

Wellesley Water and Wastewater Master Plan

Virtual Public Meeting
Public Consultation Center #3
December 12, 2024, 7-8:00 p.m.



Region of Waterloo

Topics to cover tonight

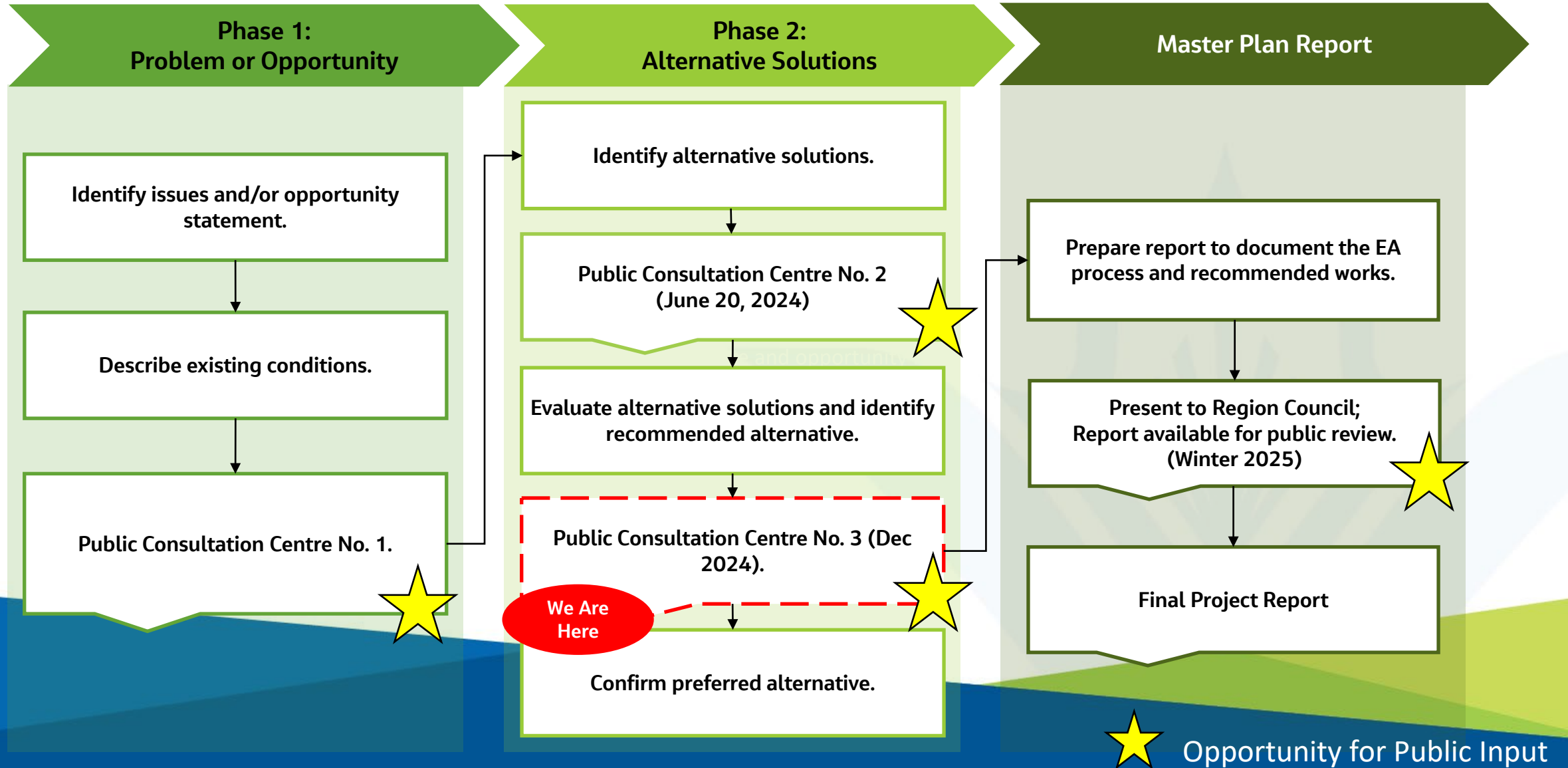
1. Master Plan context
2. Review of evaluation criteria
3. Water alternatives evaluation
4. Wastewater alternatives evaluation
5. Summary of what we heard so far
6. Next Steps

1. Master Plan Context



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Environmental Assessment Process



Goals of the Master Plan

The Wellesley Water and Wastewater Master Plan will....

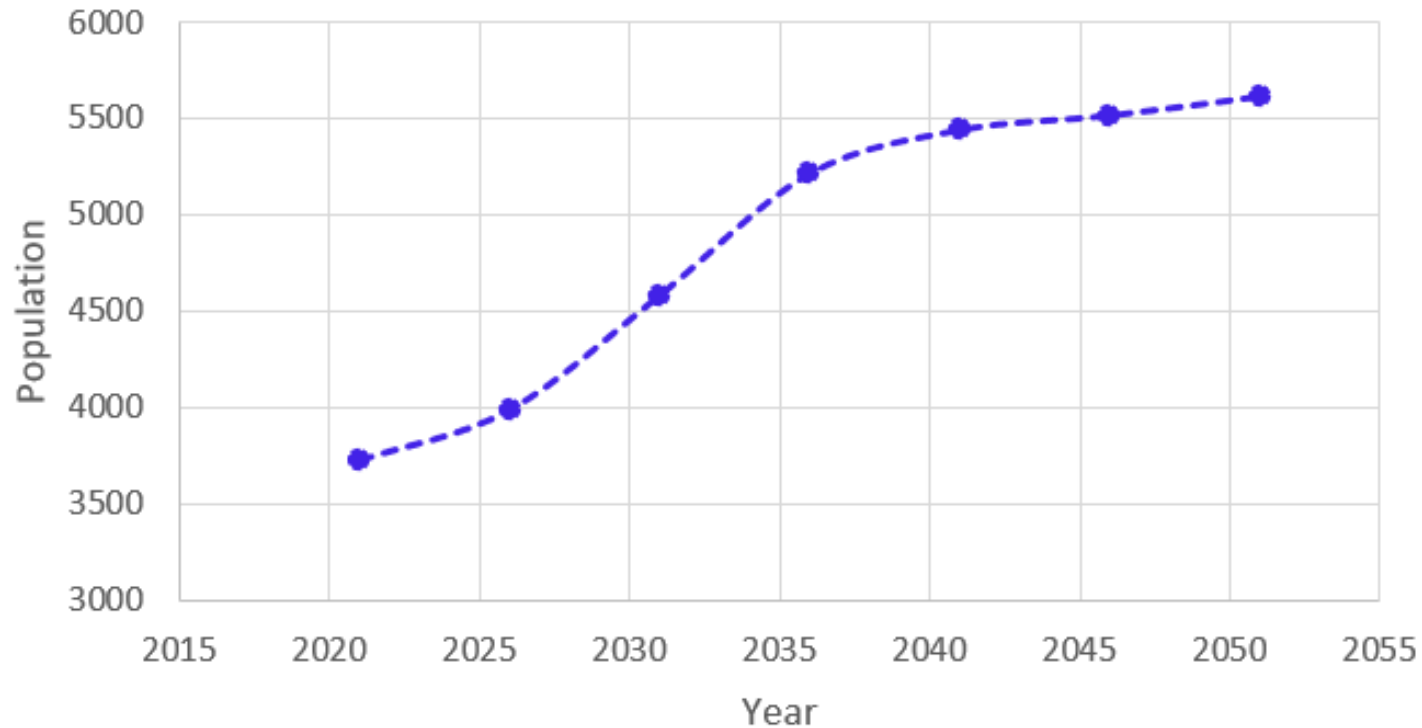
- Identify water and wastewater needs over the next 30 years in the Village of Wellesley.
- Determine how the needs can be addressed.

