Village of Tavistock New Water Supply Well

Municipal Class Environmental Assessment Study

Schedule C Municipal Class Environmental Assessment

Public Consultation Centre 1
Virtual Meeting
December 15, 2022
6:00 pm – 8:00 pm

Stantec

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Purpose of Public Consultation Centre 1

- Provide an explanation of the Study process
- Provide an overview of the Evaluation of Alternative Solutions
- Provide an overview of the Preliminary Preferred Alternative
- Provide an opportunity for you to learn about the project and get involved

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Project Overview

What are we doing?

This project is exploring the water supply system in the Village of Tavistock to identify a preferred solution to obtain additional water supply to address current and future needs

Why are we doing it?

- To provide redundancy and security within the existing water supply
- To support future development growth in the Village of Tavistock
- To identify the preferred location for a potential new water supply well if necessary

What does it mean to you?

Oxford County is planning for the future, so that residents and businesses continue to have access to a safe and reliable water supply

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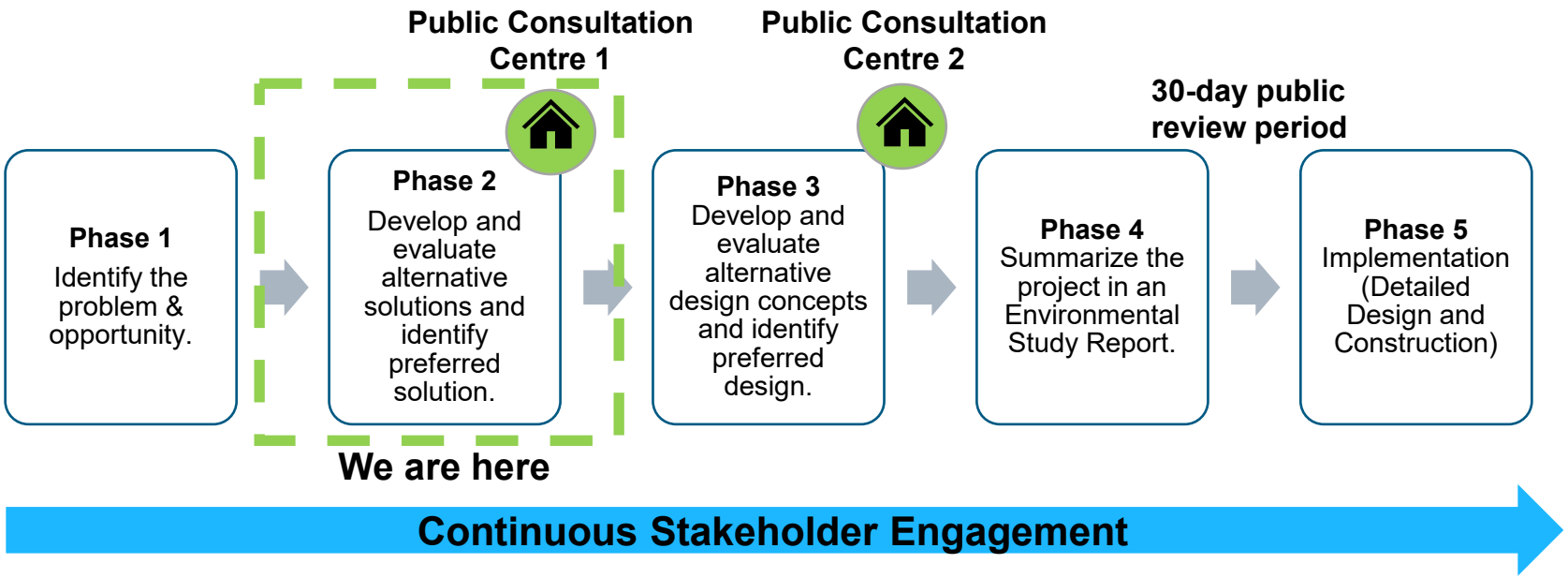
Municipal Class Environmental Assessment Process

- To be completed as a “Schedule C” project, requiring completion of Phases 1-4 of the Class EA process.
- The study includes opportunities for public input including two Public Consultation Centres and 30-day review of the Environmental Study Report after which the project may proceed to detailed design and construction.



