

AGENDA

Joint Board of Management Meeting



Thursday, February 27, 2020

12:00 pm

Tourism Sarnia-Lambton Assembly Room

1455 Venetian Blvd. Point Edward

1. Declaration of Pecuniary or Conflict of Interest

2. Approval of Regular Agenda Minutes

A copy of the minutes for the Thursday January 16, 2020 meeting of the LAWSS Joint Board of Management is attached to this agenda.

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **ADOPT** the January 16, 2020 meeting minutes."

3. Delegations

a. Presentation: Drinking Water Source Protection Efforts in Ontario

Jenna Allain, Source Protection Coordinator- Upper Thames River Conservation Authority & Stephan Clark, Risk Management Official / Inspector- St. Clair Region Conservation Authority

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **RECEIVE** "Drinking Water Source Protection Efforts in Ontario" presentation as information."

4. Financial Statements

A copy of the October 2019, November 2019, and December 2019 LAWSS budget statement and cash balance sheets are attached for review and approval.

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **RECEIVE** the December 2019

Project List and financial statements and cash balance sheets for October 2019, November 2019 and December 2019."

- a. October 2019 Financial Statement
- b. November 2019 Financial Statement
- c. December 2019 Financial Statement

5. Operational Statements

The November 2019, December 2019 and January 2020 Monthly Operations Reports are attached.

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **RECEIVE** as information the November 2019, December 2019 and January 2020 Operational Reports."

- a. November 2019 Operational Statement
- b. December 2019 Operational Statement
- c. January 2020 Operational Statement

6. Information Reports

The November 2019, December 2019 and January 2020 Flow Summaries and other information reports attached.

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **RECEIVE** as information the November 2019, December 2019 and January 2020 Flow Summaries, 2019 Annual Report, 2019 Annual Summary Report, and WTP Reservoir Maintenance Update."

- a. November 2019 Flow Summary Sheets
- b. December 2019 Flow Summary Sheets
- c. January 2020 Flow Summary Sheets
- d. 2019 Annual Report (Schedule 11)

- e. 2019 LAWSS WTP Annual Summary Report (Schedule 22)
- f. WTP Reservoir Update

7. Capital Update

- a. Admin HVAC Rebuild Update

That, on the recommendation of the LAWSS General Manager, the following actions be taken with respect to the report dated February 27, 2020, with respect to the Admin HVAC project:

Moved By _____

Seconded By _____

"That the Admin HVAC Rebuild project **BE CLOSED** with the surplus funds in the approximate amount of \$15,995 released to the Board's reserve fund."

- b. WLPS Special Valve Project

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **AUTHORIZE** OCWA Engineering Group to administer a specialized valve replacement project at West Lambton Pumping Station for the quoted amount of \$25,600 +taxes."

- c. LAWSS Master Plan Update – Demand Projections & Twinning & Grid Reinforcement Class EA Addendum

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **ENDORSE** the growth projections described in AECOM's report titled, "Water Demand Projection Analysis" dated February 19, 2020 for the development of the LAWSS Master Plan Update."

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **HIRE** AECOM to complete Twinning & Grid Reinforcement Class EA Addendum as per quoted amount of \$61,329.16+taxes as per section 6 under Negotiate Method in the LAWSS Procurement Policy".

- d. Watermain Condition Assessment Approach and Prioritization

The LAWSS Joint Board of Management approved \$35,000 in 2020 for an Engineering Study aimed at developing a prioritization plan for watermain condition assessments going forward. The new GIS System will provide an up-to-date foundation to facilitate this effort. LAWSS approached OCWA Engineering group with a request to quote this work.

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **HIRE** OCWA to complete a watermain condition assessment approach prioritization study for the quoted amount of \$30,200+taxes as per section 6 in the Negotiate Method of the LAWSS Procurement Policy".

e. Scope of Work- RFP Engineering Design for Main Plant HVAC

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **ENDORSE** the scope of work for Engineering Design for Main Plant HVAC."

f. Scope of Work- RFP Supervisor Control and Data Acquisition (SCADA) Master Plan

Moved By _____

Seconded By _____

That the LAWSS Joint Board of Management **ENDORSE** the scope of work for a Supervisor Control and Data Acquisition (SCADA) Master Plan

g. Scope of Work- RFP Engineering Design for 5kV Motor Control Group A&B Replacement.

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **ENDORSE** the scope of work for RFP-Engineering Design for 5kV Motor Control Group A&B Replacement."

8. Reports of Committees

9. Miscellaneous Reports

10. Ongoing Issues

a. Radiological Effluent Monitoring at LAWSS

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **RECEIVE** as information."

b. Brooke-Alvinston Water Supply System Modifications

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **RECEIVE** as information."

c. 2020 Emergency Preparedness Scenario at LAWSS.

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **ENDORSE** the 2020 emergency preparedness scenario as outlined in February 27, 2020 staff report".

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **AUTHORIZE** the LAWSS General Manager to request Member Municipality staff participation in the 2020 emergency preparedness scenario."

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **AUTHORIZE** AECOM to proceed with hydraulic modeling in the amount of \$6746+taxes to combine Lake Huron Primary Water Supply System (LHPWS) hydraulic water model with LAWSS hydraulic water model to measure LHPWS ability to support LAWSS."

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **AUTHORIZE** hydraulic water modeling in relation to the 2020 emergency preparedness scenario, including system wide recommissioning, to an upset limit of \$83,231.11."

11. Correspondence

a. Re: Nuclear Waste Management Organization (NWMO) Presentation to LAWSS

Response from NWMO on questions generated from Thursday, December

5, 2019 presentation of the Deep Geological Repository (DGR)

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **RECEIVE** correspondence from National Waste Management Organization detailing response to questions generated from December 5, 2019 presentation on the Deep Geological Repository."

12. New Business

a. LAWSS Compliance Coordinator (new FTE at LAWSS)

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **APPROVE** hiring a new employee at LAWSS within "Band 6" of the City of Sarnia's non-unionized rate scale."

b. Treatment Investigations at LAWSS Water Treatment Plant

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **HIRE** Jacobs to complete the Municipal Impact Study with an upset limit of \$113,000 as per section 6 of the Negotiate Method of the LAWSS Procurement Policy".

