33
4. a) ii) Rehabilitate both cells and Zone 2 ET	1	1	1	1	1	1	2	2	3	1.44
4. b) i) Build new storage, rehabilitate 1 reservoir cell, retire Zone 2 ET	1	1	1	1	1	1	2	3	3	1.56
4. b) ii) Build new storage, rehabilitate both reservoir cells, retire Zone 2 ET	1	1	1	1	3	3	2	1	1	1.56
4. c) i) Build new storage, retire Stouffville reservoir cells, rehabilitate Zone 2 ET	1	1	2	1	1	3	2	4	4	2.11
4. d) i) Build new storage, retire Stouffville reservoir, retire Zone 2 ET	1	1	2	1	3	3	2	4	4	2.33

The preferred alternative is Alternative 4 a) i) with a score of 1.33

This alternative allows for rehabilitation and maintenance of existing infrastructure.



Water Supply Evaluation Summary

All water supply alternatives were evaluated based on the evaluation criteria and the summary of scores is below.

Alternative	Technical Feasibility	Satisfies Planned Growth	Satisfies Design Standards	Complies with Legislative Regulations	Provides Operational Flexibility	Impact on Natural Environment	Impact on Socio-Cultural Environment	Capital Costs	Life Cycle Costs	SCORE
1. Do Nothing	1	1	1	1	1	1	2	2	2	1.3
2. Limit community growth	1	1	1	1	1	1	2	2	2	1.3
3. Implement Water Conservation	1	1	1	1	1	1	2	2	2	1.3
4. Expand existing wells	1	1	1	1	1	3	3	3	3	1.9

The preferred alternative is Alternative 1 with a score of 1.3

This alternative was selected as it allows for upgrading the existing wells to maintain current capacity.

Limit community growth and implement water conservation can also occur under the “Do Nothing” alternative.

The “Do Nothing” alternative does not mean no work will be completed. It means York Region can rehabilitate and extend the service life of the infrastructure



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



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.

Follow the process.

Information will be updated on the Region's website: york.ca/ea

Comments or questions can also be directed to:

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