



Public Information Centre 2
Arthur P. Kennedy
Water Treatment Plant (WTP)
Reservoir Expansion
Class Environmental Assessment (EA) Study

Peel Region
April 17, 2024

Land Acknowledgements

We would like to begin by acknowledging the land on which we gather, and which the Region of Peel operates, is part of the Treaty Lands and Territory of the Mississaugas of the Credit. For thousands of years, Indigenous peoples inhabited and cared for this land, and continue to do so today.

In particular we acknowledge the territory of the Anishinabek, Huron-Wendat, Haudenosaunee and Ojibway/Chippewa peoples; the land that is home to the Metis; and most recently, the territory of the Mississaugas of the Credit First Nation who are direct descendants of the Mississaugas of the Credit.

Public Information Centre 2

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Purpose of the Study:

- Provide a design concept for additional water storage for the WTP to ensure long-term reliable water treatment and supply.

Help us help you!

- This is your opportunity to comment on the study.
- All comments received will be considered and incorporated where possible.

What should I be doing?

- Reviewing the PIC presentation boards.
- Share comments with one of the team members in attendance or via e-mail during the comment period.

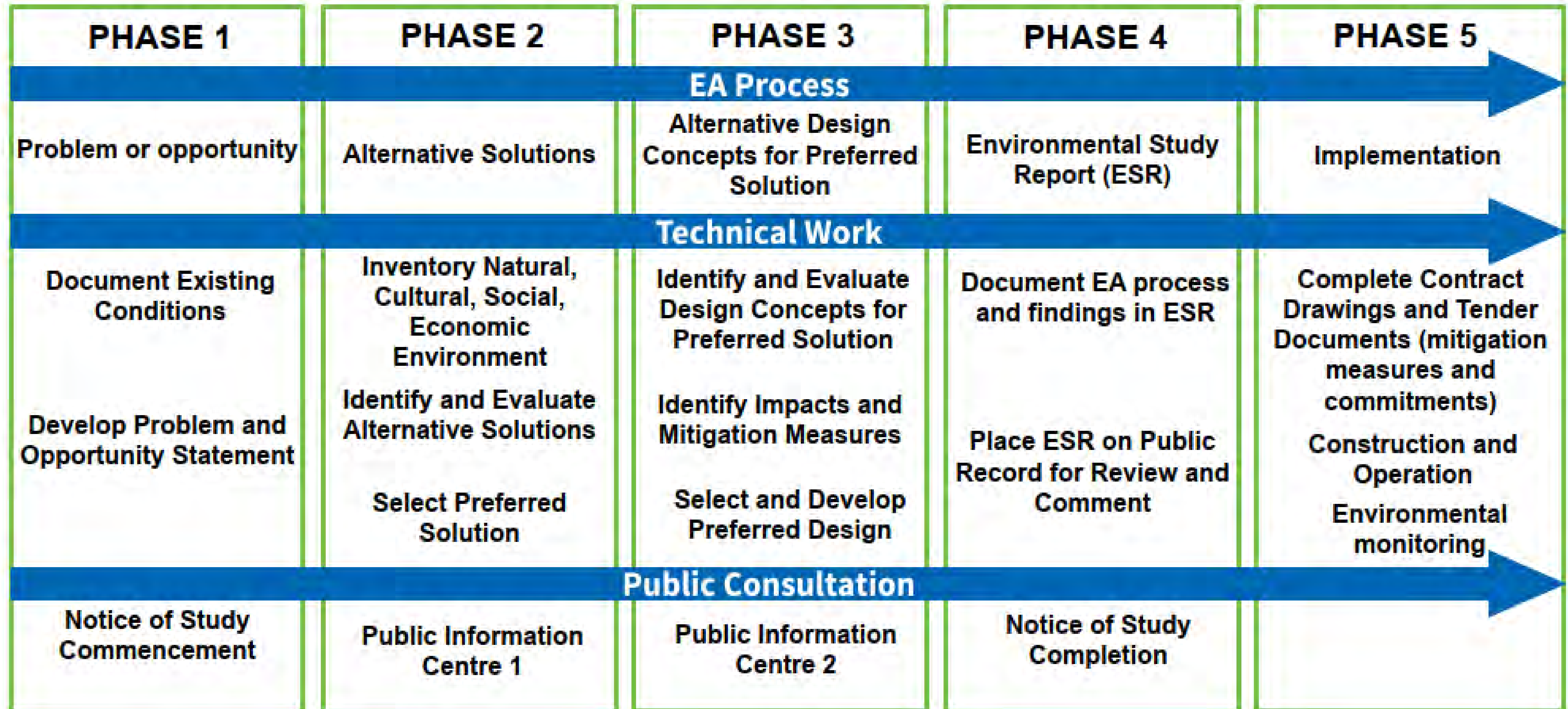
Objectives of PIC 2:

1. Provide an overview of the Class Environmental Assessment Study Process and the progress to date;
2. Provide the background study information;
3. Present the preliminary preferred design concept;
4. Present the benefits, impacts and proposed mitigation of impacts;
5. Outline next steps and obtain your input.