Study Area: Village of Wellesley



Overview of population projections

Village of Wellesley Population Projections



Current population is roughly 3,700.
The estimated population by 2051 is roughly 5,600.

2.Evaluation Criteria



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Detailed Evaluation Criteria

Technical

- Provides reliable service
- Meets existing and future needs
- Aligns with existing and planned infrastructure
- Aligns with existing and future land use
- Aligns with approval and permitting process
- Manages and minimizes construction risks
- Ability to adapt to climate change



Social

- Minimizes impacts to residents related to noise, odour, traffic, and aesthetics
- Minimizes impacts to businesses
- Manages and minimizes construction impacts
- Conserves built heritage and/or cultural heritage landscapes
- Conserves archaeological resources
- Protects health and safety



Detailed Evaluation Criteria

Environmental

- Protects environmental features
- Protects wildlife and species at risk
- Protects groundwater, streams and rivers
- Minimizes climate change impacts








Financial

- Provides low lifecycle costs



Evaluation scale

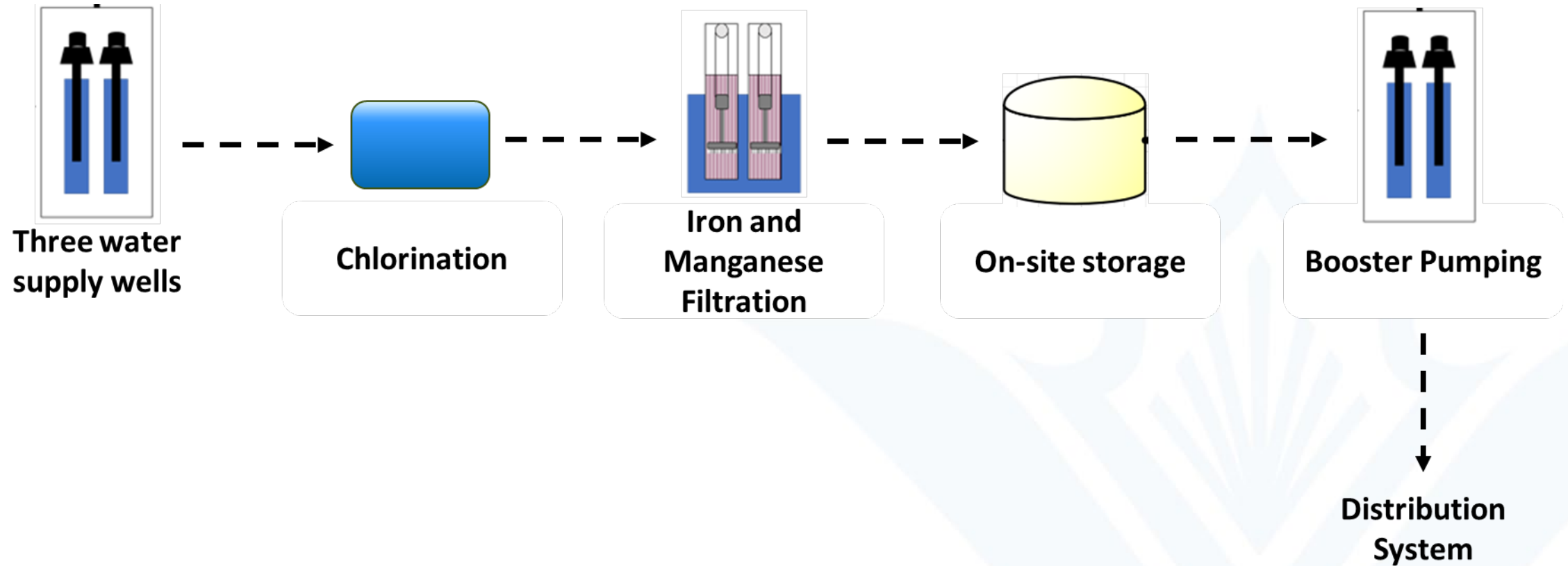
Rating	Description	Symbol
5	Very well aligned with criteria	
4	Well aligned with criteria	
3	Somewhat aligned with criteria	
2	Not well aligned with criteria	
1	Low alignment with criteria	

3. Water Alternatives Evaluation

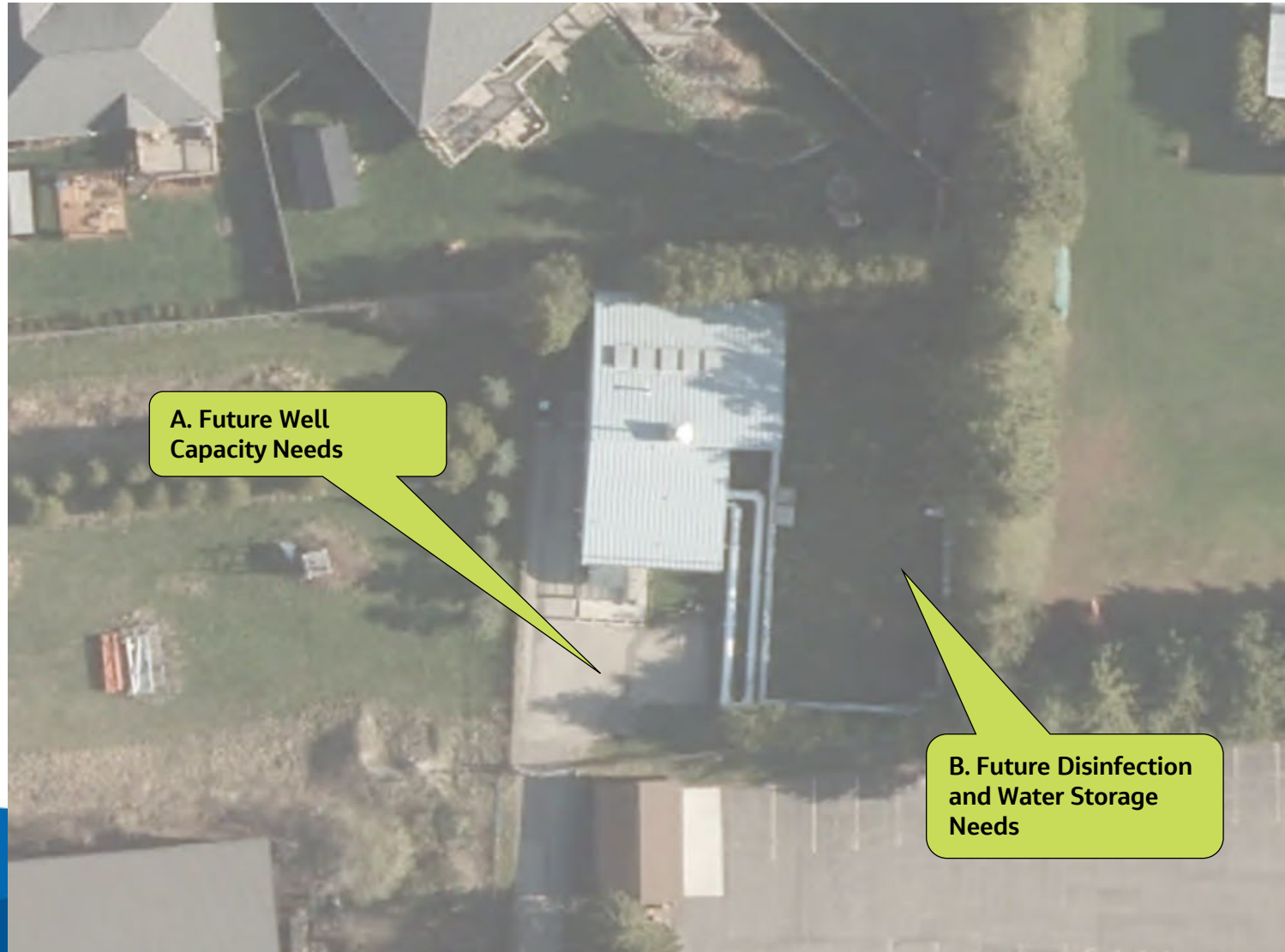


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Wellesley Water Supply System Overview



