

Lambton Area Water Supply System (LAWSS)

Master Plan Executive Summary

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2025-01

CIMA+

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The Lambton Area Water Supply System (LAWSS) is owned by its member municipalities and operated by the Ontario Clean Water Agency (OCWA) on behalf of the LAWSS Joint Board of Management. LAWSS currently supplies water to over 100,000 customers within three supply zones that service the City of Sarnia, St. Clair Township, Town of Plympton-Wyoming, Municipality of Lambton Shores (Forest), Township of Warwick, Village of Point Edward, and Municipality of Brooke-Alvinston.

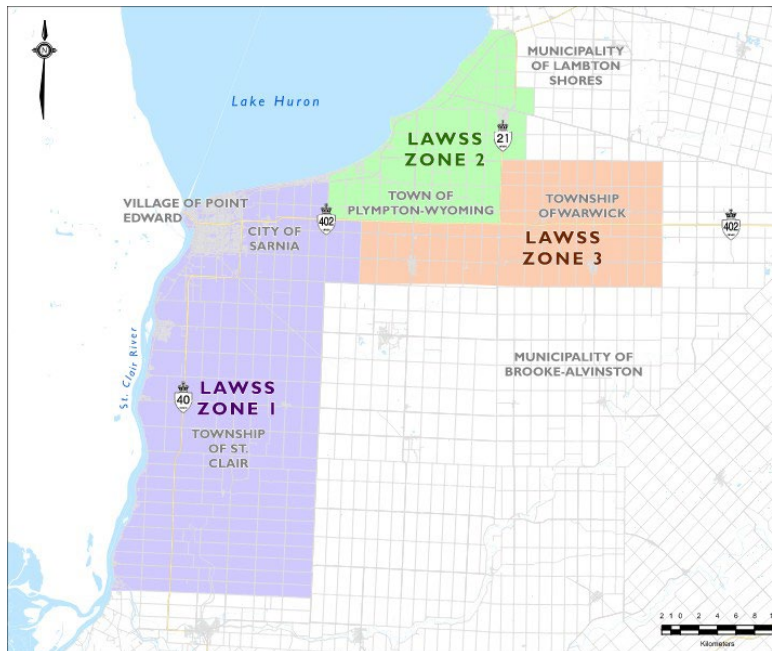


Figure 1: LAWSS service area (master plan update study area)

LAWSS completed an update of its Master Plan update, which included a review of previous capital plans and the identification of additional capital project upgrades needed to sustainably provide municipal water and accommodate future growth in LAWSS member municipalities to a 2046 planning horizon.

Key Challenges Facing LAWSS

LAWSS member municipalities are projecting residential growth trends that will continue throughout the 20-year Master Plan horizon. In addition to higher residential demands, LAWSS may begin to provide water service to new municipal and industrial/commercial/institutional (ICI) customers.

Additional challenges highlighted by LAWSS and OCWA staff include operational difficulties in Zone 1, where changes in discharge pressures at the LAWSS water treatment plant (WTP) can lead to overflowing of the Indian Road Standpipe. Operations staff have also reported experiencing difficulty filling the Watford Standpipe

(Zone 3) at the desired rate during high water demand days, and operational challenges at the LAWSS WTP (Zone 1) due to high lift pump sizing and configuration.

The challenges highlighted above were key considerations in the development and evaluation of Master Plan solution alternatives. Hydraulic analysis was completed under existing (2024), 2036, and 2046 demand scenarios to identify additional existing and future servicing challenges and potential future constraints.

Master Plan Update Recommendations

Table 1 below summarizes the preferred solution alternatives identified in the updated Master Plan to address system challenges and meet current and future servicing requirements. Additional upgrades and future studies recommended in the updated Master Plan are also included.

