Lake Huron
Primary Water Supply System

Lake Huron Primary Water Supply System Master Plan

Public Information Centre

June 18th, 2025, 6 p.m.

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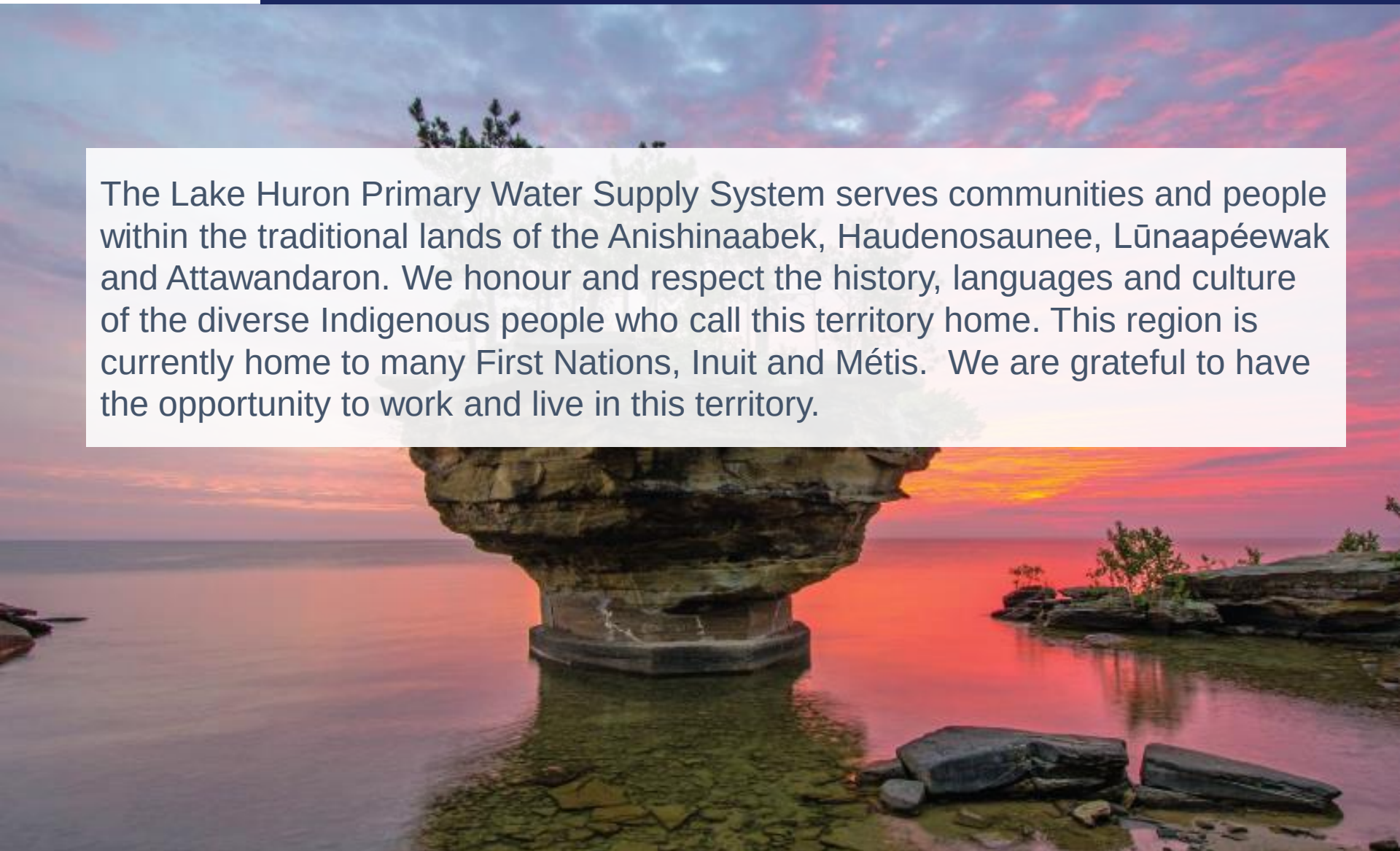
Land Acknowledgement



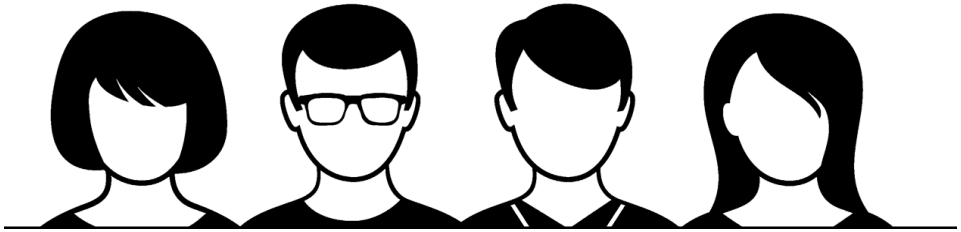
The Lake Huron Primary Water Supply System serves communities and people within the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Attawandaron. We honour and respect the history, languages and culture of the diverse Indigenous people who call this territory home. This region is currently home to many First Nations, Inuit and Métis. We are grateful to have the opportunity to work and live in this territory.

Project Team Introductions

Marcy McKillop
Lake Huron Primary Water Supply System
Environmental Services Engineer

Ryan Armstrong
Lake Huron Primary Water Supply System
Asset Management Coordinator

Billy Haklander
Lake Huron Primary Water Supply System
Senior Manager – Capital Programs



Benny Wan
AECOM
Senior Technical Director – Hydraulic Modelling

Paul Adams
AECOM
Environmental Assessment Planner

Matt Simons
AECOM
Process Engineer

Tracey McKenna
AECOM
Public Information Centre Facilitator

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Background

- Lake Huron water treatment, transmission and storage facilities were originally constructed in the 1960's by the Ontario Water Resources Commission
- The province operated and maintained this infrastructure until 2000 when ownership of the regional water system was transferred to the municipalities served by the infrastructure, through the *Water and Sewage Systems Transfer Act*
- The Transfer Order establishes that each municipality that benefits from the regional water system has an undivided interest in the system
- No division of shareholdings or capacity allocation of the system between the municipalities served.

- Multi-barrier approach to drinking water protection

Engagement Guidelines

- All attendees cameras and microphones will be disabled for the duration of the Public Information Centre, including the Q&A session. The chat function has been disabled.

- Please use the Q&A button to submit a question at any time. All questions will be treated as anonymous.

- All questions will be answered after the presentation, during the Q&A Session. The facilitator may combine similar questions during the Q&A session. Feel free to submit any follow-up questions as needed.

- This meeting is being recorded and will be posted online by June 20 at: **https://www.huronelginwater.ca/lake-huron-primary-water-supply-system-master-plan/**

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Agenda

- Introductions and purpose.
- Presentation (approximately 45 minutes).
- Questions and answer period.