13. By-Laws

a. By-Law No. 1-2020 Confirming

Draft Confirming By-Law to confirm the proceedings of the LAWSS for the 2019 calendar year.

Moved By _____

Seconded By _____

"That the LAWSS Joint Board of Management **APPROVE** the 2019 Confirming By-Law."

b. By-Law No. 2-2020 to regulate the proceedings of the Lambton Area Water Supply System Joint Board of Management

Moved By _____

Seconded By _____

That the LAWSS Joint Board of Management **REPEAL** By-Law Number 2-

2016 and **REPLACE** with By-Law Number 2-2020 to regulate the proceedings of the Lambton Area Water Supply System Joint Board of Management.

14. IN-CAMERA Items

The Board will adjourn to an in-camera meeting if necessary.

Moved By _____

Seconded By _____

That the Board Adjourn to an in-camera session.

15. Chair to Rise and Report on the Matters of Public Concern from the In-Camera Session.

The Chair will report as required.

16. Adjournment/Next Meeting

Moved By _____

Seconded By _____

That the LAWSS Joint Board of Management **ADJOURN** this meeting to its next board meeting held on Thursday, March 26, 2020 at 12pm and the Tourism Sarnia-Lambton Assembly Room, 1455 Venetian Blvd. Point Edward."



Minutes

LAWSS Joint Board of Management Meeting

Thursday, January 16, 2020

12:00 pm

Tourism Sarnia-Lambton Assembly Room

1455 Venetian Blvd. Point Edward

Members

Mayor Bev Hand, Chair, Village of Point Edward

Mayor Steve Arnold, Vice-Chair, St. Clair Township

Councillor Margaret Bird, City of Sarnia

Mayor Lonny Napper, Town of Plympton-Wyoming

Mayor Jackie Rombouts, Township of Warwick

Mayor Bill Weber, Municipality of Lambton Shores

LAWSS General Manager:

Clinton Harper

Technical Staff:

Brian Black, St. Clair Township

Adam Sobanski, Town of Plympton-Wyoming

Jay Verstraeten, Village of Point Edward

David Jackson, City of Sarnia

Andrew Mavers, Township of Warwick

Mark Harris, OCWA Operations Manager

Suzanne Durling OCWA Admin

1. Declaration of Pecuniary or Conflict of Interest

2. Approval of Regular Agenda Minutes

A copy of the minutes for the December 5, 2019 meeting are attached to this agenda.

Moved by: Mayor Steve Arnold
Seconded by: Mayor Jackie Rombouts

"That the minutes of the Thursday, December 5, 2019 meeting of the LAWSS Board Meeting be adopted."

Carried

3. New Business

a. Election of New Chair and Vice-Chair

Moved by: Mayor Jackie Rombouts
Seconded by: Mayor Bill Weber

"Motion to nominate Mayor Bev Hand as Chair."

Carried

Moved by: Mayor Steve Arnold
Seconded by: Mayor Bill Weber

"Motion to nominate Mayor Jackie Rombouts as Vice Chair."

Carried

b. LAWSS Master Plan Update

Moved by: Mayor Steve Arnold
Seconded by: Mayor Jackie Rombouts

"That the LAWSS Board **AWARD** the 2020 LAWSS Master Plan Update to AECOM for the quoted amount of \$199,110 +taxes."

Carried

c. Municipal Drinking Water Licence Renewal - Financial Plan

Moved by: Mayor Steve Arnold
Seconded by: Councillor Margaret Bird

"That the LAWSS Board **APPROVE** \$12,500 from the reserve funds for Watson & Associates to complete a Municipal Drinking

Water Licence Renewal focused update of the LAWSS Financial Plan."

Carried

4. IN-CAMERA Items

Moved by: Mayor Steve Arnold

Seconded by: Mayor Bill Weber

"That the Board Adjourn to an in-camera session to discuss commercially sensitive information explicitly supplied in confidence to LAWSS, pursuant to s. 239 (3)(i) and (j) of the *Municipal Act, 2001*."

Carried

a. WTP Main 5kV Switchgear Replacement

5. Chair to Rise and Report on the Matters of Public Concern from the In-Camera Session.

Staff are directed to proceed with the purchase of the lowest bid received, within specifications, for the main-plant switchgear equipment necessary to complete the 2020 Generator Replacement capital project.

Moved by: Mayor Bill Weber

Seconded by: Mayor Jackie Rombouts

"Motion for LAWSS Board to authorize the General Manager to proceed with the low tender, within spec, for the purchase of the 5kV Switchgear."

Carried

6. Pending Reports

1) February 2020- Radio-logical Detection equipment at LAWSS

2) February 2020- Procedural By-Law Update

3) March 2020- Great Lakes Effluent Water and Wastewater Facility Inventory.

4) March 2020- LAWSS Residential, Commercial and Industrial Service connection Inventory

7. Adjournment/Next Meeting

Moved by: Mayor Bill Weber

Seconded by: Councillor Margaret Bird

"That the LAWSS Board adjourn this meeting to its next board meeting held on February 27, 2020 at noon at the Tourism Sarnia-Lambton Assembly Room, 1455 Venetian Blvd. Point Edward." at the Tourism Sarnia-Lambton Assembly Room, 1455 Venetian Blvd. Point Edward."

Carried

DRINKING WATER SOURCE PROTECTION

Our Actions Matter



Drinking Water Source Protection Efforts in Ontario

Jenna Allain, M.Sc.
Source Protection Coordinator
Thames-Sydenham & Region

Drinking Water Source Protection – What is it?

What is Source Water?

Source water is the untreated water in lakes and rivers, and in underground aquifers, that people use for drinking water.



What is Source Water Protection?

Established under the Ontario Clean Water Act, 2006, source water protection means protecting our sources of drinking water from contamination or overuse.



Drinking Water Source Protection – Where Did it Start?