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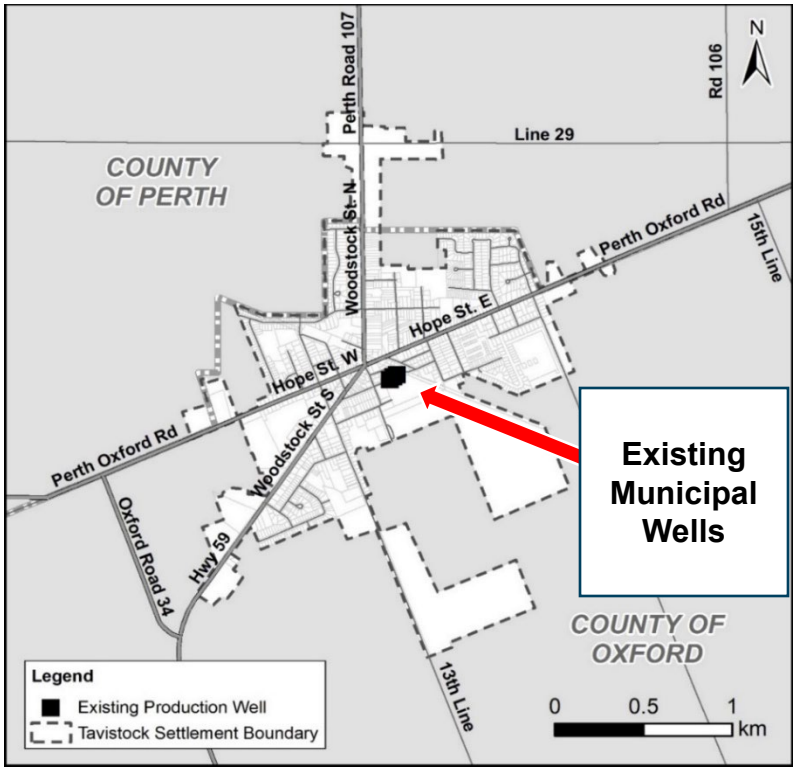
Study Area and Existing Water Infrastructure

Overview:

- **Water Supply:** Groundwater – 1 overburden + 2 bedrock wells = 3 wells
- **Population served:** approx. 3,000
- **Location:** adjacent to an elevated water tower is used for storage and flow equalization
- **Onsite treatment:** sodium silicate for iron/manganese sequestering and sodium hypochlorite for disinfection

- The two bedrock wells (Wells 2A and 3) cannot operate at the same time due to conditions from the Permit to Take Water. This lowers available capacity.
- Firm capacity of treatment is based on the largest well (Well 3) out of service: 4,061 m³/day.
- **Current maximum day flow of 2,419 m³/day.**



Existing Municipal Wells

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Existing System Problems & Opportunities

Security

- The current three water supply wells draw from the same location. Potential disruption to the facility or well field would significantly impact the ability to supply drinking water to the community.

Growth Planning

- Additional residential (620 homes) and employment (19 ha) lands necessary to accommodate Township of East Zorra-Tavistock growth projections by 2047.
- County estimates suggest max. day demands will reach 4,106 m^3/day by 2043, exceeding existing capacity.
- Official Plan population/ residential growth trends indicate max day demand of 4,114 m^3/day could exceed capacity as early as 2036.

Problem & Opportunity Statement

The Village of Tavistock currently receives water services from three wells located within the Centre of the Village, near Queen's Park. The County of Oxford is initiating a Municipal Class Environmental Assessment (Class EA) Study to explore potential opportunities for a new well supply to improve the security and supply of drinking water for the community.