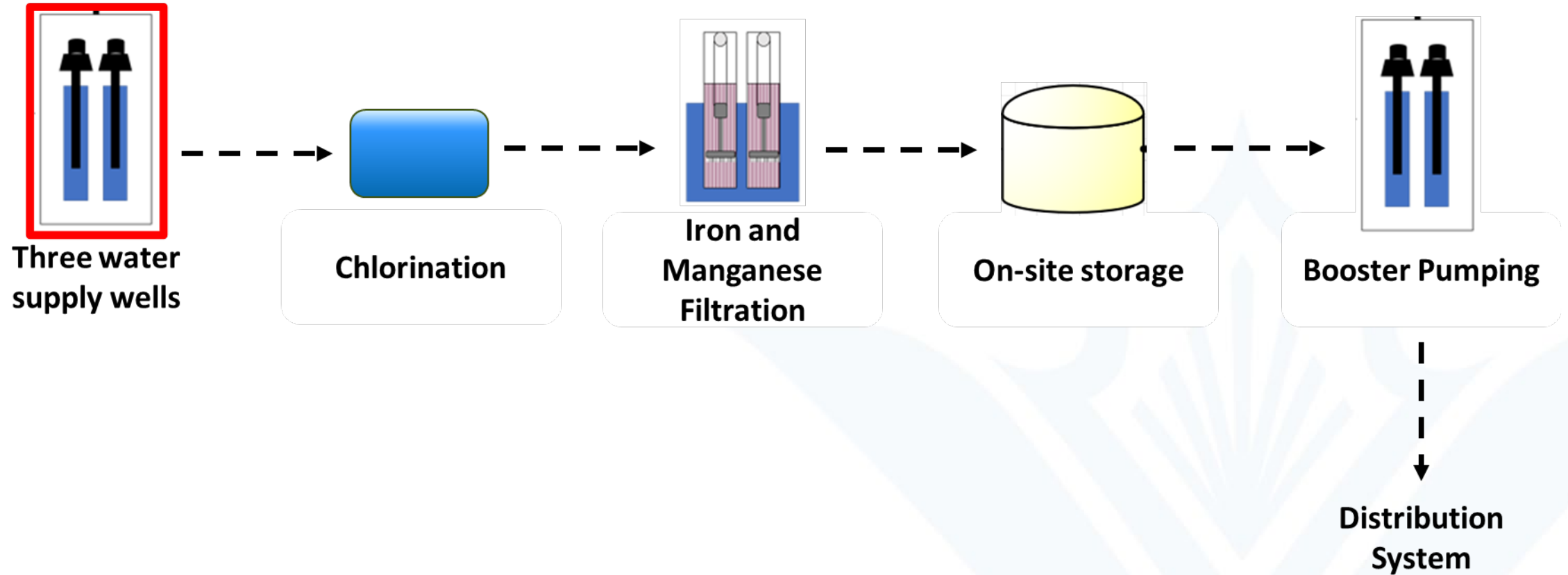
Identified water supply needs



**A. Future Well
Capacity Needs**

**B. Future Disinfection
and Water Storage
Needs**

Wellesley Water Supply System Overview



A. Alternatives to address well capacity needs

The existing permitted well taking capacity of 1,503 m³/d is expected to be exceeded by 2034. The following alternatives were short-listed to meet future water supply needs:

Alternative	Description and Considerations
1. Do Nothing *	Maintain existing well supply
2. Increase Existing Well Supply	Explore additional water taking from existing production wells
3. Supplement Existing with New Well Supply	Maintain existing well supply and supplement with a new well that is pumped to the WTP.
4. Supplement Existing with External Supply	Maintain existing well supply and provide additional treated water supply from another drinking water system such as the Integrated Urban System.

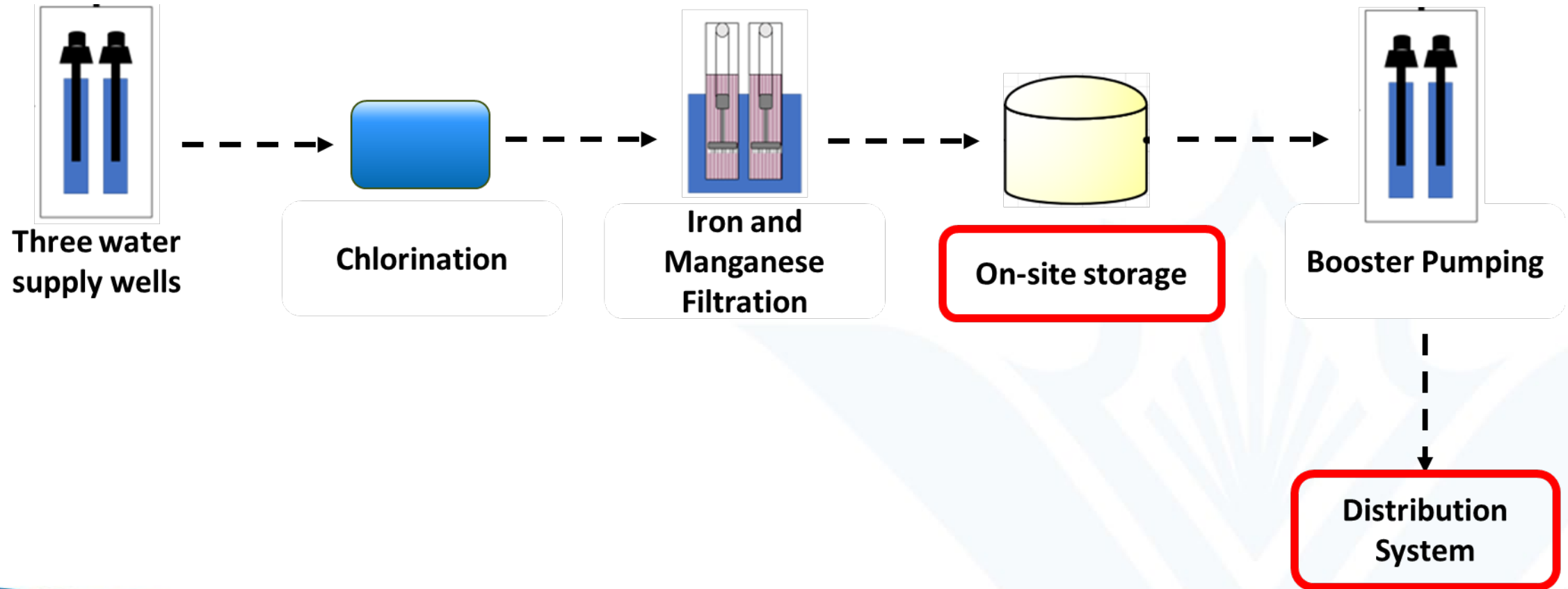
* - does not meet project objectives but carried forward as baseline

