

# Welcome

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## Public Information Centre #1 Carlisle Water Storage Facility Class EA



Wednesday, June 14, 2023, 6:00 p.m.

**CARLISLE  
WATER STORAGE FACILITY**

Municipal Class Environmental Assessment

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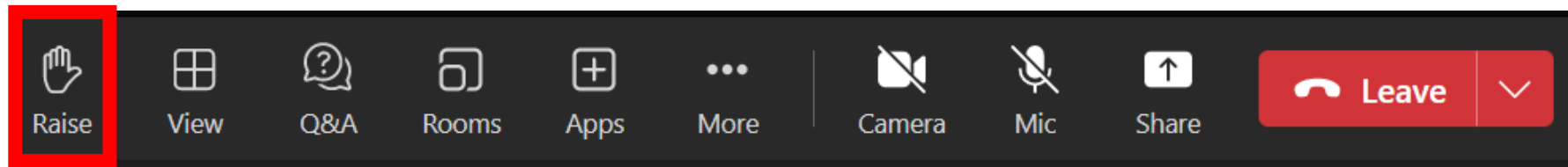


**RVA**

# Housekeeping Items

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- When joining the online meeting, attendees will be muted and will not be able to use their microphones or camera.
- At the end of the presentation, there will be an opportunity to ask questions or submit comments. Click the raise your hand function **[in red]** to verbally ask your questions



- To submit your feedback following the PIC, the presentation materials and an online survey are available on the project webpage.



# Presentation Outline

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- Study Area and Objectives
- Municipal Class Environmental Assessment (EA) Process
- Existing Conditions – Water Supply & Storage
- History of Water Storage & Conservation Efforts
- Projected Water Demand & Storage Requirements
- Problem / Opportunity Statement
- Types of Water Storage
- Alternative Solutions / Locations (Long-list)
- Next Steps in the Project
- Question and Answer Period

## CARLISLE WATER STORAGE FACILITY

Municipal Class Environmental Assessment

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RVA



# Study Area and Objectives

- The study area includes the Carlisle Rural Settlement Area and immediately adjacent areas
  - Households serviced by the municipal water supply;
  - Households not currently serviced by the municipal water supply; and
  - Currently undeveloped land parcels.

The goal of the study is to ensure Carlisle will have long-term, sustainable water servicing to meet the current and future needs of the Community



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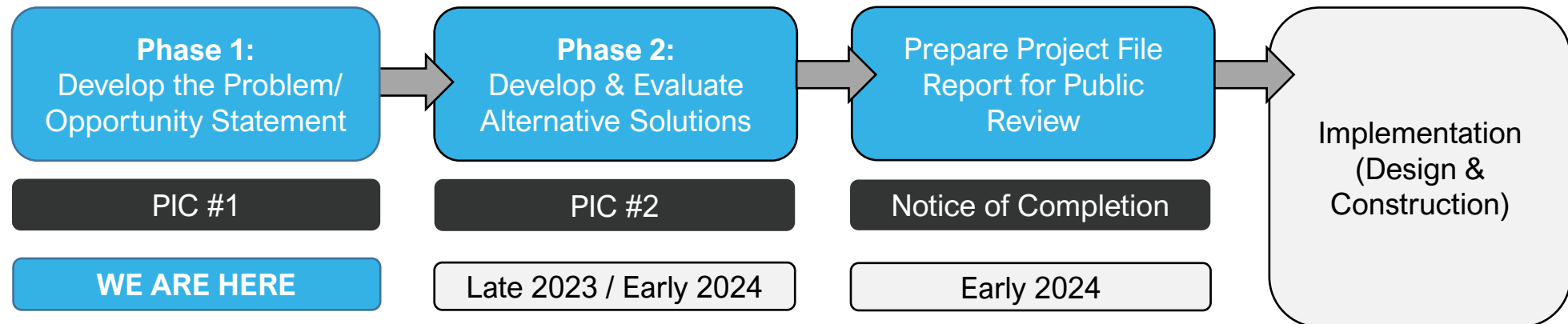


# Municipal Class EA Process

A Municipal Class Environmental Assessment (MCEA) is undertaken prior to municipal road, water, wastewater and transit construction projects.

- Ensures all reasonable alternatives are considered
- Avoidance or reduced impact on the natural, cultural, social and economic environments
- Incorporation of input from the public, stakeholders, technical agencies and Indigenous communities.