Table 1: Summary of Capital Projects and Studies Recommended in the Updated LAWSS Master Plan

Zone	Description	Capital Cost Estimate (-15%/+30%)	Trigger Year or Condition
1	Zone 1 control programming updates and testing (Increase pressure at LAWSS Water Treatment Plant, increase fill rate at West Lambton Pumping Station Reservoir)	\$100K	Operational trials to commence after completion of planned West Lambton Pumping Station upgrades
2 ¹	Full Forest feedermain twin to subsystem north end (see Figure 2)	\$89.1M	Phase 1: 2036 Phase 2: 2046
3	New Booster Pumping Station (BPS) and Reservoir and feedermain (see Figure 3)	\$65.1M	BPS and Reservoir: 2046 Feedermain: 2046+
1	LAWSS Water Treatment Plant Pump Optimization	\$16.4M	Phased, beginning in 2027
2 & 3	East Lambton Booster Station Pump Upgrades (restore firm pumping capacity)	\$1.7M	Immediate pump testing Upgrades in 2030, or sooner
1	LAWSS Water Treatment Plant Capacity Study	\$150K (include findings in next Master Plan)	2030
3	Watford Flow Testing Study	\$10K	2026

Notes:

- 1) Upgrades in Zone 2 are only required if Chippewas of Kettle and Stony Point First Nation connect to LAWSS