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Public Information Centre Purpose

- Meet the Project Team.
- Introduce the Master Plan.
- Overview of the Municipal Class Environmental Assessment process.
- Review Problem and Opportunity.
- Present Servicing Strategy Options,
- Review recommendations.
- Obtain feedback.

Municipal Class Environmental Assessment

- The Lake Huron Primary Water Supply System has elected to follow the Municipal Class Environmental Assessment process for this Master Plan
- This study is following the Master Plan Approach #1 process.
- Master Plans using Approach #1 follow Phases 1 and 2 of Municipal Class Environmental Assessment Process

- A Master Plan Report identifying all required projects, including Schedule B and C projects, will be prepared for public review and comment.
- The Master Plan is updated every 5 years.

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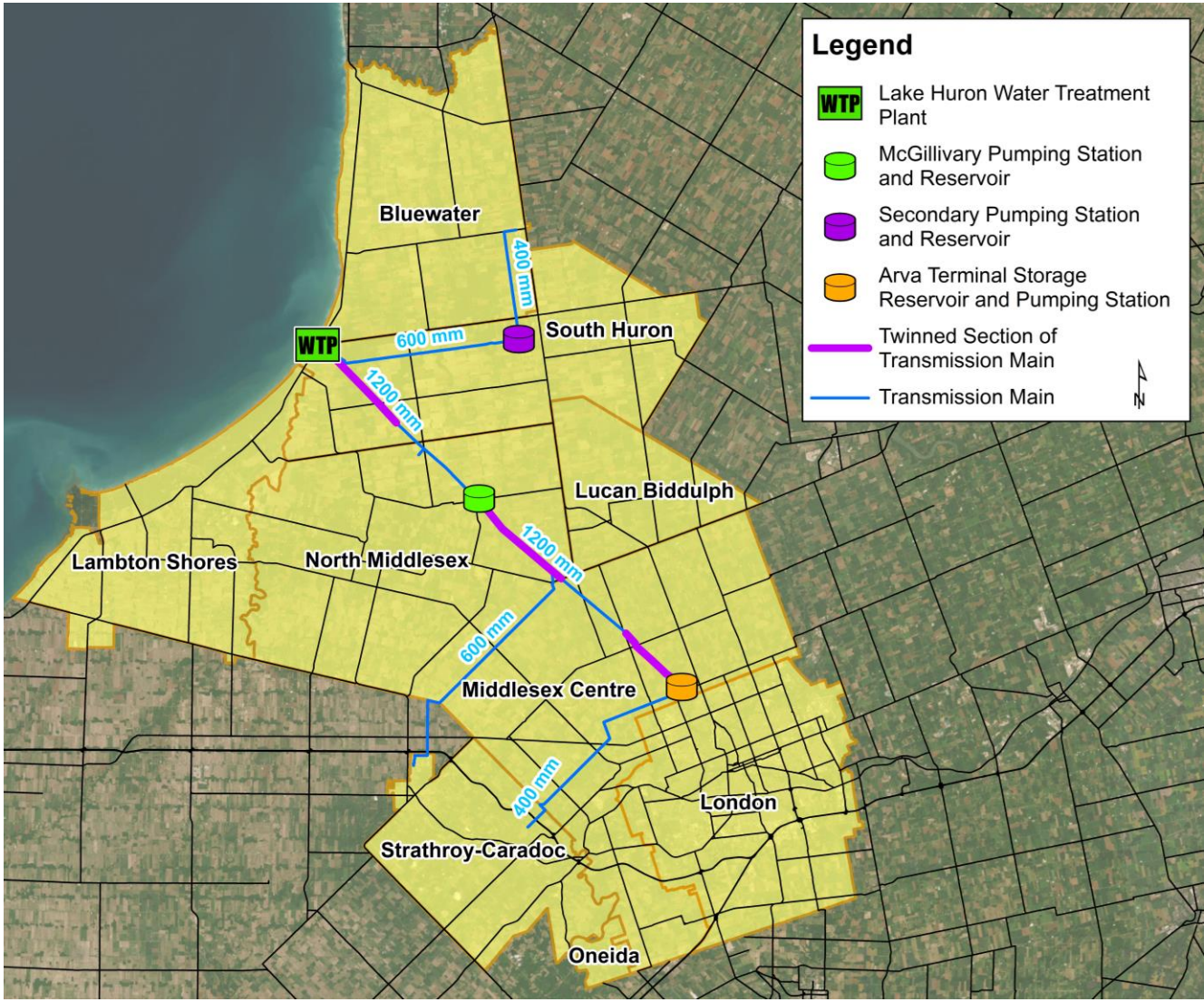
System Overview

- The Lake Huron Primary Water Supply System supplies drinking water to:
  - City of London,
  - Municipality of Bluewater,
  - Municipality of Lambton Shores,
  - Municipality of Lucan-Biddulph,
  - Municipality of Middlesex Centre,
  - Municipality of North Middlesex,
  - Municipality of South Huron, and
  - Municipality of Strathroy-Caradoc.
- Works are ongoing to provide Oneida Nation of the Thames with drinking water (2026).