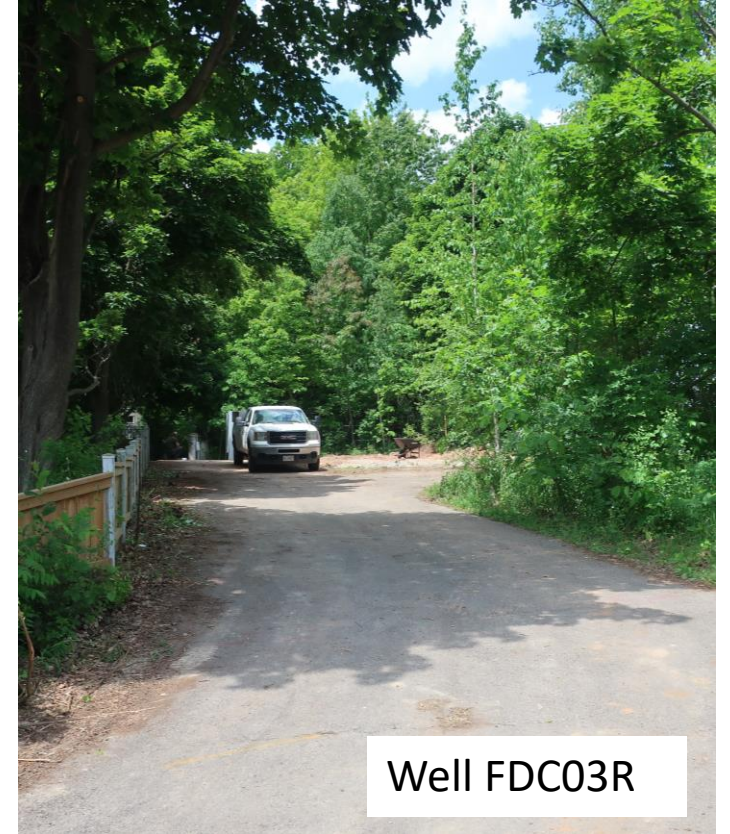
This project is classified as a **Schedule 'B' Municipal Class EA** and is subject to **Phases 1 and 2** of Municipal Class EA process.





# Existing Conditions – Water Supply/Capacity

- Currently supplied by four (4) groundwater wells (*Total* capacity of 4,303 m<sup>3</sup>/d (49.8 L/s))
- *Firm* capacity (assuming largest well taken out of service) is 2,143 m<sup>3</sup>/d (24.8 L/s)
- Additional well capacity of 2,160 m<sup>3</sup>/d (25 L/s) is required
- Water supply/capacity can be addressed with a new well located beside largest well



# Existing Conditions – Water Storage in Carlisle

- Water storage is provided by one (1) elevated Water Storage Tank (ET)
- Located at 46 Woodend Drive in Tower Park
- Provides municipal water supply to approximately 1,930 of Carlisle's 2,608 residents
- Has a storage capacity of 1,400 m<sup>3</sup> and is in good structural condition



## CARLISLE WATER STORAGE FACILITY

Municipal Class Environmental Assessment



# History of Water Storage in Carlisle

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- Unable to meet peak demands in 2002, requiring an outdoor watering ban
- Out of compliance with emergency and fire requirements for water storage
- 2012 Class EA identified two options to address Carlisle's lack of water storage compliance:
  1. Infrastructure option - sufficiently increase the capacity of Carlisle's water storage
  2. Water demand option - reduce peak day demands to below 1,170 m<sup>3</sup>.
- City initiated a 5-year comprehensive water conservation program to determine whether conservation could eliminate the need for additional water storage

## CARLISLE WATER STORAGE FACILITY

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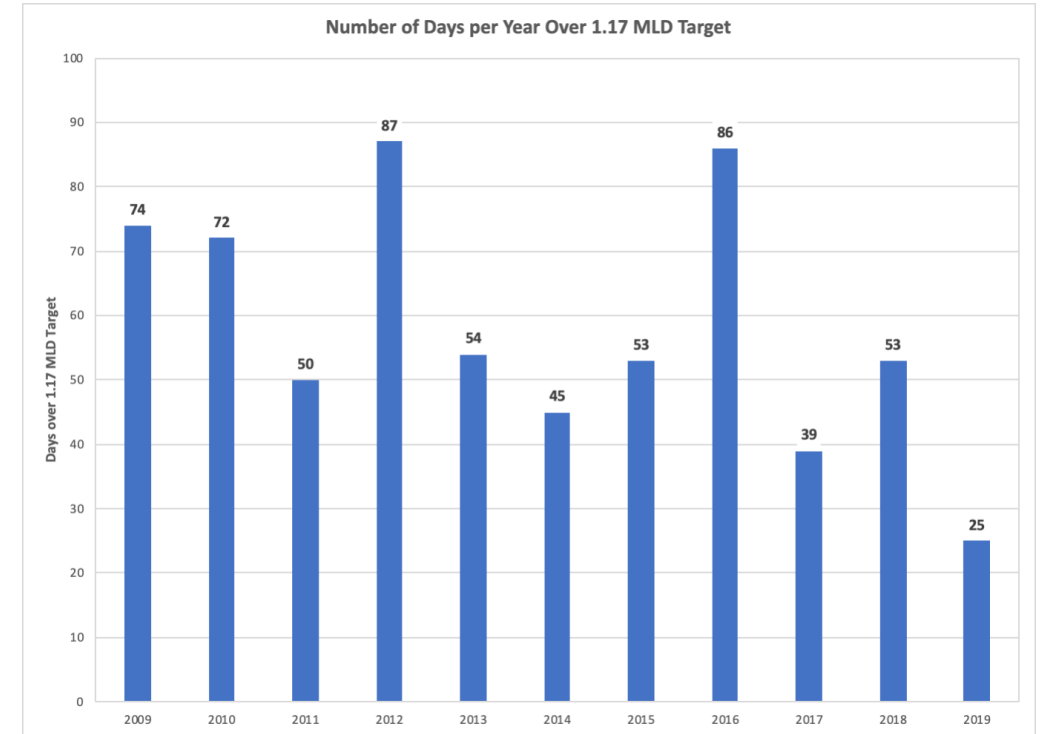