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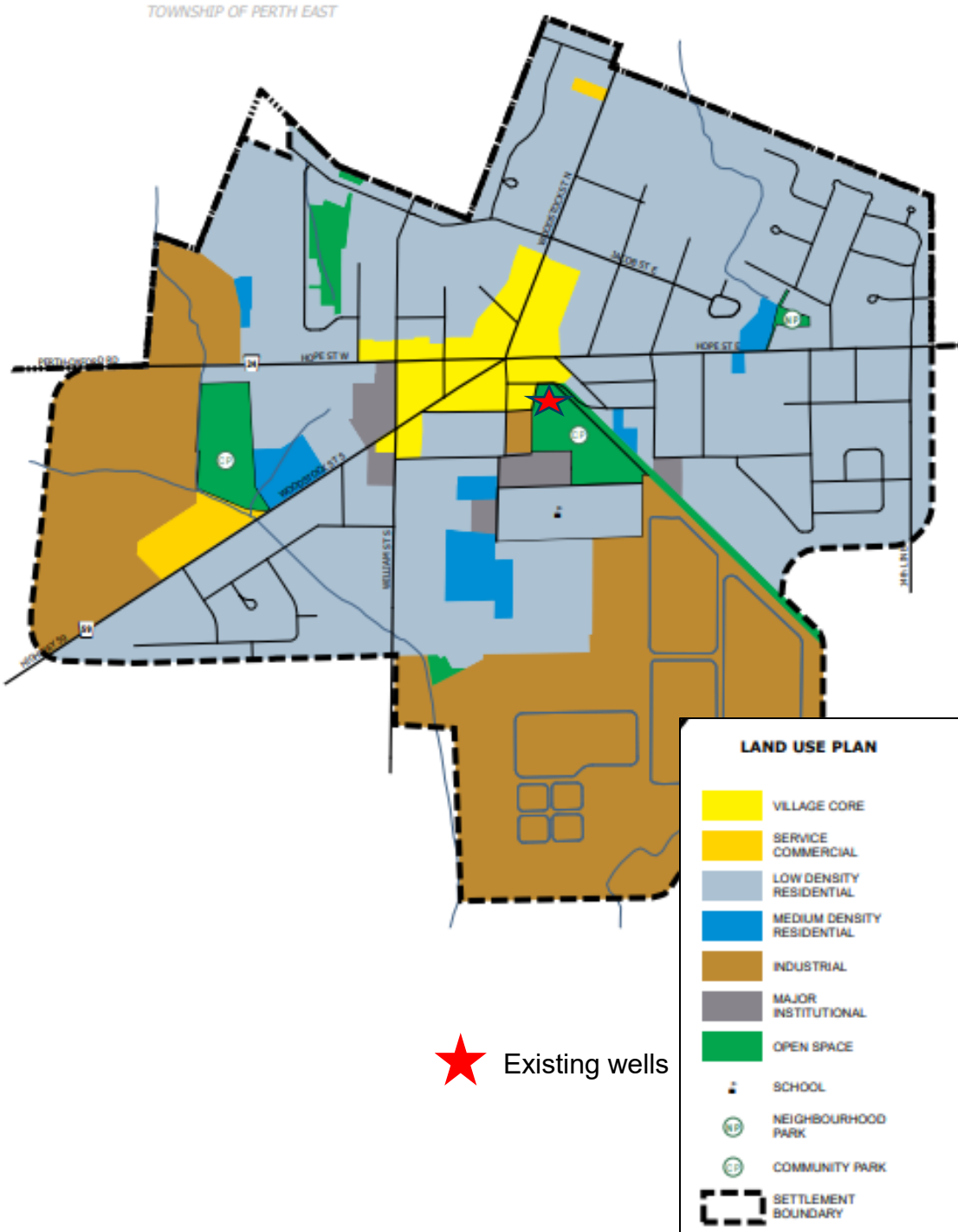
Study Area Context

- The existing wells are within designated “Open Space” lands.
- The County of Oxford Official Plan (1995, as updated 2020) and Provincial Policy Statement (PPS, 2020) require that municipal water supply systems consider factors such as:
  - forecasted growth,
  - emergency service needs,
  - heath & safety,
  - natural environment
- Growth is directed to settlement areas, and must make efficient use of land and natural resources



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Development of Alternative Solutions

A two-step screening process was used to develop Alternative Solutions to be evaluated:

1. **Long List of Alternative Solutions:** Does the alternative satisfy the problem/opportunity statement?

2. **Short List of Alternative Solutions:** Evaluation of remaining Alternatives Solutions to identify a preferred solution.

1: Do Nothing: Status quo and involves no changes to the existing well supply system in Tavistock.

2: Limit Community Growth: Implement municipal policy restrictions to limit growth and new servicing needs.

3: Water Conservation Measures: Implement programs and incentives or other measures to reduce demand.

4: Water Supply from Adjacent System: Construct a water supply connection to another community to provide the required water supply needs.