A. Well capacity needs alternatives evaluation

Average Score or Rank	Alternative 1: Do Nothing *	Alternative 2: Increase Existing Well Supply	Alternative 3A: Supplement Existing with New Well Supply (Inside Urban Boundary)	Alternative 3B: Supplement Existing with New Well Supply (Outside Urban Boundary)	Alternative 4: Supplement Existing with External Supply
Environmental Criteria Category					
Social Criteria Category					
Technical Criteria Category					
Financial Criteria Category					
Even Weighting Approach Overall Average					
Even Weighting Approach Rank	4	1	3	2	5

* - does not meet project objectives but carried forward as baseline

Wellesley Water Supply System Overview



B. Alternatives to address future disinfection and water storage needs

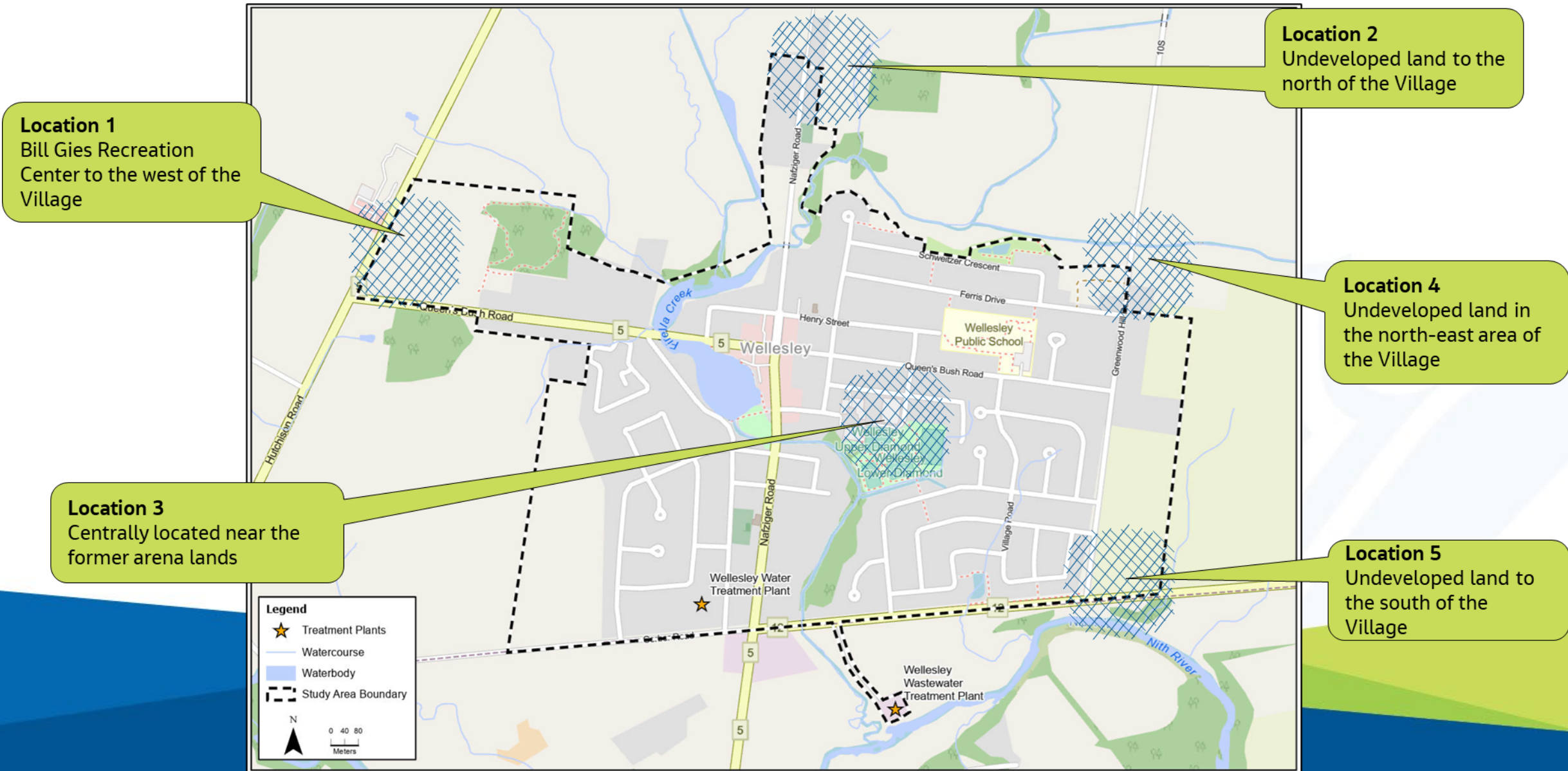


The following alternatives were short-listed to address future disinfection, water pumping and storage constraints at the Wellesley WTP and in the distribution system.

Alternative	Description and Considerations
1. Do Nothing *	Maintain existing pump station and reservoir
2. New Storage Off-Site	Maintain existing reservoir for disinfection. Construct floating storage, such as an elevated tank, to provide additional storage for emergency use (i.e., fire demand). Maintain existing pump station for domestic use.

* - does not meet project objectives but carried forward as baseline

B. Off-site storage alternative locations



B. Off-site storage alternatives evaluation

Average Score or Rank	Location 1	Location 2	Location 3	Location 4	Location 5
Environmental Criteria Category					
Social Criteria Category					
Technical Criteria Category					
Financial Criteria Category					
Even Weighting Approach Overall Average					
Even Weighting Approach Rank	1	3	4	2	5

Summary of Recommended Water Alternatives

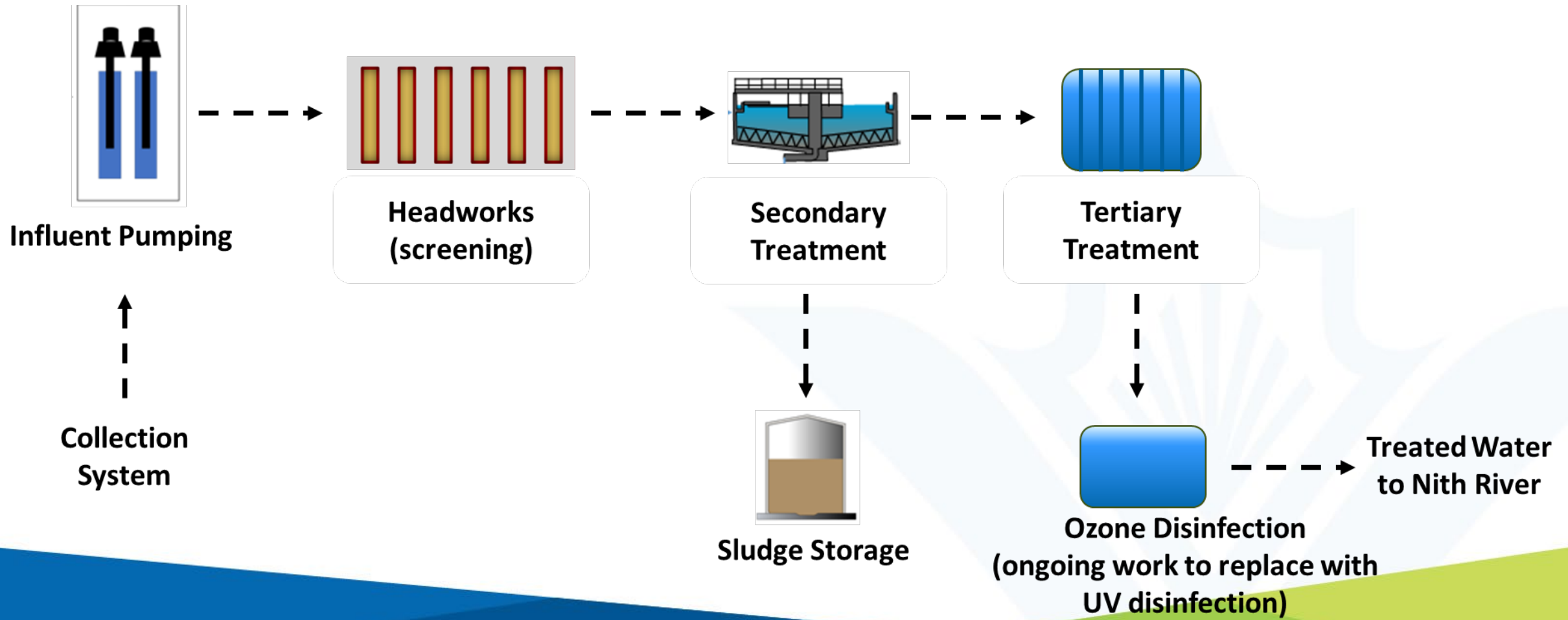
1. Well Capacity Needs: recommend examining increasing capacity at existing wells; examine new wells outside the urban area
2. Storage needs: recommend off site storage at the new Bill Gies Recreation Center

