Agenda
Lake Huron Primary Water Supply System
Joint Board of Management

3rd Meeting of the Lake Huron Primary Water Supply System Joint Board of Management

June 1, 2023, 2:00 PM

Committee Room #5

The Lake Huron Water Supply System and its benefiting municipalities are situated on the traditional lands of the Anishinaabek (Uh-nish-in-ah-bek), Haudenosaunee (Ho-den-no-show-nee), Lūnaapéewak (Len-ah-pay-wuk) and Attawandaron (Add-a-won-da-run) peoples.

We honour and respect the history, languages and culture of the diverse Indigenous people who call this territory home.

This region is currently home to many First Nations, Inuit and Métis people today and we are grateful to have the opportunity to live and work in this territory.

5. Deferred Matters/Additional Business

6. Upcoming Meeting Dates

October 5, 2023

December 7, 2023

7. Confidential

7.1 Litigation/Potential Litigation/Matters Before Administrative Tribunals

A matter pertaining to litigation or potential litigation, including matters before administrative tribunals, affecting the municipality or local board with respect to an event which may result in litigation by the Lake Huron Primary Water Supply System against a consulting engineering firm retained by the Lake Huron Primary Water Supply System.

8. Adjournment

Lake Huron Primary Water Supply System
Report

2nd Meeting of the Lake Huron Primary Water Supply System Joint Board of Management
March 2, 2023

Attendance: Meeting held on Thursday, March 2, 2023, commencing at 2:00 PM.

PRESENT: S. Franke (Acting Chair); J. Brennan, C. Burghardt-Jesson, M. Dietrich, C. Grantham, S. Hillier, J. Keogh, P. Walden and J. Wilcox and J. Bunn (Committee Clerk)

ALSO PRESENT: B. Haklander, A. Henry and K. Scherr

1. Call to Order

1.1 Disclosures of Pecuniary Interest

P. Walden discloses a pecuniary interest in item 4.5, having to do with LH1107 SCADA Software Upgrade Consultant Award, by indicating that a family member is a shareholder of the company providing the software.

2. Adoption of Minutes

2.1 Minutes of the 1st Meeting held on Thursday, January 19, 2023

GRANTHAM AND KEOGH

That the minutes of the 1st meeting of the Lake Huron Primary Water Supply System Joint Board of Management, from the meeting held on January 19, 2023, **BE NOTED AND FILED**. **CARRIED**

Motion Passed

3. Consent Items

3.1 Quarterly Compliance Report (4th Quarter 2022: October - December)

BURGHARDT-JESSON AND WALDEN

That, on the recommendation of the Chief Administrative Officer, the report dated March 2, 2023, with respect to the general, regulatory and contractual obligations of the Lake Huron Primary Water Supply System, for October to December 2022, **BE RECEIVED**. **CARRIED**

Motion Passed

3.2 Quarterly Operating Financial Status - 4th Quarter 2022

BURGHARDT-JESSON AND WALDEN

That, on the recommendation of the Chief Administrative Officer, the report dated March 2, 2023, with respect to the Quarterly Operating Financial Status of the Lake Huron Primary Water Supply System for the 4th Quarter of 2022, **BE RECEIVED**. **CARRIED**

Motion Passed

3.3 Capital Status Report

BURGHARDT-JESSON AND WALDEN

That, on the recommendation of the Chief Administrative Officer, the following actions be taken with respect to the report, dated March 2, 2023, related to Lake Huron Primary Water Supply System Capital Projects:

a) the above-noted report **BE RECEIVED**;

b) projects LH1106 Ilderton Meter Chamber, LH1269 Settled Water TSS Analyser, LH1429 Huron South Water Conduit, LH1433 Asset Management Plan and LH2041 Plant Roof Replacement **BE CLOSED** and LH1266 Huron Plant UV Disinfection **BE CANCELLED**, with surplus funding in the approximate amount of $1,311,133 being released to the Reserve Funds; and,

c) projects LH1338 Plant Instrumentation, LH2039 Arva 600V MCC and LH1316-21 2021 Annual Maintenance **BE CLOSED,** with additional funding in the approximate amount of $52,994 being drawn from the Reserve Funds. **CARRIED**

Motion Passed

3.4 Environmental Objectives

BURGHARDT-JESSON AND GRANTHAM

That the following actions be taken with respect to the report dated March 2, 2023, related to the Environmental Objectives of the Lake Huron Primary Water Supply System:

a) the above-noted report **BE RECEIVED**;

b) the environmental objectives, outlined in the above-noted report, **BE ENDORSED**; and,

c) staff **BE DIRECTED** to consider opportunities to incorporate climate change mitigation and resiliency in the Environmental Management System. **CARRIED**

Motion Passed

3.5 2023 to 2026 Meeting Schedule - Update

BURGHARDT-JESSON AND WALDEN

That, on the recommendation of the Chief Administrative Officer, the change in the start time for the December 7, 2023 meeting of the Lake Huron Primary Water Supply System Joint Board of Management to 12:30 PM **BE APPROVED**. **CARRIED**

Motion Passed

3.6 Ministry of the Environment, Conservation and Parks Inspection Report

BURGHARDT-JESSON AND WALDEN

That, on the recommendation of the Chief Administrative Officer, the report dated March 2, 2023, with respect to the Ministry of the Environment, Conservation and Parks Inspection Report, **BE RECEIVED**. **CARRIED**

Motion Passed

4. Items for Discussion

4.1 LH1020 Financial Plan Update

BURGHARDT-JESSON AND GRANTHAM

That, on the recommendation of the Chief Administrative Officer, the Financial Plan Update for the Lake Huron Primary Water Supply System, as outlined in the report dated March 2, 2023, **BE ENDORSED** by the Board of Management for the Lake Huron Primary Water Supply System; it being noted that the ~~attached~~ presentation, from G. Scandlan, Watson &

Associates Economists Ltd., with respect to this matter, was received. **CARRIED**

Motion Passed

4.2 Procurement of Goods and Services and Disposal of Assets Policy

GRANTHAM AND BRENNAN

That, on the recommendation of the Chief Administrative Officer, the proposed by-law, as appended to the report dated March 2, 2023, **BE INTRODUCED** at the Lake Huron Primary Water Supply System Joint Board of Management meeting to be held on March 2, 2023, to:

a) implement the policy, as appended to the above-noted by-law, entitled “Procurement of Goods and Services and Disposal of Assets Policy"; and,

b) repeal By-Law No. 2, being “A by-law relating to the procurement and disposal of goods, services and equipment in respect of the Lake Huron Primary Water Supply System”, and all of its amendments. **CARRIED**

Motion Passed

Additional Votes:

BURGHARDT-JESSON AND WALDEN

Motion to approve the First Reading of By-law No. 2A-2023.

Motion Passed

BRENNAN AND KEOGH

Motion to approve the Second Reading of By-law No. 2A-2023.

Motion Passed

GRANTHAM AND HILLIER

Motion to approve the Third Reading and Enactment of By-law No. 2A-2023.

Motion Passed

4.3 Delegation of Powers and Duties Policy

WALDEN AND HILLIER

That, on the recommendation of the Chief Administrative Officer, the proposed by-law, as appended to the report dated March 2, 2023, **BE INTRODUCED** at the Lake Huron Primary Water Supply System Joint Board of Management meeting to be held on March 2, 2023, to establish a policy for the delegation of powers and duties, as required under section 270(1) of the Municipal Act, 2001. **CARRIED**

Motion Passed

Additional Votes:

GRANTHAM AND BRENNAN

Motion to approve the First Reading of By-law No. 5A-2023.

Motion Passed

KEOGH AND WILCOX

Motion to approve the Second Reading of By-law No. 5A-2023.

Motion Passed

GRANTHAM AND WALDEN

Motion to approve the Third Reading and Enactment of By-law No. 5A-2023.

Motion Passed

4.4 LH1408 Oneida Nation of the Thames Water Transmission Pipeline - Connection to LHPWSS - Administrative Award of Consulting Services

WILCOX AND HILLIER

That, on the recommendation of the Chief Administrative Officer, the following actions be taken with respect to the report, dated March 2, 2023,

related to the Oneida Nation of the Thames Water Transmission Pipeline Connection to the Lake Huron Primary Water Supply System (LH1408) project:

a) the Chief Administrative Officer **BE DELEGATED** the authority to administratively award a consulting services assignment, following a public procurement process which complies with the Board's Procurement By-law, for the detailed design, tendering and construction phases of the Oneida Transmission Pipeline (LH1408) project, provided the proposal from the successful proponent meets the Request for Proposal terms and conditions, is within the budget previously approved by the Board and the Water Supply Agreement with Oneida Nation of the Thames is fully executed;

b) the Board Chair and the Chief Administrative Officer **BE AUTHORIZED** to execute a consulting services agreement with the successful consulting firm for the completion of the detailed design, tendering and construction phases of the Oneida Transmission Pipeline (LH1408) project, subject to the delegation of the above-noted authority; and,

c) the above-noted report **BE RECEIVED**. **CARRIED**

Motion Passed

4.5 LH1107 SCADA Software Upgrade - Consultant Award

GRANTHAM AND HILLIER

That, on the recommendation of the Chief Administrative Officer, the following actions be taken with respect to the report, dated March 2, 2023, related to a consultant award for the Supervisory Control and Data Acquisition (SCADA) Software Upgrade (LH1107):

a) the proposal from Brock Solutions for the SCADA Software Upgrade, in the amount of $868,508, including contingency (excluding HST) **BE ACCEPTED**, contingent on the concurrent acceptance by the Elgin Area Water Supply System Board of Management; it being noted that the projected cost to Huron is $434,253 or 50% of the proposed amount;

b) the Chair and the Chief Administrative Officer **BE AUTHORIZED** to execute a consulting services agreement with Brock Solutions for the completion of a SCADA Software Upgrade for the Lake Huron Primary Water Supply System; and,

c) the above-noted report **BE RECEIVED**. **CARRIED**

Motion Passed

5. Deferred Matters/Additional Business

None.

6. Confidential

BRENNAN AND BURGHARDT-JESSON

That the Lake Huron Primary Water Supply System Joint Board of Management convene In Closed Session for the purpose of considering the following:

6.1 Litigation/Potential Litigation/Matters Before Administrative Tribunals

A matter pertaining to litigation or potential litigation, including matters before administrative tribunals, affecting the municipality or local board with respect to an event which may result in litigation against the Lake Huron Primary Water Supply System.

Motion Passed

The Lake Huron Primary Water Supply System Joint Board of Management convened In Closed Session from 3:02 PM to 3:09 PM.

6.1 Litigation/Potential Litigation/Matters Before Administrative Tribunals

7. Next Meeting Date

June 1, 2023

8. Adjournment

The meeting adjourned at 3:11 PM.

Lake Huron
Primary Water Supply System

Report No.: LH-2023-03-01
Report Page: 1 of 4
Meeting Date: June 1, 2023
File No.:

Board of Management Report

Subject: Quarterly Compliance Report (1st Quarter 2023: January - March)

Overview:

- There was one (1) adverse water quality incident (AWQI) reported during this quarter.
- There are no new or proposed regulatory changes which might have a significant impact on the system.
- The 2022 regulatory reporting required under O.Reg. 170/03 was completed by the specified deadlines.

Recommendation

That the Board of Management for the Lake Huron Primary Water Supply System **RECEIVE** this report for information.

Previous and Related Reports

March 2, 2023	Ministry of the Environment, Conservation and Parks Inspection Report

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 January 1 – March 31, 2023, 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*.

Adverse Water Quality Incidents (AWQIs): There was one AWQI reported by the operating authority during this quarter.

On Feb. 21, 2023, the operating authority took one filter out of service to complete a maintenance activity. Upon completion of the maintenance activity, as the operating authority was preparing to place the filter back into service, they discovered an issue with the filter effluent valve which resulted in flow unintentionally passing through the filter. At the same time the filter turbidimeter (i.e., the water quality monitoring instrument) was experiencing a signal fault, resulting in a failure to continuously monitor the filter effluent turbidity as required by regulation. The failure to continuously monitor is a non-compliance with the requirements of O.Reg. 170/03 under the *Safe Drinking Water Act* and was subsequently reported as an AWQI.

The operating authority made the required notifications to the Ministry of the Environment, Conservation and Parks (MECP), the area Health Units, and the owner. Corrective actions included collecting additional microbiological samples as a precaution. All sample results were good, and the issue was resolved. As part of the Environmental Management System (EMS) and Quality Management System (QMS) the incident was further reviewed internally, and the corrective action process was completed. This included root cause analysis and identification of action items to prevent similar types of incidents from happening in the future.

There were no AWQI reported by the external laboratory during this quarter.

O.Reg. 170/03, Section 11 "Annual Reports": Under the Drinking Water Systems Regulation (O.Reg. 170/03), an Annual Report for the LHPWSS is required to be prepared by February 28th of each year. The 2022 Annual Report summarized water quality and maintenance information for the calendar year. This report was completed by Ontario Clean Water Agency (OCWA), the contracted operating authority for the LHPWSS. Although the report is no longer required to be submitted to the Ministry of the Environment, Conservation and Parks (MECP), the LHPWSS is required to provide copies of the report to drinking water systems that obtain water from this system. The

2022 Annual Report was forwarded to the member municipalities on February 27, 2023. The 2022 Annual Report has been posted on the Water Systems' website for public information.

O.Reg. 170/03, Section 22 "Summary Reports for Municipalities": Under the Drinking Water Systems Regulation (O.Reg. 170/03) a summary report is required by March 31st of each year which:

- Lists the requirements of the Act, the regulations, the system's approval, and any order that the system failed to meet at any time during the period covered by the report, and the duration of the failure. For each failure referred to, a description of the measures that were taken to correct the failure is required.

- In order to allow the system's owner to "assess the capability of the system to meet existing and planned uses of the system", provide a summary of the quantities and flow rates of the water supplied, including monthly average and maximum daily flows and daily instantaneous peak flow rates, with a comparison to the systems rated capacity.

This report was also completed by OCWA. The 2022 Compliance Report (Summary Report for Municipalities) was forwarded to the Board members and member municipalities of the LHPWSS as required on March 17, 2023. The 2022 Compliance Report has been posted on the Water Systems' website for public information. All Compliance Reports are available for viewing at the Lake Huron Water Treatment Plant and at the Board's Administration Office in London. Copies of all reports are available to the public upon request and free of charge as required by O.Reg. 170/03.

Compliance Inspections: The annual inspection by the Ministry of the Environment, Conservation and Parks (MECP) took place on Oct. 4-5, 2022. The final inspection report was received on January 3, 2023 and was the subject of a previous report to the Board. As a follow-up to the inspection report, the Inspection Rating Report (IRR) was received on Feb. 17, 2023. The final inspection rating for the LHPWSS was 91.12%.

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 2023 first quarter Contract Report was received from OCWA on April 25, 2023, and was scheduled to be discussed at the quarterly administration meeting between Board staff and OCWA on May 11, 2023. Copies of the monthly Operations and Maintenance Reports, and quarterly Contract Reports are available at the Board's Administration Office in London upon request.

Conclusion

Board staff will continue to review new and proposed legislation for potential impacts to the LHPWSS. Board staff will continue to meet with the operating authority on a regular basis to discuss regulatory and contractual compliance issues, and ensure any non-compliances are addressed in a timely manner.

Prepared by: Erin McLeod, CET
Quality Assurance & Compliance Manager

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

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

Lake Huron
Primary Water Supply System

Report No.: LH-2023-03-02
Report Page: 1 of 19
Meeting Date: June 1, 2023
File No.:

Board of Management Report

Subject: **Environmental Management System and Quality Management System**

Overview:

- This report provides a summary of Environmental Management System (EMS) and Quality Management System (QMS) activities that took place during the first quarter of 2023.
- A Management Review meeting was held on March 07, 2023. The meeting minutes are attached to this report as Appendix A.
- No internal or external audits were conducted in the first quarter of 2023.

Recommendation

That the Board of Management for the Lake Huron Primary Water Supply System **RECEIVE** this report 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 Feb. 2024).

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)

The existing EMS has been integrated with a QMS that meets the requirements of the province's Drinking Water Quality Management Standard, 2017 (DWQMS). The combined EMS/QMS is maintained by the contracted Operating Authority.

The *Safe Drinking Water Act, 2002* (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. To become accredited, the Operating Authority must implement and maintain a QMS, which includes an Operational Plan meeting the requirements of the DWQMS and must undergo yearly external accreditation audits.

OCWA successfully received full scope DWQMS re-accreditation in October 2022 and is currently accredited for the three-year period ending in 2025.

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.

To carry out more effective Management Review meetings, the Board of Management'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 March 07, 2023. The meeting minutes are included as Appendix A for the information of the Board of Management.

Internal Audits

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

No internal audits were conducted in the first quarter of 2023.

An EMS internal audit to verify conformance with the ISO 14001:2015 EMS is scheduled to be conducted on May 18 and 19, 2023. An internal audit summary will be included in a future report to the Board of Management.

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 in the first quarter of 2023.

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, opportunities for improvement and for the implementation of corrective actions for the LHPWSS. 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 the Plan-Do-Check-Act process 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.

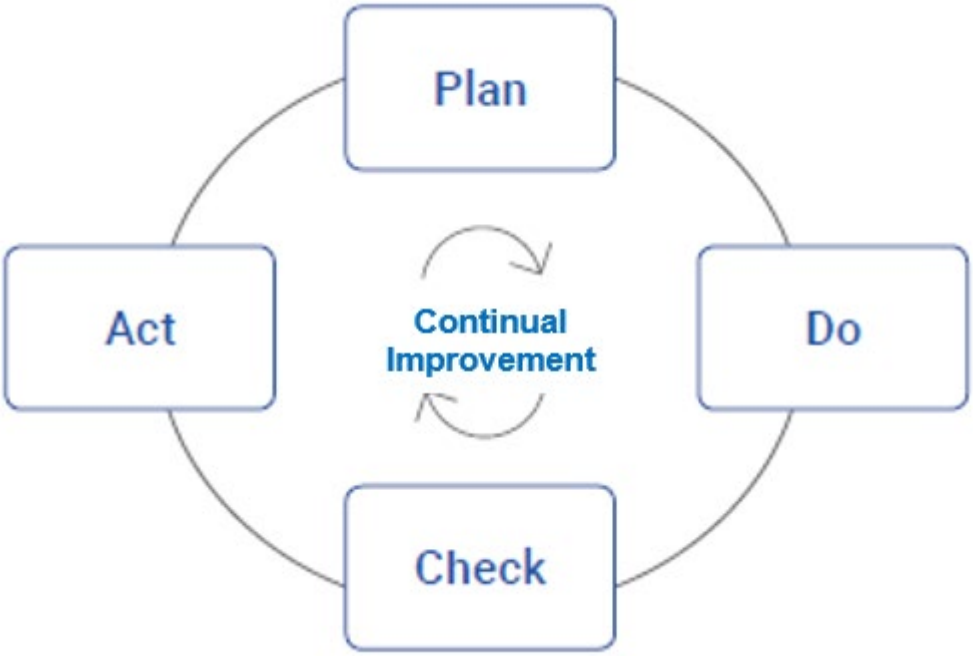


Figure 1: Plan-Do-Check-Act Continual Improvement Process

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

- One (1) new action item was added as a result of Management of Change (Walking Beam Flocc Rehab).
- Three (3) new action items were added as a result of a Contingency Plan Test.
- Five (5) new action items were added as a result of the MECP Inspection conducted October 05, 2022.
- Six (6) new action items were added as a result of Corrective Action process related to the MECP Inspection conducted October 05, 2022.
- Three (3) new action items were added as a result of the Management Review meeting on March 07, 2023.

As of May 3, 2023, there are currently a total of twenty-five (25) open action items in the LHPWSS tracking system. All action items are prioritized and addressed using a risk-based approach, and deadlines established given reasonable timeframes and resources that are available. Board of Management 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 and manage 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: Jennifer Levitt
Compliance Coordinator

Erin McLeod, CET
Quality Assurance & Compliance Manager

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

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

Attachments: Appendix A – Management Review Meeting Minutes (March 7, 2023)

Appendix A: Management Review Meeting Minutes (March 07, 2023)

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

Date: March 07, 2023

Time: 1:00pm

Location: Virtual – Microsoft Teams

Attendees: Andrew Henry (RWS), Erin McLeod (RWS), Jennifer Levitt (RWS), Allison McCann (OCWA), Matt Bender (OCWA), Denny Rodrigues (OCWA), Randy Lieber (OCWA), Greg Henderson (OCWA)
Regrets: -

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 (November 23, 2022) are posted to SharePoint. Minutes circulated to comment. No concerns noted and documents are approved.

2. Results of the Board Meetings (LHPWSS & EAPWSS)

Huron Board Meeting (Oct. 6, 2022)

- Quarterly Compliance Report: The report was received for information.
- EMS/QMS Report: The report was received for information.

Elgin Board Meeting (Oct 6., 2022)

- Quarterly Compliance Report: The report was received for information.
- EMS/QMS Report: The report was received for information.

Huron Board Meeting (Jan. 19, 2023)

- Quarterly Compliance Report: The report was received for information.
- EMS/QMS Report: The report was received for information. General discussion regarding a long-term energy efficiency strategy.

- Environmental and Quality Policy & QMS Operational Plan: The report was received for information. The Policy and QMS Operational Plan were endorsed by the Board.

Elgin Board Meeting (Jan. 19. 2023)

- Quarterly Compliance Report: The report was received for information.
- EMS/QMS Report: The report was received for information.
- Environmental & Quality Policy & QMS Operational Plan: The report was received for information. The Policy and QMS Operational Plan were endorsed by the Board.

Huron Board Meeting (Mar. 2, 2023)

- MECP Inspection Report: The report was received for information.
- Quarterly Compliance Report: The report was received for information.
- EMS Objectives: The report was received for information. The Board endorsed the new environmental objectives. The Board directed staff to consider opportunities to incorporate climate change mitigation and resiliency into the Environmental Management System. Staff will prepare a Board report for the June 2023 Board meeting that specifically deals with climate change.

Elgin Board Meeting (Mar. 2, 2023)

- Quarterly Compliance Report: The report was received for information.
- EMS Objectives: The report was received for information. The Board endorsed the new environmental objectives. General discussion on the total number of environmental objectives, with staff confirming that they can be amended as additional opportunities arise. General discussion on how these objectives relate to the system's overall objectives.

Andrew - Comment - Energy procurement and energy management strategy will be discussed at the June board meeting. To address climate change mitigation and resiliency the Environmental Policy may be updated. Moving forward RWS will also be looking into other environmental opportunities to reduce waste (e.g., recycling / packing reduction through procurement).

3. MECP Inspection Report – LHPWSS

- 3 non-compliances (added to tracking spreadsheet)
- 2 best management practices (added to tracking spreadsheet)
- OCWA submitted corrective action forms to review the non-compliances
- Everything is marked complete, MECP file is now closed
- Inspection rating – report card received for Huron 91.12%

4. MECP Inspection Report – EAPWSS

- 1 non-compliance (added to tracking spreadsheet)

- 1 best management practice (added to tracking spreadsheet)
- OCWA submitted a corrective action form to review the 1 non-compliance
- Non- compliance #1 – OCWA advised that 2 operators need to complete the 'Facility Log Book Course'. Currently updating 'Operator in Training' Standard Operating Procedure (SOP) to make it site specific for Elgin.
- Inspection rating - report card received for Elgin 97.01%

5. Raw Water Supply and Drinking Water Quality Trends (LHPWSS & EAPWSS)

These are updated once per year and include 5-year Water Quality trends.

Huron

- Colour - nothing unusual (lab method adjusted in 2019)
- Dissolved Oxygen - only have data from Dec. 2021 to 2022 - more data required to see a trend line
- Temperature - increasing trend
- pH - nothing unusual, regular seasonal trends
- Raw Water Turbidity - very low
- Aluminum - increasing trend (coagulation upgrade project may help with this)
- Free Chlorine Residual - fairly stable, few wintertime high peaks that may have been associated with clearwell repair activities. Ongoing monitoring continues.
- Treated water turbidity - normal, stable
- Treated water average pH - downward trend and would like the level closer to the 8.1 target - **ACTION ITEM** – Further review pH trend at Arva. Responsibility: Erin McLeod. Deadline: July 1, 2023.
- Disinfection byproducts – measured at all extremities of the transmission system –Exeter-Hensall pipeline may have the 'oldest water'
- HAA's - stable, no concerns, low
- THMs - trending upwards over last 5 years. Stantec may be reviewing THMs as part of the Water Quality Facility Plan update which is in progress.
- Relationship Trends - Trends show correlations between pH, temperature, and aluminum residual and the inverse relationship with turbidity.

Elgin

- Colour - lab method adjusted in 2019
- Dissolved Oxygen - trend line is flat
- Temperature - increasing trend
- Turbidity - normal for Lake Erie
- pH - treated water consistent, stable
- Aluminum residual – low, no concerns
- Fluoride - slightly low for 2022 – need to hit target 0.7mg/L

- Free chlorine - no concerns
- Treated water avg. turbidity – typically low and stable (high spike in Sept. 2021 – manganese event)
- HAAs - no concerns, low
- THMs - no concerns, low
- Relationship Trends - no significant findings

Lake Erie Harmful Algal Bloom 2022 Seasonal Assessment – National Oceanic and Atmospheric Administration (NOAA)

The 2022 western Lake Erie cyanobacterial bloom had a severity index (SI) of 6.8, which is considered moderately severe. The bloom developed in mid-July and reached a peak in late August, lasting for several weeks through mid-September. The 2022 bloom (SI of 6.8; 416 square miles) was less extensive than in 2021 (SI of 6; 530 square miles), but was more concentrated, causing the 2022 bloom to be more severe. The high cyanobacterial concentrations persisted through early Nov, resulting in a much longer bloom than usual.

RWS is waiting on Stantec's 'Water Quality Facility Plan' review to determine next steps on monitoring recommendations.

6. Deviations from Critical Control Point Limits and Response Actions (LHPWSS & EAPWSS)

The DWQMS standard requires us to discuss Critical Control Point Limits and Responses once per year.
WaterTrax alerts received in 2022 are collected and categorized.
Elgin

- 81 alerts for Elgin (see Elgin WaterTrax Alert Summary – 2022 in Package material)
- Of significance:
    - Settled water - 14 free chlorine residual alerts
    - Treated water - 45 pH alerts
    - It is typical for Elgin to see a higher volume of alerts

Huron

- 8 alerts
- No concerns (see Lake Huron WaterTrax Alert Summary – 2022 in Package material)
- Typical for Huron to see a low volume alerts.

COMMENT - MATT - can we trend alerts for each system? **ACTION ITEM:** Include a year over year summary of WaterTrax alert trends at a future meeting. Responsibility: Erin McLeod. Deadline: July 1, 2023.
COMMENT - GREG - can we set alert for pH at Elgin for 7.3? **ACTION ITEM:**

Review pH alert limits in SCADA and WaterTrax. Lower WaterTrax limit if possible. Responsibility: Erin McLeod. Deadline: April 30, 2023

7. Compliance Obligations Update (LHPWSS & EAPWSS)

Health Canada – Recent Publications:

Guidance on waterborne pathogens in drinking water (September 2022)

Guidelines for Canadian Drinking Water Quality: Guideline Technical Document - Dimethoate and Omethoate (September 2022)

Guidelines for Canadian Drinking Water Quality: Malathion (January 2023)

Health Canada – Consultation:

Consultation: Draft technical document guidelines for Canadian drinking water quality - Antimony
Source: Health Canada
Date Posted/Notice Received: December 24, 2022
Comments Due: March 8, 2023
Summary:
A maximum acceptable concentration (MAC) of 0.006 mg/L (6 µg/L) is proposed for antimony in drinking water, which is unchanged from the previous document.
Potential Impacts:
None anticipated. The is consistent with the current MAC in Ontario.
Elgin WTP treated water average antimony is 0.00015 mg/L (2018-2022)
Huron WTP treated water average antimony is 0.00011 mg/L (2018-2022)

Consultation: Draft guidance on sampling and mitigation measures for controlling corrosion
Source: Health Canada
Date Posted/Notice Received: December 16, 2022
Comments Due: February 15, 2023 (closed)
Summary:
The intent of this document is to provide municipalities and water suppliers with guidance on assessing corrosion and implementing corrosion control measures for distribution systems in residential settings to minimize exposure to lead. The document outlines the steps that should be taken to reduce population exposure to lead, which may also reduce the consumer's exposure to other corrosion-related contaminants, such as copper. Concerns related to other contaminants whose concentrations may be affected by corrosion, such as iron, are also briefly discussed.

This guidance is intended to complement the information provided in the Canadian drinking water quality guideline technical document for lead.
Potential Impacts: None anticipated.

Consultation: Draft objective for per- and polyfluoroalkyl substances in Canadian drinking water
Source: Health Canada
Date Posted/Notice Received: February 11, 2023
Comments Due: April 12, 2023
Summary:
To reduce exposure from drinking water, an objective of **30 ng/L** is proposed for the sum of total per- and polyfluoroalkyl substances (PFAS) detected in drinking water. Total is defined by two different USEPA methods, or an alternate analytical method that quantifies a minimum of 18 PFAS.
In 2018/19, Health Canada established drinking water guidelines for perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), and screening values for 9 other PFAS. This new objective, when finalized, will replace these 2 previous drinking water guidelines and 9 screening values.
Potential Impacts:
Unknown at this time. There is currently no PFAS data available for either the LHPWSS or EAPWSS. As part of the Water Quality Facility Plan (WQFP) update in progress, a recommendation will be provided for a sampling plan for PFAS to collect baseline information.
LHPWSS, EAPWSS and OCWA are participating in a PFAS research project in partnership with the University of Waterloo.
[Note: In 2017, Ontario MECP developed interim advice for PFAS, recommending that drinking water used for human consumption not exceed 70 ng/L for eleven different PFAS. Health Canada's draft objective is more stringent.]

Ontario – Consultation and Regulatory Decision Notices:

Decision: Updates to the Registration Guidance Manual for Generators of Liquid Industrial and Hazardous Waste
Source: Ministry of the Environment, Conservation and Parks (MECP)
Date Posted/Notice Received: December 21, 2022
Comments Due: N/A
Summary:
MECP and the Resource Recovery and Productivity Authority (RPRA) have transitioned to a digital registry for the Hazardous Waste program.
MECP has made updates to the Registration Guidance Manual for Generators of Liquid Industrial and Hazardous Waste (guidance manual), to support the regulated community in complying with hazardous waste management rules and requirements. The updates align with regulatory changes that take effect January 1, 2023.

Potential Impacts: No major impacts anticipated.

Proposal: Proposed amendments to O.Reg 507/18 ("Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans") under the Electricity Act, 1998
Source: Ministry of Energy
Date Posted/Notice Received: October 18, 2022
Comments Due: December 1, 2022 (closed)
Summary:
The Ministry of Energy is proposing amendments to O.Reg. 507/18. The proposed amendments would streamline reporting and tracking of energy use by moving required energy reporting from the current SharePoint 2013 platform (that has reached the end of its life) to a more widely used electronic reporting system.
Further changes would allow reporting of energy consumption and greenhouse gas emissions data on the previous calendar year, as opposed to the current two years prior scenario. This requirement will be phased in with 2024 being a double reporting year.
Prescriptive elements of the regulation will also be updated.
If the proposed amendments are approved, they will be implemented in 2023.
Potential Impacts: No major impacts anticipated.

