

Agenda

Lake Huron Primary Water Supply System

Joint Board of Management

The 4th Meeting of the Lake Huron Primary Water Supply System Joint Board of Management
October 6, 2022, 2:00 PM
Virtual Meeting

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Lake Huron Primary Water Supply System Report

The 3rd Meeting of the Lake Huron Primary Water Supply System Joint Board of Management
June 2, 2022

Attendance: Meeting held remotely on Thursday, June 2, 2022, commencing at 2:01 PM.

PRESENT: M. van Holst (Chair), J. Brennan, A. DeViet, J. Fergusson, S. Hillier, S. Lehman, P. van Meerbergen, P. Walden, J. Wilcox and B. Willard and J. Bunn (Committee Clerk)

ALSO PRESENT: B. Bryans, B. Haklander, A. Henry, M. McKillop, K. Scherr and J. Walker

1. Call to Order

1.1 Disclosures of Pecuniary Interest

That it BE NOTED that no pecuniary interests were disclosed.

2. Adoption of Minutes

2.1 Minutes of the 2nd Meeting held on March 3, 2022

WILLARD AND LEHMAN

That the minutes of the 2nd meeting of the Lake Huron Primary Water Supply System Board of Management, held on March 3, 2022, **BE NOTED AND FILED. CARRIED**

Motion Passed

3. Consent Items

3.1 Quarterly Compliance Report (1st Quarter 2022: January - March)

HILLIER AND DEVIET

That, on the recommendation of the Chief Administrative Officer, the report dated June 2, 2022, with respect to the general, regulatory and contractual obligations of the Lake Huron Primary Water Supply System, for January to March 2022, **BE RECEIVED. CARRIED**

Motion Passed

3.2 Environmental Management System and Quality Management System

HILLIER AND DEVIET

That, on the recommendation of the Chief Administrative Officer, the report dated June 2, 2022, with respect to the Environmental Management System and Quality Management System for the Lake Huron Primary Water Supply System, **BE RECEIVED. CARRIED**

Motion Passed

3.3 Quarterly Operating Financial Status - 1st Quarter 2022

HILLIER AND DEVIET

That, on the recommendation of the Chief Administrative Officer, the report dated June 2, 2022, with respect to the Quarterly Operating Financial Status of the Lake Huron Water Supply System, **BE RECEIVED. CARRIED**

Motion Passed

3.4 Lake Huron Treatment and Transmission Assets - State of the Infrastructure Report

HILLIER AND DEVIET

That, on the recommendation of the Chief Administrative Officer, the report dated June 2, 2022, with respect to information regarding the state of the infrastructure of Lake Huron treatment and transmission assets, **BE RECEIVED. CARRIED**

Motion Passed

3.5 2021 Audited Financial Statement and Auditor's Report

HILLIER AND DEVIET

That, on the recommendation of the Chief Administrative Officer, the 2021 Audited Financial Statement and Auditor's Report for the Lake Huron

Primary Water Supply System, as appended to the report dated June 2, 2022, **BE RECEIVED AND ACCEPTED. CARRIED**

Motion Passed

3.6 Water System Operation - Contract Status Report

HILLIER AND DEVIET

That, on the recommendation of the Chief Administrative Officer, the report dated June 2, 2022, with respect to the status of the contract with the Ontario Clean Water Agency as the contracted operating authority, **BE RECEIVED. CARRIED**

Motion Passed

3.7 Municipal Act - Board Structure

HILLIER AND DEVIET

That, on the recommendation of the Chief Administrative Officer, the following actions be taken with respect to the report, dated June 2, 2022, with respect to the Municipal Act – Board Structure:

- a) the undertaking of a consulting services assignment, on behalf of the benefiting municipalities of the Lake Huron Water Supply System, **BE AUTHORIZED** to review and make recommendations related to the legal risks, liabilities, and financial implications in establishing the regional water system as either a Joint Municipal Services Board or a Municipal Services Corporation;
- b) a Capital Budget of \$200,000 **BE APPROVED** for the consulting services assignment; it being noted that the source of funding for the assignment will be from the Capital Reserve; and,
- c) the above-noted report **BE RECEIVED. CARRIED**

Motion Passed

3.8 Video Surveillance Policy

HILLIER AND DEVIET

That, on the recommendation of the Chief Administrative Officer, the Video Surveillance Policy, as appended to the report dated June 2, 2022, **BE APPROVED. CARRIED**

Motion Passed

3.9 LH1230 Huron High Lift Pump Replacement - Status Update

HILLIER AND DEVIET

That, on the recommendation of the Chief Administrative Officer, the report dated June 2, 2022, with respect to a status update on the LH1230 Huron High Lift Pump Replacements, **BE RECEIVED. CARRIED**

Motion Passed

3.10 LH1317 Distressed Pipe Replacement Program (Pipe 1-162 Repair)

HILLIER AND DEVIET

That, on the recommendation of the Chief Administrative Officer, the report dated June 2, 2022, with respect to the LH1317 Distressed Pipe Replacement Program (Pipe 1-162), **BE RECEIVED. CARRIED**

Motion Passed

3.11 Port Blake Park

HILLIER AND DEVIET

That, on the recommendation of the Chief Administrative Officer, the lot addition of 71111 Bluewater Highway with the park area of the water treatment plant property located at 71155 Bluewater Highway in South Huron, **BE AUTHORIZED. CARRIED**

Motion Passed

4. Items for Discussion

4.1 LH2042 Huron Pipeline 'A' Double Isolation Valve Upgrades Design - Consulting Award

WILLARD AND HILLIER

That, on the recommendation of the Chief Administrative Officer, the following actions be taken with respect to the report, dated June 2, 2022, related to the Huron Pipeline 'A' Double Isolation Valve Upgrades (Project LH2042):

- a) the proposal from Stantec Consulting Ltd., for the completion of the design for the Huron Pipeline 'A' Double Isolation Valve Upgrades, in the amount of \$139,948.50, including contingency (excluding HST), **BE ACCEPTED**; it being noted that Stantec Consulting Ltd. submitted a proposal which meets the Request for Proposal requirements and evaluated as having the best value;
- b) the Chair and the Chief Administrative Officer **BE AUTHORIZED** to execute a consulting services agreement with Stantec Consulting Ltd. for the completion of the design for the Huron Pipeline 'A' Double Isolation Valve Upgrades project; and,
- c) the above-noted report **BE RECEIVED. CARRIED**

Motion Passed

4.2 Oneida Nation of the Thames Water Supply Agreement

WILCOX AND VANMEERBERGEN

That, on the recommendation of the Chief Administrative Officer, the Board Chair and the Chief Administrative Officer **BE AUTHORIZED** to execute a Water Supply Agreement with the Oneida Nation of the Thames, substantially in the form as appended to the report dated June 2, 2022. **CARRIED**

Motion Passed

4.3 LH1408 Oneida Nation of the Thames Transmission Pipeline Municipal Class Environmental Assessment and Preliminary Design - Consultant Award

VANMEERBERGEN AND HILLIER

That, on the recommendation of the Chief Administrative Officer, the following actions be taken with respect to the report, dated June 2, 2022, related to LH1408 Oneida Nation of the Thames Transmission Pipeline Municipal Class Environmental Assessment and Preliminary Design – Consultant Award:

- a) the budget of the Oneida Transmission Pipeline (LH1408) project **BE INCREASED** by \$100,000, for a total budget of \$200,000, with additional funds being provided from the Capital Reserve Fund;
- b) the proposal from Stantec Consulting Ltd., for the completion of the Oneida Nation of the Thames Transmission Pipeline Municipal Class Environmental Assessment and Preliminary Design, in the amount of \$124,307, including contingency (excluding HST), **BE ACCEPTED**, subject to the Chair and the Chief Administrative Officer executing a Water Supply Agreement with Oneida Nation of the Thames; it being noted that Stantec Consulting Ltd. submitted a proposal which meets the Request for Proposal requirements and evaluated as having the best value;
- c) the Chair and the Chief Administrative Officer **BE AUTHORIZED** to execute a consulting services agreement with Stantec Consulting Ltd. for the completion of the Oneida Nation of the Thames Transmission Pipeline Municipal Class Environmental Assessment and Preliminary Design; and,
- d) the above-noted report **BE RECEIVED. CARRIED**

Motion Passed

4.4 LH1901 Water Quality Facility Plan Update - Consultant Award

HILLIER AND WILLARD

That, on the recommendation of the Chief Administrative Officer, the following actions be taken with respect to the report, dated June 2, 2022, related to the LH1901 Water Quality Facility Plan Update – Consultant Award:

- a) the proposal from Stantec Consulting Limited, for the Water Quality Facility Plan Update, in the amount of \$143,658.90, including contingency (excluding HST), **BE ACCEPTED**;
- b) the Chair and the Chief Administrative Officer **BE AUTHORIZED** to execute a consulting services agreement with Stantec Consulting Limited for the completion of a Water Quality Facility Plan Update for the Lake Huron Primary Water Supply System; and,
- c) the above-noted report **BE RECEIVED. CARRIED**

Motion Passed

4.5 LH1243 McGillivray Booster Pumping Station Facility Upgrades - Project Update and Engineering Fees

HILLIER AND WILCOX

That, on the recommendation of the Chief Administrative Officer, the following actions be taken with respect to the report dated June 2, 2022, related to LH1243 McGillivray Booster Pumping Station Facility Upgrades – Project Update and Engineering Fees:

- a) the LH1204 McGillivray HVAC Replacement and LH1258 McGillivray Control Panel Replacement projects **BE CLOSED**, such that the scope of these projects may be managed as part of LH1243 Electrical Upgrades project, with surplus funding in the approximate amount of \$1,877,436 to be released to the Reserve Funds;
- b) the approved budget for LH1243 Electrical Upgrades project **BE INCREASED** by \$1,877,436, for a total budget of \$7,785,00, with the additional funding being drawn from the Reserve Funds;
- c) the existing engineering assignment with Stantec Consulting Ltd., for the HVAC Replacement design services, **BE EXTENDED** at an estimated cost of \$127,115 (excluding HST); and,
- d) the above-noted report **BE RECEIVED. CARRIED**

Motion Passed

4.6 LH1426 Microbial Inactivation and Storage Class Environmental Assessment - Project Status Update

DEVIET AND HILLIER

That, on the recommendation of the Chief Administrative Officer, the report dated June 2, 2022, with respect to the LH1426 Microbial Inactivation and Storage Class Environmental Assessment, **BE RECEIVED. CARRIED**

Motion Passed

4.7 LH1246 Low Lift Window Replacement Project

HILLIER AND BRENNAN

That, on the recommendation of the Chief Administrative Officer, the following actions be taken with respect to the report, dated June 2, 2022, related to the LH1246 Low Lift Window Replacement Project:

- a) a budget increase of \$50,000 **BE APPROVED** for the Low Lift Window Replacement (LH1246) project, for a total approved budget of \$425,000, with the additional funds being provided from the Asset Replacement Reserve Fund; and,
- b) the above-noted report **BE RECEIVED. CARRIED**

Motion Passed

4.8 Pressure Reducing Valves Replacements

HILLIER AND BRENNAN

That, on the recommendation of the Chief Administrative Officer, the following actions be taken with respect to the report, dated June 2, 2022, related to Pressure Reducing Valves Replacement:

- a) the creation of a capital project to replace the existing Pressure Reducing Valves (PRVs) in certain high-pressure areas on the water transmission system **BE AUTHORIZED**, with an approved budget of \$425,000; it being noted that the Asset Replacement Reserve fund will be utilized for the source of funding; and,
- b) the above-noted report **BE RECEIVED. CARRIED**

Motion Passed

4.9 North Middlesex Repayment Agreement

BRENNAN AND WILLARD

That, on the recommendation of the Chief Administrative Officer, the Board Chair and the Chief Administrative Officer **BE AUTHORIZED** to execute a Repayment Agreement with the Municipality of North Middlesex, substantially in the form as appended to the report dated June 2, 2022. **CARRIED**

Motion Passed

5. Deferred Matters/Additional Business

None.

6. Next Meeting Date

October 6, 2022

7. Adjournment

The meeting adjourned at 2:30 PM.

To: Chair and Members, Board of Management
Lake Huron Primary Water Supply System

From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Subject: Quarterly Compliance Report (2nd Quarter 2022: April - June)

RECOMMENDATION

That the Quarterly Compliance report with respect to the general, regulatory and contractual obligations of the Lake Huron Primary Water Supply System **BE RECEIVED** for the information of the Board of Management; it being noted that there were no Adverse Water Quality Incidents reported in the 2nd quarter of 2022.

BACKGROUND

Pursuant to Board of Management resolution, this Compliance Report is prepared on a quarterly basis to report on general, regulatory and contractual compliance issues relating to the regional water system. For clarity, the content of this report is presented in two basic areas, namely regulatory and contractual, and does not intend to portray an order of importance or sensitivity nor is it a complete list of all applicable regulatory and contractual obligations.

DISCUSSION

Regulatory Issues

Recent Regulatory Changes: At the time of drafting this report, there were no new regulatory changes for this reporting period which may significantly impact the Lake Huron Primary Water Supply System (LHPWSS).

New Environmental Registry of Ontario (ERO) Postings: At the time of drafting this report, there were no new postings on the ERO that may have a significant impact on the LHPWSS.

Quarterly Water Quality Reports: The [Water Quality Quarterly Report](#) for the period of April 1 – June 30, 2022, was completed by the operating authority, and is posted on the Water Systems' website for public information.

Note: In order to better comply with the *Accessibility for Ontarians with Disabilities Act, 2005*, the detailed tables of water quality test results which were previously appended to this Report have been removed. The full list of test results of drinking water quality parameters is posted on the water system's website and available in print at the Board's Administration Office in London upon request. In addition, detailed water quality information is also published within the water system's Annual Report required by O.Reg. 170/03 under the *Safe Drinking Water Act*.



Lake Huron
Primary Water Supply System

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File No.:

Adverse Water Quality Incidents (AWQIs): There were no AWQI reported by the operating authority or the third-party accredited laboratory during this quarter.

Compliance Inspections: There were no compliance inspections conducted during the reporting period.

Contractual Issues

ARTICLE 3, “Operation and Maintenance of the Facilities – General”:

Board staff informally meets with OCWA on a monthly basis to discuss operations and maintenance related issues, and formally on a quarterly basis to review contractual performance. The 2022 second quarter Contract Report was received from OCWA on July 29, 2022, and was discussed at the quarterly administration meeting between Board staff and OCWA on August 11, 2022. Copies of the monthly Operations and Maintenance Reports, and quarterly Contract Reports are available at the Board’s Administration Office in London upon request.

Prepared by: Erin McLeod
Quality Assurance & Compliance Manager

Submitted by: Andrew Henry, P. Eng.,
Director, Regional Water

Recommended by: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer



To: Chair and Members, Board of Management
Lake Huron Primary Water Supply System

From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Subject: Environmental Management System and Quality Management System

RECOMMENDATION

That the following report with respect to the Environmental Management System and Quality Management System for the Lake Huron Primary Water Supply System **BE RECEIVED** for information.

BACKGROUND

Environmental Management System (EMS)

The Lake Huron Primary Water Supply System (LHPWSS) has an Environmental Management System (EMS) which has been registered to the ISO 14001 standard since 2003. The LHPWSS underwent a three-year registration audit in October 2020 and was recommended for registration to the ISO 14001:2015 standard for a three-year period (ending in 2023).

The continued utilization and registration of the EMS to the ISO 14001 standard is a requirement of the Service Agreement with Ontario Clean Water Agency (OCWA), the contracted Operating Authority for the LHPWSS.

Quality Management System (QMS)

In 2006, the Drinking Water Quality Management Standard (DWQMS) was integrated with the existing EMS and the combined EMS/QMS is maintained by the contracted Operating Authority. The *Safe Drinking Water Act* (SDWA) and the water system's Municipal Drinking Water License (MDWL) require that an accredited Operating Authority be in operational charge of the drinking water system. In order to become accredited, the Operating Authority must utilize and maintain an Operational Plan that meets the requirements of the DWQMS and must undergo an external accreditation audit every three years.

OCWA received full scope DWQMS re-accreditation in November 2019 and is currently accredited for the three-year period ending in 2022.

DISCUSSION

Management Review

The documented EMS/QMS and its performance requires Management Review by Top Management a minimum of once every calendar year to ensure that the management team of the Board and the Operating Authority stay informed of environmental and quality related issues. Items discussed at the Management Review meetings include, but are not limited to, water quality test results, environmental and quality performance, legislative changes, identified non-conformances, corrective and preventive actions, staff suggestions, changing circumstances and business strategies, and resource requirements. Corrective and preventive actions include not only those to address non-conformance issues and opportunities for improvement identified as part of internal and external audits, but also non-compliance issues identified by the Ministry of the Environment, Conservation and Parks (MECP), suggestions from staff, and opportunities for improvement identified during the Management Review process.

In order to carry out more effective Management Review meetings, the Board's administration has opted to conduct shorter meetings at more frequent intervals. Although each required Management Review input may not be covered at every meeting, over the course of the year all required inputs are reviewed at least once. Management Review meetings are held in a combined format for both the LHPWSS and the Elgin Area Primary Water Supply System (EAPWSS).

A Management Review meeting was held on June 22, 2022. The meeting minutes are included as [Appendix A](#) for the information of the Board.

Internal Audits

Pursuant to the international ISO 14001 EMS standard and the provincial DWQMS, periodic "internal" audits are performed by the Board's administration to ensure continued compliance with legislated, contractual, and other requirements, as well as conformance with the ISO 14001 EMS standard and DWQMS. Internal audits also ensure that the ongoing operation of the LHPWSS conforms to the EMS and QMS as implemented. As required by the standards, internal audits are performed a minimum of once every calendar year.

An EMS internal audit was conducted on May 10-11, 2022. An internal audit summary report is included as [Appendix B](#) for the information of the Board.

A DWQMS internal audit was conducted on June 7-8, 2022. An internal audit summary report is included as [Appendix C](#) for the information of the Board.

An environmental compliance internal audit was conducted on July 23-28, 2022. An internal audit summary report is included as [Appendix D](#) for the information of the Board.

External Audits

Annual surveillance audits (third-party external audits) are conducted for both the EMS and QMS, with a recertification audit taking place every third year. The external registrar for both

the EMS and QMS is currently SAI Global. External audits review all aspects of the EMS or QMS, including the scope and results of internal audits, subsequent management reviews, and corrective action processes.

There were no external audits conducted during the reporting period.

Corrective and Preventive Actions

For the EMS/QMS to be effective on an on-going basis, an organization must have a systematic method for identifying actual and potential non-conformities, making corrections and undertaking corrective and preventive actions, preferably identifying and preventing problems before they occur. The Internal Audit process and Management Review are the two main drivers for proactively identifying potential problems and opportunities for improvement for the LHPWSS and implementing corrective actions. Preventive actions may originate from identified opportunities for improvement as part of an audit, but also staff suggestions and discussions with management.

It is important to note that action items should not be construed as **compliance failures**, but rather an action to be undertaken which will improve the LHPWSS’s overall performance.

Action items are the result of the “Plan-Do-Check-Act” continual improvement process. The identification of action items is a critical component of continual improvement and an essential element of management systems. The identification of action items should be seen as a positive element, as this drives continual improvement.

A key concept of Plan-Do-Check-Act is that it does not require nor expect 100% conformance but promotes an environment of continual improvement by identifying shortfalls, implementing corrective and preventive measures, and setting objectives and targets for improvement. Figure 1 outlines the general process.

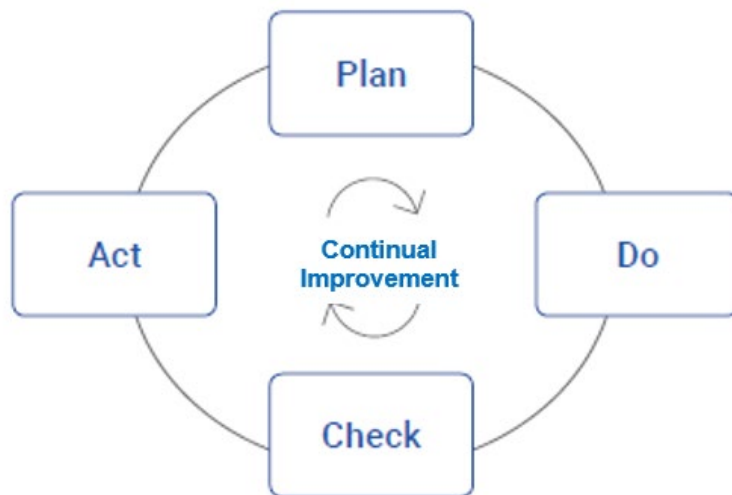


Figure 1: Plan-Do-Check-Act improvement process

Since the last report to the Board, the following summarizes new action items that have been added to the EMS/QMS action item tracking system:

- Ten (10) new action items were added as a result of the EMS internal audit
- Two (2) new action items were added as a result of the management of change process for the electronic logbooks (e-logs)
- Three (3) new action items were added as a result of the management of change process for the new computerized maintenance management system (Maximo)
- Three (3) new action items were added as a result of the management of change process for the new residuals disposal site
- Eight (8) new action items were added as a result of the DWQMS internal audit
- Two (2) new action items were added as a result of the management review meeting on June 22, 2022.

As of September 2, 2022, there are currently twenty-five (25) open action items in the system. Action items are prioritized and addressed using a risk-based approach, and deadlines established given reasonable timeframes and resources that are available. Board staff are pleased with the performance of the corrective and preventive action process and have no concerns with the number of open action items.

CONCLUSION

The Internal Audits and frequent Management Review meetings continue to effectively identify system deficiencies. The EMS/QMS for the LHPWSS continues to be suitable, adequate and effective. Activities by OCWA continue to address the need for change, and the management systems are being revised and refined as required.

Prepared by: Erin McLeod, Quality Assurance & Compliance Manager with the assistance of Allison McGuckin, Compliance Coordinator

Submitted by: Andrew Henry, P. Eng.,
Director, Regional Water

Recommended by: Kelly Scherr, P.Eng., MBA, FEC

Attachments: Chief Administrative Officer
[Appendix A](#) – Management Review Meeting Minutes (June 22, 2022)
[Appendix B](#) – EMS Internal Audit Summary Report (May 10-11, 2022)
[Appendix C](#) – DWQMS Internal Audit Summary Report (June 7-8, 2022)
[Appendix D](#) – Environmental Compliance Internal Audit Summary Report (July 23-28, 2022)

APPENDIX A: MANAGEMENT REVIEW MEETING MINUTES (JUNE 22, 2022)

Lake Huron & Elgin Area Primary Water Supply Systems EMS/QMS Management Review

Date: June 22, 2022

Time: 1:00pm

Location: Virtual – Microsoft Teams

Attendees: Andrew Henry (RWS), Erin McLeod (RWS), Allison McGuckin (RWS), Blair Tully (OCWA), Allison McCann (OCWA), Denny Rodrigues (OCWA), Greg Henderson (OCWA), Randy Lieber (OCWA)

N.B.: Management Review meetings are held in a combined format for both the Lake Huron Primary Water Supply System (LHPWSS) and the Elgin Area Primary Water Supply System (EAPWSS).

-----Meeting Notes-----

1. Review and Approval of Previous Minutes (LHPWSS & EAPWSS)

The minutes from the previous meeting (April 1, 2022) are posted to SharePoint. The minutes were approved. No concerns

2. Appointment of EMS/QMS Representative

Due to recent staffing changes, including a change in the OCWA Compliance Manager position, the current appointment was discussed. There was no decision made during this Management Review meeting.

Post meeting note: An email confirmation was provided from the OCWA Regional Manager on June 24, 2022 appointing Allison McCann, Compliance Manager as the EMS/QMS Representative.

3. Results of the Board Meetings (June 2, 2022)

Huron Board Meeting

- Quarterly Compliance Report - the report was received for information
- EMS/QMS Report - the report was received for information
- Oneida Nation of the Thames water supply connection was discussed.

Note: There was a discussion on supply chain issues, resulting in higher than anticipated budgets and seeking alternative strategies. Any opportunity to secure supply chains should be noted.

Elgin Board Meeting (March 3, 2022):

- Quarterly Compliance Report – the report was received for information. General discussion of the proposed administrative penalties for environmental contraventions
- EMS/QMS Report - the report was received for information. General discussion on harmful algae blooms including 2022 predictive modelling.

4. Monitoring and Measurement Results

a) 2020 Energy Reporting (LHPWSS & EAPWSS)

LHPWSS

In 2020, the total treated water volume, electricity and greenhouse gas (GHG) emissions have been stable and natural gas and energy intensity is down from the previous year. We may see a further reduction in electricity usage once all the high lift pumps are installed.

EAPWSS

In 2020, the total treated water volume, electricity and GHG emissions have been stable and natural gas and energy intensity is down from the previous year.

Discussion occurred and Andrew Henry would like to see a comparison of natural gas to ambient temperature.

5. Environmental Objectives (LHPWSS & EAPWSS)

LHPWSS

The 5-year trends for electricity efficiency and chemical efficiency were reviewed and discussed. Updates to the environmental programmes were reviewed and discussed. The overall electricity efficiency trend at the plant improving since the Winter of 2022 and the chemical efficiency is declining.

General Discussion:

- High Lift Pump (HLP) commissioning in the Winter 2022 with numerous start/stop events may have impacted electricity efficiency.
- Clearwells out of service – in 2021 the south clearwell was out of service in Winter 2022 the north clearwell was out of service. These events caused additional backwashing of the filters which used more electricity.
- Every winter there is a seasonal spike. Smaller pumps should create more steady seasonal fluctuations and improve electricity efficiency.
- Upgrading the windows in the plant with more efficient tinted glass should improve building energy efficiency.

Post meeting note: OCWA provided additional information through email on June 24, 2022. London was repairing a valve on their main transmission main and altered their flows during this project in the Winter of 2022. The Huron WTP had one clearwell in

service limiting the plant capacity at 170MLD. Operations required two pumps to be running more often to meet demand and generally these pumps were throttled which requires more electricity demand.

Environment Management Program Discussion:

- HLP #3 has been disinfected and will be manually started next week followed by SCADA testing. HLP #2 is scheduled to be disinfected on July 4, 2022.
- Low Lift Pump #3 is being rebuilt by the end of 2022.
- Lighting project – lighting was noted where it was upgraded in 2020, 2021 and in 2022 there is one expenditure request. OCWA is hopeful there is more to come – lighting upgrades at McGillivray and some more areas in the plant.
- Coagulation project has been postponed with a proposed April 2023 completion date.
- Closed loop chlorine project has been put on hold until the completion of the HLP project.
- Thermal Insulating roof replacement at Chlorine building scheduled for later in 2022.

EAPWSS

The 5-year trends for electricity efficiency and chemical efficiency were reviewed and discussed. Updates to the environmental programmes were reviewed and discussed. The overall electricity efficiency trend at the plant is improving however, the last two winters have seen the electricity climbing. The chemical efficiency has been consistent over the last 5 years.

General Discussion:

- New HLP's have been operational since mid-2020.
- Increases in electrical consumption are potentially from the centrifuge operation at the RMF, due to high raw water turbidity and more loads of residuals leaving the facility in 2021.
Note: consider tracking the electricity from the RMF compared to the plant in the future.
- There are noticeable peaks in the chemical consumption for the fall/winter.

Environment Management Program Discussion:

- Backwash pump replacement project has been delayed.
- Biofilters – University of Toronto is scheduling a meeting in July 2022 to discuss the future of the biofiltration pilot study.
- Low lift pump study - AECOM provided a draft tech memo. Pending further review.
- Thermal Insulating roof replacement at Chlorine building scheduled for later in 2022.

Considerations:

- Elgin – consider a representative chlorine measurement location for the RMF
- Huron – consider trending the weight of the residuals leaving the RMF against raw water turbidity.

6. Elgin EMS Internal Audit (April 25 & 29, 2022)

There were no Non-Conformances and eighteen (18) Opportunities for Improvement identified during the audit. The audit findings were discussed, with action items finalized to address them.

7. Huron EMS Internal Audit (May 10-11, 2022)

There were no Non-Conformances and ten (10) Opportunities for Improvement identified during the audit. The audit findings were discussed, with action items finalized to address them.

8. Huron QMS Internal Audit (June 7-8, 2022)

There were two (2) Non-Conformances and six (6) Opportunities for Improvement identified during the audit. The audit findings were discussed, with action items finalized to address them.

9. Elgin QMS Internal Audit (June 14 & 16, 2022)

There was one (1) Non-Conformance and six (6) Opportunities for Improvement identified during the audit. The audit findings were discussed, with action items finalized to address them.

10. Effectiveness of the QMS Risk Assessment Process (LHPWSS & EAPWSS)

The full 36-month re-assessments are scheduled for June 24 & 28, 2022.

11. Results of the Emergency Response Testing (LHPWSS & EAPWSS)

LHPWSS

- Completed test of HMC-8 Critical Shortage of Staff in January 2022
- HMC-4 Spills Reporting test and training scheduled for June 23, 2022
- HMC-7 Communications – test scheduled for late 2022.

EAPWSS

- Completed test of EMC-8 Critical Shortage of Staff in January 2022
- Completed test of EMC-3 Power Failure in June 2022
- HMC-7 Communications – test scheduled for late 2022.

12. QMS Operational Plan Currency, Content and Updates (LHPWSS & EAPWSS)

The QMS Operational Plans were reviewed and updated in May 2022 and re-endorsed by top management. There were minor administrative changes and the new Schedule C Director's Direction Form was added.

13. Environmental & Quality Policy (LHPWSS & EAPWSS)

The Environmental & Quality Policy was presented for the annual review and has not required any updating since 2018.

The following changes were suggested:

- There is a new Asset Management Policy that was created within the last year and it references ISO14001 and DWQMS. The Environmental & Quality Policy should acknowledge and consider the Asset Management Policy.
- Update the OCWA General Manager title to Regional Manager.

ACTION ITEM: Revise the Environmental & Quality Policy to include a reference to the Asset Management Policy. The Policy is to be signed by the new OCWA Regional Manager. Board re-endorsement of the revised Policy with the QMS Operational Plan in January 2023. Assigned to Erin McLeod, Deadline January 31, 2023.

14. Overall Decision on the Suitability, Adequacy and Effectiveness of the EMS/QMS (LHPWSS & EAPWSS)

A discussion took place on the management systems as a whole, reflecting back over the past year. Top management confirmed that the management systems continue to be suitable, adequate and effective. The following observations support this conclusion.

Audit results: Internal audits continue to identify issues, including non-conformances, and recommend opportunities for improvement. Incremental continual improvement is evident.

MECP Inspection results: The annual MECP Inspection ratings for the 2021-2022 reporting year were 100% for both the LHPWSS & EAPWSS. This is the second year in a row with 100% ratings

Objectives and targets: Overall the trends generally continue to improve for the EMS objectives and targets. Continual improvement is anticipated in the trends. Planned capital projects are anticipated to continue the improvement and optimization.

System uptime/downtime: There have been a few alum system upsets and unplanned power failures this past year but these events have not impacted our ability to supply customers.

Customer Satisfaction: Overall the Board and municipal staff (ie. customers) seem to be satisfied with management system results.