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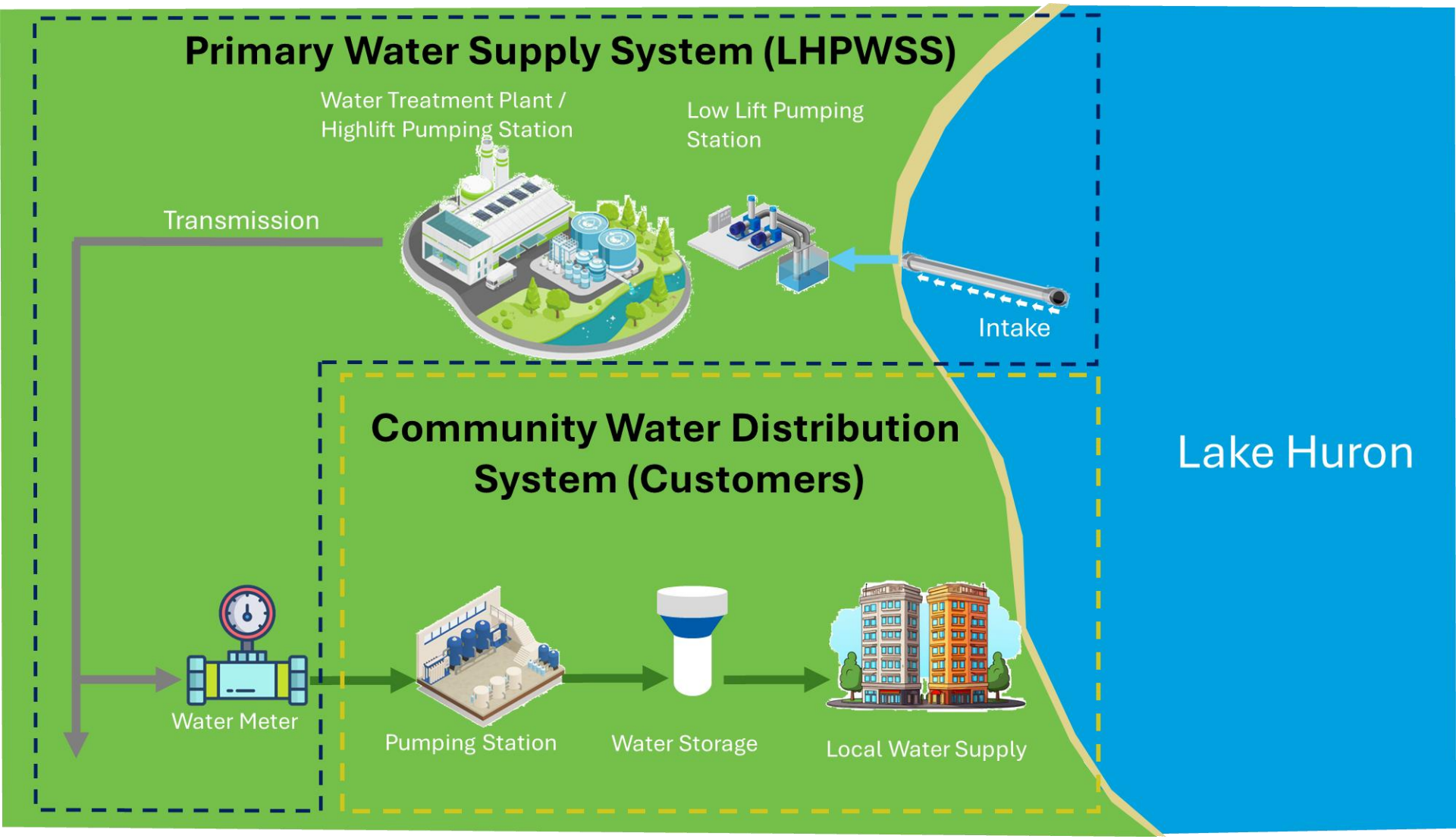
Typical Water Supply System



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Lake Huron Water Treatment Plant

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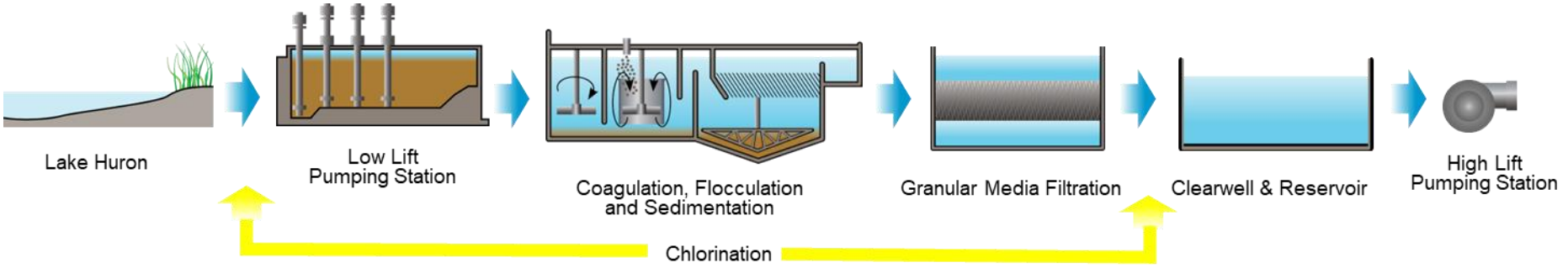
Water Treatment Process



- The Lake Huron Water Treatment Plant has a rated capacity of 340 ML/d. It is a conventional water treatment plant with coagulation, flocculation, sedimentation, dual media filtration and chlorination.
- Solids captured in the sedimentation process and backwashes of granular media filtration are collected at an onsite residue management facility, dewatered and disposed of at a landfill.
- The treatment system and water quality is continuously monitored using analyzers and computerized Supervisor Control and Data Acquisition (SCADA) system.
- A range of chemicals are used in various treatment processes.
- The facility is operated and maintained in accordance with Municipal Drinking Water Licence and provincial regulations