Decision: Amendments to Certain Requirements under the Excess Soil Regulation
Source: MECP
Date Posted/Notice Received: December 23, 2022
Comments Due: N/A
Summary:
The MECP finalized amendments to O.Reg. 406/19 (Excess Soil Regulation) and the Soil Rules to remove the excess soil reuse planning requirements for projects on low-risk sites (examples: agricultural, residential, parkland) and to provide more flexibility when storing excess soil.
The amendments came into effect on **January 1, 2023**.
Potential Impacts:
The necessary planning documents and activities, including required soil sampling, will need to be completed as part of project execution if the Regulation applies to the project. Guidance to help understand these combined requirements can be found on MECP's Handling Excess Soil website.

Note:

- The Low Lift Service Chamber project (Elgin) – may have excess soils – **ACTION ITEM:** Erin McLeod to follow up with RWS Project Manager on this project. Note there was former soil contamination in the project area. Deadline: March 31, 2023.

- Huron plant - if new reservoir is built the excess soils regulation will likely apply.

Consultation: Notice of Public Consultation on Proposed Amendments to the Ausable Bayfield and Maitland Valley Source Protection Plans
Source: Ausable Bayfield Maitland Valley (ABMV) Source Protection Committee (SPC)
Date Posted/Notice Received: January 3, 2023
Comments Due: February 10, 2023 (closed)
Summary:
The ABMV SPC has been working on a review and updates of the Source Protection Plans (SPP) and Assessment Reports for the Ausable Bayfield and Maitland Valley Source Protection Areas. Members of the public are now invited to read and comment on proposed updates.
Potential Impacts:
None anticipated. The key changes in the proposed amendments mainly relate to municipal wells, wellhead protection areas, and road salt management. Pre-consultation with key stakeholders, including the LHPWSS, previously took place in fall 2022.

Consultation: Notice of Pre-Consultation – Draft Updated Kettle Creek Source Protection Plan
Source: Lake Erie Source Protection Region / Committee
Date Posted/Notice Received: January 25, 2023
Comments Due: February 28, 2023 (closed)
Summary:
There are proposed changes to the Kettle Creek Source Protection Plan under s.36 of the Clean Water Act, 2006.
MECP approved the Kettle Creek Source Protection Plan on September 8, 2014. Since then, there have been changes on the landscape and new technical information has become available. These changes and new information have been identified in the section 36 work plan and have resulted in an update of the policy applicability maps for the Municipality of Central Elgin, Village of Belmont Water Supply and EAPWSS; and the revision of current, and the addition of new water quality policies that impact the Municipality of Central Elgin.
Public consultation will follow this pre-consultation period and is scheduled to start on Wednesday April 5, 2023, and close on Tuesday May 9, 2023.
Potential Impacts: None anticipated.
There are no specific actions required by the EAPWSS as much of it focuses on the enforcement/implementation responsibilities for Central Elgin.
The Risk Management Plan for storage and handling of fuel at the Elgin Area WTP remains as an identified significant threat.
Note: The 65,000 L diesel underground storage tank location in relation to the Elgin plant drain is a risk to the intake. If there was a leak or spill the plant drain may be a

conduit for contaminating the intake (see Risk Management Plan for further information).

Notice: Providing Authority to Waive or Alter the 30-day Waiting Period for Class Environmental Assessment Projects
Source: MECP
Date Posted/Notice Received: February 27, 2023
Comments Due: N/A
Summary: The ministry is proposing to amend the Environmental Assessment Act to provide the Minister with the authority, on a project-specific basis, to issue an order waiving or altering the 30-day waiting period following completion of a Class Environmental Assessment process.
Potential Impacts: None anticipated.

Notice of amendment: Municipal Class Environmental Assessment
Source: MECP
Date Posted/Notice Received: March 3, 2023
Comments Due: N/A
Summary: MECP has amended the Municipal Class Environment Assessment to better align assessment requirements with potential environmental impacts, including conditional exemptions for certain low-risk projects.
Changes include conditionally exempting certain low-risk, routine municipal road, water and wastewater projects from requiring an environmental assessment to better align assessment requirements with potential environmental impact
An archaeological screening process will be required for various project types that are now eligible for exemption.
The changes are effective March 3, 2023.
Potential Impacts: None anticipated.

Notice of Study Commencement: Class Environmental Assessment Stormwater Management Master Plan (SWMMP)
Source: Municipality of Lambton Shores
Date Posted/Notice Received: February 20, 2023
Comments Due: Not specified
Summary: The Municipality of Lambton Shores has retained Arcadis/IBI Group to develop a Stormwater Management Master Plan (SWMMP) to establish a much-needed road map for the Municipality to advance the development of a comprehensive stormwater management strategy to address current and future needs within the Village of Grand Bend.
Potential Impacts:
The Intake Protection Zone (IPZ) for the LHPWSS is identified within the Ausable Bayfield Maitland Valley Source Protection Plan and extends to the village of Grand Bend. The current location of the IPZ-2 is based on the current understanding of

drainage and flow conditions, including the contributions from stormwater systems and drainage. Any considerations for changes to the stormwater management systems within the village of Grand Bend should, at a minimum, consider potential implications to the water system's Intake Protection Zone(s), possible Issue Contributing Areas, and implications to the related Source Protection Plans including but not limited to restrictions to land use and Risk Management Plans.

COMMENT - ANDREW - Lambton Shores is doing a Storm Water Master Plan for the Grand Bend Settlement Area. That may impact our intake protection zones, with potential implications. RWS provided comments to the consultant and municipality, and will continue to monitor this as the project progresses.

8. Adequacy of Resources (LHPWSS & EAPWSS)

Staffing:
All RWS staff positions are currently filled.
OCWA staffing:

- Huron has a maintenance vacancy (mechanic);
- Elgin has a maintenance vacancy (electrician);

OCWA is seeing fewer applicants applying for jobs and it is challenging to fill some positions (maintenance, admin.) with multiple postings required during the recruitment process. OCWA has seen changes in the availability of trained staff (e.g., electricians, millwrights) due to wages not being competitive. It is an ongoing challenge and they are looking for solutions. OCWA is looking at an operator career path, with maintenance career path to follow.

The co-op program was reinstated with OCWA. A high school co-op student was placed at Huron WTP. The co-op program is continuing with two (2) positions.
Career fairs, facility tours etc. are now being reinstated, which helps promote careers at OCWA.

RWS will be adding a temporary (up to two years) Senior Technologist to work on the Oneida Transmission Pipeline project.

Training:
No concerns at this time. Course availability is good. More in-person training has returned, which some staff prefer. Online options are still available, and the hybrid is nice. It was noted that Ontario Water Wastewater Certification Office (OWWCO) is taking a more stringent approach on recognition of on-the-job (OJT) training. The H&S and operations training is acceptable, but some human resources and personal development training is no longer being accepted towards the operator certification.

Inspection & Audit Results:
For the 2022-2023 inspection period, both systems had a drop in the MECP inspection rating.

- LHPWSS had 3 non-compliances with an inspection rating 91.12%.
- EAPWSS had 1 non-compliance with an inspection rating of 97.01%.

There was a new inspector this year which may have contributed to the inspection ratings (i.e. different focus and “fresh eyes”).

Over the past year both systems had successful internal and external audits, particularly the DWQMS re-accreditation audits (October 2022) with no non-conformities identified. Overall, the management systems and associated compliance programs are working well and being adequately supported. RWS (Top Management) is satisfied with the management systems and associated compliance programs. The management systems continue to identify issues and seek opportunities for improvement.

Supply Chain:
There are still ongoing issues with the supply chain, including availability and lead times on certain parts and materials (e.g., HART cards for instrumentation). Still seeing longer timeframes for equipment delivery, and now also on shop drawing turnaround time. Chemical costs are still fluctuating.

There are no major chemical availability issues at this time, mainly cost impacts. There have been no issues obtaining lab supplies. From a maintenance perspective, OCWA is seeing issues with certain suppliers/manufacturers. Starting to see some improvements. Some electrical components still have slow delivery times but they are getting what is needed.

Water volumes:
In 2020 and 2021 the primary systems sold higher than budgeted volumes to the municipalities. In 2022 the Elgin system sold higher than budgeted volume, but Huron sold less than the budgeted volume. In the short term, there are no immediate concerns from a resource perspective as both systems are still within targeted range. Note that the budget volumes differ slightly from the contractual volumes in the Service Agreement.

There is some potential future development in Elgin County that may have high water demand, potentially triggering an Elgin WTP expansion sooner than previously expected. Board staff are monitoring the long-term implications. The 2024 Master Water Plan update will consider this growth and development and give us a better idea of when this expansion might need to occur. For Huron, Oneida is expected to join the system at the end of 2024 but more likely the end of 2025. There is another possible development near Strathroy.

The Financial Plan updates were recently endorsed at the March 2nd Board meeting.

Capital projects:
RWS is continually reviewing the capital investment program, looking at constructability and timeframes. Projects were scaled back in the past few years due to covid and we still have not fully caught up, as there are around 100 open projects.

Communications between RWS and OCWA is key for planning and coordination. There is still some concern about the lack of availability of support staff in all areas (RWS, OCWA, consultants, contractors). Some projects are more/less operationally invasive than others, and some commissioning issues have been experienced. There are some gaps that need to be addressed on projects (e.g., H&S management including plans, insurance, etc.). We need to close gaps and more oversight will be expected of project managers, so resources will be required to close those gaps.

A higher level of service expectations will require more resources.
A new contractor management program is being implemented, which may impact the eligibility of some contractors. The new contractor management program (implementation in progress) may have short term consequences to the project managers.

Conclusion:
In the immediate timeframe we have adequate resources to support the EMS/QMS, despite some challenges noted above.

In the longer term we may be hard pressed to continue to perform at a high level without additional resources. There are longer term implications for our capital program.

9. Communications, Complaints, and Consumer Feedback (LHPWSS & EAPWSS)

LHPWSS - 1 complaint or concern noted in Monthly Operations Reports (August 2022 – January 2023).

October 2022: One complaint received from St. Joseph's area resident called regarding standing water on their property. The resident's contact information was passed on to OCWA. Bluewater to follow up.

EAPWSS - There were no complaints or concerns noted in Monthly Operations Reports (August 2022 – January 2023).

Feb. 11, 2023 – A Board member advised of an Aylmer resident having concerns about high pH, and hardness. EAPWSS provided hardness data for past 5 years. It was verified the treated water pH target of 7.5 was being met (daily average for 2023 was

7.49). Town of Aylmer also did a pH test in their system near the residence, pH was 7.47 which is consistent.

Feb. 3, 2023 – Train Derailment in Ohio - EAPWSS received several inquiries related to potential impacts to the drinking water. EPA is conducting water and air monitoring in the localized Ohio area. A spill in this location in not likely to impact Lake Erie as it is not part of the great lakes watershed.

Feb. 2023 – RWS received one email noting concern about fluoride in drinking water. RWS provided information about the EAPWSS and LHPWSS. As the email did not state the specific municipality, they resided in they were advised to contact their local municipality.

March 2, 2023 – Notice received from MECP requesting that we ensure our drinking water system profile information is current, including owner and operator information. This has been addressed by OCWA. No action items.

10. Staff Suggestions (LHPWSS & EAPWSS)

EAPWSS: Request to create a weekly RMF internal lab log sheet in WaterTrax, to track process performance and for optimization improvements.

ACTION ITEM: Create weekly RMF internal lab log sheet. Responsibility: Erin McLeod. Deadline: April 6, 2023.

LHPWSS: RWS – Suggestion to consider LEED in the design of the new administration building at the Huron WTP.

RWS – Request for some additional data tracking and reporting for the Asset Management Plan Technical Level of Service (TLOS) metrics. **ACTION ITEM:** RWS to follow-up with OCWA to provide specific details on what additional data is required. (e.g., chemical inventories). Responsibility: Erin McLeod and Ryan Armstrong. Deadline: Dec. 31, 2023.

OCWA

- Huron – nothing related to EMS/QMS
- Elgin – What if there is a Tornado around the plant – emergency SOPs do not address this, and it will be updated. **ACTION ITEM:** Update emergency SOPs to address tornado risk. Responsibility: Allison McCann. Deadline: June 30, 2023

11. Action Items Identified between Reviews (LHPWSS & EAPWSS)

- Huron Management of Change – Walking Beam Flocc Rehab

- Huron Contingency Plan Test – Chemical Spill Test (June 23, 2022)
- Elgin Corrective Action Form – Alum no flow event (Sep. 19, 2022)
- Elgin Contingency Plan Test – OCWA Corporate Emergency Response Plan Test (Nov. 22, 2022)
- Elgin Corrective Action Form – RMF TCR exceedance (Dec. 30, 2022)

12. Action Items - Status Update (LHPWSS & EAPWSS)

Huron - 26 open action items (note 13 of these are related to coagulation system)

Elgin - 16 open action items

See Package material for more information.

13. LHPWSS Adverse Water Quality Incident (AWQI) – Feb. 21, 2023

Corrective action form in progress. Item deferred to next meeting.

End of Meeting

NEXT MEETING – AFTERNOON OF JUNE 07, 2023

Lake Huron
Primary Water Supply System

Board of Management Report

Subject: Quarterly Operating Financial Status – 1st Quarter 2023

Overview:

- This report shows the current fiscal year's 1st quarter in comparison to its Budgeted amount and the previous year's same time period.

Recommendation

That the Board of Management for the Lake Huron Water Supply System receive this report regarding the Operating Financial Status Report for the period of January 1 to March 31, 2023, noting that this report is unaudited and subject to adjustments including the preparation of the financial statements and completion of the annual audit.

Previous and Related Reports

Quarterly Operating Financial Status – 4th Quarter 2022

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 first quarter 2022 (January 1 to March 31) 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 corrections and entries required for 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 2022 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 reported energy cost is lower than the same period. Energy savings resulting from the installation of the new high lift pumps at the water treatment plant and other energy-saving programs implemented have significantly contributed to the overall reduction in energy consumption for the system.

- Salaries, wages, and benefits expenditures include all direct labour costs for administrative staff including benefits. Variations over the same period in 2022 are attributed to annual salary adjustments, vacancies, and additional staff added in the 2023 budget.

- Administration and Other Expenses relates to various overhead operating expenses, including subscriptions and memberships, bank charges and interest, and office supplies. While the reported expenditures may be adjusted as part of the year-end process, accounting for 2022 and 2023 pre-payments and other cost accounting adjustments, the costs to date are mostly higher than 2022 due to higher bank charges due to increased interest rates.

- Vehicles and Equipment expenditures include costs associated with vehicles, computers, and office equipment for administrative staff. First quarter 2023 expenditures are currently higher than 2022 largely due to higher charges and additional travel requirements.

- Purchased Services and Professional Fees largely relate to allowances for ad hoc professional consulting and legal services, security services, office lease, telephone charges, network, and SCADA (Supervisory Control and Data Acquisition) maintenance, printing services, and pipeline locate costs. The

increased cost when compared to the same period in 2022 is largely attributed to higher insurance premiums, and additional security fees.

- Debt Principal and Interest payments occur twice per year; in the first and third quarter.

- Contributions to the Reserve Funds occur at the end of the fiscal year (fourth quarter) as part of the year-end process and in preparation for the year-end audit, where the actual contributions are the total remaining revenue in excess of expenditures. Accordingly, the amount of the anticipated contribution will be 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 J. Henry, P.Eng.,
Director, Regional Water

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

Attachments: Operating Financial Status Summary – 1st Quarter 2023

Quaterly Financial Summary Report

Lake Huron Water Supply system

1st Quarter 2023 (January 1 to March 31)

($,000's)

	Approved 2023 Budget	Q1 - 2023	2023 Year to Date	Year To Date Variance	2022 Year To Date
Total Revenue	**24,499**	5,445	5,461	19,038	5,186
Expenditures:					
Contracted Operating Services	8,558	2,110	2,110	6,448	1,769
Contracted Administrative Services	328	76	76	252	81
Electricity	3,000	685	685	2,315	787
Salaries, Wages, Benefits	1,043	161	161	882	145
Administration and Other Expenditures	510	199	216	294	188
Vehicles and Equipment	168	23	23	145	15
Purchased Services & Professional Fees	1,521	466	466	1,055	393
Debt Principle Payments	1,113	938	938	175	924
Interest on Long-Term Debt	77	35	35	42	51
Contributions to Reserve Funds	8,180	0	0	8,180	0
Total Expenditures	**24,499**	**4,693**	**4,710**	**19,789**	**4,353**

Lake Huron
Primary Water Supply System

Board of Management Report

Subject: Water System Operation - Contract Status Update

Overview:

- The current Service Agreement with the operating authority is in effect for the term of January 1, 2023 to December 31, 2027.
- In 2022, the operating authority achieved the contractual requirements related to employee retention and received the associated incentive payment of $30,000.
- In 2022, the operating authority achieved the contractual requirements associated with the performance incentive payment and received the full amount of $100,000.
- In 2022, the treated water volume was within the projected range therefore no adjustments to the service fee were required.

Recommendation

That the Board of Management for the Lake Huron Primary Water Supply System **RECEIVE** this report for information.

Previous and Related Reports

June 2, 2022	Water System Operation – Contract Status Update
October 7, 2021	Operations and Maintenance Services Agreement – Negotiation of Term Extension

Background

On January 19, 2012, the Board of Management for the Lake Huron Primary Water Supply System (LHPWSS), acting concurrently and jointly with the Board of Management for the Elgin Area Primary Water Supply System (EAPWSS), awarded the contract for the management, operation, and maintenance of the drinking water systems to the Ontario Clean Water Agency (OCWA). OCWA began operating the LHPWSS on July 1, 2012. The original contract with OCWA was for a five-year term, with additional five-year optional extensions.

In 2017 an Amending Agreement was executed to extend the term. The Amending Agreement took effect on July 1, 2017, and the term ended on December 31, 2022. The Amending Agreement allowed for an additional five-year extension at the option of the Board.

On March 4, 2021, the Board authorized staff to negotiate the terms and conditions for a term extension agreement with OCWA for the allowable five-year period. On October 7, 2021, the Board approved the Amended and Restated Operations and Maintenance Services Agreement and authorized the Board Chair and the CAO to execute the agreement with OCWA. The Agreement is in effect for the period of January 1, 2023 to December 31, 2027.

Discussion

The service agreement with OCWA contains a significant number of deliverables. This report does not attempt to cover the status of all deliverables, rather it provides an overview of some of the more notable administrative items.

General Contract Deliverables

Under the service agreement, OCWA is required to provide several regular reports to Board staff, including:

- Monthly Operations and Maintenance Report
- Quarterly Contract Report
- Quarterly Water Quality Report
- Quarterly Financial Report
- Quarterly Health & Safety Activities Report

Board staff and OCWA currently meet monthly to review the day-to-day management, operations, and maintenance activities for the water supply system. The Board's CAO, Director, and the senior management of OCWA also meet quarterly to discuss any financial, contractual compliance and administrative-level issues. All the above noted reports and related meeting minutes are available from the Regional Water Supply office in London upon request.

Employee Retention Incentive

Under the service agreement, OCWA is entitled to receive an annual employee retention incentive payment if all critical staff positions were filled, and staff turnover for these positions was no more than two persons during the calendar year. This incentive was included in the service agreement to ensure adequate numbers of critical staff were available and incent minimal turnover, which was a significant issue with the previous contracted operating authority.

In 2022, OCWA achieved these requirements for the LHPWSS and received the $30,000 employee retention incentive payment.

Performance Incentive Payment

At the end of each contract year, OCWA is entitled to receive a performance incentive payment of up to $100,000, subject to any deductions outlined in the service agreement. Deductions could result from a number of specified issues, such as providing deficient or late reports, failure to meet emergency response requirements, failure to deal with complaints, failure to meet water quality performance criteria, etc. The performance incentive payment is intended to promote performance superior to minimum regulatory standards and best practices.

In 2022 there were no deductions to the incentive payment. In total OCWA received the full $100,000 incentive payment for the LHPWSS.

The water quality performance criteria specified within the service agreement was met with one (1) exception. The service agreement requires the operating authority to maintain a free chlorine residual at all times above 0.50 mg/L at all points in the transmission system, including the furthest points of the transmission system and at all points of supply to municipal distribution systems. In September 2022 there were several dates where the free chlorine residual was lower than the required contractual performance criteria at the furthest extent of the Exeter-Hensall transmission main. This was attributed to several issues with the rechlorination system at the pumping station, including a plugged chlorine injection quill. Board staff took operational challenges into consideration; however, due to the duration and potential impacts to customers, this performance criteria was deemed not to have been met by the contracted operator. This was the only water quality performance failure in 2022. Therefore, there were no deductions from the incentive payment as this only applies if there have been two or more water quality performance failures.

There were several short duration filtered water quality performance issues identified in 2022. Staff took into consideration that these disruptions coincided with plant shutdowns related to capital projects (e.g., the high lift pump upgrade) or there were other extenuating circumstances (e.g., a raw water quality event). Therefore, deductions to the incentive payment were not applied. Each short duration disruption was individually assessed, with the conclusion that the incentive payment should not be impacted. This assessment was made at the sole discretion of the LHPWSS and may not be construed as precedent for future evaluations and assessments.

It is important to note that all regulatory water quality requirements were met during these events.

Service Fee Adjustment

The service agreement identifies projected annual treated water volumes throughout the contract term, upon which the annual service fee is based. At the end of each contract

year, if the actual volume is greater than 105% or less than 95% of the projected volume, an adjustment is made to the service fee (either a credit or additional cost).

In 2022, the actual volume for the LHPWSS was 102.40% of the projected contract volume. This was within the accepted range therefore no adjustments to the service fee were required.

Conclusion

Board staff will continue to work closely with the operating authority to monitor performance and ensure deliverables under the service agreement. Any contractual issues are discussed at the quarterly operations meetings between OCWA and Board staff.

Prepared by: Erin McLeod, CET
Quality Assurance & Compliance Manager

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

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

Lake Huron
Primary Water Supply System

Report No.: LH-2023-03-14
Report Page: 1 of 13
Meeting Date: June 1, 2023
File No.:

Board of Management Report

Subject: Energy Procurement, Conservation and Management Strategy

Overview:

- Electricity costs currently amount to $3.4 million per year for the regional water system, or approximately 12.25% of the annual operating budget.
- Electricity-related business risks and energy management are addressed through three sub-strategies related to energy procurement, energy management, and conservation and efficiency.
- Continuous improvement and assessment of energy efficiency allow the water utility to improve upon its energy strategy on an ongoing basis.

Recommendation

That the Board of Management for the Lake Huron Water Supply System **RECEIVE** this report for information.

Previous and Related Reports

None

Background

At the January 19, 2023, meeting of the Board of Management, the Board requested a report on the water systems energy strategy as it relates to energy management and conservation. This report focuses on electricity as the water system's single-most significant source of energy used.

This report is not intended to convey a formal Energy Management Plan for the water utility, as the strategies outlined in this report are embedded within our management systems, including the Environmental Management System (ISO 14001), as well as the Energy Conservation and Demand Management Plan filed with the Independent Electricity Systems Operator as required by Ontario Regulation.

Discussion

In relation to the regional water system's operation, an energy management strategy would typically relate to all forms of energy and sources of power consumed for the purpose of treating, transmitting and distributing drinking water to the benefiting municipalities, as well as in the administration and management of the system as a whole. This would include not only electricity, but other consumable sources of energy like natural gas and diesel fuel.

Electricity is one of the water system's single largest expenses, currently amounting to approximately $3.4 million per year in direct costs, or 12.25% of the total annual operating budget. More than a decade ago this cost was in excess of $4.6 million per year prior to more recent capital investments which addressed, in part, energy efficiency.

Given the historical volatility of the energy market in Ontario, the strategy related to energy management is directly linked to market conditions and the various charges associated with electricity, as well as conservation, efficiency and demand management programs implemented by the regional water system.

Ontario Energy Market – Overview

Since early 2002, the Ontario energy market behaves much like a "stock exchange" where generator companies provide prices every 10 minutes for their production of electricity. These bid-in values are matched to the present and projected energy-demand needs (e.g., ensure there is enough but not too much electricity generated in any given moment to match demands plus anticipated fluctuations) and the commodity costs aggerated over 60 minutes to provide the Hourly Ontario Energy Price (HOEP). The HOEP is the cost charged to all consumers of electricity, either directly by the province's energy agency or indirectly through a Local Distributing Company like London Hydro or Hydro One.

The value of the HOEP can fluctuate significantly over the course of a 24-hour period, where overnight prices can periodically become very low or even negative to incent consumption when available baseline generation exceeds demands. Mid-afternoon prices are often the highest coinciding with peak energy demands across the province.

Consumers of electricity in Ontario are divided into two general groups:

- Class A Consumers – these are typically large consumers of electricity such as industrial production facilities, as well as any consumer facilities that are directly connected to a high voltage transmission line rather than through a local distribution company. More recently, some medium-size consumers have been

allowed to “opt-in” to the Class A market to take advantage of market pricing generally not available to Class B consumers.

Class A consumers also pay various administrative charges including market participation charges, uplift charges, and Global Adjustment. Global Adjustment acts like a “reserve fund” that covers the difference between the total payments made to generators, conservation programs and any offsetting market revenues. The amount a Class A consumer pays to the Global Adjustment is based on their consumption during the five worst days in the year prior (also referred to as the “five critical peaks”).

- Class B Consumers – these are typically all other consumers, such as residences, small and mid-size businesses, and moderately-sized manufacturing facilities. Class B consumers are connected through a local distribution company like Hydro One. The commodity price for energy is typically based on projected cost-averaging over a period of a month or seasonally. The charges included embedded costs for various administrative charges.

The Lake Huron water treatment plant and the McGillivray booster pump station are directly connected to the province’s high voltage transmission system (115,000 volts) and therefor automatically considered Class A Consumers. All other facility locations operated by the Lake Huron Water Supply System, including pumping stations, reservoirs and monitoring stations, are Class B Consumers.

Based on the current market, the commodity cost for the energy for our Class A locations makes up about 60% of the monthly charges, while the Global Adjustment is about 20% of the monthly charges. For example, the charges from the Independent Electricity Systems Operator (IESO), the government agency that manages the generation and transmission market for Ontario, was $344,520.73 for the month of July 2022, excluding HST. The energy commodity charge alone was $196,594.95 of the total fee, or 59% of the total charges. For reference, refer to Appendix B attached to this report for an example monthly energy charge for Class-A consumption of electricity.

The current strategy for energy management and market risk mitigation is divided into three segments:

1. Commodity Cost Risk Management – this predominantly involves the management of time of use (day versus night) consumption of energy, as well as procurement strategies to manage unit costs during high market risk periods.
2. Global Adjustment Risk Management – since 20% of the Class A consumption cost is exposed to the Global Adjustment, time of use strategies can play a significant role in reducing the cost of not only the commodity, but the additional cost related to the Global Adjustment.

Global Adjustment charges had previously been as much as 60% of our total energy cost, with commodity being only 20%, but market conditions have significantly changed in the last decade. A previous assessment estimated that if the water treatment plant and intermediate pump station were to minimize energy consumption during the peak (afternoon) periods on the five worst days of the year, about $750,000 to $1,000,000 per year can be saved. This estimate was based on market conditions at that time, and current conditions are likely to be in the order of $250,000.

3. Efficiency and Conservation – reducing our overall consumption of electricity for each unit of water supplied to municipalities provides an overall benefit to the water utility, regardless of the time of day, but at no time should efficiency and conservation compromise water quality.

Procurement Strategies

Prior to the recent high lift pump replacements, the minimum energy consumption of the water treatment plant with only one 3,000hp high-lift pump and water treatment processes running was 3.5 MW. During high demand periods in the summer, this can jump to more than 8 MW with both the water treatment plant and intermediate (McGillivray) booster station running two high-lift pumps each. The procurement of the commodity (electricity) is affected by both time of use and commodity/market risk.

The commodity price fluctuates hourly and can be affected by a number of factors, including availability and type generation, unexpected loss of generation, and unexpected system demands. Commodity prices are also affected by seasonality (winter versus summer demands), weather, and other market conditions like imports and exports.

For example, the average hourly prices in the first two months of 2023 had typical fluctuations for this time of year, with lower prices overnight and early morning and late-afternoon peaks as shown in figure 1 of Appendix A, attached to this report. This pattern is similar to water demands where consumption of water is at its lowest overnight and peaks during daytime hours. If water pumping were to match water demand, the total energy costs be very high as the corresponding energy consumption would occur during peak commodity price periods (i.e., maximum unit energy costs corresponding to maximum pumping).

To minimize energy costs, regional water storage is used to balance the water demands while minimizing energy consumption during peak energy cost periods. In this manner, water stored in regional reservoirs are used to supply the higher consumer water demands during the daytime periods, with corresponding minimal pumping from the water treatment systems to supplement supplied volumes to municipalities. During off-peak periods (overnight), water reservoirs can be refilled using multiple pumps when energy commodity costs are low.

On a typical day, this water supply strategy works well to balance various demands versus costs; however, the energy commodity price can be subjected to significant fluctuations due to unexpected market conditions. These conditions can be both advantageous to a water utility, as well as costly if not managed correctly.

If actual energy demands are lower than anticipated and there is more generation available than being consumed, energy prices will be low and often negative. These overnight ultra-low commodity costs can be advantageous when refilling a reservoir, but only to the extent that there is available water storage.

Daytime commodity costs can be similarly affected by events such as significantly more energy demand than available generation, or unexpected generation losses causing more expensive standby generation needing to be used. In figure 3 of Appendix A, attached to this report, these events are clearly visible even in the first two months of 2023 when commodity costs suddenly peaked as high as $326/MWh ($32.6/kWh) in mid-January. In 2002 and 2003, peaks as high as $1,000/MWh ($1.00/kWh) were experienced.

Figure 2 of Appendix A shows the Hourly Ontario Energy price during a typical day when the overnight commodity price dips to zero, and a peak later afternoon price of $326/MWh.

To counter these risks of possible incidents of high commodity costs, two sub-strategies are considered:

- Continually attempt to minimize water pumping (and corresponding energy consumption) during daytime periods, especially afternoons where peak event could occur. These peak events can also correspond to the five peak demands associated with the Global Adjustment and thereby minimizes the risk to higher Global Adjustment costs.
- Consider the pre-purchase of “energy blocks” to minimize the risk of budget instability (business risk) due to an unstable energy market. Electricity alone is approximately 15% of the total operating budget for the water utility. Significant cost fluctuations during times of market instability expose the water system to potentially substantial deficits. To counter this risk, the pre-purchase of energy allows the water utility to pre-emptively manage the risk (versus minimize costs) of budget instability and cost overruns.

  While this pre-purchase strategy is not currently utilized, during previous periods of energy market instability the water system has purchased up to three blocks of energy to stabilize as much as 40% of our anticipated utilization. This was achieved by purchasing three 1-MW (1 year - 24x7) blocks where only one block expires in any given year. This ensures that our minimum “base load” of 3 MW has a guaranteed price for the year, and not subject to the potential of

considerable price fluctuations and thereby minimizing the risk to the operating budget.

Energy Management Strategies

Energy management strategies for the water treatment and transmission system are guided by the following principles:

1. Water supply to municipalities and water quality take priority over energy costs at all times.
2. Maximize the use of water reservoirs to take advantage of hourly energy pricing associated with time of use charges.
3. Minimize energy consumption during peak provincial consumption periods to minimize Global Adjustment charges. These peak consumption periods typically occur on weekdays from early afternoon to early evening.