Water quality: No recent Adverse Water Quality Incidents (AWQIs) and the operating authority met all contractual water quality performance criteria in 2021 (ie. full incentive payment received).

Top Management wanted to recognize the effort and dedication that everyone in OCWA and Regional Water has applied to ensure both systems were effective over the last year through Covid; from personnel changes to supply chain concerns. Targets and an uninterrupted supply of safe potable water has been achieved during challenging circumstances, repairs, and significant events.

15. Status of Action Items Identified Between Reviews – Management of Change

- e-Logbooks (Elgin & Huron)
- Maximo (Elgin & Huron)
- Residuals Disposal Location (Huron)

Checklists have been completed and uploaded to SharePoint. Action items are now on the action item tracking spreadsheet.

16. Corrective Action Forms (CAF)

- Huron Loss of Alum Incident (Oct. 10, 2021)

CAF was completed and uploaded to SharePoint. Action items are now on the action item tracking spreadsheet.

17. Status of Action Items from Previous Management Reviews (LHPWSS & EAPWSS)

A summary of the open action items from the CAF Tracking spreadsheet was provided and the items were discussed and approved.

The following changes were requested and granted by Top Management:

- The coagulation upgrade project – commissioning is now scheduled for fall 2022 with project completion tentatively scheduled for spring 2023. Approval was given to revise the deadlines for the open action items to end of March 2023.
- High Lift Pump Project – it is anticipated that the HLP project will be completed in the fall 2022. Approval was given to revise the deadlines for the open action items to end of October 2022.
- OCWA’s corporate training database is not scheduled to be implemented until spring 2023. Approval was given to revise the deadline for this action item to end of June 2023.



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18. Other Business

- OCWA staff was interested to know if the Global Adjustment exposure had changed from last year.

ACTION ITEM: Provide OCWA with the Global Adjustment exposure comparison of 2021 to 2022. Assigned to – Andrew Henry; Deadline – July 8, 2022.

Next Meeting: September 7, 2022

APPENDIX B: EMS INTERNAL AUDIT SUMMARY REPORT (MAY 10-11, 2022)

Audit Purpose:

The purpose of the audit was to verify conformance with the ISO 14001:2015 Environmental Management Systems standard for the Lake Huron Primary Water Supply System (LHPWSS). Internal audits ensure the EMS is being continually improved.

Non-conformances and opportunities for improvement are listed below.

Auditor Qualifications:

- Erin McLeod has completed an ISO 14001:2004 training course as well as the ISO 14001:2015 transition training.
- Allison McGuckin has completed an ISO 14001:2015 training course in Internal Auditing. See certificates in Appendix C.

Methodology:

The Internal Audit was conducted as outlined in procedure LH-ADMIN-1200 Internal Audit. The internal audit was comprised of a conformance review of the facilities and limited to the operation of the water supply system by the contracted operating authority, Ontario Clean Water Agency (OCWA), since the last Internal Audit conducted April 20 and 22, 2021.

Note: The audit was conducted through a review of a sampling of documents, limited interviews and observations by the auditors to demonstrate conformance with the ISO 14001:2015 Environmental Management Systems standard. The review and audit should not be construed as a complete and comprehensive review of all aspects/risks and all documents.

Findings:

The following is a summary of the audit findings, including non-conformances and opportunities for improvement. The detailed audit checklists are attached for further information.

- Appendix A: LF-ADMIN-1200 EMS Audit Checklist (Erin McLeod)
- Appendix B: LF-ADMIN-1200 EMS Audit Checklist (Allison McGuckin)

Definitions:

- A non-conformance (NC) is a non-fulfillment of a requirement.
- An opportunity for improvement (OFI) describes a requirement that can be more effectively addressed.

Sites Visited:

- Lake Huron Water Treatment Plant, 71155 Bluewater Highway, South Huron
- McGillivray Pumping Station, 4064 McGillivray Drive, North Middlesex
- Exeter-Hensall Pumping Station (EHPS), 39590 Huron Street, South Huron
- Arva Terminal Reservoir, 13964 Medway Road, Middlesex Centre



- Komoka-Mt. Brydges Pumping Station (KMBPS), 13964 Medway Road, Middlesex Centre

Interviews Conducted:

- Greg Henderson - Sr. Operations Manager
- Randy Lieber – Sr. Operations Manager
- Denny Rodrigues – Safety, Process and Compliance Manager
- Blair Tully – Regional Manager (Interview completed on April 28, 2022)
- Allison McCann – Team Lead, Operations & Compliance

SUMMARY OF FINDINGS

Positive Findings

Continual improvement was evident on the tour. Infrastructure improvement projects were underway including the High Lift Pump upgrade project.

The workplace appeared tidy and orderly which contributes to achieving consistent operational results:

- A new oil storage area is organized and standardized with visual cues (ie. colour-coded).
- Sorted and organized storage areas (e.g., garage, north storage room).

Top management and staff interviewed provided clear evidence of their commitment to the EMS and had various suggestions for continual improvement opportunities (e.g., related to electricity and chemical usage monitoring/trending; public education).

Previous Management Review Meeting Minutes demonstrates cohesive communication between all parties through discussions that emphasize continual improvement efforts and completion of OFI's identified in previous EMS Audits.

Opportunities for Improvement (OFIs)

5.3 Organization Roles, Responsibilities and Authorities

OFI #1 Consider the role of the Computerized Maintenance Management System (CMMS) Specialist in relation to the EMS, as this position is not addressed in LH-ADMIN-100 (Structure and Responsibilities) and does not appear in the organizational chart contained within.

OFI #2 Consider updating the organizational chart within LH-ADMIN-100 (Structure and Responsibilities) as the number of Sr. Operators and Operators has increased.

6.1.2 Environmental Aspects

OFI #3 The following observations were made regarding the EMS Aspects Assessment:

- There is no septic tank at EHPS;
- There is use of refrigerants at McGillivray PS;
- There was evidence of waste solids (e.g., used HVAC filters) generated at KMBPS;
- There was evidence of water conservation (e.g., sample taps turned off) at McGillivray PS and EHPS.

7.2 Competence

OFI #4 Consider the procedure for maintaining training records, to ensure consistency between electronic spreadsheets, corporate matrixes and paper copies, in order to capture required training as identified in LH-ADMIN-1400 (Training) V7.0.

OFI #5 Consider clarifying the training requirements in HCP-1 (Emergency Management) as the EMS QMS Orientation training includes the contents of the site specific emergency contingency plans.

7.5 Documented Information

OFI #6 The Document & Records Control Procedure (LH-ADMIN-200) indicates controlled hard copies of the Policy are located in the Control Room and Security Trailer, however these were not found only a copy at the parking lot entrance.

OFI #7 Controlled form LF-PROC-100-A (Waste Oil Log) located in the Quonset Hut was incomplete and signed by “Greg M” when there are two employees with the same sign off.

8.1 Operational Planning and Control

OFI #8 Hazardous Waste Management: Consider clarifying the process for storage, handling and disposal of hazardous waste from the remote sites. LH-PROC-100 (Storage, Handling & Disposal of Hazardous and Liquid Industrial Wastes) does not address waste generated at remote locations or the compliance requirements for transporting them to the WTP site.

9.1.2 Evaluation of compliance

OFI #9 The 2022 and 2023 Audit Schedules do not identify the overdue and upcoming required compliance audits. Consider identifying the compliance audits by audit criteria.

10.2 Non-conformity and Corrective Action

OFI #10 Review the closed actions which require 90-day verification/effectiveness checks for prioritization, as many items are overdue for these checks.

APPENDIX C: DWQMS INTERNAL AUDIT SUMMARY REPORT (JUNE 7-8, 2022)

Audit Purpose:

The purpose of the audit was to verify conformance with the Ontario Drinking Water Quality Management Standard (DWQMS) Version 2.0 for the Lake Huron Primary Water Supply System (LHPWSS). Internal audits ensure the QMS is being continually improved.

Non-conformances and opportunities for improvement are listed below.

Auditor Qualifications:

Erin McLeod and Allison McGuckin completed training courses in DWQMS Internal Auditing. The training certificates are attached in Appendix C.

Methodology:

The Internal Audit was conducted as outlined in QMS Procedure LH-ADMIN-1200 (Internal Audit) and was comprised of a conformance review of the facilities and limited to the operation of the water supply system by the contracted operating authority, Ontario Clean Water Agency (OCWA), since the last Internal Audit conducted October 13-14, 2021.

Note: The audit was conducted through a review of a sampling of documents, limited interviews and observations by the auditor to demonstrate conformance with the DWQMS. The review and audit should not be construed as a complete and comprehensive review of all aspects/risks and all documents.

Findings:

The following is a summary of the audit findings, including non-conformances and opportunities for improvement. The detailed audit checklist is attached for further information.

- Appendix A: LF-ADMIN-1201 QMS Audit Checklist (Erin McLeod)
- Appendix B: LF-ADMIN-1201 QMS Audit Checklist (Allison McGuckin)

Definitions:

- A non-conformance (NC) is a non-fulfilment of a requirement.
- An opportunity for improvement (OFI) describes a requirement that can be more effectively addressed.
- An observation is a comment or remark provided to share the conditions found on the day of the audit, typically related to an “out of scope” finding.

Areas Visited:

- Lake Huron Water Treatment Plant (WTP), 71155 Bluewater Highway, South Huron
- Exeter Hensall Pumping Station (EHPS), 39590 Huron Street, South Huron
- McGillivray Pumping Station, 4064 McGillivray Drive, North Middlesex
- Arva Terminal Reservoir, 13964 Medway Road, Middlesex Centre



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- Komoka-Mt. Brydges Pumping Station (KMBPS), 13964 Medway Road, Middlesex Centre

Interviews Conducted:

- Denny Rodrigues – Senior Operations Manager, OCWA
- Allison McCann – Safety, Process and Compliance Manager, OCWA
- Alexander Russell – Operator, OCWA
- Jacob Aubry – Operator, OCWA
- Corey Regier – Team Lead Maintenance & Distribution, OCWA
- Blair Tully – Regional Manager, OCWA (Interview June 9, 2022)
- Erin McLeod - Quality Assurance & Compliance Manager, RWS

Summary of Findings

Positive Findings

- Staff interviewed were engaged, knowledgeable, and provided thorough explanations about the work they were doing.
- All maintenance records requested were readily accessible.
- Continual improvement projects were underway throughout the WTP (e.g., high lift pump upgrades, filter work, installation of new filter backwash turbidimeters, low lift pump #3 and service water pump rebuilds, other).
- Continual improvement related to monitoring programs included recent CT disinfection training and implementation of a daily CT verification check.

Non-Conformances (NCs)

Element 3 – Commitment and Endorsement

NC#1: The Operational Plan is to be re-endorsed every 4 years or when there is a change to Top Management which includes members of the Lake Huron Joint Board of Management (LHJBOM). The Operational Plan has not been endorsed since January 2015.

Element 8 - Risk Assessment Outcomes

NC#2: Procedure LH-ADMIN-2400 requires that processes necessary for maintaining a disinfectant residual in the distribution system (including re-chlorination points) are mandatory Critical Control Points (CCPs) at all OCWA facilities. On the QMS Risk Assessment the chlorine gas system at KMBPS and sodium hypochlorite system at EHPS have not been identified as CCPs as required by the procedure.



Opportunities for Improvement (OFIs)

Element 5 - Document and Records Control

OFI#1: Consider implementing a legend for operator's signatures and initials, for better identification of employee sign-off on records.

Element 8 - Risk Assessment Outcomes

OFI#2: On the QMS Risk Assessment, consider whether "Clearwells/Reservoirs" should be a mandatory CCP, as the clearwells are required in order to meet primary disinfection requirements.

OFI#3: The transmission system reservoirs do not currently appear on the QMS Risk Assessment and have not been evaluated for risk.

Element 13 - Essential Supplies and Services

OFI#4: The Chemical Ordering Sheets in the binder in the control room are not always being fully completed as required. The date the chemicals are received on site is not always being recorded.

Element 14 - Review and Provision of Infrastructure

OFI#5: Consider aligning the timing of OCWA's annual capital recommendation submission with the Annual Asset Plan submission, and the owner's risk/opportunity and business case review process, to ensure budget deadlines will be met.

Element 18 – Emergency Management

OFI#6: The Emergency Contact & Essential Suppliers & Services List (V30.0) in SharePoint does not reflect recent staffing changes and the version posted in the control room was out of date (V29.0).

**APPENDIX D: ENVIRONMENTAL COMPLIANCE INTERNAL AUDIT SUMMARY REPORT
(JULY 23-28, 2022)**

Audit Purpose:

The purpose of the audit was to verify compliance with select environmental legislation at the Lake Huron Primary Water Supply System (LHPWSS). Internal audits ensure the progress and activity of the Environmental Management System (EMS) is tracked.

Auditor Qualifications:

Allison McGuckin has completed an ISO 14001:2015 Internal Auditor training course and an Environmental Compliance 101 course and is deemed competent to complete environmental compliance auditing. (see Certificates in Appendix A).

Methodology:

The internal audit was conducted as outlined in procedure LH-ADMIN-1600 (Compliance) of the EMS Manual. The audit checklists were generated using the internal LF-ADMIN-1600 Compliance Audit Checklist and the Nimonik Environmental Criteria Software and are attached as Appendix B of this report.

The audit was comprised of a facility tour and a compliance review of the LHPWSS. Operational documents and records maintained by the Operating Authority for the period November 23, 2020 through to July 28, 2022 were reviewed in conjunction with this compliance evaluation.

Note:

The audit was conducted through a review of a sampling of documents, limited interviews, and observations by the auditor to demonstrate compliance obligations are being met as outlined in the EMS. The review and audit should not be construed as a complete and comprehensive review of all aspects and all documents.

Checklist criteria generated by Nimonik Environmental Criteria Software:

Environmental Compliance – Provincial

- Air Emissions
- Waste Generation
- Spills and Notifications
- Water Taking and Transfer
- Water Discharge and Watercourse Alterations

Other Criteria –LF-ADMIN-1600 Compliance Audit Checklist

- Permit To Take Water

Interviews Conducted:

- Allison McCann, Safety, Process & Compliance Manager (OCWA)
- Randy Lieber, Senior Operations Manager (OCWA)



- Erin McLeod, Quality Assurance & Compliance Manager (Regional Water Supply)

Areas Visited:

- Lake Huron Water Treatment Plant (WTP), 71155 Bluewater Hwy, Municipality of South Huron

Findings

The following is a summary of the findings including non-compliance issues, opportunities for improvement, and observations for the LHPWSS.

Definitions:

- A non-compliance (NC) is a non-fulfilment of a regulatory requirement.
- An opportunity for improvement (OFI) describes a regulatory requirement that can be more effectively addressed.
- An observation is a comment or remark provided to share the conditions found (i.e., on the day of the audit tour).

Regulatory Non-Compliance (NC):

- N/A

Regulatory Opportunities for Improvement (OFIs):

OFI #1

The Operating Authority retained the copies of waste manifest #MX417703-0 from Safety-Kleen, completed on February 15, 2022. The white copy (1) was mailed to the Ministry of the Environment, Conservation and Parks (MECP) on March 9, 2022. There is an opportunity for improvement to ensure copy 1 is mailed to the MECP within 3 days of receiving the manifest.

OFI #2

Waste manifest # MX386175-6 (dated April 28, 2022) was completed under Regional Water Supply's generator number however the original brown copy (6) was in OCWA's files. There is an opportunity for improvement to ensure original documentation resides with the correct owner of the generator number.

Observations:

- The new oil storage platform has been improved since the EMS Audit completed May 10-11, 2022, with larger drums of oils to create less packaging waste in the future.
- Staff interviewed were accessible and knowledgeable during the audit.
- During the tour it was noted that the WTP was clean and highly organized.



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OCWA Staff Suggestion:

- OCWA to look at creating a definitive on-site schedule with Safety-Kleen for waste removal.



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To: Chair and Members, Board of Management
Lake Huron Primary Water Supply System

From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Subject: Quarterly Operating Financial Status – 2nd Quarter 2022

RECOMMENDATION

That this report regarding the Quarterly Operating Financial Status of the Lake Huron Water Supply System be **RECEIVED** by the Board of Management for information; it being noted that the financial information presented in this report is unaudited and subject to adjustments including the preparation of the financial statements and completion of the annual audit.

BACKGROUND

At the request of the Board of Management, a Financial Status Report is provided on a quarterly basis for information. The financial status provides a high-level overview of incurred expenditures and revenues on a cash-flow basis and is compared to the approved operating budget of the water supply system. All expenditures and revenues provided in this Financial Status Report are unaudited and may include accrued and/or unaccrued expenses from a previous or future fiscal year.

A high-level summary of incurred expenses and revenues for the water supply system is attached to this report as Appendix A for the second quarter 2022 (April 1 to June 30) as well as a comparative accumulation of expensed for the year to date.

Note: The reported expenditures and revenues may be subject to adjustments, including but not limited to the preparation of financial statements and completion of the annual audit.

DISCUSSION

For the information and reference of the Board, the following highlights of the attached summary provides a brief explanation of notable deviations from the approved budget and/or clarifications of the financial summary:

- Contracted Operating Services in the summary report reflects the total direct operating costs of the contracted operation of the water treatment and transmission system, as well as other related contracted services. The total accumulated operating costs over the year (unaudited) is higher than the same period in 2021 and is reflective of contractual increases in service agreements with the operating authority and other contracted services.
- Contracted Administrative Services in the summary report reflects the fees paid to the City of London.
- Electricity expenditures include the purchase of energy and related energy management service charges for the water system. The water system is currently tracking approximately \$100,000 higher than the previous year, due to increased volumes.
- Salaries, wages and benefits expenditures include all direct labour costs for administrative staff including benefits. Variations over the same period in 2021 are attributed to annual salary adjustments, staff vacancies, and marginally lower total staffing costs as a result of the pandemic. In addition, the 2022 YTD amount shown includes accrued vacation costs posted early in the year.
- Administration and Other Expenses relates to various overhead operating expenses, including subscriptions and memberships, office supplies and property taxes. The costs to date are lower than the same period in 2021.
- Vehicles and Equipment expenditures include costs associated with vehicles, computers and office equipment for administrative staff. The costs to date are lower than the same period in 2021.
- Purchased Services and Professional Fees largely relates to allowances for ad hoc professional consulting and legal services, security services, office lease, telephone charges, network and SCADA maintenance, printing services, and pipeline locate costs. The increased cost when compared to the same period in 2021 is largely attributed to increased insurance costs.
- Debt Principal and Interest payments occur twice per year; in the first and third quarter.



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- Contributions to the Reserve Funds occur at the end of the fiscal year as part of the year-end audit preparation process, where the actual contributions are the total remaining revenue in excess of expenditures. Accordingly, the amount of the anticipated contribution is currently adjusted to reflect the additional revenue and expenses incurred and may be subject to further adjustment as a result of the completion of the year-end financial statements and audit.

Prepared by: Archana Gagnier
Budget and Finance Analyst

Submitted by: Andrew Henry, P. Eng.,
Director, Regional Water Supply

Recommended by: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Attachments: Operating Financial Status Summary – 2nd Quarter 20201

Quarterly Financial Summary Report

Lake Huron Water Supply system
2nd Quarter 2022 (April 1 to June 30)

(\$,000's)

	Approved 2022 Budget	Q2 - 2022	2022 Year to Date	Year To Date Variance	2021 Year To Date
Total Revenue	24,254	5,503	8,933	15,321	9,293
<u>Expenditures:</u>					
Contracted Operating Services	7,158	1,734	3,503	3,655	3,360
Contracted Administrative Services	322	81	161	161	159
Electricity	3,500	828	1,350	2,150	1,252
Salaries, Wages, Benefits	961	262	406	555	294
Administration and Other Expenditures	484	48	252	232	298
Vehicles and Equipment	84	14	29	55	35
Purchased Services & Professional Fees	1,427	124	503	924	451
Debt Principle Payments	1,292	0	924	368	911
Interest on Long-Term Debt	106	10	61	45	70
Contributions to Reserve Funds	8,921	0	0	8,921	0
Total Expenditures	24,254	3,101	7,189	17,066	6,830

To: Chair and Members, Board of Management
Lake Huron Primary Water Supply System

From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Subject: Capital Status Report

RECOMMENDATION

That, on the recommendation of the Chief Administrative Officer, the following actions be taken with regards to Lake Huron Primary Water Supply System capital projects:

- a) That this report regarding the status of capital projects **BE RECEIVED** for information.
- b) That projects LH1276 Backwash Check Valve, LH1278 Safety Showers Upgrade, LH1327 Strathroy Transmission Main, LH1347 Pipeline Chamber Upgrades, LH1425 Huron Erosion Control and LH2037 Hydrant Replacement be **CLOSED** with surplus funding in the approximate amount of **\$7,284,303** be released to the Reserve Funds: and,
- c) That projects LH1026 Office Space Expansion, LH1270 Interior LED Lighting Upgrades and LH1303 Easement Maintenance be **CLOSED** with additional funding in the approximate amount of **\$12,155** be drawn from the Reserve Funds.

DISCUSSION

The Capital Project Status Report, attached to this report as Appendix A for the Board's information, provides a brief overview of the status of current capital projects for the Lake Huron Primary Water Supply System. This report is provided for the general information of the Board.

The status report is divided into four categories of projects, namely:

1. **Ongoing Projects:** This section provides a summary list of all projects which are funded by the Board through the Capital Budget, and which are currently in-progress. Board funded projects are typically for the replacement or upgrade of existing assets, the construction of new assets, or engineering studies and assessments, as approved by the Board.



Under the terms of the Service Agreement with the contracted operating authority, the Board is also required to pay for some maintenance/repair activities. The benchmark used in the operating contract is that if the value of the material and any contracted labour is over \$36,408.98 (indexed annually to inflation from the start of the contract), the project is considered Capital Maintenance and the contracted operating authority would fund the first \$36,408.98 (indexed), with the balance funded by the Board. Accordingly, the Board maintains an annual “fund” within the Board’s capital budget to pay for these projects as they arise.

2. **Completed Projects - Release Surplus to Reserve Funds:** This section provides a summary list of all projects which are presently completed and do not require additional funds from that budgeted. Should the Board approve the closure of the listed projects, it is the recommendation of staff to release the surplus funds, if any, to the appropriate Reserve Fund.

Completed Projects – Reduce Authorized Debt: In the case where the project is funded through the issuance of a debenture, should the Board approve the closure of the listed project it is the recommendation of staff to reduce the previously authorized but unissued debt for the project(s).

3. **Completed Projects - Additional Funding Required:** This section provides a summary list of all projects which are presently completed but require additional funds from that originally approved by the Board. Should the Board approve the closure of the listed projects, it is the recommendation of staff to provide the required additional funding from the Board’s Reserve Fund.

Prepared by: Archana Gagnier
Budget and Finance Analyst

Submitted by: Billy Haklander, P. Eng., LL.M
Capital Programs Manager

Recommended by: Kelly Scherr, P.Eng., MBA, FEC,
Chief Administrative Officer

Attachments: Appendix A - Capital Project Status Summary

APPENDIX A: CAPITAL PROJECT STATUS SUMMARY

A.1 Ongoing Capital Projects

PROJECT NO.	PROJECT	APPROVED BUDGET	EXPENDED TO DATE *	STATUS
LH1016	Huron Safety Railing Replacement	\$400,000	\$337,282	Project ongoing
LH1020	2021 Financial Plan	\$50,000	\$5,147	Project ongoing
LH1021	Huron Low Lift Pump 6 Refurbishment	\$165,000	\$49,169	Project ongoing
LH1106	Ilderton Meter Chamber	\$100,000	\$63,421	Project ongoing
LH1107	SCADA/PLC Software Review & Upgrade	\$500,000	\$32,043	Project ongoing
LH1207	Concrete Crack Injection	\$170,000	\$119,125	Ongoing multi-year project
LH1216	Closed Loop Chlorine Control	\$100,000	\$14,863	Project on hold pending LH1230 completion
LH1219	Filter Backwash Turbidity Meters	\$250,000	\$191,784	Project ongoing
LH1229	Security Upgrades	\$800,000	\$642,777	Project ongoing
LH1230	High Lift Pump Replacement	\$13,557,000	\$7,818,191	Project ongoing
LH1232	Arva Victaulic Repair	\$175,000	\$45,565	Project ongoing
LH1242	Hydraulic/Transient Model Update and Monitoring	\$440,000	\$243,807	Project ongoing
LH1243	McGillivray Electrical Upgrades	\$7,762,436	\$394,609	Project ongoing
LH1245	Walking Beam Flocculator Rehab	\$200,000	\$0	Project ongoing
LH1246	LL Building – Curtain Wall/Clearstory Window Replacement	\$425,000	\$0	Project ongoing



PROJECT NO.	PROJECT	APPROVED BUDGET	EXPENDED TO DATE *	STATUS
LH1251	PAC Feed/Transfer Pump System Replacement	\$100,000	\$0	Project ongoing
LH1255	Crop Yield Monitoring – 2012 Rupture	\$110,000	\$109,246	Project ongoing
LH1256	Crop Yield Monitoring – 2014 Pipeline Twinning	\$1,500,000	\$64,292	Project ongoing
LH1257	Chamber 63 Access Culvert	\$405,000	\$142,503	Project ongoing
LH1260	Flash Mixer Upgrade	\$1,437,000	\$1,058,230	Project ongoing
LH1261	PLC Replacements	\$40,000	\$0	Project ongoing
LH1264	Vehicle Door Replacements	\$225,000	\$149,967	Project ongoing
LH1265	RMF Settling Tank Repairs	\$85,000	\$85,247	Project ongoing
LH1266	Huron Plant UV Disinfection	\$1,200,000	\$0	Project on hold pending LH1426 outcome
LH1267	Plant Interior Door Replacement	\$60,000	\$42,635	Project ongoing
LH1268	Obsolete Equipment Removal	\$150,000	\$96,193	Project ongoing
LH1269	Settled Water TSS Analyzer	\$75,000	\$50,730	Project ongoing
LH1272	Service Water Pipe Replacement	\$75,000	\$74,001	Annual program
LH1273	(PS3) Exeter-Hensall Pump Control Upgrades	\$100,000	\$7,441	Project ongoing
LH1274	SCADA Control Modifications	\$100,000	\$2,160	Project ongoing
LH1277	IT Asset Replacement Program	\$425,000	\$230,386	Project ongoing



PROJECT NO.	PROJECT	APPROVED BUDGET	EXPENDED TO DATE *	STATUS
LH1279	Cyber Intrusion Detection System	\$10,000	\$0	Project ongoing
LH1284	Huron Flocc Gear Drive	\$225,000	\$193,410	Project ongoing
LH1285	Pressure Reducing Valve	\$425,000	\$0	Project ongoing
LH1316-21	Annual Maintenance (2021)	\$125,000	\$99,551	Annual program
LH1316-22	Annual Maintenance (2022)	\$125,000	\$33,107	Annual program
LH1317	Distressed Pipe Replacement	\$1,750,000	\$855,546	Project ongoing
LH1338	Huron WTP Instrumentation	\$885,000	\$865,584	Annual program
LH1353	WTP Modifications	\$350,000	\$157,651	Multi-year project
LH1380	Clarifier Upgrades	\$235,000	\$150,361	Project ongoing
LH1388	Coagulation Optimization Study	\$50,000	\$0	Project to be initiated
LH1408	Oneida Transmission Pipeline	\$200,000	\$4,727	Project ongoing
LH1426	Microbial Inactivation and Storage EA	\$500,000	\$302,633	Project ongoing
LH1429	South Water Conduit Emergency Repairs	\$725,000	\$657,033	Project ongoing
LH1433	Asset Management Plan 2021	\$150,000	\$102,586	Project ongoing
LH1900	Record Drawings & Documents	\$491,000	\$404,207	Ongoing multi-year project
LH1901	Water Quality Facility Plan	\$290,000	\$4,056	Project ongoing
LH2036	Roof Drain Replacement	\$50,000	\$10,028	Project ongoing



PROJECT NO.	PROJECT	APPROVED BUDGET	EXPENDED TO DATE *	STATUS
LH2038	Chamber Flood Prevention/Rehab	\$100,000	\$42,064	Project ongoing
LH2039	Arva 600V MCC	\$50,000	\$0	Project ongoing
LH2040	Remote Site Generator Connections	\$20,000	\$0	Project ongoing
LH2041	Plant Roof Replacement	\$110,000	\$0	Project ongoing
LH2042	Pipeline-A Double Isolation Valve	\$1,247,000	\$1,441	Project ongoing
LH2043	Construction Site Trailer Pad & Electrical	\$75,000	\$0	Project ongoing

TOTAL \$39,369,436 \$15,954,799

A.2(a) Completed Projects – Release Surplus to Reserve Funds (\$7,284,303)

PROJECT NO.	PROJECT	APPROVED BUDGET	EXPENDED TO DATE *	STATUS
LH1276	Backwash Check Valve	\$200,000	\$189,421	Project complete
LH1278	Safety Showers Upgrade	\$60,000	\$49,653	Project complete
LH1327	Strathroy Transmission Main	\$22,000,000	\$14,838,658	Project complete
LH1347	Pipeline Chamber Upgrades	\$500,000	\$481,858	Project complete
LH1425	Huron Erosion Control	\$1,250,000	\$1,186,765	Project complete
LH2037	Hydrant Replacement	\$50,000	\$29,342	Project complete

TOTAL \$24,060,000 \$16,775,697



A.2(b) Completed Projects – Reduce Authorized Debt

PROJECT NO.	PROJECT	APPROVED BUDGET	EXPENDED TO DATE *	STATUS
TOTAL		\$ 0	\$ 0	

A.3 Completed Projects – Additional Funding Required (\$12,155)

PROJECT NO.	PROJECT	APPROVED BUDGET	EXPENDED TO DATE *	STATUS
LH1026	RW Office Expansion & Renovation	\$200,000	\$203,413	Project complete
LH1270	Interior LED Lighting Upgrades	\$150,000	\$151,825	Project complete
LH1303	Easement Maintenance	\$185,000	\$191,917	Project complete
TOTAL		\$535,000	\$547,155	

* Expended as of August 31, 2022



To: Chair and Members, Board of Management
Lake Huron Primary Water Supply System

From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Subject: Disconnecting from Work Policy

RECOMMENDATION

That the Board of Management for the Lake Huron Water Supply System **RECEIVE** this report regarding the requirement for a Disconnecting from Work Policy for information.

PREVIOUS AND RELATED REPORTS

None

BACKGROUND

As of December 2, 2021, the *Employment Standards Act, 2000* (“ESA”) was amended to require employers with 25 or more employees, excluding Crown Corporations and agencies, to implement a Disconnecting from Work Policy as of June 2, 2022. The intent of the amendment is to ensure that employees are adequately advised of employer obligations to not require employees to engage in work-related communications outside of normal working hours, including emails, telephone calls and video calls, except in specified circumstances such as an emergency.

DISCUSSION

The staff of the Regional Water Division, which are seconded and report to the Board of Management for the Lake Huron Water Supply System, are considered employees of the Corporation of the City of London for the purposes of the *Employment Standards Act*. The City of London has implemented a Disconnecting from Work Policy, effective June 2, 2022, which applies to all employees of the Corporation of the City of London.