4. Wastewater Alternatives Evaluation

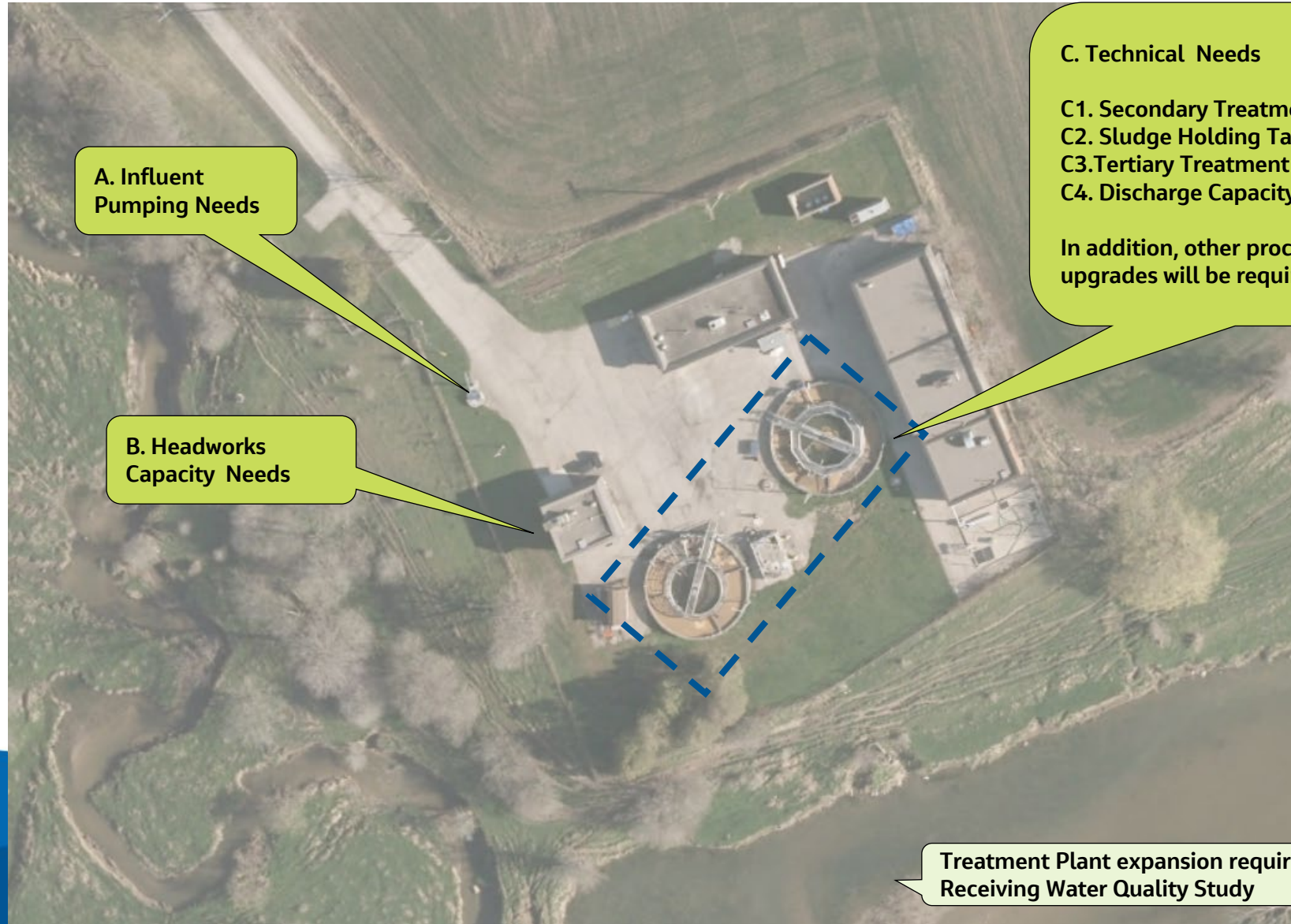


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Wellesley Wastewater System Overview