With these principles to guide the overall supply strategy, on a typical day the larger pumps are used overnight to refill reservoirs across the region. As the market cost increases in the morning, pumping rates are reduced (normally using only one large pump) in the morning periods and allow the area reservoir levels to start dropping. In the afternoons, the smaller pumps are used thereby minimizing energy consumption during potentially peak demand periods. By early evening, a larger pump is used (similar to the morning) until either area reservoirs reach a set low limit value, or the energy prices are minimal.

Conservation and Efficiency Strategies

On a unit basis, the low lift pumps at the head of the water treatment plant, and the high lift pumps at the plant and the McGillivray pump station are by far the greatest individual consumers of energy. In addition, plant-wide dehumidification processes, water treatment processes, and waste handling systems consume a substantive amount of energy.

Conservation and energy efficiency strategies currently employed seek to incrementally minimize energy consumption, where possible. Asset investments and operational changes for the purpose of conservation and energy efficiency are evaluated using the water system's business case assessment process to quantify and qualify the costs and returns for the options available. In recent years, these have included:

- Retrofit plant lighting and associated controls to consider the use of, where appropriate, LED lighting and occupancy sensors.
- Replacement of three of the five high lift pumps with to high-volume pumps and two lower-volume pumps.

- Building Automation Systems which control the heating, ventilation and air conditioning at the water treatment plant was updated to better control on-demand utilization of the various air handling systems and temperature control.
- Electric unit heaters in various areas of the plant were eliminated when the plant boiler and hydronic heating systems were upgraded.
- Roof and door system replacements improving insulating capacities of the facilities.
- Pump refurbishments to improve energy efficiencies.

In 2018, the water system undertook an Energy Efficiency and Pump Optimization Study which, among other things, recommended investments and opportunities for energy efficiency in the areas of building services, process optimization, and other opportunities for improvement. In addition, the Energy Conservation and Demand Management Plans were updated in 2019 and include projects proposed for implementation during the reporting period. The Energy Conservation and Demand Management Plans are a regulatory requirement and a condition of our licence as our water treatment plant and McGillivray pumping station are connected to the provincial transmission system, rather than an embedded customer connected to a Local Distributing Company.

The Energy Conservation and Demand Management Plan is updated on a 5-year cycle.

Further investigations and assessments continue to be undertaken to better quantify and qualify expected improvements and savings opportunities and will be presented to the Board where the investment can be reasonably justified. Subject to the completion of an analysis and estimated return on investment, this may include micro-generation near the Arva terminal reservoir where an inline generator recovers available energy from the water as the water flows into the reservoir.

Continuous Improvement

The water system’s Customer Levels of Service, risk mitigation framework, business case process and Asset Management Plan all, in part, consider energy efficiency and environmental performance as factors in understanding the opportunities for improvement for the water utility. In addition, the water system’s Environmental Management System registered to the ISO 14001 international standard has identified the consumption of electricity as a significant environmental aspect which consequently require mitigation strategies, environmental objectives and targets to be set. The goal within the Environmental Management System is to identify and control the environmental impacts of the water utility’s activities, products and services, and to continually improve our environmental performance.

To aid in our ongoing assessments of continuous improvement opportunities and to manage the water utility's energy portfolio, the water system utilizes the services of a contracted energy manager. The contracted energy manager, VIP Energy, provides assistance in all aspects of our energy procurement, conservation and management activities.

Delegated Powers and Duties

The purchase of utilities, including electricity, are exempt from the Board's Purchase of Goods and Services and Disposal of Assets Policy (Policy Bylaw 2A-2023 Schedule B) waiving the obligation to procure these goods and services directly without public procurement. Article 5.2 of the Delegation of Powers and Duties Policy (Policy Bylaw 5A-2023) authorizes the Director of Regional Water to enter into agreements and authorize related services for utilities necessary for the ongoing operation of the system.

Conclusion

The energy management strategy developed and utilized for the Lake Huron Water Supply System addresses electricity procurement, energy utilization, conservation and efficiency measures to minimize costs to the extent possible. Continual improvement approaches allow staff to monitor and assess impacts and opportunities for further improvements without compromising water quality or the delivery of water to our benefiting municipalities.

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

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

Attachments: Appendix A – Hourly Ontario Energy Price (Report Figures)
Appendix B – IESO Energy Charges (July 2022)

Appendix A: Hourly Ontario Energy Price (Report Figures)

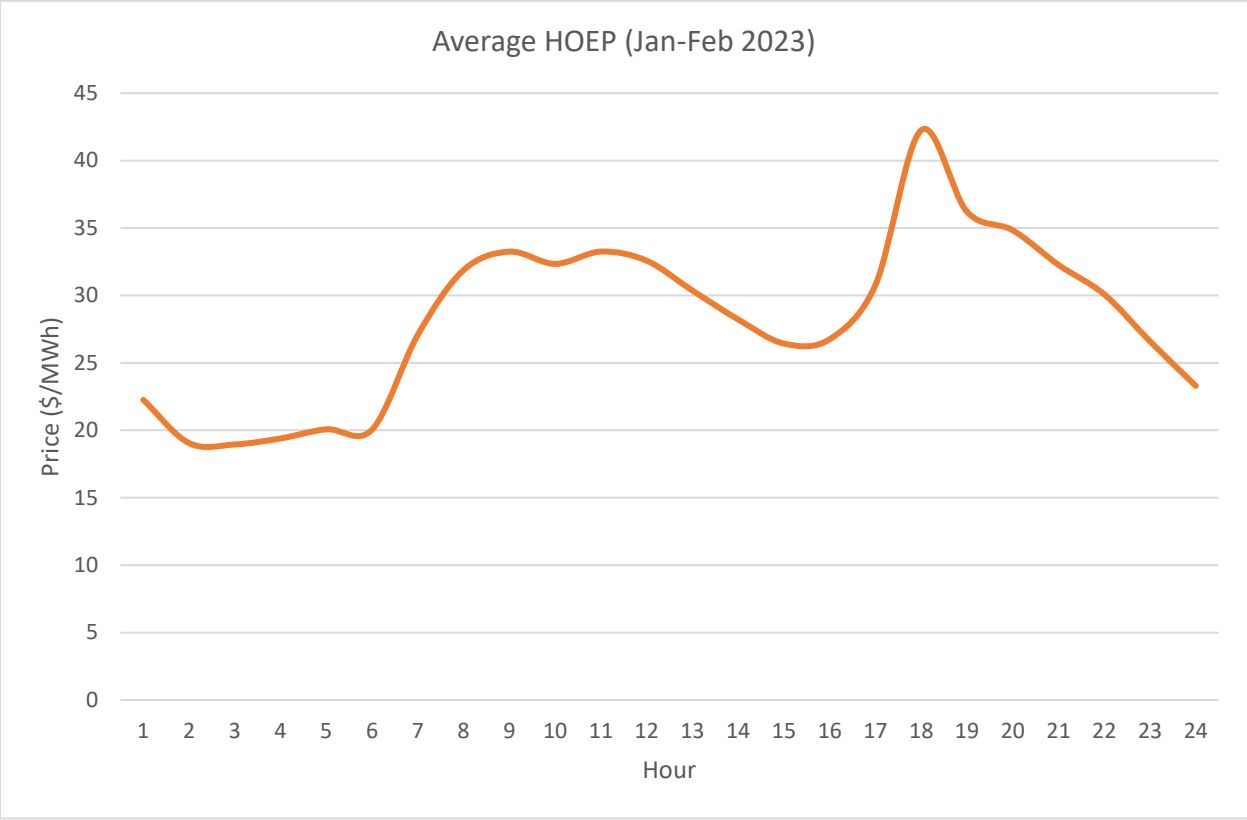


Figure 1 - Average Hourly Energy Price (Ontario) between Jan.1 and Mar. 1, 2023

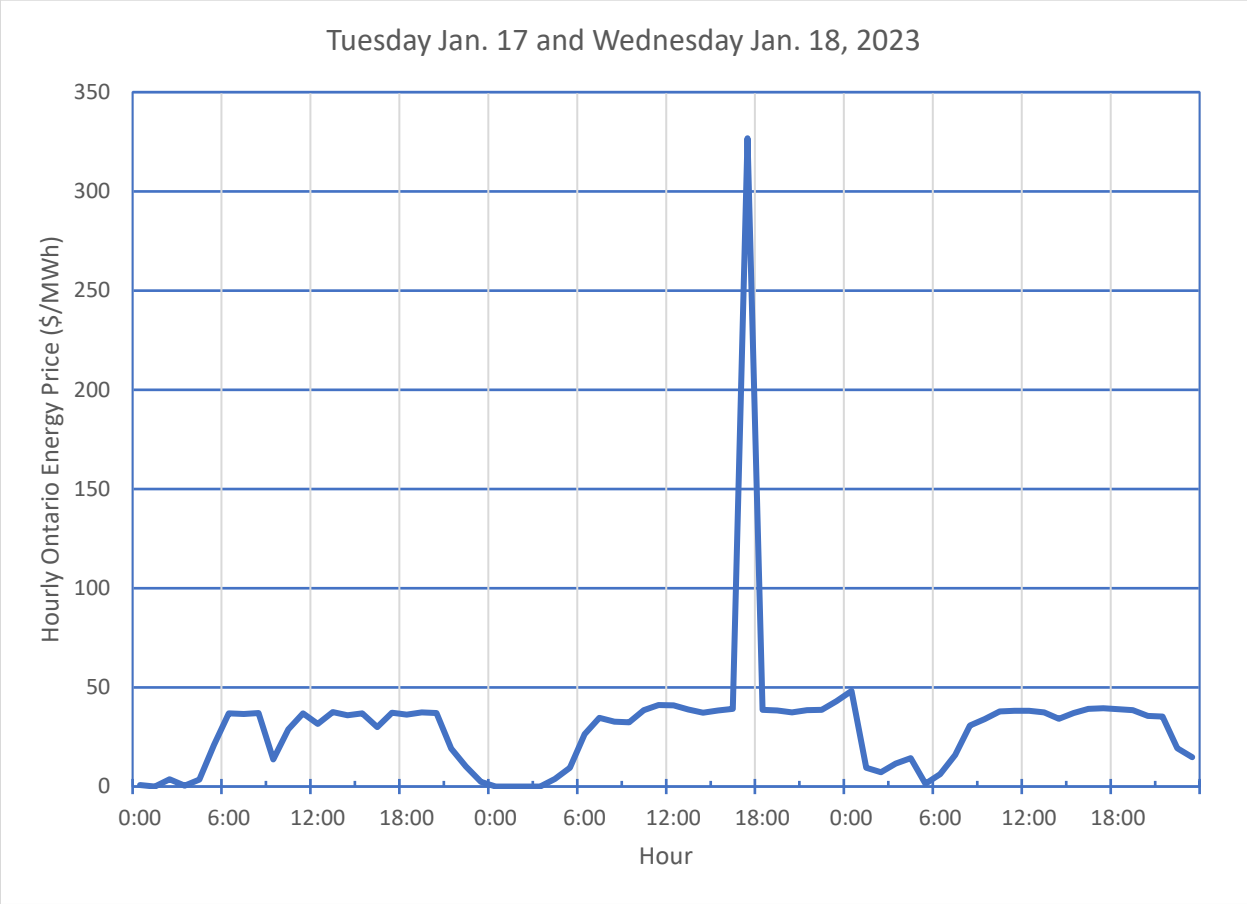


Figure 2 - Hourly Energy Price (Ontario) for Jan.17 and Jan.18, 2023

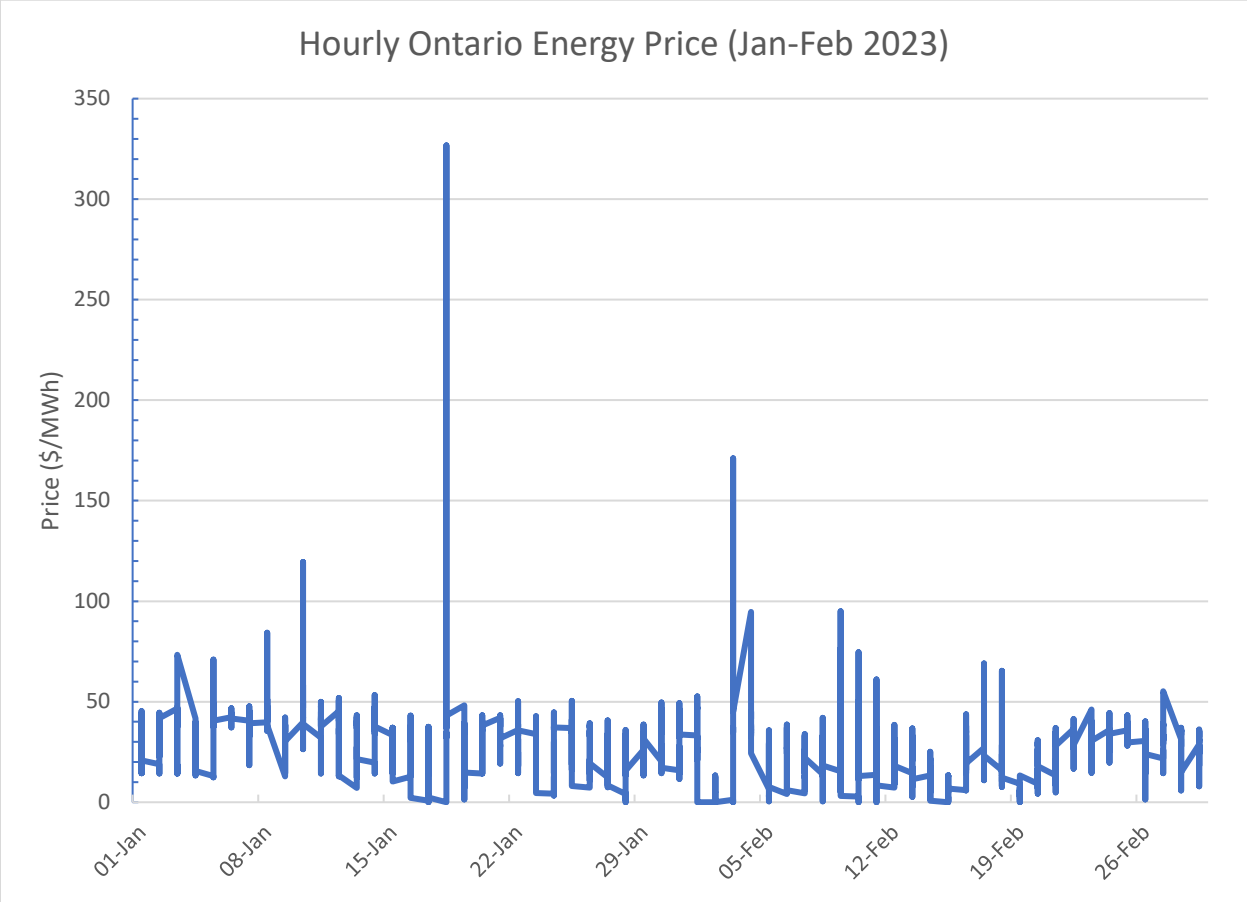


Figure 3 - Hourly Energy Price (Ontario) from Jan.1 to Mar.1, 2023

Appendix B: IESO Energy Charges (July 2022)

Charge Item	kWh	Cost
Energy Charge	3,541,530	$196,549.95
24x7 Block Purchase	0	$0.00
Global Adjustment Settlement Amount	3,541,530	$63,874.52
Energy Market Uplift	499,058,710	$4,819.35
Congestion Management	3,541,530	$7,195.43
Station Service Reimbursement Debit	3,541,530	$74.99
Generation Cost Guarantee Recovery Debit	3,541,530	$1,885.06
Intertie Failure Charge Rebate	3,541,530	($34.34)
10 Minute Spinning Reserve	3,541,530	$182.69
10 Minute Non-Spinning Reserve	3,541,530	$202.10
30 Minute Reserve	3,541,530	$49.94
Black Start Capability	3,541,530	$56.34
Reactive Support and Voltage Control Debit	3,541,530	$413.37
Reactive Support and Voltage Control	3,541,530	$401.46
Regulation Service	3,541,530	$805.20
Rural Rate Settlement	3,541,530	$1,062.46
Capacity Based Recovery Amount for Class-A Loads	3,541,530	$1,474.08
Renewable Generation Connection Monthly Compensation	3,541,530	$495.81
Day-Ahead Production Cost Guarantee Recovery Debit	3,541,530	$0.00
Forecasting Service Balancing Amount	3,541,530	$12.00
IESO Administration Fee	3,541,530	$4,316.06
Network Service Charge	5,225	$41,483.85
Line Connection Service Charge	10,455	$9,200.41
Subtotal Cost		**$334,520.73**
HST		$43,487.70
Total		**$378,008.43**

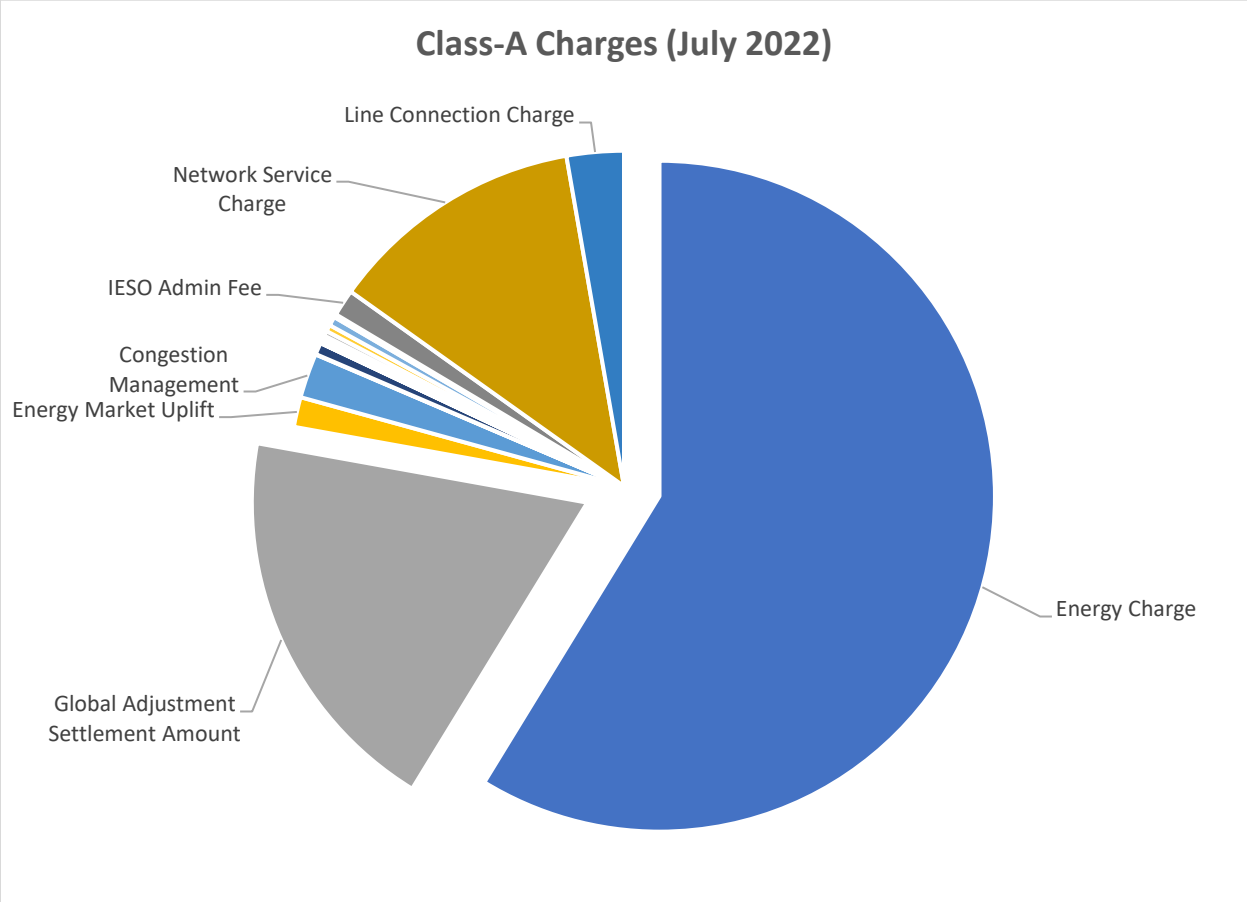


Figure 4 - Proportion of July 2022 Energy Charges (major cost components shown)

Lake Huron
Primary Water Supply System

Board of Management Report

Subject: Asset Management – 2023 State of the Infrastructure Report

Overview:

- The state of the infrastructure (SOTI) report is a high-level snapshot of the asset management profiles of our various assets by process area.
- Provides insight into the overall status of the utility and the year-over-year changes to the utility's asset management profiles.
- A tool to help inform the ongoing maintenance and future investment planning decision making process.

Recommendation

That the Board of Management for the Lake Huron Primary Water Supply System **RECEIVE** this report with regard to the 2023 State of the Infrastructure for information.

Previous and Related Reports

Oct 7, 2021 Asset Management Policy and Asset Management Plan Update

Jun 2, 2022 Lake Huron Treatment and Transmission Assets – State of the Infrastructure Report

Oct 6, 2022 2022 Asset Management Plan Update Project Completion

Jan 13, 2023 LH2046 Lake Huron Water Treatment Plant Asset Condition Assessment

Jun 1, 2023 Asset Management – 2023 Levels of Service Report

Background

At the June 2, 2022, Board meeting, Board staff presented the inaugural state of the infrastructure report for the Lake Huron Primary Water Supply System (LHPWSS) treatment and transmission assets. The information contained in that first SOTI report was compiled though the Asset Management Plan update project. The state of the infrastructure was conceived as an annual report to the Board of Management presented at the June Board meeting with the intention of informing the Board of the various asset management profiles of the system, and the incremental year-over-year change.

There are certain guiding principles from our Asset Management Policy which directly relate to the SOTI report, including:

Long-Term Sustainability and Resiliency: Planning for the long-term, while integrating social, environmental, and financial considerations and constraints.

Fiscal Responsibility and Asset Management Decision-Making: Making the best use of available funds to deliver services.

Transparency: Making infrastructure decisions using an open and transparent process, the utility shall be data-driven and evidence-based.

Discussion

This 2023 state of the infrastructure report represents the first full year of asset reporting. Since that inaugural 2022 SOTI report, we have worked to reconcile asset data to improve data quality and reporting accuracy. The utility has a combination of over 5,850 individual and grouped assets documented and categorized across the following eleven process areas:

- Raw Water Handling
- Pre-Treatment
- Filtration, Disinfection & High Lift Pumping
- Residual Management
- General Site, Building Services, Fleet & Security
- Digital Technology
- Primary Power
- Primary Reservoir & Pumping Stations
- Primary Pipelines & Chambers
- Secondary Reservoir & Pumping Stations
- Secondary Pipelines & Chambers

In the last year, through a combination of operation & maintenance activities and capital construction projects, roughly 220 assets have been retired and taken out of service with approximately 410 new assets installed.

The following asset management profiles are discussed below with the respective process area 2023 State of the Infrastructure Asset Cards attached to this report:

- Asset Replacement Value
- Asset Condition
- Asset Performance
- Asset Remaining Useful Life
- Asset Risk

The overall assessment of the state of the infrastructure is a consideration of all these factors. A lower rating in any one factor does not necessarily denote the imminent failure of the asset or system, increasing risk due to poor operational practices, or ineffective investment strategies. Where indicated as such in the discussion below, due

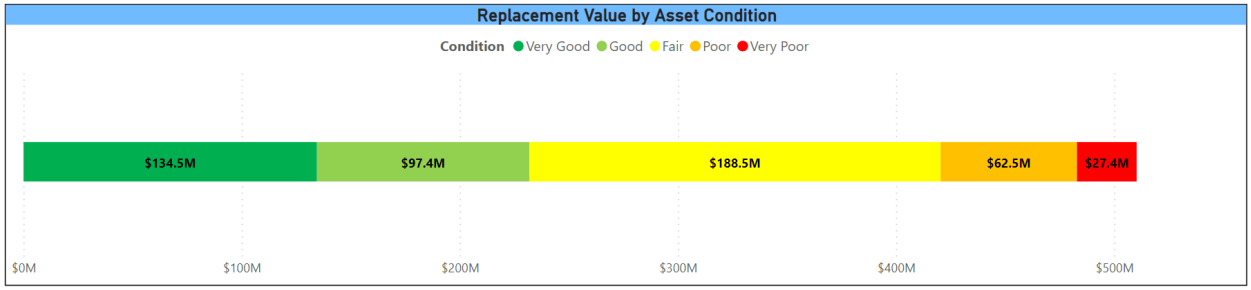
to the unique nature of digital technology assets, they might be separated out from the other process areas for the purposes of state of the infrastructure reporting.

A separate annual report on levels of service is also presented at the June 2023 Board meeting which is intended to be read in conjunction with this state of the infrastructure report.

Asset Replacement Value

Across all process areas the utility has an asset replacement value of approximately $510 million compared to $479 million as included in the 2022 SOTI report, an increase of 6.5%.

Overall, the utility has an asset replacement value profile as follows:



Asset Condition:	Very Good	Good	Fair	Poor	Very Poor
% Change in Value Over Previous Year:	10.5%	3.1%	0.5%	7.8%	68.1%

Asset replacement value is the total dollar value of our assets based on the estimated asset replacement costs in 2023 dollars. The current valuation increase is the result of a combination of factors including new assets added to the system, existing asset replacement value year-over-year inflation, and incorporating existing assets reconciled but not otherwise reported previously (e.g., digital technology assets). Through the Asset Management Plan an assumed year-over-year inflation rate has been set at 2.5% noting this does not necessarily account for pandemic-related market conditions or the recent rate of inflation. Using a consistent annual inflation rate is expected to average out the highs and lows which might be experienced over the long term.

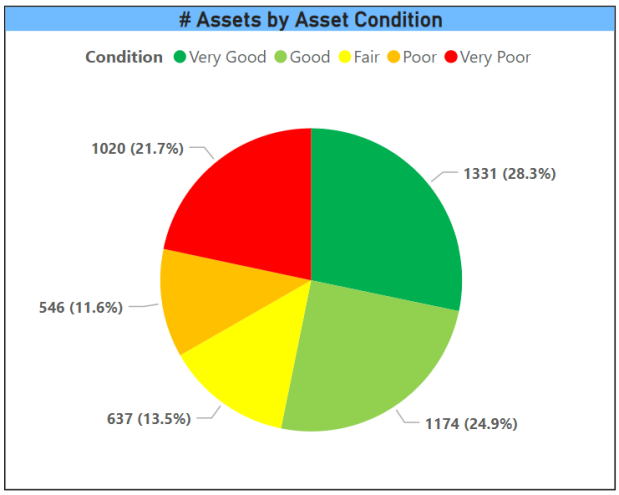
Asset Condition

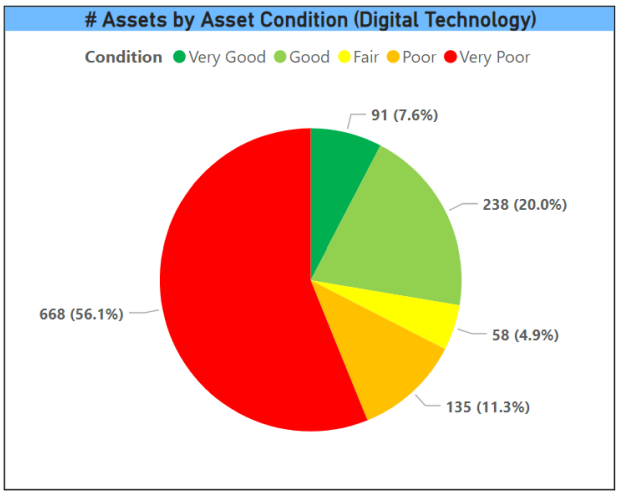
Consistent with the prior year asset reporting, age-based straight-line deterioration methodology was utilized for determining asset condition.

Table 1: Asset Condition Ratings based on Straight-Line Deterioration		
Remaining Useful Life	**Condition Rating**	**Condition Grade**
80% - 100%	1	Very Good
60% - 80%	2	Good
40% - 60%	3	Fair
20% - 40%	4	Poor
0% - 20%	5	Very Poor

Straight-line deterioration is most useful when an asset's condition is assumed to deteriorate uniformly over time. **It is important to note that age-based asset condition assessment is an indicator of risk, and not the ability of the asset to function as intended.** As our asset management matures, asset condition data will be further refined as data limitations are addressed and asset condition assessments are completed. With the approval of the Board at the January 13th meeting, we have retained a consultant and are presently undertaking a water treatment plant asset condition assessment intended to improve our asset condition information accuracy. This project is anticipated to be completed in the fall of 2023 with the results incorporated into the 2024 state of the infrastructure report.

Overall, the utility has a 2023 asset condition profile as follows:





Asset Condition:	Very Good	Good	Fair	Poor	Very Poor
Distribution Change Over Previous Year:	1.1%	-4.1%	-1.2%	-1.5%	5.6%

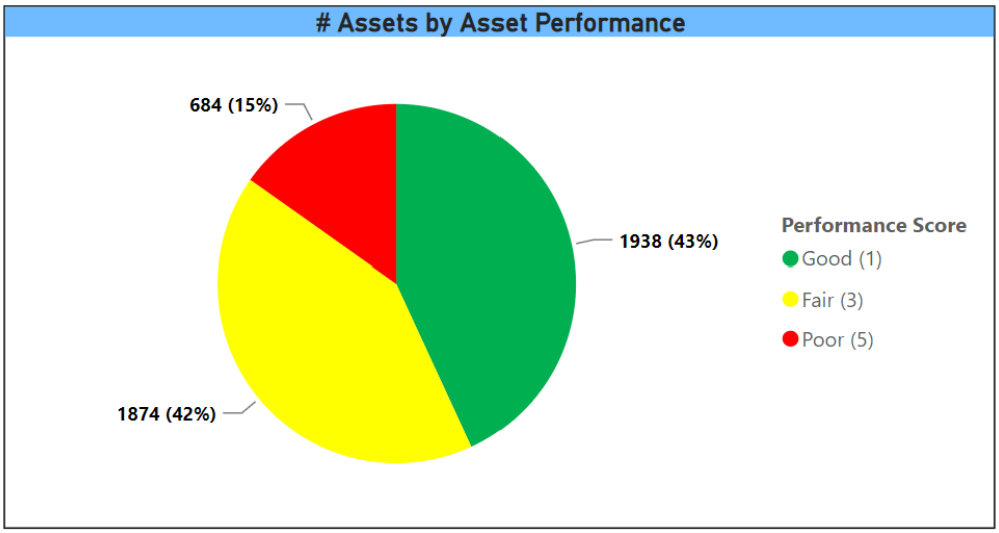
While the summarized age-related assessment indicates that on average ~28% of the assets are in 'Very Poor' condition, it is important to note that this is simply based on

those assets having less than 20% of their expected useful life remaining. To add further context, the replacement value of these 'Very Poor' assets represents only 5.4% of the overall utility asset replacement value. Additionally, as demonstrated in the performance section below, collectively the treatment and transmission assets continue to perform at a high level despite any age-related risks.

Asset Performance

Asset performance is a measure of how well an asset is performing as part of its current operational function, and is assessed independently of other factors (e.g., age-related risks). The contracted operator, the Ontario Clean Water Agency (OCWA), based on their collective knowledge, experience, and history with the LHPWSS reports on asset performance as part of their annual asset report. Assets have been assigned a performance rating of 1 – Good, 3 – Fair, or 5 – Poor. Collectively the utility's assets have an average performance rating of 2.4 or Fairly Good.

