# Municipality of Lakeshore
## Water and Wastewater Master Plan Update

## Public Information Centre #2

# Welcome!

- Please sign in, and feel free to browse the information panels.
- Your comments are important to us. Please complete the survey (sheets provided) or online at www.Lakeshore.ca/WWMP prior to December 22, 2023.
- Staff from the Municipality and their consultants (Jacobs) are available to answer any questions that you have.


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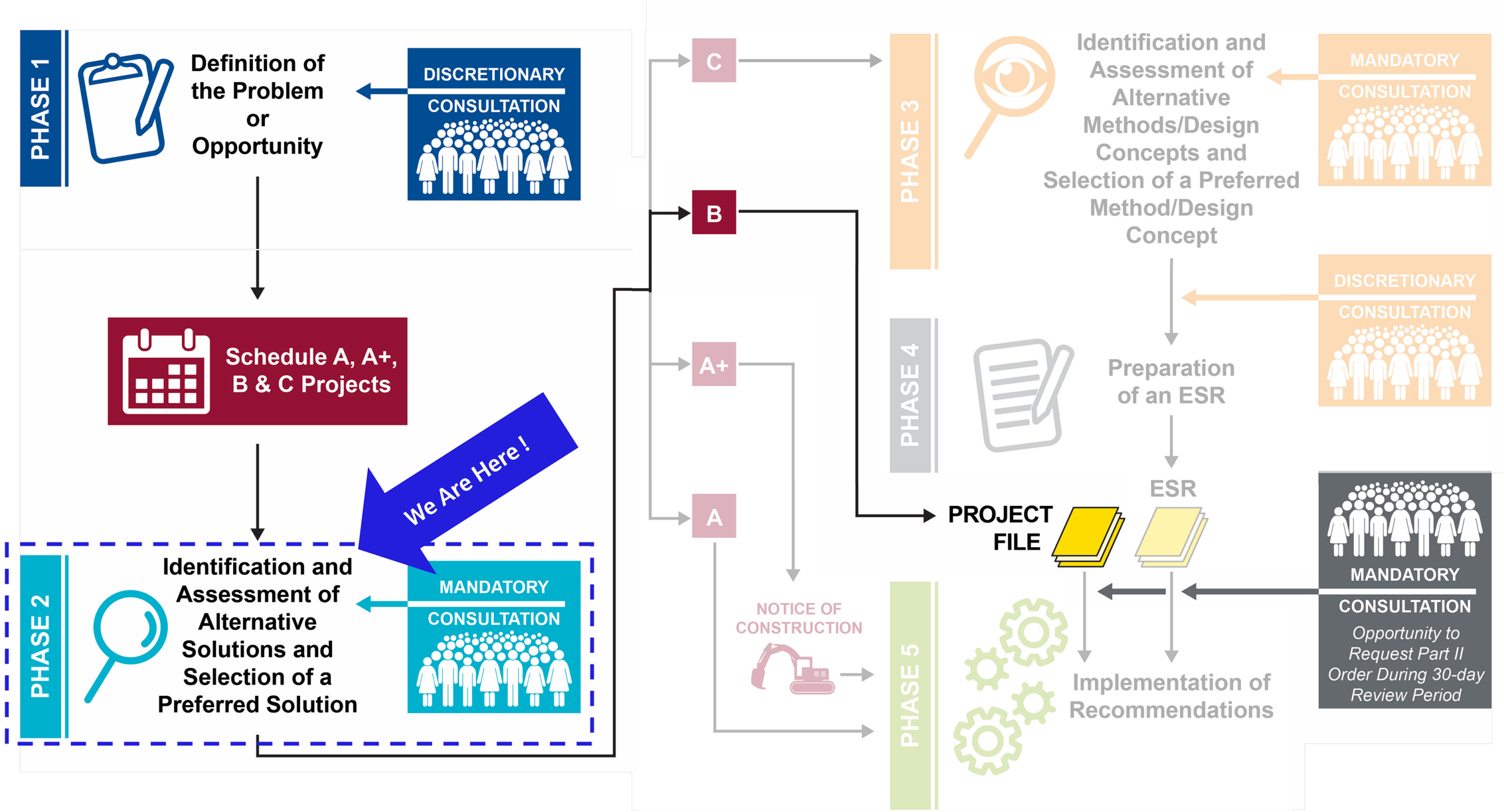
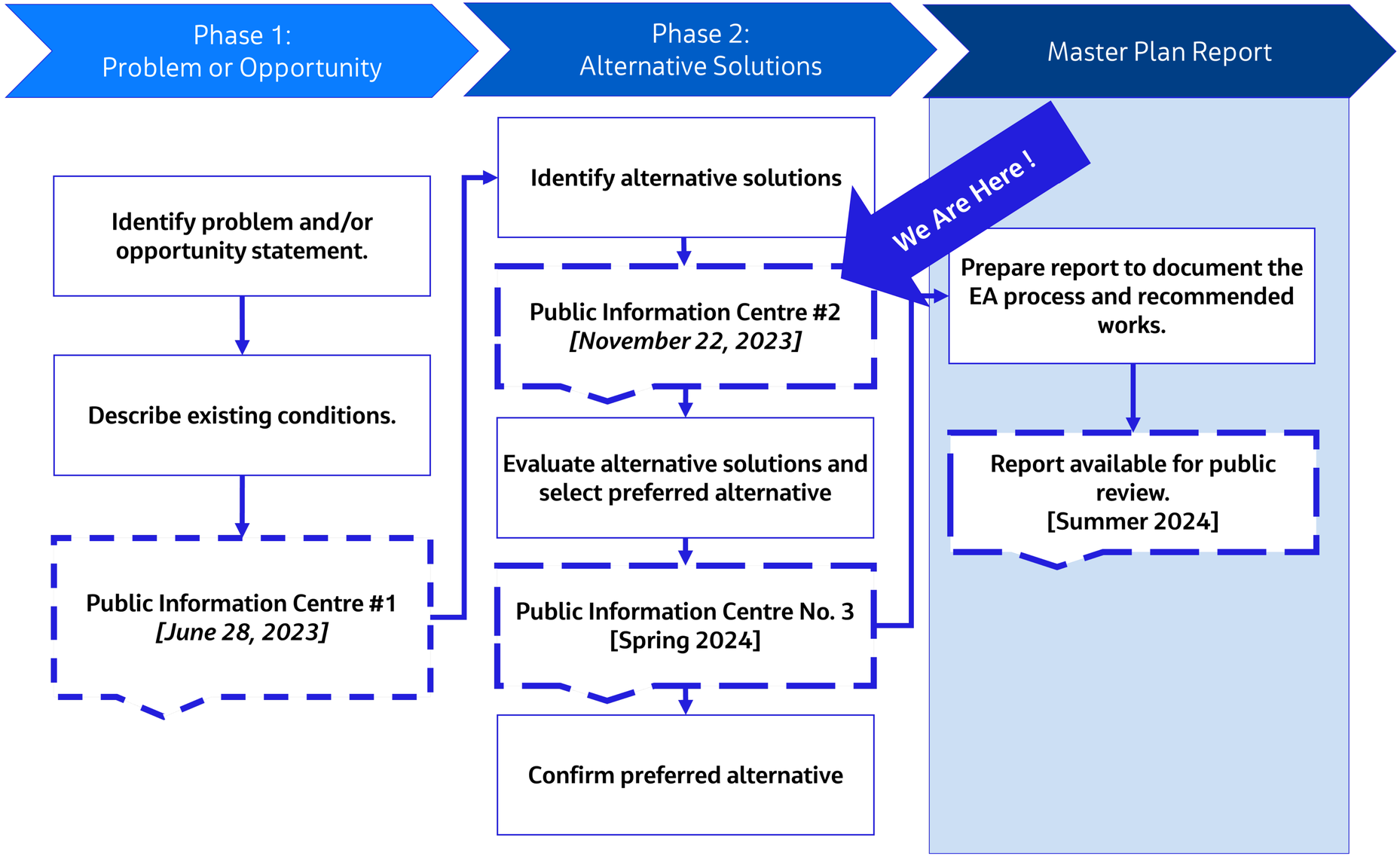
# Class Environmental Assessment Process

This Master Plan is being carried out in accordance with the Municipal Engineers Association's Municipal Class Environmental Assessment process. This Master Plan is being completed as a Schedule B and will result in the completion of a Project File.