Identified wastewater treatment needs



A. Influent Pumping Needs

B. Headworks Capacity Needs

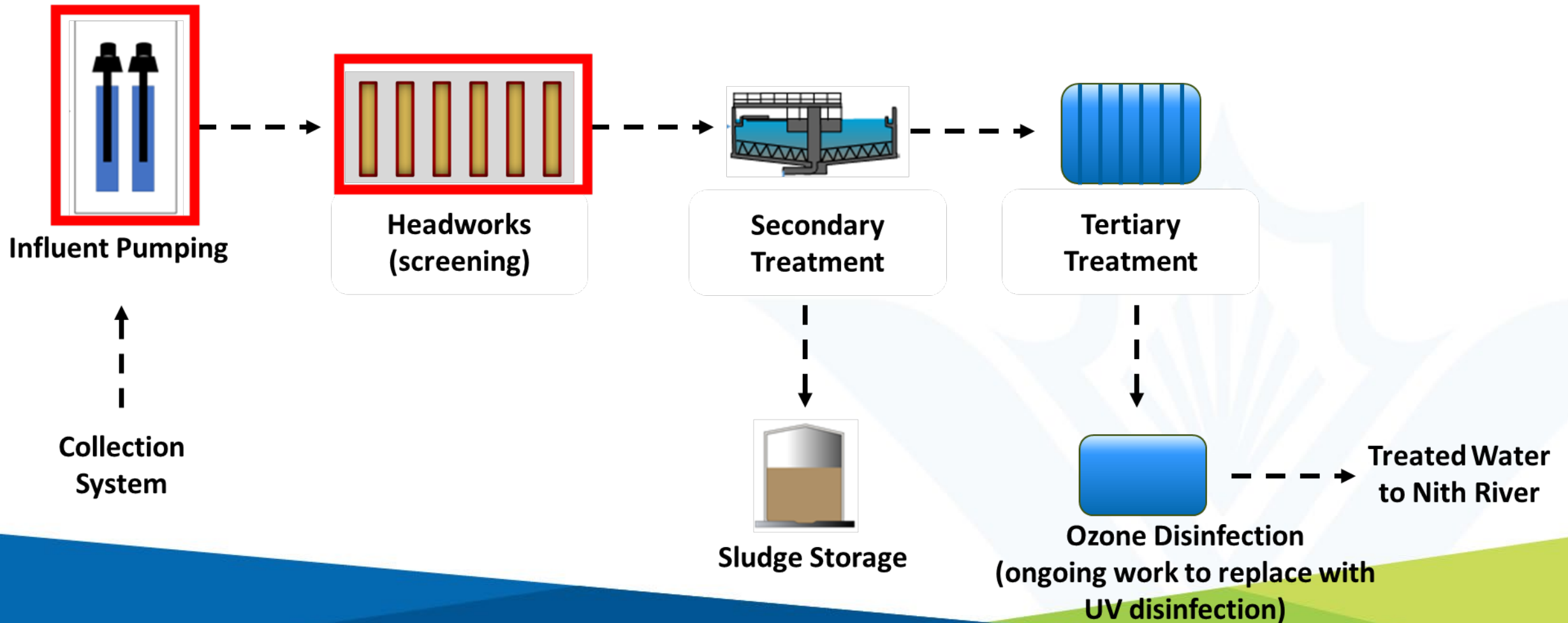
C. Technical Needs

- C1. Secondary Treatment Capacity
- C2. Sludge Holding Tank Capacity
- C3. Tertiary Treatment Capacity
- C4. Discharge Capacity

In addition, other process/equipment upgrades will be required.

Treatment Plant expansion requires a Receiving Water Quality Study

Wellesley Wastewater System Overview









A. and B. Influent and Headworks alternatives

The alternatives were short-listed to meet wastewater treatment needs:

Alternative	Action	Description and Considerations
A. Influent Pumping	1. Do Nothing *	Maintain existing pumping station capacity
	2. Replace existing pumps/equalization tank	Replace existing pumps with larger capacity pumps and construct a new equalization tank
	3. New pump facility/equalization tank	Construct a new pump station/equalization tank; Will require land
B. Headworks	1. Do Nothing *	Maintain existing headworks
	2. Replace existing	Replace existing screen and retrofit channel to increase capacity
	3. New headworks	Construct a new headworks facility; Will require land

* - does not meet project objectives but carried forward as baseline

A. Influent pumping alternatives evaluation

Average Score or Rank	Alternative 1: Do Nothing *	Alternative 2: Replace existing pumps/equalization tank	Alternative 3: New pump facility/equalization tank
Environmental Criteria Category			
Social Criteria Category			
Technical Criteria Category			
Financial Criteria Category			
Even Weighting Approach Overall Average			
Even Weighting Approach Rank	3	2	1

* - does not meet project objectives but carried forward as baseline

B. Headworks alternatives evaluation

Average Score or Rank	Alternative 1: Do Nothing *	Alternative 2: Replace Existing Screens	Alternative 3: New Headworks
Environmental Criteria Category			
Social Criteria Category			
Technical Criteria Category			
Financial Criteria Category			
Even Weighting Approach Overall Average			
Even Weighting Approach Rank	3	1	2

* - does not meet project objectives but carried forward as baseline

A. Possible location* for pumping and equalization area



Potential Location for New Equalization Tank

* For illustrative purposes only

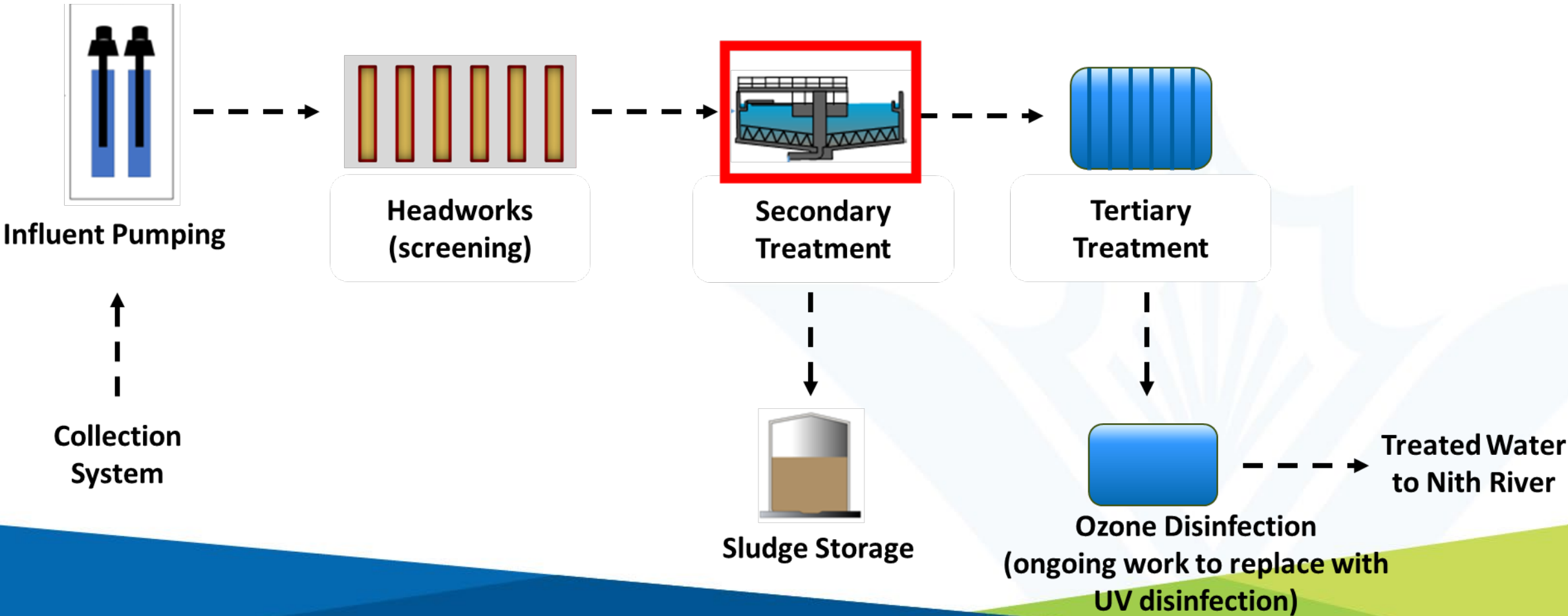
C1. Secondary treatment alternatives

The alternatives were short-listed to meet secondary treatment needs:

Secondary Treatment Alternative	Description and Considerations
1. Do Nothing*	Maintain existing secondary treatment system
2. New Third Train	Construct new Plant 3
3. Process Intensification	Implement new intensification technology into Plants 1 and 2

* - does not meet project objectives but carried forward as baseline

Wellesley Wastewater System Overview



C1. Secondary Treatment alternatives evaluation

Average Score or Rank	Alternative 1: Do Nothing	Alternative 2: New Third Train	Alternative 3: Process Intensification
Environmental Criteria Category			
Social Criteria Category			
Technical Criteria Category			
Financial Criteria Category			
Even Weighting Approach Overall Average			
Even Weighting Approach Rank	3	1/2	1/2