# History of Water Storage in Carlisle – Conservation Efforts

- The water conservation program (2015 – 2019) included several water conservation measures and public education
- The number of days over the 1,170 m<sup>3</sup> /day target ranged from 25 to 86 days per year between 2015-2019
- In 2022, the Maximum Day Demand for Carlisle was 2,665 m<sup>3</sup> /day (31 L/s)

Despite the community's efforts, conservation measures alone were not able to meet Carlisle's water needs



Carlisle Conservation Committee (C3)  
Final Summary Report (May 2020)

**CARLISLE**  
**WATER STORAGE FACILITY**

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# Water Storage Requirements

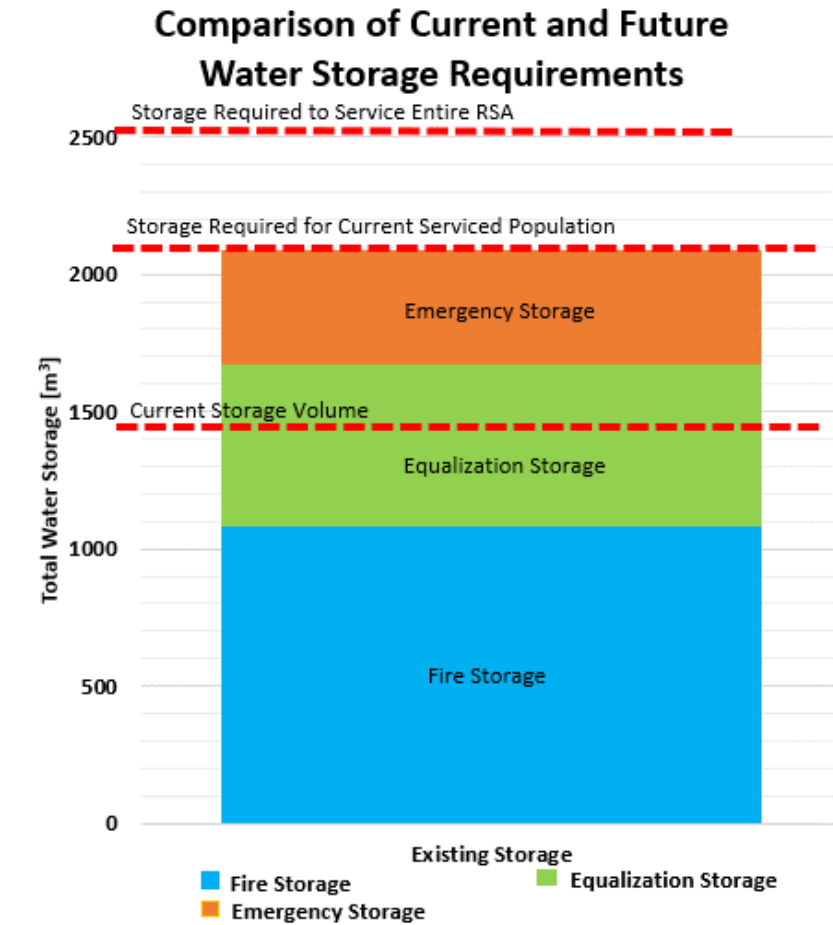
- Carlisle has an existing *water storage deficit* of 689 m<sup>3</sup> below Provincial requirements.
- By 2051, additional population being serviced will increase the total storage deficit to 1,285 m<sup>3</sup>.
- Storage requirements are calculated based on the Ministry of Environment, Conservation and Parks (MECP) Design Guidelines for Drinking Water Systems (2008).