5: New Well on the Same Site: New well on the existing site in central Tavistock to provide additional water supply.

6: New Well at a Different Location: Advance a new well at a new location to provide water supply in Tavistock.

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Evaluation Criteria

Social Environment

- Minimizes impacts on existing residences, business, community features, and other planned land uses/ long-term planning
- Protects health/safety

Cultural Environment

- Protects archaeological and cultural heritage resources

Natural Environment

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

Technical Environment

- Minimizes land requirements
- Provides reliable service
- Meets County and Ministry standards, permits, and approvals
- Meets existing and future infrastructure needs/ performance quality requirements
- Aligns with existing and future land use
- Constructability/ System redundancy

Financial

- Provides low lifecycle costs
- Estimated capital cost
- Identified property acquisition cost
- Identified operation and maintenance costs

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Evaluation Summary - Long List of Solutions

The following long list of alternative solutions were screened based on their ability to address the problem and opportunity statement.

Alternative Solution	Discussion	Recommendation. Carry forward?
Alternative 1 Do Nothing (Status Quo)	• Does not satisfy the problem/opportunity statement - no change in water supply/ improvements. • Lack of system resiliency and potentially higher costs if existing wells cannot operate.	**YES – for comparison purposes**
Alternative 2 Limit Community Growth	• Does not satisfy the problem/opportunity statement - no change in supply or water security. • Does not adhere to water infrastructure planning requirements or growth approaches in the Provincial Policy Statement (PPS) or Oxford Official Plan (OP).	No
Alternative 3 Water Conservation Measures	• Does not satisfy the problem/opportunity statement – water supply security concerns are not addressed. • Does not address long-term needs for additional capacity. • Does not adhere to water infrastructure planning requirements or growth approaches in the PPS or Oxford OP.	**YES - part of County's overall water supply strategy**
Alternative 4 Water Supply from Adjacent System	• May have potential to address the problem/opportunity statement if capacity is available in a nearby system.	**YES**
Alternative 5 New Well on Same Site	• Does not address the problem/opportunity statement - water security is not addressed.	No
Alternative 6 New Well at Different Location	• May have potential to address the problem/opportunity statement if capacity is available at a new location.	**YES – technical review completed to confirm water quantity and quality is available**

Short-Listed Alternative Solutions

Three Alternative Solutions were carried forward for further evaluation:

- Alternative 1 - Do Nothing (for comparison purposes only)
- Alternative 3 – Water Conservation Measures
- Alternative 4 - Water Supply from Adjacent System
- Alternative 6 - New Well at Different Location

Prior to evaluating the short-listed alternative solutions, a technical review was conducted to confirm the feasibility of finding a new well at a different location.

Three potential well site locations were confirmed to be feasible (W1, W2 and W3), meaning water quantity and quality is available to support a new well within Tavistock.

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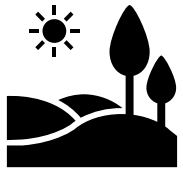
Natural Environment

- **Natural Features:** No provincially significant features at any potential well site
  - Site W1: two designated features within 120 m (swamp and marsh communities)
  - Site W2: No designated natural features
  - Site W3: a deciduous forest and marsh within 120 m, but they are outside of the park
- **Aquatic Features:** Habitat may be present at each site, but the watercourses are buried based on available imagery.
- **Groundwater:** No measurable response was observed at the water feature north of Site W3 during pump testing and no private well complaints were noted. Sourcewater protection will be considered as the design proceeds.



Site-level field assessments would be required prior to construction to verify if potential suitable habitat or Species at Risk (SAR)/Species of Conservation Concern (SOCC) is present, and determine mitigation measures, as required.