Overall, the utility has a 2023 asset performance profile as follows:



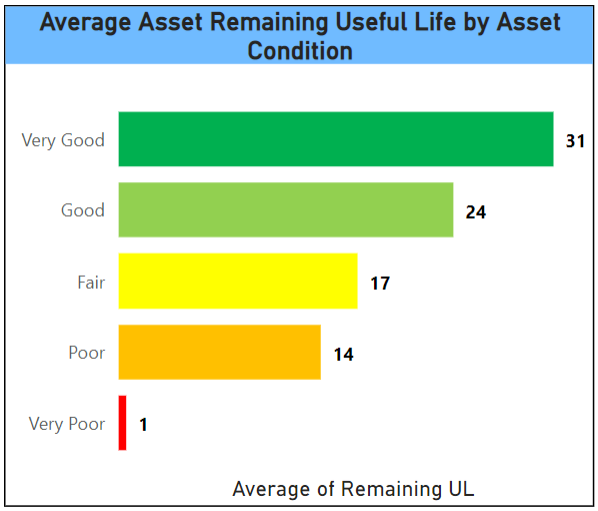
For this state of the infrastructure report digital technology asset performance has not been quantified; in general, digital technology assets are either performing or not.

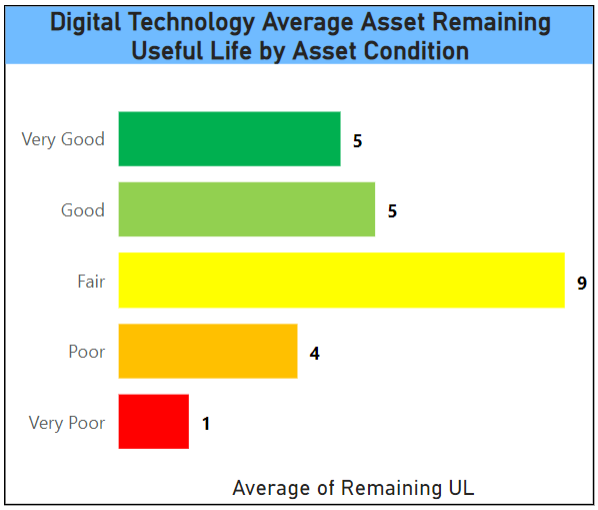
Asset Remaining Useful Life

An asset's remaining useful life is determined by subtracting the asset age from the asset expected useful life. Asset age is based on the asset installation date; and where an asset is known to have been rehabilitated since original installation the age is adjusted accordingly. Asset remaining useful life (RUL) is expressed as the average of all assets within the same asset condition and is expressed in years. Remaining useful

life will continuously fluctuate over time as assets age (decrease in condition), are renewed, replaced, or rehabilitated (increase in condition).

Overall, the utility has a 2023 asset remaining useful life profile as follows:

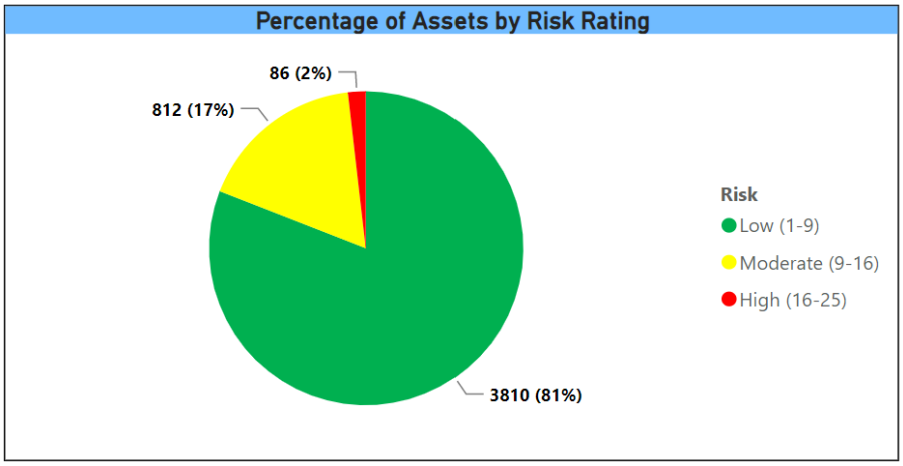




Asset Risk

New to the state of the infrastructure report is the utility's asset risk profile. In the context of the Asset Management Plan, risk is a factor of the likelihood of an asset failure (that limits the ability of the asset to deliver the service) and the resulting consequence. Likelihood considers asset condition, performance, and climate change impacts, where consequence considers the severity of the impact and the importance of the asset. By separating condition and performance as two distinct factors, there is an opportunity to consider assets in poor condition that may still be performing well, as well as assets in good condition that may not be reliable. Assets can have a maximum risk rating of twenty-five and are split into three risk zones, High Risk (risk ratings greater than 16), Moderate Risk (risk ratings of 9 to 16), and Low Risk (risk ratings less than 9). Collectively the utility's assets have an average risk rating of 7.0 or Low.

Overall, the utility has a 2023 asset risk profile as follows:



For this state of the infrastructure report digital technology asset risk has not been quantified; the 2022 AMP indicated 25% of digital assets in the Moderate Risk zone.

Conclusion

This 2023 SOTI report continues to build upon asset condition, performance, remaining useful life, and replacement value data reported in the inaugural state of the infrastructure report. This year's SOTI report has been expanded to incorporate the utility asset risk profile. Future reports are envisioned to continue to be expanded to include system highlights and funding and budgetary considerations. As our asset management program matures and the quality of the asset data continues to improve, the annual year-over-year changes to the utility's asset management profiles will present the overall state of the LHPWSS infrastructure with ever increasing accuracy.

The state of our asset management levels of service (performance compared to targets) will be presented to the Board as a standalone report intended to be read in conjunction with this state of the infrastructure report.

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

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

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

Attachments: Appendix A – 2023 State of the Infrastructure Process Area Asset Cards

APPENDIX A – Process Area Asset Cards

- Raw Water Handling
- Pre-Treatment
- Filtration, Disinfection & High Lift Pumping
- Residual Management
- General Site, Building Services, Fleet & Security
- Primary Power
- Primary Reservoir & Pumping Stations
- Primary Pipelines & Chambers
- Secondary Reservoir & Pumping Stations
- Secondary Pipelines & Chambers
- Digital Technology

Lake Huron
Primary Water Supply System

2023 State of the Infrastructure Asset Card

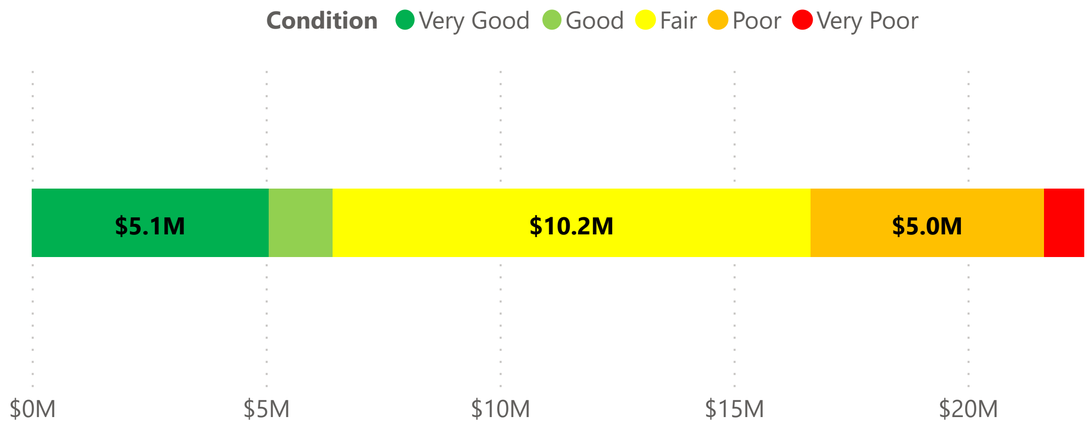
Process Area

- Raw Water Handling
- Pre-Treatment
- Filtration, Disinfection, and HLP
- Residual Management
- General Site, Building Services, Fl...
- Primary Power
- Primary - Reservoir and Pumping ...
- Primary - Pipelines and Chambers
- Secondary - Reservoir and Pumpi...
- Secondary - Pipes and Chambers

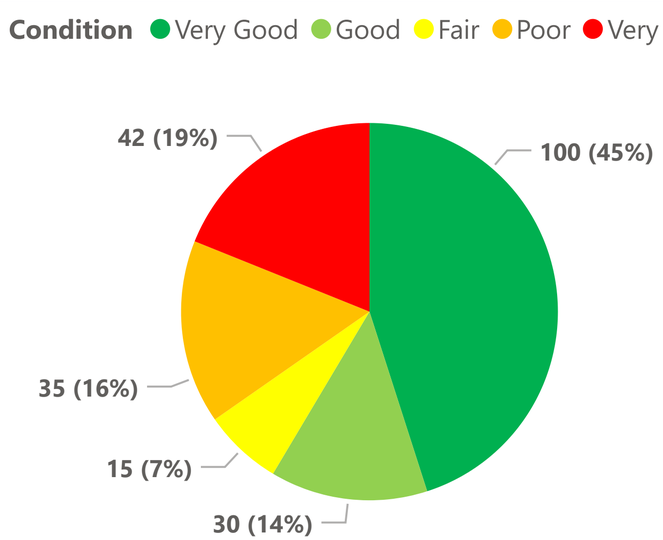
222
Asset Count

$22.5M
Replacement Value

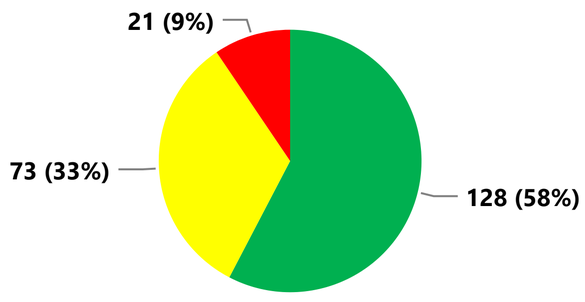
Replacement Value by Asset Condition



Assets by Asset Condition

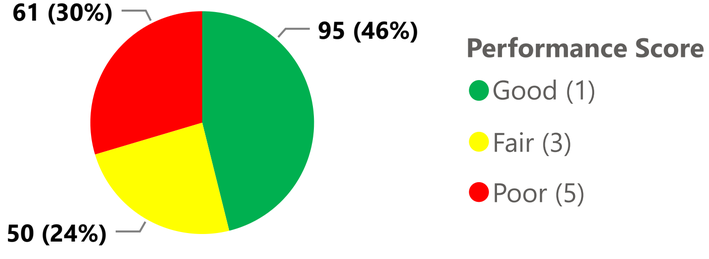


Percentage of Assets by Risk Rating



9.0
Average Asset Risk Rating

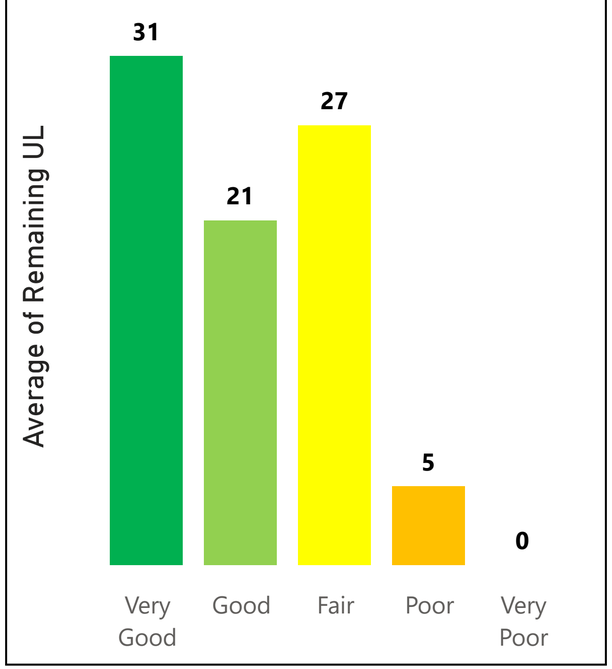
Assets by Asset Performance



2.7
Average Performance Rating

23
Incidence of O&M Intervention

Average Asset Remaining Useful Life by Asset Condition



Lake Huron
Primary Water Supply System

2023 State of the Infrastructure Asset Card

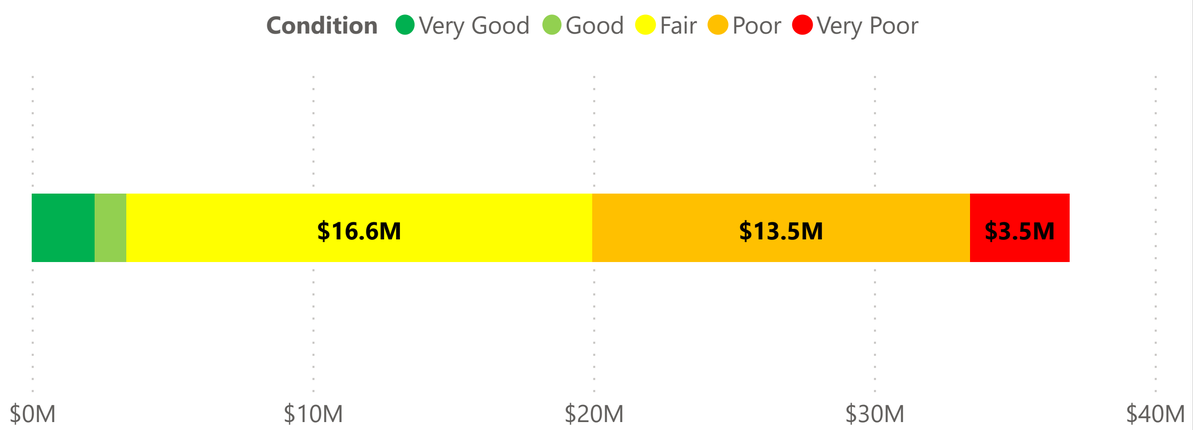
Process Area

- Raw Water Handling
- Pre-Treatment
- Filtration, Disinfection, and HLP
- Residual Management
- General Site, Building Services, Fl...
- Primary Power
- Primary - Reservoir and Pumping ...
- Primary - Pipelines and Chambers
- Secondary - Reservoir and Pumpi...
- Secondary - Pipes and Chambers

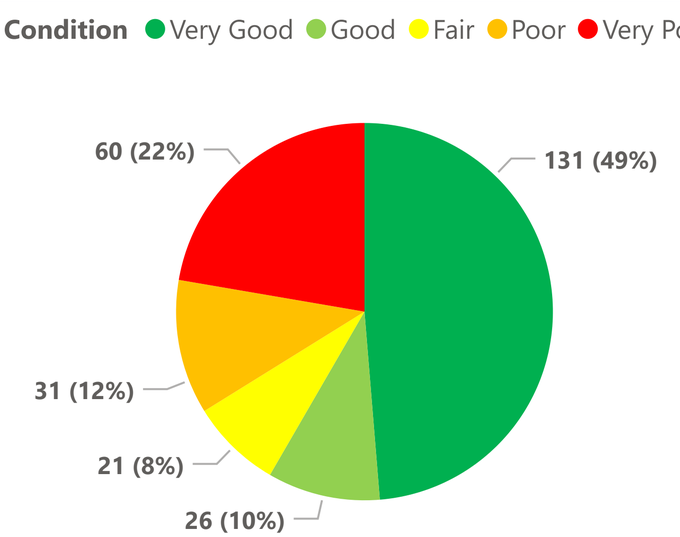
269
Asset Count

$37.0M
Replacement Value

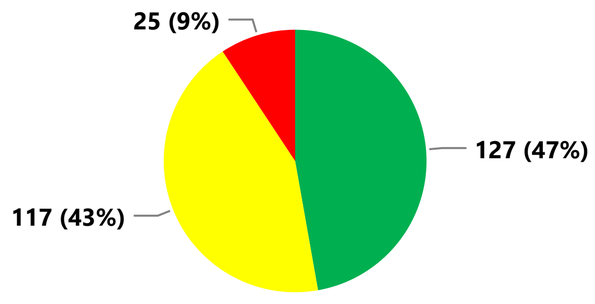
Replacement Value by Asset Condition



Assets by Asset Condition

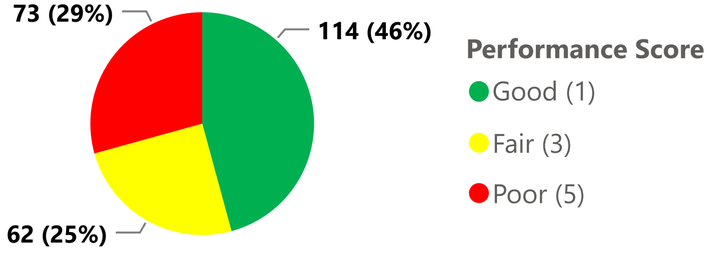


Percentage of Assets by Risk Rating



9.6
Average Asset Risk Rating

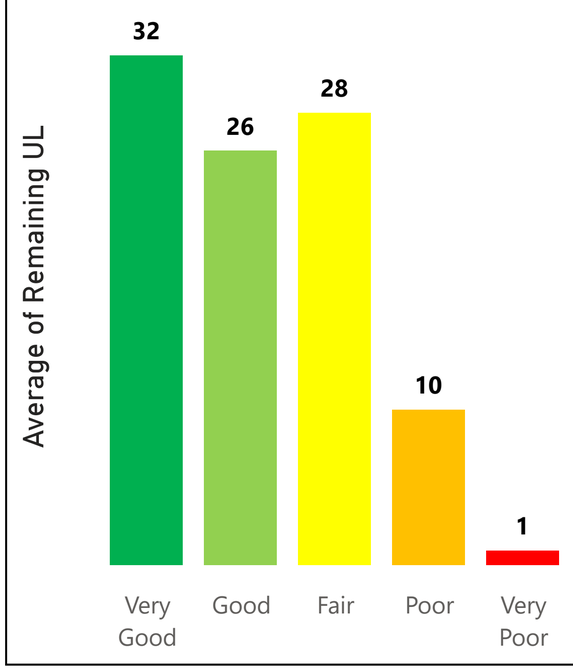
Assets by Asset Performance



2.7
Average Performance Rating

48
Incidence of O&M Intervention

Average Asset Remaining Useful Life by Asset Condition



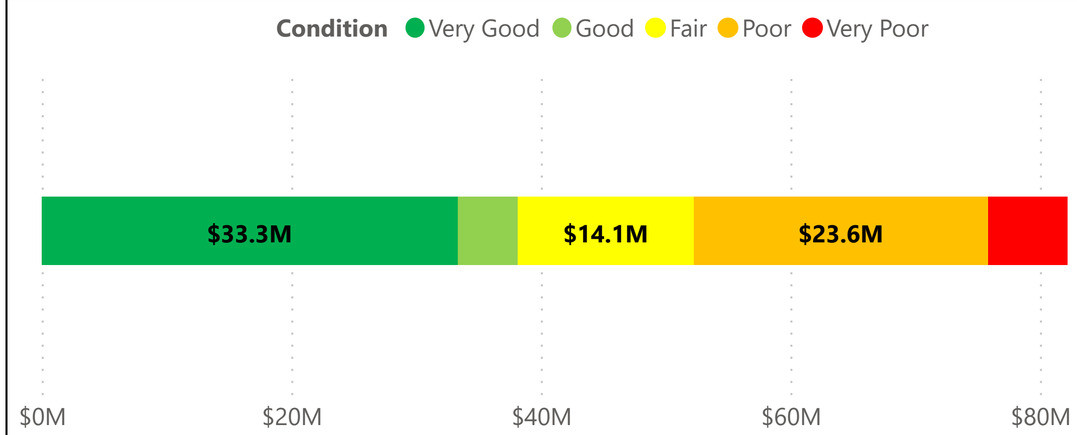
Lake Huron
Primary Water Supply System

Process Area

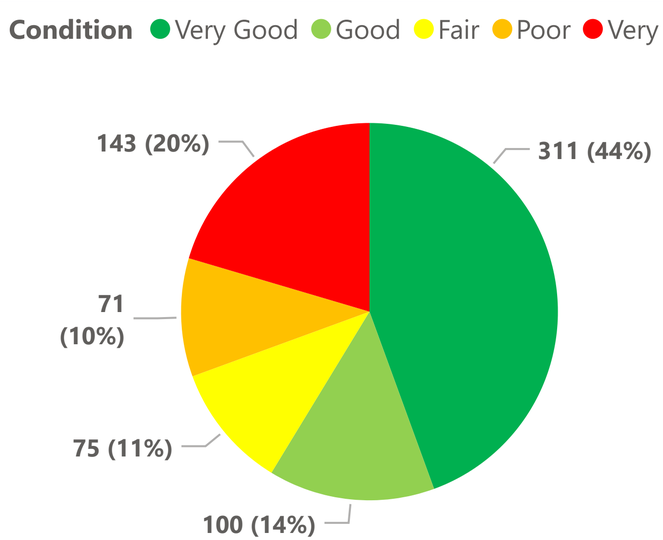
- Raw Water Handling
- Pre-Treatment
- Filtration, Disinfection, and HLP
- Residual Management
- General Site, Building Services, Fl...
- Primary Power
- Primary - Reservoir and Pumping ...
- Primary - Pipelines and Chambers
- Secondary - Reservoir and Pumpi...
- Secondary - Pipes and Chambers

2023 State of the Infrastructure Asset Card

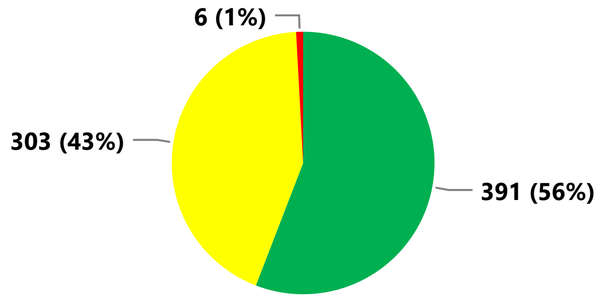
Replacement Value by Asset Condition



Assets by Asset Condition

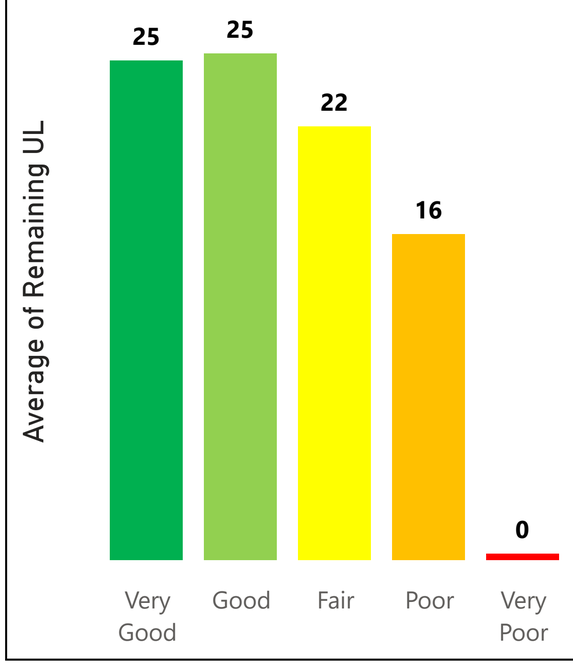


Percentage of Assets by Risk Rating



8.4
Average Asset Risk Rating

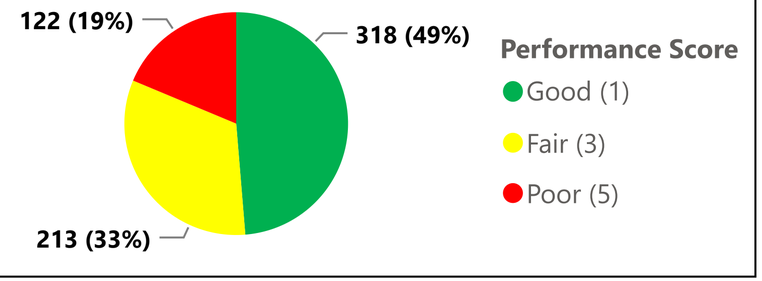
Average Asset Remaining Useful Life by Asset Condition



700
Asset Count

$82.2M
Replacement Value

Assets by Asset Performance



2.4
Average Performance Rating

187
Incidence of O&M Intervention

Lake Huron
Primary Water Supply System

2023 State of the Infrastructure Asset Card

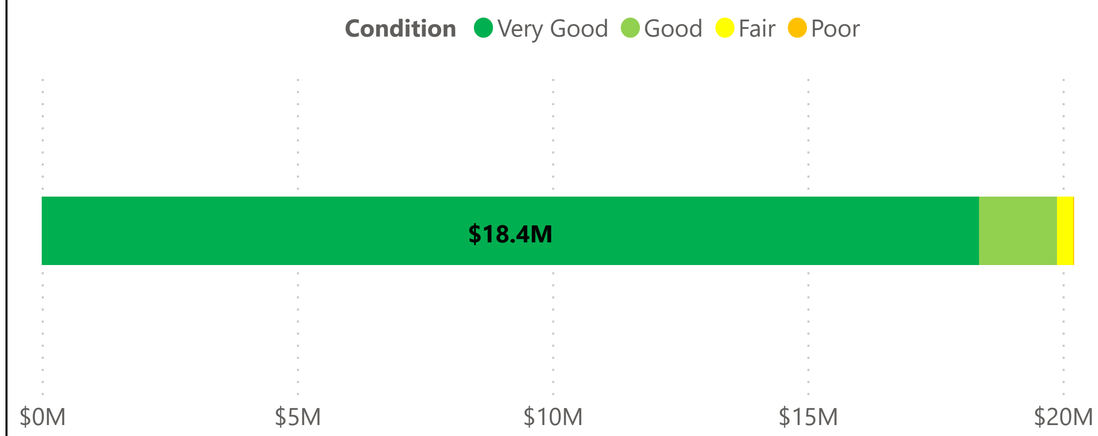
Process Area

- Raw Water Handling
- Pre-Treatment
- Filtration, Disinfection, and HLP
- Residual Management
- General Site, Building Services, Fl...
- Primary Power
- Primary - Reservoir and Pumping ...
- Primary - Pipelines and Chambers
- Secondary - Reservoir and Pumpi...
- Secondary - Pipes and Chambers

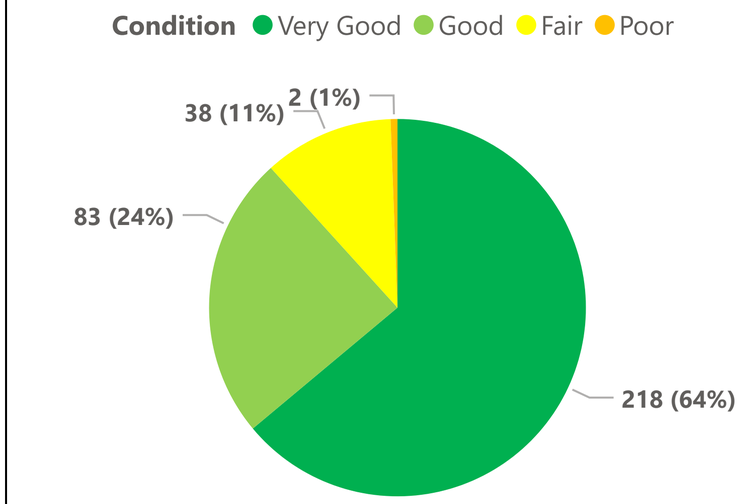
341
Asset Count

$20.2M
Replacement Value

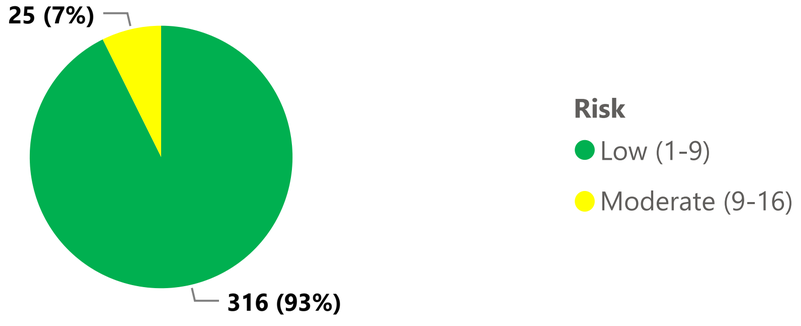
Replacement Value by Asset Condition



Assets by Asset Condition

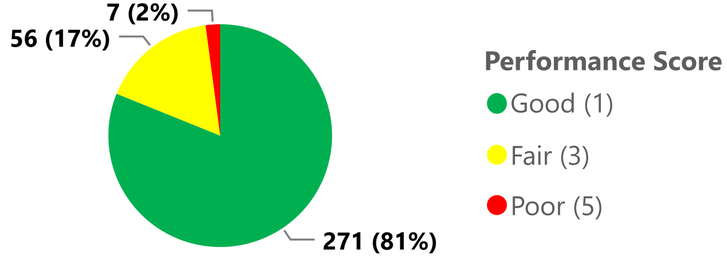


Percentage of Assets by Risk Rating



5.7
Average Asset Risk Rating

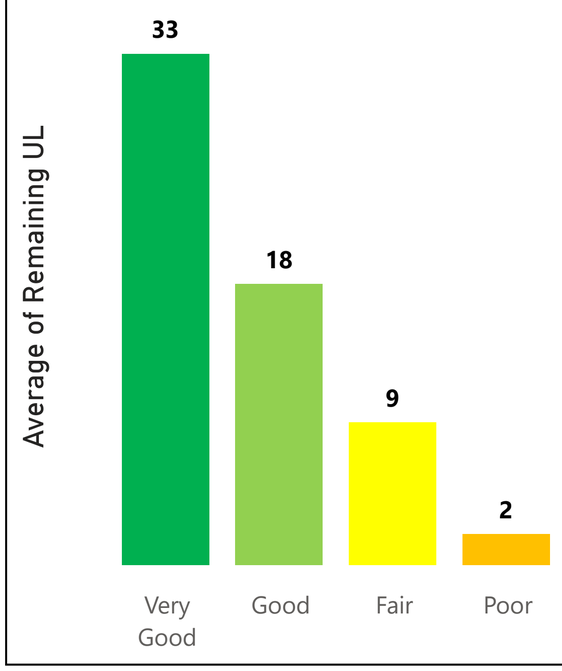
Assets by Asset Performance



1.4
Average Performance Rating

100
Incidence of O&M Intervention

Average Asset Remaining Useful Life by Asset Condition



Lake Huron
Primary Water Supply System

2023 State of the Infrastructure Asset Card

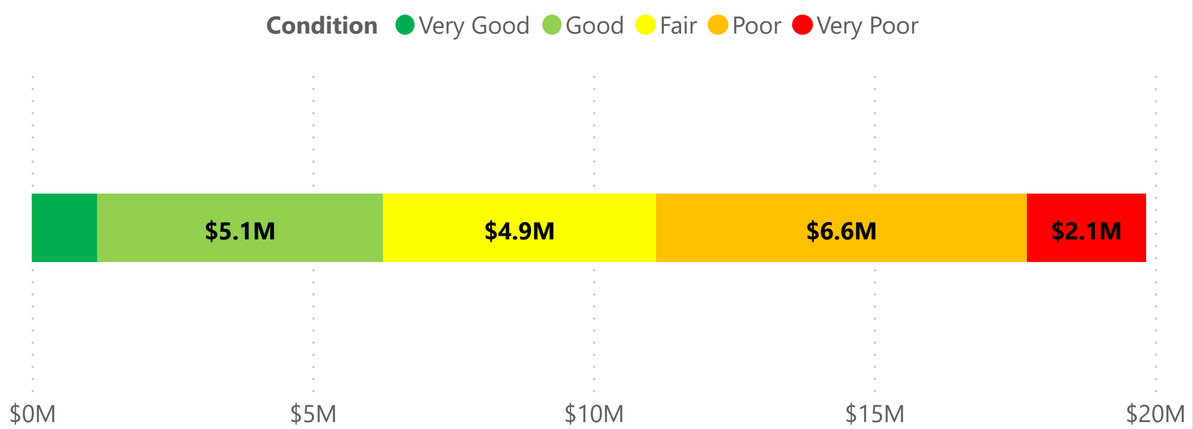
Process Area

- Raw Water Handling
- Pre-Treatment
- Filtration, Disinfection, and HLP
- Residual Management
- General Site, Building Services, Fl...
- Primary Power
- Primary - Reservoir and Pumping ...
- Primary - Pipelines and Chambers
- Secondary - Reservoir and Pumpi...
- Secondary - Pipes and Chambers