Schedule 'C' Class EA Process

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

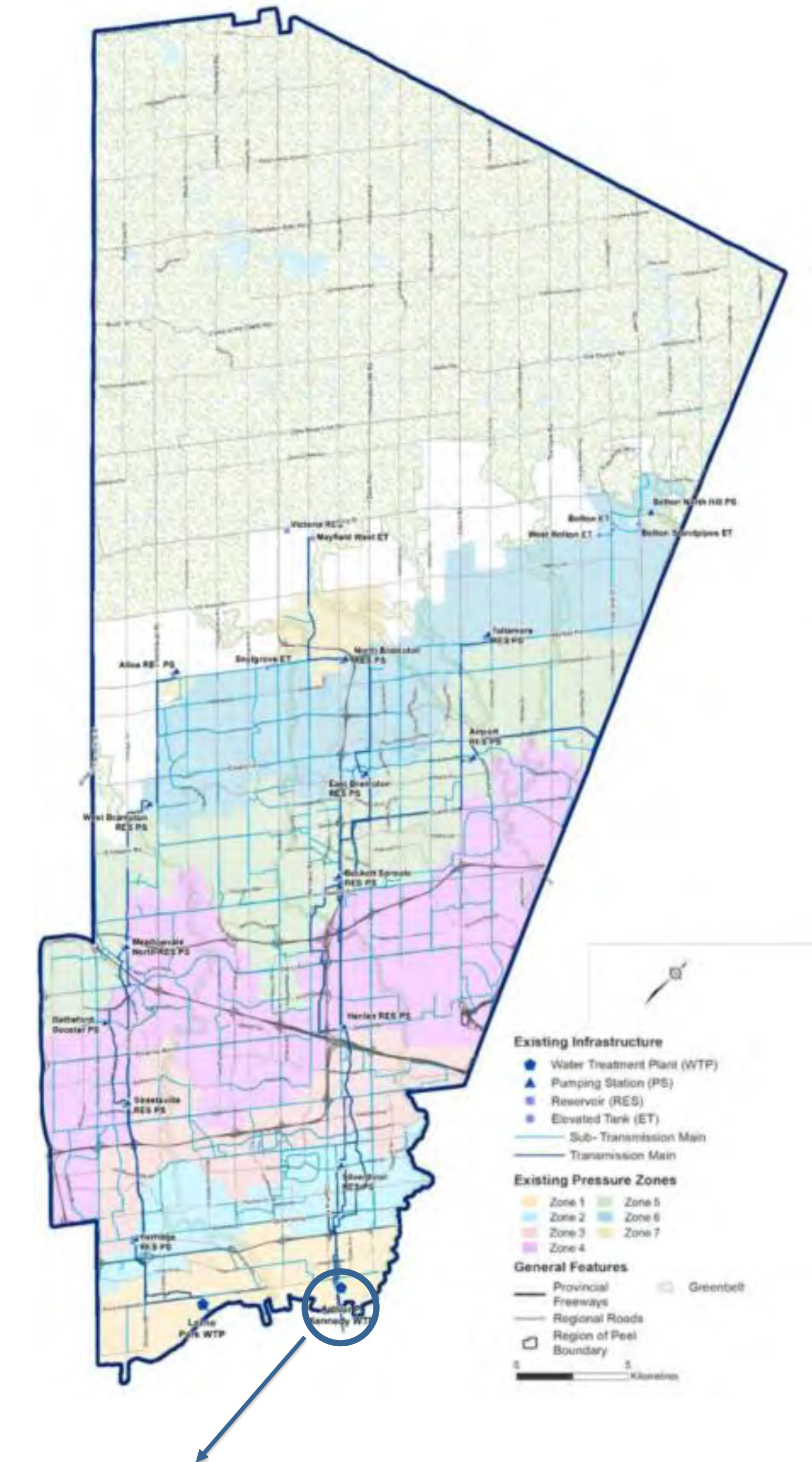


WE ARE HERE!

Project Background

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

- The Region is serviced by Arthur P. Kennedy WTP and Lorne Park WTP. These WTPs, with trunk water systems and pumping stations, combine as the “Lake Based Water System”.
- Arthur P. Kennedy WTP is one of the world’s largest water treatment facilities with a capacity to produce 1,200 ML of clean water every day
- Serves residents in the eastern part of Mississauga, Brampton, York Region and the community of Bolton.
- Built in 1952, with multiple expansions and upgrades, with the latest capacity expansion in 2014.
- The Region of Peel’s Water and Wastewater Master Plan (2020) and updated 2051 population forecast identifies the current treated water storage as insufficient at Arthur P. Kennedy WTP.

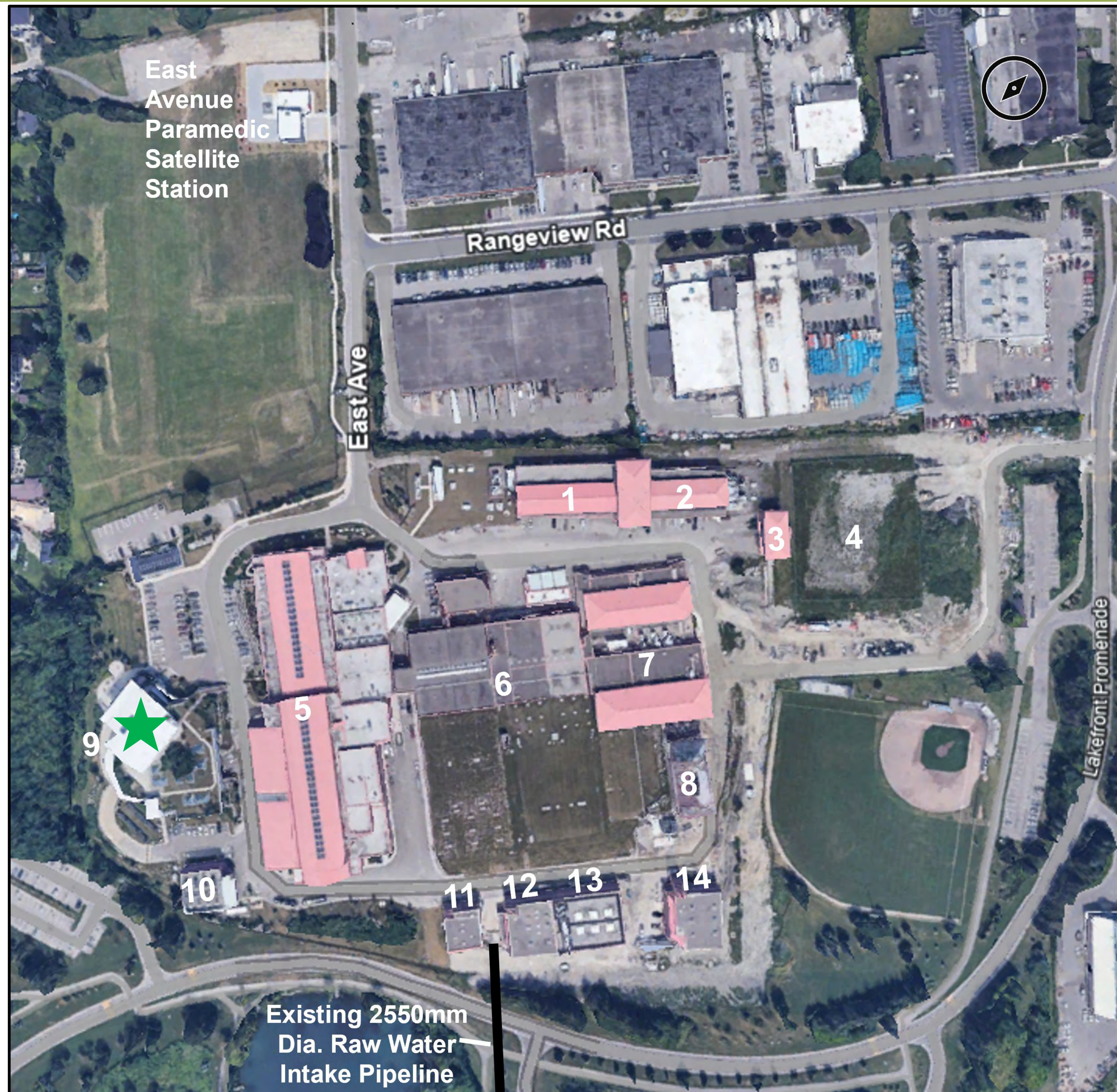


Arthur P. Kennedy Water Treatment Plant

Image Source: South Peel Water Quality Report, Brampton, Mississauga and South Caledon, 2020