Walkerton Water Crisis

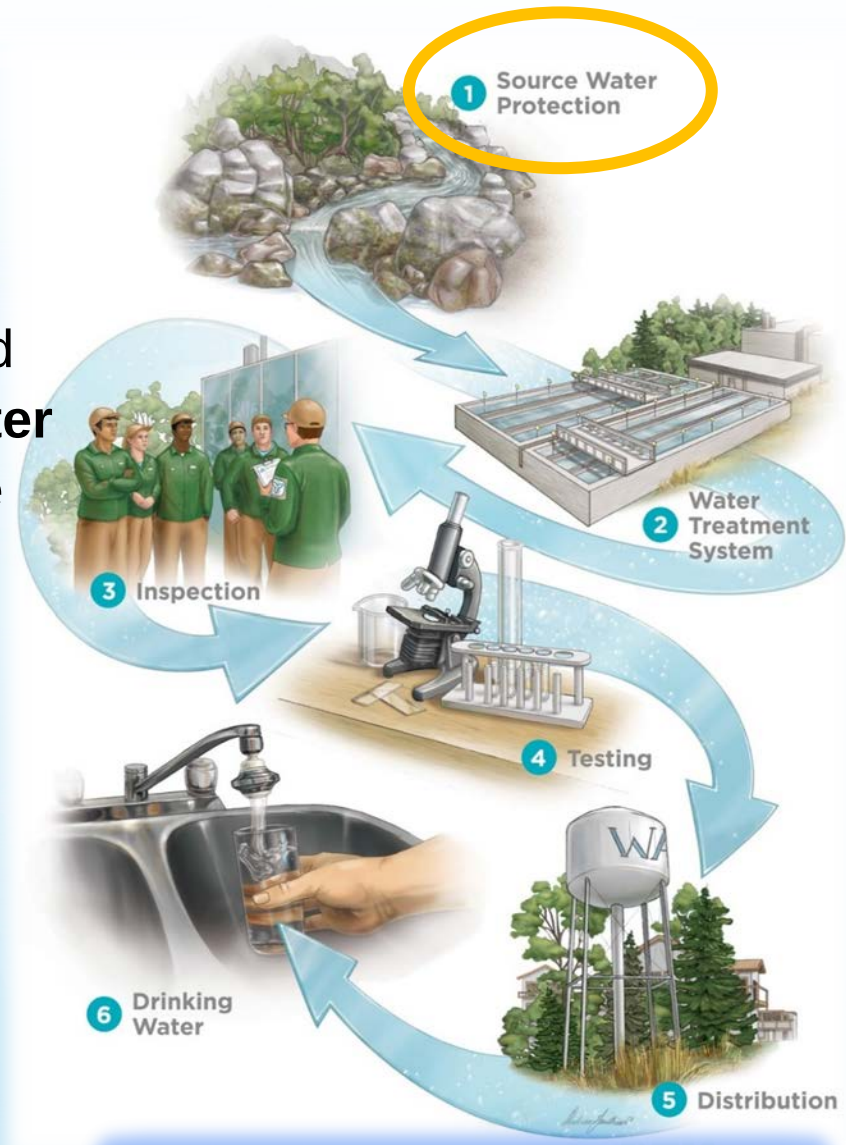
Canada's worst ever E. coli outbreak occurred in Walkerton, Ontario in May 2000

The contamination of the water supply led to 7 deaths and over 2300 people ill.

Many still living with long-term chronic illness.

The Clean Water Act

- Justice O'Connor's **inquiry** in 2002 included recommendations for source water protection.
- Ontario's **Clean Water Act** was passed in 2007, establishing the **Drinking Water Source Protection** program led by the Ministry of Environment, Conservation and Parks.
- The Act is mandatory for **municipal** residential systems. Municipalities can bring in **other** systems. **First Nations** have the option to join.



*Multi-barrier approach:
Protecting from Source to Tap*

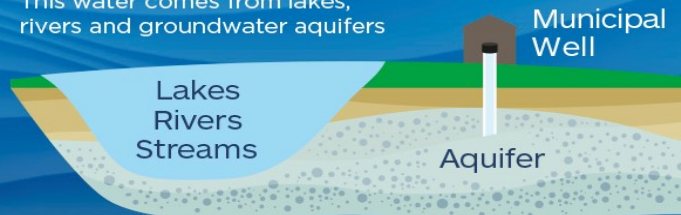
In the Know About H2O

Protecting municipal drinking water at its source



 **85%**
of Ontarians
rely on municipal water¹

This water comes from lakes,
rivers and groundwater aquifers



**Your water is treated at a
municipal treatment plant**

But pollutants can

be expensive



or

impossible to
remove

Prevention is key to protecting our drinking water sources

How is it protected?

Under the *Clean Water Act*, local **source protection plans** are in place across Ontario.



These plans protect
municipal drinking
water sources from
contamination
and overuse