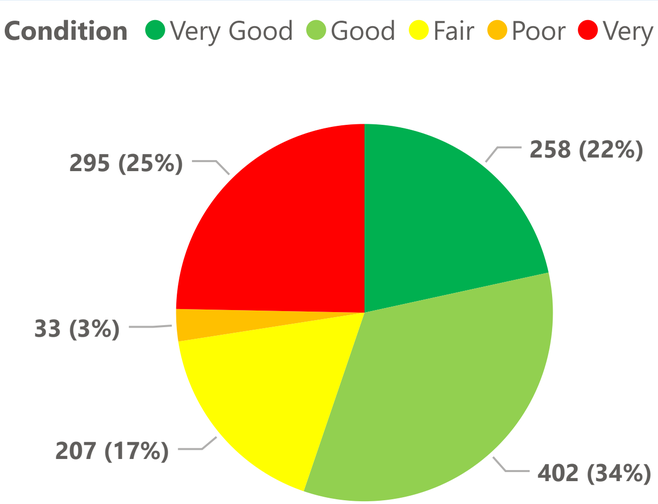
1195
Asset Count

$19.8M
Replacement Value

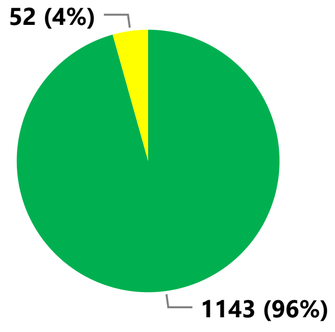
Replacement Value by Asset Condition

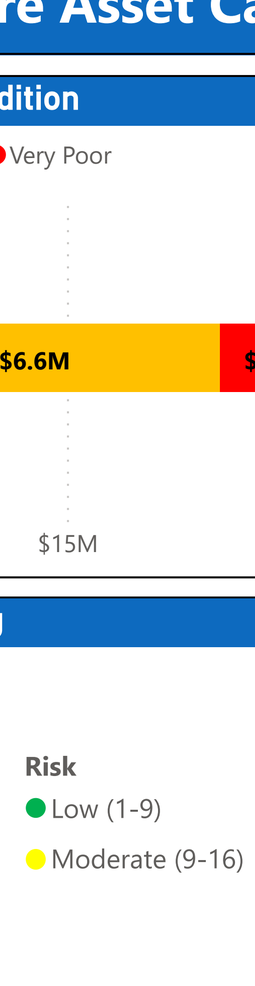


Assets by Asset Condition



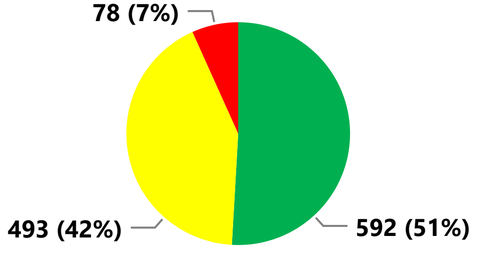
Percentage of Assets by Risk Rating

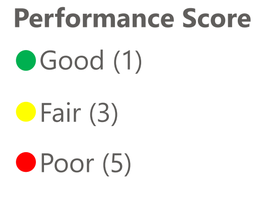




6.3
Average Asset Risk Rating

Assets by Asset Performance

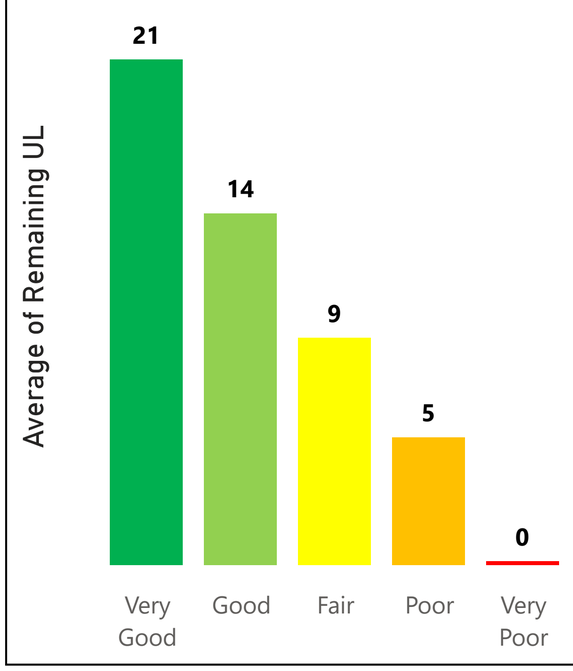




2.1
Average Performance Rating

165
Incidence of O&M Intervention

Average Asset Remaining Useful Life by Asset Condition



Lake Huron
Primary Water Supply System

2023 State of the Infrastructure Asset Card

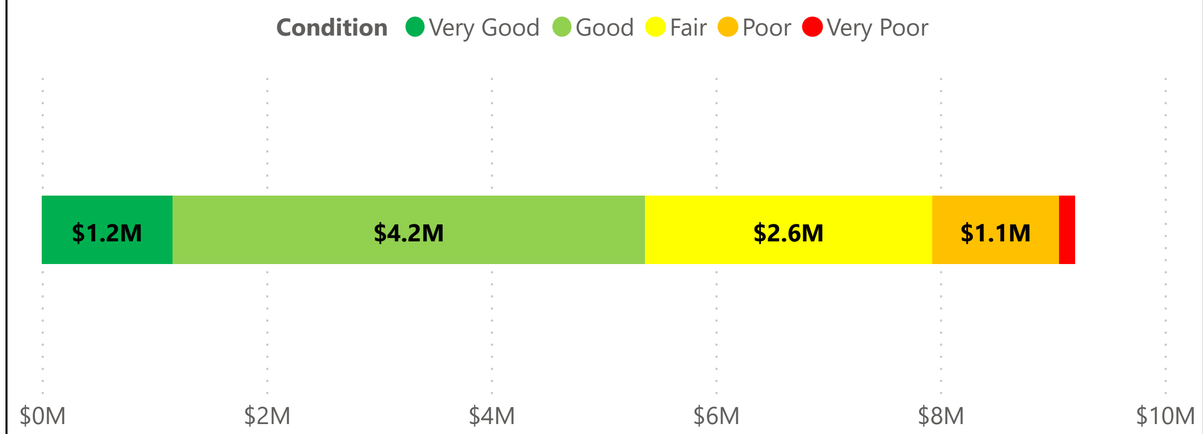
Process Area

- Raw Water Handling
- Pre-Treatment
- Filtration, Disinfection, and HLP
- Residual Management
- General Site, Building Services, Fl...
- Primary Power
- Primary - Reservoir and Pumping ...
- Primary - Pipelines and Chambers
- Secondary - Reservoir and Pumpi...
- Secondary - Pipes and Chambers

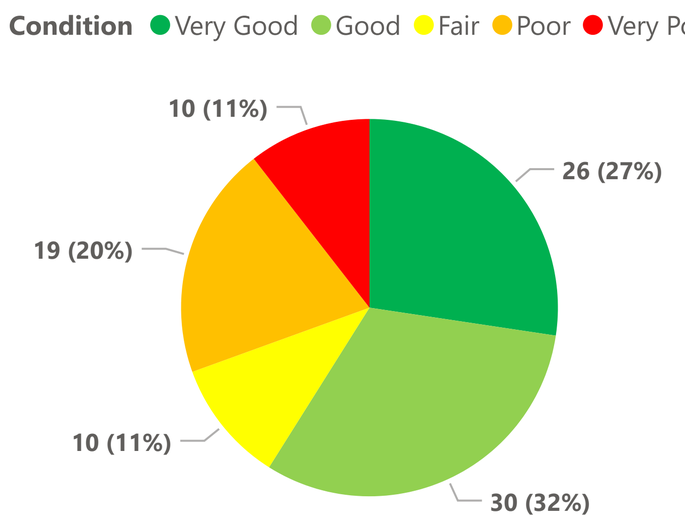
95
Asset Count

$9.2M
Replacement Value

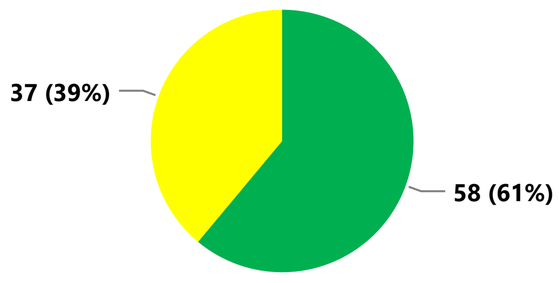
Replacement Value by Asset Condition



Assets by Asset Condition

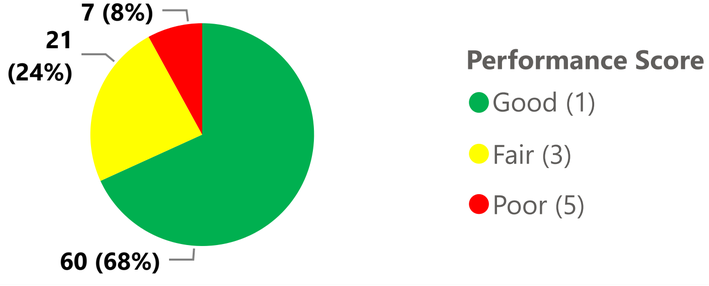


Percentage of Assets by Risk Rating



8.5
Average Asset Risk Rating

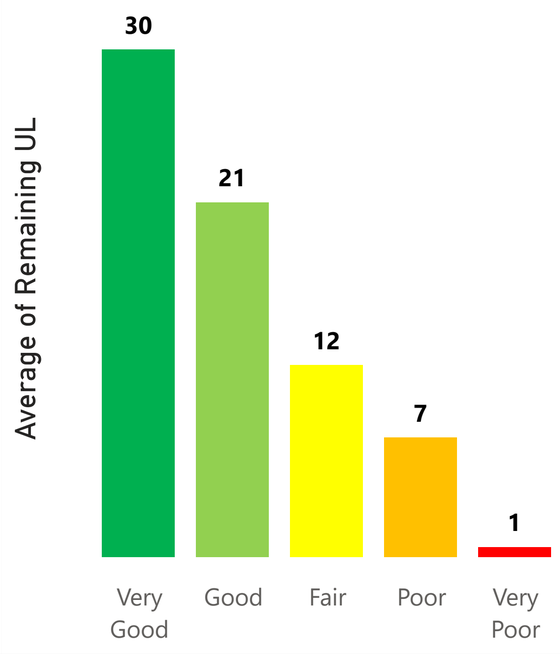
Assets by Asset Performance



1.8
Average Performance Rating

6
Incidence of O&M Intervention

Average Asset Remaining Useful Life by Asset Condition



2023 State of the Infrastructure Asset Card

Lake Huron
Primary Water Supply System

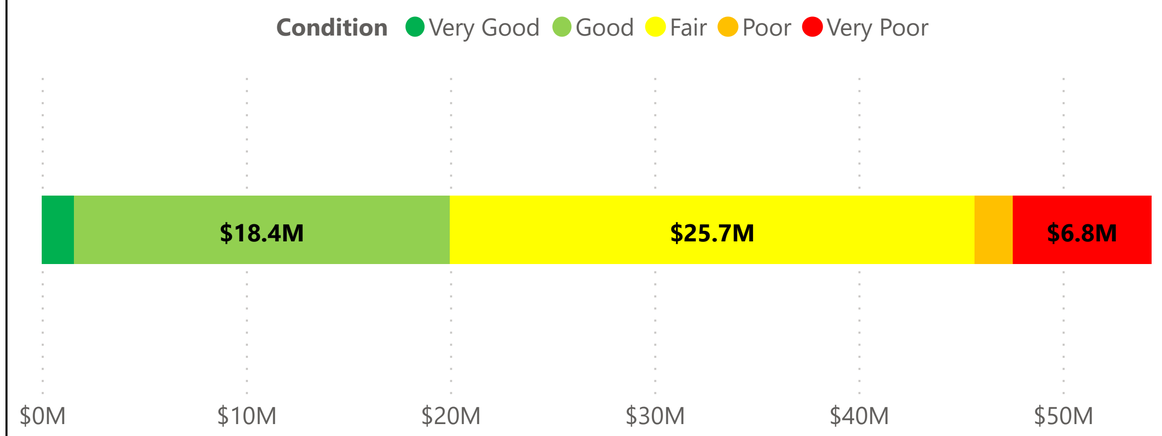
Process Area

- Raw Water Handling
- Pre-Treatment
- Filtration, Disinfection, and HLP
- Residual Management
- General Site, Building Services, Fl...
- Primary Power
- Primary - Reservoir and Pumping ...
- Primary - Pipelines and Chambers
- Secondary - Reservoir and Pumpi...
- Secondary - Pipes and Chambers

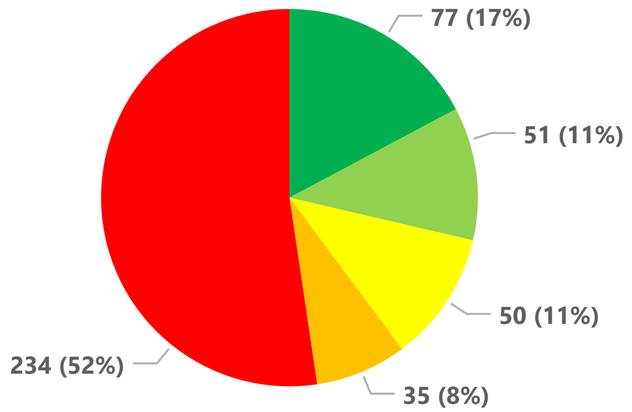
447
Asset Count

$54.4M
Replacement Value

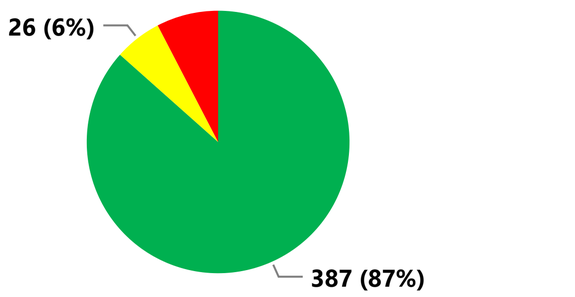
Replacement Value by Asset Condition



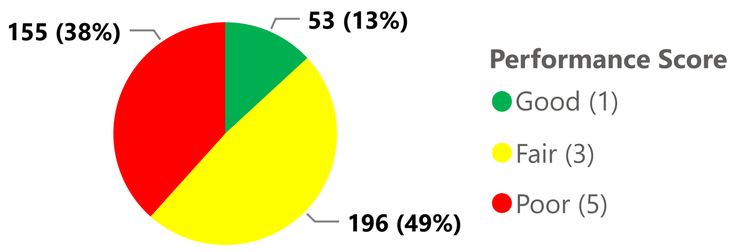
Assets by Asset Condition



Percentage of Assets by Risk Rating



Assets by Asset Performance

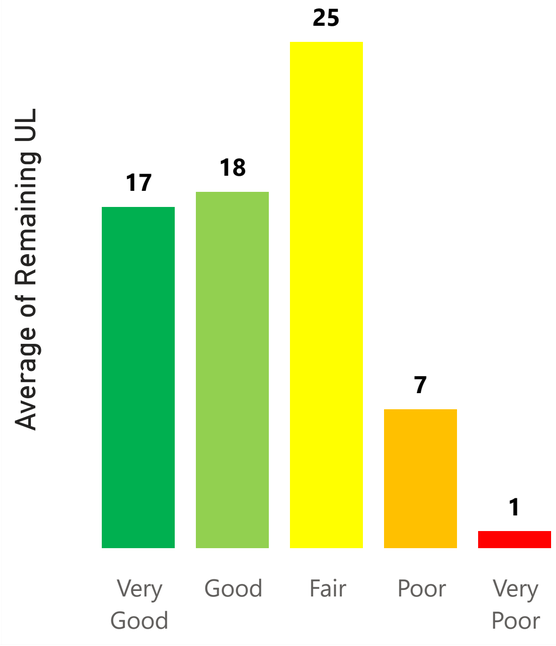


3.5
Average Performance Rating

7.2
Average Asset Risk Rating

96
Incidence of O&M Intervention

Average Asset Remaining Useful Life by Asset Condition



Lake Huron
Primary Water Supply System

2023 State of the Infrastructure Asset Card

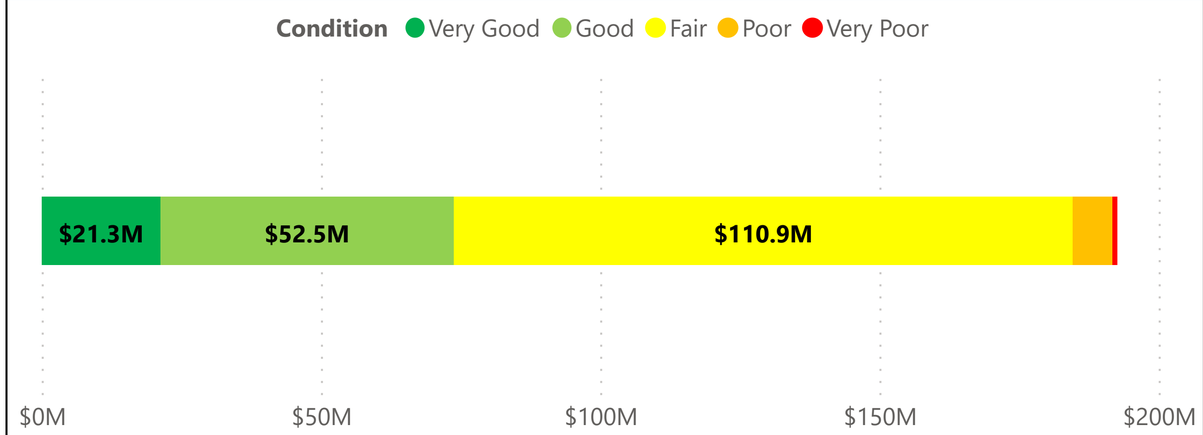
Process Area

- Raw Water Handling
- Pre-Treatment
- Filtration, Disinfection, and HLP
- Residual Management
- General Site, Building Services, Fl...
- Primary Power
- Primary - Reservoir and Pumping ...
- Primary - Pipelines and Chambers
- Secondary - Reservoir and Pumpi...
- Secondary - Pipes and Chambers

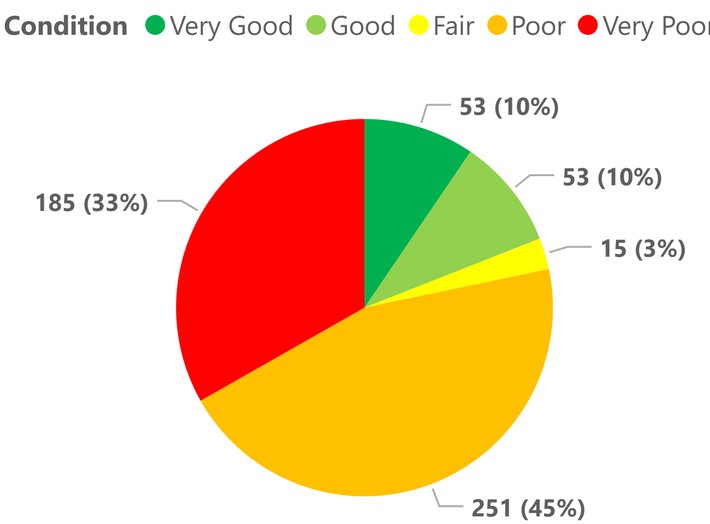
557
Asset Count

$192.5M
Replacement Value

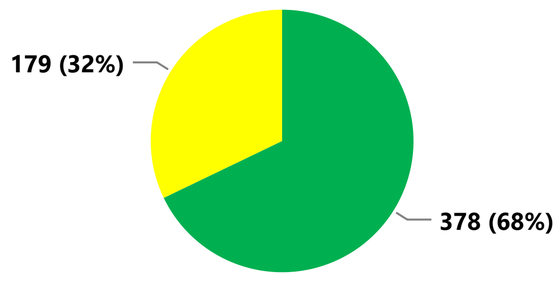
Replacement Value by Asset Condition



Assets by Asset Condition

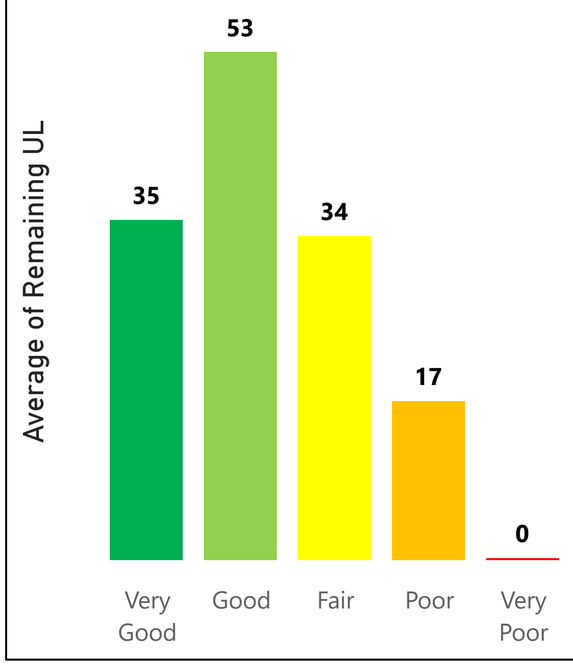


Percentage of Assets by Risk Rating

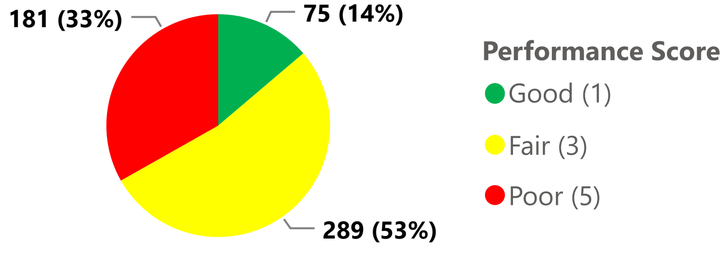


8.3
Average Asset Risk Rating

Average Asset Remaining Useful Life by Asset Condition



Assets by Asset Performance



3.4
Average Performance Rating

45
Incidence of O&M Intervention

Lake Huron
Primary Water Supply System

2023 State of the Infrastructure Asset Card

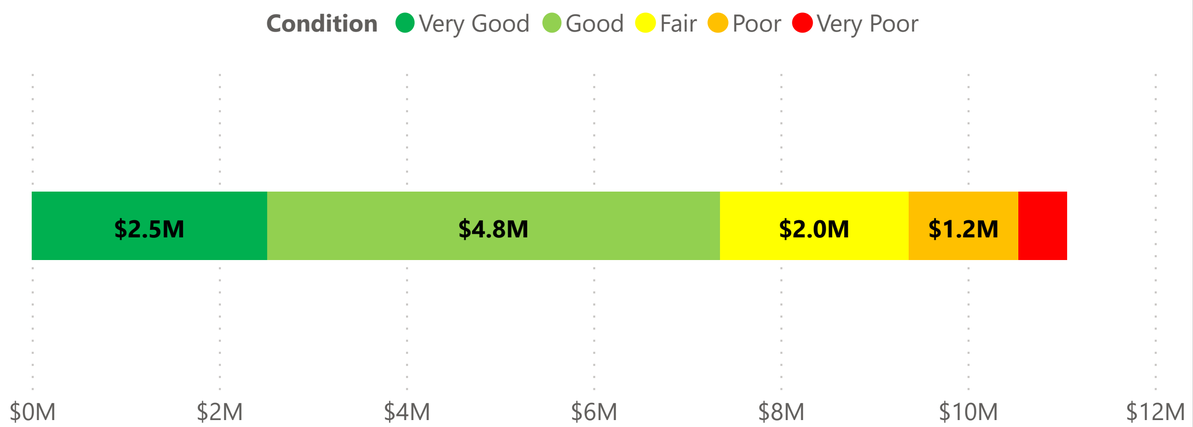
Process Area

- Raw Water Handling
- Pre-Treatment
- Filtration, Disinfection, and HLP
- Residual Management
- General Site, Building Services, Fl...
- Primary Power
- Primary - Reservoir and Pumping ...
- Primary - Pipelines and Chambers
- Secondary - Reservoir and Pumpi...
- Secondary - Pipes and Chambers

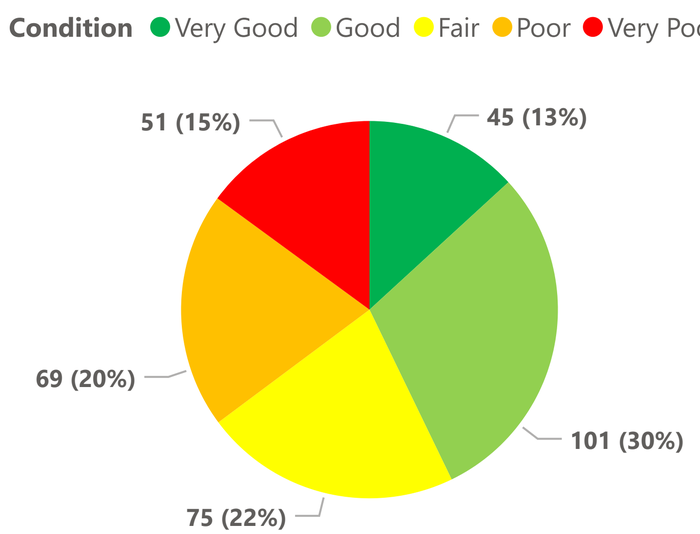
341
Asset Count

$11.1M
Replacement Value

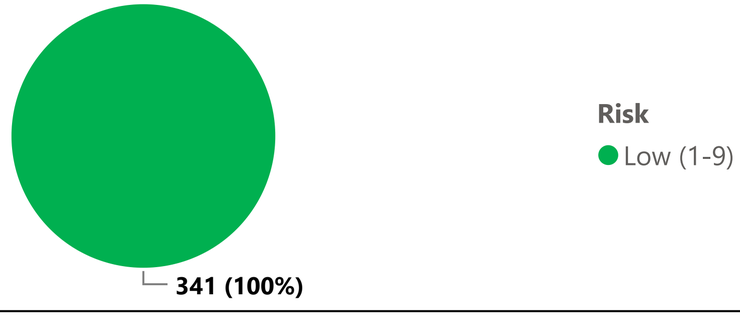
Replacement Value by Asset Condition



Assets by Asset Condition

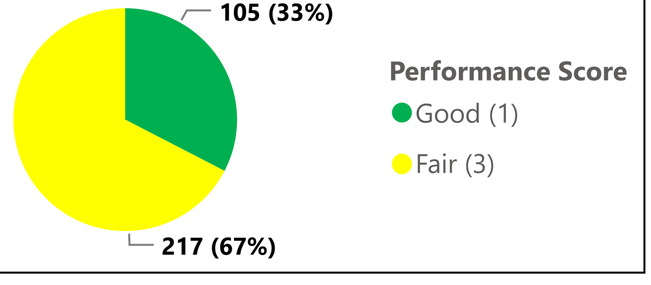


Percentage of Assets by Risk Rating



4.2
Average Asset Risk Rating

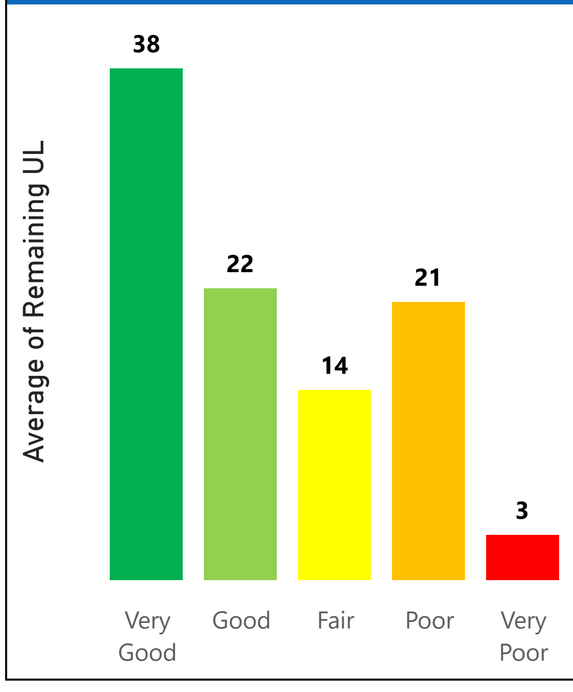
Assets by Asset Performance



2.3
Average Performance Rating

67
Incidence of O&M Intervention

Average Asset Remaining Useful Life by Asset Condition



Lake Huron
Primary Water Supply System

2023 State of the Infrastructure Asset Card

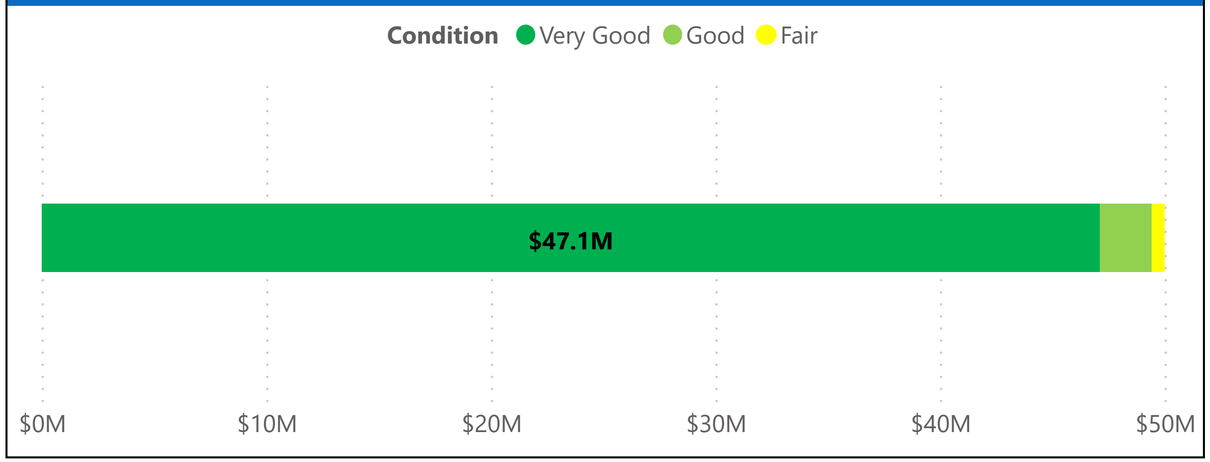
Process Area

- Raw Water Handling
- Pre-Treatment
- Filtration, Disinfection, and HLP
- Residual Management
- General Site, Building Services, Fl...
- Primary Power
- Primary - Reservoir and Pumping ...
- Primary - Pipelines and Chambers
- Secondary - Reservoir and Pumpi...
- Secondary - Pipes and Chambers