**Fire Storage** – uses the City of Hamilton’s Target Available Fire Flows based on Land Use.

**Equalization Storage** – based on the maximum daily water demand.

**Emergency Storage** – based on the required fire storage and equalization storage.



## CARLISLE WATER STORAGE FACILITY

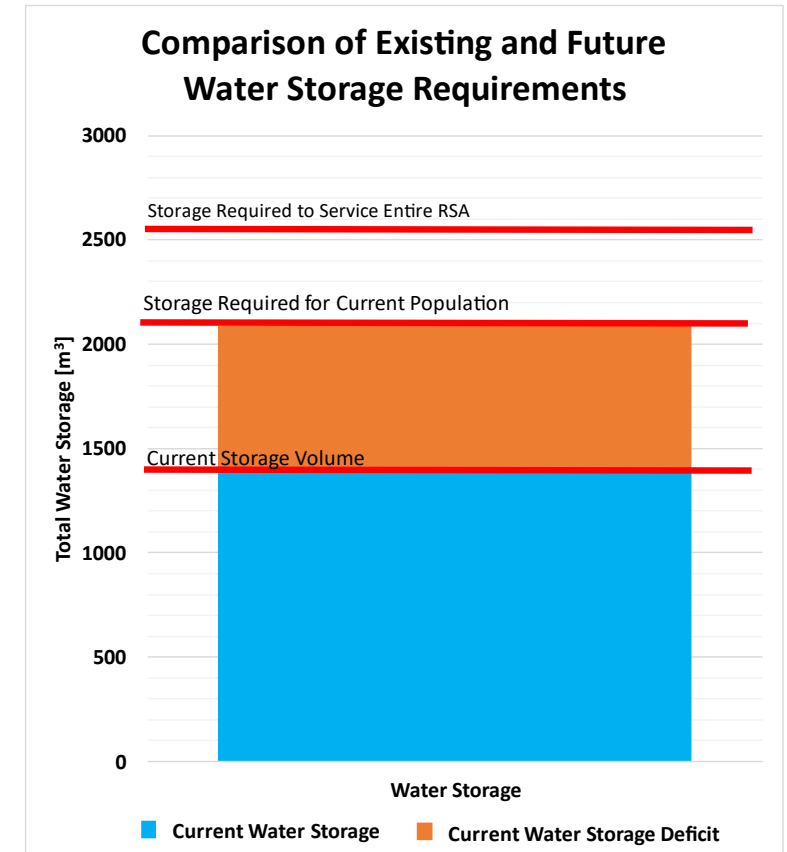
Municipal Class Environmental Assessment



# Problem / Opportunity Statement

The Problem / Opportunity Statement outlines the need and justification for the overall project and establishes the general parameters, or scope, of the study.

- Additional water storage infrastructure is required within the Community of Carlisle to address the community's water storage capacity needs now, and in the future.
- This Class EA will identify and evaluate:
  - various **types** of water storage facilities
  - potential **sites** for the required water storage infrastructure

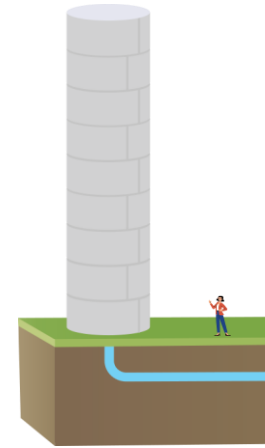




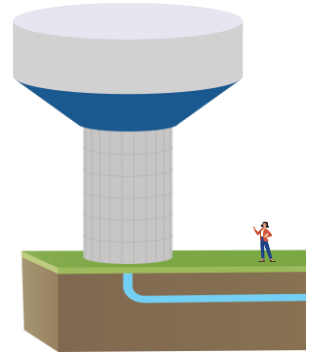
# Types of Water Storage

- **Standpipe**
  - Tall tank, usually small in diameter compared to height, for holding water (MECP, 2008).
- **Elevated Tank**
  - A storage facility supported by a tower at an elevation to provide storage and pressure for a water pressure plane (MECP, 2008).
- **In-Ground Storage Tank**
  - Compartment used to accumulate water from a water treatment unit (MECP, 2008). Requires pumps to distribute water.