In certain circumstances, two or more employers may be treated as one employer under the Employment Standards Act for the purposes of establishing the requirement and scope of the Policy. Notwithstanding, and given the current understanding of the policy requirements under the Employment Standards Act, Board staff believe that the Policy as implemented by the Corporation of the City of London (the “City”) is adequate for the circumstances and related to the activities of the regional water system.



The City's Disconnecting from Work Policy affirms the ability of an employee to disconnect from work outside of the employee's normal working hours. Exceptions are provided in the Policy in various circumstances, including but not limited to:

- Overtime, on-call, or standby according to applicable Collective Agreements or established procedures
- Unforeseen circumstances requiring contact with an employee such as an emergency or urgent operational circumstances requiring immediate attention

Established protocols and procedures for the Lake Huron Water Supply System, including the regional water system's Incident and Emergency Management System, related to notifications of emergencies and responding to urgent issues specifically require initial notification to employees by face-to-face or live voice-to-voice (i.e. telephone calls) communication. Initial notification of an emergency via voicemail or email is not adequate given the nature and circumstances of the water system's operation.

CONCLUSION

It is the recommendation of Board staff that this information be received by the Board for information and reference, noting that it is the understanding of Board staff that the implementation of the Disconnecting from Work Policy implemented by the Corporation of the City of London adequately covers the operation of the regional water system.

Submitted by: Andrew Henry, P. Eng.,
Director, Regional Water Supply

Recommended by: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

To: Chair and Members, Board of Management
Lake Huron Primary Water Supply System

From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Subject: Surplus Asset Disposal – Pump Shafts and Impellers

RECOMMENDATION

That the Board of Management for the Lake Huron Primary Water Supply System declare the obsolete rotating high lift pump assemblies at the Lake Huron Water Treatment Plant to be **SURPLUS** and **AUTHORIZE** staff to dispose of the asset in a manner fitting its value.

PREVIOUS AND RELATED REPORTS

June 7, 2018	Surplus Asset Disposal – Portable Diesel Generator (Carbon Building)
June 3, 2010	Disposal of Surplus Assets – 3.5MW Generator
December 8, 2011	Surplus Generator Disposal
October 4, 2012	Surplus Asset Disposal – (various items)

BACKGROUND

Clause 10 (Disposals) of the Board's Bylaw No.2 pertaining to the procurement and disposal of goods, services and equipment for the Lake Huron Water Supply System require Board approval for the disposal of assets.

DISCUSSION

The water supply system currently maintains a small inventory of pump shafts and impellers for the high lift pumps which could be utilized as spare parts for the existing high lift pumping equipment in the event of an emergency. These rotating elements are no longer able to be used due to pump and system changes, and general deteriorated condition of the shafts and impellers, and have been deemed by the Operating Authority as unfit for service. It is the recommendation of Board staff that these parts be disposed of and sold for scrap through an appropriate vendor.

As the estimated material value of the shafts and impellers, assuming it is sold for scrap, is approximately \$5,000. Images of the pump shafts and impellers that have been declared surplus are attached to this report as Appendix A.

CONCLUSION

Board staff have identified the need to dispose several pump shafts and impellers and are requesting the Board's approval pursuant to the Procurement and Disposal Bylaw. The pump shafts and impellers are currently located at the water treatment plant and used as spare parts for the existing high lift pumps.

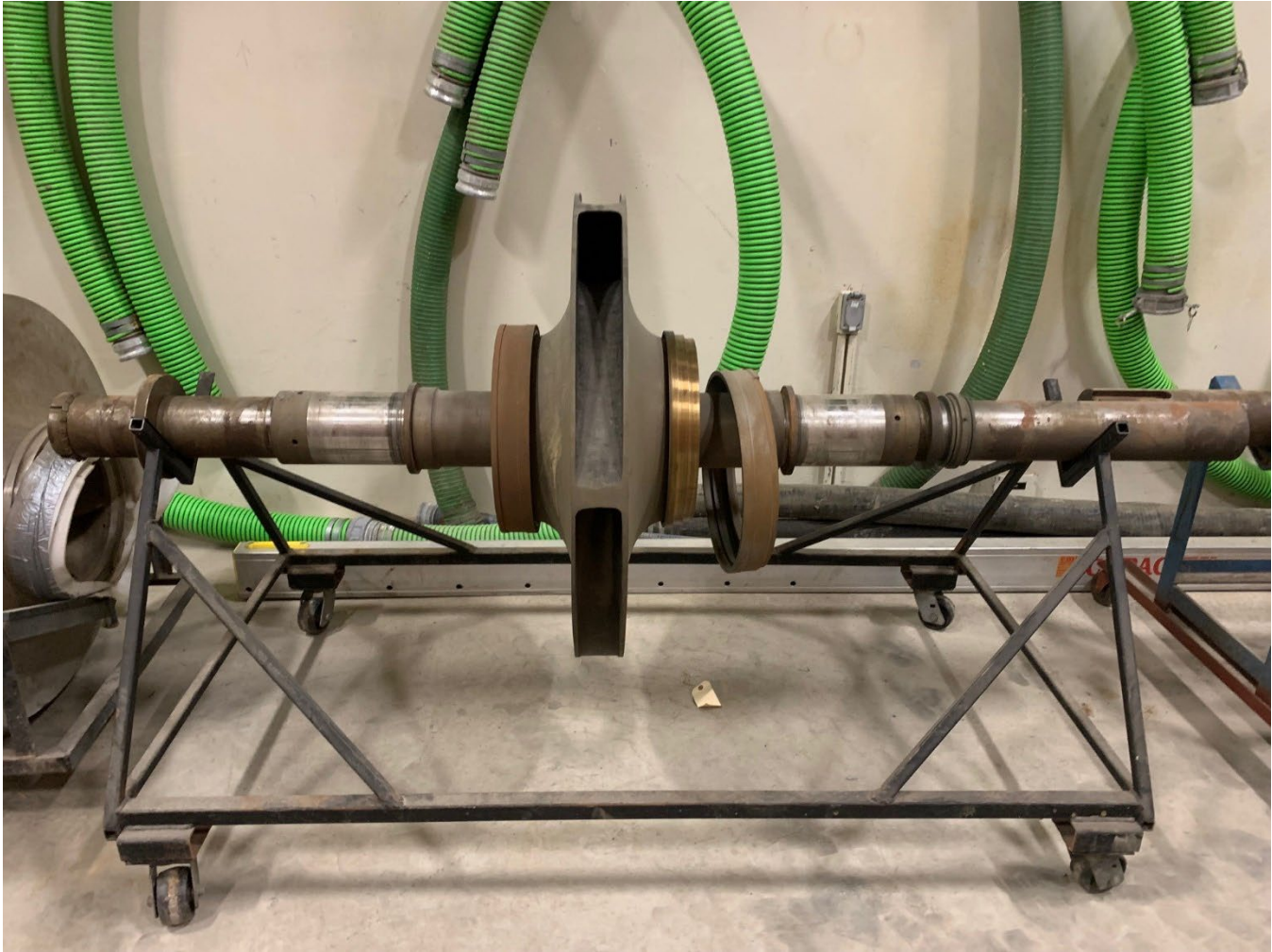
Prepared by: John Walker, CD, B.Sc.
Manager, Operations

Submitted by: Andrew Henry, P. Eng.,
Director, Regional Water Supply

Recommended by: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Appendix A: Images of Pump Shafts and Impellers Declared Surplus

APPENDIX A: IMAGES OF PUMP SHAFTS AND IMPELLERS DECLARED SURPLUS





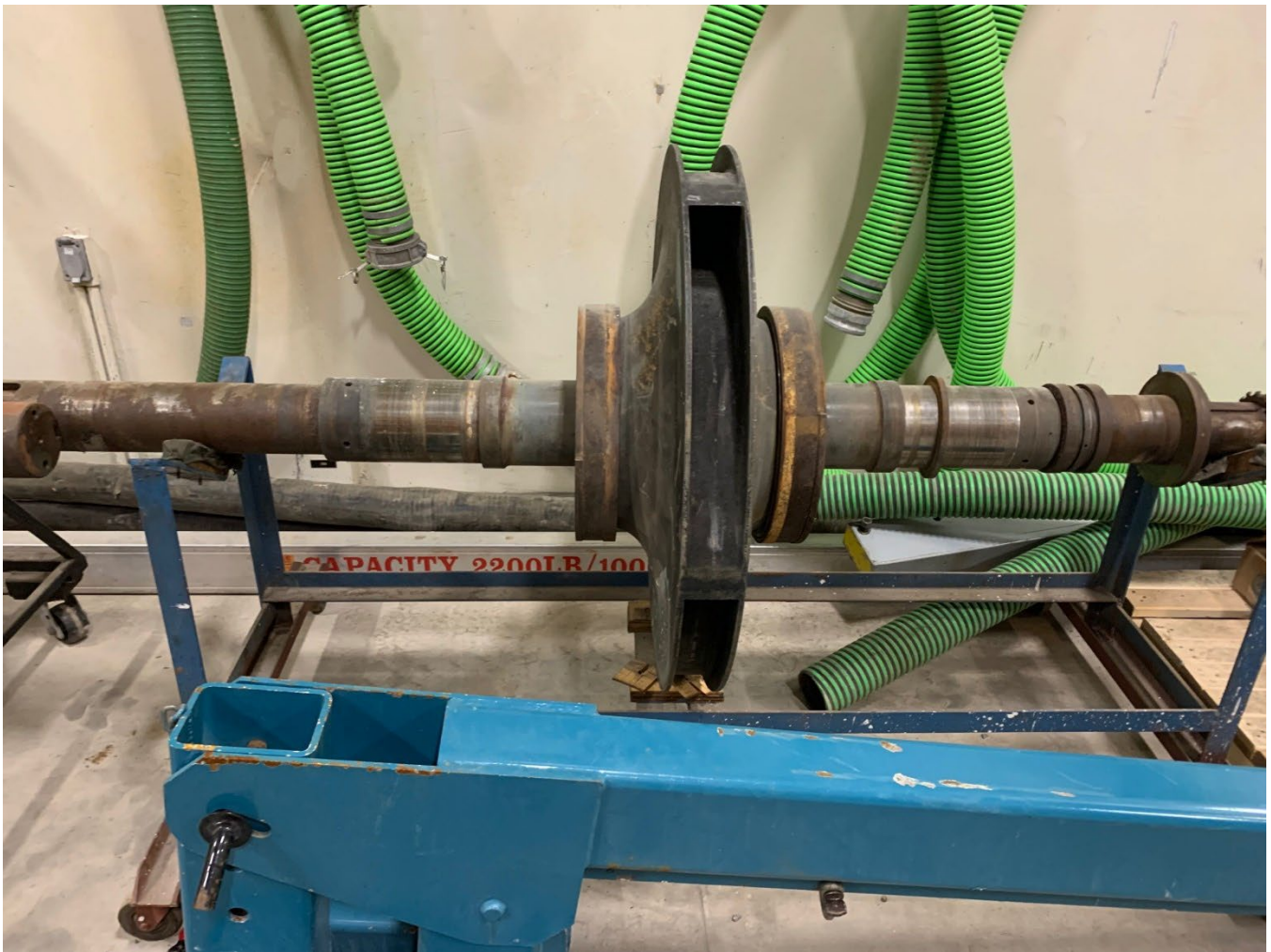
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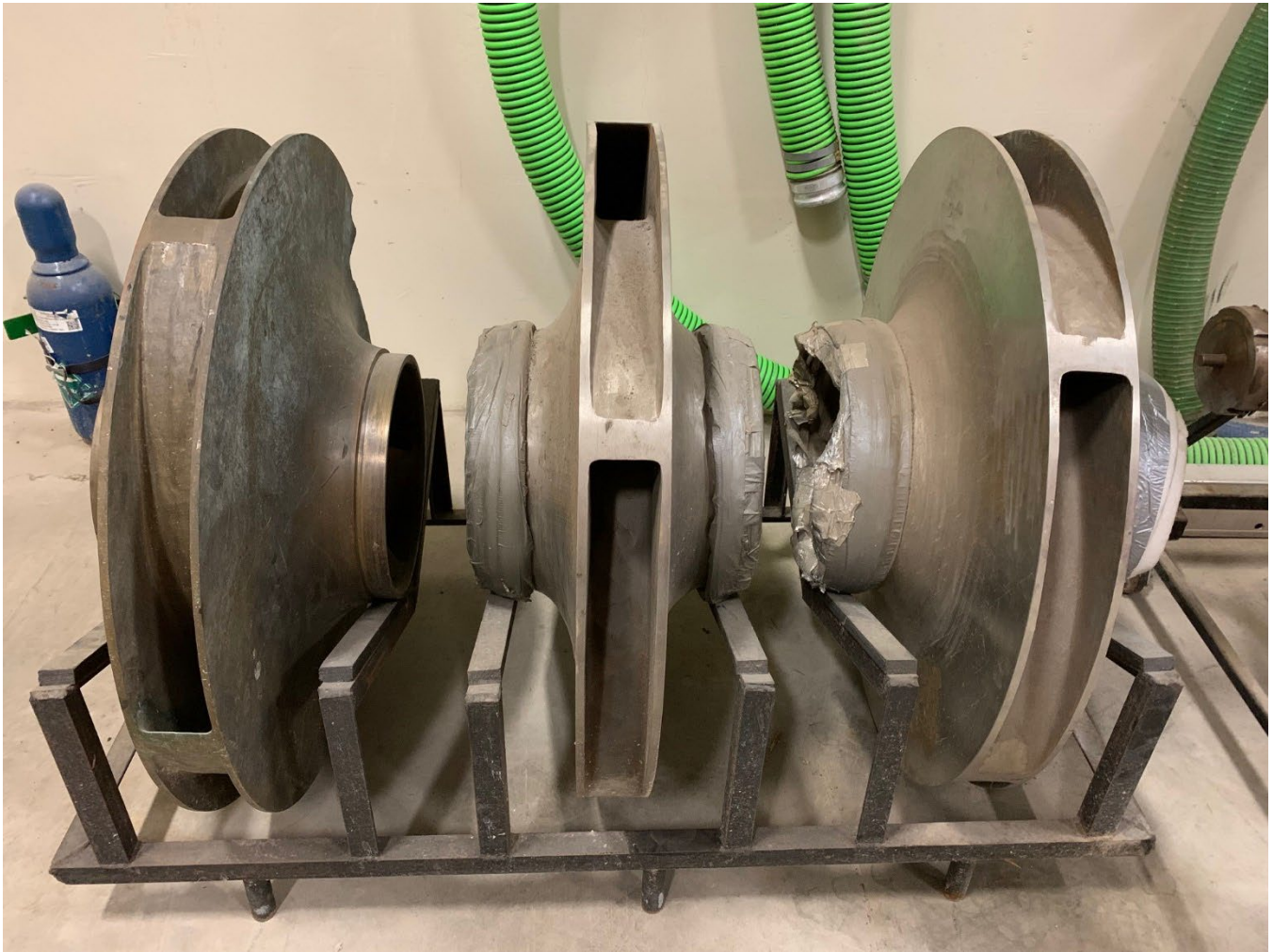
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Lake Huron
Primary Water Supply System

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To: Chair and Members, Board of Management
Lake Huron Primary Water Supply System
From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer
Subject: Climate Change Vulnerability Assessment

RECOMMENDATION

That the following report with respect to the Climate Change Vulnerability Assessment for the Lake Huron Primary Water Supply System **BE RECEIVED** for information.

PREVIOUS AND RELATED REPORTS

None

EXECUTIVE SUMMARY

The Climate Change Vulnerability Assessment Tool (Tool) was developed by Conservation Ontario in 2018 to assess well and surface water intake sensitivities and vulnerabilities due to climate change. The Tool was successfully used to provide helpful recommendations to the Elgin Area Water Supply System (EAWSS), suggesting that a similar assessment would be beneficial for the Lake Huron Water Supply System (LHWSS).

The LHWSS utilized the assessment tool for the intake and area level sensitivities related to climate change. The intake and area level received an overall vulnerability rating of medium. This is based on receiving a high overall area level and intake impact rating and a high adaptive capacity rating.

From the Tool, draft recommendations for consideration by the LHWSS, and the Ausable Bayfield Conservation Area have been developed. The draft recommended opportunities include reviewing policies surrounding agricultural land use and a review of rainfall intensity-duration-frequency to address potential threats to water quality from increased precipitation and precipitation intensity. Collaboration with local conservation authorities to develop policies related to existing flood plains and potential flooding impacts due to climate change was also recommended.

The Tool can also aid in improving existing policies and management practices the LHWSS has already adopted such as the Environmental and Quality Management Systems, the Asset Management Policy and potentially aid in the development of a Climate Action Plan. In addition, the Tool can support other activities including the development of capital budgets and plans, process optimization and risk mitigation strategies. With the aid of the Tool, the LHWSS can maintain or potentially improve its resiliency to climate change.

BACKGROUND

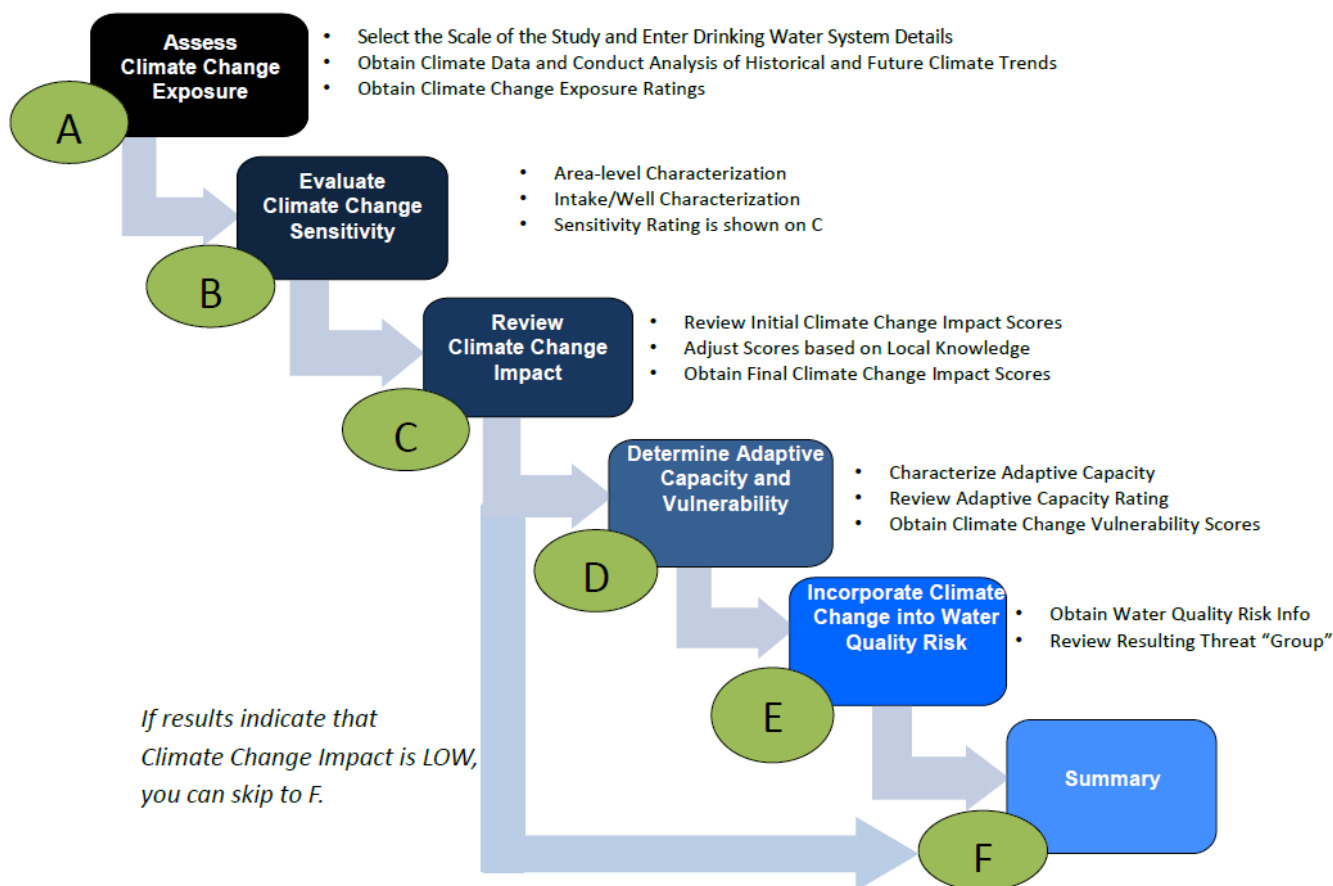
In 2018, Conservation Ontario developed the Climate Change Vulnerability Assessment Tool due to changes to the Director's Technical Rules, under the *Clean Water Act*, to include the consideration of climate change in source water quality risk assessments.

The use of the Climate Change Vulnerability Assessment Tool (Tool) by the Elgin Area Water Supply System (EAWSS) resulted in helpful policy-level recommendations for that water system to consider in future refinements in managing source protection risks. Further, the Ausable Bayfield Conservation Area (ABCA) used the Tool to evaluate climate change impacts for groundwater systems in the region. The success of the Tool for the EAWSS and ABCA suggest that it would be beneficial to perform a similar assessment for the Lake Huron Water Supply System (LHWSS).

The Tool is a Microsoft Excel-based application and is one of the first of its kind in Ontario. Its main purpose is to provide science-based guidance to governing bodies on how to assess climate change vulnerabilities to source water quality related to drinking water. The Tool assesses both water supply intake sensitivity and area level sensitivity, as well as adaptive capacity of the system, to identify climate change vulnerabilities that are specific to the area surrounding the drinking water system.

The Tool utilizes a series of worksheets that are linked to assess climate change exposure, evaluate climate change sensitivity at the intake, assess the adaptive capacity and climate change vulnerability of the area and intake, and provides a qualitative climate change vulnerability rating into existing drinking water quality threat risk assessments.

Below is a visual representation of how the Tool works. As shown in the figure below, the Tool integrates the results of Worksheets A through D and provides results in Worksheet E and a summary in Worksheet F.



The output results of the Tool are intended to be used in adaptation and risk mitigation strategy planning, capital planning and process optimization. The Tool can also indicate how resilient the system is to climate change risks. This Tool can aid in the evaluation of the current and predicted state of the Lake Huron Water Treatment Plant and its intake and identify which components of the system may be most susceptible to climate change. The results will serve to further encourage climate change risk management of drinking water system infrastructure and support local climate change strategies and/or Climate Action Plans.

The Tool can also be utilized to evaluate how the total adaptive capacity of the system changes if one or more risks identified are reduced or eliminated. Because the Tool covers the entire watershed that influences the vulnerability of the intake, a collaborative approach with the Source Water Protection Committee and local municipalities will be required to increase climate change adaptive capacity.

DISCUSSION

The Climate Change Vulnerability Assessment Tool was used in March 2022 to evaluate the Lake Huron Primary Water Supply System.

Climate Change Exposure

The use of the Tool confirmed that the intake experiences a high exposure to multiple climate parameters through all seasons annually based on historical and predicted climate trends. The climate parameters that contribute to the high exposure rating are the following:

- minimum / maximum temperatures,
- precipitation,
- heavy precipitation (intensity),
- very hot days, and
- frost-free days.

Area Level Sensitivity

The Lake Huron Primary Water Supply Area had an assessed overall Area Sensitivity of 71%. This means of all attributes assessed, 71% were highly sensitive to climate change. The attributes that had a high sensitivity and where actions could be taken include:

- future percentage of agricultural fields within of the Ausable Bayfield Source Protection Area for the municipal planning horizon, and
- stormwater system capacity.

Intake Sensitivity

It was found that the Lake Huron Primary Water Supply intake had an overall Intake Sensitivity of 25%. This means of all the attributes assessed, 25% were highly sensitive to climate change. The attributes that had high sensitivity and where actions could be taken include:

- number of intakes, and
- threats to water quality.

Climate Change Impact

The Climate Change Impact assessment provides an overall climate change impact rating for the study area and the intake. The final impact score was 6.5 out of 9.0, or 72%. This gives the system a high rating, qualitatively. This high rating suggests that water quality of the drinking water source will be impacted by climate change.

The Climate Change Impact assessment also generates an overall climate change vulnerability score. The Lake Huron Primary Water Supply System has a low vulnerability score, qualitatively. This low rating can be attributed to the existing high adaptive capacity of the system.



Adaptive Capacity

Through the use of the Tool, it was found that the Lake Huron Water System had an Adaptive Capacity score of 70%, or a high adaptive capacity. Adaptive capacity is the ability of the system to adjust to climate change or ability to address impacts from climate change. The high adaptive capacity can be attributed to the ability to rely on the Lake Huron Water Supply System in the event of an emergency, as well as existing policies and management procedures, such as the Environmental and Quality Management Systems.

The threat activities worksheet also identifies existing threat activities based on the climate change vulnerability rating and aids in determining if any actions may be required to address anticipated climate change impacts on water quality threats. No threats were identified through this Tool for the LHWSS.

As stated above, if one or more of the attributes contributing to the high sensitivity scores is addressed, the Tool can be used to determine if the action will contribute to a lower sensitivity score and if so, by how much. This can aid in capital planning to assess qualitative “return on investment” strategies for climate related actions, as well as assist in future management policies and procedures by prioritizing recommended projects and actions. The Tool can also be beneficial to the municipalities as it can identify areas of improvement within the Lake Huron Water System to potentially meet or exceed the water system’s customer level of service targets.



CONCLUSION

From the results of the Climate Change Vulnerability Assessment Tool, it can be concluded that the LHWSS area is susceptible to climate change impacts. The Tool also demonstrated the water system has a high adaptive capacity and is resilient to climate change impacts. This can be attributed to the existing policies, and management policies and procedures currently in place.

Although the overall climate change vulnerability score was qualitatively low, the Climate Change Vulnerability Assessment Tool provided recommendations to be investigated further, as noted above.

Next steps in utilizing this Tool include collaborating with area source protection committees and municipalities. This will enable the Lake Huron Water Supply System to better adapt to the potential impacts climate change may have on the system. This includes being able to maintain customer levels of service to the benefiting municipalities by being proactive when it comes to planning for climate change related impacts.

Prepared by: Josh Self, EIT
Engineer in Training

Submitted by: Andrew Henry, P. Eng.,
Director, Regional Water Supply

Recommended by: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

To: Chair and Members, Board of Management
Lake Huron Primary Water Supply System

From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Subject: Pipeline Operations and Maintenance Agreement Compensation Values Update

RECOMMENDATION

That the following actions be taken regarding the Pipeline Operations and Maintenance Agreement:

- a) That the Board of Management for the Lake Huron Primary Water Supply System **AUTHORIZE** the Board Chair and Chief Administrative Officer to execute a Pipeline Operations and Maintenance Agreement Compensation Values Update template agreement with the Lake Huron Pipeline Landowners Association;
- b) That the Board of Management for the Lake Huron Primary Water Supply System **AUTHORIZE** the Chief Administrative Officer to execute Pipeline Operations and Maintenance Agreement Compensation Values Update agreements, substantially in the form as attached, with applicable property owners along the Lake Huron transmission pipeline easement; and,
- c) That the Board of Management of the Lake Huron Primary Water Supply System **RECEIVE** this report for information.

PREVIOUS AND RELATED REPORTS

June 7, 2012	LHPLA – Pipeline Operations and Maintenance Agreement
March 21, 2013	LHPLA – Status Update
October 3, 2013	Pipeline Operations and Maintenance Agreement – Lake Huron Pipeline Landowners Association
June 8, 2017	Pipeline Operations and Maintenance Compensation Values Update Agreement

BACKGROUND

Pursuant to Board of Management resolution on October 3, 2013, the Board Chair and Chief Administrative Officer executed agreements with the Lake Huron Pipeline Landowners Association (LHLPA) and applicable property owners along the Lake Huron transmission pipeline easement related to the regional water systems ongoing operation and maintenance of the transmission pipelines within the pipeline easement. The agreement pre-negotiates numerous issues including fair compensation for damages and losses as a result of the ongoing operation, maintenance, and repair of the transmission pipeline. The execution of the agreement in 2013 set the stage to improve our long-term relationship with the impacted property owners.

The initial term of the Schedule 'C' Compensation Values of the Pipeline Operations and Maintenance Agreement ended on December 31, 2017, and Board staff negotiated the Compensation Values with the LHLPA for the subsequent 5-year term (January 1, 2018 to December 31, 2022). In June 2017, the Board authorized the Board Chair and Chief Administrative Officer to execute a Pipeline Operations and Maintenance Compensation Values Update template agreement with the Lake Huron Pipeline Landowners Association, as well as authorized the Chief Administrative Officer to execute Pipeline Operations and Maintenance Compensation Values Update agreements with each of the applicable property owners.

DISCUSSION

With the 2017-2022 term ending on December 31, 2022, Board staff met with representatives from the LHLPA on September 12, 2022 to renegotiate the Compensation Values noted in Schedule “C” of the POMA in advance of the December 31, 2022 deadline based on the agreed upon process from the 2017 update. Board staff and LHLPA agreed in principle to the following updated compensation values:

- Land use compensation in the amount of \$23,500/acre based on land valuations from Farm Credit Canada Farmland Values Report 2021 for the southwest region;
- Crop loss compensation in the amount of \$1,210/acre based on the published values of the Grain Farms of Ontario; and,
- Disturbance damage compensation in the amount of \$8,700/acre based on the formula agreed to in the previous update that is a function of crop loss and land use.

CONCLUSION

With the 2017-2022 term of the Schedule ‘C’ Compensation Values of the Pipeline Operations and Maintenance Agreement nearing its end on December 31, 2022, Board staff renegotiated the proposed Compensation Values with the LHLPA for the subsequent 5-year term (January 1, 2023 to December 31, 2028).

Subject to the LHPWSS Board of Management Approval, and subsequent execution of the POMA compensation values Update template agreement between LHPLA and LHPWSS, Board staff shall prepare and commence execution of the POMA Compensation Values Update Agreement, substantially in the form as attached in Appendix A, with individual property owners.

Prepared by: Billy Haklander, LL.M., P.Eng.
Capital Programs Manager

Submitted by: Andrew Henry, P. Eng.,
Director, Regional Water Supply

Recommended by: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Attachments: Appendix A - Pipeline Operations and Maintenance Compensation Values Update Agreement

**APPENDIX A: PIPELINE OPERATIONS AND MAINTENANCE AGREEMENT
COMPENSATION VALUES UPDATE**

THIS AGREEMENT MADE IN QUADRUPLICATE THIS _____ DAY OF _____,
2022

BETWEEN:

**[INSERT LANDOWNER AS PER ORIGINAL INDIVIDUAL LANDOWNER
AGREEMENT] ("LAKE HURON PIPELINE LANDOWNER(S)" OR
"LANDOWNER(S))"**

- AND -

LAKE HURON PRIMARY WATER SUPPLY SYSTEM ("LHPWSS")

POMA COMPENSATION VALUES UPDATE AGREEMENT

WHEREAS LAKE HURON PIPELINE LANDOWNERS ASSOCIATION ("LHPLA ") and LHPWSS have entered into a Pipeline Operations and Maintenance Agreement (POMA) dated the 2nd day of July, 2013 with respect to LHPWSS's Repair, Maintenance and Operation Activities in connection with the Lake Huron Pipeline;

AND WHEREAS POMA par. 7(f) provides for the periodic renegotiation of Schedule "C" Appendix 1 Compensation Values to apply to calculation of Land Use, Disturbance and Crop Loss compensation for Non-Invasive Operations and Invasive Operations;

AND WHEREAS LHPLA and LHPWSS have renegotiated Schedule "C" Appendix 1 Compensation Values to apply for the period of January 1, 2023 to December 31, 2028, a copy of which is attached hereto and marked as "Compensation Terms Agreement Schedule C Appendix 1; Compensation Values Jan. 1, 2023 – December 31, 2028";

AND WHEREAS pursuant to POMA LANDOWNER(S) have entered into an Individual Landowner Agreement substantially in the form of POMA, which has been drawn with the intent for LANDOWNERS to adopt the LHPLA renegotiated compensation values as may apply from time to time ("Individual Landowner Agreement");

AND WHEREAS by this Agreement the parties wish to update the Individual Landowner Agreement between the LANDOWNER and LHPWSS to correspond with the updated POMA.