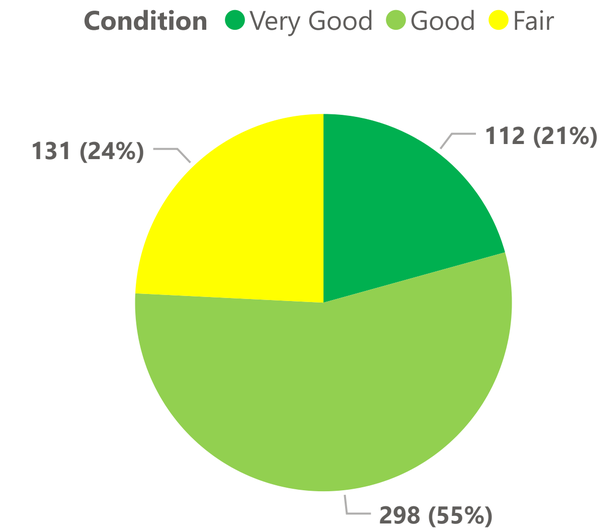
541
Asset Count

$50.0M
Replacement Value

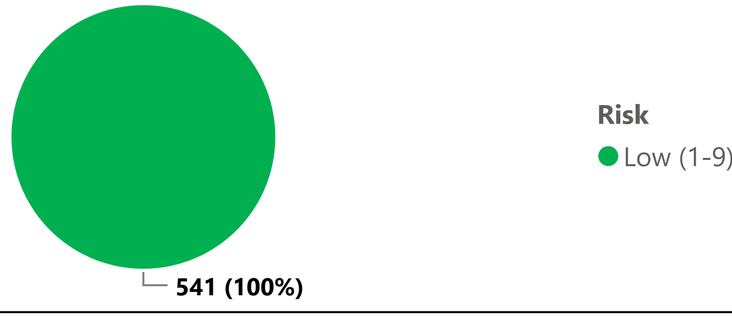
Replacement Value by Asset Condition



Assets by Asset Condition

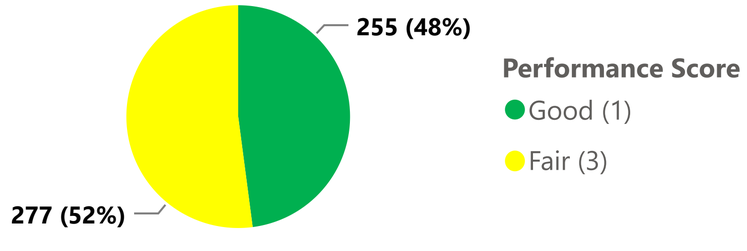


Percentage of Assets by Risk Rating



5.2
Average Asset Risk Rating

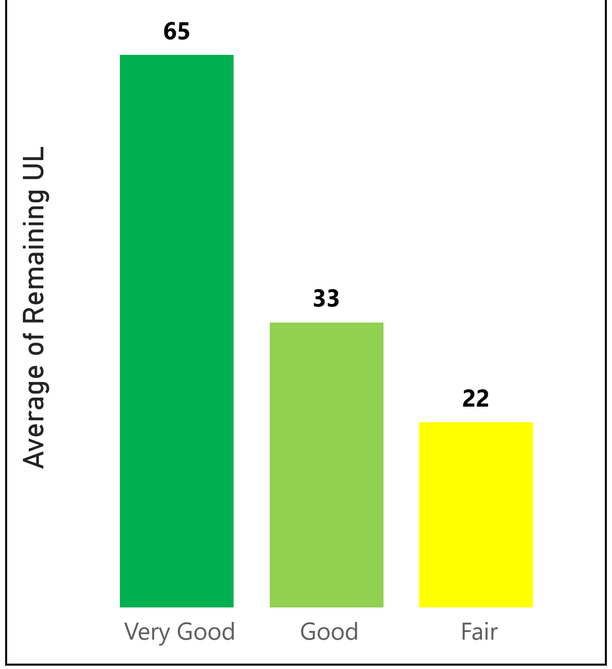
Assets by Asset Performance



2.0
Average Performance Rating

18
Incidence of O&M Intervention

Average Asset Remaining Useful Life by Asset Condition



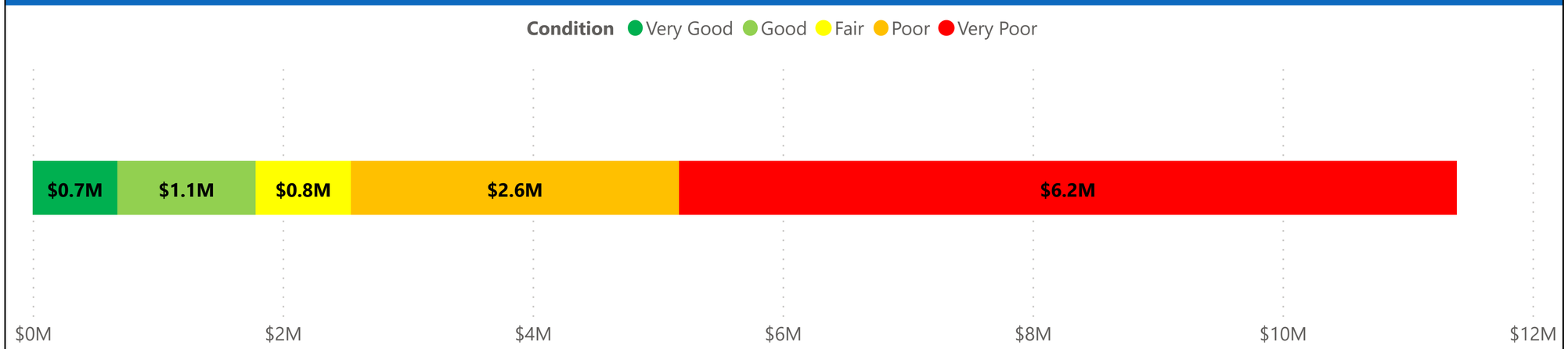
Lake Huron
Primary Water Supply System

Process Area

Digital Technology

2023 State of the Infrastructure Asset Card

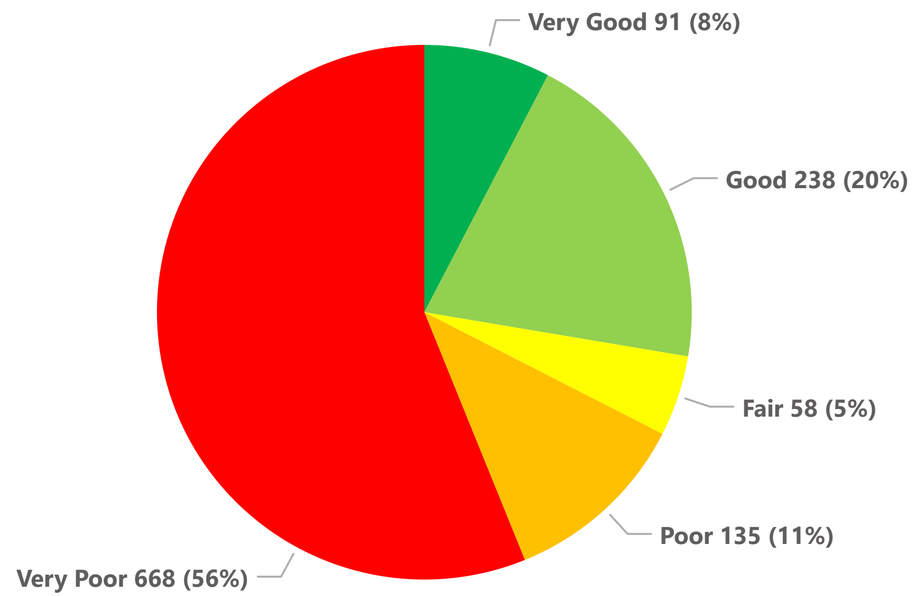
Replacement Value by Asset Condition



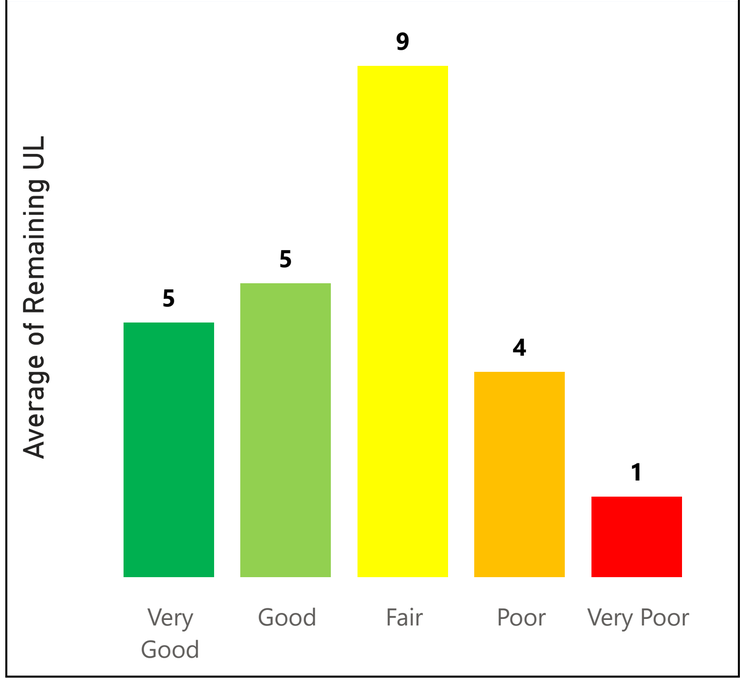
1190
Asset Count

$11.4M
Replacement Value

Assets by Asset Condition



Average Asset Remaining Useful Life by Asset Condition



Lake Huron
Primary Water Supply System

Board of Management Report

Subject: Asset Management – 2023 Levels of Service Report

Overview:

- Levels of service represent the utility's actual service performance compared to our targets as set by the utility and measured on a continuous basis.
- Our Levels of Service framework has established measures and targets across three parameters: Quality, Availability/Reliability, and Environmental Acceptability.
- Any gaps identified in being able to meet a level of service (measured service performance below target value) could become a priority for action.
- Used in the utility's decision-making process for operational activities and asset investments.
- This report is a companion report and related to the State of the Infrastructure Report.

Recommendation

That the Board of Management for the Lake Huron Primary Water Supply System **RECEIVE** this report with regard to the 2023 Levels of Service for information.

Previous and Related Reports

Oct 7, 2021 Asset Management Policy and Asset Management Plan Update

Mar 3, 2022 Asset Management Plan – Levels of Service Framework

Oct 6, 2022 2022 Asset Management Plan Update Project Completion

Jun 1, 2023 Asset Management – 2023 State of the Infrastructure Report

Background

At the March 3, 2022, Board meeting the utility's updated asset management levels of service (LOS) framework, developed as part of the Asset Management Plan update, was presented to, and endorsed by the Board. That update was intended to bring the LOS framework into alignment with global best practice standards for Asset Management such as ISO (International Organization for Standardization) 55000 standard, and established customer and technical LOS measures and targets.

The guiding principles from the Asset Management 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.

Discussion

As defined in the ISO 55000 standard, Level of Service is the parameter or a combination of parameters that reflect the social, political, environmental, and economic outcomes that the organization delivers. The parameters can include safety, customer satisfaction, quality, quantity, capacity, reliability, responsiveness, environmental acceptability, cost, and availability.

The utility's level of service framework encompasses three parameters and associated objectives that reflect the outcomes that the utility strives to achieve:

Quality:

- to provide drinking water quality that meets or is superior to regulatory requirements.

Availability/Reliability:

- to deliver water to customers when demanded
- to provide resilient water production
- to provide safe and secure operations

Environmental Acceptability:

- to minimize water system impacts on the environment
- to detect changes in source water quality and environmental impacts that affect the water system

Each parameter has a defined set of Customer and Technical levels of service and their respective target metric. A Customer LOS is defined as what service the customer receives while a Technical LOS is defined as what service the utility delivers.

The purpose of setting targets for LOS is to clearly define the objectives of the utility in the provision of treated drinking water to the benefiting municipalities. Levels of service are the service performance targets for the utility and are used in the utility's decision-making process for operational activities and asset investments. These targets are

measured on a regular basis, where any gaps identified in being able to meet a level of service could become a priority for action.

Across the three LOS framework parameters the utility has thirteen (13) customer levels of service and thirty-two (32) technical levels of service. Since the 2022 endorsement of both the LOS framework and the Asset Management Plan, Board staff have developed a level of service monitoring program that actively tracks and reports on fifteen (15) of the established technical LOS. Board staff will be implementing the tracking and reporting mechanisms for the remaining technical LOS metrics as our levels of service monitoring program matures. It is important to note that data for most of these 'outstanding' technical LOS metrics is presently being collected through various means, and the data simply has not been formally rolled-up into our level of service monitoring program to date.

The Lake Huron Primary Water Supply System customer and technical LOS framework is attached to this report in **Appendix A.** For the Board's information and reference, we have included in **Appendix B** our LOS monitoring program internal dashboard presenting our data tracking of the technical levels of service metrics. As our LOS monitoring program continues to mature all tracked levels of service metrics will be incorporated into our LOS dashboard to facilitate ease of analyzing the data and identifying any gaps in meeting a level of service.

It is important to note that data collected and reported for the purposes of this level of service monitoring program is solely related to the utility's asset management program. The level of service data is not intended for or representative of any legislated compliance or other regulatory reporting.

The annual report on state of the infrastructure is also being presented at the June 2023 Board meeting and is intended to be read in conjunction with this LOS report.

Conclusion

The Lake Huron Primary Water Supply System has a level of service framework and Board staff are actively implementing a level of service monitoring program. Presently 15 of 32 technical levels of service are actively being tracked and reported on, with the others planned to be incorporated as our levels of service monitoring program matures.

The utility's state of the infrastructure report will be presented to the Board as a standalone report intended to be read in conjunction with this levels of service report.

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

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

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

Attachments: Appendix A – Customer & Technical LOS with Targets
Appendix B – LOS Dashboard

APPENDIX A – Level of Service (Quality)

Objective	Customer Level of Service	Technical Level of Service	Target	Measure	2019	2020	2021	2022	2023
Provide drinking water quality that meets or is superior to regulatory requirements	Meet target of no adverse water quality incidents	# of adverse water quality incidents	0		**1**	**1**	**1**	**0**	
	Satisfy MECP regulatory compliance requirements	# of non-compliances identified in MECP inspection reports	0		**2**	**0**	**0**	**3**	
		MECP Inspection score	100%		**93%**	**100%**	**100%**	**91%**	
	Satisfy Superior Water Performance Criteria	# of superior water performance criteria met (Schedule B)	9 of 9						
	Meet Plant Maintenance/ Performance Requirements	Planned maintenance completed in month scheduled	100%						

Objective	Customer Level of Service	Technical Level of Service	Target	Measure	2019	2020	2021	2022	2023
		Preventative maintenance covered by Standard Operating Procedure (SOP) completed	100%						
		Condition of critical assets maintained at good or very good	100%						
		Chemical supply availability	100%						

APPENDIX A – Level of Service (Availability / Reliability)

Objective(s)	Customer Level of Service	Technical Level of Service	Target	Measure	2019	2020	2021	2022	2023
Deliver water to customers when demanded	Measurable flow when customer connection is open	# of service interruptions where duration exceeds commitments of the Water Supply Agreements	0						
		% of time reservoirs are above low level	100%						
Water Production is Resilient	Chemical working volume greater than demand	# inventory days > delivery period	100%						
	Power supply greater than peak demand	Peak energy usage < rated capacity	100%						
	Assets operate with % reserve capacity	Peak hour production < rated capacity + emergency strategic allowance by %	Less Than 100%	Average max day (@85% of plant rated capacity)	**50.1%**	**53.6%**	**54.4%**	**54.9%**	

				Peak max day (@85% of plant rated capacity)	**55.9%**	**70.2%**	**67.6%**	**65.2%**	
		Intake capacity is available (observed lake level within design min)	100%						
Safe and Secure Operations	Physical Security	# of physical security incidents	0						
	Computational (IT, IAS) Security	# of unpatched vulnerabilities of critical or high severity (based on CVSS ratings)	0						
		% of unidentified devices (not included in asset inventory)	0						
		# of cyber security incidents	0						

- *IT: Information Technology
- **IAS: Intelligent Autonomous Systems

APPENDIX A – Level of Service (Environmental Acceptability)

Objective(s)	Customer Level of Service	Technical Level of Service	Target	Measure	2019	2020	2021	2022	2023
Minimize water system impacts on the environment	Environmental sustainability best practices	Energy intensity (ekWh/m3)	= < baseline (TBD)	Energy + Diesel + Natural Gas	**0.743**	**0.757**	**0.710**	**0.713**	
		Energy efficiency (kWh/m3)	= < baseline (TBD)	Energy at WTP only	**0.655**	**0.658**	**0.668**	**0.661**	
		Total GHG emissions (Energy Use Only)	= < baseline (TBD)	Equivalent L of Gasoline; Energy at WTP only	**3.352M**	**3.521M**	**3.308M**	**3.415M**	
		Backup generator use (planned vs. unplanned)	100%	Monthly average	**84.1%**	**64.3%**	**87.7%**	**82.2%**	
		Chemical efficiency (kg chemicals/m3 treated)	= < baseline (TBD)	All Chemicals	**0.038**	**0.038**	**0.035**	**0.035**	
		% Non-Revenue Water Loss (treated water	5% or less	System Loss	**4.3%**	**4.1%**	**3.2%**	**2.5%**	

Objective(s)	Customer Level of Service	Technical Level of Service	Target	Measure	2019	2020	2021	2022	2023
		leaving plant vs. water billed)							
		% Process Water Loss (compare treated water leaving plant with raw water coming into plant)	5% or less	Plant Usage	**3.7%**	**3.2%**	**3.5%**	**3.3%**	
	Meet other regulatory compliance requirements	Chlorine residual in discharge water (meet allowable)	100%	Monthly Average <0.02mg/L					
		TSS Discharge (meet allowable)	100%	Monthly Average <25mg/L	**83%**	**100%**	**100%**	**83%**	
		# of reportable spills to Spills Action Centre	0		**2**	**0**	**0**	**0**	
		Solids landfilled from Residuals Management Facility (kg	= < baseline (TBD)					**62**	

Objective(s)	Customer Level of Service	Technical Level of Service	Target	Measure	2019	2020	2021	2022	2023
		solids landfilled/ML)							
		# of non-compliance in permit to take water reports	0	# days (@ max day) exceeding PTTW	**0**	**0**	**0**	**0**	
Detection of changes in source water quality and environmental impacts that affect the water system	Operations and services are continuous	# of incidents where source water quality is outside normal operating range (e.g., dissolved oxygen, turbidity, presence of cyanobacteria) (Note 1)	0						
		Progress on implementation of Climate Change Vulnerability Assessment projects	on schedule						

Note 1: This target relates to the asset LOS (i.e., system design) and early detection of any changes in source water quality is a leading indicator for asset management strategies, such as adjustments to Standard Operating Procedures (SOP) and/or upgrades to assets or processes.

APPENDIX B – Level of Service Dashboard

Elgin Area
Primary Water Supply System

Year
2019
2020
2021
2022
2023

91%
MECP Inspection Rating

3
MECP Non-Compliances

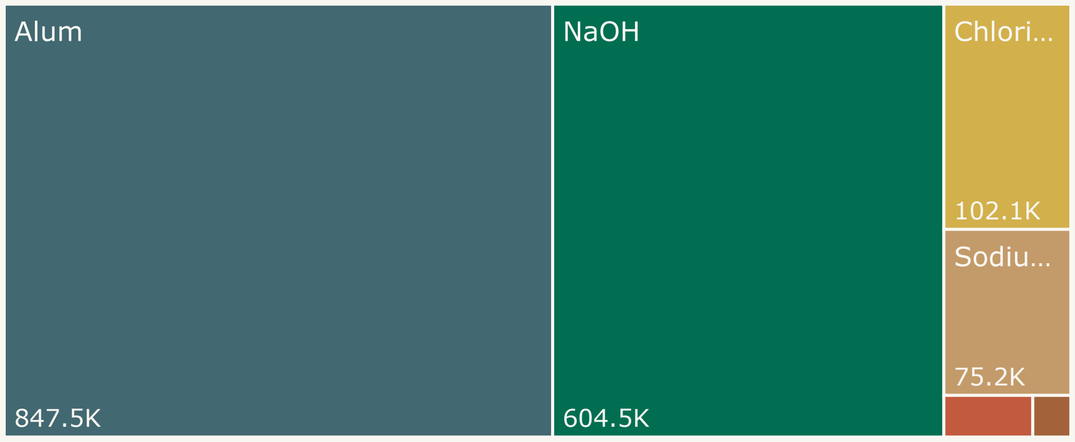
0
Adverse Water Quality Incidents

0
Spills Reported to SAC

48,531
Raw Water - Total (ML)

46,927
Treated Water - Total (ML)

Chemical Usage Breakdown

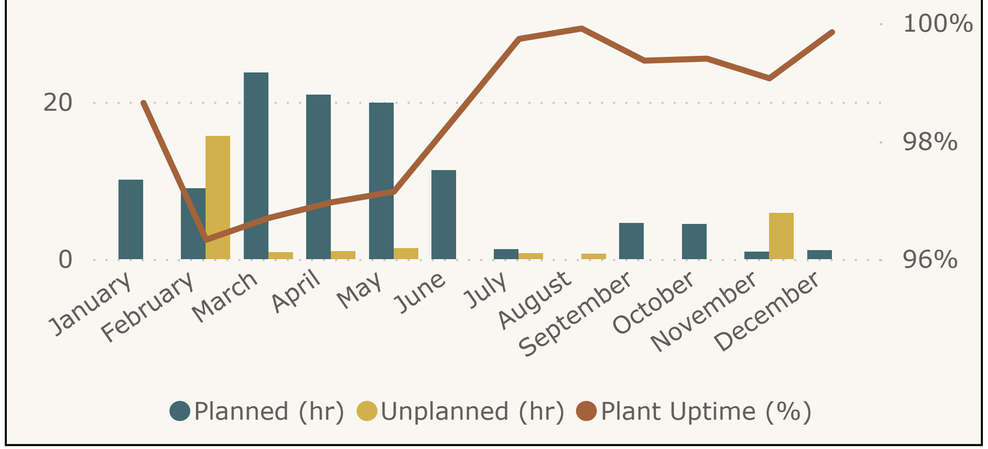


1.648M
Total Chemical (kg)

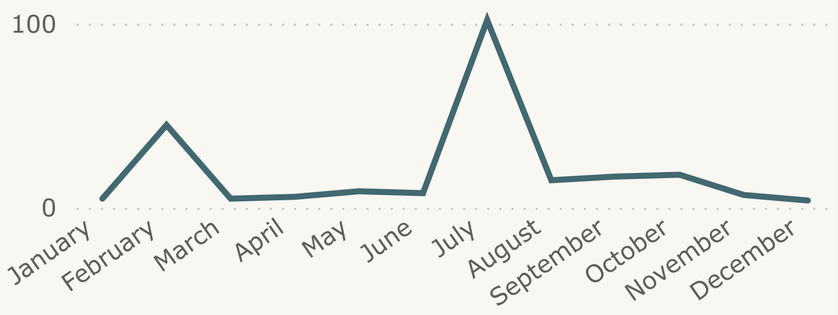
0.035
Chemical Efficiency (kg/m3)

Chemical Page →

Plant Up/Downtime



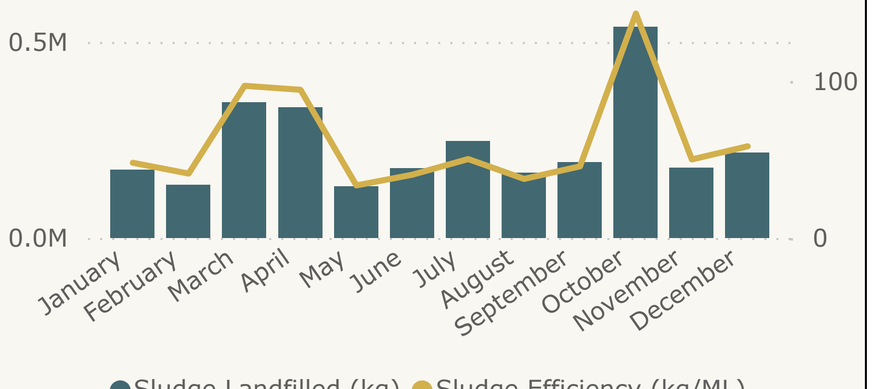
RMF Total Suspended Solids



20
Average TSS

2
TSS > 25mg/L

RMF Sludge Landfilled



62
Sludge Efficiency (kg/ML)

159
Sludge Landfilled (Loads)

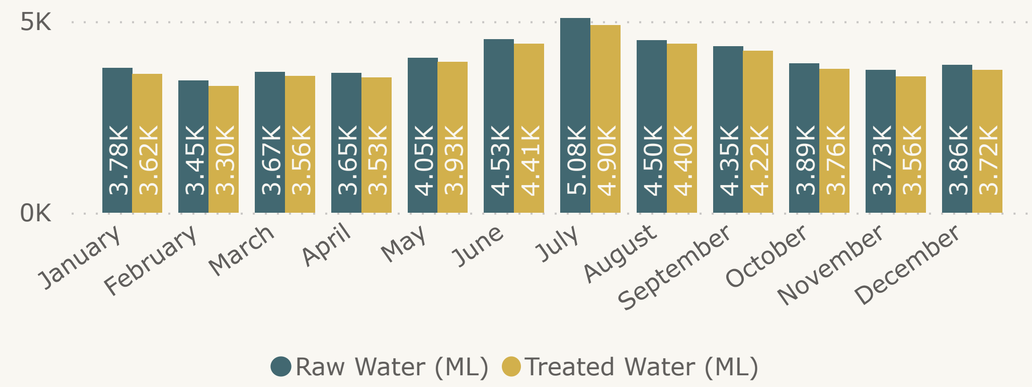
Elgin Area
Primary Water Supply System

Year
2019
2020
2021
2022
2023

48,531
Raw Water Total (ML)

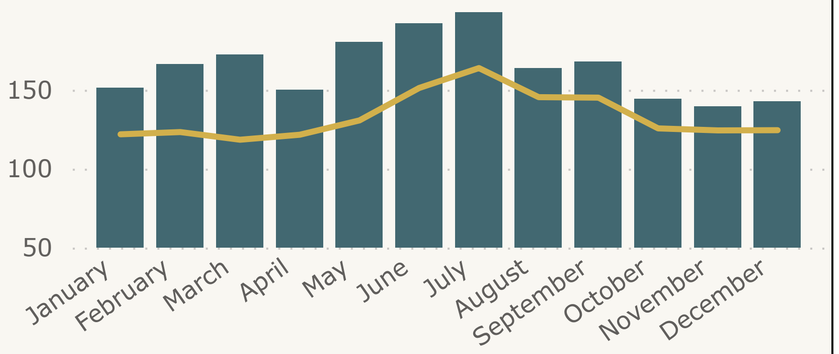
46,927
Treated Water Total (ML)

Water Consumption

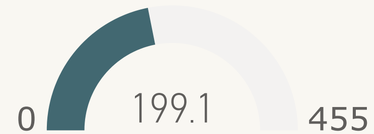


3.00%
Raw Water Total - Average % Change Over Previous Year

Raw Water (RW) Intake

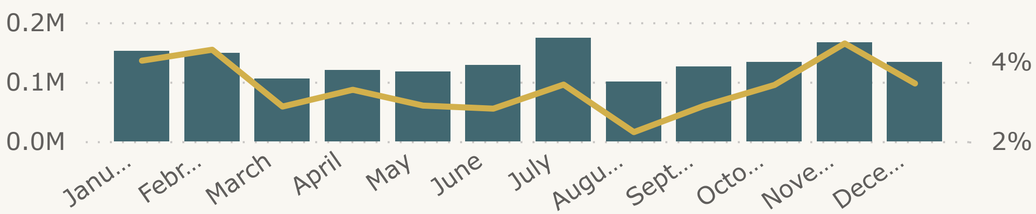


Raw Water PTTW Max. Day



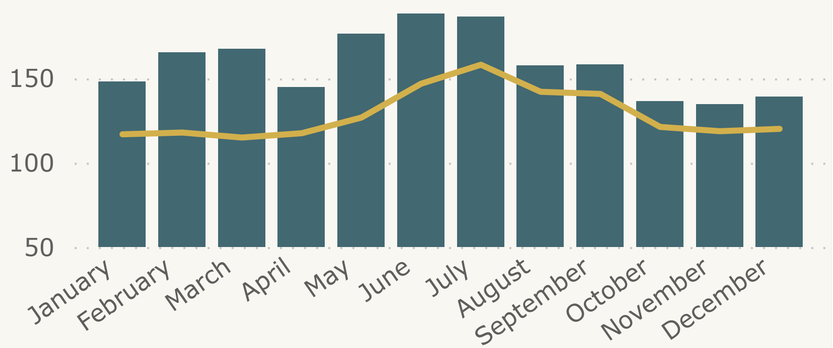
43.8%
RW Max. Day % PTTW

Process Water Loss

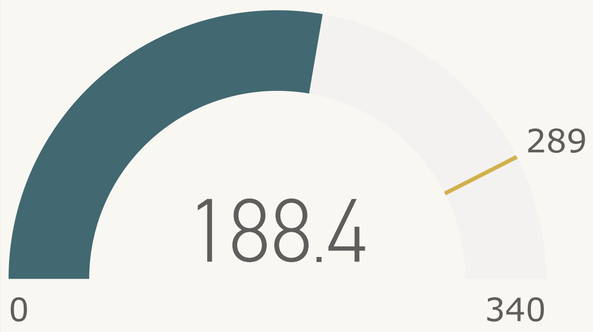


133.7K
Avg. Month Process Water Loss (m3)

Treated Water (TW) To Customer



Treated Water DWL Max. Day (85% Target)



54.9%
TW Avg. Max. Day % of 85% DWL

65.2%
TW Max. Day % of 85% DWL

3.11%
Treated Water Total - Average % Change Over Previous Year

3.3%
Average Process Water Loss

Financial

Elgin Area
Primary Water Supply System

Year
2019
2020
2021
2022
2023

30,934,961
Energy Consumption (kWh)

20539
Diesel (L)

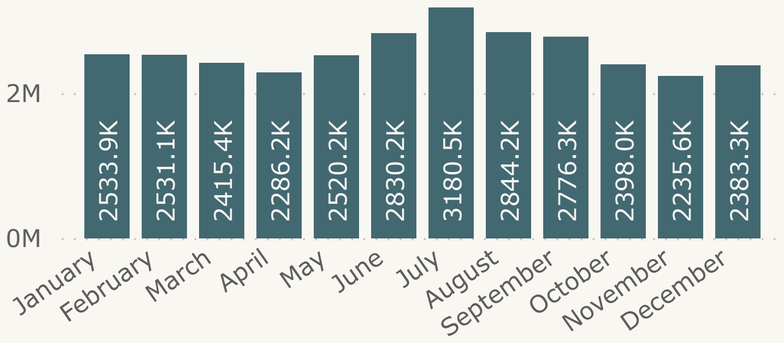
198.3K
Natural Gas (m3)