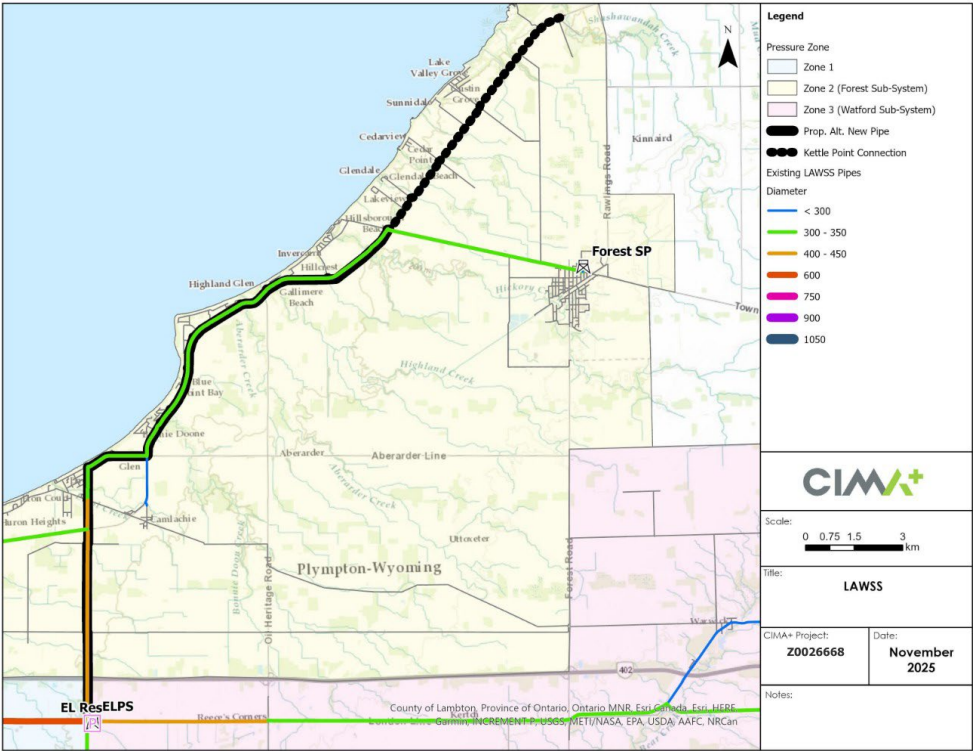


Figure 2: Map of Zone 2 Preferred Alternative

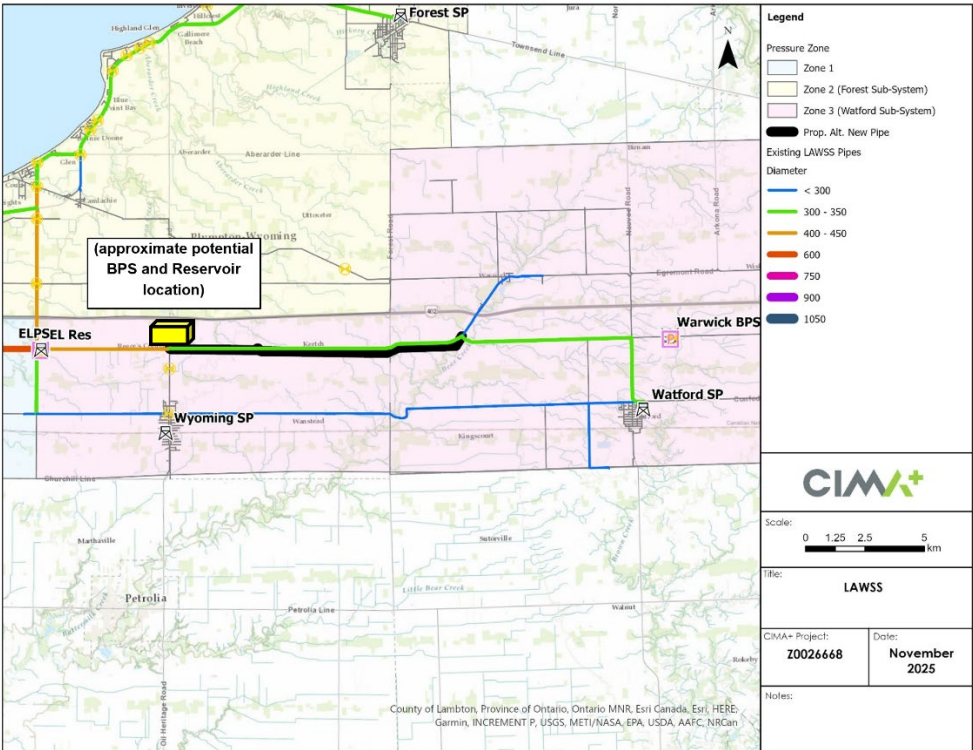


Figure 3: Map of Zone 3 Preferred Alternative

Recommended timelines and high level cost estimates of several capital projects proposed in the 2021 LAWSS Master Plan or separate subsequent studies were also updated in parallel with the analysis of new alternative solutions. These projects are outside the scope of this Master Plan Class EA, but key project details were reviewed and updated for planning purposes (summarized in Table 2 below).

Table 2: Summary of Updated Costing and Timing for Planned Upgrades

Zone	Project Description	Updated Capital Cost Estimate	Recommended Implementation Timing or Trigger Condition
1	West Lambton Pump Station Modifications (Interior Upgrades) (1)	\$7–\$10M	Detailed engineering underway, construction planned for 2027
1	Grid Reinforcement and Transmission Main Twinning (separate from LAWSS Master Plan)	\$172M	Before 2046 ⁽²⁾
3	East Lambton Booster Station fill line upgrades (New 350mm transmission main on London Line)	\$5.1M	Detailed engineering complete, construction approved for 2026

Notes:

- 1) Cost of reservoir upgrades (already complete) not included
- 2) With revised agreements established for new and existing industrial / commercial customers.

The information provided in this report constitutes an Approach #1 Master Plan analysis. Projects that are exempt from the Municipal Class Environmental Assessment (MCEA) process can be considered to have met the requirements for public and stakeholder consultation to allow initiation of the design and construction phase (i.e., Schedule A/A+ projects). Proposed projects that fall under Schedule B or C will undergo a separate MCEA (or MCEA addendum, if applicable) before implementation. Site-specific studies, including archaeological assessments, cultural heritage studies, and natural environment studies, will be completed as part of those assessments as required.

Schedule A/A+ and Other Projects Not Subject to Further MCEA Requirements

No additional analysis under the MCEA process is anticipated to be required for the following projects (proposed in either the previous or current Master Plan update):

- East Lambton Booster Station fill line upgrades (proposed under the 2021 Master Plan)
- West Lambton Pumping Station modifications (proposed under the 2021 Master Plan)
- East Lambton Booster Station pump upgrades to restore firm capacity – Schedule A/A+
- LAWSS Water Treatment Plant Pump Optimization (discussed separately in Appendix B of the Master Plan Report) – Schedule A/A+
- Zone 1 control programming updates (Increase pressure at WTP, increase fill rate at WLPS Reservoir) – Schedule A/A+
- New Zone 2 twin feedermain to subsystem north end – Schedule A/A+

Schedule B and C projects

The following projects would require a Schedule B or C MCEA (or addendum, if applicable) before design and implementation, as described:

- New Zone 2 twin feedermain to subsystem north end
 - Schedule B if the feedermain cannot be constructed fully within existing road allowances or existing utility corridors (situation not anticipated)
- New Zone 3 booster pump station and reservoir
 - Schedule B if new facility is not located in or adjacent to an environmentally sensitive natural area, residential or other sensitive land use, or on land with cultural heritage or archaeological potential.
 - Schedule C, otherwise



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