Existing Arthur P. Kennedy Water Treatment Plant

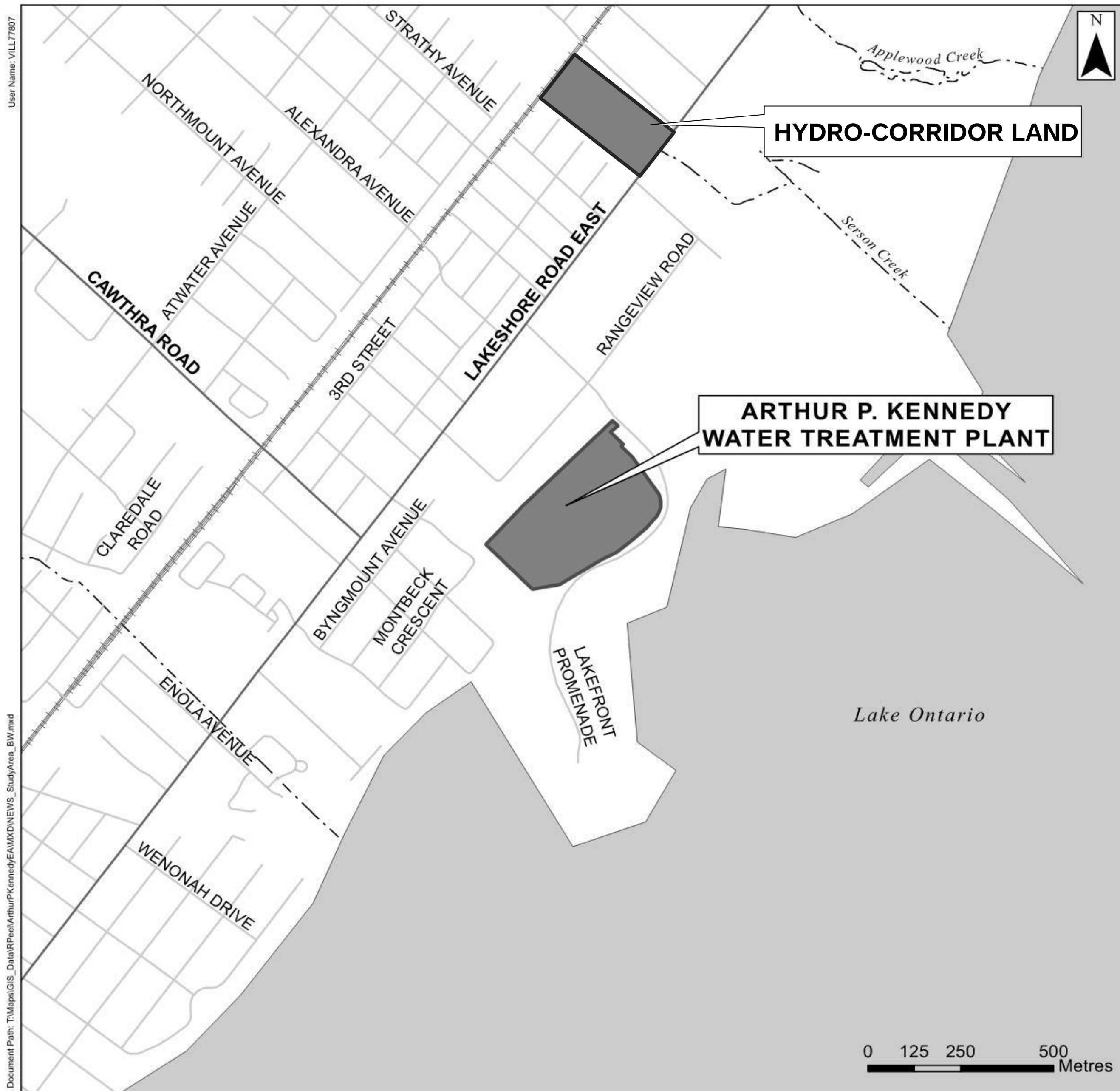
Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study



1. High Lift Pumping Station 4
2. High Lift Pumping Station 3
3. Reservoir Access Building
4. Existing East Reservoir
5. Advanced Treatment Plant OBM 2 (Ozone / Biologically Active Carbon Contactors / Membrane Filtration)
6. Conventional Treatment Plant
7. Advanced Treatment Plant OBM 1 (Ozone / Biologically Active Carbon Contactors / Ultraviolet Reactors/ Membrane)
8. Standby Power
9. Administration and Maintenance Building **(You are Here)**
10. Emergency Power Facility
11. Process Waste Treatment Facility
12. Low Lift Pumping Station 3
13. Low Lift Pumping Station 4

Study Area

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study



Study Area

- The approximate limits of the Study Area extend from:
 - Lakeshore Road East southerly to Lake Ontario
 - Just east of Montbeck Crescent to East Avenue extending to the western limits of the Douglas Kennedy Park
- For the purpose of alternative solutions, the Study Area also considers other sites within the Region.