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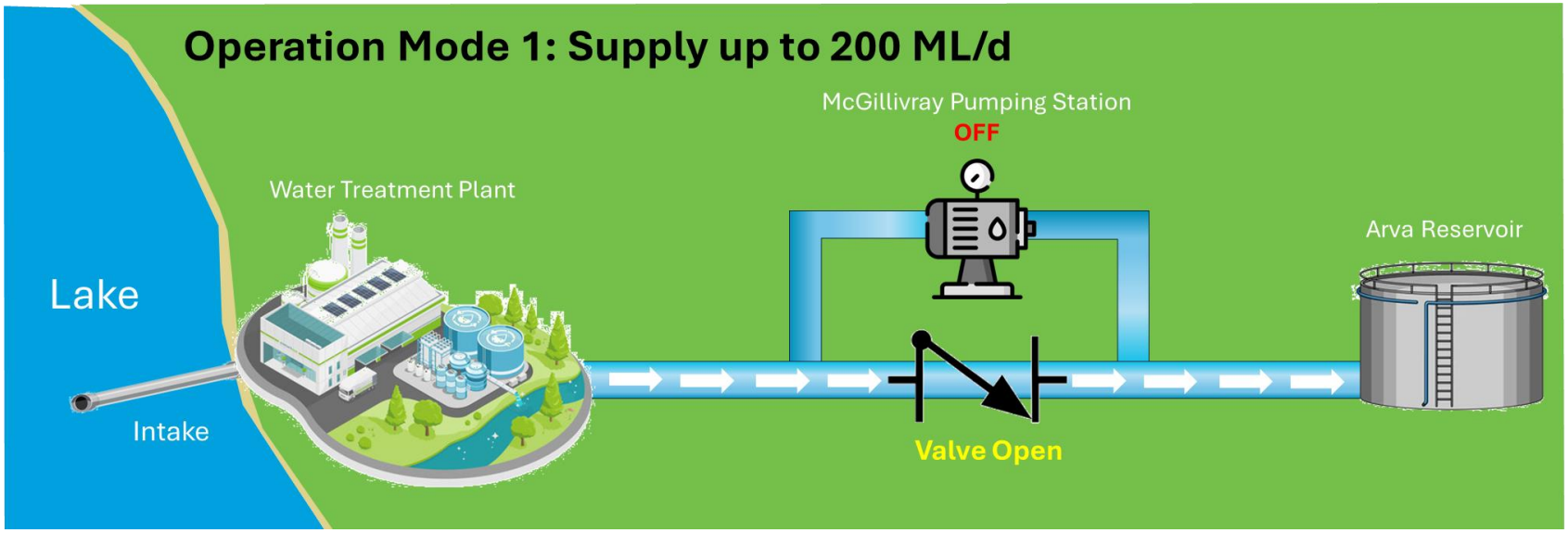
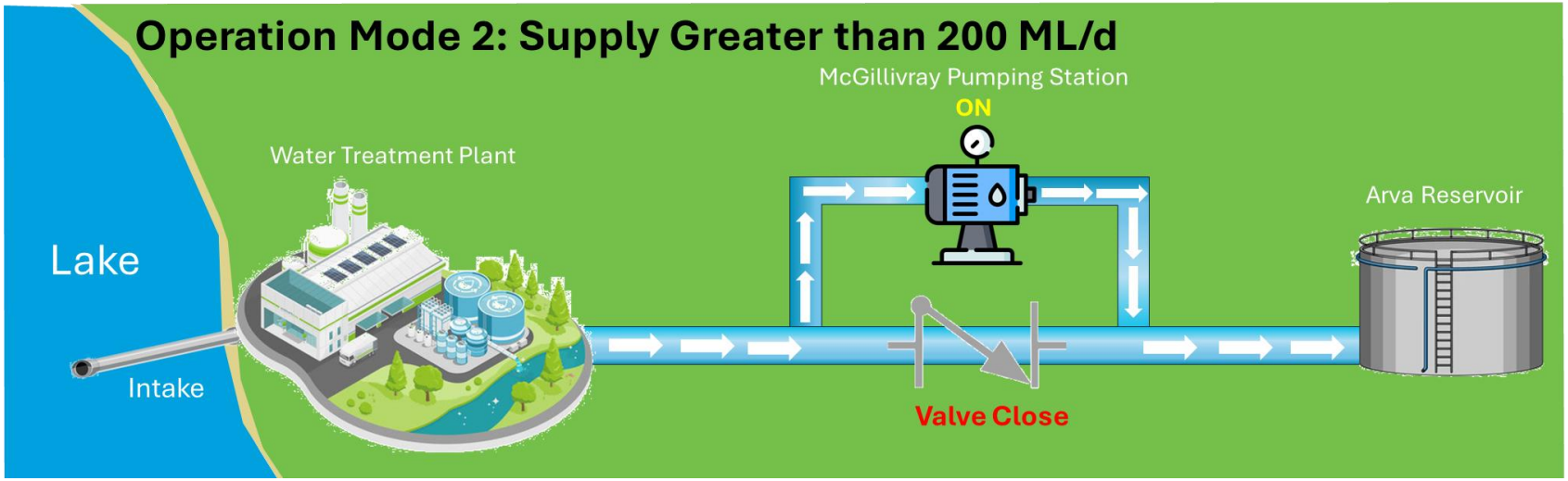
Lake Huron Primary Water Supply System – Pumping and Transmission Operation





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Problem Opportunity Statement

- Develop and assess a range of water system strategies considered to support existing servicing and account for reasonably expected near, mid, and long-term future growth projections to the **planning horizon of 2046**, including servicing to new communities.
- Determine operational challenges based on the system hydraulics review related to projected future demands and growth-related requirements for treatment, pumping, transmission infrastructure.
- Review and confirm the utility's operational storage needs.
- Assess primary transmission pipeline redundancy, including the approximate 19 kilometres of non-twinned transmission main, and investigate alternative solutions.

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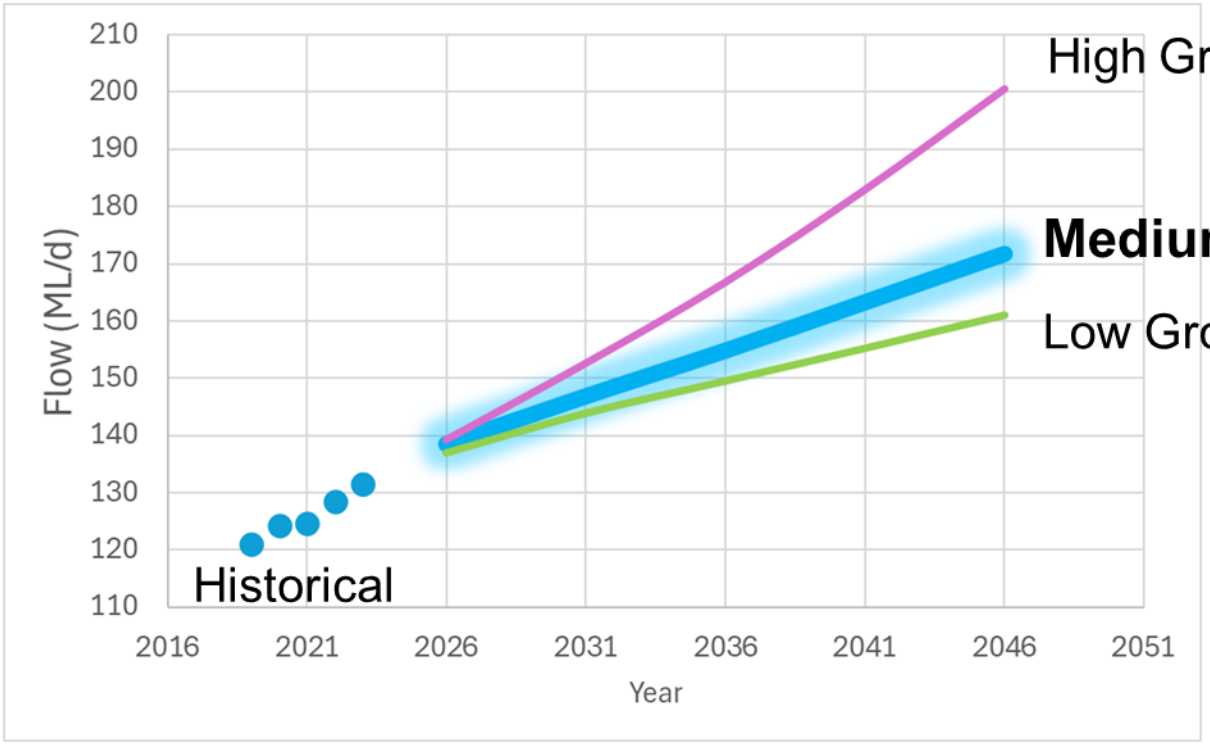
System Demand Forecast – Growth Scenarios

Year	2026	2031	2036	2041	2046
Average Day Demand Projected Flow – Medium Growth Scenario (in Millon Litres per day)	139	147	155	163	172