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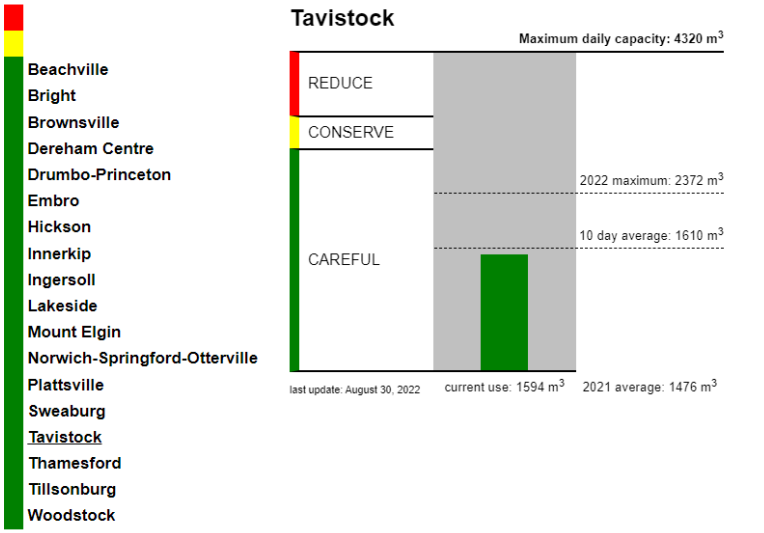
Water Conservation Measures – Alternative 3

- This a key component of the overall solution and involves initiating water conservation programs (e.g., municipal by-laws, educational programs, and/or individual monitoring and changes to volume-based water charges).
- While these efforts form part of the County's water operations strategy, they would not improve the security and supply of drinking water for the community and was not carried forward for further review as its own independent alternative.

Want to learn more?
https://www.oxfordcounty.ca/en/services-for-you/water-conservation.aspx#-How-much-water-Campaign

What does your community use?

The **Current Water Usage** graph shows the status of water reserves in communities across Oxford County:



Evaluation Summary - Short-Listed Alternatives

CRITERIA	ALTERNATIVE 1 Do Nothing	ALTERNATIVE 4 Water Supply from Adjacent System	ALTERNATIVE 6 New Well at a Different Location
Social Environment	Moderately Preferred	Least Preferred	Most Preferred
Cultural Environment	Most Preferred	Least Preferred	Moderately Preferred
Natural Environment	Most Preferred	Least Preferred	Moderately Preferred
Technical Environment	Least Preferred – does not satisfy the statement	Moderately Preferred	Most Preferred
Financial Environment	Most Preferred	Least Preferred	Moderately Preferred
OVERALL SUMMARY	**NOT CARRIED FORWARD** Although the lowest cost alternative with fewest potential impacts to the natural environment, the existing well supply system in Tavistock does not satisfy the problem/opportunity statement.	**LEAST PREFERRED** Has potential to address the problem/opportunity, although it involves construction complexity due to utilities, water crossings, coordination with other infrastructure improvements. In addition, this alternative has high design /construction costs and operation and maintenance costs.	**MOST PREFERRED** Best addresses technical requirements and preliminary test wells indicate water quantity is available to meet needs. Moderate construction complexity relative to Alternative 4 with moderate costs. ✓

Preliminary Preferred Alternative Solution: New Well at a Different Location

- Alternative 6 – a “new well in a different location” in Tavistock is the preliminary preferred alternative solution for the following reasons:
  - Localized footprint for infrastructure and construction-related impacts such as noise, traffic, and aesthetics
  - Less pumping infrastructure than a large transmission watermain route
  - Reduced impact to natural environment by avoiding agricultural areas, watercourse crossings, and other designated natural features located outside Tavistock
  - Test wells (Site W1, Site W2 or Site W3) indicate water supply can be obtained locally
  - Addresses local growth potential and Tavistock water supply system resiliency

Three potential sites for the new well were assessed in more detail. The evaluation summary is provided in the next slide.

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Evaluation Summary of Well Locations

CRITERIA	SITE W1 Former Reservoir	SITE W2 South Optimist Park	SITE W3 North Optimist Park
Social Environment	Most Preferred	Most Preferred	Most Preferred
Cultural Environment	Most Preferred	Most Preferred	Most Preferred
Natural Environment	Least Preferred	Most Preferred	Most Preferred
Technical Environment	Least Preferred	Moderately Preferred	Most Preferred
Financial Environment	No significant difference	No significant difference	No significant difference
OVERALL	LEAST PREFERRED	MODERATELY PREFERRED	MOST PREFERRED
SUMMARY	Least water supply capacity (2.2 L/s/m) during testing.	Second-highest water supply capacity (2.3 L/s/m) during testing.	Best addresses technical requirements. Highest water supply capacity (4.3 L/s/m), during testing. ✓