NOW, THEREFORE, in consideration of their mutual covenants, the parties agree as follows:

1. Updated Compensation Values as provided in the attached "Compensation Terms Agreement Schedule C Appendix 1; Compensation Values Jan. 1, 2023 – December 31, 2028" shall apply to the calculation of Land Use, Disturbance and Crop Loss compensation for Non-Invasive Operations and Invasive Operations undertaken in the period January 1, 2023 to December 31, 2028.

2. Schedule "C", Appendix 1 of the Individual Landowner Agreement is amended accordingly.
3. Save and except for this amendment, the parties otherwise acknowledge and endorse the continued application of the Individual Landowner Agreement to LHPWSS's Repair Maintenance and Operation Activities in connection with the Lake Huron Pipeline.

IN WITNESS WHEREOF the parties have executed this Agreement as of the date set out above.

Company Name

Per:

Name or Title

Per:

Name or Title

THE JOINT BOARD OF MANAGEMENT
OF THE LAKE HURON PRIMARY WATER
SUPPLY SYSTEM

By its specifically authorized signing
officer(s) for the purpose of this agreement

Per:

Kelly Scherr, P.Eng., MBA, FEC
CAO, Lake Huron Primary Water
Supply System

Compensation Terms Agreement
Schedule C Appendix 1

Compensation Values Jan. 1, 2023 – Dec.31, 2028¹

	Non-Invasive Event		Invasive Event	
	Normal	Wet	Normal	Wet
1. Temporary Land Use-Access²				
Land Use				
• Unstripped ³	NA	NA	\$11,750/acre	\$11,750/acre
• Unstripped- mats (light) ⁴	NA	NA	\$11,750/acre	\$11,750/acre
• Unstripped- mats (heavy) ⁵	NA	NA	\$11,750/acre	\$11,750/acre
• Stripped ⁶				
Disturbance ⁷				
• Unstripped	\$4,350/acre	\$6,525/acre	\$4,350/acre	\$6,525/acre
• Unstripped- mats (light)	NA	NA	\$4,350/acre	\$6,525/acre
• Unstripped- mats (heavy)	NA	NA	\$8,700/acre	\$13,050/acre
• Stripped			\$8,700/acre	\$13,050/acre
Crop Loss ⁸				
• Unstripped- (Annual)	\$1,210/acre	\$1,815/acre	\$1,210/acre	\$1,815/acre
• Unstripped- mats (light)	NA	NA	\$5,127/acre	\$7,691/acre
• Unstripped- mats (heavy)	NA	NA	\$10,252/acre	\$15,379/acre
• Stripped			\$20,505/acre	\$30,758/acre
2. Temporary Land Use – Topsoil storage				
Land Use	NA	NA	\$11,750/acre	\$11,750/acre
Disturbance	NA	NA	\$4,350/acre	\$6,525/acre
Crop loss	NA	NA	\$1,210/acre	\$1,815/acre
3. Easement				
Disturbance ⁷				
• No excavation	\$4,350/acre	\$6,525/acre	NA	NA
• Minimal excavation ⁹	NA	NA	\$8,700/acre	\$13,050/acre
• Easement excavation ¹⁰	NA	NA	\$8,700/acre	\$13,050/acre
Crop Loss ⁸				
• No excavation	\$1,210/acre	\$1,815/acre	NA	NA
• Minimal excavation ⁹	NA	NA	\$1,210/acre	\$1,815/acre
• Easement excavation ¹⁰	NA	NA	\$20,505/acre	\$30,758/acre



Lake Huron

Primary Water Supply System

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¹ Compensation Values for the period January 1, 2023 to December 31, 2028 are as follows:

Land Use –	\$23,500/acre
Disturbance –	\$8,700/acre
Crop Loss – for one year which pertains to Crop Loss limited to one year's growing season –	\$1,210/acre
Crop Loss – for Invasive Events includes a Calculation of 6-year declining Crop Loss and residual loss at present value –	\$20,505/acre
Wet Damage –	150% X Crop Loss/Disturbance

² "Temporary Land Use" pertains to actual area of lands accessed or utilized off easement.

³ "Unstripped" means unstripped with use of a small track vehicle, a 4x4 ATV, or another track vehicle or comparable.

⁴ "Unstripped with Mats (Light)" means unstripped, using construction matting for soil protection and use of light vehicle i.e., Rubber tired backhoe, light duty pickup truck or comparable.

⁵ "Unstripped with Mats (Heavy)" means unstripped, using construction matting for soil protection and use of heavy equipment i.e., Dump truck, Excavator, Heavy duty Truck or comparable.

⁶ "Stripped" means subject to topsoil stripping.

⁷ "Disturbance" pertains to actual area of lands accessed or utilized.

⁸ "Crop Loss" is only applicable to lands where Crop is grown and/or Crop is affected by the Event.

⁹ "Minimal Excavation" means where excavation is attended to with use of light vehicle/equipment i.e., vacuum, mini- excavator, rubber-tired backhoe or comparable.

¹⁰ "Easement excavation" means where excavation is attended to with use of a heavier vehicle/equipment i.e., Excavator or comparable

To: Chair and Members, Board of Management
Lake Huron Primary Water Supply System

From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Subject: 2023 Operating and Capital Budgets

RECOMMENDATION

That the following actions be taken by the Board of Management for the Lake Huron Water Supply System with regard to the 2023 Operating and Capital Budgets:

- a) The Board **APPROVE** the 2023 Operating Budget in the total amount of \$24,499,000 as presented.
- b) The Board **APPROVE** the 2023 Capital Budget in the total amount of \$27,943,000 as presented.
- c) The Board **RECEIVE** the 2024 to 2032 Capital Forecast for information.
- d) The Board **APPROVE** the 2023 rate for water of \$0.5194 per cubic meter: and,
- e) The Board **RECEIVE** the 2021 to 2027 Flow and Financial Analysis for information

EXECUTIVE SUMMARY

The proposed operating and capital budgets present a balanced cost and revenue projection for 2023 but deviates from the water system's Financial Plan approved in 2016. The proposed water rate for 2023 of 51.94 cents per cubic meter (\$0.5194/m³) of water will adequately address capital, operating and administrative requirements as currently projected. The proposed rate represents an increase of only 1.5% over the 2022 rate, rather than the 3% previously projected in the 2016 Financial Plan.

The Financial Plan is a key element in the long-term strategic approach that addresses both infrastructure and operating needs for the utility while ensuring fiscal responsibility to maintain a reliable and sustainable water supply to the benefiting municipalities and consumers. The Financial Plan for the regional water system is currently being updated and anticipated to be completed early 2023 immediately following the completion of the revised Asset Management Plan.

Cost projections presented in the 2023 budget include the anticipated operating costs for the water utility within the current and extended term with the contracted operating authority, the Ontario Clean Water Agency, which now end December 31, 2027.



Lake Huron
Primary Water Supply System

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File No.:

The 2023 Capital Budget builds on the water system's Asset Management Plan approved in 2016 and utilizes the Customer Level of Service framework and Risk Mitigation strategy previously approved by the Board. This includes the utilization of the business case process to better quantify anticipated costs, savings, and service impacts to the water supply system for options considered.

The projects and initiatives in the 2023 Capital Budget are presented in this report within two primary groupings; Maintain Level of Service (Maintain LOS) projects that serve to ensure that services are provided at the current level of service, and Improved Level of Service (Improved LOS) which address enhancements to levels of service, support growth of the system and increasing water demands, address regulatory changes, or increase efficiency. A proposed capital project may touch, in part, on all these aspects, however they are presented within this report according to their respective primary driver.

The projected future capital expenditures include allocations for anticipated scheduled asset investments outlined in the Asset Management Plan (listed as "*AMP Investments*"). These are listed for projection and planning purposes and are not associated with specific projects at this time. As the business cases are completed in each category, the AMP Investments will be eliminated in the projections in favour of specific asset improvements and refurbishments.

PROPOSED 2023 OPERATING BUDGET

2023 Water Rate

It is proposed in this budget that the water rate for the wholesale of water to the benefiting municipalities be set at \$0.5194 per cubic meter (51.94¢ per cubic meter). In responding to regulatory, operational, and inflationary pressures, this proposed 2023 rate represents a 1.5% increase from the current rate.

The rate proposed for the 2023 budget is less than the projected rate increase of 3.0% previously reported to the Board in the Financial Plan approved in 2016, largely due to the increased volume of water projected to be supplied to the benefiting municipalities in recent years, as well as efficiency and cost-effectiveness efforts implemented within the operation and management of the utility.



2023 Budget Volume

Allowing for the current rate of population and water demand growth within the benefiting municipalities, as well as anticipated impacts of continued water conservation, the proposed 2023 treated water volume included in the budget of 47,114,500 cubic meters represents a 0.5% decrease compared with the 2022 approved budgeted volume, and approximately 3.3% higher than the anticipated 2022 actual supplied volumes.

Approved 2022 budget volume	47,344,500 m ³
Anticipated 2022 year-end volume	45,599,529 m ³
Proposed 2023 volume	47,114,500 m ³

The long-term volume projections for the regional water systems have been re-evaluated in preparation for the 2023 budget and revised to incorporate increasing consumption trends within the City of London. Supplied volumes to the other benefiting municipalities continue to remain stable, with low to moderate long-term annual growth in consumption rates.

The anticipated 2022 year-end volume is lower than projected largely due to the calibration of a large meter to the City of London's distribution system. The electronic meter was discovered to have a notable error and was repaired late last year. While the long-term trends for the City of London continue to demonstrate increased demands due to growth, the net impact of the meter repair is noticeable when setting the 2023 budgeted volume for the Lake Huron system. The long-term volume projections have also been adjusted accordingly.

Water demand projections and anticipated capital works are reviewed annually as part of the budget development process to ensure capital investments are appropriately coordinated and timed. The long-term volume projections will be reviewed again during future revisions to the Master Water Plan and compared to the long-term growth projections for each municipality. Further, the regional water system's business case process promotes a risk mitigation and level of service strategy which further addresses the appropriate timing of necessary projects.

Operating Costs

The two single largest operating costs for the water supply system are the contract costs for the operation and maintenance of the water supply system, and the purchase of electricity for the system. The 2023 budgeted operating costs are approximately \$11.558 million, reflecting a net 8.4% projected increase compared to the 2022 budget. While ongoing energy saving initiatives implemented at the facility are translating to decreased energy costs overall, the renewal of the contract for the operation and maintenance of the water system's facilities saw a significant increase due to increased supply costs.

Of the \$11.558 million, energy comprises approximately 25.9% of operating expenditures (down from 29.7% in 2021 actual usage).

The Service Fee currently paid to the Board's contracted operating authority, the Ontario Clean Water Agency (OCWA), is solely comprised of general operating costs (labour, material, and chemical costs, etc.) paid by the Board. As electricity can be highly variable on a year-over-year basis, the risk of market volatility has summarily been assumed by the Board and mitigated through the Board's energy procurement strategy, as well as conservation and efficiency programs.

The Board previously received and accepted an energy, conservation and pump optimization study report which reviewed possible cost saving and efficiency measures related to the procurement and usage of electrical energy and the associated pumping strategy for the system. The proposed 2023 Capital Budget and forecasted capital plan continues to incorporate energy efficiency projects and opportunities, where feasible, with further energy efficiency projects to be considered in future.

Administration and Other Expenses

The Administration and Other Expenditures projected for the 2023 budget of approximately \$3.596 Million represents a \$294,000 net increase over the 2022 budget amount. This net increase is due to numerous changes to the water supply system, including:

- Management & Administrative Personnel: projections for personnel costs have been adjusted as a result of increases reflective of Collective Agreements and cost of living increases. The budget also includes the addition of a Control Systems Coordinator (½ FTE shared with the Elgin Area Water System) to address the increased workload associated with the Supervisory Control and Data Acquisition (SCADA) and computer networks across the region.
- Significant increases to the Board's property, cyber insurance, Directors & Officers insurance, property insurance, and general liability insurance.
- The increased costs to Information Technology due to cyber security measures, implemented technology, and IT/OT asset replacements.
- The migration of plant instrumentation replacements from the Capital Budget to the Operating Budget

Oneida Transmission Pipeline

The planning and preparations for the construction of the new transmission pipeline and supply to the Oneida Nation of the Thames is ongoing and awaiting final approval from Indigenous Services Canada. While the regional water system has initiated the Municipal Class Environmental Assessment and preliminary design process for the transmission pipeline, for planning purposes it has been assumed that the detailed design and construction of the pipeline will occur in 2023 and 2024.

At the time of drafting the proposed 2023 Operating Budget, the Environmental Assessment and Preliminary Design was not sufficiently advanced to ascertain the potential operational implications on current operating costs. Once details have been finalized, any additional costs

for operation including changes to the Operation and Maintenance Agreement with the Ontario Clean Water Agency, if any, will be presented to the Board for information at a future meeting.

Given the scope and complexity of the project, the Administration and Other Expenses includes an allowance for a temporary Senior Technologist who will assist in the project management and delivery, aiding the regional water system's assigned engineer. The temporary posting will be for up to two years and draw upon the available resources within the City of London in accordance with the Collective Agreement.

The cost of the Senior Technologist will be recovered from the capital project and have a net-zero impact on the current Operating Budget.

Process Optimization

There continues to be a focus on process optimization in order to improve treatment and transmission system performance, efficiency, and effectiveness with the intention of lowering long-term costs of operation and capital investments. This has the added potential to increase treatment capacity without the corresponding construction of new treatment processes (i.e., expanding the treatment plant).

Staff have undertaken several of the preliminary studies and investigations outlined in the previous Water Quality Facility Plan completed in 2012. Further leveraging in-house resources and partnerships with the Natural Sciences and Research Council of Canada (NSERC) Industrial Research Chairs at the universities of Waterloo and Toronto have allowed the apportionment of operating costs for optimization to be reduced without impacting the optimization program as a whole.

An update to the Water Quality Facility Plan approved in the 2022 Capital Budget has been initiated and will incorporate recent assessments related to treatment capacity, impacts of Climate Change and adaptive capacity, and unit process treatment efficacy.

PROPOSED 2023 CAPITAL BUDGET

The proposed 2023 Capital Budget incorporates several projects to address capital improvements and critical reinvestment in the water supply system's assets, as well as regulatory requirements, ongoing and proposed Board initiatives. Project specific summaries are provided in Appendix A of this report for the Board's information.

Financial Plan and Asset Management Plan

The previous Asset Management Plan and Financial Plan approved by the Board in 2016 provided an assessment of anticipated capital projects, based on condition assessments, operational assessments provided by our contracted operating authority, and previously undertaken studies which were available at that time. In the development of the 2023 Capital Budget, a business case is created for each project which outlines the scope of the issue that needs to be addressed, options which can reasonably be considered, cost estimates, and the identification of project dependencies. The business case process is linked with our Customer Level of Service framework and Risk Mitigation strategy to better prioritize and direct funds in a more strategic fashion and in consideration of financial constraints which may be experienced.

Within this framework a capital project may be “lifecycle” in nature and required to maintain an existing level of service, and/or a “service improvement” investment which may address elements like:

- Enhancement to the level of service (including safety and security, system resiliency, and working conditions);
- Support of system growth or growth in water demand;
- Address regulatory changes; and/or,
- Increase efficiency.

The level of capital investment will vary from year-to-year, most especially for projects related to system growth or supporting water demand growth. The Asset Replacement Reserve is used for lifecycle projects (maintain LOS), while the New Capital Reserve is used for system improvements. A given project, in principle, may address multiple elements within the Customer Level of Service framework (energy efficiency, health & safety, regulatory, performance, etc.), and therefore may require the utilization of both the Asset Replacement Reserve (lifecycle) and the New Capital Reserve (service improvement and growth) as sources of funding.

It is important to note that the anticipated projects outlined in the Asset Management Plan tend to be based on risk mitigation in the first five-year planning period, and systemic or age-related in nature for the remaining 25+ year planning period. In addition, the financial information presented in the Asset Management Plan is considered an “unconstrained” financial projection; meaning without consideration of such things as other operational needs and financial constraints (e.g., borrowing capacity) experienced by the water supply system.

The Financial Plan is utilized to incorporate the needs identified in not only the Asset Management Plan, but also the Master Water Plan (growth study) and other planning studies undertaken by the system, as well as the evolving operational and administrative needs of the system, to better constrain the financial requirements and implications to the system. During the development of the annual budget the projections in the Financial Plan are measured and adjusted according to actual conditions, which will consequently affect the capital plan in each fiscal year.

The projected capital plan (2024 to 2032) includes an allocation for anticipated systemic but unspecified asset investments starting in 2024 (identified as “*AMP Investments*”). This reflects the age-related projections included in the previously approved Asset Management Plan. As condition assessments and risk assessments are completed, business cases will be undertaken to identify and prioritize the expenditures and replace these *AMP Investments* allocations in the long-term plan.

An updated Asset Management Plan is currently under review and anticipated to be completed before the end of 2022. This new Asset Plan will be presented to the Board at a future meeting and incorporated into an updated Financial Plan expected in early 2023.

2023 Capital Plan

The current Financial Plan previously approved by the Board recommends an average target year-end balance for the Asset Replacement Reserve in the order of \$4.747 million. Although the actual investment and rate of commitment may vary year to year, the current capital plan maintains the long-term average investment rate as outlined in the approved Asset Management Plan and Financial Plan.

In contrast, the New Capital Reserve is intended to grow significantly over time to provide a sufficient base for funding of large growth-related projects in future. The balance of generational investment equity (utilization of reserves established by current users versus debt incurred and paid by future users) has yet to be fully quantified and will be addressed in future Master Water Plan and Financial Plan studies.

While there are no significant growth-related expenditures within the current budget forecast period (e.g., plant expansion or pipeline twinning), the results of the Asset Management Plan and Financial Plan currently being undertaken, and future iterations of the Master Water Plan anticipated in 2024 are likely to have an impact on the long-term financial requirements to address growth-related projects. This may potentially include the expansion of the terminal reservoir near Arva as well as significant treatment improvements to address long-term needs.

Staff continue to be satisfied that the issue of generational equity can be addressed within a reasonable timeframe.



Lifecycle Projects (Maintain Level of Service)

Proposed projects in the 2023 Capital Budget which primarily address maintaining the system's level of service are:

- Low Lift Pump Rebuild
- Concrete Crack Injections
- Walking Beam Flocculator Rehabilitation
- Hydraulic/Transient Model Update
- Flocc Gear Drive Replacement
- Plant Interior Door Replacement
- Roof Drain Replacement
- Arva Structural Repairs
- PAC Feed/Transfer System Replacement
- Interior Door Replacements
- Service Water Pipe Replacement
- Distressed Pipe Replacement
- Clarifier Upgrades
- Sub-basement Drain Study
- Monitoring Station Control Upgrades

In addition to the above-noted capital projects, the 2023 Capital Budget includes LH1316 Annual Maintenance which funds, in part, maintenance and repair projects undertaken by the contracted operating authority, the Ontario Clean Water Agency. All maintenance and repairs of the system's assets are the obligation of the contracted operating authority to undertake in accordance with the Service Agreement. For activities of maintenance and repair where the value of the material and any contracted specialty service exceed \$30,000 (adjusted annually by CPI (Consumer Price Index), the Board is responsible for the value of the work more than the \$30,000 (as adjusted). To facilitate this work, the Capital Budget includes an Annual Maintenance project which is utilized to fund this contractual obligation of the Board.

Service Improvement Projects (Enhanced Level of Service, Regulatory Changes, Efficiency)

Proposed projects in the 2023 Capital Budget for which the primary driver is service improvement are:

- Huron Safety Rail Replacement
- Chamber Flood Prevention
- Oneida Transmission Pipeline
- Asset Condition Field Assessment
- Security Upgrades
- Ultraviolet Disinfection and Reservoir
- Electric Vehicle Charging Stations
- De-chlorination at Remote Stations

A summary of the capital projects is provided in Appendix A of this report.

CAPITAL FORECAST

Several capital projects are projected beyond the 2023 Capital Budget year, which will have an impact on the financial forecast and future water rates for the water system. Some of these capital projects were anticipated in previous budget forecasts and are now inclusive of approved Asset Management Plan and Financial Plan. As previously noted, staff undertake a

business case assessment for each project to confirm the costs, timing, and priority of the project, consistent with our Customer Level of Service framework and Risk Mitigation strategy.

FLOW AND FINANCIAL ANALYSIS

Included in the budget package is a projection of annual volumes and finances beyond 2023 and provides a summary analysis of one option for rate increases and the use of debt (if any). This projection has incorporated the principles and recommendations from the previous Financial Plan but has been adjusted to reflect the current anticipated volume projections and corresponding revenues. These projections will be further revised when the Financial Plan, which currently being developed, is finalized and approved by the Board early in 2023.

The projected operating expenses beyond 2023 assumes that the future cost of operating the system is consistent with the amended operating agreement with the Ontario Clean Water Agency that begins on January 1, 2023. Significant changes in the global supply chain that may occur after January 1, 2023, including the cost and availability of chemicals and consumables for the water treatment processes, may have a considerable impact on future operating costs.

In addition, energy expenditures projected beyond 2023 have assumed a reasonable escalation of costs, tied to the anticipated annual volumes projected and consequential savings from various efficiency-related investments. Changes in the Ontario energy market are anticipated which may change the water system's exposure to the Global Adjustment costs and commodity costs for electricity. At this time, the water system is well positioned to mitigate energy related risks and take advantage of cost savings where available.

As a direct result of higher annual volumes and implemented operational and administrative savings, staff are currently projecting a 1.5% annual increase in the rate beyond the 2023 budget: roughly equivalent to three-quarters of the average rate of general inflation. This water rate projection, however, may be subject to change and revision as the update to the Financial Plan is completed in early 2023 which incorporates the updated Master Water Plan, undertaken in 2019, as well as the Asset Management Plan being completed this year.

Reserve Funds

Conceptually, the Asset Replacement Reserve is required to provide a stable funding source for capital programs designed to replace, maintain, and extend the life of existing assets to their full potential. Accordingly, the contribution to the Asset Replacement Reserve fund year-over-year should be relatively consistent, on average over the long-term, with minor variations accounted for as the capital program is implemented.

Conversely, the New Capital Reserve Fund is intended for growth-related capital programs and various system and performance improvement initiatives. As these programs tend to be periodic in nature, the reserve fund balance in the New Capital Reserve may significantly increase or significantly decrease in any given year depending on the programs undertaken.

The Emergency Reserve Fund is intended to fund unplanned and unanticipated emergency-related projects such as pipeline failures, tank ruptures and treatment process failures. In accordance with the Board's direction, the target balance of the Emergency Reserve Fund is established at \$5 million, wherein contributions will be discontinued when the Emergency Reserve Fund balance reaches the target value.

Debentures

There are a few debentures previously approved by the Board and issued by the City of London on the water system's behalf, are nearing the end of their term within the current forecast period. These debentures are:

- Debt authorized in 2006 for the Backup Generator (LH1326) in the amount of \$1.5 million was issued in 2013 with payments beginning in 2014 (3.3% for a 10-year term)
- Debt authorized in 2011 for the Residuals Management Facility (LH1902) in the amount of \$16 million was partially issued in 2015 (\$7 million) with payments beginning in 2016 (1.9% for a 10-year term)
- Debt authorized in 2012 for the Huron Transmission Pipeline Twinning (LH1305) in the amount of \$4 million was partially issued in 2015 (\$1.665 million) with payments beginning in 2016 (1.9% for a 10-year term) and further debt issued in 2017 (\$0.4 million) with payments beginning in September 2017 (2.48% for a 10-year term)

A new debenture is anticipated to be required for the proposed Water Treatment Plan Reservoir and UV Disinfection System (LH1426), currently estimated to be in the order of \$10 million in debt in 2025. The financial forecast provided in this budget includes an estimate of principal and interest payments for this debenture, with payments starting in 2026.

Acknowledgement

The preparation of the 2023 Operating and Capital budgets were undertaken by the Regional Water Division staff, with the assistance by the City of London Financial Services.

Submitted by: Andrew Henry, P. Eng.,
Director, Regional Water Supply

Recommended by: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Attachments: Appendix A – 2023 Capital Project Summary
2023 Operating & Capital Budgets, and Nine-year Capital Forecast

APPENDIX A: 2023 CAPITAL PROJECT SUMMARY

Lifecycle Projects (Maintain LOS)

LH1021 – Huron Low Lift Pump Rebuild (multi-year program): Intended for long service lives, the low lift pumps require periodic rebuilding of the pump impellers, seals, bearings, and other high-wear components. This program continues to rebuild one low lift pump per year over a six-year period with 2026 anticipated to be the final year of the program.

LH1207 – Concrete Crack Injection (multi-year program): A significant amount of the infrastructure deployed for the water supply system is comprised of concrete for water-retaining structures. This program continues to systemically refurbish the concrete throughout the water treatment facility to ensure its intended long life.

LH1242 – Hydraulic/Transient Model Update and Transient Monitoring (multi-year program): The last hydraulic model for the transmission system was completed in 2009. In addition, transient pressures within the transmission system have the potential to cause catastrophic failures to the various pumping systems and pipelines that supply the benefiting municipalities. The 2023 component is the final year of the project which will update the hydraulic and transient model for the system and incorporate the new high lift pumps recently installed at the water treatment plant.

LH1245 – Walking Beam Flocculator Rehabilitation: The existing Walking Beam style flocculators used in the coagulation process are original to plant construction and utilize an older style bearing system which is subject to frequent failures and risks damaging the flocculator structure. The 2023 portion of the project undertakes the last phase of the flocculators rehabilitation, including upgrades to the bearing system.

LH1251 – PAC Feed/Transfer System Replacement: The transfer and dosing system used for Powder Activated Carbon (PAC) is in poor condition and has reached the end of its useful service life. The project proposes to preplace the transfer and dosing pumps with more energy efficient components and make treatment efficacy improvements in the overall dosing system for a more consistent application of PAC to the raw water. Preliminary design will be initiated in the fall of 2022 with detailed design and construction proposed for 2023 and 2024, respectively.

LH1267 – Plant Interior Person Door Replacement (multi-year program): Due to the damp environment within the water treatment plant, many of the existing metal doors have failed or are showing signs of significant corrosion and deterioration. This project continues the replacement of interior industrial doors over a five-year period that started in 2020.

LH1272 – Service Water Pipe Replacement (multi-year program): The existing cast iron service water piping is original to the plant construction. Sections of the service water piping are showing significant deterioration including advanced corrosion, leaking, and constrictions

from tuberculation. This program continues to replace sections of the service water piping within the water treatment plant as opportunities arise.

LH1284 Huron Flocc Gear Drive Replacement (multi-year program): The existing gear drives for the flocculation system are original to the plant construction and requires frequent and significant maintenance to continue its operation. The internal gears have excessively worn and rather than replacing the whole drive assembly, it has been determined that the best and most cost-effective solution is to replace the internal gears with made-to-specification replacements. This project proposes to repair one gear drive per year over a four-year period that started in 2020, with 2023 the final year of the project.

LH1317 – Distressed Pipe Replacement (multi-year program): As a result of the condition assessment previously undertaken, data from the Acoustic Fibre Optic Monitoring System within the 1200mm high pressure transmission pipeline, and the initial results of the predictive model for the deterioration of the transmission pipeline, this program proposes to replace high-risk pipe segments on a systemic basis. Future pipe replacements are projected based on current deterioration rates and information provided from our acoustic fibre optic monitoring system. The 2023 program also proposes an update to the predictive model from 2018 using the additional data collected by the monitoring system since that time.

LH1352 – Arva Reservoir Structural Repairs: Visual inspections obtained by an underwater remotely operated vehicle of the Arva Reservoir have identified areas of structural deterioration within the reservoir that need repair. This project is to undertake a detailed structural engineering assessment of the areas identified and recommend the method as well as cost of the repairs such that they can be completed in subsequent years and thereby extend the useful life of the structure.

LH1380 – Clarifier Upgrades (multi-year program): The existing Lamella Plate Clarifier tanks employ a scraper system to collect settled solids from the bottom of the tank which is driven by a gear-drive. Given the age of the existing drives, they are subject to repeated overheating and shear failures resulting in frequent maintenance and repairs. This project proposes to replace one gear drive over a four-year period (that started in 2021) including the installation of variable frequency drives for energy efficiency and overheating and shear protection devices.

LH2036 Roof Drain Replacement (multi-year program): The cast iron drains throughout the facility are original to plant construction and are starting to show signs of blockage and leakage due to the extent of corrosion. This project proposes to replace drains throughout the facility over a five-year period starting in 2022.

Sub-basement Drain Study: The sump pump and discharge (original to plant construction) in the sub-basement of the high lift pump and filter galleries in the water treatment plant are undersized. Under flooded conditions as a result of a pipe leakage or significant infiltration to the subbasement, instrumentation in the area that is critical to plant operations would be compromised. This study will consider ways to mitigate this risk by increasing the capacity of

the sump pump and discharge location and/or relocating the analysers to an area where they are no longer at risk of flooding.

Monitoring Station Controls Upgrades: The current control systems and electronics in various monitoring stations across the system are nearing the end of their life. These upgrades will enable the monitoring stations to continue operations and is also an opportunity to add functionality to the stations.

Service Improvement Projects

(Enhance LOS, Growth, Regulatory Changes, Efficiency, etc.)

LH1016 – Huron Safety Rail Replacement (multi-year program): During a Ministry of Labour inspection in 2018, the inspector found that safety railings throughout the water treatment plant were no longer compliant with Health & Safety Regulations and standards. As a result, staff developed a program to replace safety rails throughout the water system over a five-year period starting in 2020 on a risk/priority basis.

LH1229 – Security Upgrades (multi-year program): The previously completed Security Audit and Threat Risk Vulnerability Assessment provided policy, resource, and site-specific recommendations to mitigate security and safety risks at all facilities. The project proposed is a multi-year allowance to undertake security-related modifications to all facilities, based on the criticality assessment and recommendations of the security specialist.

LH1408 Oneida Transmission Pipeline: Subject to the Oneida Nation of the Thames obtaining final approval for the project from Indigenous Services Canada, this project is for the design and construction of a transmission pipeline extension from the existing the Komoka-Mount Brydges transmission main extension to the Oneida Nation of the Thames.