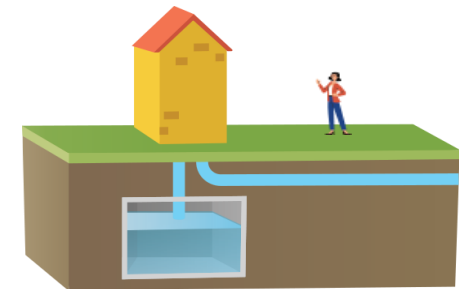
Standpipe



Elevated Tank



In-ground Storage Tank



The preferred storage type will either replace, or be in addition to the existing facility

## CARLISLE WATER STORAGE FACILITY

Municipal Class Environmental Assessment



# Long-List of Alternative Solutions – Site Locations

Area 1: Existing Elevated Tank Site (Tower Park)

Area 2: William Street

Area 3: Baseball Diamonds

Area 4: Tennis Court

Area 5: South of Carlisle Road

Area 6: Centre Road

Area 7: Oldenburg Road

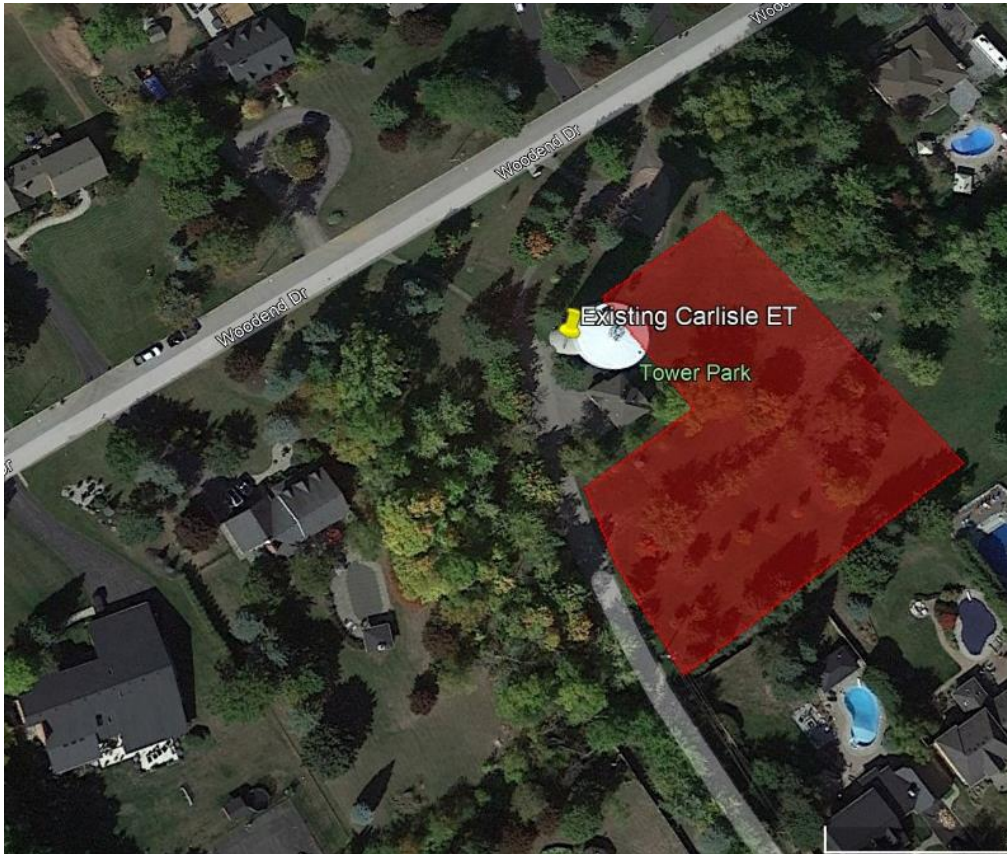
Area 8: Carlisle Memorial Park



Long-List of Alternative Site Locations



# Area 1: Existing Elevated Tank Location



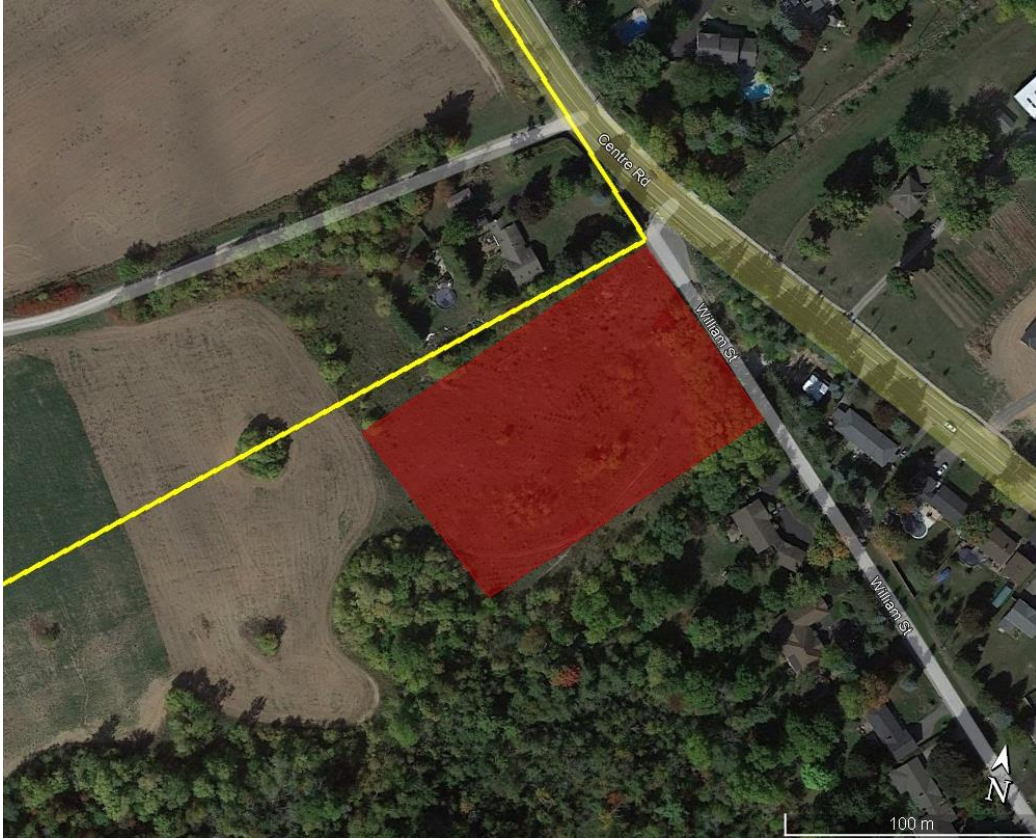
Area 1: Existing Elevated Tank Site (Tower Park)