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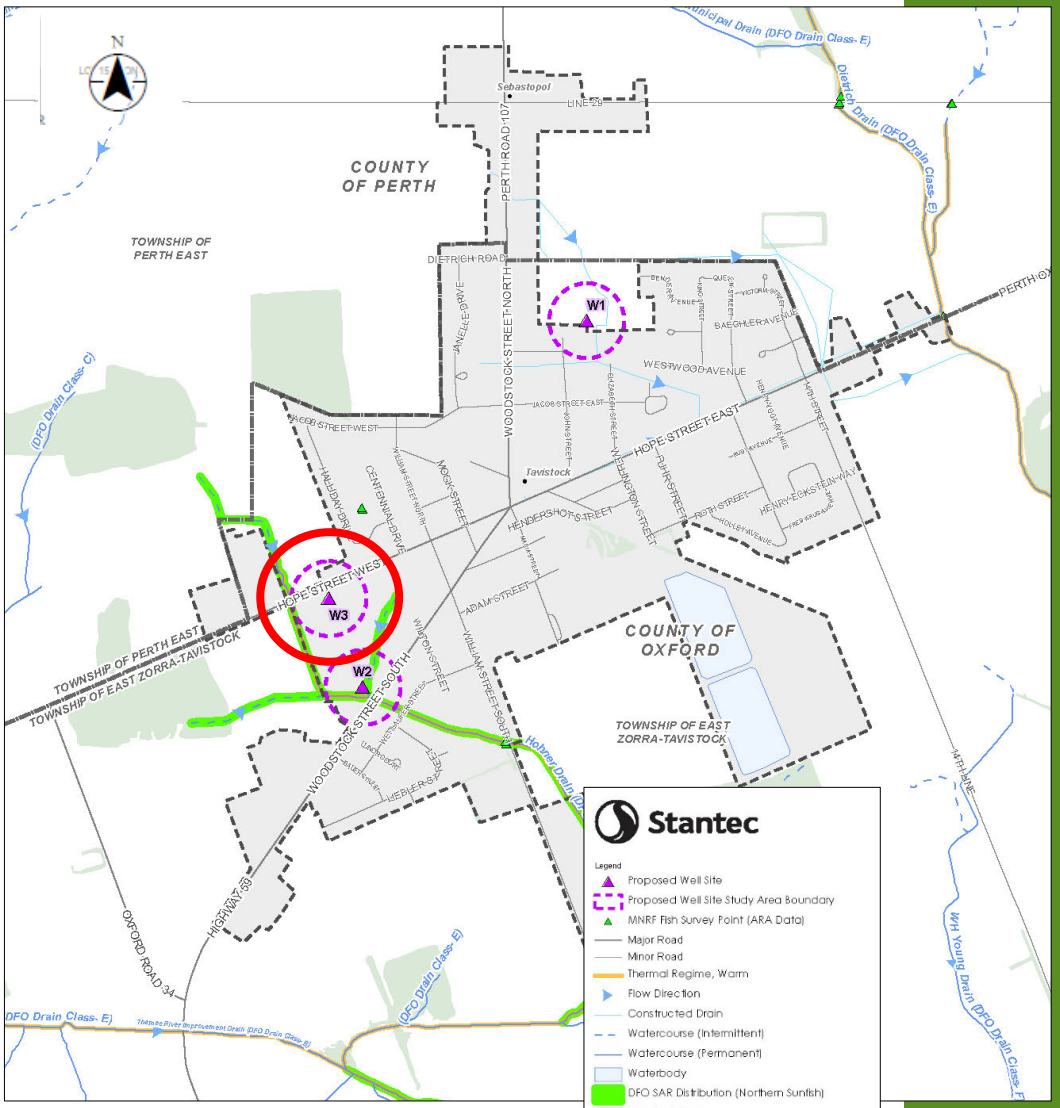
Preliminary Preferred Well Site Location

- The North Optimist Park (Site W3) is the preliminary preferred location for a new well for the following reasons:
  - Maintains the preferred localized footprint for infrastructure and construction-related impacts such as noise, traffic, and aesthetics
  - Achieves the highest capacity estimate of 4.3 L/s/m, and is the most efficient well
  - Minimal environmental impact and avoids designated natural environment features
- Treatment requirements will be determined following further technical review, as well as agency and public comment.