LH1426 Ultraviolet Disinfection System and Reservoir: This project is for the design of a new reservoir, sized to meet the water demand-based needs (equalization and emergency supply) of the region, including UV disinfection. A new UV building is to be constructed adjacent to the new reservoir in accordance with preferred solution of the Lake Huron Water Treatment Plant (WTP) Disinfection and Storage Upgrades Schedule B Environmental Assessment. The UV disinfection system will provide the Lake Huron WTP with enhanced primary disinfection capabilities through a multi-barrier disinfection process, and therefore provide the ability to accommodate future and more stringent primary disinfection regulatory requirements and changes in source water quality. The new reservoir will provide the plant with treated water storage to reduce the potential number of occurrences and consequential impacts to LHPWSS customers from planned or unplanned service interruptions.

Note: Project LH1426 was previously approved by the Board as the “Water Treatment Plan Storage Schedule B EA” to determine the optimal solution which may potentially address both water storage needs at the water treatment plant as well as primary disinfection

enhancements. With the approval of this budget, LH1426 will be renamed as “Ultraviolet Disinfection System and Reservoir” to better reflect the intended scope of the project.

LH2038 Chamber Flood Prevention/Rehabilitation (multi-year program): Some of the pipeline chambers have been mandated by the Ministry of Environment, Conservation and Parks to be visited several times per year due to the criticality of the air/vacuum relief valves and the risk of groundwater entering the valve relief ports and contaminating the water supply. While the chamber does contain solar-powered sump pumps, installing flood proof piping between the valves and the chamber vents will prevent water from entering the air valves and further decrease the possibility of contamination. As a result, staff developed a program to rehabilitate the chambers throughout the water system over a six-year period, starting in 2022, and undertaken on a risk/priority basis.

Asset Condition Field Assessment: One of the key outcomes of the Asset Management Policy is to build a future-ready utility that is data rich as well as knowledge rich. A corporate asset information strategy must be developed to ensure accessibility to a fully integrated asset data registry to support good governance and leverage operational efficiencies. The integrated asset data registry has been implemented through our computerized maintenance management system (Maximo); however, asset condition data gaps remain on key infrastructure assets. Presently the independently and field-verified asset condition information is out of date having last been completed in 2013. This multi-year program proposes to fill the condition assessment data gaps such that informed, data-driven, and evidence-based asset planning and replacement investment decisions may be made.

Electric Vehicle Charging Stations: This study will consider the opportunity to install electric vehicle charging stations at the water treatment plant, who they should be accessible to, the installation location, provide security-related recommendation, and identify potential grant funding opportunities.

De-chlorination at Remote Stations: At the Arva terminal reservoir site, chlorinated water is discharged continuously from sources including but not limited to instrumentation, sampling points, chlorinator service water and cooling water for booster pumps. The chlorinated water leaves the property and discharges to Medway Creek, a natural watercourse. Discharge of chlorinated water to the natural environment is a contravention of the federal Fisheries Act and the provincial Environmental Protection Act. There are potential impacts to fish and aquatic life. The LHPWSS is at risk of receiving orders and/or fines from governing bodies. This project is to retain and engineering consultant to design and construct a permanent de-chlorination system at Arva and other remote stations, including the Exeter-Hensall Pumping Station and Reservoir site.



Lake Huron

Primary Water Supply System

**2023 Operating and Capital Budgets
and Nine Year Capital Forecast**

October 6, 2022

Lake Huron Primary Water Supply System 2023 Budget

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**Lake Huron Primary Water Supply System
2023 Budget
Revenue and Expenditure Summary
(\$000's)**

	2021 Actual	2022 Approved Budget	2023 Proposed Budget	Incr (Decr) Over 2022	% Budget Incr (Decr)	2022 Year End Projection
Revenue						
Volume Revenues ⁽¹⁾	23,730	24,229	24,474	245	1.0%	23,336
Other Revenues	11	25	25	0	0.0%	2
Total Revenue	\$ 23,741	\$ 24,254	\$ 24,499	\$ 245	1.0%	\$ 23,338
Expenditures						
Operating Costs ⁽²⁾	9,800	10,659	11,558	899	8.4%	10,425
Administration & Other Expenditures	2,733	3,303	3,596	293	8.9%	3,275
Debt Principal Repayments ⁽³⁾	1,261	1,283	1,106	(177)	(13.8)%	1,283
Interest on Long Term Debt ⁽³⁾	117	89	59	(30)	(33.7)%	84
Contribution to Reserve Funds	9,830	8,921	8,180	(741)	(8.3)%	8,270
Total Expenditures	\$ 23,741	\$ 24,254	\$24,499	\$ 245	1.0%	\$ 23,337

* subject to rounding

Notes:

- (1) A budget volume decrease is anticipated in 2023 (from 47,344,500 m3 in 2022 to 47,114,500 m3 in 2023). Rates per m3 are proposed to increase by 1.5%.
- (2) Part of the operating costs are direct to the Lake Huron system (i.e. electricity, AFO Monitoring, etc.), while all other costs are fixed to the annual operating costs included in the Service Fee paid to the Ontario Clean Water Agency.
- (3) Refer to page 9 for more information on debt.

**Lake Huron Primary Water Supply System
2023 Budget
Administration & Other Expenditures
(\$000's)**

Administration & Other Expenditures	2022 Approved Budget	2023 Proposed Budget	Incr (Decr) Over 2022	% Budget Incr (Decr)	2022 Year End Projection
Management & Administrative Personnel	961	1,043	82	8.5%	821
Support and Overhead Costs ⁽¹⁾	322	328	6	1.8%	322
Payment in Lieu of Taxes	330	340	10	3.0%	493
Insurance (Property, Director & Officers, General Liability)	626	718	92	14.7%	-
Financial/Office Expenses ⁽²⁾	317	338	21	6.3%	283
Process Optimization	105	75	(30)	(28.6)%	
Information Technology Maintenance ⁽³⁾	220	330	110	49.8%	91
Purchased Services (Legal, Consulting, Locates etc.)	421	424	3	0.7%	315
Total Administration & Other Expenditures	\$ 3,302	\$ 3,596	\$ 294	8.9%	\$ 2,325

* subject to rounding

Notes:

(1) Support and Overhead Costs reflect the costs charged by the Administering Municipality for various administrative functions (e.g. Finance, Purchasing, Human Resources, Risk Management, etc.).

(2) Financial/Office Expenses include other administrative expenses such as leased space, training/seminars/conventions, computer leasing, and sampling and process optimization initiatives.

(3) Costs and charges related to computers, software, network communications, and SCADA system maintenance including plant instrumentation

**Lake Huron Primary Water Supply System
2023 Budget
2023 Capital Plan with Forecast for 2024 to 2032
(\$000's)**

		Project Total	Prior Years Budget	2022 Approved Budget	2023 Proposed Budget	Forecast				
						2024	2025	2026	2027	2028 to 2032
#	Description									
LH1016	Huron Safety Rail Replacement	500	300	100	100					
LH1020	Financial Plan Update 2021	150	50					50		50
LH1021	Huron Low Lift Pump Rebuild	540	40	125	125	125	125			
LH1026	RW Office Expansion & Renovation	200	200							
LH1106	Ilderton Meter Chamber	100	100							
LH1107	SCADA/PLC - Software Review/Upgrade	500	500							
LH1207	Concrete Crack Injection	270	120	50	50	50				
LH1229	Security Upgrades	1,353	700	100	253	100	100	100		
LH1242	Hydraulic/Transient Model Update & Transient Monitoring	540	330	110	100					
LH1243	McGillivray Electrical Upgrades	7,762	685	7,077						
LH1245	Walking Beam Flocculator Rehabilitation	400		200	200					
LH1246	LL Building - Curtain Wall/Clearstory Window Replacement	425		425						
LH1250	McGillivray Pumps & Valves Refurbishment	3,842					3,842			
LH1251	PAC Feed/Transfer Pump System Replacement	1,300		100	160	1,040				
LH1256	Crop Yield Monitoring - 2014 Pipeline Twinning	1,500	1,500							
LH1257	Chamber 63 Access Culvert	405	75	330						
LH1260	Coagulant System Upgrade	1,437	1,437							
LH1264	Overhead Truck Door Replacement	225	150	75						
LH1266	Huron Plant UV Disinfection ⁽²⁾	1,200	1,200							
LH1267	Plant Interior Person Door Replacement	100	40	20	20	20				
LH1268	Obsolete Equipment Removal	150	100	50						
LH1270	Interior LED Lighting Upgrades	150	100	50						
LH1272	Service Water Pipe Replacement	125	50	25	25	25				
LH1273	(PS3) Exeter-Hensall Pump Control Upgrades	100	50	50						
LH1277	IT Asset Replacement Program	1,456	425			141	225	115	60	490
LH1278	Safety Showers Upgrade	60	60							
LH1280	Arva Reservoir Expansion	35,000								35,000
LH1284	Huron FLOCC Gear Drive Repair	300	150	75	75					
LH1285	Pressure Reducing Valve Replacements			425						

**Lake Huron Primary Water Supply System
2023 Budget
2023 Capital Plan with Forecast for 2024 to 2032
(\$000's)**

#	Description	Project Total	Prior Years Budget	2022 Approved Budget	2023 Proposed Budget	Forecast				
						2024	2025	2026	2027	2028 to 2032
LH1316xx	Annual Maintenance ⁽¹⁾	1,960	585	125	125	125	125	125	125	625
LH1317	Distressed Pipe Replacement	5,350	1,400	350	400	350	350	350	350	1,800
LH1338	Plant Instrumentation	885	835	50						
LH1352	Arva Reservoir Structural Repairs	2,050			50	2,000				
LH1353	WTP Modification/Renovation	5,350	350			500	1,500	3,000		
LH1380	Clarifier Upgrades	465	120	115	115	115				
LH1408	Oneida Transmission Pipeline	25,200		200	25,000					
LH1425	Huron Erosion Control	1,250	1,250							
LH1426	WTP Storage Schedule B EA ⁽²⁾	37,500	500		500	3,000	33,500			
LH1433	Asset Management Plan 2021	450	150					150		150
LH1900	Record Drawings and Documents	491	491							
LH1901	Water Quality Facility Plan	290		290						
LH2019xx	Lake Huron Master Plan Update	435	135			150				150
LH2036	Roof Drain Replacement	150		50	25	25	25	25		
LH2037	Hydrant Replacement	50		50						
LH2038	Chamber Flood Prevention/Rehab	475		100	75	75	75	75	75	
LH2039	Arva 600V MCC	50		50						
LH2040	Remote Site Generator Connections	20		20						
LH2041	Plant Roof Replacement	110		110						
LH2042	Pipeline-A Double Isolation Valve	1,247		1,247						
LH2043	Construction Site Trailer Pad & Electrical Pedestal	75		75						
<i>Proposed</i>	Sub-Basement Drain Study	25			25					
<i>Proposed</i>	Monitoring Station Controls Upgrades	275			275					
<i>Proposed</i>	Asset Condition Field Assessment	366			110	121	135			
<i>Proposed</i>	Electric Vehicle Charging Stations	60			10	50				
<i>Proposed</i>	De-chlorination at Remote Stations	125			125					
	AMP Investments - Plant <i>(allowance for planning)</i>	31,228						2,296	1,411	27,521
	AMP Investments - Transmission <i>(allowance for planning)</i>	4,222						937	713	2,572
		\$ 180,244	\$ 14,178	\$ 12,219	\$ 27,943	\$ 8,012	\$ 40,002	\$ 7,223	\$ 2,734	\$ 68,358

* subject to rounding

Notes:

- (1) Capital account for Board contributions to maintenance projects undertaken by the operating authority.
- (2) LH1266 recommended for cancellation and closure in favour of undertaking the reservoir proposed by LH1426 Class EA

**Lake Huron Primary Water Supply System
2023 Budget
Capital Plan Sources of Financing
(\$000's)**

Funding Source	2022 Approved Budget	2023 Proposed Budget	2024	2025	2026	2027
Asset Replacement Reserve Fund	11,455	1,754	4,043	4,704	3,895	2,676
Capital Reserve Fund	764	1,189	3,969	25,297	3,328	59
Emergency Reserve Fund	-	-	-	-	-	-
Debenture	-	-	-	10,000	-	-
Other Funding Sources	-	25,000	-	-	-	-
Total Capital Funding	\$ 12,219	\$ 27,943	\$ 8,012	\$ 40,002	\$ 7,223	\$ 2,734

* subject to rounding

**Lake Huron Primary Water Supply System
2023 Budget
Asset Replacement Reserve Fund Analysis and Continuity Schedule
(\$000's)**

Asset Replacement Reserve Fund (1)	Actual	Projected					
	2021	2022	2023	2024	2025	2026	2027
Reserve Fund Opening Balance	16,352	18,119	9,224	7,704	7,640	7,695	7,608
Sources:							
Current Year Operating Contributions	4,000	5,000	150	3,903	4,683	3,732	2,632
Proceeds from Sale of Assets							
Transfer from Capital Reserve Fund							
Net Interest Earnings - 1% ⁽²⁾	312	136	84	76	76	76	76
Total Sources	\$ 20,664	\$ 23,255	\$ 9,458	\$ 11,683	\$ 12,399	\$ 11,503	\$ 10,316
Uses:							
Total Lifecycle Capital Projects - Current	2,545	11,455	1,754	4,043	4,704	3,895	2,676
Less: Other Funding Sources		-	-	-	-	-	-
Less: Debenture Requirement							
Net Current Year Fund Draws ⁽³⁾	2,545	11,455	1,754	4,043	4,704	3,895	2,676
Prior Years Capital Expenditures - Unspent		2,576					
Total Uses	\$ 2,545	\$ 14,031	\$ 1,754	\$ 4,043	\$ 4,704	\$ 3,895	\$ 2,676
Reserve Fund Ending Balance	\$ 18,119	\$ 9,224	\$ 7,704	\$ 7,640	\$ 7,695	\$ 7,608	\$ 7,640

* subject to rounding

Notes:

- (1) The Asset Replacement Reserve Fund was established in 2008 to fund projects of a lifecycle nature to maintain existing levels of service and has an average annual target ending balance of \$7.5M.
- (2) Projected net interest earnings based on an average rate of anticipated sources and uses of funds.
- (3) Drawdowns are based on full/committed capital needs and not intended to project the actual cash flow of funds being utilized in a particular year.

**Lake Huron Primary Water Supply System
2023 Budget
New Capital Reserve Fund Analysis and Continuity Schedule
(\$000's)**

Capital Reserve Fund (1)	Actual	Projected					
	2021	2022	2023	2024	2025	2026	2027
Reserve Fund Opening Balance	24,748	25,634	17,239	24,136	25,137	4,026	6,754
Sources:							
Current Year Operating Contributions	5,580	3,821	7,880	4,725	4,042	6,001	5,203
Net Interest Earnings - 1% ⁽²⁾	464	213	206	245	145	54	93
Total Sources	\$ 30,792	\$ 29,668	\$ 25,325	\$ 29,106	\$ 29,324	\$ 10,081	\$ 12,050
Uses:							
Total System Improvement & Growth Projects	5,158	764	1,189	3,969	35,297	3,328	59
Less: Other Funding Sources	-	-	-	-	-	-	-
Less: Debenture Requirement ⁽⁴⁾	-	-	-	-	(10,000)	-	-
Net Current Year Fund Draws ⁽³⁾	5,158	764	1,189	3,969	25,297	3,328	59
Prior Years Capital Expenditures ⁽³⁾	-	11,665	-	-	-	-	-
Total Uses	\$ 5,158	\$ 12,429	\$ 1,189	\$ 3,969	\$ 25,297	\$ 3,328	\$ 59
Reserve Fund Ending Balance	\$ 25,634	\$ 17,239	\$ 24,136	\$ 25,137	\$ 4,026	\$ 6,754	\$ 11,991

* subject to rounding

Notes:

- (1) The Capital Reserve Fund was established to fund projects of a growth nature, enhancing levels of service, or address issues which are regulatory or safety in nature.
- (2) Projected net interest earnings based on an average rate of anticipated sources and uses of funds.
- (3) Drawdowns are based on full capital needs and not intended to project the actual cash flow of funds in a particular year.
- (4) Anticipated debenture for additional plant storage combined with UV disinfection per the Environmental Assessment for plant storage (LH1426)

**Lake Huron Primary Water Supply System
2023 Budget
Emergency Reserve Fund Analysis and Continuity Schedule
(\$000's)**

Emergency Reserve Fund (1)	Actual	Projected					
	2021	2022	2023	2024	2025	2026	2027
Reserve Fund Opening Balance	6,000	5,088	4,806	5,005	5,055	5,106	5,157
Sources:							
Current Year Operating Contributions	250	100	150	-	-	-	-
Net Interest Earnings - 1% ⁽²⁾	104	49	49	50	51	51	52
Total Sources	\$ 6,354	\$ 5,237	\$ 5,005	\$ 5,055	\$ 5,106	\$ 5,157	\$ 5,209
Uses:							
Current Year Capital Expenditures ⁽³⁾	1,266						
Prior Years Capital Expenditures ⁽³⁾		431					
Total Uses	\$ 1,266	\$ 431	\$ -	\$ -	\$ -	\$ -	\$ -
Reserve Fund Ending Balance	\$ 5,088	\$ 4,806	\$ 5,005	\$ 5,055	\$ 5,106	\$ 5,157	\$ 5,209

* subject to rounding

Notes:

- (1) The Emergency Reserve Fund was established in 2011 to fund projects that arise on an emergency basis. This funding is to be in place outside of the Capital and Asset Replacement Reserve Funds and their defining guidelines. Contributions will be capped once the reserve fund balance reaches \$5.0 million.
- (2) Projected net interest earnings based on an average rate of anticipated sources and uses of funds.
- (3) Drawdowns are based on full capital needs and not intended to project the actual cash flow of funds in a particular year.

**Lake Huron Primary Water Supply System
Flow and Financial Analysis Summary
(\$000's)**

Factors	Actual	Approved	Projected					
	2021	2022 Budget	2022 (Projected)	2023	2024	2025	2026	2027
Rate Increase ⁽¹⁾	1.0%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Total Flow m ³	47,064,657	47,344,500	45,599,529	47,114,500	47,880,211	48,315,092	48,749,980	49,184,876
Total Water Rate \$/m ³	0.5042	0.5118	0.5118	0.5194	0.5272	0.5351	0.5432	0.5432
Flow Volume Revenues	23,730	24,229	23,336	24,474	25,244	25,855	26,479	26,715
Other Revenue	11	25	2	25	25	25	25	25
Total Revenue	\$ 23,741	\$ 24,254	\$ 23,338	\$ 24,499	\$ 25,269	\$ 25,880	\$ 26,504	\$ 26,740
Operating Expenses ⁽²⁾	9,800	10,658	10,425	11,557	11,947	12,355	12,779	13,520
Administrative Expenses	2,733	3,303	3,275	3,596	3,707	3,823	3,946	4,074
Debt Servicing Costs ⁽³⁾	1,378	1,372	1,367	1,166	986	976	45	1,312
Total Operating & Administrative Expenses	\$ 13,911	\$ 15,333	\$ 15,067	\$ 16,319	\$ 16,640	\$ 17,154	\$ 16,770	\$ 18,906
Asset Replacement Reserve Fund Contributions	4,000	5,000	5,000	150	3,903	4,683	3,732	2,632
Capital Reserve Fund Contributions	5,580	3,821	3,170	7,880	4,725	4,042	6,001	5,203
Emergency Reserve Fund Contributions	250	100	100	150	-	-	-	-
Total Expenses	\$ 23,741	\$ 24,254	\$ 23,338	\$ 24,499	\$ 25,269	\$ 25,880	\$ 26,504	\$ 26,740

* subject to rounding

Notes:

(1) Percent rate increases recommended are below the approved Financial Plan but continues to provide for prudent financial planning to accommodate inflation, new capital requirements and adequate reserve fund balances.

(2) Operating expense projections reflect annual inflationary increases and anticipated adjustments, in accordance with the service agreement with the contracted operating authority.

(3) Debentures:

- Debt authorized (2006) for the Backup Generator (LH1326) in the amount of \$1.5M was issued in 2013 with payments beginning in 2014 (all-in interest rate of 3.3% for a 10 year term).
- Debt authorized (2011) for the Residue Management Plant (LH1902) in the amount of \$16M was partially issued in 2015 (\$7M) with payments beginning in 2016 (all-in interest rate of 1.9% for a 10 year term).
- Debt authorized (2012) for the Huron Transmission Main Twinning (LH1305) in the amount of \$4M was partially issued in 2015 (\$1.665M) with payments beginning in 2016 (all-in rate of 1.9% for a 10 year term). Further debt issuance in 2017 in the amount of \$0.4M and payments beginning in Sept/17 (all-in rate of 2.48% for a 10 year for a 10 year term).
- New debenture anticipated in 2026 for the plant reservoir and UV Disinfection system (LH1426), with payments starting in 2027.
- Rates noted above could change depending upon market conditions at the time of debt issuance.

To: Chair and Members, Board of Management
Lake Huron Primary Water Supply System

From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Subject: Electronic Monitoring Policy

RECOMMENDATION

That on the recommendation of the Chief Administrative Officer, the Board of Management for the Lake Huron Water Supply System **APPROVE** the Electronic Monitoring Policy as appended to this report.

PREVIOUS AND RELATED REPORTS

June 2, 2022 Video Surveillance Policy

BACKGROUND

As of April 11, 2022, the *Employment Standards Act, 2000* (“ESA”) was amended to require employers with 25 or more employees, excluding Crown Corporations and agencies, to implement an Electronic Monitoring Policy as of October 11, 2022. The intent of the amendment is to ensure that employees are adequately advised that their activities in the workplace may be monitored by their employer by electronic means.

The Electronic Monitoring Policy required under the Employment Standards Act would apply to all employees of the employer, as well as all assignment employees, temporary help, and agency employees who are assigned to perform work for the employer.

DISCUSSION

The staff of the Regional Water Division, which are seconded and report to the Board of Management for the Lake Huron Water Supply System, are considered employees of the Corporation of the City of London for the purposes of the *Employment Standards Act*. In addition, the Lake Huron Water Supply system utilizes various contracted services that may utilize the electronic systems owned by the Lake Huron Water Supply System, including but not limited to the contracted operating authority and contracted security services which operate at facilities owned by the Lake Huron Water Supply System.

Notwithstanding, and given the secondment nature of the employment of Regional Water staff, it is recommended that the Board adopt its own policy related to electronic monitoring for the purpose of public transparency as the systems and circumstances of employment may be different than other employees of the Corporation of the City of London.

Within the context of the ESA, “electronic monitoring” may include any and all forms of employee and assignment monitoring that is undertaken electronically, as well as any electronic means by which an employer can directly or indirectly monitor the activities of an employee.

For the Regional Water System, electronic monitoring may include:

Fleet GPS

Fleet vehicles provided through the City of London and utilized by Regional Water staff (“Fleet Vehicles”) are equipped with Global Positioning System (GPS) Tracking. The purpose of this use of this system for Regional Water Fleet Vehicles is primarily for safety as staff are often driving long distances and working alone. In the event of a vehicle accident, the system will automatically notify the City’s fleet services department and Regional Water management staff of the incident, including location.

Notwithstanding, the system also can collect vehicle data (fuel consumption rates, engine errors, etc.) as well as data that may be attributed to the driving behaviour of the employee. This may include but not limited to speeding, hard breaking, sharp turns, and rapid accelerations.

CCTV Security Cameras

The Closed-Circuit Television (CCTV) security cameras were recently replaced and upgraded throughout the regional water system, and provide extensive remote monitoring coverage and capabilities of the water system’s facilities. Because of the nature of the system, the work activities of employees, contractors and visitors can be monitored.

At the June 2, 2022 meeting of the Board, a **Video Surveillance Policy** was adopted and is specific to the utilization of the CCTV security cameras and appropriate protections of privacy. The proposed Electronic Monitoring Policy, appended to this report, is in addition to the Video Surveillance Policy previously approved.

Access Control Security Systems

The Regional Water System uses both a high-security key system and HID card access system at the various facilities to manage, control and restrict access. Both systems utilize RFID-encoded keys or cards to manage location-specific and person-specific access including scheduled access restrictions and automatic expirations.

Access controls have been implemented at all facilities, including the Regional Water office located in north London.

While not directly intended to monitor employee activity, these systems can indirectly monitor employee locations and behaviours through the time-coded access logs, including attempted access to restricted locations.



Computer Systems

All computer systems implemented by the Regional Water System utilizes user-specific access controls and identity authentication. Where necessary, multi-factor authentication protocols have been implemented which may utilize computers or devices not owned by the City of London (in its capacity as Administering Municipality) or the Lake Huron Water Supply System.

In most cases, the computer systems utilize activity logs that can be used to directly or indirectly monitor employee activities and work performed, either directly or indirectly, and at a minimum include log-in/out activities.

All email, whether drafted, sent, received or deleted by the user, including related cyber security and spam/phish management systems, are accessible and can be utilized to monitor employee activities.

Advanced systems, including the Supervisory Control and Data Acquisition (SCADA) system used for controlling the regional water system, utilize advanced error, alarm and activity logs which can be utilized to monitor employee activities. In addition, document management systems, such as the regional water systems' Microsoft Office-365 tenant, actively track employees access and utilization of documents, including user-specific revision histories.

In addition, access to the internet using Regional Water computers and computer networks is controlled and tracked and, in some cases, restricted. This includes computers and devices utilized by visitors which uses the Regional Water Systems' computer network to access the system through a guest WiFi system, as well as accessing systems from home office and remote locations using Regional Water computers.

It is specifically noted for the information and reference of the Board, that the amendment to the ESA regarding the requirement of an Electronic Monitoring Policy does not establish any new rights for employees not to be electronically monitored by their employer, nor does it create any new privacy rights for employees. The amendment to the Act also does not affect or limit an employer's ability to use information obtained through electronic monitoring of its employees, beyond what is currently embodied within other legislation including but not limited to the *Municipal Freedom of Information and Protection of Privacy Act*.

In addition, electronic monitoring and the applicable policy applies to employees working in any workplace including but not limited to vehicles, remote locations and working from home.



Lake Huron
Primary Water Supply System

Report No.: LH-2022-03-07
Report Page: 4 of 8
Meeting Date: October 6, 2022
File No.:

CONCLUSION

For public transparency, it is the recommendation of Board staff that the Electronic Monitoring Policy attached to this report as Appendix A be approved by the Board.

Submitted by: Andrew Henry, P. Eng.,
Director, Regional Water Supply

Recommended by: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Attachments: Appendix A – Electronic Monitoring Policy

APPENDIX A: ELECTRONIC MONITORING POLICY

Approved:

Revised: n/a

Last Reviewed Date: 15 September 2022

Policy Lead: Director, Regional Water

1. Purpose

The Lake Huron Primary Water Supply System (“LHPWSS”) prioritizes instituting practices which foster a workplace culture of mutual trust with and among employees.

The purpose of this Electronic Monitoring Policy (“Policy”) is to ensure that each employee understands how and why the LHPWSS utilizes certain electronic systems which may be used for electronic monitoring.

At all times, the LHPWSS will ensure that it remains compliant with applicable privacy laws, and other laws that also relate to the subject matter of this policy

2. Applicability

This Policy applies to all staff of the Regional Water Division of the City of London which are seconded and report to the Board of Management for the Lake Huron Primary Water Supply System, as well as all assignment employees, temporary help, agency employees who are assigned to perform work for the LHPWSS.

The LHPWSS Video Surveillance Policy is a supplemental policy to this Policy, specific to the implementation and use of Closed-Circuit Television security cameras.

The Electronic Monitoring Policy of the Corporation of the City of London may also apply to employees accessing LHPWSS Systems utilizing computers, devices and network services provided through the Corporation of the City of London.

3. Definition of Electronic Monitoring

Electronic monitoring includes all forms of employee monitoring that is performed electronically.

In this Policy, “electronic monitoring” means, the LHPWSS’ collection of information about an employee’s activities through electronic devices, electronic communication tools, software, or any other technology used in LHPWSS networks and systems or through systems/devices not owned by the LHPWSS, but to which the LHPWSS has access or obtains information regarding an employee’s activities and that are monitored electronically, including employee personal devices used for work purposes.



Examples of electronic monitoring systems include, but are not limited to, LHPWSS-owned hardware such as computers, laptops, tablets, mobile devices, key fobs, video or audio recording devices, GPS units, GPS vehicle tracking and/or LHPWSS-licensed and approved software including computer servers, network threat detection tools, email accounts, applications, programs, LHPWSS-shared drives or file shares, message boards, instant messaging systems, LHPWSS cloud storage locations and various other systems (“Systems”).

Given that technology changes rapidly, the LHPWSS reserves the right to amend these definitions and examples at any time, and they are not to be considered exhaustive.

4. LHPWSS Specific Electronic Monitoring

In addition to the Electronic Monitoring identified in the Electronic Monitoring Policy of the Corporation of the City of London (referenced in its capacity as Administering Municipality for the LHPWSS in the provision of seconded/assigned employees), at present the LHPWSS engages the following types of electronic monitoring:

- GPS-enabled tracking of vehicles supplied through the Corporation of the City of London for use by authorized employees of the LHPWSS from the time that the vehicle is started to the time that it is parked and turned off;
- Closed-Circuit Television Security Cameras in accordance with the Video Surveillance Policy;
- Data associated with key card access controls and RFID-enabled security keys is collected every time an employee uses their assigned key card and/or RFID-enabled key to access an electronically controlled door;
- Network connectivity and activity is logged every time an employee logs into the network, and WiFi data is tracked until the employee logs off;
- Data associated with the access and utilization of the document management system, including accessing, modifying, and deleting files for the purposes of document controls and records management;
- Monitoring of employee email and text-based chat to ensure compliance with employee policies/licencing requirements and productivity;
- Data associated with accessing, monitoring, modifications, and operational changes made within the Supervisory Control and Data Acquisition System

5. Purpose of Electronic Monitoring and Use of Information Obtained

The LHPWSS collects, uses, transfers and discloses information of its employees for reasons related to administration of the employment relationship, site safety and security,



as well as for the reasons specifically set out below. The information obtained through electronic monitoring may be used for the following reasons including, but not limited to:

- recruiting, training, recognizing, and retaining a highly qualified and motivated workforce;
- establishing and maintaining harmonious employer-employee relations;
- assessing overall employee productivity;
- disciplinary discovery, such as for workplace investigations concerning disciplinary issues;
- administration of the LHPWSS policies and procedures, including investigations related to alleged breaches of such policies and/or procedures;
- managing and promoting the LHPWSS business activities;
- complying with a subpoena, warrant or court order;
- ensuring security of Systems and all data contained or transmitted therein;
- employee and public safety and security; and
- meeting requirements imposed by law.

6. In What Circumstances Employees May be Electronically Monitored

The LHPWSS may monitor employees during the employee's working hours, as well as anytime employees are utilizing LHPWSS Systems or personal devices for work-related purposes. Electronic monitoring may occur any time when the employee accesses and utilizes LHPWSS Systems, including but not limited to remote access and working from home, including times outside of normal working hours.

7. No Expectation of Privacy

The way in which the LHPWSS seeks consent, including whether it is express or implied, may vary depending upon the sensitivity of the information and the method in which the information is being collected. In addition, in certain circumstances as permitted or required by law, the LHPWSS may collect, use or disclose personal information without the knowledge or consent of the individual.