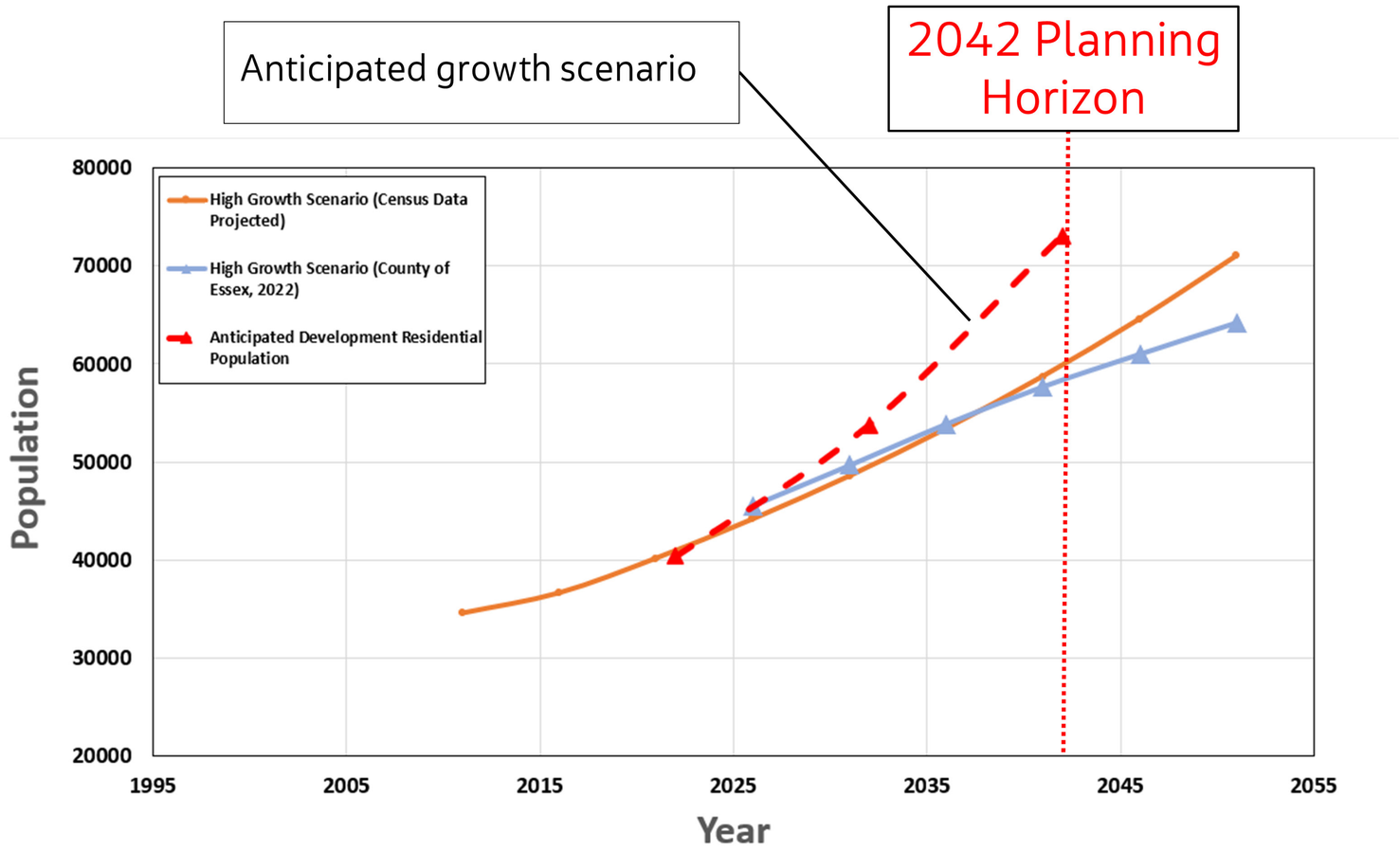
# Overview of Planned Public Engagement & Schedule

Opportunities for engagement include three Public Information Centres and an opportunity to comment on the WWMP report.



# Overview of Population Projections (Updated)

Lakeshore is expected to reach a population of more than 73,000 people by 2042, which is a population increase of approximately 80 percent.




- The Anticipated Development Residential Population growth scenario is based on a prioritized list of criteria, including legal commitments.
- These population projections will be used to identify future needs and the timing of recommendations.
- Population projections have been refined since Public Information Centre 1

# Problem and Opportunity Statement

Lakeshore has realized growth more quickly than projected in the 2018 Water and Wastewater Master Plan Update. Lakeshore continues to experience rapid growth and increased interest in new development.

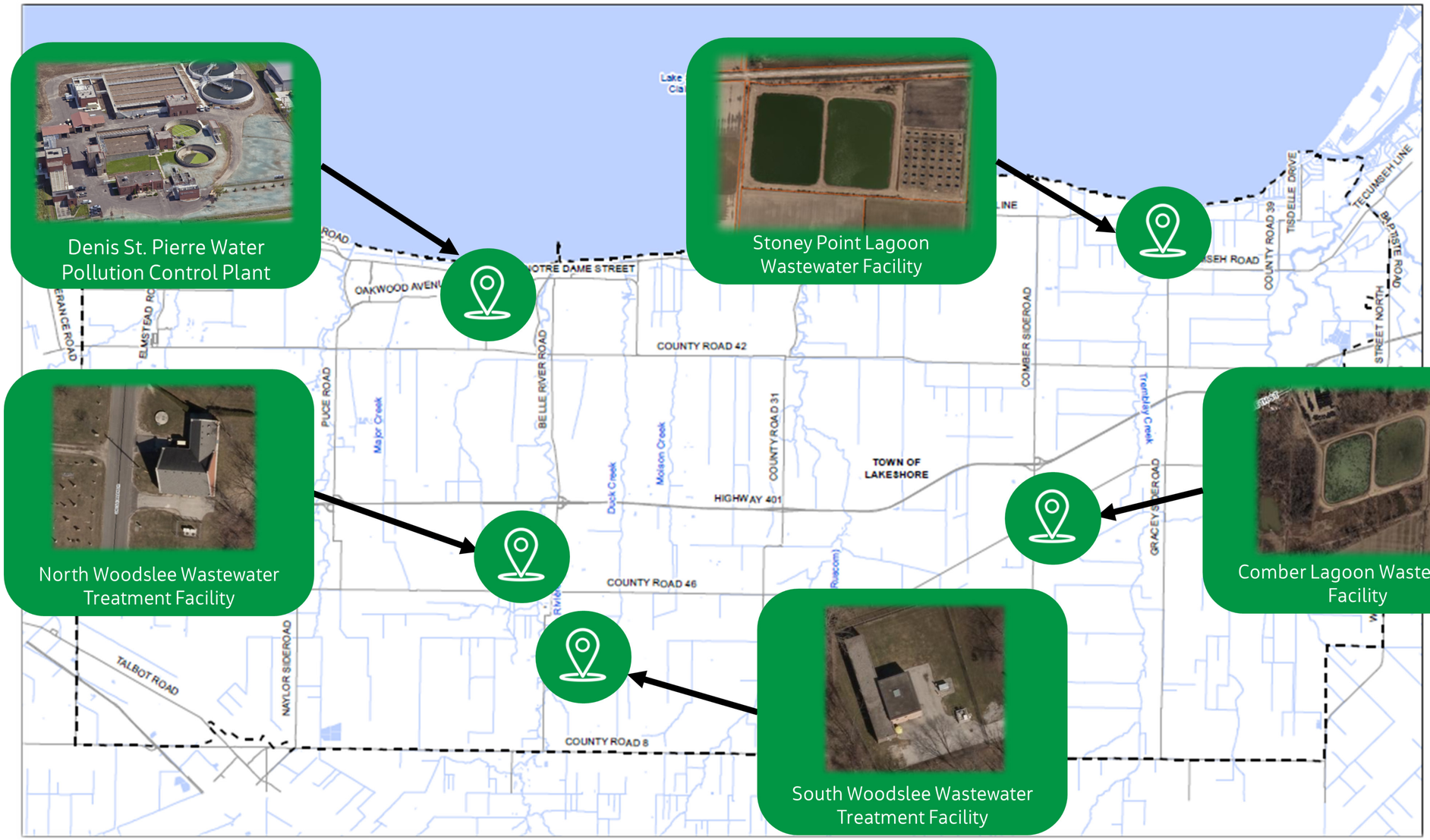
This presents challenges and opportunities for Lakeshore as follows:

- Multiple wastewater treatment facilities (specifically the Stoney Point and Comber Lagoon Wastewater Facilities) are or have triggered the requirement to expand to continue to receive and treat wastewater from the existing communities and accommodate growth.
- Lagoon systems at the Stoney Point Lagoon Facility and the Comber Lagoon Facility have drawn attention from regulatory authorities and provincial agencies due to long-term hydraulic capacity constraints (identified in 2008 and 2018 Master Plans) and recent effluent quality non-compliance.
- There are numerous sanitary conveyance capacity constraints in the Denis St Pierre sewershed limiting Lakeshore's ability to service planned growth areas and accept new development.
- Conveyance and treatment system capacities are significantly impacted by high levels of inflow and infiltration within the collection systems.
- Provincial policy and direction emphasize redevelopment to provide additional housing opportunities, including intensification, and allowing for the approval of additional residential units (ARUs)
- Intensification of residential areas result in increased wastewater flow and drinking water demands greater than the designed capacity of the infrastructure.
- Growth realized since the 2018 Water and Wastewater Master Plan Update has exceed projections impacting Lakeshore's ability to proactively implement the recommendations.

When addressing these challenges, there are opportunities to implement solutions that provide adaptation to a changing climate, decrease energy usage, protect the environment, and protect human health and safety.

# Identified Wastewater Treatment Needs & Constraints

- There are capacity constraints identified at multiple wastewater treatment facilities, specifically the Stoney Point and Comber Lagoon Wastewater Facilities.
- In PIC 1, three out of five treatment facilities were identified as approaching or over their rated hydraulic capacity under existing conditions. The expansion of the Denis St. Pierre Water Pollution Control Plant (WPCP) currently underway will address the existing constraint up to approximately 2032.



# Identified Wastewater Treatment Needs & Constraints

- Phase 1 of the expansion at the Denis St. Pierre WPCP is currently underway and will address existing constraints to 2032 by increasing the capacity to 25,000 $m^3$/day. A second phase of expansion to a capacity of 30,000 $m^3$/day is expected to commence in approximately 2032.
- The Stoney Point and Comber Lagoon Facilities are at or have exceeded 80% of their rated capacity, triggering the need to plan for additional treatment capacity. In addition, the ability of these facilities to meet the effluent requirements have declined.

| Treatment Plant | Current Rated Capacity ($m^3$/day) | Existing Average Daily Flows ($m^3$/day) | Projected Average Daily Flows 2032 ($m^3$/day) | Projected Average Daily Flows 2042 ($m^3$/day) | Remarks |
|---|---|---|---|---|---|
| Denis St. Pierre Water Pollution Control Plant | 14,500 | 13,558 | 20,525 | 29,429 | An expansion to the Denis St. Pierre facility is currently underway. The first phase of the expansion will increase the capacity of the plant to 25,000 $m^3$/day with plans for expansion to 30,000 $m^3$/day.<br>A Schedule C Class EA for the Plant Expansion will be initiated in 2032. |
| Stoney Point Lagoon Facility | 949 | 1,211 | 1,211* | 2,412* | The Stoney Point Lagoon Facility is currently over the rated hydraulic capacity. |
| Comber Lagoon Facility | 430 | 402 | 487* | 531* | The Comber Lagoon Facility is near capacity, triggering the need for expansion. Existing reserve capacity has already been allocated. |
| North Woodslee Treatment Facility | 330 | 44 | 44 | 44 | The North Woodslee facility has remaining hydraulic capacity. |
| South Woodslee Treatment Facility | 210 | 46 | 46 | 46 | The South Woodslee facility has remaining hydraulic capacity. |

*Projected growth and flows are impacted due to treatment capacity constraints

# Long-List of Wastewater Treatment Alternatives – Stoney Point and Comber Lagoon Wastewater Facilities

A high-level screening of wastewater treatment alternatives was completed using the following questions:

1. Is this option allowed in Ontario by Regulation?
2. Is this option aligned to Municipal Planning Objectives?
3. Is this option able to provide reliable treatment?

| Alternatives (1st Stage Screening) | Question 1 | Question 2 | Question 3 | Pass/Fail | Remarks |
|---|---|---|---|---|---|
| **Alternative 1** Do nothing | | | | | Comparison with the baseline condition is necessary under the Master Planning Class EA process. |
| **Alternative 2** Individual new mechanical Sanitary Treatment Facilities (STF) at the Comber & Stoney Point Lagoon Facilities | Yes | Yes | Yes | **Pass** | |
| **Alternative 3** Common mechanical STF at the Stoney Point Lagoon Facility | Yes | Yes | Yes | **Pass** | |
| **Alternative 4** Diverting flows from the Comber & Stoney Point Lagoon Facilities to Denis St. Pierre WPCP | Yes | Yes | **No** | **Fail** | The majority of the future growth is expected to occur in the area serviced by Denis St. Pierre WPCP, it is important to maintain the reserve capacity to accommodate growth. |

# Long-List of Wastewater Treatment Alternatives – Stoney Point and Comber Lagoon Wastewater Facilities Continued

| Alternatives (1st Stage Screening) | Question 1 | Question 2 | Question 3 | Pass/Fail | Remarks |
|---|---|---|---|---|---|
| **Alternative 5** Diverting flows from the Comber and Stoney Point Lagoon Facilities to the Tilbury WWTP | Yes | Yes | **No** | **Fail** | Tilbury WWTP is operating at 35% capacity (performance report 2022). However, diverting flows to Tilbury WWTP requires approvals and coordination from Chatham-Kent. |
| **Alternative 6** Diverting flows from the Comber Lagoon Facility to the Tilbury WWTP | Yes | Yes | **Yes** | **Pass*** | *This solution may not provide sufficient capacity for the development of all available vacant lands (beyond 2042). |
| **Alternative 7** Diverting flows from the Stoney Point Lagoon Facility to the Tilbury WWTP | Yes | Yes | **No** | **Fail** | Tilbury WWTP is operating at 35% capacity (performance report 2022). However, diverting flows to Tilbury WWTP requires approvals from Chatham-Kent.<br><br>Tilbury WWTP does not have capacity to accept flows from the Stoney Point Lagoon Facility to 2042. |