Confirm supply capability in LHPWSS to meet projected growth in water supply

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System Assessment

- Treatment
- Pumping
- Transmission
- Storage

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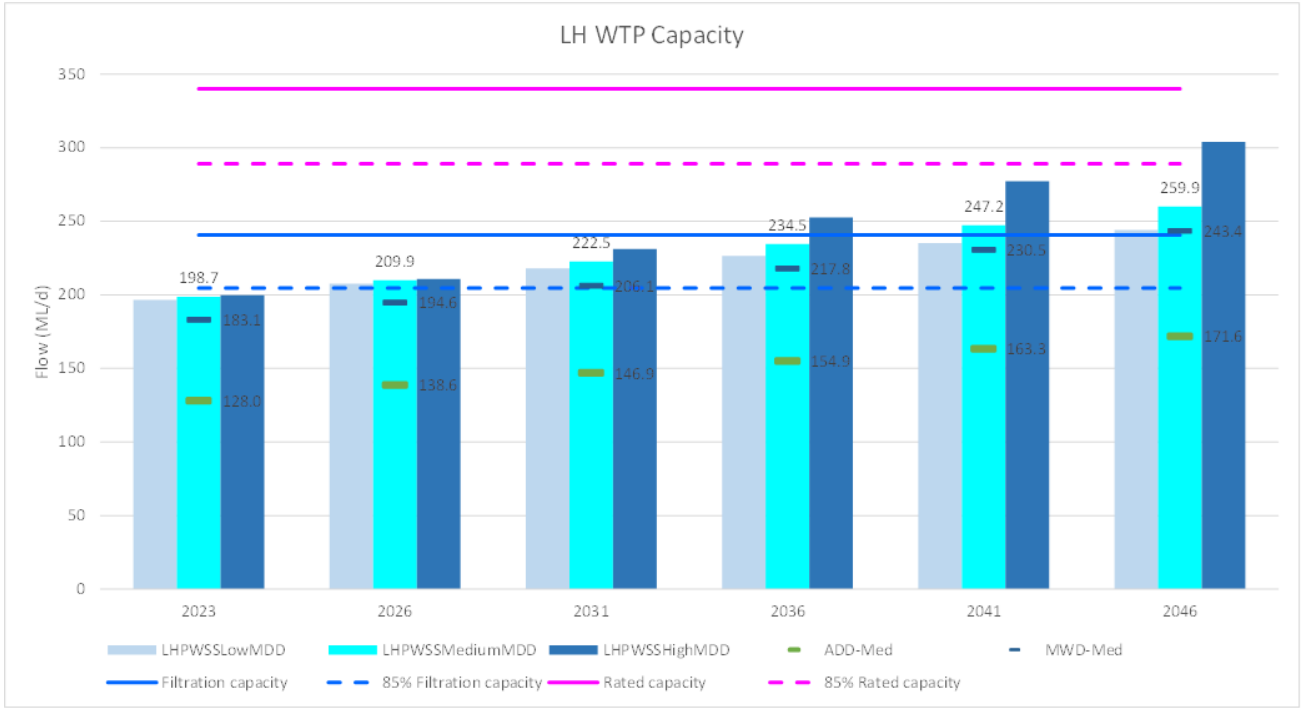
System Assessment – Treatment

- The rated capacity of the treatment plant of 340 ML/d is sufficient for the planning horizon (2046)
- The treatment plant is capable of meeting capacity of 240 ML/d, based on recently completed stress testing.
- Intake pipe and low lift pumping capacity are both sufficient.
- Some treatment processes were found to be limited meeting the maximum week demand at/beyond year 2041.
- A previous study indicates that much of the plant's concrete will reach its expected life in Year 2046. Condition assessment and rehabilitation may be required.



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System Assessment – Pumping

- Lake Huron Water Treatment Plant High Lift Pumps:
  - Pumping capacity is sufficient to meet the projected flows within design horizon (2046).
  - Four pumps were recently installed in 2022. Two pumps are existing to the plant and are expected to require replacement in the planning period.
- McGillivray Pump Station:
  - Pumping capacity is sufficient to meet the projected flows within design horizon (2046).
  - All four pumps are existing to the pumping station and are expected to require replacement in the planning period.
- Exeter-Hensall and Komoka Mt. Brydges Pumping Stations:
  - Pumping capacity is sufficient to meet the expected flows within design horizon (2046).

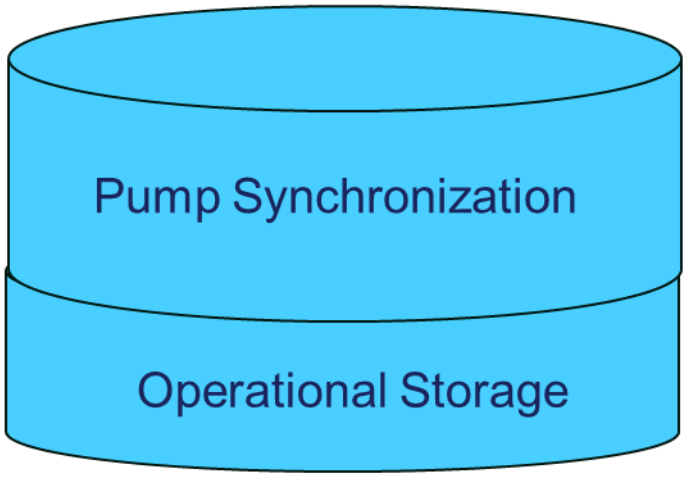
System Assessment –Transmission

- Lake Huron Water Treatment Plant to Arva Terminal Reservoir transmission mains:
  - Transmission main upgrades are not required for projected growth; however, age and condition will most likely dictate that small sections of the transmission main that are proactively replaced
    - LHPWSS continuously monitors the transmission main between Lake Huron Water Treatment Plant and Arva Terminal Reservoir. This monitoring provides insight to a proactive pipe replacement program.
  - It is recommended that planning beyond the 20-year planning horizon be completed to develop a comprehensive pipeline strategy considering reliability, redundancy and risk
- Other transmission mains in the system (Exeter-Hensall, Strathroy-Caradoc, Komoka-Mt. Brydges transmission mains) will have sufficient capacity to supply demands within the planning horizon.