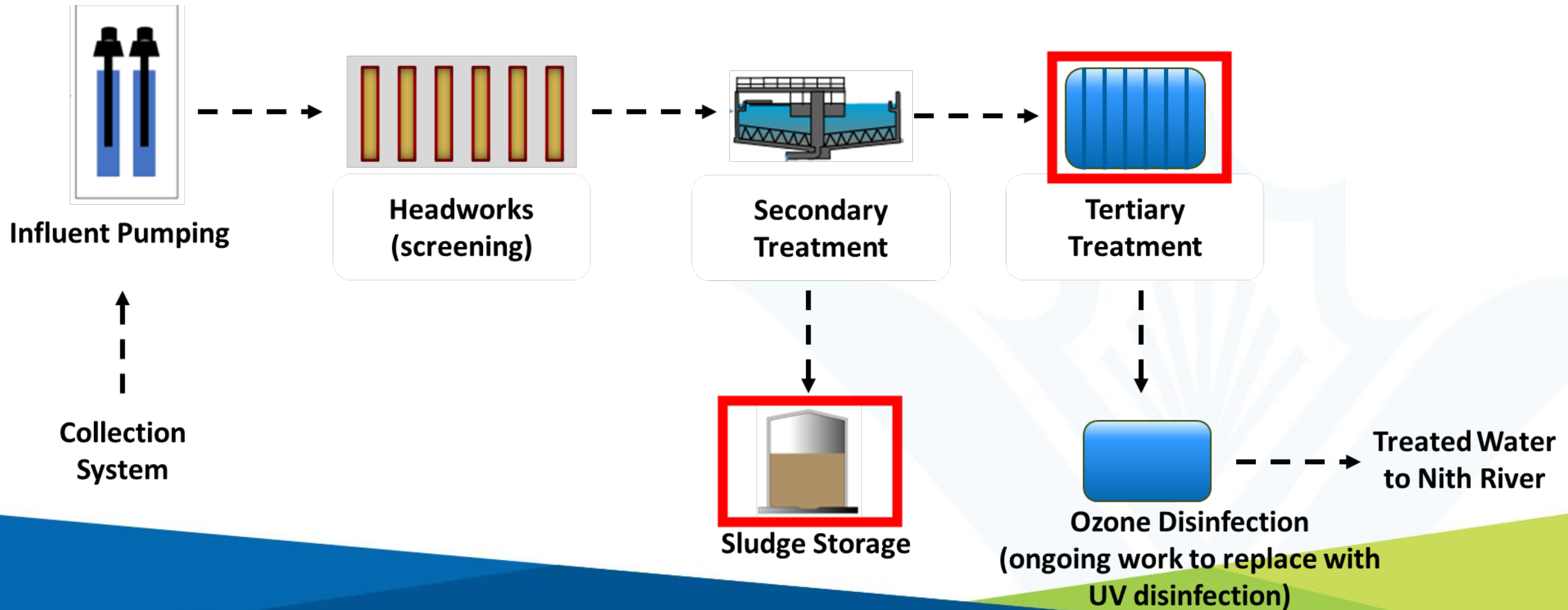
C2. and C3. Wastewater treatment alternatives

The alternatives were short-listed to meet wastewater treatment needs:

Alternative	Action	Description and Considerations
C2. Sludge Storage	1. Do Nothing *	Maintain existing sludge storage
	2. New Larger Tank	Replace existing storage tank with a new larger storage tank
	3. Second Tank	Construct a second storage tank
C3. Tertiary Treatment	1. Do Nothing *	Maintain existing tertiary treatment system
	2. Additional Filter	Expand existing tertiary treatment system (examine an opportunity to implement a wet weather treatment technology to handle high flows)

* - does not meet project objectives but carried forward as baseline

Wellesley Wastewater System Overview



C2. Sludge storage alternatives evaluation

Average Score or Rank	Alternative 1: Do Nothing	Alternative 2: New Larger Tank	Alternative 3: Second Tank
Environmental Criteria Category			
Social Criteria Category			
Technical Criteria Category			
Financial Criteria Category			
Even Weighting Approach Overall Average			
Even Weighting Approach Rank	3	2	1

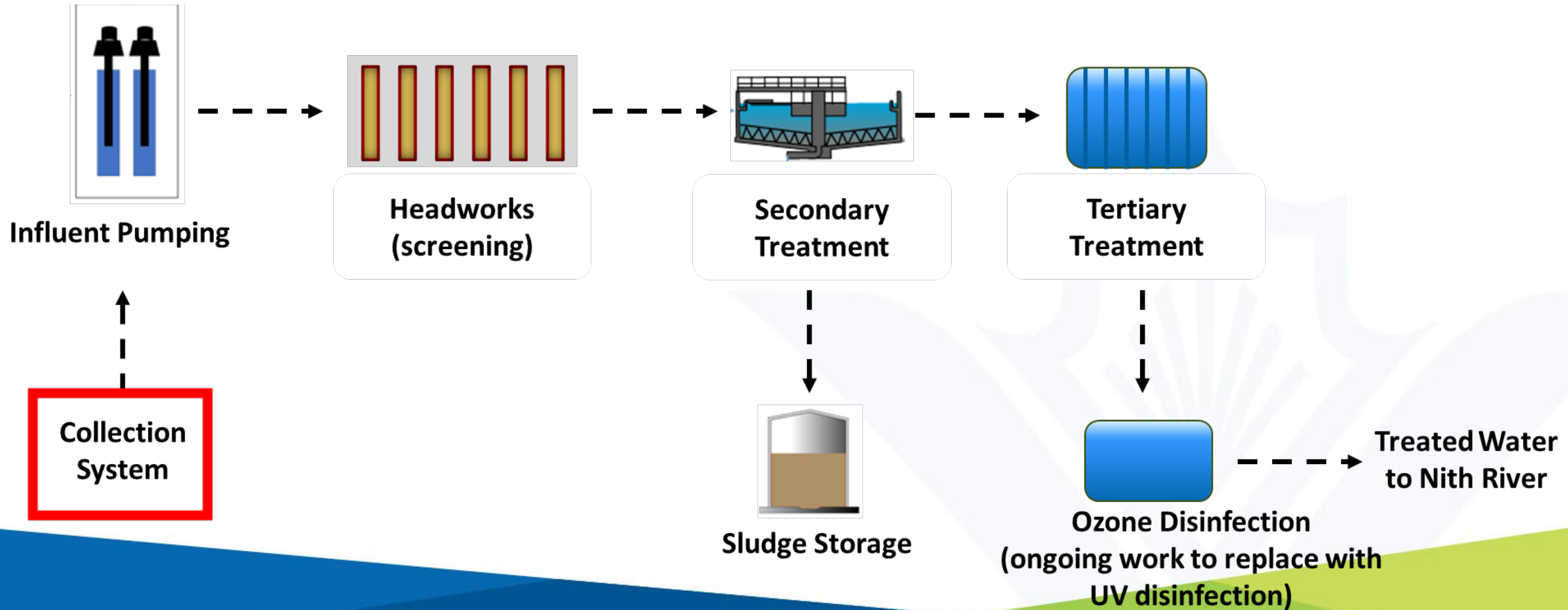
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C3. Tertiary treatment alternatives evaluation