# Long-List of Wastewater Treatment Alternatives – Stoney Point and Comber Lagoon Wastewater Facilities Continued

| Alternatives (1st Stage Screening) | Question 1 | Question 2 | Question 3 | Pass/Fail | Remarks |
|---|---|---|---|---|---|
| **Alternative 8**<br>Diverting flows from the Comber and Stoney Point Lagoon Facilities to the North and South Woodslee Treatment Plants | Yes | Yes | **No** | **Fail** | North and South Woodslee plants have sufficient rated capacity. These facilities are unable to reliably meet regulatory effluent limits.<br><br>It is important to maintain reserve capacity to accommodate growth.<br><br>Significant construction would be required to collect and convey flow from the Comber and Stoney Point Lagoon Facilities to the North and South Woodslee WWTPs. |
| **Alternative 9**<br>Upgrade/Expand lagoons at the Comber and Stoney Point Lagoon Facilities | **No** | Yes | **No** | **Fail** | Lagoon expansion is not supported under current Ontario Regulations or MECP Policy, however upgrading lagoons with a newer treatment technology is not going to address the identified hydraulic constraints.<br><br>This alternative would require a shutdown of the lagoon(s) for upgrades, and the diversion of flows to another available treatment plant. |

# Short-List of Wastewater Treatment Alternatives – Stoney Point and Comber Lagoon Wastewater Facilities

| Alternatives | Description & Considerations |
|---|---|
| **Alternative 1**<br>Do nothing | This alternative represents the baseline condition for the purposes of comparison and is necessary to consider under the Master Planning Class EA process. |
| **Alternative 2**<br>Individual new mechanical STFs at the Comber and Stoney Point Lagoon Facilities | This alternative involves the construction of two new mechanical STFs at both the Comber and Stoney Point lagoon sites. This alternative will require land acquisition adjacent to the Comber Lagoon Facility to accommodate a new treatment facility. |
| **Alternative 3**<br>Common mechanical STF at the Stoney Point Lagoon Facility | This facility will service both Stoney Point and Comber. Flows from the Comber Lagoon Facility will be redirected to Stoney Point. |
| **Alternative 3 & 6* (Combined)**<br>A new mechanical STF at Stoney Point (Alternative 3) and diverting flows from the Comber Lagoon Facility to the Tilbury WWTP (Alternative 6*) | This alternative involves conveying flows from the Comber Lagoon Facility to the Tilbury WWTP for treatment and the construction of a new mechanical treatment facility at the Stoney Point Lagoon Facility to treat flows from Stoney Point.<br><br>*This solution may not provide capacity for the development of all available vacant lands in Comber beyond 2042. |

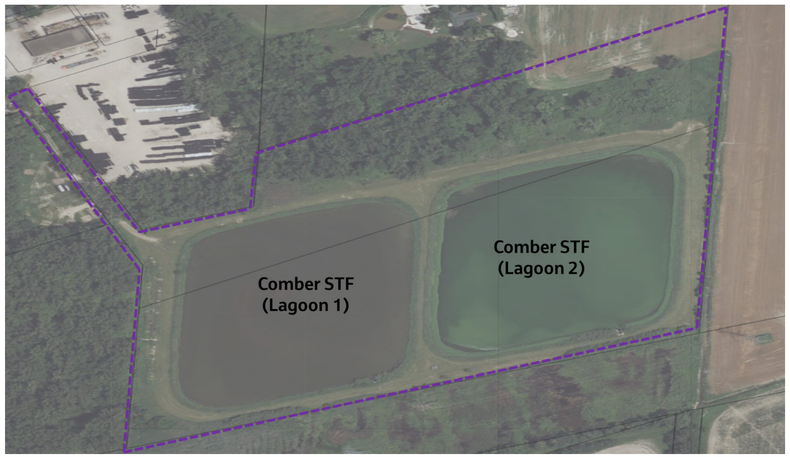
The short-listed alternatives will be subjected to detailed evaluation.

# Short-List of Wastewater Treatment Alternatives – Stoney Point and Comber Lagoon Wastewater Facilities

**Alternative 1** Do Nothing

## Alternative 2

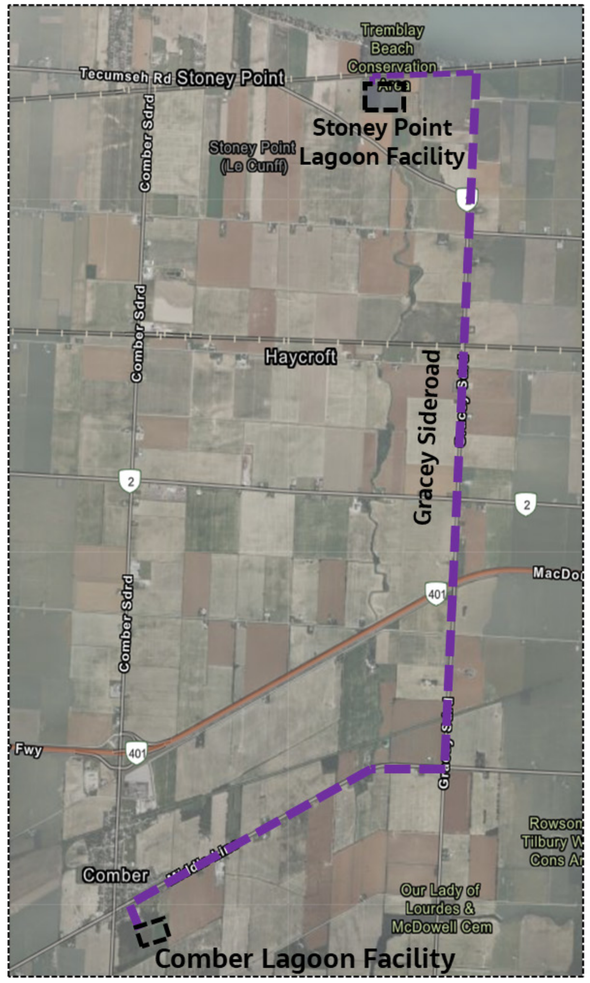
Individual new mechanical STFs at the Comber and Stoney Point Lagoon Facilities





## Alternative 3

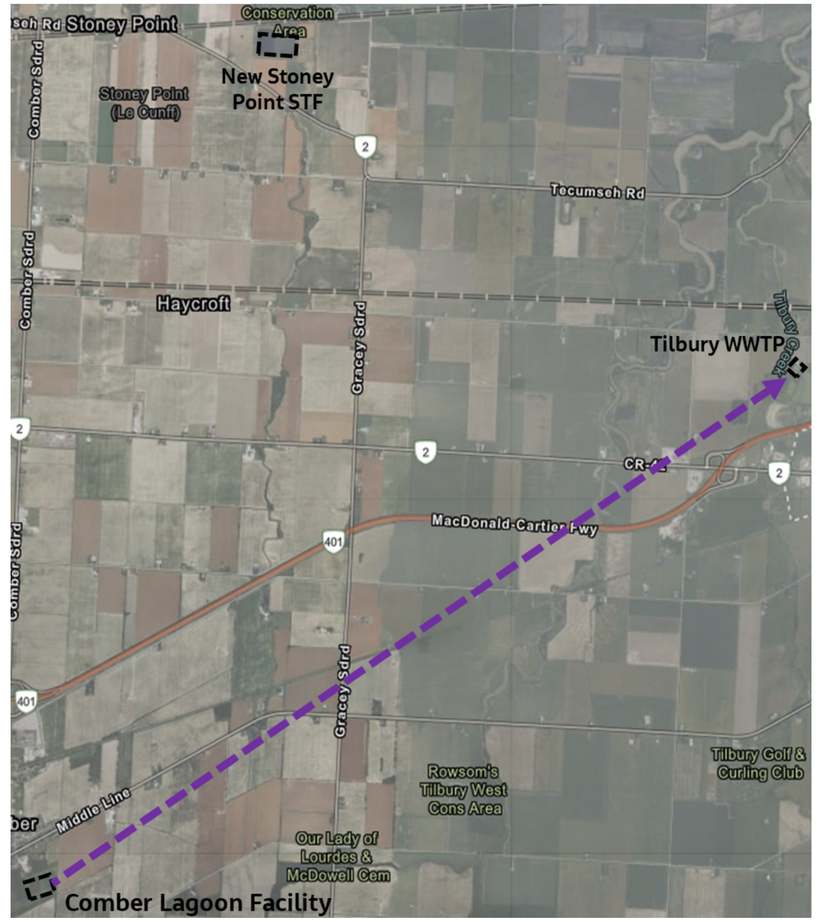
Common mechanical STF at the Stoney Point Lagoon Facility