- City owned property (40, 42, 46 Woodend Drive)
- Connected to existing water supply system
- Access from Acredale Drive or Woodend Drive
- Located in a community park and in between residential homes
- Above ground or below ground water storage facility





# Area 2: William Street at Centre Road



Area 2: William Street at Centre Road

- Privately owned property (1535 Centre Road)
- No connection to existing water supply system (350 m watermain extension from Elderberry Lane required)
- Access from William Street (dead-end street)
- Adjacent to Wetland Hazard Lands between two residential homes
- Above ground or below ground water storage facility





## Area 3: Baseball Diamonds (Carlisle Community Centre Park)



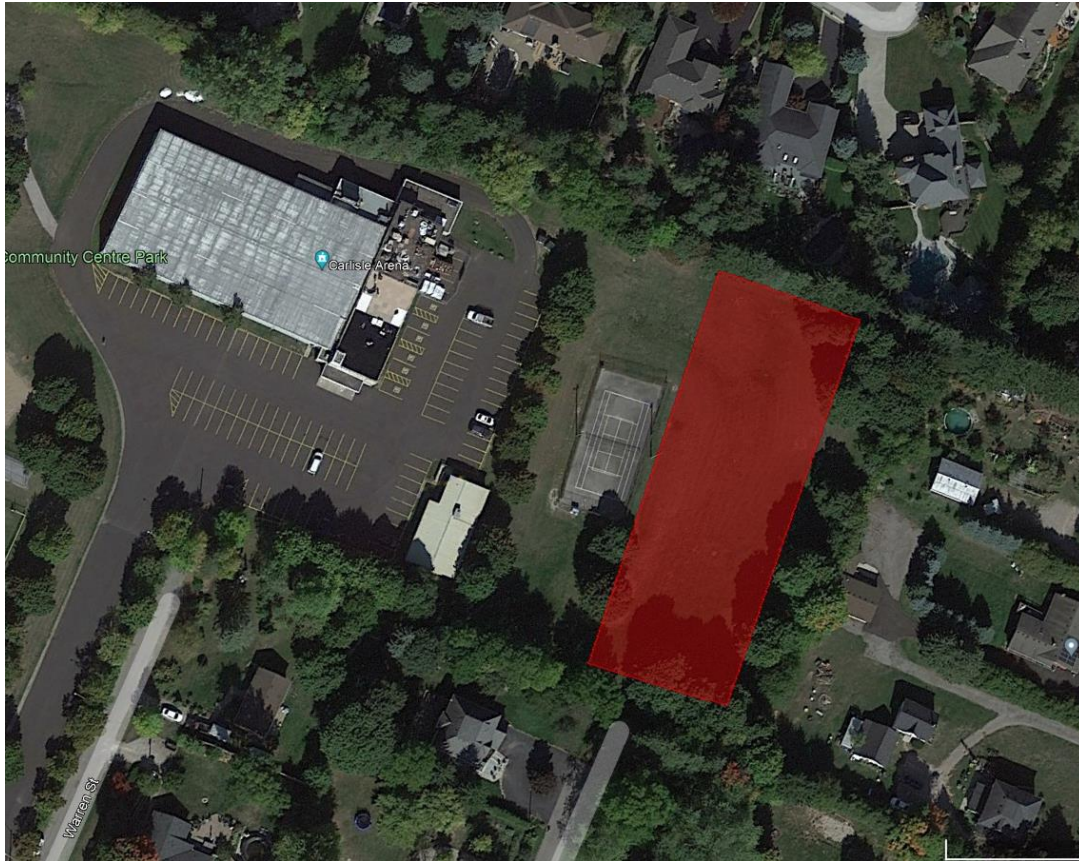
Area 3: Baseball Diamonds (Carlisle Community Centre Park)