3.415M
GHG Equivalency (Litres of Gasoline)

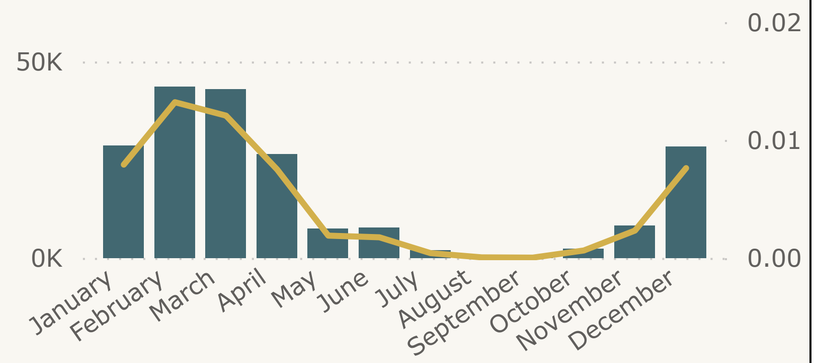
48,531
Raw Water Total (ML)

46,927
Treated Water Total (ML)

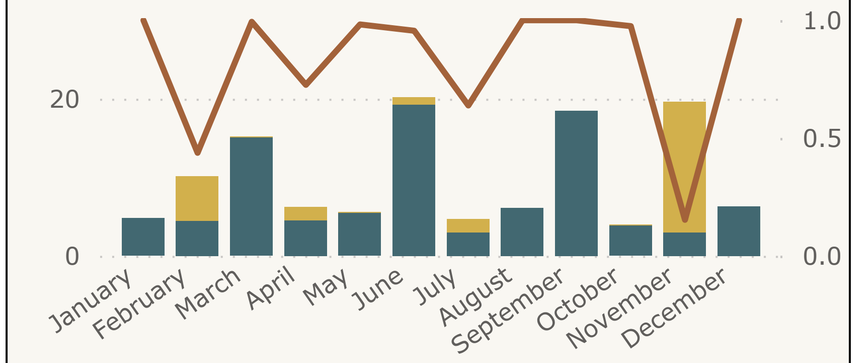
Energy Consumption (kWh)



Natural Gas Consumption & Efficiency



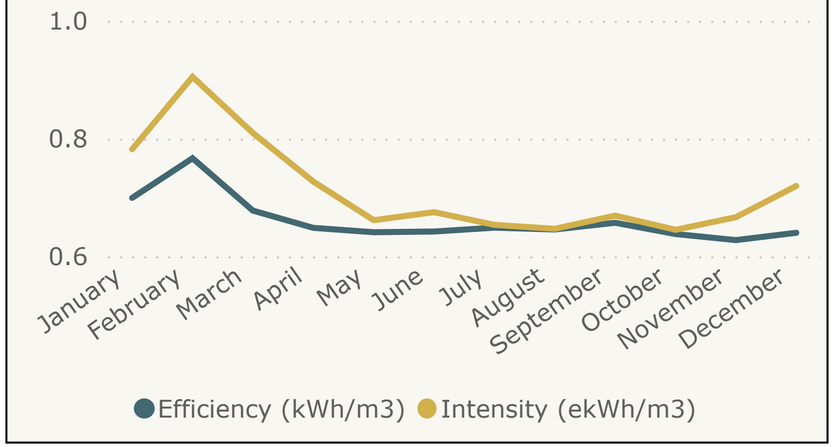
Generator Runtime



2,578K
Average Monthly Energy Consumption (kWh)

2.1%
Avg. % Change Over Prior Year

Energy Efficiency & Intensity



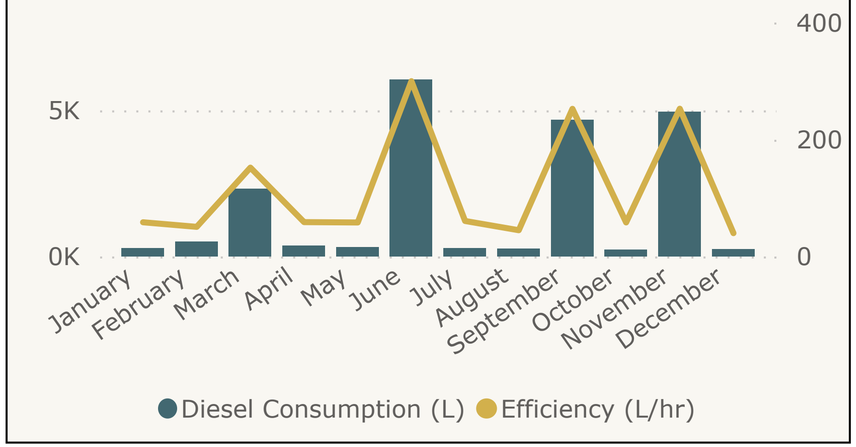
0.713
Energy Intensity (ekWh/m3)

0.29%
Avg. % Change Over Prior Year

0.661
Energy Efficiency (kWh/m3)

-1.08%
Avg. % Change Over Prior Year

Generator Efficiency



Elgin Area
Primary Water Supply System

Year
2019
2020
2021
2022
2023

1.648M
Total Chemical (kg)

0.0352
Overall Chemical Efficiency (kg/m3)

2.18%
Efficiency - Avg. % Change Over Prior Year

48,531
Raw Water - Total (ML)

46,927
Treated Water - Total (ML)

Month	Chlorine (Mussel)	Alum	Chlorine (Pre)	PAC (Activated Carbon)	Chlorine (Post)	Sodium Hydroxide (NaOH)	NaHSO3	Polymer (Filter & RMF)
January	3211	65433	245	0	4198	44698	4937	288
February	3559	60098	358	0	3855	45770	6311	231
March	3190	68578	396	0	3698	48800	5132	741
April	2870	67519	447	0	3842	47630	5353	725
May	3264	63606	352	0	4131	44341	6064	281
June	3899	73927	445	2168	5142	52055	6909	356
July	4544	82721	497	5131	5576	55755	7579	598
August	4009	84027	717	2094	5262	55247	6544	310
September	3869	87046	763	2875	4937	55477	7210	391
October	3811	68455	444	958	4444	57323	7323	935
November	3403	65982	355	0	4211	45488	5658	457
December	3648	60072	246	0	4233	51890	6218	346
Total	**43277**	**847464**	**5265**	**13226**	**53529**	**604474**	**75238**	**5659**

70622
Average Month - Alum

4.4%
Avg. % Change Ov...

50373
Average Month - NaOH

6.1%
Avg. % Change Ov...

472
Average of CH - Polymer (Filter & RMF)

-15.9%
Avg. % Change Ove...

6270
Average Month - NaHSO3

10.2%
Average of % Cha...

8506
Average Month - CL2 (All Process)

7.2%
Avg. % Change Ov...

Chemical by Type

Lake Huron
Primary Water Supply System

Report No.: LH-2023-03-07
Report Page: 1 of 12
Meeting Date: June 1, 2023
File No.:

Board of Management Report

Subject: Public Access and Tour Policy

Overview:

- The proposed Public Access and Tour Policy, as amended, addresses safety and security related issues, and provides clear direction related to accountability and areas of the facility which may be accessed by the public on a tour.
- Public tours were temporarily suspended in November 2017, and are planned to resume in September 2023.

Recommendation

That the Board of Management for the Lake Huron Water Supply System ENDORSE the Public Access and Tour Policy attached to this report.

Previous and Related Reports

Dec. 7, 2017	Public Access & Tour Policy – Temporary Suspension of Public Tours
Dec. 5, 2013	Public Access & Tour Policy
Jan. 20, 2011	Public Access & Tour Policy

Background

The Lake Huron Primary Water Supply System (EAPWSS) has a history of providing tours to public groups, by appointment only. Tours have typically been provided to high school, college and university students for educational purposes, as well as public interest civic groups.

The current policy was last updated in 2013 to better incorporate the policies and practices of the contracted operating authority, the Ontario Clean Water Agency (OCWA), and to clarify responsibilities of the Operating Authority and Board staff in arranging and undertaking public tours of the water treatment plant.

It is the intent of the Public Access and Tour Policy to maintain this practice to the degree possible, while recognizing legislative requirements, the safety of both staff and the public, and the ongoing security of the water treatment and supply system.

The Public Access and Tour Policy was temporarily suspended on November 9, 2017, due to concerns regarding the safety of tour attendees largely due to the significant amount of capital construction that was being undertaken in the subsequent years.

The suspension of public tours to the water treatment plant was continued at the onset of the global pandemic.

Discussion

The original policy adopted in 2011 specifically addressed issues related to the *Building Code Act,* the *Accessibility for Ontarians with Disabilities Act*, availability of staff resources for conducting public tours, and public safety. Following the transition to the current contracted operating authority, the Policy was updated and reflective of the newly adopted standard operating procedures of OCWA, as well as the requirements of the *Occupational Health and Safety Act*.

Board staff have reviewed the Public Access and Tour Policy and, in conjunction with the contracted operating authority, are recommending additional changes to address safety and security. The proposed Public Access and Tour Policy is attached to this report as Appendix A for the Board's reference. Some notable changes to the Policy include:

- The Policy has been reorganized and formatted to be consistent with other Policies adopted by the Board of Management.

- The Policy clearly identifies circumstances where the Policy does not apply (e.g., access for 'tours' related to procurement processes, construction, etc.).

- The Policy clearly articulates the conditions upon which public access and tours are granted, including the ability to suspend the tours due to safety and/or security concerns.

  Of particular note, public tours for school-aged children and youth are intended for those that are fourteen years old and older (grade 9 and above). While tours had occasionally been given to younger school-aged children (grade 8 or lower) previously, there are ongoing concerns related to allowing younger children into areas that are potentially harmful and unsafe. In consultation with the contracted operating authority, Board staff feel that this age group is better served by providing a presentation within their classroom including supporting educational materials.

- The Policy clearly identifies areas that can be accessed for the purpose of a public tour, as well as areas that are restricted to the public.

- The Policy outlines the responsibilities of the staff person conducting the tour (tour guide), as well as the responsibilities of the Operating Authority, the Regional Water Director, and the Regional Water Security Manager

Resumption of Public Tours

With the Board's endorsement of the Public Access and Tour Policy proposed in this report, Board staff, with the concurrence of the contracted operating authority, have proposed to resume public access and tours of the water treatment plant at the start of the next school term in September 2023.

Anticipated Operating and Service Impacts

The accommodation and provision of public tours of the water treatment plant is clearly outlined within the operations and maintenance services agreement with the contracted operating authority. There are no anticipated impacts to the operation of the facility.

Conclusion

Board staff are undertaking a detailed review of all Policies and Bylaws of the regional water system to ensure consistency and currency of the documents. The proposed Public Access and Tour Policy has been reviewed with the contracted operating authority, as well as the Board's solicitor, to ensure compliance with related legislation as well as addressing safety and security concerns.

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

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

Attachments: Appendix A – Public Access and Tour Policy (2023)

Appendix A – Public Access and Tour Policy (2023)

Approved: 5 December 2013
Revised:
Legislative History: Approved by resolution, 20 January 2011; Amended and approved by resolution, 5 December 2013; Suspended due to capital construction 7 December 2017 and continued due to the global pandemic.
Last Reviewed Date: 5 December 2013
Policy Lead: Director, Regional Water

1 Purpose

To provide the general public with access to the facilities and properties of the Lake Huron Primary Water Supply System which are owned and governed by the Water Board, within the limitations outlined by this Policy and applicable legislation, codes and standards.

2 Applicability

2.1 This Policy applies to the provision of access and tours of the regional water Facilities to the general public. The Public Access and Tour Policy specifically applies to any person or persons which are not employees or agents of Huron, the Water Board, RWS, or OA, including but not limited to:

a) Public groups, associations, special interest groups, and civic organizations;

b) Students or groups of students where access and tours are requested for educational purposes, academic instruction, or course content; and,

c) Site access and “site tours,” authorized by the RW Director and conducted by the RWS and/or OA, for a water-related agency or group including but not limited to a source protection committee and source protection region.

2.2 This Policy does not apply to:

a) Site access and “site tours” conducted by the RWS and/or OA as part of a public procurement process for contractors, consultants and/or service providers. A public procurement process includes sole source procurement, single source procurement, requests for tenders, requests for quotations, and requests for proposals in accordance with the procurement policies of the OA, and/or the Procurement of Goods and Services and Disposal of Assets Policy of the Water Board;

b) Site access by a consultant or contractor of the RWS or OA for the purpose of conducting an engineering assignment, a contracted service, or construction;

c) Site access and “site tours” approved by the RW Director and conducted by the RW Director or designate, to members of the Water Board, or the Council and/or staff of the benefiting municipalities supplied by the Lake Huron Primary Water Supply System;

d) Site access and/or inspection by an inspector or employee the Ministry of the Environment, Conservation and Parks, the Ministry of Labour, or similar senior government agency, as required from time to time, in accordance with applicable legislation;

e) Site access by third-party registrars and accreditation bodies for the purpose of undertaking an accreditation audit and/or surveillance audit;

f) Site access which is specifically granted to a lessee by the Water Board in accordance with a lease agreement or licence of occupancy agreement, for a designated area or location and for a specified purpose, as identified within the applicable lease agreement or licence of occupancy agreement; and,

g) Site access by the Ministry of the Environment, Conservation and Parks, or their agent, for the purpose of operating and maintaining the air quality monitoring station in accordance with the Lease Agreement (L11695) with the Province of Ontario.

3 Background

The Lake Huron Primary Water Supply System has a history of providing tours to public groups, by appointment only, which pre-exists the current ownership and governance by the Water Board. Tours have been typically provided to high school, college and university students for educational purposes, as well as civic and public interest groups.

It is the intent of this policy to maintain this practice to the degree possible, while recognizing legislative requirements and the safety of the public, contractors and employees of the water system, as well as the ongoing security of the water treatment and supply system.

4 Legislative Reference

Occupational Health and Safety Act, R.S.O. 1990:

Industrial Establishments – Ontario Regulation 851/90

Construction Projects – Ontario Regulation 213/91

Building Code Act, S.O. 1992:

Building Code – Ontario Regulation 350/06

Accessibility for Ontarians with Disabilities Act, S.O. 2005:

Accessibility Standards for Customer Service – Ontario Regulation 429/07

Exemption from Reporting Requirements – Ontario Regulation 430/07

5 Definitions

Board of Management (and Board) – shall mean the Board of Management for the [Lake Huron Water Supply System as established under the Municipal Water and Sewage Systems Transfer Act, 1997 and pursuant to Transfer Order Lake Huron #W1/1998 dated effective September 15, 2000.

Building – shall mean any structure, vault, chamber or tunnel including, without limitation, the electrical, plumbing, heating and air handling equipment (including rigid duct work) of the structure, vault, chamber or tunnel.

Contracted Operating Authority (and Operating Authority) – shall mean the authority (entity) contracted for the operation, maintenance and management of the Lake Huron Primary Water Supply System.

Facility (and Facilities) – shall mean a building, group or buildings, or similar structures, including water storage reservoirs and monitoring stations.

Huron (and Lake Huron) – shall mean the Lake Huron Water Supply System as established under the *Municipal Water and Sewage Systems Transfer Act, 1997* and pursuant to Transfer Order Lake Huron #W1/1998 dated effective November 29, 2000.

OA – shall mean the Contracted Operating Authority

OA Senior Operations Manager – shall mean the Senior Operations Manager for the Contracted Operating Authority of the Lake Huron Primary Water Supply system.

Project – shall mean work or undertaking as defined by the Construction Project Regulation (O.Reg.213/91) or the Industrial Establishments Regulation (O.Reg.851/90) under the *Occupational Health and Safety Act, 1990*.

RW Director – shall mean the Director of the Regional Water Supply Division for the City of London in its capacity as Administering Municipality for the Lake Huron Primary Water Supply System.

RWS – shall mean the Regional Water Supply Division of the City of London in its capacity as Administering Municipality for the Lake Huron Primary Water Supply System

RW Security Manager – shall mean the Security Manager of the Regional Water Supply Division of the City of London in its capacity as Administering Municipality for the Lake Huron Primary Water Supply System.

Service Agreement – shall mean the Operation and Maintenance Services Agreement between the Water Board and the Contracted Operating Authority for the operation, maintenance and day to day management of the Water Treatment Plant, Facilities and water transmission pipeline.

Water Board – shall mean the Board of Management for the Lake Huron Primary Water Supply System.

Water Treatment Plant – shall mean Lake Huron Primary Water Supply System water treatment plant owned and governed by the Water Board and located at 71155 Bluewater Highway in the Municipality of South Huron.

6 The Policy

6.1 Public Access and Tours

6.1.1 It is the policy of Huron that a property, Facility or Building which is owned by Huron shall not be deemed or designated as a “public building”, “public facility”, “public space”, “public access”, or generally open to the public. A person or persons may be granted limited access to a Building and/or Facilities for the purpose of a facility tour, scheduled in accordance with Section 6.2 of this Policy, conducted for educational purposes and only when guided and controlled by the OA and/or RWS.

6.1.2 Scheduled limited access as provided by this Policy may only be granted for tours of the Water Treatment Plant and shall exclude any other Building or Facility of Huron including reservoir facilities, booster pumping facilities, control chambers, monitoring stations, and valve chambers.

6.1.3 Access will not be granted to the public to any area which has been specifically designated and identified as an area where a Project is being undertaken for the purposes of construction, and as defined by the Occupational Health and Safety Act.

6.1.4 The RW Director or designate, at their sole discretion, may suspend, restrict or alter public access and tours, in whole or in part, in consideration of health, safety and/or security issues that cannot otherwise be resolved or mitigated, including emergencies and incidents involving Huron.

6.1.5 The RW Director or designate, at their sole discretion, may decline and/or prioritize requests for tours where limited resources and staff are available on requested days.

6.2 Conditions of Public Access and Tours

6.2.1 It is the policy of Huron that, subject to the conditions of this Policy, limited access to the Water Treatment Plant may be granted for the purpose of conducting a public tour for educational purposes.

6.2.2 A request to access and tour the Water Treatment Plan may be submitted in person, in writing (including by email), or by telephone, and shall be at least thirty (30) days prior to the requested tour date. Requests for access and tour may be submitted directly to the OA or RWS. If tours are arranged through RWS, RWS shall confirm the date and time of the tour with the OA no less than fifteen (15) days in advance of the tour. In all cases, the OA and/or RWS shall notify the RW Security Manager immediately upon the approval and scheduling of a tour.

6.2.3 Access and tours are subject to the availability of a designated guide provided by the OA or RWS and shall be conducted during the regular working hours of the Facility, Monday through Friday, 8:30am to 4:30pm, excluding Statutory Holidays. Tours may be conducted outside normal working hours with the written approval of the OA Senior Operations Manager or RW Director, and subject to the availability of staff.

6.2.4 A tour group shall be no larger than ten (10) people. Larger groups may be accommodated, subject to the availability of OA or RWS staff, provided that the tour group can be split into smaller sub-groups of not more than ten (10) people each.

6.2.5 Children and youth less than fourteen (14) years old (grade 8 or lower) may not participate in a plant tour.

6.2.6 Youth between the age of fourteen (14) and seventeen (17), inclusive, must be accompanied by an adult, with no more than nine youth per adult.

6.2.7 Open-toed shoes, including sandals and “flip-flops”, may not be worn by any person granted access and/or participating in a tour. Attendees found to be

wearing open-toed shoes will be withheld from participating in the tour and may not enter the Facility.

6.2.8 The person requesting the access and tour and the tour group participants must acknowledge that the Facility does not meet accessibility standards under the Accessibility for Ontarians with Disabilities Act (i.e., is not wheelchair accessible) and persons with certain disabilities cannot be accommodated on a tour of the Facility.

6.2.9 A tour may be cancelled at any time if any unsafe condition develops and at the discretion of the tour guide, the OA Senior Operations Manager, the RW Director, the RW Security Manager, or their designate.

6.2.10 Tours will be conducted in accordance with the OA procedure for conducting tours. See Schedule A.

6.2.11 All tour participants will be required to sign a waiver. See Schedule B.

6.2.12 At the discretion of the RW Director or RW Security Manager, tour groups may be accompanied by a security guard.

6.2.13 Exceptions or deviations to the conditions outlined in this Policy may be made only through the express written approval of the OA Senior Operations Manager or RW Director.

6.3 Accessible Areas

6.3.1 The following areas of the Water Treatment Plan may be accessed by the public in accordance with this Policy:

- Security office lobby
- Plant main entrance and lobby
- Plant boardroom
- Men’s and Women's washroom
- Plant laboratory
- High lift pump bay (first level basement)
- High lift pump gallery (ground level)
- Filter gallery and filter lobby/corridor area
- Pipe gallery (second level basement)
- Connecting tunnels
- Chlorine building, excluding bulk storage room
- Emergency backup generator building, excluding high voltage and primary switchgear room
- Low lift pump station

- Flocculation area
- Clarifier area
- Centrifuge area
- Residuals management building

6.4 Restricted Areas

6.4.1 The following areas of the Water Treatment Plant are restricted from public access and may not be included in a public tour under any circumstances:

- Administration offices
- Operator control room
- Any high or medium voltage electrical room
- Primary transformer station
- Chlorine bulk storage room
- Sodium hydroxide storage room
- Powder Activated Carbon building
- Plant loading dock and chemical unloading station
- Quonset hut storage building
- Maintenance shop
- Any area where a construction activity or Project is being undertaken, as defined by the *Occupational Health and Safety Act, 1990*, and in accordance with section 6.1 of this Policy.

6.5 Photography and Videography

6.5.1 Photography and videography shall not be permitted within the Facility at any time without the express written permission of the RW Director or RW Security Manager.

7 Responsibilities

7.1 Tour Guide

7.1.1 Subject to the conditions of this Policy, public tours shall be conducted by the staff of the OA, unless the RW Director agrees to undertake and conduct the tour using RW staff.

7.1.2 It is the responsibility of the OA staff or RWS staff that is conducting the public tour to ensure that all persons participating in the tour are aware and agree with the conditions and limitations imposed for the tour as outlined in Section 6 of this Policy.

7.1.3 It is the responsibility of the OA staff or RWS staff that is conducting the public tour to ensure that all persons participating in the tour have signed-in with plant security upon arrival at the water treatment plant and have signed out upon completion of the tour and immediately preceding departure.

7.1.4 It is the responsibility of the OA staff or RWS staff that is conducting the public tour to ensure that all persons participating in the tour conduct themselves in a manner which does not endanger the safety of the tour participants, the OA staff, the RWS staff, or the public. The tour may be suspended or terminated, at the sole discretion of the OA staff or RWS staff conducting the tour should a tour participant pose a danger to themselves, the tour participants, the OA staff, the RWS staff or the public, or the participant's actions or inactions may cause a risk to the water treatment process and/or drinking water quality.

7.1.5 In the event of an emergency, the OA staff or RWS staff shall evacuate the tour participants to the nearest designated emergency assembly area in accordance with the Emergency Response Plan for the Water Treatment Plant.

7.1.6 At least seven (7) days prior to the tour, the designated tour guide of the OA or RWS shall confirm that the RW Security Manager has been notified of the tour.

7.2 RW Director

7.2.1 The RW Director, at their sole discretion, may authorize RW staff to undertake and conduct a tour in lieu of OA staff in accordance with this Policy.

7.3 OA and OA Senior Operations Manager

7.3.1 It is the responsibility of the OA to ensure that the plant health and safety policies and procedures are followed by the public, as applicable. If tours are being undertaken by RWS, the OA Senior Operations Manager shall provide directions with regard to health and safety which will be followed, in accordance with the Service Agreement.

7.4 RW Security Manager

7.4.1 The RW Security Manager shall ensure that plant security has been advised of the planned tour, including relevant details regarding the group taking the tour and the purpose of the tour.

7.4.2 The RW Security Manager shall ensure that the security office at the water treatment plant has an adequate number of hard hats and high visibility safety vests for the tour, as needed.

8 Related Documents

- Visitor Sign-in Logbook
- Schedule A – Operating Authority's Procedure for conducting a tour
- Schedule B – Tour Waiver

9 Revision History

Lake Huron
Primary Water Supply System

Board of Management Report

Subject: Environmental & Quality Policy - Climate Change Update

Overview:

- Climate change mitigation and adaptation are essential in order to improve both operational performance and resilience.
- The existing Environmental Management System (EMS), Energy Conservation and Demand Management Plan, and Asset Management Plan (AMP) are the main programs that have been utilized to date for climate change considerations and actions.
- There is an opportunity to add a commitment to the Environmental and Quality Policy related to climate change mitigation and adaptation. This would provide clear directions to the Lake Huron Primary Water Supply System (LHPWSS) and allow for future objectives to be aligned.

Recommendation

That the Board of Management for the Lake Huron Primary Water Supply System (LHPWSS) take the following actions with regard to the Environmental Management System (EMS):

a) The Board of Management for the LHPWSS **RECEIVE** the report for information; and,

b) The Board of Management for the LHPWSS **ENDORSE** the updated Environmental & Quality Policy attached to this report.

Previous and Related Reports

March 2, 2023	Environmental Objectives
January 19, 2023	Environmental & Quality Policy and Quality Management System Operational Plan
October 7, 2021	Asset Management Policy and Asset Management Plan Update

Background

The LHPWSS has an Environmental Management System (EMS) which is registered to the ISO14001:2015 Standard. The EMS has been in place since 2003 and the current three-year registration period expires in early 2024. Later this year, the LHPWSS will be seeking re-registration for another three-year period.

At the March 3, 2023, Board meeting, during a discussion regarding environmental objectives, the Board directed staff to consider opportunities to incorporate climate change mitigation and resiliency into the EMS.

This report outlines how climate change mitigation and adaptation have presently been incorporated into the EMS and other management systems and programs for the LHPWSS. The report also looks at risks and opportunities, and future considerations related to climate change.

Discussion

The ISO14001:2015 Standard references the two-way relationship between organizations and the environment. Organizations must consider the many ways in which it might impact the environment, but also how the environment might impact the organization. Climate change is a key example of this interaction.

The LHPWSS must address its impact on the environment, including its contributions to climate change (e.g., greenhouse gas emissions). It must also be resilient and adapt to the changing world where it is or may be impacted by climate change. This environmental stewardship, in combination with organizational response and resilience, is a principle that is embedded in the EMS.

When addressing climate change there are two primary approaches which should be integrated into the EMS: mitigation and adaptation.

- **Climate change mitigation** includes taking actions to reduce greenhouse gas (GHG) emissions. Mitigation involves understanding the causes of climate change, the sources of GHG emissions, and the most effective ways to reduce them and the water system's environmental footprint. Examples of mitigation include reducing the use of fossil fuels, addressing energy inefficiencies, system leaks, fugitive emissions, travel, and transportation.
- **Climate change adaptation** includes adjusting systems in response to actual or expected climate change effects. Preparing for the impacts of climate change minimizes harm and risk.

Both climate mitigation and adaptation are essential. Through these complementary approaches, both operational performance and resilience can be improved.

The following sections provide information on how some key areas of the existing EMS and other management systems have been utilized for climate change considerations and actions. There are additional opportunities to address climate change. The EMS provides a management system framework that can be used to drive climate action, through the Plan-Do-Check-Act model.

Environmental Aspects

The LHPWS's role in affecting climate change can be determined. Through the EMS, the LHPWSS has conducted an analysis to determine the environmental aspects of its activities, materials, products, and services which can be controlled or influenced. The analysis also identifies how the LHPWSS affects the environment (i.e., the associated environmental impacts) when considering a life cycle perspective.

In order to take action against climate change, organizations must understand the sources of their GHG emissions. As part of the EMS, the LHPWSS has determined its environmental aspects, including activities that produce GHG emissions. Environmental aspects related to climate change mitigation can include both direct and indirect impacts.

Appendix A contains a summarized list of environmental aspects related to climate change mitigation (both directly and indirectly) and adaptation for the LHPWSS.

Environmental & Quality Policy

The Environmental & Quality Policy sets the Board's overall guidance on how the LHPWSS will approach environmental and quality management. The Policy sets the intentions and direction for the LHPWSS related to its environmental performance.

The current Environmental & Quality Policy was endorsed by the Board at the Jan. 19, 2023 meeting. The approved Policy is included as Appendix B for reference.

The current Policy contains three (3) mandatory commitments which are required by the ISO14001:2015 Standard. The mandatory commitments include:

- protection of the environment, including prevention of pollution and other specific commitment(s) relevant to the context of the organization;
- fulfilling the organization's compliance obligations;
- continually improving the EMS to enhance environmental performance.

Several additional commitments that are tailored to the LHPWSS have been included in the Policy. Under protection of the environment, the LHPWSS has chosen to include specific commitments related to energy management, chemical usage and process water optimization. These commitments align with the current environmental objectives.

The reference to "protection of the environment" provides an opportunity to include climate change mitigation and adaptation as a specific commitment relevant to the LHPWSS. Staff recommend that the Board consider incorporating climate change mitigation and adaptation into the Environmental & Quality Policy. An updated Policy to be considered by the Board for endorsement is included as Appendix C for reference.

Environmental Objectives

At the March 2, 2023, Board meeting, the Board approved the 2023-2027 environmental objectives, targets, and the associated programs to achieve them.

The current environmental objectives are:

- Reduce the demand on the Provincial electrical generation and transmission system through efficiency, conservation, and displacement efforts.
- Optimize the use of chemicals in the production of treated potable water and associated residuals treatment.
- Optimize the use of process water, including backwash water, in the production of treated potable water and associated residuals treatment.

These three (3) environmental objectives are aligned with the Environmental & Quality Policy. They relate to three (3) significant environmental aspects: electricity consumption, chemical consumption, and process water optimization. These environmental aspects have indirect impacts on climate change mitigation.

There are no set number of environmental objectives that must be in place. New objectives can be added at any time or closed out once programs have been completed.

Environmental objectives must be consistent with the Policy. If a commitment to climate change mitigation and adaptation is added to the Environmental & Quality Policy, it provides clear direction and allows for meaningful objectives to be set and alterations to management programs that will align with the amended Policy. Future considerations will be given to set objectives that directly relate to climate change mitigation (e.g., natural gas consumption, greenhouse gas emissions). Future objectives that relate to climate change adaptation can also be considered, such as conducting a climate change risk assessment and impacts review to identify the highest risk sites, processes, and operations.

Environmental objectives must be measurable and monitored. Board staff are currently in the process of collecting baseline data and creating a greenhouse gas emissions inventory. The first step towards reducing emissions is to understand the sources and their relative contributions. The Ontario Water Works Association (OWWA) recently released a new Water/Wastewater Utility Greenhouse Gas (GHG) Emissions Inventory Tool which is being utilized to establish the inventory. Once a baseline emissions inventory has been established, the LHPWSS can review opportunities for reduction efforts, associated targets, and programs.

Any proposed new environmental objectives, whether related to climate change mitigation and adaptation or any other environmental aspects, would be presented to the Board at a future meeting for consideration and endorsement.

Energy Conservation and Demand Management Plan

The LHPWSS is required to maintain and update an Energy Conservation and Demand Management Plan (CDM Plan) as per O.Reg. 25/23 (Broader Public Sector: Energy Reporting and Conservation and Demand Management Plans) under the *Electricity Act*.

O.Reg. 25/23 has a specific requirement for public agencies to prepare energy and conservation demand management plans. The plans must include a summary of annual energy consumption and greenhouse gas emissions, previous and planned activities, and measures to conserve energy consumption, and the results achieved. The plans must be updated every five (5) years.