Note: The conveyance route presented (purple colour) is adapted from Municipality of Lakeshore, Eastern Communities ESR, 2012

## Alternative 3 & 6* (Combined)

A new mechanical STF at Stoney Point (Alternative 3) and diverting flows from the Comber Lagoon Facility to the Tilbury WWTP (Alternative 6*)



# Short-List of Wastewater Treatment Alternatives – Denis St. Pierre Wastewater Pollution Control Plant (WPCP)

The short-listed alternatives will be subjected to detailed evaluation.

| Alternative | Description & Considerations |
|---|---|
| **Alternative 1**<br>Do nothing<br>(2032-2042) | The Denis St. Pierre WPCP is undergoing expansion to a new rated capacity of 25,000 $m^3$/day. Based on the population projections, Denis St. Pierre WPCP will reach 80% of its rated capacity by 2032 – triggering the initiation of the Phase 2 expansion to 30,000 m3/day in 2032. Additional capacity within the Denis St. Pierre sewershed will be required by 2042. |
| **Alternative 2**<br>Expand plant on existing site<br>(2032-2042) | This alternative expands the treatment capacity at the existing Denis St. Pierre WPCP site.<br><br>An adequate buffer area will be required to expand the plant capacity. Land acquisition for the buffer zone will be required. This alternative is expected to include purchasing/compensation for the land to maintain future buffer zone requirements. |
| **Alternative 3**<br>Service with distributed packaged plants<br>(2032-2042) | This alternative will consider the use of small package plants to provide distributed treatment capacity in the Denis St. Pierre service area. |
| **Alternative 4**<br>Site a new WPCP within the servicing boundary<br>(2032-2042) | This alternative will consider the siting of a new conventional wastewater treatment plant facility to provide treatment capacity in the Denis St. Pierre service area. |

# Identified Wastewater Conveyance Needs & Constraints

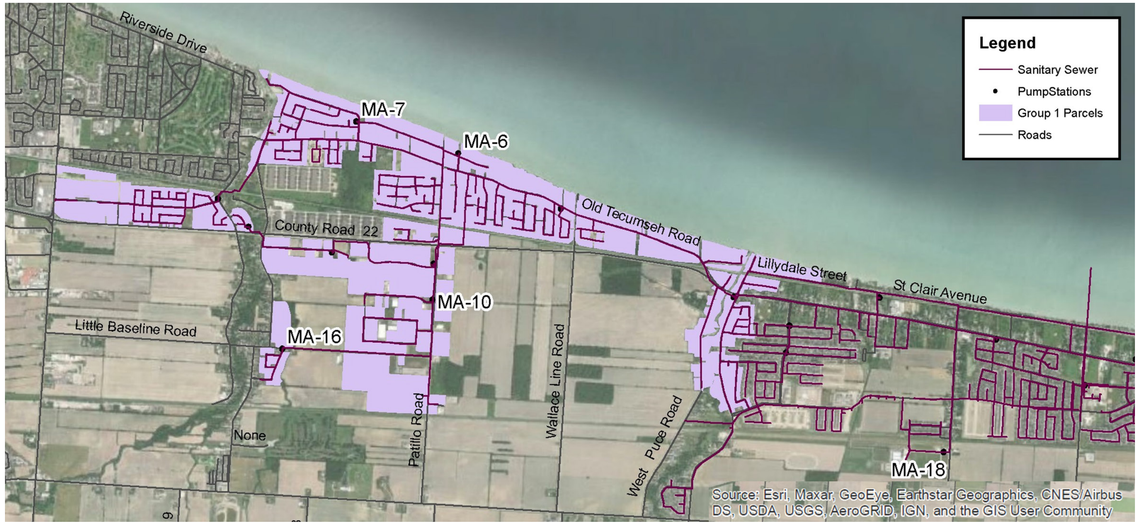
- Conveyance infrastructure includes sewage pumping stations and trunk/sanitary sewer pipelines.
- There are numerous sanitary conveyance system constraints identified in the Denis St. Pierre sewershed.
- Existing hydraulic constraints at the Comber and Stoney Point Lagoon Facilities and reports of basement flooding indicate the potential for capacity constraints within the respective conveyance systems. More investigation will be required to define these constraints.
- Constraints in the system were grouped based on location and hydraulic connectivity within the conveyance system to assist with identifying alternatives.

# Long-list of Wastewater Conveyance Solutions

Conveyance solutions are often addressed through a combination of best practices and infrastructure. A wide range of potential solutions were screened to help identify alternatives for capacity constraints.

| Category | Alternative | Pass/Fail | Remarks |
|---|---|---|---|
| Source Control | Downspout Disconnection<br>Rain Barrel Program<br>Weeping Tile (Foundation Drain Disconnection)<br>Sewer Lining<br>Cross-Connection Disconnection | Fail | Source Control Alternatives (where possible) are currently being implemented by the Municipality of Lakeshore; however, these cannot be relied on as the primary solution to address conveyance needs. |
| Conveyance Control | Inline Storage | Pass | |
| | Sewer Separation | Fail | The Municipality of Lakeshore does not have combined sewers |
| | Pipe Upsizing or Twinning | Pass | |
| | Increase Pump Station Capacity and/or replacement of Pump Station(s) | Pass | |
| Flow Directions and End-of-Pipe Controls | Weir | Fail | No feasible locations |
| | Flow diversion | Fail | No feasible locations for flow diversion to existing sewers within the Denis St. Pierre sewershed |
| | New Trunk Sewer to New WWTP in Maidstone | Fail | Timing inconsistent with treatment capacity needs |
| | New Trunk Sewer in Maidstone to Denis St. Pierre WPCP | Pass | |
| | Offline Storage (at pump station or WWTP) | Pass | |