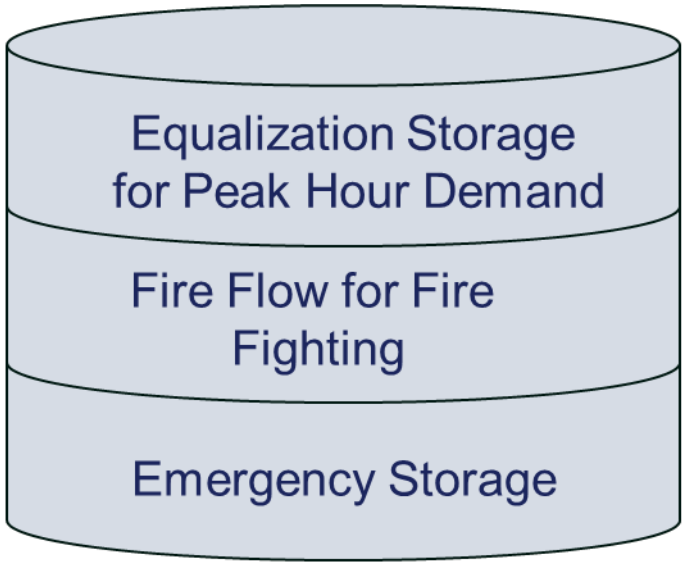
Storage Evaluation

- The Lake Huron Primary Water Supply System operates as a utility supplying water to customers/communities, and storage is required for flexibility of the utility's operations

- Communities ensure sufficient distribution storage is available to meet Ministry of the Environment Guidelines



Lake Huron Primary Water Supply Storage



Community Water Distribution System Storage

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System Assessment – Storage

- Arva Terminal Reservoir and Exeter-Hensall Reservoir have sufficient capacity within the planning horizon.
- Existing pumping facilities are currently sequenced to minimize storage needs for Lake Huron Water Treatment Plant onsite storage and McGillivray Reservoir.
    - If operation was not synchronized, more storage would be required at both facilities.
    - Existing storage capacity in both facilities is sufficient to accommodate their pumping capacities.

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Alternative Water Servicing Strategies

Planning Alternative	Screening Result	Alternatives for Further Study
1. Do Nothing • Does not address the problem opportunity statement.	Not Carried Forward.	Screened from additional study.
2. Limit Growth / Soley Optimize the Existing System (with no new Infrastructure) • While limiting growth and only optimizing the existing system would reduce the need for upgrades and improvements to the water distribution systems it does not address the problem and opportunity Statement, recognize the Regional Water Supply does not have the jurisdiction to implement such measures on member Municipalities or meet the need for new customers.	Not Carried Forward.	Screened from additional study.
3. Water Conservation/Reduction in Use • Partially addresses the Problem and Opportunity Statement. • Water conservation provides some relief for water treatment and distribution but does not consider future growth and would not be an adequate solution on its own. • Municipalities to continue the water conservation efforts	Not Carried Forward.	Screened from additional study. Encouraged as a best practice for community water systems

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Alternative Water Servicing Strategies cont'd

Planning Alternative	Screening Result	Alternatives for Further Study
4. Water System Improvements (to Rated Capacity) • Addresses the Problem and Opportunity Statement. • Provides ability to accommodate future growth through an upgrade to the current system rated capacity	**Carried Forward**.	**To be studied further**
5. Water System Improvements (Beyond Rated Capacity) • Addresses the Problem and Opportunity Statement. • Provides ability to accommodate future growth through an expansion beyond the current system rated capacity.	Not Carried Forward.	Screened from additional study. Expansion beyond the current system rated capacity is not needed within the planning horizon (to 2046)
6. Alternate Supply Source for Selected Current Customers/Communities • Difficult to implement due to jurisdictional and intra-basin complexities • Requires new water supply agreement(s)	Not Carried Forward.	Screened from additional study.

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Evaluation Criteria

Water servicing alternatives for Strategy No.4 were evaluated against the following criteria

Factor	Criteria	Description
Socio-Economic	• Long Term Impacts to the Community in relation to the utility. • Supports growth and development	• Considerations to potential long- and short-term impacts for the utility, as well as the communities served
Cultural Environment	• Archaeological Resources. • Cultural Heritage landscapes and built heritage resources.	• Disturbance to archaeological sites, cultural heritage landscapes and built cultural heritage resources.
Natural Heritage	• Aquatic environment. • Terrestrial environment. • Species at Risk. • Source water protection.	• Potential Impacts to the Natural Environment due to the construction, operation of new or updated infrastructure. • Intake Protection Zone considerations.
Technical	• Meets future needs. • Drinking water quality. • Maintenance of Service. • Constructability • Legal Jurisdictional	• The ability of the alternatives to meet the current and future needs of the water distribution system and how it can be integrated with the existing system
Economic and Financial	• Project and Operations Changes Costs.	• Costs to construct, maintain and operate the new infrastructure for the distribution system.

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Evaluation of Water System Improvement Alternatives – Evaluation Summary

Water System Improvement Alternative	Evaluation Result	Rationale
Alternative 4A – Optimizing and Upgrading Existing System (with new infrastructures) *Upgrade existing infrastructure(s) to current system rated capacity through various improvements. Optimization of existing system is also included.*	**Carried Forward** 	• Moderate impacts to Natural Heritage • Moderate Impacts to/from Climate Change • Meets the need of current and potential new customers. • Moderate construction complexity. • Straight forward permitting and approvals • Moderate capital cost.
Alternative 4B – New Water Treatment Plant *Replace existing water treatment plant with new plant*	**Not Carried Forward** 	• Property acquisition may be required. • Moderate to high impacts to Natural Heritage. • High impacts to/from Climate Change. • Meets the need of current and potential new customers. • Moderate to High construction complexity. • More stringent permitting and approvals. • Highest capital cost.