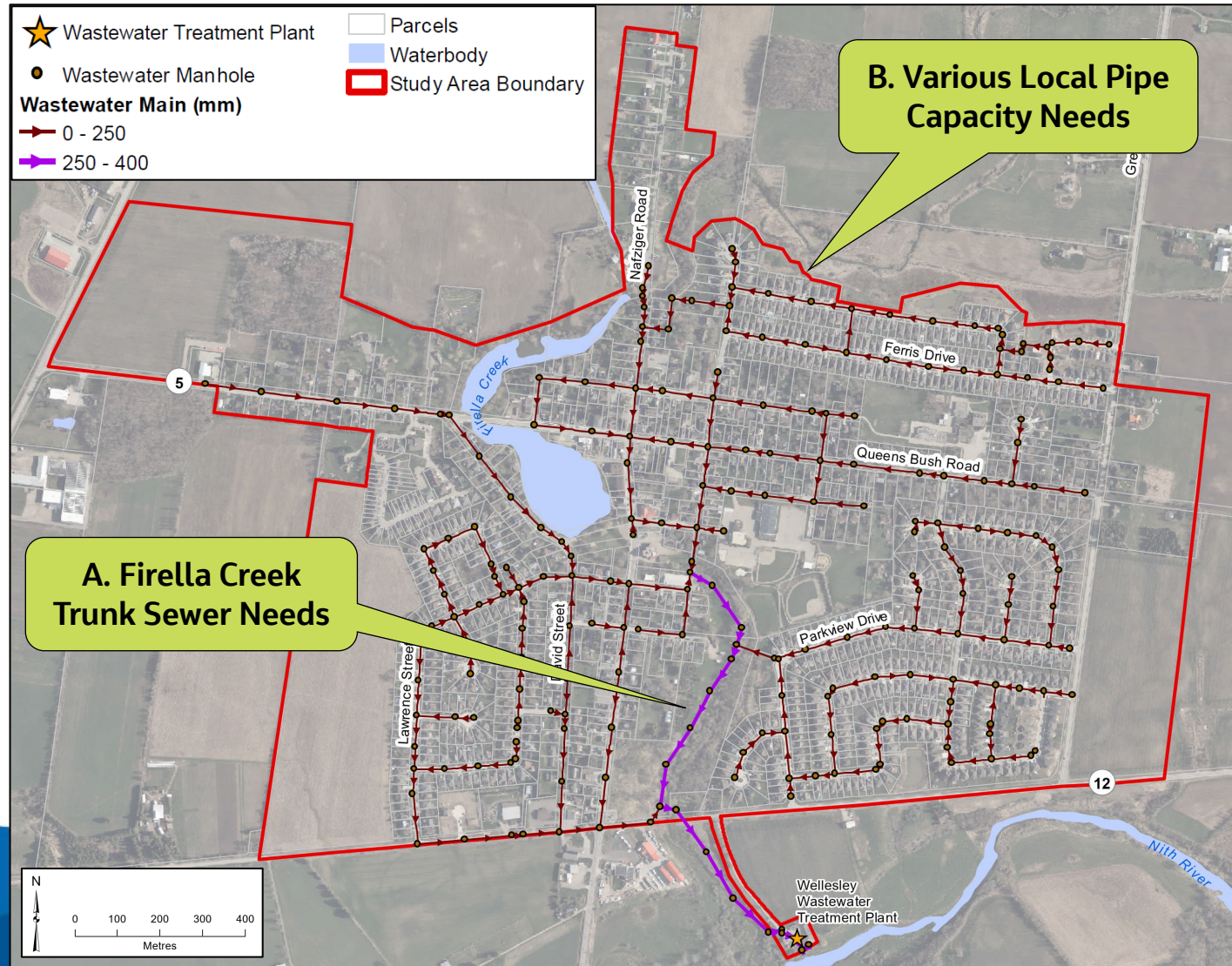
Average Score or Rank	Alternative 1: Do Nothing *	Alternative 2: Expand Tertiary Treatment
Environmental Criteria Category		
Social Criteria Category		
Technical Criteria Category		
Financial Criteria Category		
Even Weighting Approach Overall Average		
Even Weighting Approach Rank	2	1

* - does not meet project objectives but carried forward as baseline

Wellesley Wastewater System Overview



Identified wastewater collection needs


















A. Alternatives to address Firella Creek trunk sewer needs

Alternative	Description and Considerations
1. Do Nothing *	Maintain existing trunk sewer
2. Offline Storage	Implement offline storage locations to equalize flows along the Firella Creek Trunk Sewers.
3. Increase Capacity of Firella Creek Trunk Sewer	Implement I/I reduction measures, WTP backwash mitigation measures, upsize or twin Firella Creek Trunk Sewer.

* - does not meet project objectives but carried forward as a baseline

A. Firella Creek trunk sewer alternatives evaluation

Average Score or Rank	Alternative 1: Do Nothing	Alternative 2: Offline Storage	Alternative 3: Firella Creek Capacity Increase
Environmental Criteria Category			
Social Criteria Category			
Technical Criteria Category			
Financial Criteria Category			
Even Weighting Approach Overall Average			
Even Weighting Approach Rank	3	2	1

* - does not meet project objectives but carried forward as baseline

B. Alternatives to address local pipe capacity needs

Alternative	Description and Considerations
1. Do Nothing *	Maintain existing collection system
2. Pipe Capacity Increases	Implement I/I reduction measures, pipe capacity increases as necessary for local sewers
3. New Sub-Trunk Sewers	Implement I/I reduction measures, new trunk/sub-trunk sewers to collect flows from future developments on the east and west extents of the study area, pipe capacity increases as necessary for local sewers.

* - does not meet project objectives but carried forward as baseline

B. Local pipe capacity alternatives evaluation

Average Score or Rank	Alternative 1: Do Nothing	Alternative 2: Pipe Capacity Increases	Alternative 3: New Sub-Trunk Sewers
Environmental Criteria Category			
Social Criteria Category			
Technical Criteria Category			
Financial Criteria Category			
Even Weighting Approach Overall Average			
Even Weighting Approach Rank	3	2	1

* - does not meet project objectives but carried forward as baseline

Summary of Recommended Wastewater Alternatives

1. Pumping and Headworks needs at the plant: recommend a new wastewater pump station with equalization tank; use existing headworks
2. Secondary treatment needs at the plant: carry forward intensification and third treatment train
3. Firella Creek Trunk Sewer needs: expand capacity

A Class C Environmental Assessment will be required for plant expansion

5. What we've hear so far



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What we heard at PCC1 and PCC2?

Comment Received	Response
What were the proposed population changes and how those may impact infrastructure needs?	Considered future projected populations based on updated projections in April 2024 and this is reflected in alternatives in this PCC3
Will development impact the quality of water?	The Region must monitor water quality on a regular basis and ensure it meets all Provincial water quality standards.
Concern is raised over central water tower location.	Noted. This was reflected in the evaluation under social category of criteria
Will this project address low water pressures?	The provision of off-site water storage will help stabilize pressures in Wellesley.
How does water efficiency change wastewater flows?	Less water usage has a direct relation to water entering the wastewater system; water efficiency would lead to decrease in wastewater flows.
Additional technical information on alternatives	Alternative evaluation details are covered in this PCC3 and further technical details will be provided in the Master Plan Report which will be posted early 2025.
Project timelines and next steps?	Covered in this PCC3

6. Next Steps



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Next Steps!

Post Public meeting #3 slides on website — today



Share your thoughts on EngageWR: Wellesley Water by January 10, 2025

Recommend posting draft Final Report to Regional Council — Winter 2025



Draft Final Report available for the public — Winter 2025

Thank you

We want to hear from you.

Please provide your comments by January 10, 2025, at engagewr.ca/wellesleywater

For project updates visit regionofwaterloo.ca/en/living-here/wellesley-water-and-wastewater-master-plan.aspx

To receive future notices, contact:

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Questions?