Identify the Problem or Opportunity

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Problem Statement:

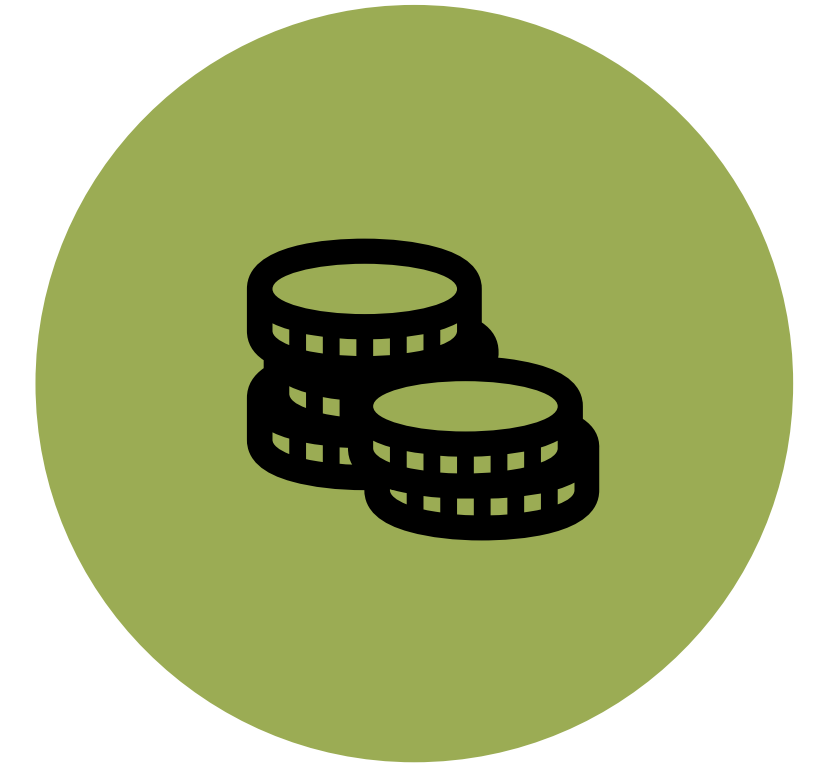
- The Region's major servicing policies and guiding principles require system reliability, security for its residents and businesses, and maintaining the same level of service from every facility.
- The Water and Wastewater Master Plan (2020) identified the water storage facility at the Arthur P. Kennedy WTP requires expansion to support the Region's water servicing requirement.
- The population forecast for the 2051 planning horizon will increase the water demand at Arthur P. Kennedy WTP; plant facilities must align with the increased demand.



Image Source: Liber360° INC., 2018. RETRIEVED FROM: [Arthur P. Kennedy Water Treatment Plant – Liberty360° Inc. \(liberty360inc.com\)](https://liberty360inc.com)

Project Objectives

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study



Technical (System Reliability, Security and Level of Service)	Planning	Environmental Protection	Community Acceptability	Fiscal Responsibility
<ul style="list-style-type: none"> • The plant requires increased redundancy for water storage. • Keeping consistency with the level of service with the other WTP and other similar sized plants in Ontario, the plant requires a total reservoir storage volume to provide a minimum of 1.3 to 2 hours of water supply at the rated plant capacity. • Integration of a new reservoir to the existing WTP operation to improve security of operation. 	<ul style="list-style-type: none"> • Design that aligns with the 2020 Master Plan and latest Official Plan. • New reservoir should have the ability to support future capacity expansions in alignment with the 2051 and post-2051 growth. • Considering the limitation of the current site, the space allocated for the reservoir should not prevent opportunities for future capacity expansions. 	<ul style="list-style-type: none"> • Evaluate alternative solutions with consideration for the natural, social, and cultural environments. • Mitigate risks to natural, social, cultural environments. 	<ul style="list-style-type: none"> • Effective consultation with the stakeholders and approval agencies. • Develop visually appealing design and landscaping that integrates into the existing community. 	<ul style="list-style-type: none"> • Balance project costs while protecting the natural, social and cultural environments.

Available Properties for Alternatives

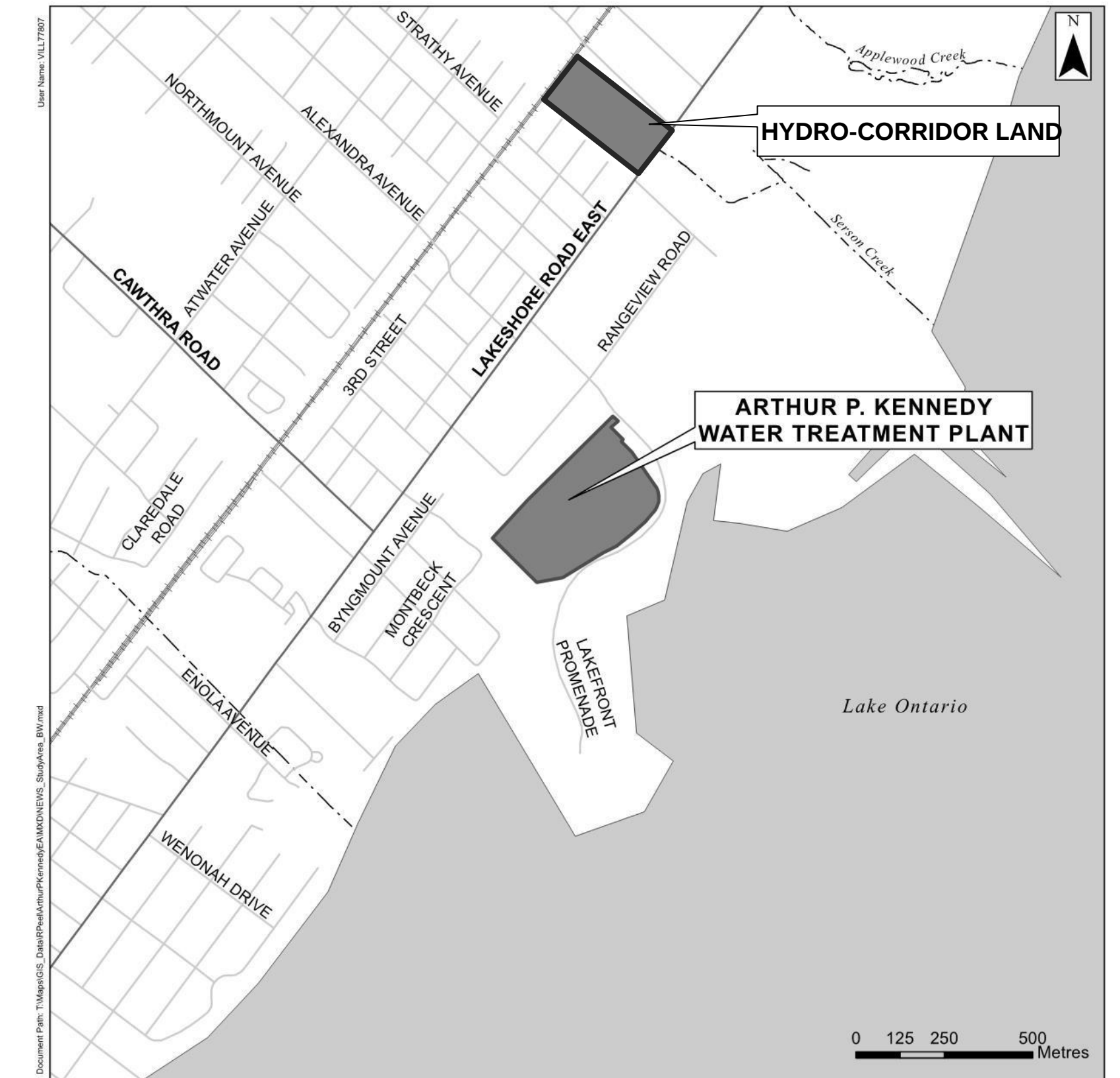
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On-site Properties: Northwest and Southeast