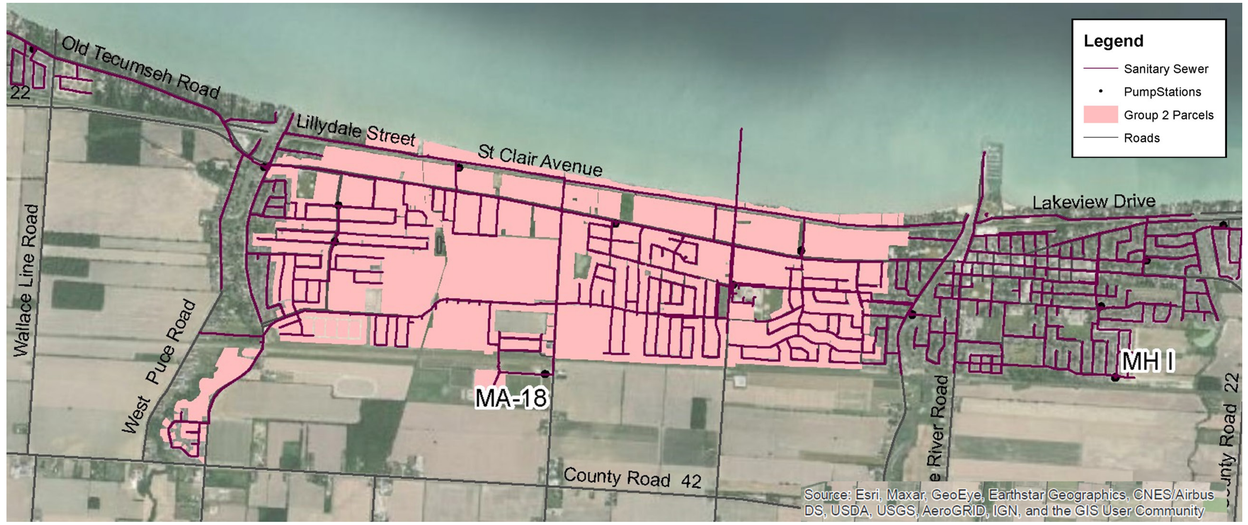
# Group 1 Conveyance Constraints




| Constraints | Constrained under Existing Conditions | Constrained under Future (2032) Conditions | Constrained under Future (2042) Conditions |
|---|---|---|---|
| Amy Croft Drive Trunk Sewer | No | Yes | Yes |
| St. Clair Shores – Pump Station (MA-13) | No | Yes | Yes |
| Russel Woods Drive – Trunk Sewer | Yes | Yes | Yes |
| Maidstone Pump Station 6 | Yes | Yes | Yes |
| Maidstone Pump Station 5* | No | No | No |
| Wintermute Area | No | Yes | Yes |
| Patillo Industrial Area | Yes | Yes | Yes |
| Puce Area | Yes | Yes | Yes |
| Maidstone Pump Station 4 | Yes | Yes | Yes |

* Extent of constraint depends on Group 1 preferred alternative

# Group 2 Conveyance Constraints




| Constraints | Constrained under Existing Conditions | Constrained under Future (2032) Conditions | Constrained under Future (2042) Conditions |
|---|---|---|---|
| IC Roy/Mancini Group (Downstream of Chelsea Park PS) | Yes | Yes | Yes |
| Oakwood Trunk Area * | No | No | No |
| Maidstone Pump Station 8 * | No | No | No |

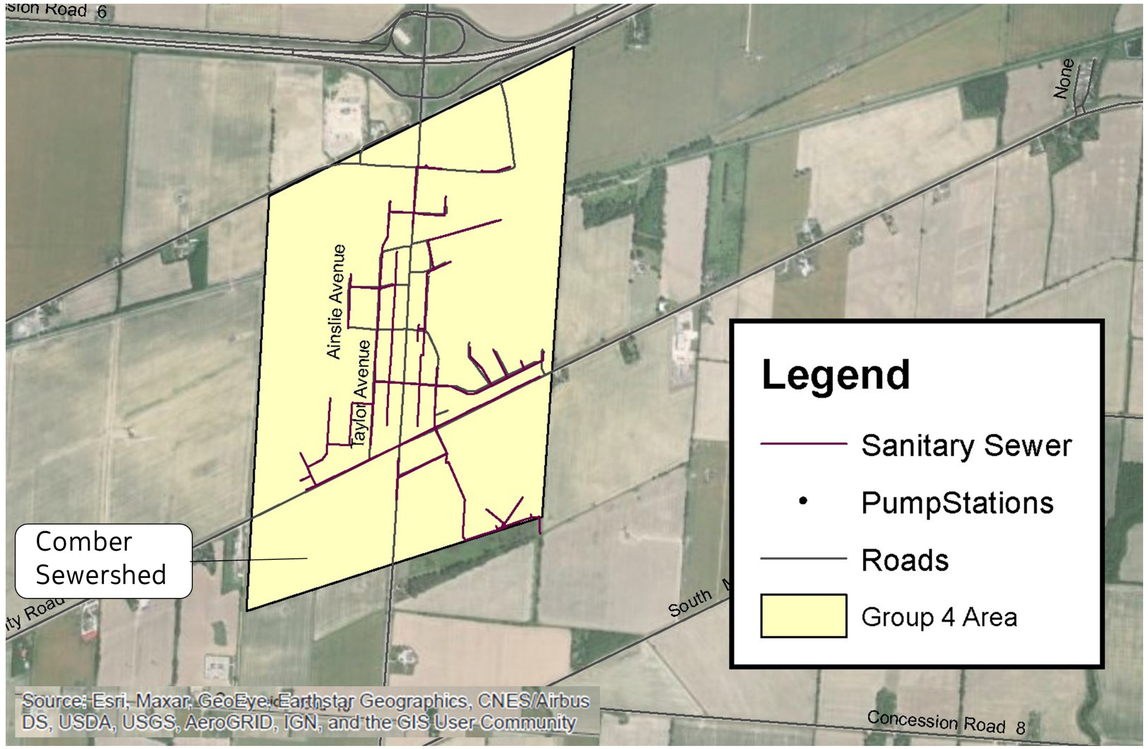
* Maidstone Pump Station 8 upgrades are currently underway, once commissioned some constraints will be resolved. Group 2 receives flows from Group 1 therefore, the extent of the constraints in Group 2 will depend on the Group 1 preferred alternative.

# Group 3 Conveyance Constraints

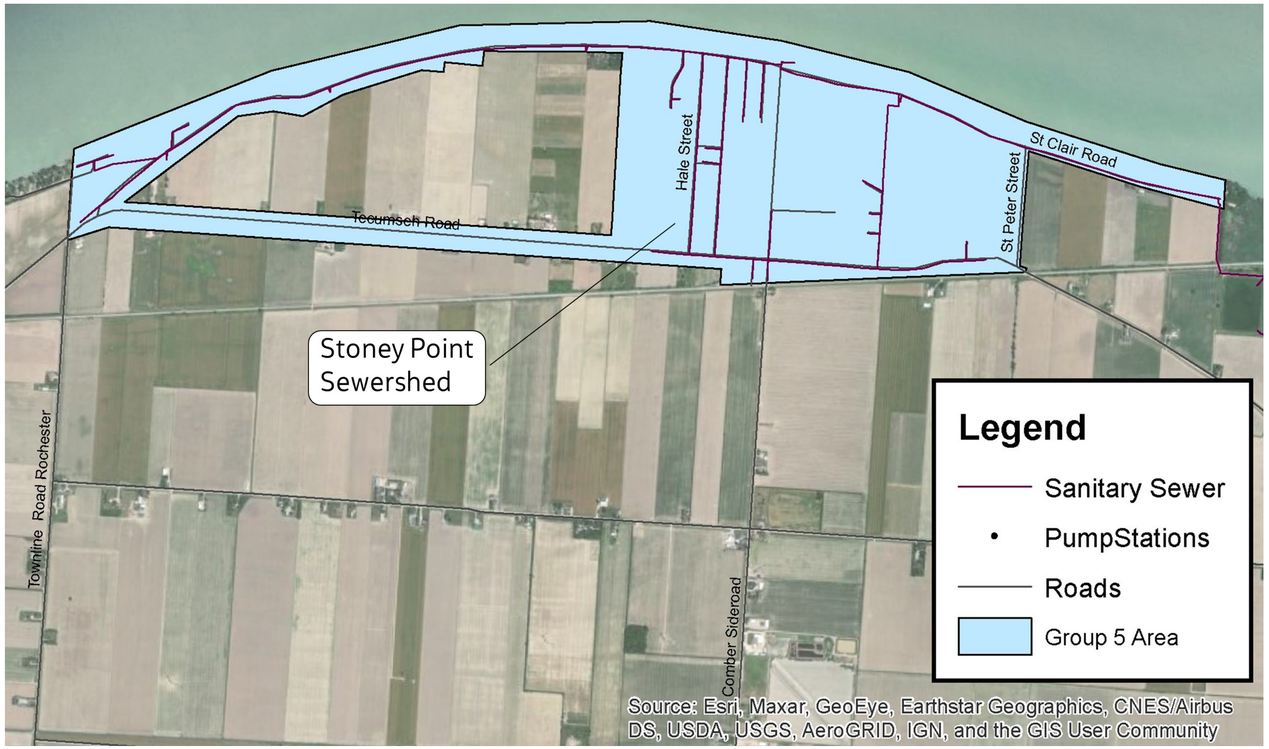

| Group | Constraints | Constrained under Existing Conditions | Constrained under Future (2032) Conditions | Constrained under Future (2042) Conditions |
|---|---|---|---|---|
| 4 | Belle River Pump Station 2 | No** | Yes | Yes |

** This is a condition-based need under existing conditions based on an ongoing condition assessment

# Group 4 Conveyance Constraints




# Group 5 Conveyance Constraints




- There have been several reports of basement flooding with unclear cause, therefore flow monitoring in Stoney Point and Comber sewersheds is recommended to monitor system performance during dry and wet weather conditions.
- Flow monitoring is recommended to be completed prior to implementing treatment alternatives in Stoney Point and Comber.