More than

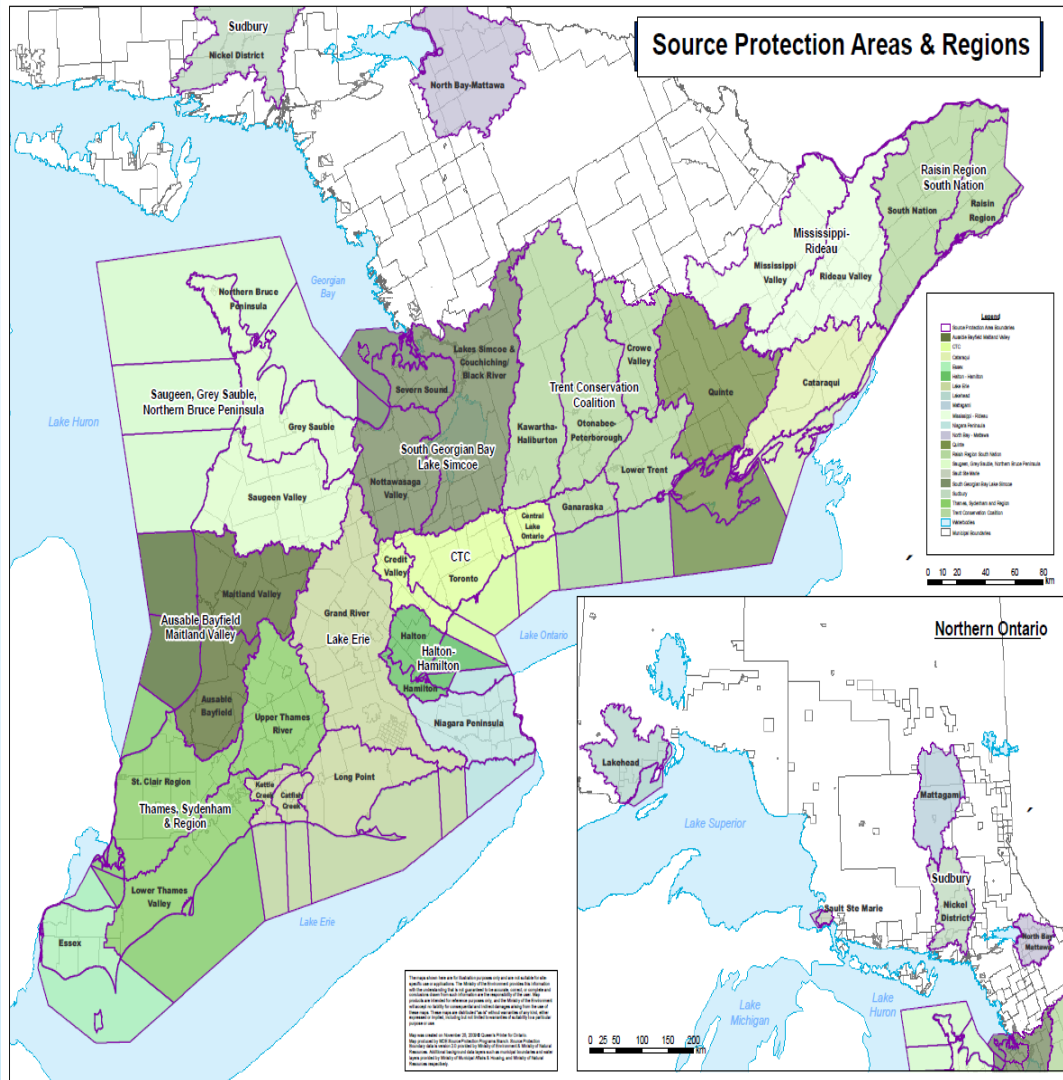
10

million people
are protected through the
**Ontario Drinking Water
Source Protection Program**



We all **play a role** in keeping our sources of drinking water clean and abundant

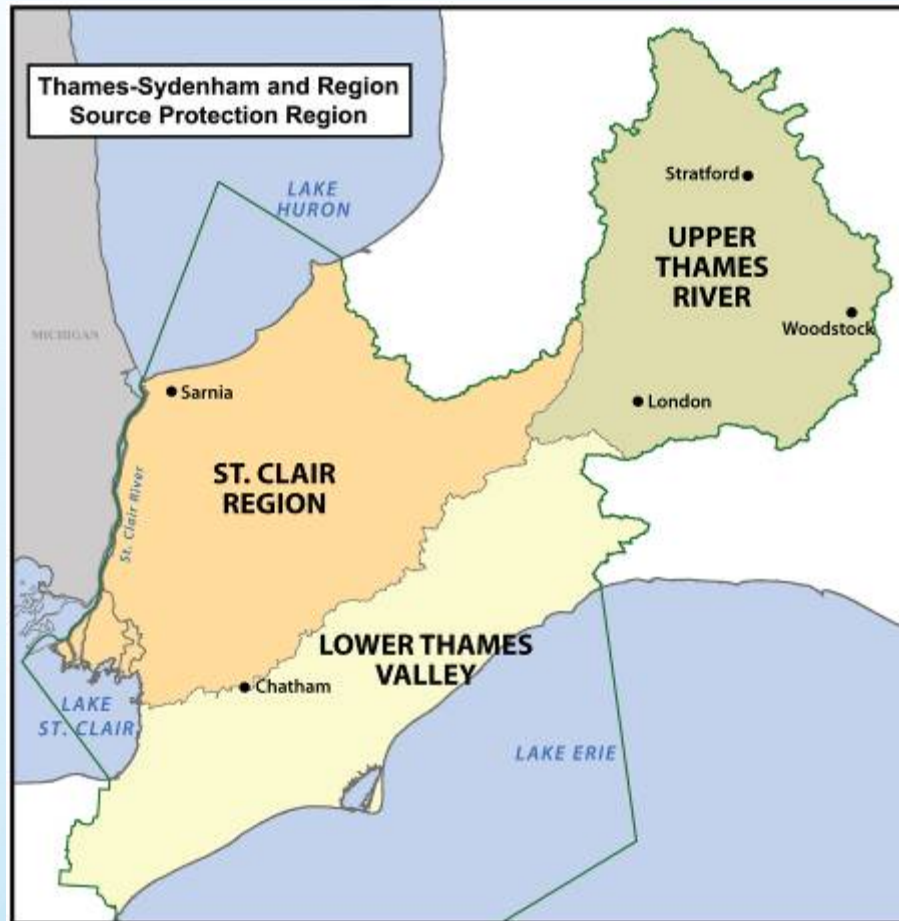
Source Protection Areas



The *Clean Water Act* formally established 38 watershed based Source Protection Areas, generally aligning with Conservation Authority boundaries:

- 10 source protection regions.
- 9 stand-alone source protection areas.
- Total of 19 unique planning areas, each of which has a Source Protection Committee and Minister-appointed Chair.
- Each Source Protection Committee and Authority is responsible for developing and maintaining their local source protection plan(s).