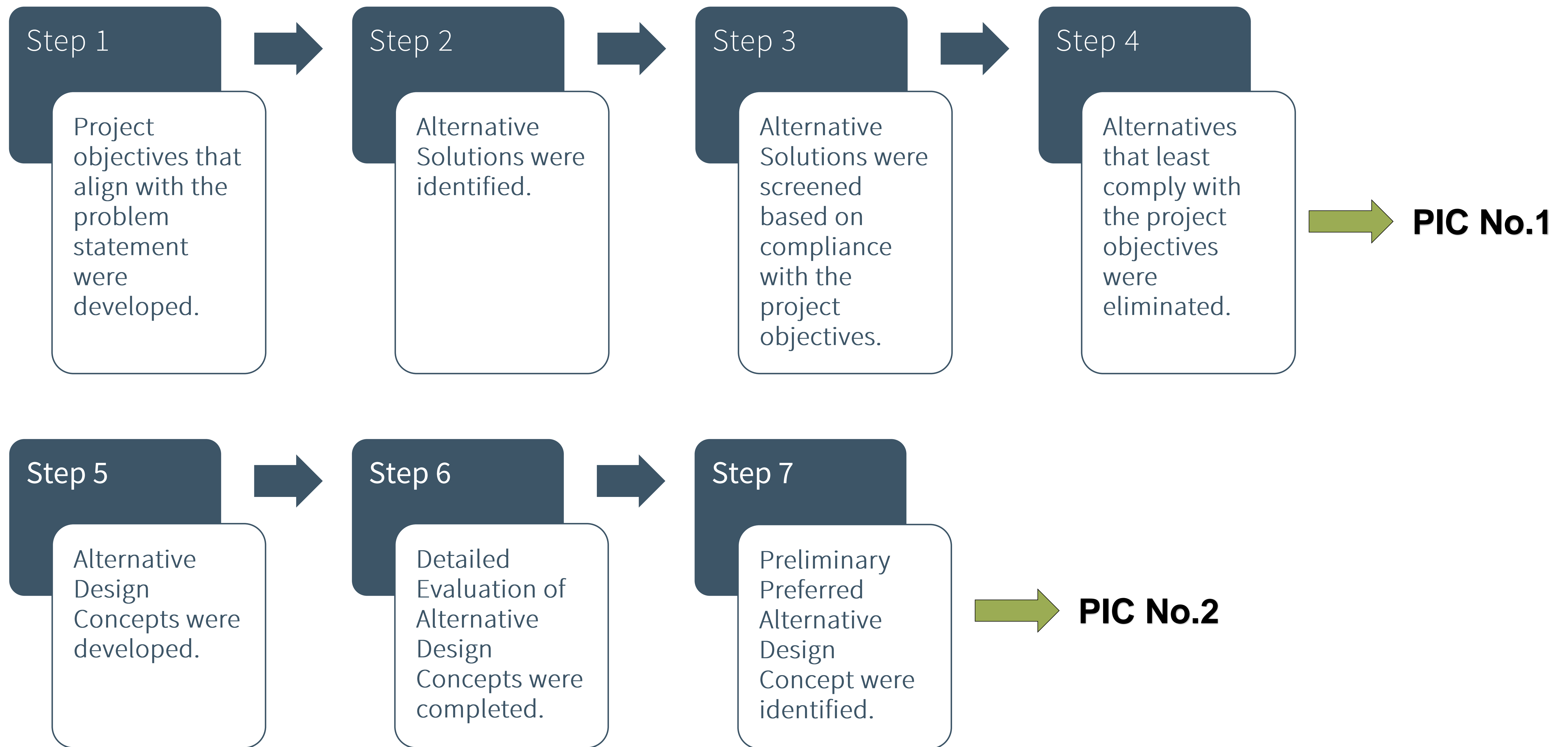
Off-site Property:
Hydro-Corridor Land



Key Plan Map

Alternative Solution and Evaluation Approach

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study



Screening of Long-List of Alternative Solutions

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Screening Criteria	Alternative 1 Do Nothing	Alternative 2 Northwest Reservoir	Alternative 3 Southeast Reservoir	Alternative 4 Reservoir at the Hydro- Corridor Land
Alignment with Problem Statement	✗	✓	✓	✓
Technical and Planning				
Planning Horizon	✗	✓	✓	✓
Level of Service	✗	✓	✓	✓
System Reliability and Security	✗	✓	✓	✓
Public and Agency Consultation Feedback	✗	✓	✓	✗
Environmental Protection	✓	✓	✓	✓

Screened Out

Screened Out

Short Listed Alternative Solution – Northwest Reservoir

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Alternative 2 : Northwest Reservoir



The new reservoir would be situated on the vacant land, north of the existing treatment plant and west of East Avenue.