The LHPWSS reserves the right to access any and all data hosted or stored on the LHPWSS's Systems at any time and without advance notice or consultation with the employee, for the purposes described in this Policy.



8. Retention and Safeguards

After the conclusion of the employment relationship, the LHPWSS may retain certain personal information that it obtained through electronic monitoring for a period not longer than seven years, unless otherwise required by applicable law.

Information obtained through electronic monitoring that is not personal information may be retained indefinitely, unless otherwise requested.

The LHPWSS will protect your information by security safeguards appropriate to the sensitivity of the information. Safeguards will vary depending on the sensitivity, format, location, and storage of the information.

9. Enforcement

If employees have any questions regarding this Policy or any questions about electronic monitoring that are not addressed in this Policy, they may contact the Director of Regional Water.

The LHPWSS will not tolerate any reprisal against an individual who exercises their rights under this Policy. Reprisal or threats of reprisal are considered a serious violation of an employee's rights, and will be dealt with accordingly.

10. Changes

This Policy may be amended in whole or in part or eliminated in its entirety at any time at the sole discretion of the LHPWSS, provided that any change or elimination complies with the *Employment Standards Act, 2000*.

If a change to this Policy is made, the revised Policy will be made available to all employees.



To: Chair and Members, Board of Management
Lake Huron Primary Water Supply System

From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Subject: 2022 Asset Management Plan Update Project Completion

RECOMMENDATION

That, on the recommendation of the Chief Administrative Officer, the Board of Management for the Lake Huron Primary Water Supply System **ENDORSE** the 2022 Asset Management Plan Update.

PREVIOUS AND RELATED REPORTS

December 3, 2020	Asset Management Maturity Assessment and Roadmap
March 4, 2021	Asset Management – Roadmap and Plan Update
October 7, 2021	Asset Management Policy and Asset Management Plan Update
March 3, 2022	Asset Management Plan – Levels of Service Framework
June 2, 2022	Lake Huron Treatment and Transmission Assets – State of the Infrastructure Report

BACKGROUND

At the March 4, 2021 Board meeting, Board staff reported on the finalization of the Asset Management Maturity Assessment and Roadmap (AM Roadmap) and the Board authorized the execution of a consulting services agreement for the completion of the Asset Management Plan update. Further, a key recommendation of the AM Roadmap was the development of an Asset Management Policy which the Board subsequently approved at its meeting on October 7, 2021. With an established Asset Management Policy, the Board endorsed the Asset Management Plan Levels of Service Framework at its meeting on March 3, 2022 and received the State of the Infrastructure report at its June 2, 2022 meeting.

The Asset Management Plan update is a culmination of these initiatives and brings together the asset management direction, vision, and guiding principles of the utility for the next 5 years and beyond.

DISCUSSION

The 2022 Asset Management Plan (2022 AMP) was written by Dillon Consulting Limited with input from Board staff and representatives of the contracted operator through several workshops, meetings, and reviews. The 2022 AMP update reflects the utility’s continuous

efforts to improve our asset management planning and our level of asset management maturity. Notable enhancements incorporated into the 2022 AMP include:

- Enhanced comprehensive asset registry including digital technology assets;
- Improvements to risk calculation, refinement of asset specific risk scores, and introduction of process area risk profiles;
- Updated customer and technical levels of service, including recommended digital technology asset indicators;
- Enhanced asset management & lifecycle strategies, including updated Strategic Direction Statements;
- Unconstrained financial forecast including lifecycle and mid-life intervention cost estimates; and,
- Digital tools intended to facilitate the operationalization of the asset management plan.

The 2022 AMP also includes several recommendations intended to support the continuous improvement of our asset management practices, and the quality and accuracy of our asset-related data, including:

- Increasing performance data collection;
- Updating field-verified condition assessment information on a more regular basis; and,
- Enhancing and implementing Level of Service (customer and technical) metrics data measuring, tracking & reporting.

The 2022 AMP found the LHPWSS treatment, transmission, and digital assets to be in overall good condition with 46% of assets assessed to be in Very Good or Good condition, 39% of assets to be in Fair condition, and only 16% of assets considered to be in Poor or Very Poor condition.

Overall, the LHPWSS's 5,631 assets have an estimated replacement cost of \$489M (2022 dollars), split between \$176M for treatment assets, \$298M for transmission assets, and \$15M for digital technology assets.

There are three applicable risk zones based on the individual asset risk scoring: Low Risk (score 1-9), Moderate Risk (score 10-16), High Risk (score 17-25). The risk profiles for treatment, transmission, and digital technology assets identified 29% of the total assets to be considered as either moderate or high risk and might warrant higher priorities for implementation of lifecycle activities.

The LHPWSS's proposed investment decisions over the 25-year period of the 2022 AMP are guided by our Asset Management Policy, Strategic Direction Statements (Addressing Legislative Changes, Maintain Levels of Service, Support Growth and Demand, Increase Efficiency, Enhance Levels of Service), and relate to our levels of service for water quality, availability/reliability, and environmental acceptability. All proposed investments link back to these statements, measures, and the AM Policy.



The table below provides a summary of the total unconstrained annual expenditure forecast of \$259.2M over the planning period. The unconstrained annual expenditure is presented in 2022 dollars and represents capital investment, asset mid-life intervention costs, and asset lifecycle replacement costs.

2022	2023	2024	2025	2026
\$ 22,609,998	\$ 27,999,029	\$ 8,319,611	\$ 39,447,490	\$ 4,139,540

2027-2031	2032-2036	2037-2041	2042-2046
\$ 11,883,071	\$ 4,869,705	\$ 5,477,116	\$ 9,105,462
<i>(Avg Per Year)</i>	<i>(Avg Per Year)</i>	<i>(Avg Per Year)</i>	<i>(Avg Per Year)</i>

There are a number of significant capital construction projects planned and/or budgeted for over the upcoming decade including electrical and HVAC improvements (2022) at the McGillivray Pumping Station, the Oneida transmission pipeline (2023), plant storage and UV treatment (2025), plant administration building (2025-26), and the Arva terminal reservoir expansion (2028-29) generating higher expenditures forecasted for those years. Additionally, asset lifecycle replacement projects based on the assets expected end of useful life reflect 43% of the total projected costs over the next 25 years and have been assigned a replacement year based on the assets expected end of useful life. Depending on the asset condition, performance, working environment, intervention, and maintenance an asset's end of useful life will fluctuate. Systemic risk evaluations based on current asset data are completed as part of the business case development and review process to identify and prioritize these renewal needs.

The unconstrained 25-year financing strategy forecast in the AM Plan will help inform the Financial Plan Update currently being undertaken by Watson & Associates Economists Ltd. and has also been prepared such that it can be used in conjunction with the annual budget process. Healthy capital and replacement reserves will fund the forecasted capital lifecycle investments as well as growth and enhancement related projects. This will require proactively increasing the amounts transferred to reserve funds during the annual budget process through the approved water rates. While the annual funding requirement may fluctuate, a consistent yet increasing annual investment in capital is desirable such that annual excess funding can accrue in reserve funds.

In order to fund the recommended asset requirements over the forecast period using the LHPWSS's available funding sources (i.e., revenue generated from water rates) an increase in total revenue is required. Recommended annual rate increases will be presented in the Financial Plan Update, which will be the subject of a future report to the Water Board for endorsement.

The 2022 AMP supports all six (6) of the guiding principles as established by the Asset Management Policy. Further, the 25-year investment projection balances the assets' age, condition, performance, and risk, with the associated costs required to meet the target customer levels of service to the benefiting municipalities.



The 2022 Asset Management Plan Executive Summary is attached to this report as Appendix A which outlines the key findings and recommendations of the 2022 AMP update.

PROJECT FINANCIAL STATUS

Summary of Expenditures Incurred to Date as of: August 30, 2022

Expenditure	Projected	Incurred
Detailed Design	\$146,119	\$102,586
Total	\$146,119	\$102,586
Approved Budget	\$	150,000
Projected Variance	\$	3,881

Presently this project is expected to be delivered within budget.

CONCLUSION

The 2022 Asset Management Plan establishes our asset management strategies, risk profiles, and investment activities that will guide the LHPWSS toward achieving our target levels of service to member municipalities and respond to any changing service requirements from growth and enhancement over the next 25-year planning period. The Plan is an innovative approach to long-term asset management planning in alignment with global best practice standards for Asset Management such as ISO 55000, and Board staff recommend its endorsement.

Prepared by: Ryan Armstrong, C.E.T.
Asset Management Coordinator

Submitted by: Billy Haklander, P. Eng., LL.M
Capital Programs Manager

Recommended by: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Attachments: Appendix 'A' – 2022 Asset Management Plan: Executive Summary



Lake Huron
Primary Water Supply System

Asset Management Plan 2022



Executive Summary

The utility, the Lake Huron Primary Water Supply System (LHPWSS), undertakes an update to their Asset Management Plan (AM Plan) on a five (5) year cycle. The most recently completed AM Plan update was undertaken in 2016.

This project included the development of an Asset Management Policy (AM Policy), alignment of the existing level of service framework with ISO (International Organization for Standardization) 55000, assessment of risk ratings for asset components, addition of digital technology assets as a separate asset category and specific focus on lifecycle strategy for an aging transmission pipeline.

The goal of this project is to move Asset Management beyond the strategic level, such that assets may be assessed at a tactical level and asset management is further integrated into business practices.

The updated AM Plan provides the LHPWSS with a robust system wide approach that allows for operating, maintaining and renewing of physical assets in a cost effective manner to meet the target levels of service approved by the utility and delivered in alignment with the AM Policy.

Overview of the AM Plan

The Introduction (**Section 1**) includes the overall objectives of the project, an overview of asset management in alignment with the AM policy and organizational objectives, discusses the utility and the services delivered, and provides an overview of the asset management planning process.

In the State of the Infrastructure (**Section 2**) we present the asset inventory and replacement value, the asset age distribution and expected useful life. For each of the process areas, we present a description of the services, description of the assets, asset condition and performance, risk profile and annual capital investments for asset renewal and mid-life interventions. Each process area is summarized in an asset card.

The asset categories included in the AM Plan are:

- Treatment Assets (**Section 2.2**);
- Transmission Assets (**Section 2.3**); and
- Digital Technology Assets (**Section 2.4**).

In Level of Service (**Section 3**), the new endorsed level of service framework is presented along with target levels of service for the three key parameters: quality;

availability/reliability; and environmental acceptability. The key drivers for investment are defined and alignment is shown with the LOS parameters and the AM Policy. The current levels of service and asset performance is presented by process area as well as an overall aggregate summary, based on available information.

The asset management Strategy (**Section 4**) presents a risk strategy and lifecycle strategy for each asset category.

The Financial Strategy (**Section 5**) recommends the unconstrained capital investments required to meet the target levels of service.

The final chapter is Improvement and Monitoring (**Section 6**) which highlights the key recommendations from the AM Plan to: increase performance data collection; improve condition assessment information on a more regular basis; and to advance recommendations on strategy development and implementation.

Asset Management Policy and Alignment

Alignment with Organizational Objectives

The 2022 AM Plan has been developed in alignment with ISO 55000 and in alignment with the utility's organizational objectives, of which compliance is key. As stated in the AM Policy:

- **Alignment:** The asset management planning approach fosters integration with the Strategic Plan (currently under development), Master Water Plan, Operations Plan and Financial Plan. It is also in alignment with global best practice standards for Asset Management such as ISO 55000.
- **Compliance:** The asset management system, which includes the AM Policy, supporting strategies, and asset management plan satisfies compliance obligations including requirements and standards of ISO 14001, Drinking Water Quality Management Standard, the Environmental and Quality Policy, and any other contractually relevant obligations.

It is noted that although the utility is not subject to the requirements of **O. Reg. 588/17 Asset Management Planning for Municipal Infrastructure**, it has chosen to align with ISO 55000 which is a global best practice standard.

Asset Management Policy

The AM Policy was a key deliverable of the AM Plan update and was developed through a series of workshops with all service areas to establish guiding principles and outcomes for implementation across the utility.

The AM Policy demonstrates LHPWSS' commitment to asset management by setting out the principles by which the utility intends to apply asset management to achieve its organizational objectives.

This AM Plan update was developed in alignment with the AM Policy approved October 7, 2021 (Report No.: LH-2021-03-10). The following are excerpts from the policy to highlight the guiding principles and the key outcomes.

AM Policy – Guiding Principles

- **Service Delivery:** Decision-making should be focused on delivering defined levels of service that reflect customer expectations and balance risk and affordability.
- **Long-Term Sustainability and Resilience:** Achieving services from infrastructure assets over the long-term involves long-term planning that incorporates triple bottom line considerations, climate change awareness, and the development of resilience.
- **Fiscal Responsibility and Asset Management Decision-Making:** Robust asset management decision-making processes are required to make the best use of available funds to deliver services for the benefit of the utility's customers.
- **Whole-Life Perspective:** The utility shall consider the full financial impact of managing an asset from acquisition to disposal.
- **Environmentally Conscious:** The utility shall minimize the impact of infrastructure on the environment and address the vulnerabilities and risks caused by climate change through lifecycle management.
- **Transparency:** To make transparent infrastructure decisions, the utility shall be data-driven and evidence-based.

AM Policy – Key Outcomes

- Integrate findings from the asset management plan into the **annual budgeting process using a business case approach.**
- Develop a corporate asset information strategy to ensure accessibility to a fully integrated **asset data registry to support good governance and leverage operational efficiencies.**
- Develop and maintain an asset risk register capturing **climate change impacts on infrastructure assets** to inform prioritization of capital projects.
- Asset management facilitates **evidence-based dialogue with the utility and its customers** about investment recommendations.
- **Sustainable levels of service** and asset lifecycle activities are used by the utility as **drivers for investment** and are foundational to its decision making.
- The utility strives for **continuous improvement in asset management planning and asset management systems** by applying best management practices.



The Utility and the Services

The Lake Huron Primary Water Supply System strives to operate and to continually improve the sustainable, environmentally friendly utility that provides safe and reliable drinking water to current and future customers.

The utility delivers drinking water services which include water supply, treatment, and transmission services to benefiting municipalities. (Excerpt from AM Policy - Scope)

Scope of Services

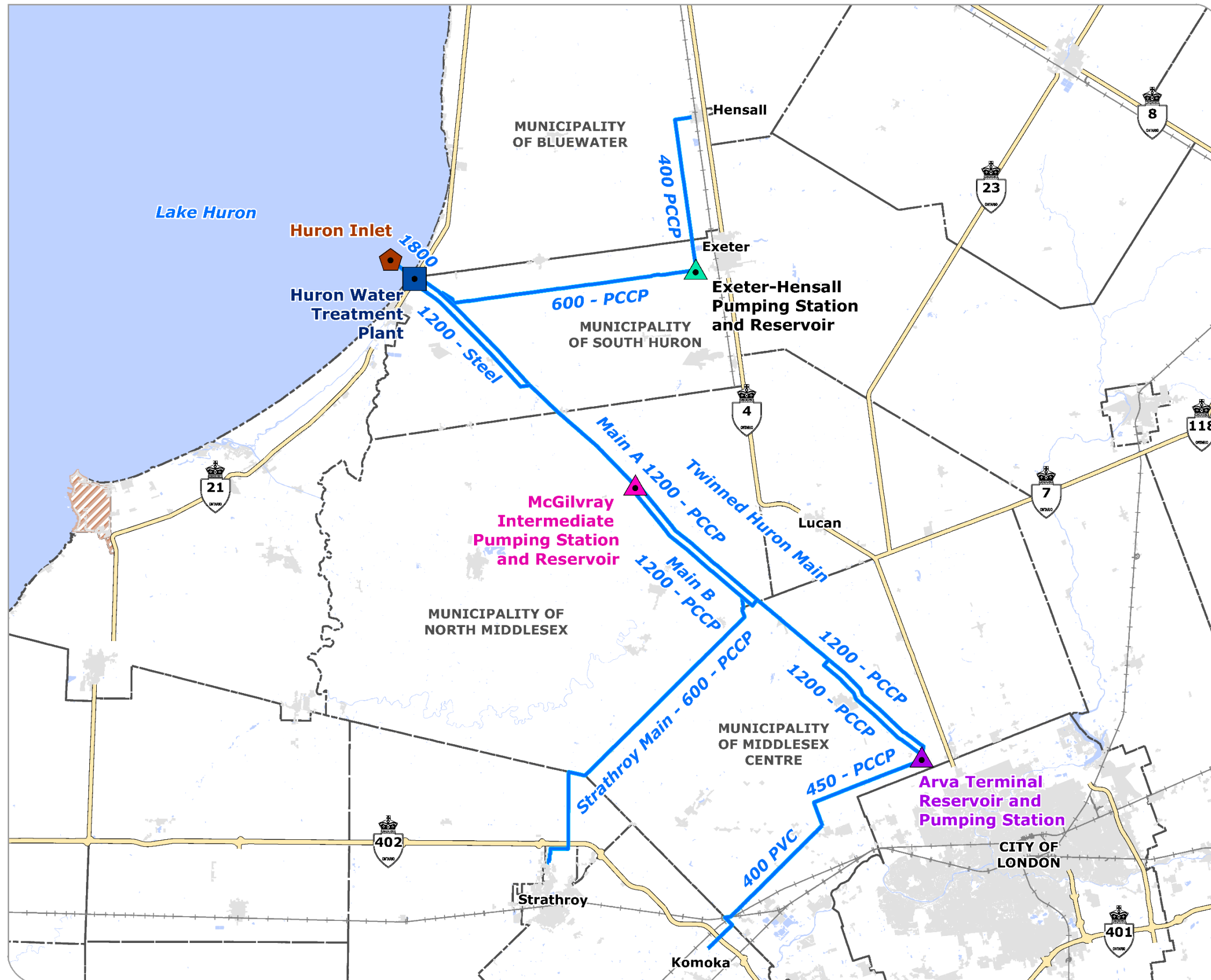
The LHPWSS delivers drinking water from Lake Huron, treated at the Lake Huron Water Treatment Plant located north of the Village of Grand Bend, to eight municipalities through partially twinned primary transmission mains and secondary transmission mains. The system is currently operated by the Ontario Clean Water Agency (OCWA) under an agreement that establishes contractual expectations for water quality and service delivery. The LHPWSS is governed by a Board of Management and administered using seconded staff from the City of London (Regional Water).

The assets that make up the regional water treatment and supply systems include:

- Water treatment plant located near Grand Bend;
- 47 km (combined 77 km) of partially twinned 1200 mm primary transmission mains;
- McGillivray Reservoir and Pumping Station;
- Arva Terminal reservoir;
- Secondary transmission mains for Exeter-Hensall (400mm and 600mm), Komoka/Mount Brydges (400mm and 450mm), and Strathroy/Caradoc (600mm);
- Exeter-Hensall Reservoir and Pumping Station; and
- Komoka/Mount Brydges Pumping Station.













See **Figure E-1** for map of LHPWSS infrastructure. (Note that the pipeline alignment is not to scale.)

Figure E-1: Map of LHPWSS Infrastructure (Appendix A)

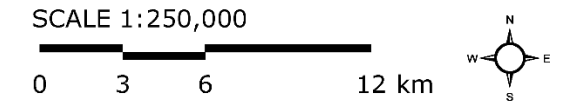



LAKE HURON PRIMARY WATER SUPPLY SYSTEM
 ASSET MANAGEMENT PLAN

SYSTEM MAP
 FIGURE E-1: Map of LHPWSS Infrastructure

-  Huron Water Treatment Plant
-  Huron Inlet
-  Arva Terminal Reservoir and Pumping Station
-  McGilvray Intermediate Pumping Station and Reservoir
-  Exeter-Hensall Pumping Station and Reservoir
-  Water Supply Pipeline
-  Highway
-  Railway
-  Built Up Area
-  First Nation Settlement
-  Municipal Boundary
-  Water Body

Notes: Pipeline alignment not to scale.



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: LMM/RB
 MAP CHECKED BY: -
 MAP PROJECTION: NAD 1983 UTM Zone 17N



PROJECT: 21-1806
 STATUS: DRAFT
 DATE: 2022-09-12

The system serves a population of approximately 390,000 (2021). The existing water production capacity at the Lake Huron WTP is 340 ML/d.

As reported in the Water Master Plan (2020), population served was 389,827 (2018) in the baseline year and is projected to grow to 408,174 (2023) and 468,476 (2038) in the medium scenario. In 2018 the system delivered 107 ML/d for the City of London and 20.2 ML/d for the non-London municipalities.

As reported in the Annual Compliance Report (2021), the system delivered an average daily flow of 124.7 ML/d (36.7% capacity). The maximum daily flow was 195.4 ML/day (57.5% capacity). Water production and transmission is fairly steady over the baseline year (2018) in the Water Master Plan, which reported 131 ML/d average day and 191 ML/d maximum day demand in 2018.

The infrastructure assets deliver water to the following member municipalities (associated percentage of treated drinking water from LHPWSS):

- City of London (82.74%);
- Municipality of Strathroy-Caradoc (4.44%);
- Municipality of Lambton Shores (3.17%);
- Municipality of South Huron (3.13%);
- Municipality of North Middlesex (3.04%);
- Municipality of Middlesex Centre (1.49%);
- Municipality of Bluewater (1.2%); and
- Township of Lucan Biddulph (0.78%).



Asset Hierarchy

The asset hierarchy is organized by Treatment, Transmission and Digital Technology assets at the system level (Level 1) and reports on the assets by process area (Level 2). See **Table E-1**.

Table E-1: Asset Hierarchy

Level 1 (System)	Treatment	Transmission	Digital Technology
Level 2 (Process Area)	<ul style="list-style-type: none"> • Raw Water Handling • Pre-Treatment • Filtration, Disinfection, and High Lift Pumping • Residuals Management • General Site, Building Services, Fleet and Security • Primary Power 	<ul style="list-style-type: none"> • Primary – Reservoir and Pumping Station • Primary – Pipelines and Chambers • Secondary – Reservoir and Pumping Station • Secondary – Pipelines and Chambers 	<ul style="list-style-type: none"> • SCADA • Various Process Area • Corporate



Overall Condition and Replacement Cost

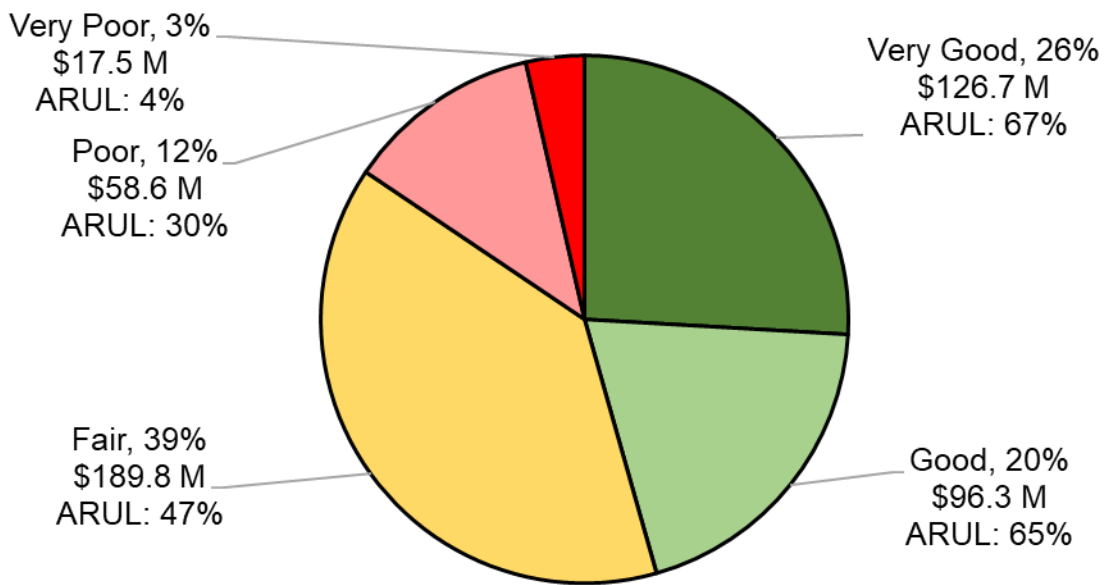
The total replacement cost of all LHPWSS assets, in 2022 dollars, is estimated at **\$489 million**. The treatment assets make up approximately **36%** of the LHPWSS’s assets by value, with the transmission assets making up **61%** and digital technology assets **3%**.

The overall condition of the LHPWSS by replacement value is shown in **Figure E-2**.

The age-based condition presented below indicates that **15%** of the assets are considered Poor or Very Poor; however, this is based on the assets nearing the end of their useful life with the average remaining useful life (ARUL) of **30%** for Poor and **4%** for Very Poor. The estimated replacement value for Poor and Very Poor assets is **\$76.1 million**.

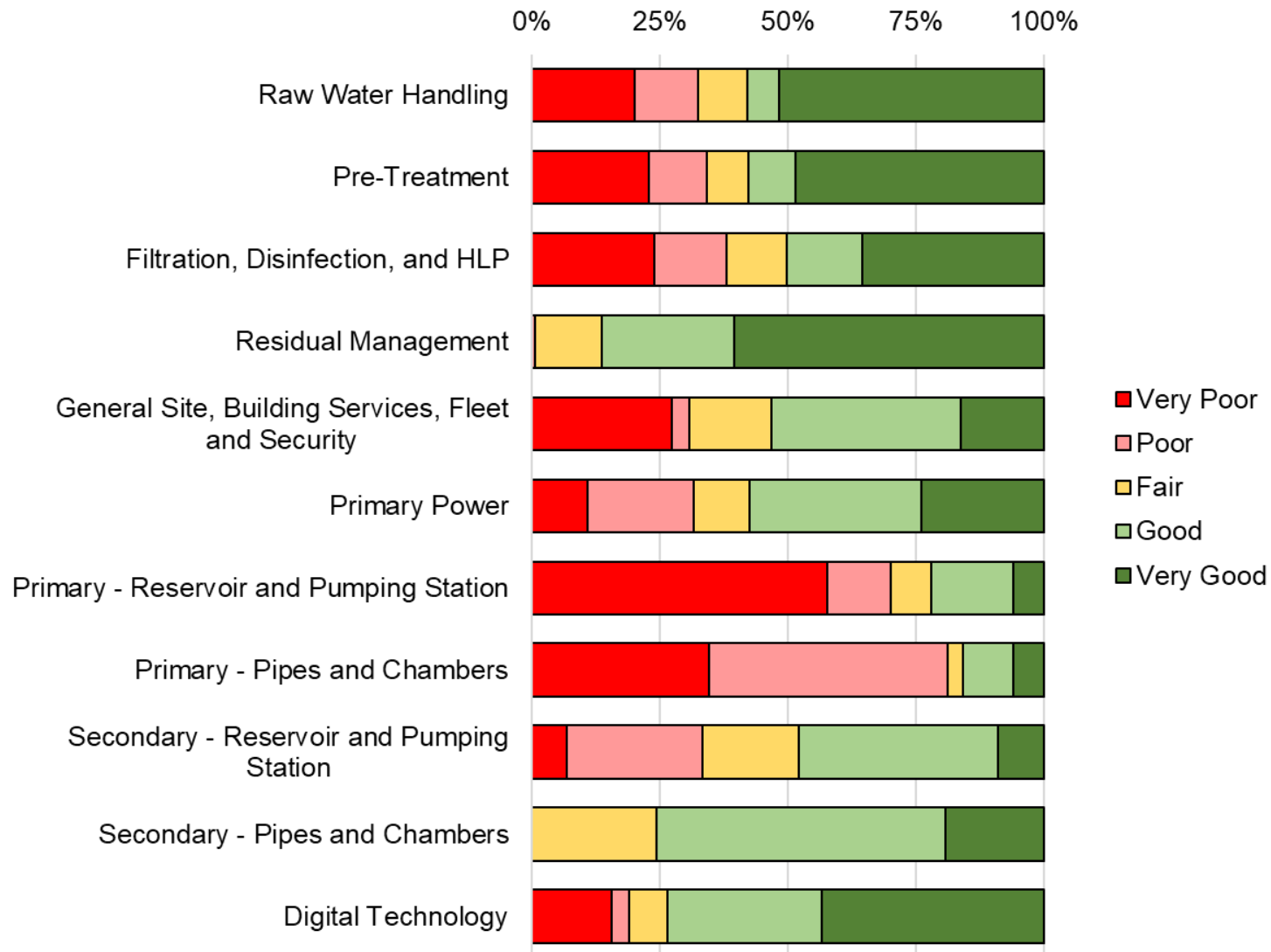
The overall data confidence (condition data) is estimated as Moderate.

Figure E-2: Overall Condition by Replacement Value



The asset condition by process area is presented in **Figure E-3**, highlighting Residual Management as the best condition overall.

Figure E-3: Asset Condition by Process Area (by Count)

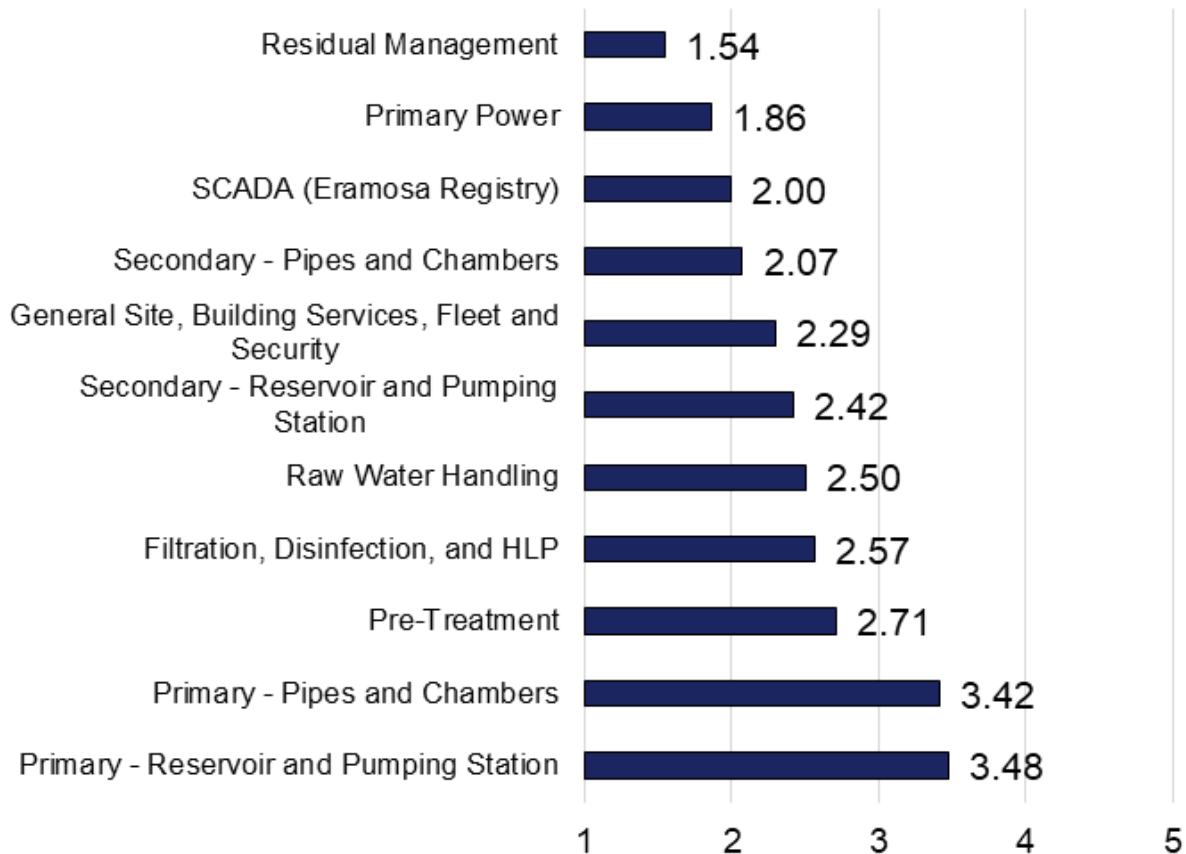


Overall Performance

Asset performance is a measure of how well an asset is performing as part of its operational function, and this is assessed independently of other factors, such as age or condition. Performance can be observed through the operating and maintenance activities (qualitative); and measured with meters, sensors, testing, etc. (quantitative). Overall the assets are performing in the Fair (3.48) to Very Good (1.54) range, as presented in **Figure E-4** by process area.