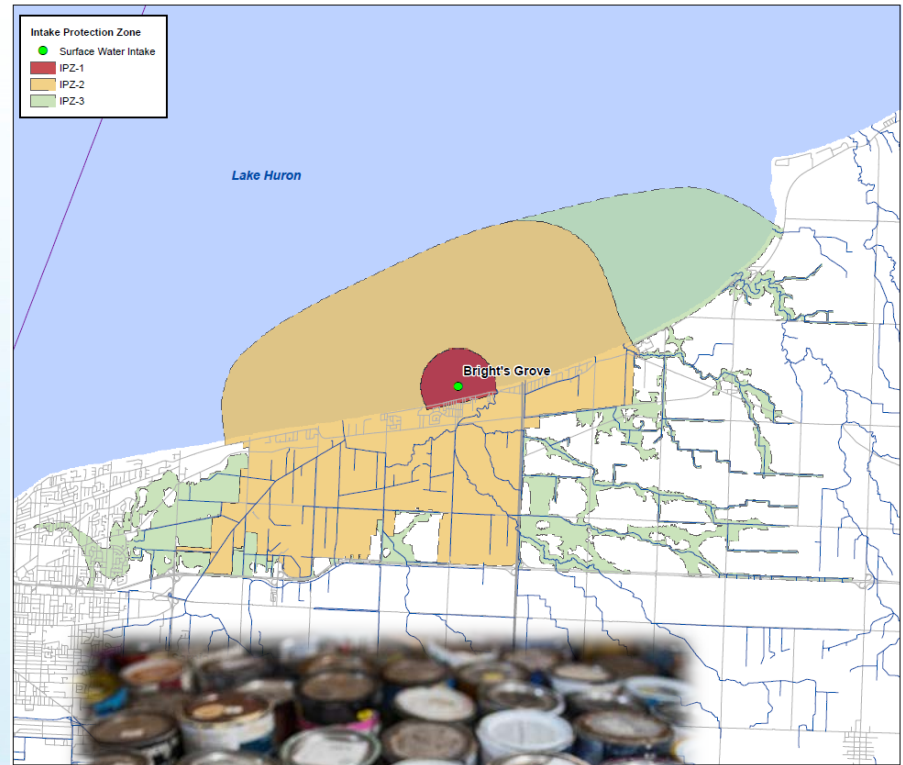
Thames-Sydenham & Region (TSR) Source Protection Region



- 8 First Nations
- 3 CAs
- 47 Municipalities
- 8 Health Units
- 746,000 people
- 3 Conservation Authorities have a staff team that facilitates the Source Protection planning process

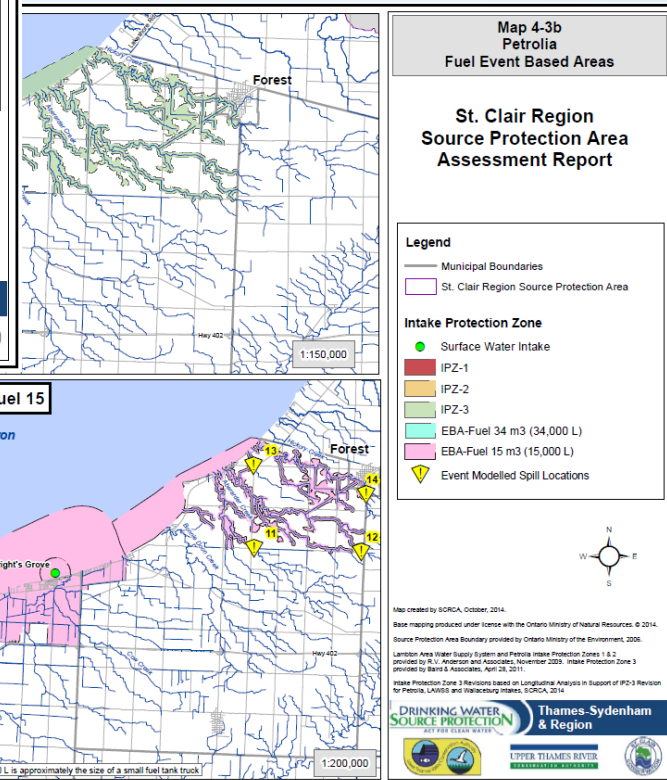
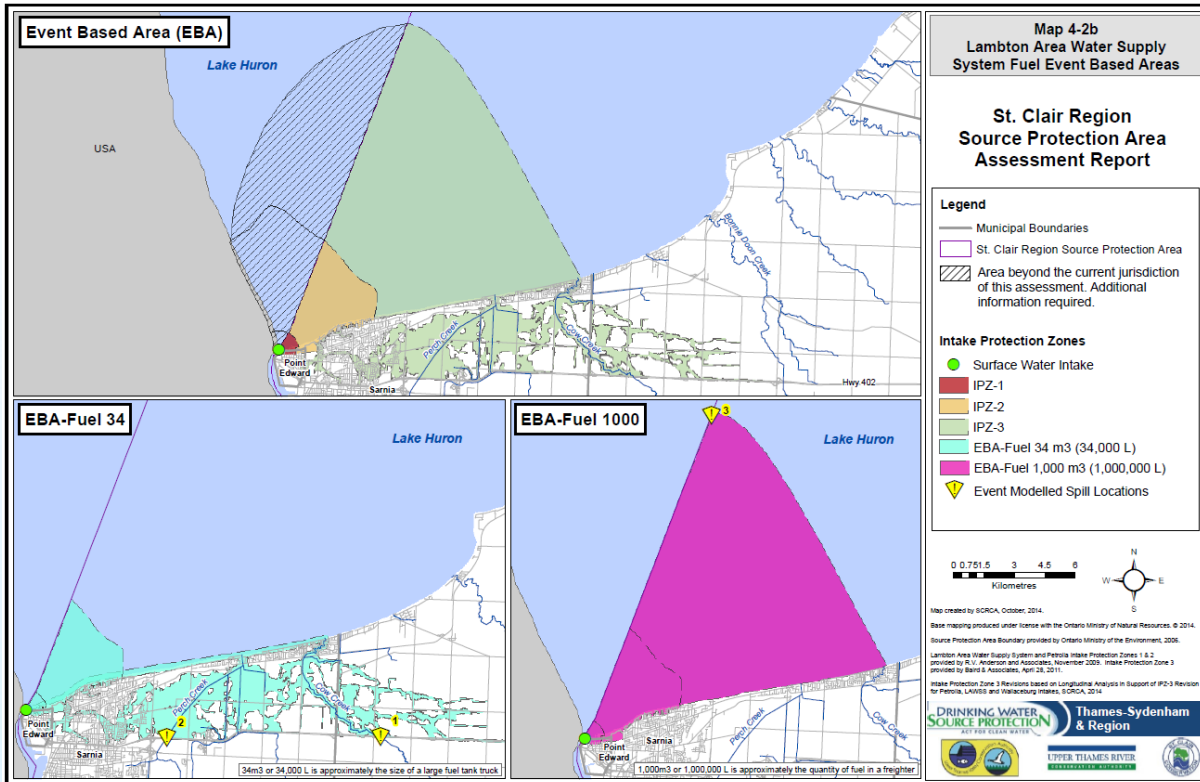
The Science