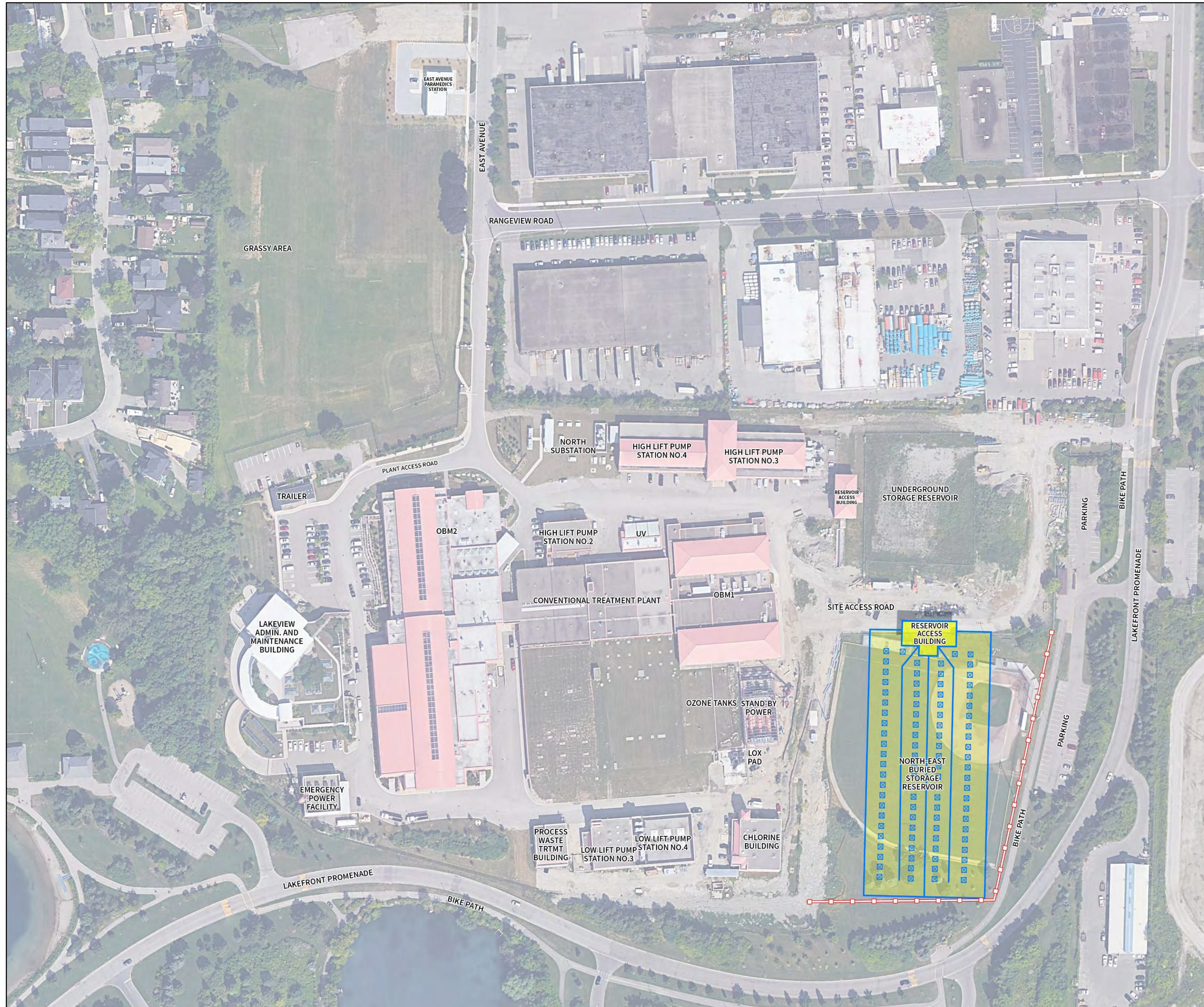
Considerations:

- Closer location to residential area.
- Open green space will be reduced.
- A deep tunnel connection from reservoir to the pumping station requires longer construction with some heavy truck traffic for soil disposal.
- Provides full redundancy and security to the plant operation.
- Additional interconnection chambers would be needed to direct flows from all treatment trains to the new reservoir.

Short Listed Alternative Solution – Southeast Reservoir

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Alternative 3 : Southeast Reservoir



The new reservoir would be situated at the baseball diamond location, south of existing reservoir and east of advanced treatment plants.

Considerations:

- The baseball diamond will be permanently removed.
- Requires extensive piping connection to the existing reservoir.
- Allows favourable integration with existing plant operation under normal operation.
- Less redundancy would be provided to the existing reservoir.

Detailed Evaluation of Short-listed Alternatives

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Evaluation Criteria	Alternative 2 Northwest Reservoir		Alternative 3 Southeast Reservoir	
	Description	Impact	Description	Impact
Environmental Protection - Natural				
Natural Features	<ul style="list-style-type: none"> No natural vegetation communities exist within the area. Limited wildlife habitat exists within the footprint. A small part of the southwest corner of the land within the CVC regulated lands. However, the surrounding areas are heavily developed and likely pose no flooding risk after implementing stormwater management policies. 	Moderate Impact	<ul style="list-style-type: none"> No natural vegetation communities exist within the area. Limited wildlife habitat exist within the footprint of the diamond. 	Moderate Impact
Social Cultural/Socio-Economic Environment				
Land Use and Recreational Use	<ul style="list-style-type: none"> Currently vacant land that provides little aesthetic value, some public use recreationally. New reservoir will reduce publicly available green area. 	Moderate Impact	<ul style="list-style-type: none"> Closure of the current baseball diamond for recreational activities. 	Highest Impact
Archaeological, Built and Cultural Heritage Resources	<ul style="list-style-type: none"> Stage 1 Archaeological Assessment (2017) was completed and noted most of the site disturbed. Stage 2 Archaeological Assessment is being conducted for the site. 	Moderate Impact	<ul style="list-style-type: none"> Stage 1 Archaeological Assessments (2008) was completed and found the baseball field might have archaeological significance. Stage 2 Archaeological Assessment is being conducted for the site. 	Moderate Impact
	<ul style="list-style-type: none"> No direct impacts are anticipated to the Lakefront Promenade Park Cultural Heritage Landscape (C.H.L). 	No Impact	<ul style="list-style-type: none"> The passive recreation areas are considered as heritage attributes of the C.H.L. Removal of the baseball diamonds of Douglas Kennedy Park would be direct adverse impact to C.H.L. 	Highest Impact
Indigenous Interest	<ul style="list-style-type: none"> No Indigenous comprehensive land claims within study area. 	No Impact	<ul style="list-style-type: none"> No Indigenous comprehensive land claims within study area. 	No Impact
Net Impacts to Communities	<ul style="list-style-type: none"> Some buffers from the residential area to Northwest Reservoir; Minimum impact after construction both visual and public use of the land. Closer to the residential area No future structured facility for public use would be allowed. 	Moderate Impact	<ul style="list-style-type: none"> Southeast property is within the plant site, with less residential communities' impacts. The existing baseball diamond will be permanently removed. 	Highest Impact