# Short-list of Conveyance Alternatives

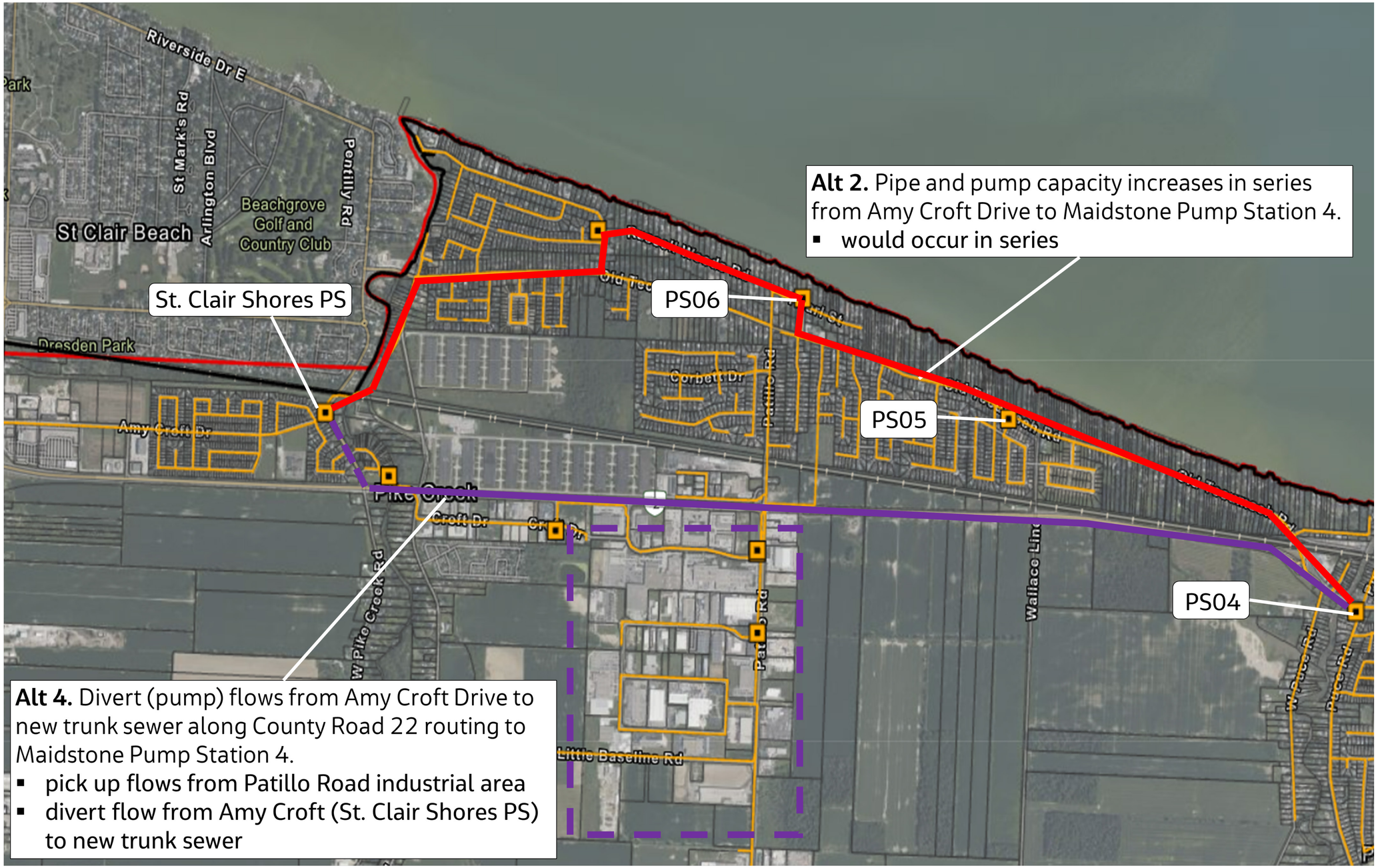
The short-listed alternatives will be subjected to detailed evaluation

| Group | Alternative Number | Alternative Description |
|---|---|---|
| 1 | **Alternative 1** | Do Nothing |
| | **Alternative 2** | Pipe and pump capacity increases in series from Amy Croft Drive to Maidstone Pump Station 4 and local sewer upgrades as necessary. |
| | **Alternative 3** | Offline storage at each pump station with local pipe upgrades as required |
| | **Alternative 4** | Divert (pump) flows from Amy Croft Drive to new trunk sewer along County Road 22 routing to Maidstone Pump Station 4, local sewer upgrades as necessary, and upgrade Amy Croft Drive Trunk Sewer. |
| 2 | **Alternative 1** | Do Nothing |
| | **Alternative 2** | Increase capacity of County Road 22 sewer and local pipe upsizing/twinning/inline storage as required. May require upsizing of Maidstone Pump Station 8* |
| | **Alternative 3** | Offline storage at Maidstone Pump Station 8* combined with Alternative 2 or Alternative 4. |
| | **Alternative 4** | Divert flows from Maidstone Pump Station 4 to new trunk sewer (Twin the Oakwood Trunk Sewer) and local pipe upsizing/twinning/inline storage as required. May require upsizing of Maidstone Pump Station 8* |
| 3 | **Alternative 1** | Do Nothing |
| | **Alternative 2** | Replace Belle River Pump Station 2 forcemain |
| | **Alternative 3** | Replace and upsize Belle River Pump Station 2 forcemain and increase pump capacity |
| | **Alternative 4** | Construct new pump station |