- **Vulnerable areas:** Wells, Intakes, vulnerable aquifers, groundwater recharge areas.
- **Possible threat activities:**
 - Commercial/industrial: landfills, gas stations, chemicals, water taking, impervious surfaces, etc.
 - Agricultural: manure, commercial fertilizers, biosolids, pesticides, livestock grazing, feedlots, etc.
 - Residential: septic systems, home heating oil, road salt, pesticides, etc.



Source Protection Science in St. Clair SPA

The St. Clair Region watershed is 4129 km², with drinking water supplies drawn from Lake Huron, Lake St. Clair and the Chenal Ecarte.



The handling and storage of large volumes of liquid fuel (>15,000 L) was identified as a significant drinking water threat. Modeling studies showed that such spills could result in contamination of the source water at the intakes.

Source Protection Plans: The Policies

- Local multi-stakeholder **Source Protection Committees** decided on the policy type and approach to address various threat activities.
- Policies either **manage or prohibit** a threat activity.
- Policies are **mandatory** to address activities assessed as **significant** level risks to sources of drinking water.



Municipalities and Source Protection

Municipalities have an ongoing role in source protection:

- Make up 1/3 of the membership of local source protection committees.
- Are required to work with local source protection authorities to keep plans current.
- Implementation and enforcement of the majority of policies identified in plans to address significant risks to municipal drinking water sources.



Municipal Roles & Responsibilities

Plan Implementation

- Under the Clean Water Act, municipalities must satisfy any obligations resulting from significant drinking water threat policies:
 - Day-to-day decisions under the *Planning Act* or *Condominium Act* must conform with Land Use Planning policies that address significant threats.
 - Official Plans and Zoning by-laws must also conform with Land Use Planning policies.
 - Must satisfy actions specified in other policies (e.g, spills response, road salt management plans).
- Where a source protection plan used Part IV policies (Risk Management Plans, Prohibition), municipalities must ensure that:
 - They have a trained Risk Management Official and Inspector (on staff or contracted); and
 - Have appropriate processes in place to screen and assess building permit and development applications for significant risks.

Risk Management Services

What Does it Mean?

- Source Protection Plan policies rely on tools under Part IV of the *Clean Water Act, 2006* to regulate or prohibit significant drinking water threats.
- Part IV tools include Prohibitions (S. 57), Risk Management Plans (S.58), and Restricted Land Use (S.59).
- The implementation of these Part IV tools is often referred to as “Risk Management Services”

Clean Water Act – Part IV

Under the Clean Water Act, **municipalities** are responsible for the implementation of Part IV policies.

Part IV under the CWA is administered and enforced by a Risk Management Official (RMO) and Risk Management Inspector (RMI)

Municipalities can delegate the RMO and RMI function to others, including Conservation Authorities.

What is a Risk Management Plan?

- Negotiated agreement between a person engaged in significant drinking water threat activity and the RMO
 - Flexible agreement
 - If not negotiated one can be established by the RMO
- Enforcement and compliance monitoring
 - Ability to “cause things to be done” and assess costs
 - Ability to lay charges and seek prosecution
- May be identified through
 - Site visits to existing activities
 - Development or building application
- Usually based on Best Management Practices



The Agreements

Risk Management Service Agreement

- between LAWSS and UTRCA

Delegation of Authority Agreements

- between UTRCA and the following four Lambton municipalities with Part IV implementation responsibilities: Lambton Shores, Plympton-Wyoming, Point Edward and St. Clair.

Agreement Term

- January 1, 2019 – December 31, 2020

What's Included.....

- **Completion of RMP's.**
- **Addressing threats on newly identified sites.**
- **Ongoing review of development proposals in vulnerable areas.**
- **Negotiation and establishment of new RMP's for newly identified threats.**
- **Develop and establish monitoring and inspection program.**
- **Initiate monitoring and inspection program.**



What's Included Continued.....

- Regular drive-by inspection of vulnerable areas to ensure compliance with RMP policies.
- Review and amend RMP's as activities or property owners change.
- Review and amend RMP's to address technical/program changes.
- Fulfillment of annual reporting requirements
- Further development of risk management services database to streamline and automate reporting.