It is recommended that a formal performance rating methodology be employed for all assets, in parallel to the condition rating scale using ratings from 1 (Very Good) to 5 (Very Poor).

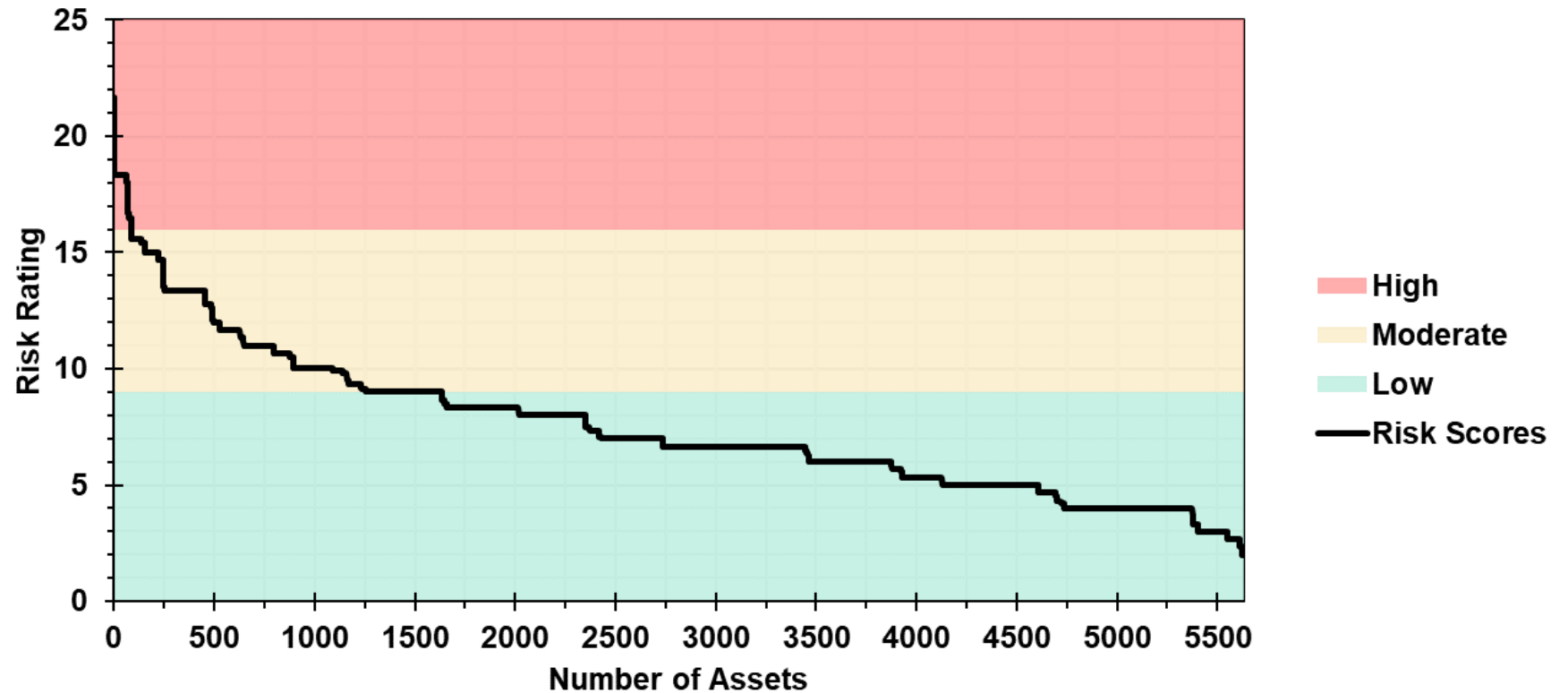
Figure E-4: Overall Average Performance Score



Risk Profile

The Risk profile for all assets can be found in **Figure E-5**.

Figure E-5: Risk Profile



The relationship shown is fairly linear, with a sharp drop initially, indicating the LHPWSS has a broad range of risk across their assets and few High risk assets.

This is a good position to be in as it allows the management of risk and replacement of assets to move forward at a steady rate.

Of the 5,631 assets tracked within the LHPWSS's asset management data, 88 are classified as High risk and 29% as Moderate or High risk. These assets are considered high and moderate priorities for the implementation of lifecycle activities, possible replacement and enhanced monitoring. The remaining assets are considered Low risk.



Levels of Service

As part of the AM Plan update, the 2014 Levels of Service (LOS) Framework was reviewed and revisions identified to update the LOS framework to be in alignment with global best practice standards for Asset Management such as ISO 55000. The revised LOS framework with target LOS was endorsed on March 3, 2022 (Report No. LH-2022-01-07).

The guiding principles from the AM Policy that relate to the LOS Framework include:

- **Service Delivery:** Service delivery is the key purpose of infrastructure assets. Decision-making should be focused on delivering defined levels of service that reflect customer expectations and balance risk and affordability.
- **Environmentally Conscious:** The utility shall minimize the impact of infrastructure on the environment and address the vulnerabilities and risks caused by climate change through lifecycle management. This includes energy and resource optimization, meeting environmental standards such as ISO 14001 in our operation, considering end of product life disposal or reuse options, and whole lifecycle considerations at the time of repair, replacement or new build.

In the review of the current framework in light of ISO55000 guidance and in alignment with the new AM Policy, three Level of Service parameters and associated objectives were identified that reflects the outcomes that the utility delivers and the Customer Level of Service metrics. See **Table E-2**.

Table E-2: Levels of Service

Parameter	Objective	Customer Level of Service
Quality	Provide drinking water quality that meets or is superior to regulatory requirements	<ul style="list-style-type: none"> • Meet target of no adverse water quality incidents • Satisfy MECP regulatory compliance requirements • Satisfy Superior Water Performance Criteria • Meet Plant Maintenance/ Performance Requirements
Availability /Reliability	Deliver water to customers when demanded	<ul style="list-style-type: none"> • Measurable flow when customer connection is open
Availability /Reliability	Provide resilient water production	<ul style="list-style-type: none"> • Chemical working volume greater than demand • Power supply greater than peak demand • Assets operate with % reserve capacity
Availability /Reliability	Provide safe and secure operations	<ul style="list-style-type: none"> • Physical Security • Computational Security (IT, IAS)
Environmental Acceptability	Minimize water system impacts on the environment	<ul style="list-style-type: none"> • Environmental sustainability best practices • Meet other regulatory compliance requirements
Environmental Acceptability	Detect changes in source water quality and environmental impacts that affect the water system	<ul style="list-style-type: none"> • Operations and services are continuous

Level of Service Targets

The purpose of setting targets for LOS is to define the objectives of the utility. Levels of Service are the service performance targets for the utility and used in the utility's decision-making process for operational activities and asset investments. These targets will be measured on a regular basis and any gaps in being able to meet LOS become a priority for action.

See questions for decision making in **Table E-3**.

Table E-3: Levels of Service (LOS) Priority for Action

Question	Response for Decision Making
1. Meet LOS now?	<ul style="list-style-type: none"> • If No: Priority for action • If Yes: Look at Question 2
2. Meet LOS in future?	<ul style="list-style-type: none"> • If No: Priority for action • If Yes: Look at Question 3
3. Is LOS staying the same?	<ul style="list-style-type: none"> • If No: Priority for action • If Yes: No change in action

Risk is the “effect of uncertainty on objectives”. Asset risk is any issue preventing the utility in achieving the target LOS. Establishing clearly defined objectives in the LOS for the utility is a foundational practice in asset management. Not only does it help to communicate expectations to the utility’s customers, it provides clarity in risk management for the utility to prioritize actions, including financial investments in infrastructure. Priorities are quantified by the size of the gaps between target LOS and current and future risks.

The targets for LOS are presented in **Sections 3.2 to 3.4** of the AM Plan. The alignment of digital technology assets to provide monitoring and reporting data to support reporting on LOS achieved is presented in **Section 3.5**.

Asset Management Strategy

The strategic direction statements have been updated to align with the LOS Framework. In describing the key drivers for meeting target LOS, these statements provide a definition as applicable for treatment services and transmission services and include an example of an activity for each. Clarity in each of these key drivers is important as funding for activities and projects comes from reserve funds for these purposes. In the development of business cases for new investments, the source(s) of funding is determined based on the key driver(s) for the project.

The key drivers for investment are defined as follows:

- **Address Legislative Changes:** investment required for compliance with new legally enforceable obligations;
- **Maintain LOS:** investment required to maintain the current LOS to the existing member municipalities;
- **Support Growth and Demand:** investment required to provide service for new customers with no net deterioration from the current level of service provided to existing member municipalities;

- **Increase Efficiency:** investment required to enable a demonstrable savings in operating expenses arising from the project;
- **Enhance LOS:** investment required to provide an identifiable, measurable and permanent change in the overall level of service to existing member municipalities above the standard previously provided.

The linkages between the key drivers and the LOS parameters are presented in **Table E-4**.

Table E-4: Key Drivers linked to Level of Service

Level of Service Parameters	Address Legislative Changes	Maintain LOS	Support Growth and Demand	Increase Efficiency	Enhance LOS
Quality	yes	yes		yes	yes
Availability & Reliability		yes	yes	yes	yes
Environmental Acceptability	yes	yes			yes

The linkages between the key drivers and the AM Policy (guiding principles and the key outcomes) are presented in **Table E-5** and **Table E-6**.

Asset management strategies presented in the AM Plan include the following:

- Strategy to Maintain LOS
- Risk Strategy
- Climate Change
- Lifecycle Strategy – Transmission
- Lifecycle Strategy – Treatment
- Lifecycle Strategy – Digital Assets

Table E-5: Key Drivers linked to AM Policy (Guiding Principles)

AM Policy (Guiding Principles)	Address Legislative Changes	Maintain LOS	Support Growth and Demand	Increase Efficiency	Enhance LOS
Service Delivery		yes			yes
Long-Term Sustainability and Resilience			yes		yes
Fiscal and Asset Management Decision-Making	yes			yes	
Whole-Life Perspective		yes			yes
Environmentally Conscious	yes	yes	yes		
Transparency	yes			yes	

Table E-6: Key Drivers linked to AM Policy (Key Outcomes)

AM Policy (Key Outcomes)	Address Legislative Changes	Maintain LOS	Support Growth and Demand	Increase Efficiency	Enhance LOS
Annual Budgeting Process, Business Case Approach		yes	yes	yes	yes
Asset Data Registry, Good Governance & operational efficiencies					yes
Climate Change, Risk Management Approach	yes	yes			
Evidence Based Dialogue					yes
Sustainable LOS, Investment Drivers		yes			yes
Continuous Improvement				yes	yes

Financial Strategy

The capital funding projections provide a window into spending over the next 25 years, presented in 2022 dollars.

Included in the capital funding projections are the projects identified in the 2023 capital plan, new projects proposed in various planning documents confirmed with input from the utility, the asset replacement schedule and the mid-life intervention costs.

The projections will inform the Financial Plan update being completed by Watson and Associates Ltd. (Watson) as a separate project. The Financial Plan update should be referenced for a more complete financial analysis and strategy.

Capital Funding Projections (25 Years)

The capital funding projections are presented in **Table E-7** with the corresponding estimated cost in 2022 dollars and year(s) that the investment will take place. The estimated cost of each project includes the remaining budget for projects that are underway with multi-year funding. For more detailed funding projections, year by year investment projections are presented in **Section 5**.

Table E-7: Capital Funding Projections (25 Years)

Project Name	Remaining Project Cost (\$2022)	Investment Year(s)
Concrete Crack Injection (LH1207)	\$150,000	2022 to 2024
Security Upgrades (LH1229)	\$653,000	2022 to 2026
Hydraulic/Transient Model Update & Transient Monitoring (LH1242)	\$210,000	2022 to 2023
McGillivray Electrical Upgrades (LH1243)	\$7,077,436	2022
Interior LED Lighting Upgrades (LH1270)	\$50,000	2022
(PS3) Exeter-Hensall Pump Control Upgrades (LH1273)	\$50,000	2022
Arva Reservoir Expansion (LH1280)	\$35,000,000	2028 to 2029
Distressed Pipe Replacement Program (LH1317)	\$5,750,000	2022 to 2037
Arva Reservoir Structural Repairs (LH1352)	\$2,050,000	2023 to 2024
Plant Expansion & Renovation (LH1353)	\$5,000,000	2024 to 2026

Project Name	Remaining Project Cost (\$2022)	Investment Year(s)
Clarifier Upgrades (LH1380)	\$345,000	2022 to 2024
Oneida Transmission Pipeline (LH1408)	\$25,200,000	2022 to 2023
WTP Storage Schedule B Environmental Assessment (LH1426)	\$35,000,000	2023 to 2025
Water Quality Facility Plan (LH1901)	\$290,000	2024
Chamber Flood Prevention/Rehab (LH2038)	\$475,000	2022 to 2027
Pipeline-A Double Isolation Valve (LH2042)	\$1,247,000	2022
Construction Site Trailer Pad & Electrical Pedestal (LH2043)	\$75,000	2022
Asset Management Plan	\$750,000	2026, every 5 years
Financial Plan	\$250,000	2026, every 5 years
Master Water Plan Update	\$750,000	2024, every 5 years
Asset Condition Field Assessment	\$366,000	2023 to 2025
Control Systems Upgrades for the Strathroy Monitoring Stations	\$275,000	2023
De-chlorination of Water Discharge at Remote Stations	\$125,000	2023
Electric Vehicle Charging Stations	\$60,000	2023 to 2024
Sub-basement Drain Study	\$25,000	2023
Climate Change Risk Assessment Recommendation #5	\$50,000	2024
Optimization Opportunities (1-5 year)	\$653,777	2025 to 2029
Optimization Opportunities (6-10 years)	\$18,264,157	2030 to 2034
Mid-Life Intervention Costs	\$6,518,021	2022 to 2046
Lifecycle Replacement Costs	\$112,483,050	2022 to 2046
Total	\$259,192,441	

The total capital funding projection is **\$259.2 million**, which includes: confirmed capital projects; projects in the planning stage (reports, proposed projects, optimization opportunities); and costs for mid-life interventions and lifecycle replacement over a 25-year period.

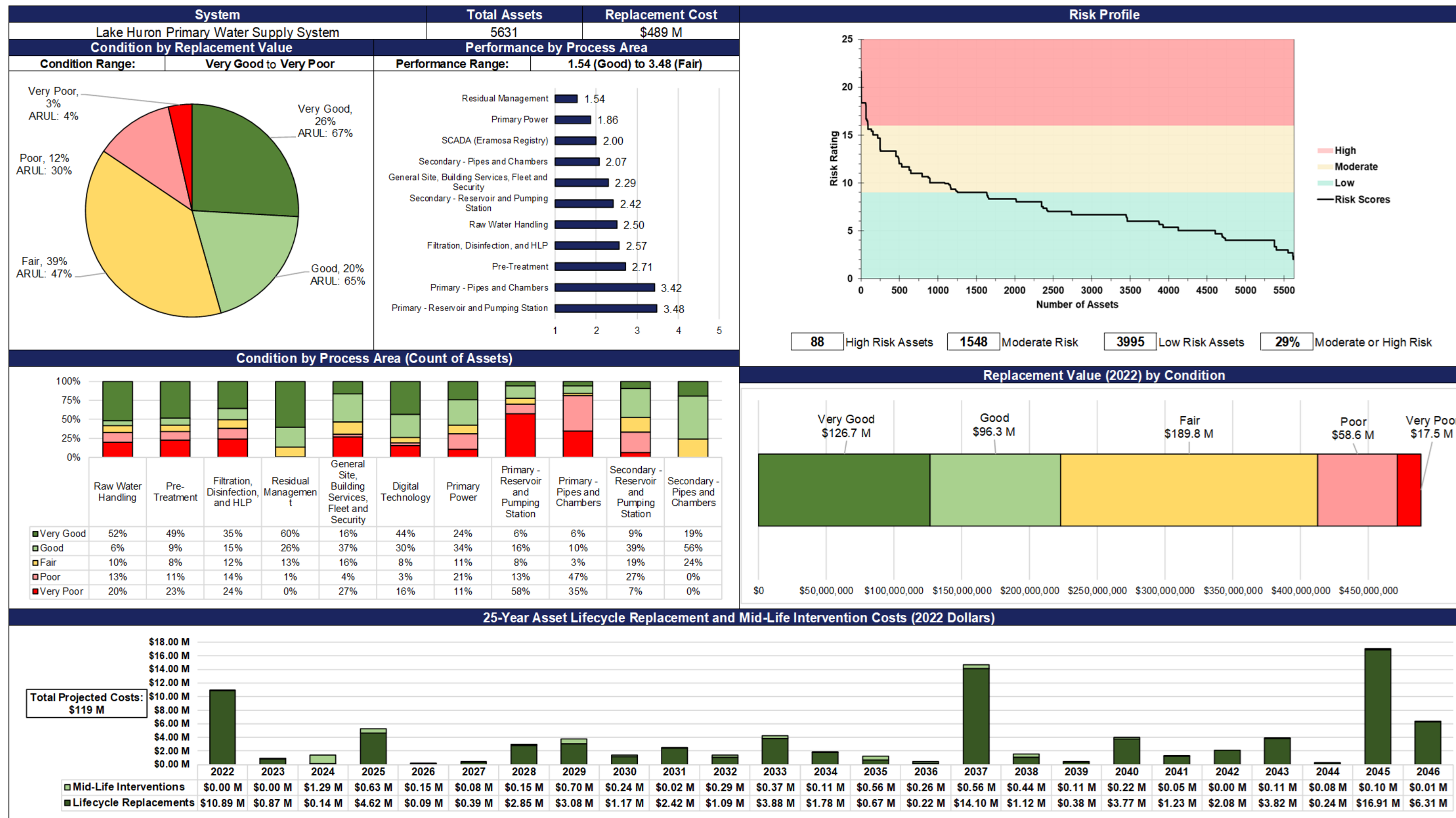
Lifecycle Replacement Costs and Mid-Life Interventions

The projected lifecycle replacement costs and mid-life interventions for all assets (Treatment, Transmission and Digital Technology) is **\$119 million** in current dollars over the 25-year period. See **Table E-8**. A summary of the overall condition, performance, risk profile and investment projections for the lifecycle replacement costs and mid-life interventions for all assets is presented in **Figure E-6: Asset Card – Lake Huron Primary Water Supply System**.

Table E-8: Mid-Life and Lifecycle Replacement Projections (25 Years) Rounded

Year	Mid-Life Cost	Replacement Cost	Total Cost
2022	\$4,000	\$13,081,500	\$13,085,600
2023	\$1,000	\$910,000	\$911,000
2024	\$1,285,800	\$182,800	\$1,468,600
2025	\$625,800	\$5,030,900	\$5,656,700
2026	\$154,100	\$129,600	\$283,800
2027	\$80,500	\$571,000	\$651,500
2028	\$147,500	\$3,403,300	\$3,550,800
2029	\$699,700	\$4,075,900	\$4,775,600
2030	\$236,900	\$2,682,700	\$2,919,600
2031	\$17,100	\$2,577,800	\$2,595,000
2032	\$290,100	\$1,429,000	\$1,719,100
2033	\$366,500	\$4,254,900	\$4,621,400
2034	\$106,400	\$1,927,400	\$2,033,800
2035	\$564,900	\$968,900	\$1,533,800
2036	\$260,400	\$1,071,500	\$1,332,000
2037	\$557,800	\$15,472,500	\$16,030,300
2038	\$435,500	\$3,211,600	\$3,647,100
2039	\$108,000	\$1,040,700	\$1,148,700
2040	\$215,000	\$4,362,800	\$4,577,900
2041	\$47,300	\$1,234,300	\$1,281,700
2042	\$0.00	\$2,427,100	\$2,427,100
2043	\$113,900	\$9,090,500	\$9,204,400
2044	\$81,600	\$1,233,400	\$1,315,000
2045	\$104,300	\$19,628,600	\$19,732,900
2046	\$13,600	\$12,484,300	\$12,498,000
Total	\$6,518,000	\$112,483,000	\$119,001,000

Figure E-6: Asset Card – Lake Huron Primary Water Supply System



Improvement and Monitoring

2022 Improvements Completed

Asset management is a journey of continuous improvement. Improvements incorporated in the 2022 Update included:

- Development of an AM Policy and alignment of the AM Plan with the policy;
- Update of LOS framework to align with ISO55000 and setting targets for LOS;
- Alignment of asset registry hierarchy by process area;
- Assessment of risk ratings for asset components in the asset registry to develop risk profile for each process area and overall risk profile;
- Addition of Digital Technology as a separate asset category to highlight value of IT/OT and data and analytics in sustaining reliable operations and achieving target LOS;
- Addition of security assets and fleet asset as part of the process area: General Site, Building Services, Fleet and Security;
- Focus on lifecycle strategy for ageing transmission systems including identification of activities aligned with lifecycle management strategic outcomes as an example for other asset categories; and
- Alignment of key drivers for funding capital projects with LOS parameters and AM Policy (e.g., guiding principles and key outcomes).

This project addresses many of the initiatives in the AM Assessment and Roadmap (2020) report (Roadmap). See **Table E-9**.

Table E-9: Roadmap Initiatives Addressed

Description of Initiative	How it was addressed
[S2] Implement AM Policy	<ul style="list-style-type: none"> • AM Policy developed and adopted by the utility • AM Plan developed in alignment with the policy
[S3] Develop AM Plans by major asset classes	<ul style="list-style-type: none"> • AM Plan developed which includes treatment, transmission and digital technology assets
[P3] LOS Framework Development	<ul style="list-style-type: none"> • Updated LOS Framework, set LOS targets • Align digital technology assets to monitoring and measuring LOS metrics

Recommendations

This section focuses on recommendations that were identified through the AM Plan update project, based on experience with limited or outdated data; gaps or barriers to reporting on levels of service and performance; or seeking to apply global best practices to advance asset management at the utility. In moving forward, also refer to the Roadmap for activities and projects to advance asset management practices.

The key recommendations from the AM Plan focus on:

- Increasing performance data collection in support of monitoring level of service metrics, risks, and asset condition/performance;
- Updating condition assessment information on a more regular basis tied to decision making windows for accurate line-of-sight; and
- Advancing recommendations on strategy development and implementation.

The “next steps” for operationalizing asset management at the utility are presented in the following categories.

Data Collection and Monitoring

Data collection and monitoring is an essential part of asset management. Two of the key recommendations can be addressed by improvements to data collection and monitoring, i.e. increasing performance data collection; and updating condition assessment information on a more regular basis.

- [R1] Increase Performance Data Collection
- [R2] Update Condition Assessment Information
- [R3] Increase Level of Service Data Collection
- [R4] Improve Asset Data Collection in CMMS
- [R5] Enhance Tracking of Digital Technology Assets

Level of Service Tracking

The LOS framework and targets presented to the Board of Management for the LHPWSS in March 2022 require regular monitoring, tracking and reporting.

- [R6] Operationalize the LOS Framework

Risk Mitigation

The delivery of service from the infrastructure that make up the systems in each process area is a balancing act of cost (investment) and risk (of under-performance). As risk is the effect of uncertainty on objectives, risk mitigation is creating more certainty in

meeting levels of service through performance of the assets. See **Section 4.3 – Risk Strategy** for more details.

- [R7] Reduce Uncertainty in Data Confidence (Asset Condition)
- [R8] Reduce Uncertainty in Climate Change Impacts
- [R9] Operationalize the Risk Strategy

Strategy Implementation

As stated in **Section 6.3 – Risk Mitigation**, the implementation of AM strategies is a key recommendation for risk mitigation as well as achieving the LOS targets.

- [R10] Develop AM Strategies (Transmission Strategy, Treatment Strategy, Digital Technology Strategy)

Financial Considerations

As the budgeting cycle at the utility incorporates longer-term decision-making, there is a greater onus to be forward thinking and to refer regularly to the long-term projections for capital renewal and mid-life improvements in the AM Plan.

The projections are based on replacement at end of useful life, and as such, are estimates. Good maintenance practices can improve condition and extend the useful life, but not indefinitely.

- [R11] Establish Process for Budgeting Renewal and Mid-Life Capital Investments
- [R12] Update Business Case to align with AM Policy and LOS Framework

Next AM Plan Update

With a recommended 5-year renewal cycle, the next AM Plan update in 2027 would be based on available asset data as of December 31, 2026.

- [R13] Preparing for 2027 Update
- [R14] Recommended Improvements
- [R15] Recommended Schedule



Acknowledgements

The consulting team would like to express our appreciation to the LHPWSS staff and OCWA for their cooperation and input to this update. We acknowledge their commitment and flexibility to contribute to this project despite the challenges brought into daily operations as a result of the COVID-19 global pandemic.

Project Team

- Andrew Henry, Director, Regional Water
- Billy Haklander, Capital Programs Manager
- Ryan Armstrong, Asset Management Coordinator
- Marcy McKillop, Environmental Services Engineer
- Archana Gagnier, Finance & Budget Analyst
- Brittany Bryans, Environmental Service Engineer
- David Scott, Capital Projects Coordinator
- Erin McLeod, Quality Assurance and Compliance Manager
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- Rich Aycock, Information Technology Security Supervisor
- Walter Martin, Control Systems Coordinator
- Allison McGuckin, Compliance Coordinator
- Blair Tully, Regional Manager Huron and Elgin, OCWA
- Ahmed Morsy, Asset Maintenance Specialist, OCWA

About This Report

Dillon Consulting Limited was retained by the Lake Huron Primary Water Supply System to conduct an update to their Asset Management Plan.

Consulting Team

- Darla Campbell, Project Manager
- Jason Johnson, Deputy Project Manager
- Matthew Murdock, Lifecycle and Risk
- Kristina Lee, Project Coordinator
- Catherine Liscumb, Analyst
- Austen Underhill, Analyst
- Jamee DeSimone, Climate Change Advisor
- Vanessa Chau, Asset Management Policy
- Pete Samson, Controls and Automation, Eramosa

To: Chair and Members, Board of Management
Lake Huron Primary Water Supply System

From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Subject: LH1243 McGillivray Facility Upgrades – Tender Award and Consulting Assignment Extension

RECOMMENDATION

That the following actions be taken regarding LH1243 McGillivray Facility Upgrades (Mechanical and Electrical) for the Lake Huron Primary Water Supply System (LHPWSS):

- a) The Board of Management for the Lake Huron Primary Water Supply System **AUTHORIZE** the delegation of authority to the Chair and Chief Administrative Officer to execute an agreement for the construction contract for the McGillivray Facility Upgrades project with a contractor, provided that the bid is within the approved budget and complies with the tender process, specifications and project requirements;
- b) The Board of Management for the Lake Huron Primary Water Supply System **EXTEND** the existing engineering assignment with Stantec Consulting Ltd. for contract administration and construction supervision services, as well as SCADA integration services, at an estimated cost of \$527,454;
- c) The Board of Management for the Lake Huron Primary Water Supply System increase the approved budget by \$2,000,000, it being noted that the funds will be provided from the New Capital and Asset Replacement Reserve Funds, for a total approved budget of \$9,762,000; and,
- d) The Board of Management for the Lake Huron Primary Water Supply System **RECEIVE** this report regarding the McGillivray Facility Upgrades project for information.

PREVIOUS AND RELATED REPORTS

October 8, 2020	2021 Operating & Capital Budgets
June 3, 2021	LH1243 McGillivray Electrical Upgrades – Consulting Award
October 7, 2021	2022 Operating & Capital Budgets
June 2, 2022	LH1243 McGillivray Booster Pumping Station Facility Upgrades – Project Update and Engineering Fees

BACKGROUND

The McGillivray Booster Pumping Station (BPS) was constructed in 1976 and, with much of the original equipment still in place, the various electrical and mechanical systems, including heating, ventilation, and air conditioning (HVAC), at this facility are well past their expected operating life. In general, equipment of this type is typically replaced after it has been in operation for 25 to 35 years, depending on their operating conditions and environment.

This equipment has been in operation for approximately 46 years and requires replacement, as evidenced by the frequency of equipment failures. Many of the replacement components for both electrical and mechanical systems are no longer readily available.

DISCUSSION

Design

In June 2021, Stantec Consulting Ltd. was awarded the McGillivray Electrical Upgrades (project LH1243) and a consulting services agreement was subsequently executed. The preliminary design prepared by Stantec Consulting Ltd., including the drawings and report, addressed various electrical and mechanical upgrades required for the McGillivray BPS facility. The preliminary design also considered the benefits of replacing the 46-year-old control panel and various mechanical systems, in particular the facility HVAC systems, as part of the electrical upgrades. As part of the construction contract and included within the tender, the contractor will be disposing of the old equipment and materials that are being replaced as part of the project.

The Board subsequently authorized the consolidation of the electrical, mechanical and control system improvements as one capital project and one construction tender (merged within LH1243), with Stantec as the lead engineering consultant.

The detailed design of these various facility upgrades was completed by Stantec Consulting Ltd. in July 2022 and the tender for construction (RFT#2022-216) was issued on August 5, 2022, with a validity period of 90 days. The pre-tender construction cost estimate of the proposed works prior to tender close was \$8.31 M, including contingency.

As detailed in the project financial status section below, a budget shortfall of approximately \$1.5M is anticipated attributable to recent cost escalation in the construction industry. On this basis, Board staff are recommending that the project budget be increased by \$2,000,000 for a total approved budget of \$9,762,000, it being noted that the funds will be provided from the New Capital and Asset Replacement Reserve Funds.

Tender

Due to delays in the completion of the tender package and issuing to bidders, the timing of the tender period and contract award did not permit a tender award recommendation report to the Board at this meeting with detailed tender results. The tender period was extended further into late September to allow adequate time for bidders to prepare and submit appropriate bids, while maintaining a reasonable validity period of 90 days to allow for submission reviews and award by the Board.

It is specifically noted for the Board's information that long validity periods often will cause contractors and suppliers to include risk-based price escalations into their bid. This is especially evident over the past two years during the global pandemic when supply chains are particularly challenging. Notwithstanding, longer validity periods have been necessary given that the Board only meets four times per year. It is the intention of Board staff to address this longstanding issue with updated Bylaws and Policies relating to procurement and delegated authority, among other things, anticipated for the January 2023 Board meeting.