The LHPWSS Energy Conservation and Demand Management Plan is published on the water system's website. The CDM Plan was originally developed in 2014 and was last updated in June 2019. The CDM Plan re-iterates that it is of utmost importance that LHPWSS improve energy efficiency, minimize operating costs and reduce impact on the environment, without adversely impacting operations and water quality. The CDM Plan sets a reduction in overall energy intensity as a goal and objective. The environmental objectives and targets developed for the EMS align with and have been referenced within the CDM Plan.

The CDM Plan is scheduled to be updated within the next year, prior to the regulatory deadline of July 1, 2024.

Emergency Preparedness and Response

The EMS requires that emergency plans be established, tested, and reviewed, with the intention of preventing or mitigating adverse impacts. The LHPWSS must plan how to respond should climate related risks and emergencies occur. Emergency plans must be tested and reviewed, with adequate training and information provided to staff.

This EMS element mainly relates to climate change adaptation and resilience, where the LHPWSS must be prepared for extreme weather events and changes to environmental conditions that may significantly impact the drinking water system, including changing lake ice patterns, water temperatures, shore erosion rates, and migration of invasive species.

There are existing emergency procedures within the EMS that address several climate related issues. These include procedures related to power failures, critical staffing shortages, and various types of infrastructure failures. The operating authority is currently in the process of developing a site-specific procedure for employee response

during a tornado and/or other severe weather event. Environmental impacts occurring over longer periods of time, such as average temperatures, invasive species, lake ice, etc. are monitored as part of our Source Protection program and Master Plan initiatives.

The LHPWSS also has a separate Incident Management System (IMS) in place. The IMS provides the management framework to identify, analyse and evaluate risks that have the potential to disrupt normal operations of the LHPWSS to such a degree that it would require coordinated resources to respond and recover. The IMS includes a risk registry, and an Emergency Management Plan that details the roles, responsibilities and actions required of the LHPWSS in responding to and recovery from an incident.

Asset Management Plan

In 2022 the LHPWSS completed a comprehensive update to the Asset Management Plan (AMP). As part of this AMP update an Asset Management Policy was developed for the LHPWSS. The Policy was approved by the Board of Management at the October 7, 2021, Board meeting.

As outlined in the Asset Management Policy, two (2) of the LHPWSS's guiding principles for infrastructure asset management incorporate climate change risk, awareness, and resilience.

- **Long-Term Sustainability and Resilience:** Services and infrastructure assets should be socio-culturally, environmentally, and economically sustainable over the long term. Achieving this involves long-term planning that incorporates triple bottom line considerations, climate change awareness, and the development of resilience.

- **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.

A key outcome of the AMP is that climate change is part of the risk management approach embedded in asset management and lifecycle management strategies to enhance the resilience of the infrastructure. The LHPWSS is looking at opportunities to further develop the asset risk register to capture climate change impacts on infrastructure assets to help inform prioritization of capital projects.

Conclusion

The LHPWSS Board of Management has directed staff to consider opportunities to incorporate climate change mitigation and resiliency into the EMS. By adding a specific commitment to climate change mitigation and adaptation into the Environmental & Quality Policy, it acts as the driver and provides direction for the LHPWSS. Providing clear direction in the Policy allows for meaningful environmental objectives to be set that will align with it.

Prepared by: Erin McLeod, CET
Quality Assurance & Compliance Manager

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

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

Attachments:

Appendix A – Environmental Aspects
Appendix B – Current Environmental & Quality Policy (Jan. 19, 2023)
Appendix C – Revised Environmental & Quality Policy (June 1, 2023)

Appendix A: Environmental Aspects

Environmental Aspects: Climate Change Mitigation

Direct impacts are the activities where greenhouse gas (GHG) emissions can be controlled by the LHPWSS. Direct impacts include:

- Natural gas consumption in the heating and dehumidification of the facilities.
- Diesel fuel consumption for emergency power.
- Diesel fuel and gasoline consumption for travel and transportation (e.g., fleet vehicles, residuals trucking).
- Use of refrigerants in cooling systems.

Indirect impacts (i.e., impacts that occur offsite) include:

- Electricity consumption, where the source(s) of purchased electricity produces emissions at the point of the energy production.
- Emissions across the wider supply chain. For example, resources and energy used in producing input materials such as water treatment chemicals, and construction materials such as steel and cement.
- Transportation of chemicals and materials to the site.
- Offsite treatment and handling of wastes.

Environmental Aspects: Climate Change Adaptation

- Impacts from extreme weather events (e.g., thunderstorms, lightning strikes, flooding, wind damage, ice storms).
- Impacts from high water levels and shoreline erosion.
- Extreme weather may impact employee's ability to get to work, or supply of materials (e.g., chemical deliveries) to the sites.
- Treatment chemicals and water treatment processes can be sensitive to temperature changes.
- Increased demand for water during heat waves and droughts.

Appendix B: Current Environmental & Quality Policy (Jan. 19, 2023)

ENVIRONMENTAL AND QUALITY POLICY

The Lake Huron Primary Water Supply System (LHPWSS) and Ontario Clean Water Agency (OCWA) as the Operating Authority are committed to:

- Maintaining and continually improving the Environmental Management System (EMS) and Quality Management System (QMS) to enhance environmental and quality performance.
- Providing the customer with safe drinking water.
- Meeting all relevant compliance obligations and encouraging suppliers and subcontractors to similarly meet these requirements.
- Developing and implementing policies and environmental objectives in partnership.
- Protecting the environment, including prevention of pollution, energy management, chemical usage and process water optimization.
- Managing and operating the drinking water system in a responsible manner.
- Being environmental and quality leaders in the municipal drinking water industry.
- Promoting owner and consumer confidence in the safety of the drinking water supply.
- Promoting resource stewardship, including conservation.
- Aligning and coordinating the EMS and QMS with the Asset Management System.
- Accomplishing these commitments through the dedication, support and participation of all personnel.

The LHPWSS and OCWA will periodically undertake reviews, evaluations and performance measurements of the operations to promote conformance with the Environmental and Quality Policy.

OCWA also maintains a separate Quality Management System Policy which governs the activities of the Operating Authority as a Corporation.

Andrew Henry
Director, Regional Water Supply
Lake Huron Primary Water Supply System

Date Signed: January 24, 2023

Matt Bender
Regional Manager
Ontario Clean Water Agency

Date Signed: January 24, 2023

Effective Date: January 19, 2023

Appendix C: Revised Environmental & Quality Policy (June 1, 2023)

ENVIRONMENTAL AND QUALITY POLICY

The Lake Huron Primary Water Supply System (LHPWSS) and Ontario Clean Water Agency (OCWA) as the Operating Authority are committed to:

- Maintaining and continually improving the Environmental Management System (EMS) and Quality Management System (QMS) to enhance environmental and quality performance.
- Providing the customer with safe drinking water.
- Meeting all relevant compliance obligations and encouraging suppliers and subcontractors to similarly meet these requirements.
- Developing and implementing policies and environmental objectives in partnership.
- Protecting the environment, including prevention of pollution, **climate change mitigation and adaptation**, energy management, chemical usage and process water optimization.
- Managing and operating the drinking water system in a responsible manner.
- Being environmental and quality leaders in the municipal drinking water industry.
- Promoting owner and consumer confidence in the safety of the drinking water supply.
- Promoting resource stewardship, including conservation.
- Aligning and coordinating the EMS and QMS with the Asset Management System.
- Accomplishing these commitments through the dedication, support and participation of all personnel.

The LHPWSS and OCWA will periodically undertake reviews, evaluations and performance measurements of the operations to promote conformance with the Environmental and Quality Policy.

OCWA also maintains a separate Quality Management System Policy which governs the activities of the Operating Authority as a Corporation.

Andrew Henry
Director, Regional Water Supply
Lake Huron Primary Water Supply System

Date Signed:

Matt Bender
Regional Manager
Ontario Clean Water Agency

Date Signed:

Effective Date: **June 1, 2023**

Lake Huron
Primary Water Supply System

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Meeting Date: June 1, 2023
File No.:

Board of Management Report

Subject: 2022 Audited Financial Statements and Auditors Report

Overview:

- The Independent Auditors' Report confirms that the 2022 financial statements provided represent the financial position of the Elgin Area Water Supply System in accordance with the Canadian Public Sector Accounting Standards.

Recommendation

That the Board of Management for the Lake Huron Primary Water Supply System **RECEIVE AND ACCEPT** the 2022 Audited Financial Statements and Independent Auditors' Report for the Lake Huron Primary Water Supply System.

Discussion

On an annual basis, the finances and financial statements for the Lake Huron Primary Water Supply System are audited by a financial auditor, acquired in partnership with the City of London in its capacity as Administering Municipality for the water system. The draft audited financial statements have been provided to the benefiting municipalities, as well as the reconciled volumes supplied to each municipality, to allow the municipalities to complete their respective financial audits and statements.

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

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

Attachments: Independent Auditors' Report
2022 Audited Financial Statements, Lake Huron Water Supply System

INDEPENDENT AUDITORS' REPORT

To the Board of Directors of Lake Huron Area Primary Water Supply System

Opinion

We have audited the financial statements of Lake Huron Area Primary Water Supply System (the "Entity"), which comprise:

- the statement of financial position as at December 31, 2022
- the statement of operations and accumulated surplus for the year then ended
- the statement of changes in net financial assets for the year then ended
- the statement of cash flows for the year then ended
- and notes to the financial statements, including a summary of significant accounting policies

(Hereinafter referred to as the "financial statements").

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Entity as at December 31, 2022, and its results of operations, its changes in net financial assets and its cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the "Auditors' Responsibilities for the Audit of the Financial Statements" section of our auditors' report.

We are independent of the Entity in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Entity's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Entity or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Entity's financial reporting process.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit.

We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

  The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Entity's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Entity to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

- Communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Chartered Professional Accountants, Licensed Public Accountants

London, Canada

Date

Financial Statements of

LAKE HURON AREA PRIMARY WATER SUPPLY SYSTEM

And Independent Auditors' Report thereon

December 31, 2022

LAKE HURON AREA PRIMARY WATER SUPPLY SYSTEM
Statement of Financial Position
December 31, 2022, with comparative information for 2021

	2022	2021
Financial assets		
Due from the Corporation of the City of London (note 3)	**$ 48,836,240**	$ 48,536,911
Trade and other receivables	**682,999**	462,664
Loan receivable (note 4)	**1,474,565**	1,639,331
Total financial assets	**50,993,804**	50,638,906
Financial liabilities		
Accounts payable and accrued liabilities	**1,514,216**	3,023,153
Accrued interest on long-term debt	**20,633**	29,075
Long-term debt (note 5)	**3,096,033**	4,371,157
Total financial liabilities	**4,630,882**	7,423,385
Net financial assets	**46,362,922**	43,215,521
Non-financial assets		
Tangible capital assets (note 6)	**144,215,499**	145,076,753
Prepaid expenses	**422,124**	344,374
Total non-financial assets	**144,637,623**	145,421,127
Commitments		
Contingent liabilities (note 9)		
Accumulated surplus (note 7)	**$ 191,000,545**	$ 188,636,648

The accompanying notes are an integral part of these financial statements.

LAKE HURON AREA PRIMARY WATER SUPPLY SYSTEM
Statement of Operations
Year ended December 31, 2022, with comparative information for 2021

	Budget (note 10)	2022	2021
Revenues			
User charges	$ 24,229,000	**$ 23,435,675**	$ 23,730,080
Investment income	320,000	**856,718**	889,875
Other municipalities (note 4)	-	**-**	1,639,331
Other	5,000	**14,104**	1,669
Total revenues	24,554,000	**24,306,497**	26,260,955
Expenses			
Salaries, wages and fringe benefits	999,568	**928,791**	825,321
Materials and supplies	12,009,235	**11,768,268**	10,905,724
Contracted services	1,631,480	**1,511,617**	1,251,399
Rents and financial expenses	103,200	**92,436**	63,002
Interest on long-term debt	89,339	**89,339**	116,779
Amortization of tangible capital assets	7,254,459	**7,254,459**	7,416,861
Administrative charges to the Corporation of the City of London	322,400	**297,690**	317,632
Total expenses	22,409,681	**21,942,600**	20,896,718
Annual surplus	2,144,319	**2,363,897**	5,364,237
Accumulated surplus, beginning of year (note 7)	188,636,648	**188,636,648**	183,272,411
Accumulated surplus, end of year (note 7)	$ 190,780,967	**$ 191,000,545**	$ 188,636,648

The accompanying notes are an integral part of these financial statements.

LAKE HURON AREA PRIMARY WATER SUPPLY SYSTEM
Statement of Changes in Net Financial Assets
Year ended December 31, 2022, with comparative information for 2021

	Budget	2022	2021
Annual surplus	$ 2,144,319	**$ 2,363,897**	$ 5,364,237
Acquisition of tangible capital assets	(11,113,820)	**(6,393,205)**	(8,200,565)
Amortization of tangible capital assets	7,254,459	**7,254,459**	7,416,861
	(1,715,042)	**3,225,151**	4,580,533
Change in prepaid expenses	-	**(77,750)**	(60,926)
Change in net financial assets	(1,715,042)	**3,147,401**	4,519,607
Net financial assets, beginning of year	43,215,521	**43,215,521**	38,695,914
Net financial assets, end of year	$ 41,500,479	**$ 46,362,922**	$ 43,215,521

The accompanying notes are an integral part of these financial statements.

LAKE HURON AREA PRIMARY WATER SUPPLY SYSTEM
Statement of Cash Flows
Year ended December 31, 2022, with comparative information for 2021

	2022	2021
Cash provided by (used in)		
Operating activities		
Annual surplus	**$ 2,363,897**	$ 5,364,237
Items not involving cash		
Amortization of tangible capital assets	**7,254,459**	7,416,861
Amortization of debenture discount	**8,201**	8,201
Change in non-cash assets and liabilities		
Due from the Corporation of the City of London	**(299,330)**	(3,948,167)
Prepaid expenses	**(77,750)**	(60,926)
Trade and other receivables	**(220,334)**	282,764
Accounts payable and accrued liabilities	**(1,508,936)**	2,045,754
Accrued interest on long-term debt	**(8,442)**	(7,565)
Net change in cash from operating activities	**7,511,765**	11,101,159
Capital activities		
Purchase of tangible capital assets	**(6,393,205)**	(8,200,565)
Net change in cash from capital activities	**(6,393,205)**	(8,200,565)
Financing activities		
Long-term debt repayments	**(1,283,326)**	(1,261,263)
Loan receivable	**164,766**	(1,639,331)
Net change in cash from financing activities	**(1,118,560)**	(2,900,594)
Net change in cash flows and cash, end of year	**$ -**	$ -

The accompanying notes are an integral part of these financial statements.

1. Nature of Reporting Entity

The final transfer order for Lake Huron Area Primary Water Supply System (the "Entity) was effective September 15, 2000, transferring assets along with any other real property to The Corporation of the City of London (the "Corporation") in trust to act as the Administering Municipality on behalf of the participating municipalities.

Under the transfer order, the works, properties and all assets, liabilities, rights and obligations of the system are conveyed, assigned and transferred to the Corporation as Trustee. Each of the benefitting municipalities, for so long as the municipality is serviced by the works has an undivided beneficial ownership interest in the works as tenant in common with all other municipalities jointly. The proportion that each municipality's interest bears to the total of all municipalities' interests shall be in the same ratio that the quantity of water supplied from the works to the municipalities at any time and from time to time bears to the total quantity of water supplied to all municipalities at such time. At present, the benefitting municipalities are The Corporation of the City of London, the Municipalities of Bluewater, South Huron, Lambton Shores, North Middlesex, Lucan-Biddulph, Middlesex Centre and Strathroy-Caradoc.

The transfer order established a joint board of management to govern the management of the water supply system. The joint board of management is comprised of eleven members appointed by the respective councils of participating municipalities. The Board composition is as follows:

Municipality	Members	Votes
The Corporation of the City of London	4	16
The Corporation of the Municipality of Bluewater	1	1
The Corporation of the Municipality of South Huron	1	1
The Township of Lucan-Biddulph	1	1
The Corporation of the Municipality of Lambton Shores	1	1
The Municipality of North Middlesex	1	3
The Municipality of Middlesex Centre	1	1
The Corporation of the Municipality of Strathroy-Caradoc	1	3

2. Significant Accounting Policies

The financial statements of the Entity are prepared by management, in accordance with Canadian generally accepted accounting principles as defined in the CPA Canada Public Sector Handbook – Accounting. Significant accounting policies are as follows:

(a) Accrual Accounting

Sources of financing and expenses are reported on the accrual basis of accounting.

(b) Non-financial Assets

Non-financial assets are not available to discharge existing liabilities and are held for use in the provision of services. They have useful lives extending beyond the current year and are not intended for sale in the ordinary course of operations.

(i) Tangible Capital Assets

Tangible capital assets are recorded at cost which includes amounts that are directly attributable to acquisition, construction, development or betterment of the asset. The cost, less residual value, of the tangible capital assets, excluding land, are amortized on a straight line basis over their estimated useful lives as follows:

Asset	Useful Life - Years
Buildings and building improvements	15 – 40
Vehicles	5 – 15
Machinery and equipment	7 – 20
Water infrastructure	10 – 60
Computers	3

Annual amortization is charged in the year of acquisition and in the year of disposal using the half year rule. Assets under construction are not amortized until the asset is available for productive use.

(ii) Interest Capitalization

The interest costs associated with the acquisition or construction of a tangible capital asset are not capitalized.

(c) Revenue Recognition

The Entity recognizes revenue when water is drawn by each customer, collection of the relevant receivable is probable, persuasive evidence of an arrangement exists and the sales price is fixed or determinable.

2. Significant Accounting Policies (continued)

(d) Government Transfers

Government transfer payments to the Entity are recognized in the financial statements in the year in which the payment is authorized and the events giving rise to the transfer occur, performance criteria are met, and a reasonable estimate of the amount can be made. Funding that is stipulated to be used for specific purposes is only recognized as revenue in the fiscal year that the related expenses are incurred or services performed. If funding is received for which the related expenses have not yet been incurred or services performed, these amounts are recorded as a liability at year end.

(e) Use of Estimates

The preparation of financial statements in conformity with Canadian generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the year. Significant items subject to such estimates and assumptions include the valuation allowances for receivables and useful lives assigned to tangible capital assets.

Actual results could differ from those estimates.

(f) Budget Figures

Budget figures have been provided for comparison purposes. Given differences between the budgeting model and generally accepted accounting principles established by the Public Sector Accounting Board (“PSAB”), certain budgeted amounts have been reclassified to reflect the presentation adopted under PSAB.

(g) Liability for Contaminated Sites

Under PS 3260, liability for contaminated sites are defined as the result of contamination being introduced in air, soil, water or sediment of a chemical, organic, or radioactive material or live organism that exceeds an environmental standard. This Standard relates to sites that are not in productive use and sites in productive use where an unexpected event resulted in contamination.

2. Significant Accounting Policies (continued)

(h) Related Party Disclosures

Related parties exist when one party has the ability to control or has shared control over another party. Individuals that are key management personnel or close family members may also be related parties.

Disclosure is made when the transactions or events between related parties occur at a value different from what would have been recorded if they were not related and the transactions could have a material financial impact on the consolidated financial statements.

(i) Inter-entity Transactions

Transactions between related parties are recorded at carrying amounts with the exception of the following:

- Transactions in the normal course of business are recorded at exchange amount.
- Transactions with fair value consideration are recorded at exchange amount.
- Transfer of an asset or liability at nominal or no consideration is recorded by the provider at carrying amount and the recipient has the choice of either carrying amount or fair value.
- Cost allocations are reported using the exchange amount and revenues and expenses are reported on a gross basis.
- Unallocated costs for the provision of goods or services maybe recorded by the provider at cost, fair value or another amount dictated by policy, accountability structure or budget practice.

2. Significant Accounting Policies (continued)

(j) Future Accounting Pronouncements

These standards and amendments were not yet effective for the year ended December 31, 2022, and have therefore not been applied in preparing these financial statements. Management is currently assessing the impact of the following accounting standards updates on the future financial statements.

(i) Asset Retirement Obligations

PS 3280, Asset Retirement Obligations, addresses the recognition, measurement, presentation, and disclosure of legal obligations associated with retirement of tangible capital assets in productive use. This standard is effective for fiscal years beginning on or after April 1, 2022 (the Entity's December 31, 2023 year-end).

(ii) Financial Statement Presentation

PS 1201, Financial Statement Presentation requires entities to present a new statement of remeasurement gains and losses separate from the consolidated statement of operations and accumulated surplus. This new statement includes unrealized gains and losses arising from remeasurement of financial instruments and items denominated in foreign currencies and any other comprehensive income that arises when a government includes the results of government business enterprises and partnerships. This standard is effective for fiscal years beginning on or after April 1, 2022 and applies when PS 3450, Financial Instruments, and PS 2601, Foreign Currency Translation, and adopted (the Entity's December 31, 2023 year-end).

(iii) Financial Instruments

PS 3450, Financial Instruments, establishes the standards on accounting for and reporting all types of financial instruments including derivatives. The effective date of this standard has been deferred and is now effective for fiscal periods beginning on or after April 1, 2022 (the Entity's December 31, 2023 year-end).

(iv) Revenue

PS 3400, Revenue, establishes a single framework to categorize revenues to enhance the consistency of revenue recognition and its measurement. This standard is effective for fiscal years beginning on or after April 1, 2023 (the Entity's December 31, 2024 year-end).

3. Due from the Corporation of the City of London

As the Administering Municipality, the Corporation manages the daily operations of the Entity. The Corporation maintains a separate general ledger on behalf of the Entity. All funds are paid and received through the Corporation's bank account and are held for use by the Entity.

4. Loan Receivable

(a) Loan Receivable

	2022	2021
Repayment Loan - Municipality of North Middlesex	**$ 1,474,565**	$ 1,639,331
Interest Earned on Loan at prime rate less 2.69%	**$ 20,801**	$ -

Effective July 1, 2022, a repayment loan was established between the Lake Huron Area Primary Water Supply System and the Municipality of North Middlesex where the Municipality of North Middlesex will pay the Lake Huron Area Primary Water Supply Stem $1,639,331 over 10 years with a fixed rate of 2.69% paid semi-annually. This loan will mature in January 2032.

5. Long-term Debt

Long-term debt is stated as follows:

	2022	2021
Long-term debt assumed by the Corporation of the City of London, as Administering Municipality, on behalf of the Lake Huron Area Primary Water Supply System, with semi-annual interest payments:		
at a rate of 3.20% (2021 - rates ranging from 3.05% to 3.20%), maturing September 2022.	**$ -**	$ 195,075
at rates ranging from 3.65% to 3.80% (2021 - 3.45% to 3.80%), maturing September 2023.	**168,240**	332,130
at rates ranging from 1.75% to 2.25% (2021 - 1.55% to 2.25%), maturing March 2025.	**2,730,652**	3,615,124
at rates ranging from 2.00% to 2.85% (2021 - 1.80% to 2.85%), maturing March 2027.	**213,569**	253,458
Total long-term debt	**3,112,461**	4,395,787
Less: Unamortized debenture discount	**(16,428)**	(24,630)
Net long-term debt	**$ 3,096,033**	$ 4,371,157

The long-term debt repayment schedule is as follows:

2023	$ 1,106,232
2024	951,752
2025	965,816
2026	43,730
2027	44,931
Total	$ 3,112,461

Total interest charges for the year for long-term debt, which are included in the statement of operations, are as follows:

	2022	2021
Interest on long-term debt	**$ 81,138**	$ 108,578
Amortization of debenture discount	**8,201**	8,201
	$ 89,339	$ 116,779

6. Tangible Capital Assets

Cost	Balance at December 31, 2021	Additions	Disposals	Balance at December 31, 2022
Land	$ 2,524,816	$ -	$ -	**$ 2,524,816**
Buildings and building improvements	56,452,844	2,250,396	-	**58,703,240**
Machinery and equipment	36,544,315	9,321,405	8,066,029	**37,799,691**
Vehicles	11,527	-	-	**11,527**
Water infrastructure	120,245,187	319,059	-	**120,564,246**
Computers	480,199	19,037	99,517	**399,719**
Assets under construction	7,524,549	825,746	6,342,437	**2,007,858**
Total	$ 223,783,437	$ 12,735,643	$ 14,507,983	**$ 222,011,097**

Accumulated Amortization	Balance at December 31, 2021	Amortization Expense	Amortization Disposals	Balance at December 31, 2022
Land	$ -	$ -	$ -	**$ -**
Buildings and building improvements	22,396,125	2,330,661	-	**24,726,786**
Machinery and equipment	20,033,273	2,429,326	8,066,029	**14,396,570**
Vehicles	7,414	1,646	-	**9,060**
Water infrastructure	36,065,144	2,335,054	-	**38,400,198**
Computers	204,728	157,773	99,517	**262,984**
Assets under construction	-	-	-	**-**
Total	$ 78,706,684	$ 7,254,460	$ 8,165,546	**$ 77,795,598**

	Net Book Value December 31, 2021	Net Book Value December 31, 2022
Land	$ 2,524,816	**$ 2,524,816**
Buildings and building improvements	34,056,719	**33,976,454**
Machinery and equipment	16,511,042	**23,403,121**
Vehicles	4,113	**2,467**
Water infrastructure	84,180,043	**82,164,048**
Computers	275,471	**136,735**
Assets under construction	7,524,549	**2,007,858**
Total	$ 145,076,753	**$ 144,215,499**

6. Tangible Capital Assets (continued)

(a) Assets Under Construction

Assets under construction with a cost of **$2,007,858** (2021 - $7,524,549) have not been amortized. Amortization of these assets will commence when the asset is available for productive use.

(b) Tangible Capital Assets Disclosed at Nominal Values

Where an estimate of fair value could not be made, the tangible capital asset was recognized at a nominal value. Land is the only category where nominal values were assigned.

(c) Write-down of Tangible Capital Assets

There were **$nil** write-downs in tangible capital assets during the year (2021 - $nil).

7. Accumulated Surplus

Accumulated surplus consists of individual fund surplus and reserve funds as follows:

	2022	2021
Surplus		
Invested in tangible capital assets	**$ 141,628,614**	$ 139,795,274
Reserve funds set aside for specific purpose by the Entity:		
Infrastructure renewal - water operations	**49,371,931**	48,841,374
	$ 191,000,545	$ 188,636,648

8. Financial Instruments

(a) The carrying values of Due from the Corporation of the City of London, Trade and other receivables and Accounts payable and accrued liabilities approximate their fair values due to the relatively short periods to maturity of the instruments.

The fair value of Long-term debt approximates its carrying value as interest rates are similar to current market rates of interest available to the Entity.

(b) Financial Risks

The Entity is not exposed to any significant interest, foreign currency or credit risks arising from its financial instruments.

9. Contingent Liabilities

There are certain claims pending against the Entity as at December 31, 2022. The final outcome of these claims cannot be determined at this time, however management believes that settlement of these matters will not materially exceed amounts recorded in these financial statements.

10. Budget Data

Budget data presented in these financial statements are based upon the 2022 operating budget approved by the joint board of management. Adjustments to budgeted values were required to provide comparative budget values based on the full accrual basis of accounting. The chart below reconciles the approved budget with the budget figures as presented in these financial statements.

	Budget
Revenues	
User charges	$ 24,229,000
Municipal revenues - other	25,000
Total revenues	24,254,000
Expenses	
Personnel costs	961,318
Administrative expenses	61,850
Financial expenses - other	355,000
Financial expenses - interest and discount on long-term debt	89,339
Financial expenses - debt principal repayments	1,283,326
Financial expenses - transfers to reserves and reserve funds	8,920,632
Purchased services	1,546,850
Materials and supplies	10,659,650
Furniture and equipment	53,635
Other expenses	322,400
Total expenses	24,254,000
Net surplus as per budget	-
PSAB reporting requirements	
Transfers to reserves and reserve funds	8,920,632
Debt principal repayments	1,283,326
Capital funding earned	(1,105,180)
Amortization	(7,254,459)
Reserve fund interest earned	300,000
Net PSAB budget surplus as per financial statements	$ 2,144,319

Lake Huron
Primary Water Supply System

Board of Management Report

Subject: LH1216 Closed Loop Chorine Control Project

Overview:

- Multiple chlorine dosing locations are situated throughout the treatment processes within the water treatment plant requiring complex coordination and control.
- Flow changes and chlorine demand challenges cause changes in disinfection requirements throughout the treatment process.
- The existing chlorine control system is not user-friendly or accurate, needing intensive operator intervention to meet effective disinfection requirements.
- A plan to install an advanced control and coordination system was previously in place but was delayed due to operational and capital demands.

Recommendation

That the Board of Management for the Lake Huron Primary Water Supply System take the following actions with regard to the upgrade of the Close Loop Chlorine Control System project:

a) the Board of Management for the Lake Huron Primary Water Supply System **INCREASE** the project budget by $35,000 for a total approved budget of $135,000; it being noted that the funds will be provided from the Asset Replacement Reserve Fund; and,

b) The Board of Management for the Lake Huron Primary Water Supply System **RECEIVE** this report for information.

Previous and Related Reports

October 1, 2015 2016 Operating and Capital Budgets

Background

The existing control system used to monitor and balance the levels of pre-treatment and post-treatment chlorine dosing at the Lake Huron Water Treatment Plant (WTP) was installed as part of the previous SCADA system upgrade in 2008. Prior to the upgrades, a specialized software system was in place to optimize and coordinate chlorine dosing throughout the facility to ensure effective and efficient disinfection processes. The Closed Loop Chlorine Control System proposed is an update to the original specialized software, ensuring chlorine contact time (CT) required by Ontario regulation is continually met. The new control and coordination system accommodates the treatment latency and travel time (hours) within the treatment processes.

Discussion

Prior to the 2008 SCADA system upgrade, a chlorine dosing controller was in use to assist operators with the complex requirements of ensuring the correct amount of disinfectant was applied at the correct time throughout the water treatment process. When the SCADA upgrade occurred, the consultant had the SCADA integrator develop an internal program to facilitate this need. After several years, it was determined that the intrinsic program was insufficient, and a new version of the closed-loop control system should be installed.

A capital plan was developed to address this issue and the project was approved by the Board in 2016. As work began on this project, the High Lift Pump (HLP) Replacement project was also initiated. At that time, Board's contracted Operating Authority, OCWA, requested that the Closed Loop Chorine Control project be deferred until the completion of the HLP Replacement project. This was due to operational challenges with changing the pumps and with the flow values that needed to be put into the design were at that point theoretical.

Upon completion of the HLP Replacement project, OCWA reinitiated design and procurement discussions with the firm originally tasked with implementing the advanced closed loop chlorine control system. Given the time lapsed from the original cost estimate used to establish the 2016 budget, inflation has increased the cost of the overall project. As such, the requested increase in budget to complete the project is above administrative approval requirements and requires Board approval.

Project Financial Status

EXPENDITURE	FORECAST	INCURRED
Design and Installation	$110,000	$0
Other Fees and Charges	$15,000	$4,000
Contingency	$10,000	
Total	**$135,000**	**$4,000**
Approved Budget	**$100,000**	
Requested Budget	**$135,000**	
Budget Surplus / Deficit	-	

Conclusion

Completing the installation of the advanced closed loop chlorine system will ensure efficient and optimized dosing and more consistent disinfection residuals within the treatment plant and transmission system.

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

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

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