Risk Management Service Staff

Jenna Allain

Source Protection Program Coordinator

- Administration
- Program Management

Katie Ebel

**Risk Management
Official/Inspector**

- City of London
- City of Stratford
- Town of St. Marys
- Municipality of West Perth
- Township of Perth South
- Township of Perth East



Steve Clark

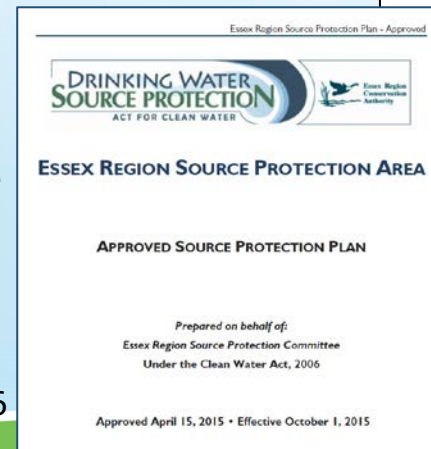
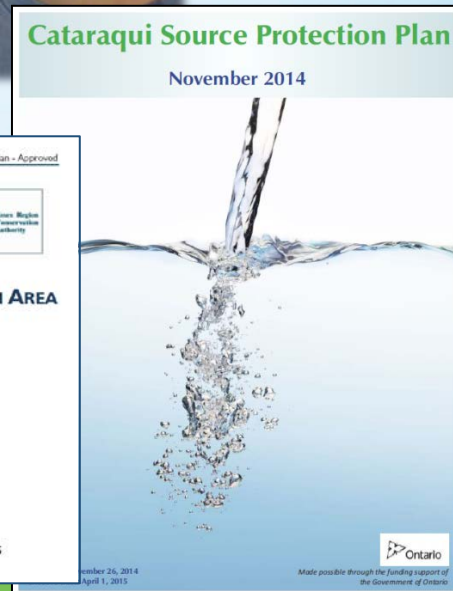
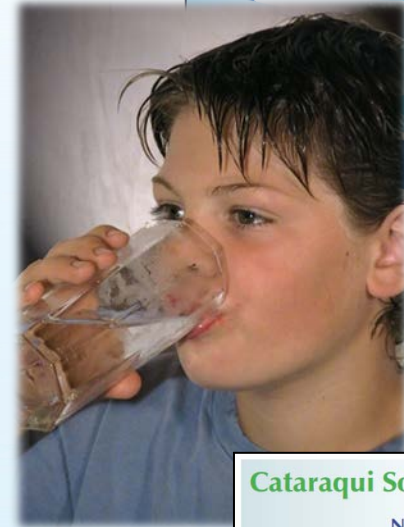
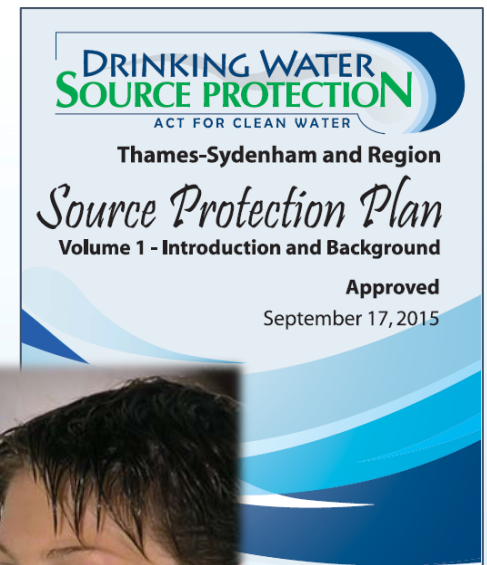
**Risk Management
Official/Inspector**

- Municipality of Chatham-Kent
- St. Clair Township
- Town of Plympton-Wyoming
- Village of Point Edward
- Municipality of Lambton Shores