Contract Administration and Construction Supervision

While finalizing the tender documents, Board staff requested that Stantec Consulting Ltd. provide a work plan and fee schedule for contract administration and construction supervision services, as well as SCADA integration and commissioning services. Due to the nature of the construction work and staging of equipment replacement, a significant amount of time has been allocated to on-site inspection and validation.

Stantec has demonstrated value-added benefit to Board staff, on this and previous projects, when they act as the SCADA Integrator for a project that they also led as the consulting engineering firm. Board staff have reviewed the workplan proposal and recommend that the existing engineering assignment with Stantec Consulting Ltd. be extended by \$527,454 (including a 10% contingency and excluding HST), accordingly for these services. The extension of consulting services is consistent with the Board's procurement bylaw and past practices, including the City of London's Procurement Policy used as a guide.



PROJECT FINANCIAL STATUS

The following is a summary of projected and incurred expenditures to date for the LH1243 McGillivray Electrical Upgrades:

Expenditure	Projected*	Incurred
Preliminary and Detailed Design	\$ 429,392	\$ 355,762
Construction Supervision & Contract Administration	\$ 536,737	\$ 0
Construction	\$ 7,450,000	\$ 61,411
Contingency	\$ 860,000	\$ 0
Total	\$ 9,276,129	\$ 417,173
Approved Budget (Consolidated)	\$ 7,762,000	
Projected Variance	\$ (1,514,129)	

**Projected costs are net of HST*



CONCLUSION

The McGillivray BPS facility's electrical, mechanical and control systems are well past their expected operating life and require replacement. To facilitate contract award and equipment lead times and permit construction activities in 2023 as planned, Board staff recommend that the Board of Management for the Lake Huron Primary Water Supply System authorize the delegation of authority to the Chair and Chief Administrative Officer to execute an agreement for the construction of the facility upgrades, provided that the recommended bid is within the approved budget and complies with the tender process, specifications, and project requirements.

Board staff also recommend that the Board extend the existing engineering agreement with Stantec Consulting Ltd. to provide the contract administration, construction supervision and SCADA integration services for this project.

Prepared by: Marcy McKillop, P.Eng.
Environmental Services Engineer

Submitted by: Billy Haklander, P.Eng., LL.M
Capital Programs Manager

Recommended by: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

To: Chair and Members, Board of Management
Lake Huron Primary Water Supply System

From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

Subject: LH1408 Oneida Nation of the Thames Transmission Pipeline Municipal Class Environmental Assessment and Preliminary Design – Project Update

RECOMMENDATION

That, on the recommendation of the Chief Administrative Officer, the Board of Management for the Lake Huron Primary Water Supply System **RECEIVE** this report for information regarding the Oneida Transmission Pipeline (LH1408) project Environmental Assessment and preliminary design.

PREVIOUS AND RELATED REPORTS

March 3, 2022	Oneida Nation of the Thames Water Supply
June 2, 2022	Oneida Nation of the Thames Water Supply Agreement
June 2, 2022	Oneida Nation of the Thames Transmission Pipeline Municipal Class Environmental Assessment and Preliminary Design – Consultant Award

BACKGROUND

At the March 3, 2022 meeting, the Board endorsed the request from Oneida Nation of the Thames to supply drinking water to the Oneida Nation of the Thames (Oneida Nation) settlement from the Lake Huron Water Supply System and authorized Board staff to negotiate a Water Supply Agreement with Oneida Nation.

Given the location of the Oneida Nation settlement, it is proposed that the existing transmission pipeline, which currently terminates near the community of Mount Brydges, be extended to a connection point located near Muncey Road and Jubilee Drive. Oneida Nation anticipates that it will be undertaking the planning and design of necessary modifications and upgrades to the Oneida Nation water distribution system starting in late-2022 upon the completion of a funding agreement with Indigenous Services Canada.

DISCUSSION

Environmental Assessment and Preliminary Design

In June 2022, Stantec Consulting Ltd. initiated the Municipal Class Environmental Assessment and preliminary design of the Oneida Nation transmission connection project. A key task in this assignment was the review of various routing alternatives for the transmission main from the existing termination point northeast of Mount Brydges, near Springwell Road and Falconbridge Drive, to the Oneida Nation settlement. Three potential routes were considered as part of the Environmental Assessment process and are illustrated in the attached figure (Appendix A).

A comparative evaluation of the routing alternatives was completed using the following criteria:

- **Social environment**
 - impacts to property owners including residences and businesses, community features, in both the short- and long-term
 - impacts to existing and future land use planning
 - protection of public health and safety
- **Cultural environment**
 - protects/conserves cultural heritage resources
 - protects/conserves archaeological resources
- **Natural environment**
 - protects environmental features
 - protects wildlife and Species at Risk
 - protects groundwater, streams, and rivers
 - minimizes climate change impacts
- **Technical**
 - minimizes land acquisition requirements
 - considerations related to operations and maintenance
 - complexity/ease of implementation and construction
 - meets current and future water supply needs
 - aligns with existing and planned infrastructure improvements
 - constructability
- **Financial**
 - considerations for overall lifecycle costs
 - consideration for capital costs, including property acquisition
 - consideration for operation and maintenance cost



An overall evaluation summary of the three routing alternatives, including the “Do Nothing” option, is presented in the table below noting that the “Do Nothing” alternative is typically considered for all Municipal Class Environmental Assessments undertaken.

Criteria	Do Nothing	Route 1	Route 2	Route 3
Social Environment	Least Preferred	Moderately Preferred	Most Preferred	Moderately Preferred
Cultural Environment	Most Preferred	Least Preferred	Moderately Preferred	Least Preferred
Natural Environment	Most Preferred	Moderately Preferred	Moderately Preferred	Moderately Preferred
Technical	Least Preferred	Moderately Preferred	Most Preferred	Moderately Preferred
Financial	Least Preferred	Moderately Preferred	Moderately Preferred	Moderately Preferred
Summary	Although this alternative provides the lowest capital cost with no change to the LHPWSS transmission system, costs would continue to be incurred by Oneida Nation to operate the existing system which poses several challenges	This alternative involves construction complexity due to utilities, water crossing, and coordination with other infrastructure improvements. This alternative also has operational challenges with potential for chambers being located with the travelled portion of the roadway.	This route best addresses the technical requirements. This route has moderate construction complexity relative to Routes 1 and 3, as well as reduced operational challenges relative to Routes 1 and 3.	This alternative involves construction complexity due to utilities, water crossing, and coordination with other infrastructure improvements. This alternative also has operational challenges with potential for chambers being located with the travelled portion of the roadway.
Overall	Not Carried Forward – Does NOT meet the problem/opportunity statement	Moderately Preferred	Most Preferred	Moderately Preferred

The preferred transmission main route was identified as Route 2 based on the evaluation of alternatives reviewed in the Municipal Class Environmental Assessment process. This transmission main connection project is anticipated to be a Schedule A+ project in accordance with the Municipal Class of projects under Ontario's *Environmental Assessment Act (1990)*, and as outlined in the Municipal Engineers Association's *Municipal Class Environmental Assessment* document (2000, as amended in 2007, 2011, 2015, and 2019). The Schedule A+ project descriptions in Appendix 1 of the Municipal Class Environmental Assessment document include water projects that "establish, extend or enlarge a water distribution system and all works necessary to connect the system to an existing system or water source, provided all such facilities are in either an existing road allowance or an existing utility corridor, including the use of Trenchless Technology for water crossings."

Schedule A+ projects are considered to be pre-approved, and do not require completion of the full Municipal Class Environmental Assessment process; however, the public is to be notified prior to project implementation.

Project Delivery

It is recognized that given the potentially variable timing needed for this project, subsequent phases of this project, including detailed design and construction, could generally follow two different types of project procurement and delivery methodologies, namely:

- "Traditional" procurement and delivery (design, bid/tender, and build); or,
- "Design-Build" delivery (one recognized form of alternate project delivery which procures a combined engineering and construction team).

Both models for procurement and delivery offer various advantages and disadvantages. As the funding agreement is finalized and critical dates are confirmed, Board staff will further consider the preferred delivery model in consultation with Oneida Nation in order to effectively manage project risks and ensure the timely completion of the project.

WATER SUPPLY AGREEMENT

The proposed Water Supply Agreement with Oneida Nation of the Thames has been completed and the Board authorized its execution at the March 3, 2022 meeting of the Board. Notwithstanding, the corresponding funding agreement between Oneida Nation of the Thames and Indigenous Services Canada has yet to be finalized. Accordingly, the final execution of the Water Supply Agreement has been delayed until funding has been secured. In addition, Board staff will delay initiating the procurement for the detailed design and construction of the pipeline until such time that the Water Supply Agreement is fully executed.



CONCLUSION

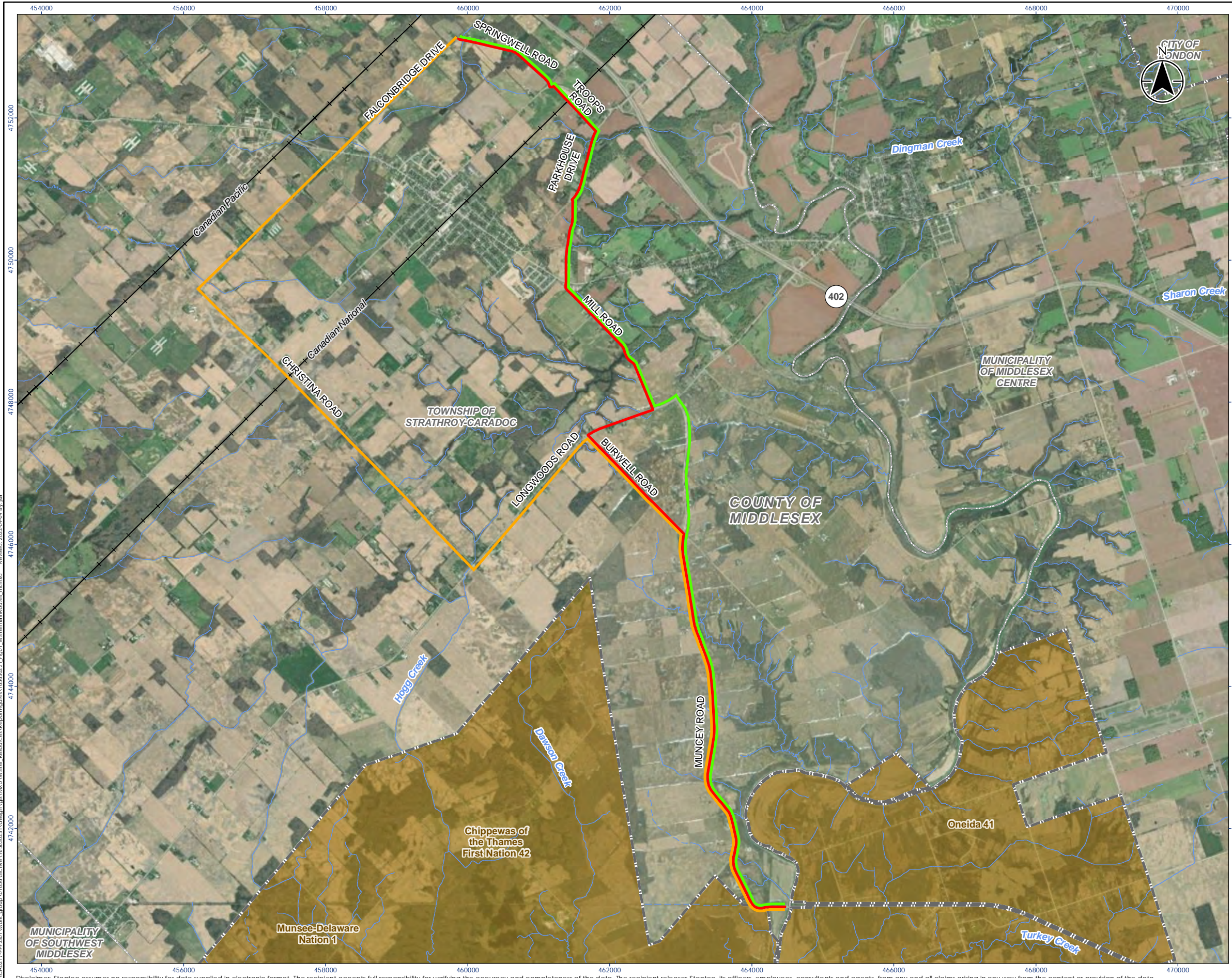
Board staff will proceed with the completion of the Oneida Transmission Main Municipal Class Environmental Assessment and preliminary design based on the preferred route presented in this report. Further, Board staff will confirm the preferred project procurement and delivery method for this project and proceed with issuing procurement documents once the Water Supply Agreement is fully executed and the funding arrangements with Indigenous Services is completed. Board staff will continue to update the Board regarding the status of this project, preferred project delivery model, and means of public notification of the project as the project progresses.

Prepared by: Marcy McKillop, P.Eng.,
Environmental Services Engineer

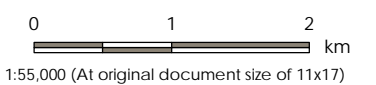
Submitted by: Billy Haklander, P.Eng., LL.M
Capital Programs Manager

Recommended by: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer

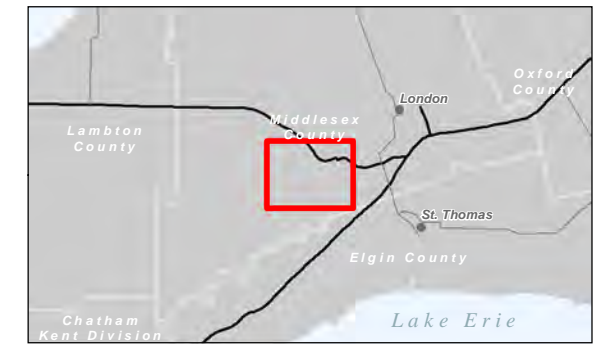
Attachments: Appendix A – Transmission Main Alternative Routes



- Legend**
- Railway
 - - - Watercourse (Intermittent)
 - Watercourse (Permanent)
 - First Nation Reserve
 - ▭ Municipal Boundary, Upper
 - ▭ Municipal Boundary, Lower
- Transmission Main Route ID**
- Route 1
 - Route 2
 - Route 3



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 17N
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2022.
 3. Imagery Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Project Location: Municipality of Strathroy-Caradoc
 Prepared by JSA on 2022-09-09
 Technical Review by ABC on yyyy-mm-dd
 Independent Review by ABC on yyyy-mm-dd

Client/Project: LAKE HURON PRIMARY WATER SUPPLY SYSTEM
 ONEIDA NATION OF THE THAMES TRANSMISSION PIPELINE MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT AND PRELIMINARY DESIGN RFP-2022-100

Figure No. 1
 Title: Transmission Main Alternative Routes

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 Revised: 2022-09-09 By: isa

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To: Chair and Members, Board of Management
Lake Huron Primary Water Supply System
From: Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer
Subject: LH1426 Lake Huron Water Treatment Plant Disinfection and Storage Upgrades
Class Environmental Assessment – Notice of Completion

RECOMMENDATION

That on the recommendation of Chief Administrative Officer the following actions **BE TAKEN** with respect to the Lake Huron Water Treatment Plant Disinfection and Storage Upgrades Class Environmental Assessment – Notice of Completion:

- (a) The Lake Huron Water Treatment Plant Disinfection and Storage Upgrades Class Environmental Assessment Project File report **BE PLACED** on the water system’s website and made available for public review for a 30-day review period; and,
- (b) The Board of Management for the Lake Huron Water Supply System **RECEIVE** this report for information.

PREVIOUS AND RELATED REPORTS

October 3, 2019	2020 Operating & Capital Budgets
October 8, 2020	LH2019 Master Water Plan Update – Award
June 2, 2022	LH1426 Microbial Inactivation and Storage Class Environmental Assessment – Project Status Update

BACKGROUND

The recently completed Lake Huron Primary Water Supply System Master Water Plan Update (Jacobs, 2020) identified the need to:

- improve disinfection at the Lake Huron Water Treatment Plant due to long-term limitations with the existing disinfection process, and
- add water storage at the plant to improve plant operational flexibility and servicing municipalities in the event of plant shutdowns.

The Board authorized the creation of a capital project to initiate a Lake Huron Water Treatment Plant Disinfection and Storage Upgrades Class Environmental Assessment to evaluate and identify the preferred solution for both storage and enhanced disinfection at the Lake Huron Water Treatment Plant. On October 8, 2020, the Board approved the award of this Class Environmental Assessment to Jacobs as the engineering consultant for this assignment. The project was initiated in November 2020 and a project update was provided at the June 2022 meeting of the Board.

DISCUSSION

The purpose of this report is to notify the Board of Management for the Lake Huron Primary Water Supply System of the completion of the Lake Huron Water Treatment Plant (WTP) Disinfection and Storage Upgrades Class Environmental Assessment (EA) prior to posting for final public review and comment.

Class Environmental Assessment Process

The Municipal Engineers Association Municipal Class EA is an approved planning process for municipalities and municipal entities to follow in order to meet the requirements of the *Environmental Assessment Act*. The Class EA process allows for the consideration of alternative solutions to meet the problem/opportunity presented, as well as the review the range of various impacts of these alternative solutions.

Board staff recognize the importance of completing public consultation process in accordance with the Municipal Engineers Association Class EA process to ensure that informed decisions are made when planning, designing, and constructing key regional water infrastructure. An experienced consulting firm, Jacobs (formerly CH2M HILL Canada Limited), led the Class EA assignment, including all consultation activities. This Class Environmental Assessment was carried out in accordance with the planning and design process for Schedule B projects under Ontario's *Environmental Assessment Act (1990)*, as outlined in the Municipal Engineers Association's *Municipal Class Environmental Assessment* document (2000, as amended in 2007, 2011, 2015, and 2019). The Lake Huron WTP Disinfection and Storage Upgrades Class EA fulfills Schedule B of the Class EA process and satisfies the federal and provincial requirements for public consultation to allow the design and construction to proceed.

Problem/Opportunity

The problem/opportunity of this Class EA is provided as follows:

A Schedule B Municipal Class Environmental Assessment (EA) (the study) was completed to evaluate and identify the preferred solution for additional storage at the Lake Huron WTP site, and enhanced disinfection, to provide operational flexibility for improved long-term conditions.

The objectives considered in this Class Environmental Assessment fell into two categories:

- 1) Disinfection Objectives:
 - a. improve disinfection under cold water conditions; and,
 - b. decrease reliance on chlorine-based disinfection in the pre-treatment process at the treatment plant and within in the transmission pipeline.
- 2) Storage Objectives:
 - a. provide additional water storage to meet future water demand needs;
 - b. provide storage to support an operating strategy for energy management; and, improve hydraulic conditions for operation of the WTP high-lift pumps.

Evaluation of Alternatives

A long list of potential alternatives was screened to the following short list of alternatives:

- Alternative 1: Do nothing
- Alternative 2: Construct a new reservoir and modify the flow through the existing clear wells by increasing the baffle factor and installing overflow weirs at the clear well effluent
- Alternative 3: Construct a new reservoir that is large enough to meet both the disinfection and storage needs
- Alternative 4.1: Construct a new reservoir and add ultraviolet disinfection at the settled water conduits
- Alternative 4.2: Construct a new reservoir and add ultraviolet disinfection at each filter effluent
- Alternative 4.3: Construct a new reservoir equipped to provide ultraviolet disinfection.

A comparative evaluation of the short list of alternatives was completed using criteria reflecting four overarching categories, including:

- natural environment impacts;
- socio-cultural environment impacts;
- technical environment impacts; and,
- economic environment impacts.

Supporting studies were completed as part of this Class Environmental Assessment to inform the development of alternatives and their evaluation, including: a desktop natural environmental assessment; a cultural heritage screening assessment; a Stage 1 archaeological assessment; and a dynamic hydraulic modelling assessment of the plant.

Upon completion of the evaluation and corresponding sensitivity analysis, Alternative 4.3 was identified as the preliminary preferred alternative solution and was then presented at a virtual Public Information Centre, held over a two-week period. The preferred solution consists of an ultraviolet (UV) disinfection facility to treat the water before it enters the adjacent below-grade storage reservoir (7 ML volume), located south of the existing WTP and within the northern portion of Port Blake Park area of the plant property.

This preferred solution is presented in the following figure.

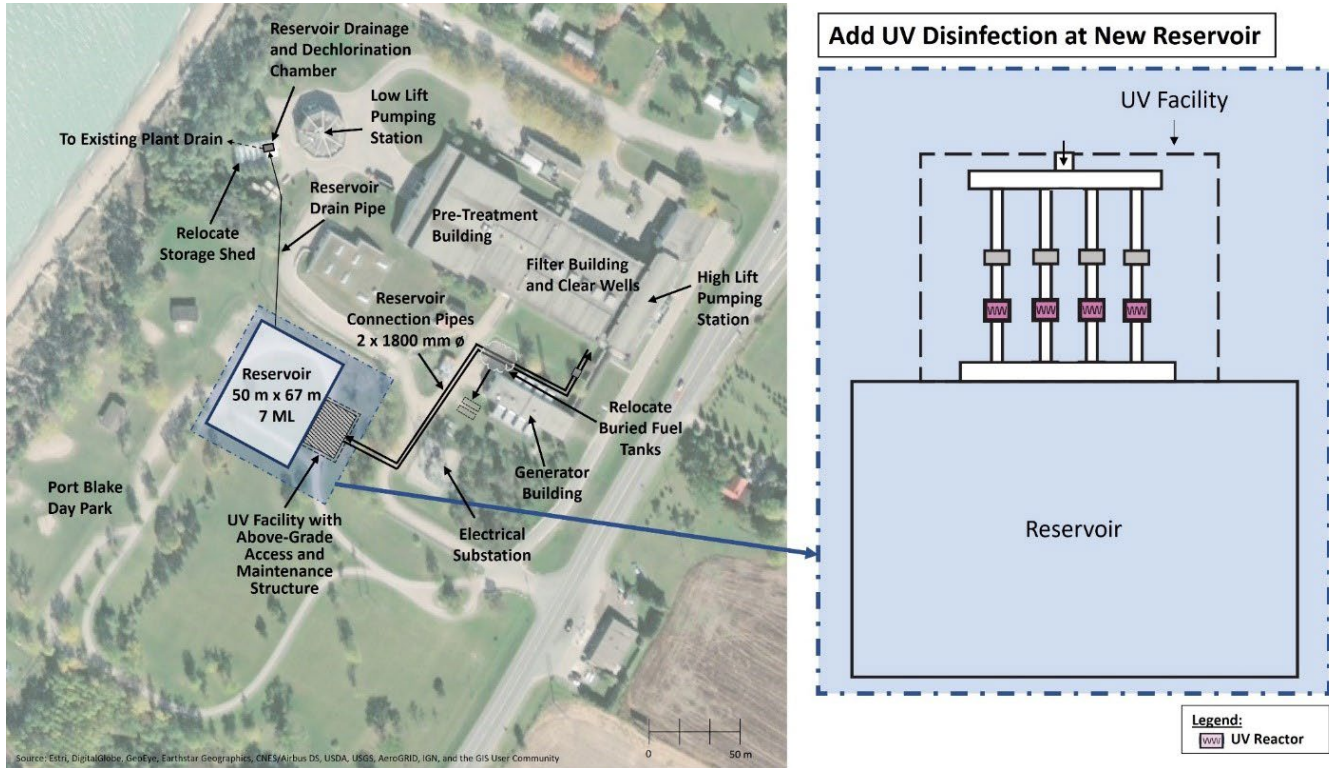


Figure 1. Preferred Alternative 4.3

Public Engagement and Consultation

This Class EA included consultation and communication with stakeholders and interest-holders, including the general public, review agencies, member municipalities and indigenous communities. Comments received throughout the study and the responses provided are documented as part of this Project File report.

The following First Nations were consulted as part of this Class EA:

- Aamjiwnaang First Nation;
- Bkejwanong (Walpole Island);
- Caldwell First Nation;
- Chippewas of Kettle and Stony Point;
- Chippewas of the Thames First Nation;
- Oneida Nation of the Thames; and
- Munsee-Delaware Nation.

Next Steps

The recommended alternative for disinfection and storage for the Lake Huron WTP consists of a 7 ML below-grade reservoir and an adjacent ultraviolet (UV) disinfection facility. The Class EA process and preferred alternative is fully detailed in the Project File for this assignment, which will be made available at the project website at: <https://huroneginwater.ca/lake-huron-water-treatment-plant-disinfection-storage-upgrades-class-environmental-assessment/>

The Notice of Completion will be advertised and circulated electronically to the project mailing list. Appendix 'A' to this report includes the Notice of Completion for the Class EA. Upon expiry of the 30-day public review period, any comments will be considered in the final Project File report and addressed as reasonably possible. Detailed design of the recommended solution is anticipated to begin in 2023, with construction planned for 2024-2025, as detailed in the respective annual capital budget process.

CONCLUSION

The Lake Huron Water Treatment Plant Disinfection and Storage Upgrades Class Environmental Assessment has been completed in accordance with the Municipal Class Environmental Assessment process and fulfills Schedule B requirements. Board staff recommend posting the final Class Environmental Assessment Project File report with the Notice of Completion for 30-day public review and comment.

- Prepared by:** Marcy McKillop, P.Eng.
Environmental Services Engineer
- Submitted by:** Billy Haklander, P.Eng., LL.M.,
Capital Programs Manager
- Recommended by:** Kelly Scherr, P.Eng., MBA, FEC
Chief Administrative Officer
- Attachments:** Appendix A – Notice of Completion

Lake Huron Primary Water Supply System Lake Huron Water Treatment Plant Disinfection and Storage Upgrades Schedule B Class Environmental Assessment Notice of Completion

The Lake Huron Primary Water Supply System (LHPWSS) owns the 340 megaliters-per-day Lake Huron Water Treatment Plant (WTP), which supplies treated water to eight municipalities.

A recent update to the LHPWSS Master Water Plan (2020) identified the need to improve disinfection and increase water storage at the Lake Huron WTP, to meet water demands to the year 2038. A Schedule B Municipal Class Environmental Assessment (Class EA) has been completed to confirm the recommendation for additional storage at the Lake Huron WTP site, and refine requirements for enhanced disinfection to provide operational flexibility to improve energy efficiency. Potential upgrades will be located on the Lake Huron WTP project site, as shown in Figure 1.

The study provided an opportunity to develop alternative solutions, assess their technical viability, and conduct a comprehensive evaluation to select a preferred alternative within the framework of the Class EA process. The Class EA was carried out in accordance with the planning and design process for Schedule B projects under the *Environmental Assessment Act, 1990* as outlined in the Municipal Engineers Association's *Municipal Class EA* document (2000, as amended in 2007, 2011, 2015, and 2019).

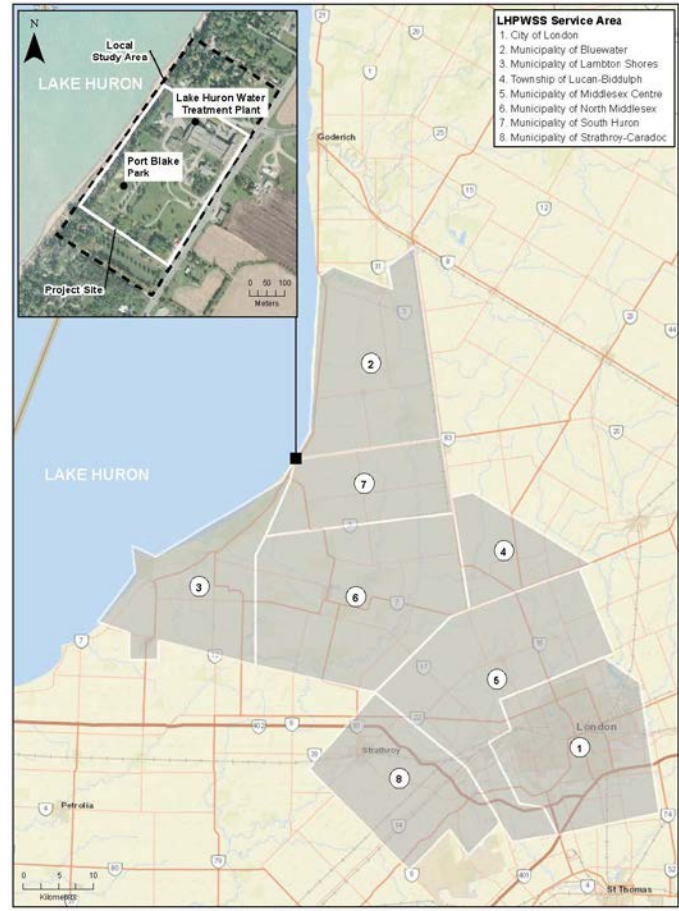


Figure 1. Local Study Area and LHPWSS Service Area

At this time, a Project File Report has been completed to conclude the Class EA process and recommend a preferred solution to improve disinfection and increase water storage at the Lake Huron WTP, meeting water demands to the year 2038. The Project File Report will be available online for review at <https://huronelginwater.ca/lake-huron-water-treatment-plant-disinfection-storage-upgrades-class-environmental-assessment/>.

Interested persons may provide written comments to the Project Team by November 21, 2022. All comments and concerns should be sent directly to Marcy McKillop at LHPWSS or to Ray Yu at Jacobs.

In addition, a request may be made to the Ministry of the Environment, Conservation and Parks for an order requiring a higher level of study (i.e., requiring an individual/comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g., require further studies), only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal treaty rights. Request on other grounds will not be considered. Request should include the requester contact information and full name.

Lake Huron WTP Disinfection and Storage EA – Notice of Completion

Requests should specify what kind of order is being requested (request for conditions or a request for an individual/comprehensive environmental assessment), how an order may prevent, mitigate or remedy potential adverse impacts on Aboriginal treaty rights, and any information in support of the statement in the request. This will ensure that the ministry is able to efficiently begin reviewing the request.

The request should be sent in writing or email to:

Minister of the Environment, Conservation and Parks
Ministry of Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto, ON M7A 2J3
minister.mecp@ontario.ca

and

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, ON M4V 1P5
EABDirector@ontario.ca

Requests should also be copied to Marcy McKillop and/or Ray Yu by mail or by email. Please visit the ministry's website for more information on requests for orders under section 16 of the *Environmental Assessment Act* at <https://www.ontario.ca/page/class-environmental-assessments-section-16-order>.

All personal information included in your request – such as name, address, telephone number and property location – is collected, under the authority of section 30 of the *Environmental Assessment Act* and is collected and maintained for the purpose of creating a record that is available to the general public. As this information is collected for the purpose of a public record, the protection of personal information provided in the *Freedom of Information and Protection of Privacy Act* (FIPPA) does not apply (s.37). Personal information you submit will become part of a public record that is available to the general public unless you request that your personal information remain confidential.

This Notice issued October 18, 2022.

Your feedback is important to us.

To provide comments, obtain alternate formats, request additional information, or if you have any issues accessing the document for review, please contact a member of the Project Team:

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Under the *Freedom of Information and Protection of Privacy Act* and the *Environmental Assessment Act*, unless otherwise stated in the submission, any personal information such as name, address, telephone number, and property location included in a submission will become part of the public record files for this matter and may be released, to any person.