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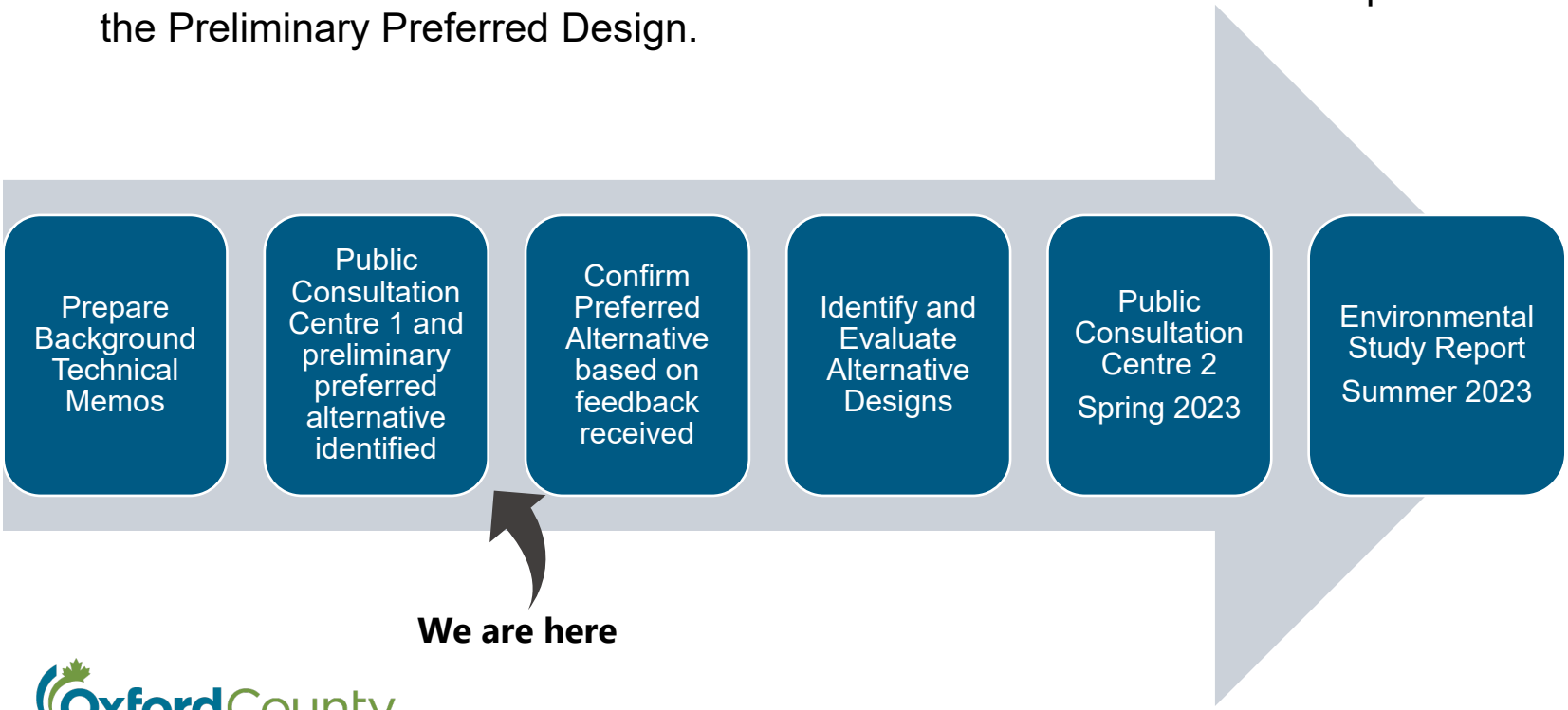
Next Steps

- Review and incorporate input received from the public, review agencies, and Indigenous communities
- Confirm the preferred well site location based on input.
- Develop alternative designs for the infrastructure needed to support the new well site.
- Continue to consult and host Public Consultation Centre 2 to receive input on the Preliminary Preferred Design.



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We want to hear from you!

Please provide any comments to one of the team members listed below by Wednesday January 4, 2023. Comments can also be provided through Speak Up, Oxford!

https://speakup.oxfordcounty.ca/

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