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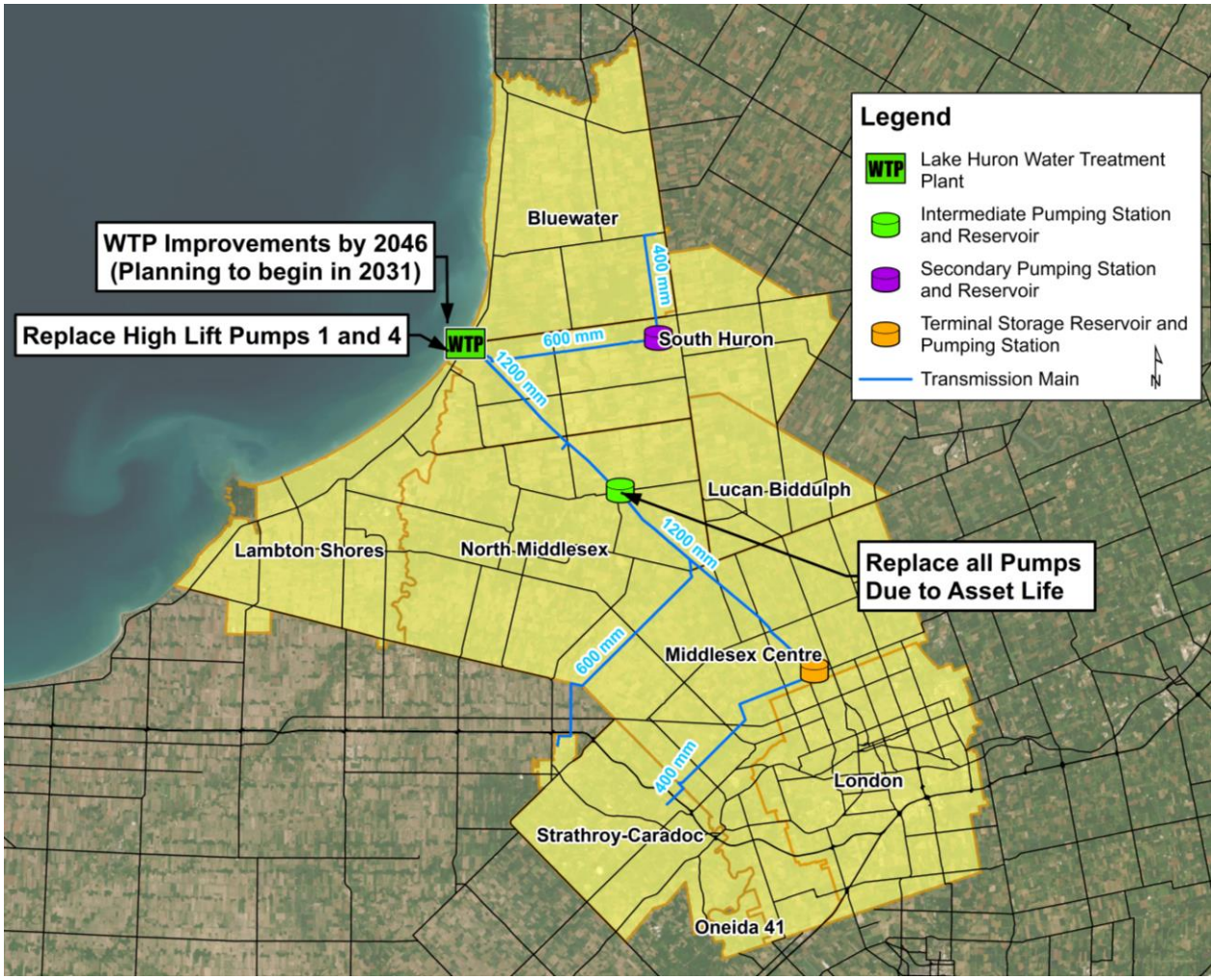
Recommended Water System Improvements

- Treatment Processes:
  - Flocculation Upgrades
  - Clarifier Capacity Expansion
  - Filter and Backwash Upgrades
  - Ultraviolet Disinfection
  - Tank/channel rehabilitations
- Pumping:
  - Pump Replacement of treatment plant high lift pumps (2)
  - Pump replacement of all McGillivray pumps (4)
  - Surge Valve Upgrade in McGillivray Reservoir
- Transmission:
  - Selected transmission mains replacement (approx. $300k per year) through proactive program
  - Chamber Flood Protection and Rehabilitations
  - Air Release Valve Replacements
- Storage:
  - Tank Rehabilitations



*All recommended projects are exempt from the Class Environmental Assessment

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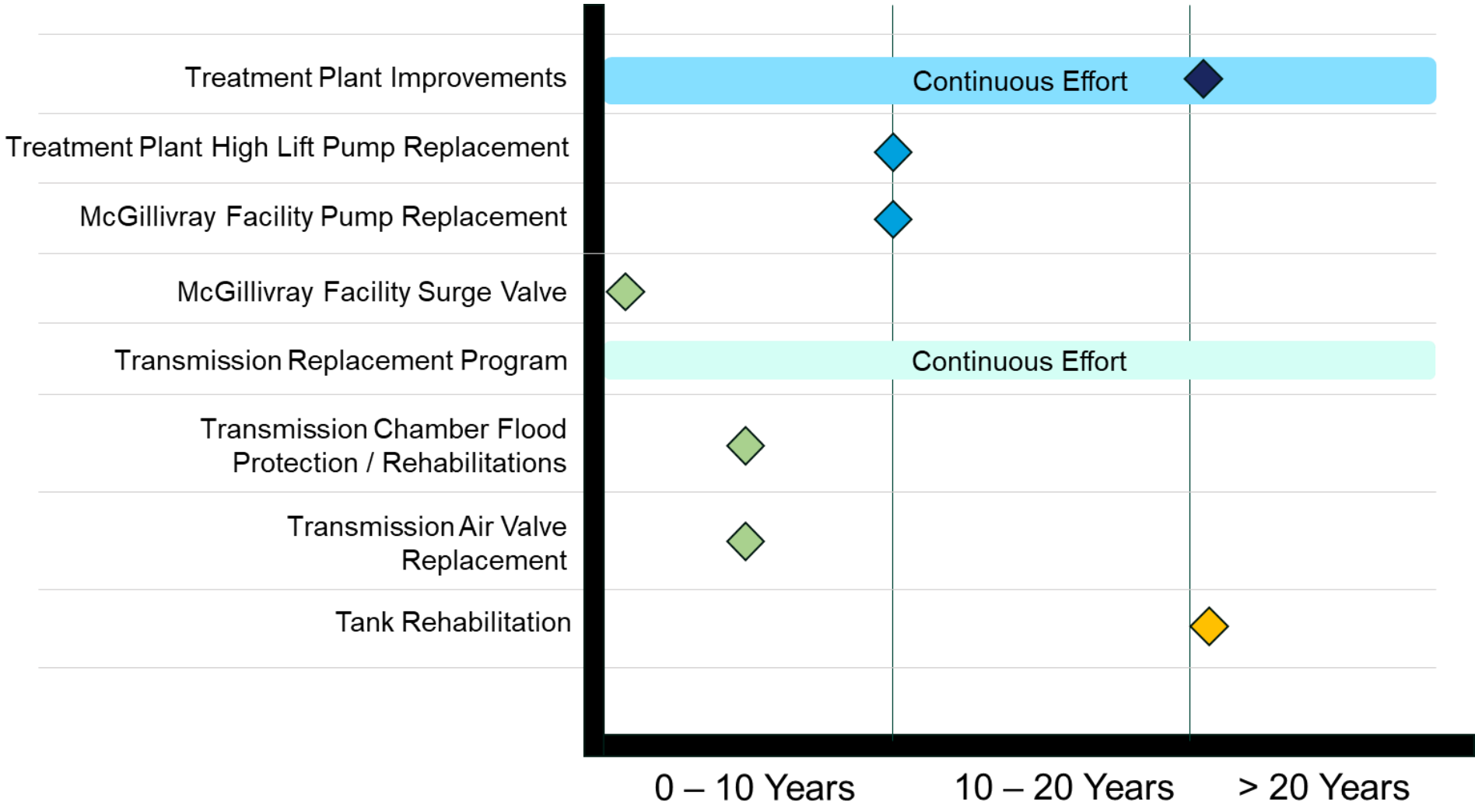
Recommended Capital Program