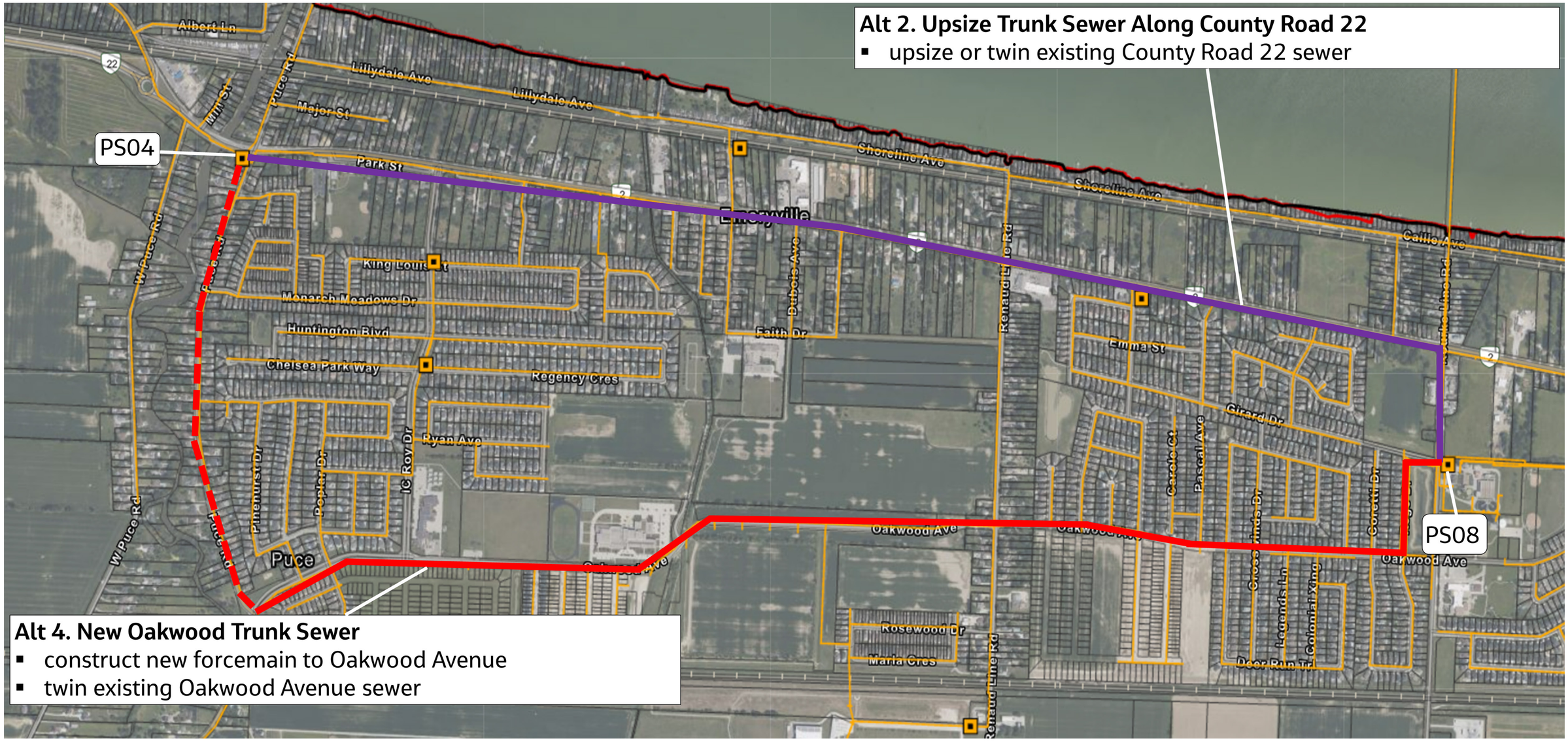
Groups 4 and 5: Further investigation through flow monitoring will be required to identify capacity constraints prior to identifying alternatives.

*Need for upgrade depends on the Group 1 preferred alternative

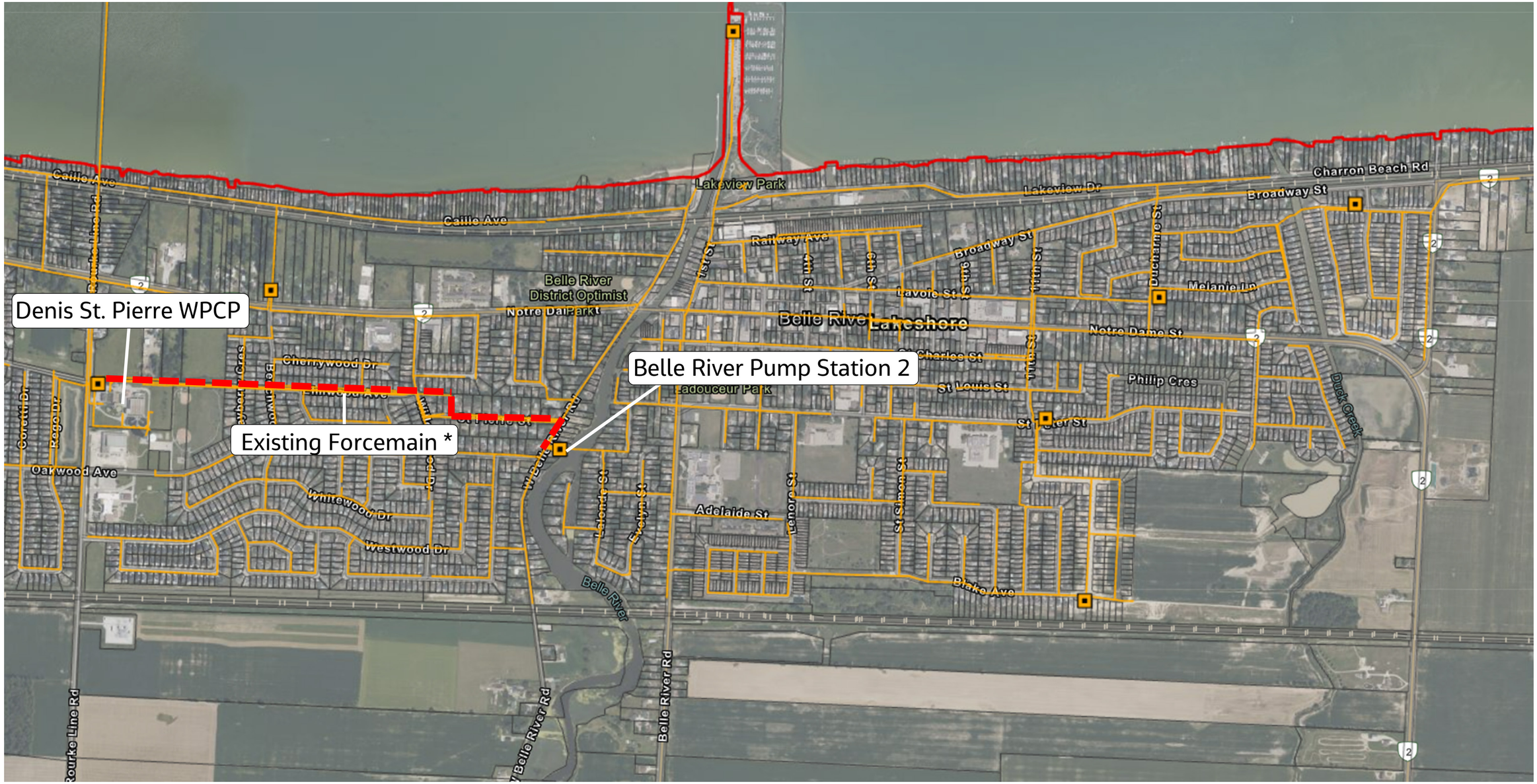
# Conveyance Constraints – Group 1 Alternative 2 and 4



# Conveyance Constraints – Group 2 Alternatives 2 and 4



# Conveyance Constraints Group 3




*If a new forcemain is identified as a preferred alternative, a route will need to be selected

# Overview of Decision-Making Process

## SCREENING EXERCISE

**Long List of Alternative Solutions**

Pass/Fail Criteria are used to screen a **long list of possible solutions** to eliminate options that are not feasible and may not align with Municipal priorities.

## DETAILED EVALUATION

**Short List of Alternative Solutions**

Criteria Representing:
- Technical Environment;
- Natural Environment;
- Social/Cultural Environment; and
- Economic Environment

are **used to evaluate the short-list** of alternatives.

## SCORING OF ALTERNATIVES

**Preferred Solution**

The highest scoring alternative solution is **identified as the preliminary preferred alternative** and presented to the public for input in PIC #3 (Spring 2024).

The implementation plan outlining project prioritization, capital cost estimates, and timelines will be presented in PIC #3.

# Next Steps

**Thank you for your interest in Lakeshore's WWMP Update. Your feedback is an important part of the Master Plan process.**

- Please refer to the Municipality's website for the most up-to-date information related to the WWMP Update and to sign up for the project mailing list: www.Lakeshore.ca/WWMP

- Public Information Centre #3 will be held in the Spring 2024 and will summarize the preferred solutions for the water and wastewater systems.

- A dedicated email address has been set up for this study. To provide your comments or request more information please email LakeshoreWWWMP@jacobs.com

- Alternatively, you can reach the following contacts: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