- City owned property (1496 Centre Road)
- Connected to existing water supply system
- Access from Arena Parking Lot
- Community park, adjacent to Baseball diamond and playground
- Above ground or below ground water storage facility





# Area 4: Tennis Court (Carlisle Community Centre Park)



Area 4: Tennis Court (Carlisle Community Centre Park)

- City owned property (1496 Centre Road)
- Connected to existing water supply system
- Access from Arena Parking Lot or George Street
- Community park, adjacent to tennis court
- Above ground or below ground water storage facility





# Area 5: South of Carlisle Road



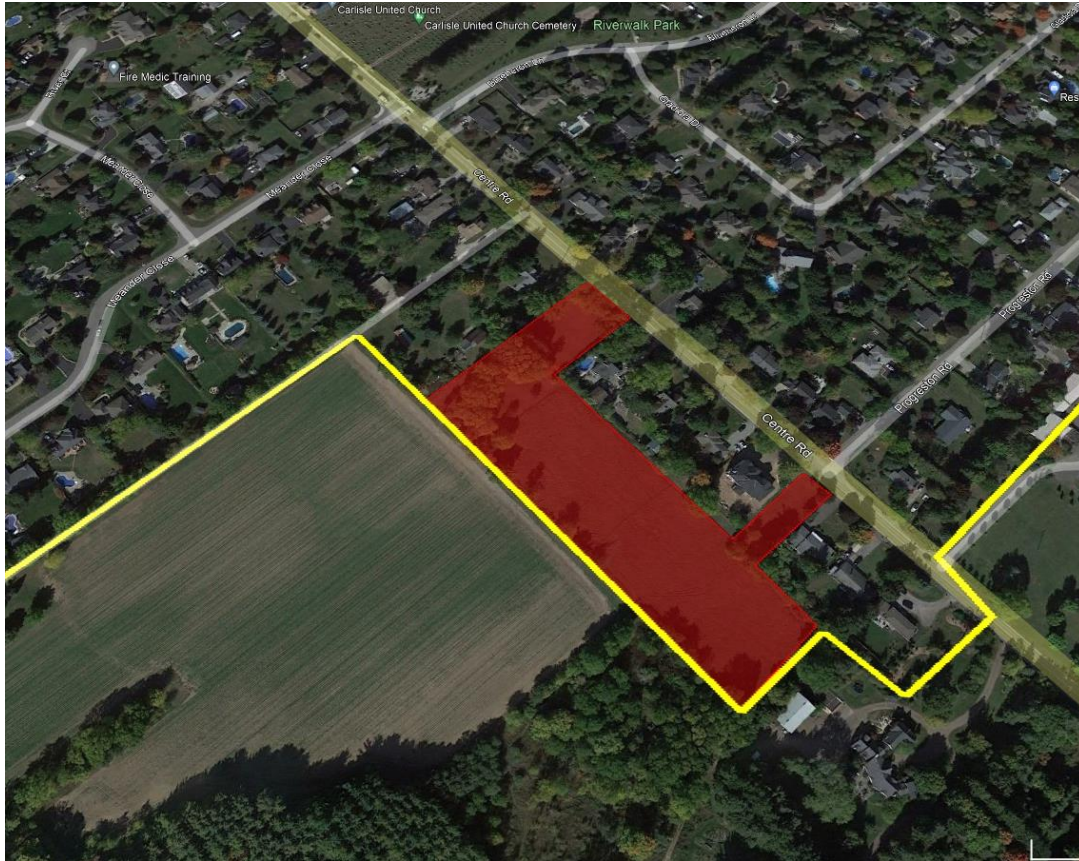
Area 5: South of Carlisle Road

- Privately owned property (302 Carlisle Road)
- Connected to existing water supply system
- Requires additional property to be accessed from Parkshore Place
- Partially located in Floodplain Hazard, Meander Belt Hazard, and Stable Top of Bank Hazard.
- Above ground or below ground water storage facility





# Location 6: Centre Road



Area 6: Centre Road

- Privately owned property (no municipal address)
- No connection to existing water supply system (175 m watermain extension required)
- Requires additional property to access from Centre Road
- Located between residential homes and agricultural lands
- Above ground or below ground water storage facility