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Water System Improvements – Water Treatment Plant Upgrades

Recommended Water System Improvements – Future Studies and Review

Treatment :

- Optimization of coagulant dosing strategy
- Optimization of powder activated carbon dosing strategy
- Cold water stress test
- Feasibility study for flocculation and clarifier capacity upgrades
- Feasibility study for filter capacity upgrades, including filter-to-waste and backwash sequence capability
- Ultraviolet disinfection feasibility study

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Pumping, Storage and Transmission :

- Transient Hydraulic Modeling Studies for Secondary Transmission Mains
- Ongoing Monitoring of primary Transmission Mains
- System Reliability and Redundancy Review
- Water Loss Review
- Reservoir Expansion Feasibility Study

System Wide:

- Water Quality Facility Plan Update
- Asset Management Plan Update
- Ongoing Condition Assessment
- Climate Change Resiliency and Adaptation Plan
- Financial Plan Update
- 50 Year Roadmap Study
- Next Master Plan (2029)

All recommended studies/reviews are exempt from the Class Environmental Assessment process

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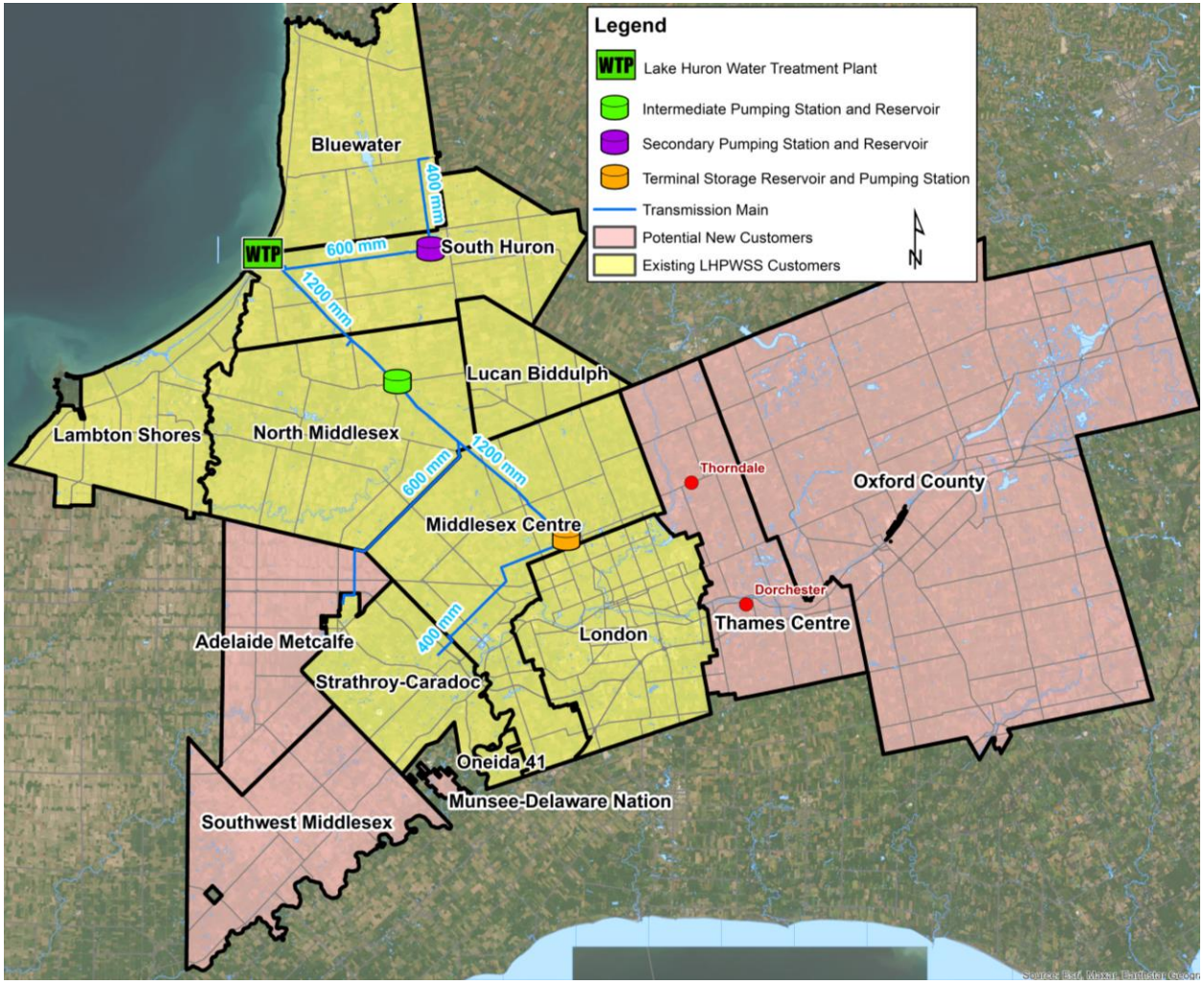
Potential New Customers

The following communities expressed interest in potential water supply from the Lake Huron Primary Water Supply System:

- Oxford County
- Munsee-Delaware First Nation
- Municipality of Thames Centre (Dorchester and Thorndale)
- Municipality of Adelaide-Metcalfe
- Municipality Southwest Middlesex

Additional requirements to accommodate new customers:

- Extension of secondary systems for connection to new communities
- Potential twinning of a portion of the untwined portion of the transmission main and/or some pump capacity upgrades will be required.
- Potential storage capacity increase
- Operational adjustments



* Water demands for these communities were not included in the overall system assessments

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Next Steps

June/July 2025
Collect input from PIC

Receive and consider input from the public, agencies and stakeholders to confirm the preferred alternatives.

Summer 2025
Master Plan Report

Prepare Master Plan Report to fully document the process including all consultation / engagement.

Fall 2025
30-Day Review Period

Report will be available for Public Review for 30-Days on the project website

If no issues are raised within the 30-day review, the Lake Huron Primary Water Supply System can proceed to detailed design and construction of the recommended works as outlined in the Master Plan Report.

Stay Connected

Visit our project website:

https://www.huronelginwater.ca/lake-huron-primary-water-supply-system-master-plan/

where you can:

- Ask questions and leave comments for the project team.
- View the latest project materials.
- Access a recording of this meeting.

You can also reach us any time with comments or questions, using the contact information below. This presentation can be made available in alternative formats upon request.

Please Provide and Questions and/or Comments related to the Public Information Centre by **July 4th, 2025.**

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