Detailed Evaluation of Short-listed Alternatives

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

Evaluation Criteria	Alternative 2 Northwest Reservoir		Alternative 3 Southeast Reservoir	
	Description	Impact	Description	Impact
Planning and Technical Consideration				
Reservoir Capacity	<ul style="list-style-type: none"> Provides 43,300 cubic metre storage volume. 	Moderate Benefit	<ul style="list-style-type: none"> Provides 47,000 cubic metre storage volume. 	Highest Benefit
Level of Service	<ul style="list-style-type: none"> Maintains water supply without treatment plant running; <ul style="list-style-type: none"> 1.46 hours at 2051 water demand numbers. 0.94 hours at ultimate plant capacity. 	Moderate Benefit	<ul style="list-style-type: none"> Maintains water supply without treatment plant running; <ul style="list-style-type: none"> 1.54 hours at 2051 water demand numbers. 1.04 hours at ultimate plant capacity. 	Highest Benefit
Ultimate Plant Rated Capacity	<ul style="list-style-type: none"> ~ 1,940 ML/d with expansion on the other available sites. 	Highest Benefit	<ul style="list-style-type: none"> ~ 1,847 ML/d with expansion on the other sites. 	Moderate Benefit
Integration with Existing Plant Operation & Redundancy	<ul style="list-style-type: none"> More complex integration to the existing plant operation and achieving compliance. 	Moderate Benefit	<ul style="list-style-type: none"> Easier integration to the existing plant operation and compliance. 	Highest Benefit
	<ul style="list-style-type: none"> Provides full redundancy for the reservoir and security of plant operation. 	Highest Benefit	<ul style="list-style-type: none"> New reservoir provides limited level of redundancy to the reservoir. 	Minimal Benefit
Constructability	<ul style="list-style-type: none"> A tunnel construction for reservoir drain to high lift pumping station increases the complexity and duration of construction. 	Moderate Benefit	<ul style="list-style-type: none"> New reservoir construction will be connected to the existing reservoir which requires shutdown and creates potential risk on the existing reservoir. 	Minimal Benefit
Operation & Maintenance	<ul style="list-style-type: none"> Provides easy access and maintenance for new reservoir. 	Moderate Benefit	<ul style="list-style-type: none"> Provides easy access and maintenance for new reservoir. 	Moderate Benefit
Fiscal Responsibility				
Capital Cost	<ul style="list-style-type: none"> Higher capital cost mainly attributed to tunneled connection from reservoir to the pumping station. 	Moderate Benefit	<ul style="list-style-type: none"> Lower capital cost, with no extra major infrastructures except on-site piping connection. 	Highest Benefit
Operation & Maintenance Cost	<ul style="list-style-type: none"> No major increase. 	Moderate Benefit	<ul style="list-style-type: none"> No major increase. 	Moderate Benefit

Preliminary Preferred Alternative Solution and Concept

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study

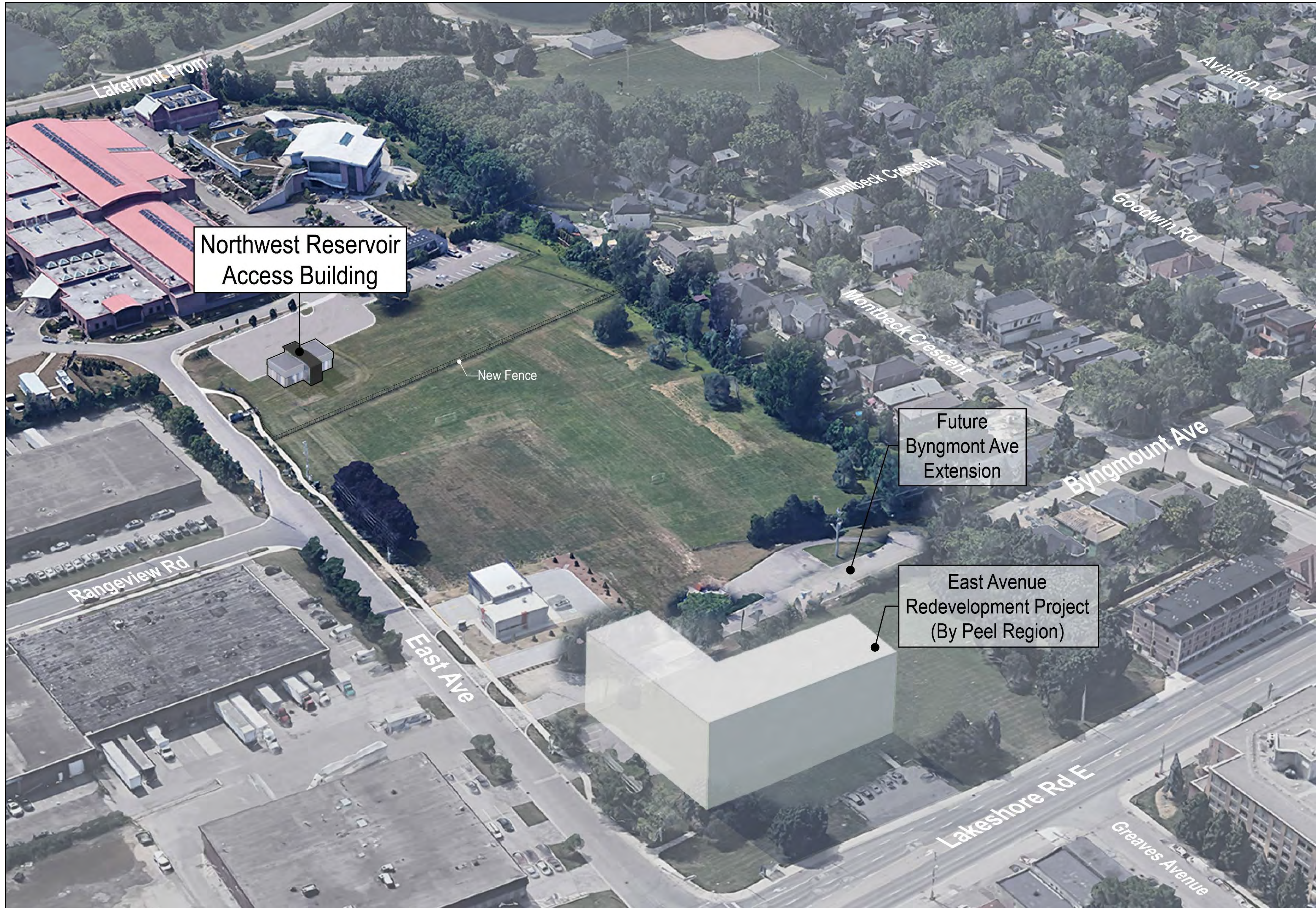
The preliminary preferred alternative design concept is Alternative 2, Northwest Reservoir, which offers specific advantages:

- Northwest vacant land, has limited wildlife habitat and natural vegetation, minimizing environmental impact.
- The new reservoir will connect to the existing East Reservoir and will have the capability to operate independently.
- This design not only offers increased redundancy but also strengthens the security of the water supply.
- This location does not impact recreational use of the land.
- The location allows for easier access and maintenance.
- Post-construction, the impact on both the visual landscape and the public's use of the remaining land would be minimal.



Proposed Site Plan - Rendering 3D Model

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study



Northwest Reservoir - Rendering 3D Model

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study



Overview of Mitigation Measures

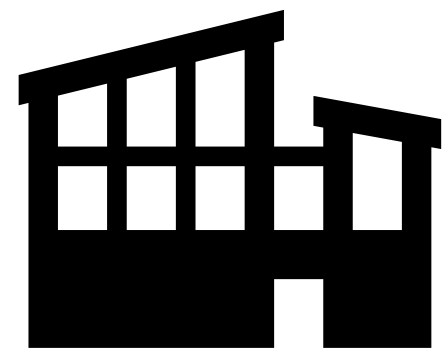
Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study



Short-term Construction Impacts

Noise, dust, traffic, vibration, safety

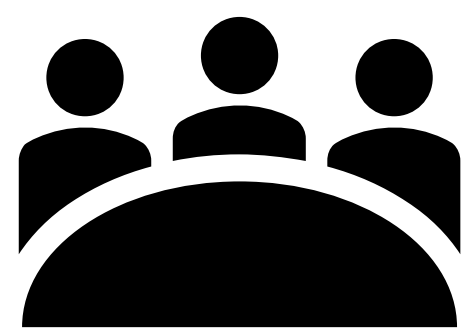
- Fencing will be temporarily installed around the construction site of the new Reservoir to ensure safety.
- Construction activities will comply with local noise-by-laws.
- Health and safety is a priority to the Region. All construction will adhere to strict safety guidelines.
- Traffic management and access on East Avenue will be maintained, with potential coordination with other projects on site if necessary.



Aesthetic of the Site

Visual Appearance to neighbors

- The design of Northwest Reservoir will have a modern and aesthetically pleasing new look, especially considering the new residential developments that are planned adjacent to the site.



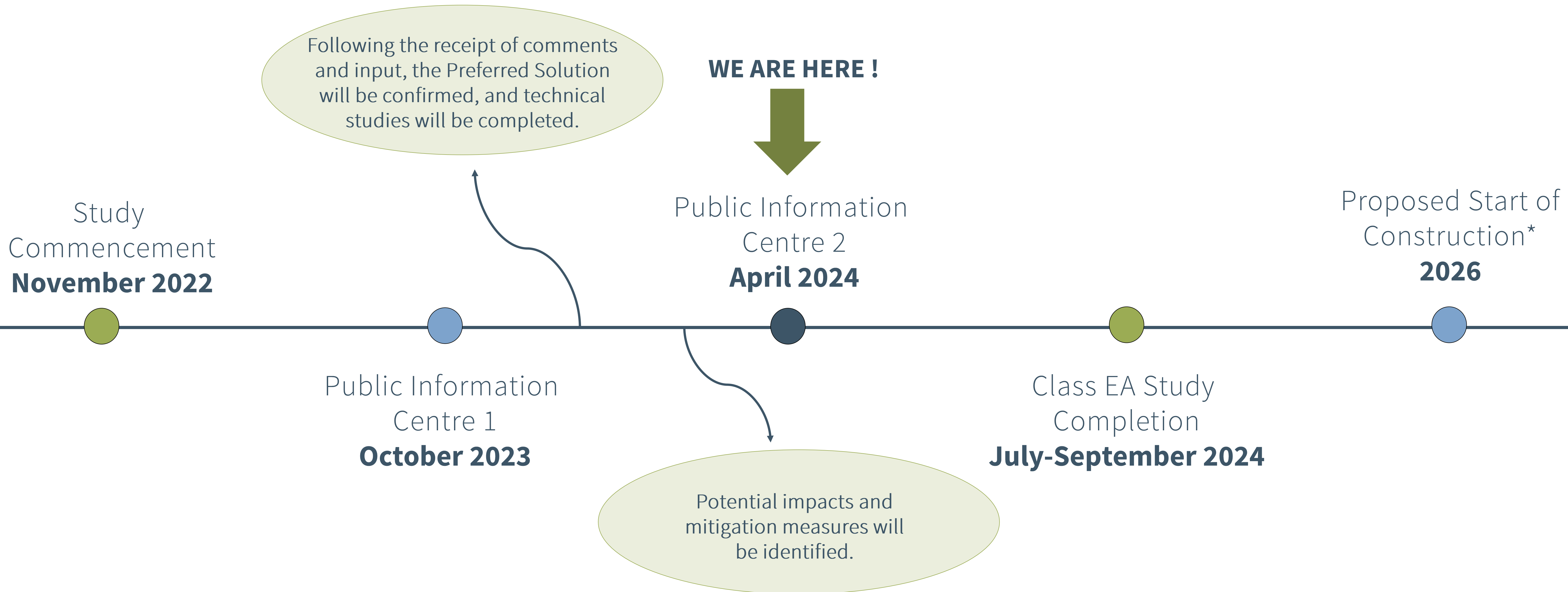
Consultation

During EA Study, Design and Construction

- Ongoing communication with the community and stakeholders will be maintained through regular construction status updates (e.g. newsletter including contact person).

Project Schedule and Next Steps

Arthur P. Kennedy WTP Reservoir Expansion - Class EA Study



**The construction timing window is dependent upon approval of the construction budget by Region Council.*



Thank you!
Comments or Questions?

Your questions and comments are greatly appreciated!

Please email them by May 1st, 2024, to:

Janice Hatton

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Engineering Services Division

Public Works

Peel Region

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