# Location 7: Oldenburg Road



Area 7: Oldenburg Road

- City owned property (6 Oldenburg Road)
- Connected to existing water supply system
- Access from Oldenburg Road and Appaloosa Trail
- Adjacent to Meander Hazard and Wet Land Hazard and lands currently used for stormwater management (dry pond)
- Can accommodate below ground water storage facility only





# Area 8: Carlisle Memorial Park



Area 8: Carlisle Memorial Park

- City owned property (1487 Centre Road)
- Connected to existing water supply system
- Access from William Street or Centre Road
- Community park, adjacent to Baseball diamond and playground
- Above ground or below ground water storage facility





# Long List to Short List – Screening Criteria

Criteria	Considerations
Is it feasible and reasonable?	<ul style="list-style-type: none"> <li>• Is the alternative technically feasible and reasonable?</li> <li>• Can the alternative be constructed for a reasonable cost?</li> <li>• Are the ecological, social, or other impacts anticipated to be unreasonably high relative to other alternatives?</li> <li>• Does the alternative provide a long-term solution?</li> </ul>
Does it address the identified problem / need?	<ul style="list-style-type: none"> <li>• Does the alternative address the considerations listed in the Problem and Opportunity Statement?</li> <li>• Does the alternative support planned growth to 2051?</li> <li>• Can the alternative offer resiliency to potential future changes to regulatory, climatic, and raw water quality conditions?</li> </ul>
Does it meet applicable planning policies?	<ul style="list-style-type: none"> <li>• Does the alternative meet local, regional, and provincial planning policies?</li> </ul>



# Next Steps – Evaluation of Short List Alternatives

Criteria	Considerations	
Social	<ul style="list-style-type: none"> <li>Effects on neighbouring properties</li> <li>Sensory impacts during and after construction (noise, dust, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>Effects on the municipality, local businesses, etc.</li> <li>Effects on Indigenous communities</li> <li>Future growth as per the City’s Official Plan</li> </ul>
Technical	<ul style="list-style-type: none"> <li>Compatibility with existing systems</li> <li>Ease of implementation</li> <li>Effects on operations and maintenance</li> </ul>	<ul style="list-style-type: none"> <li>Treatment complexity</li> <li>Ability to meet existing and future water demands</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>Effects on wildlife and vegetation</li> <li>Effects on habitats and air quality</li> </ul>	<ul style="list-style-type: none"> <li>Effects on Source Water Protection</li> <li>Climate Change</li> </ul>
Relative Cost and Financial Risk	<ul style="list-style-type: none"> <li>Affordability</li> <li>Relative magnitude of expense</li> <li>Additional costs related to unknowns</li> </ul>	<ul style="list-style-type: none"> <li>Potential construction risks that could impact cost or other financial risks</li> </ul>





# Next Steps

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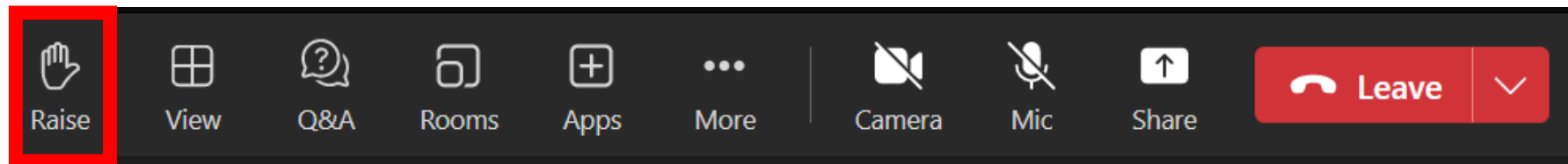
1. Screen long list of alternative site locations
2. Develop a Community Liaison Committee (CLC) to provide feedback at key points throughout the study,
3. Undertake additional studies (geotechnical, natural, archaeological, etc)
4. Evaluate short-list of alternative site locations and water storage facilities
5. Consult with key stakeholders and technical agencies, as required
6. Present preliminary recommended solution at 2<sup>nd</sup> PIC (Fall 2023)



# Question and Answer

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- Click the Q&A icon [in green] to type your questions for the presenters to answer or, click the raise your hand function [in red] to verbally ask your questions.





# Community Liaison Committee

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- Community Liaison Committee (CLC) is being established.
- Receive input and provide feedback at key points throughout the study.
- Comprised of members of the Carlisle community
- Applications available on the project website ([www.hamilton.ca/carlislewaterstorage](http://www.hamilton.ca/carlislewaterstorage)).
- Please respond by **June 29, 2023**



# Get Involved

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Review presentation slides, frequently asked questions, and complete the online survey on the project webpage by **June 29, 2023**



Apply to join the Community Liaison Committee by **June 29, 2023**



Attend the future Public Information Centre in late 2023 / early 2024 (date to be confirmed)

For additional questions regarding the study, please contact one of the project team members:

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# WE WANT TO HEAR FROM YOU!



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