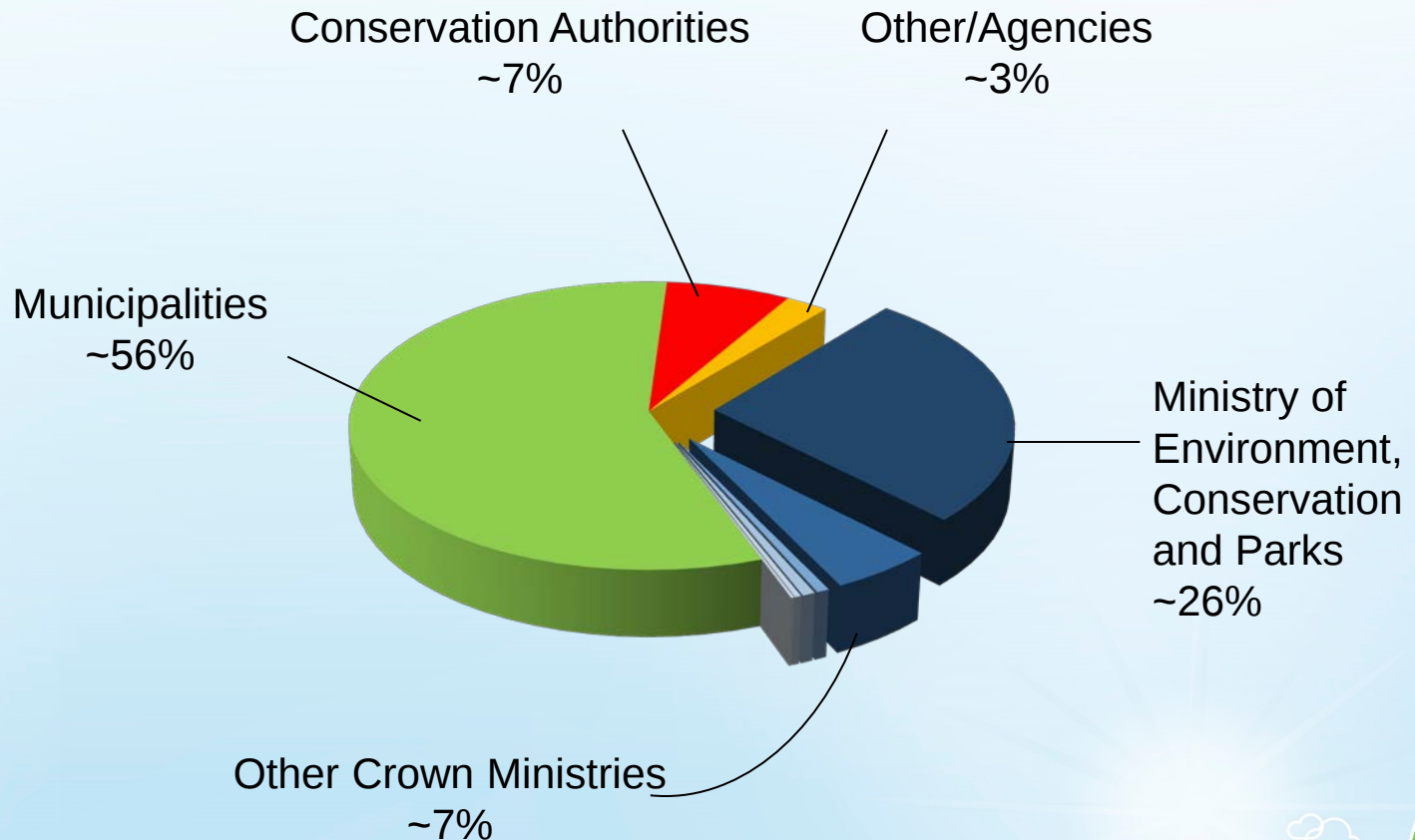


Drinking Water Source Protection in Ontario

- There are 22 local **Source Protection Plans** being implemented across Ontario.
- More than **12,500 policies** in the Source Protection Plans protect sources of municipal drinking water in Ontario for:
 - ✓ Over 900 groundwater wells
 - ✓ Over 70 Great Lakes intakes
 - ✓ Over 60 inland intakes
 - ✓ 13 Lake St. Clair and St. Lawrence River intakes.



Drinking Water Source Protection in Ontario



Policy Implementation Responsibility

Source Protection and First Nations

- **First Nations** community members participate on several local source protection committees.
- Three First Nations have included their drinking water systems in source protection planning:
 - Chippewas of Kettle and Stony Point
 - Chippewas of Rama First Nation
 - Six Nations of the Grand River.



“The resources and the environment are not separate issues from an Aboriginal worldview because we believe that we should live in harmony and hold resources in trust for future generations”.

Dr. Dean Jacobs, Walpole Island Heritage Centre. May 2004.

Source Protection Plan Progress Reporting Across Ontario

II. A message from your local Source Protection Committee

Our progress score on achieving source protection plan objectives this reporting period:



P : Progressing Well/On Target – The majority of the source protection plan policies have been implemented and/or are progressing.



S : Satisfactory – Some of the source protection plan policies have been implemented and/or are progressing.



L : Limited progress – A few of source protection plan policies have been implemented and/or are progressing.

✓ **Thousands of threat activities are being addressed through local source protection plan implementation, fulfilling the mandate of Ontario's Clean Water Act, 2006.**

Source Protection Plan Progress Reporting Across Ontario

- **Official Plan Conformity**

- Most municipalities in Ontario are amending or have amended their Official Plans and zoning by laws to conform with local source protection plan policies.

- **Provincial Instruments**

- These are instruments help to address future (new) and existing significant drinking water threats e.g. Environmental Compliance Approvals.
- The Ontario government has a screening mechanism in place for new applications and they amend Instruments as needed to address any new threats.



Source Protection Plan Progress Reporting Across Ontario

- **Septic Inspections:** These occur in certain vulnerable areas around wells and intakes, septic systems are subject to mandatory inspections.
- **Risk Management Plans:**
 - These include actions to prevent contamination and overuse of water sources. For example, measures to prevent runoff and spills.
 - They are required to be established in consultation with a Risk Management Official.
 - Inspections are by a Risk Management Inspector.

- ✓ Over 4000 septic systems are inspected.
- ✓ Over 400 risk management plans are established.

Source Protection Plan Progress Reporting Across Ontario

✓ Over 900 Road Signs Installed!

- The Ministry of Transportation Ontario and municipalities in Ontario have installed road signs.
- The signs enhance awareness about Drinking Water Protection Zones and the program in Ontario.



Education and Outreach

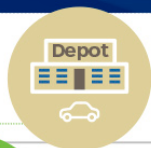
Our Actions Matter

5 things you can do at home to protect and conserve water

The best way to protect our drinking water is to keep the source of it clean and plentiful in the first place. Here are some practical tips:

Properly dispose of **hazardous waste**

Drop it off at your Hazardous Waste Depot.



Reduce use of **pesticides and herbicides** – and apply as directed.



Apply **winter salt** only as needed.



Select **non-toxic chemicals and cleaners**.



Keep fuel away from **storm drains**.



Find out more on protecting our sources of drinking water and how you can help at protectingwatermatters.ca.



Drinking Water Source Protection Primer: For Real Estate Sales Representatives

This primer was developed to help you understand the impact of drinking water source protection – so you can provide your clients (whether you represent a buyer or a seller) with relevant information about the property for sale.

What is drinking water source protection?

We all rely on safe, sustainable drinking water. While municipal drinking water in Ontario is considered safe and reliable – it's important to consider the source of the water that comes into your municipality's treatment plant. Protecting the water at its source is an important first step in the drinking water safety net.

Ontario has a comprehensive Drinking Water Source Protection Program to ensure sources of municipal drinking water are protected now and



Where does our drinking water come from?

Our province's drinking water comes from

Aide à protéger et à conserver notre eau



Réduisons l'épandage de sel abrasif



NEW: Climate Change Project

- Drinking water source protection stakeholders asked for a means to determine **how climate change may impact source water quality**.
- Therefore, the Ministry of the Environment, Conservation and Parks initiated a project 2017-18.
- The results of this project may lead to Clean Water Act amendments to enable Source Protection Authorities to apply the approach, subject to local decision making by Source Protection Committees.



Thank you.



DRINKING WATER
SOURCE PROTECTION
Our Actions Matter

		October Actual	Month Budget	YTD - ACTUAL	YTD - Budget	Annual Budget	Variance	Percent of Budget Used
Municipality Revenue								
	4050 Municipality Revenue	-798,349.84	-798,369.83	-8,037,912.59	-8,037,912.59	-9,805,197.00	0.00	82%
	Sarnia	-491,623.80	-491,623.80	-4,916,238.00	-4,916,238.00	-5,899,486.00	0.00	83%
	St. Clair Township	-208,848.33	-208,848.33	-2,088,483.22	-2,088,483.22	-2,506,180.00	0.00	83%
	Plympton-Wyoming	-39,438.50	-39,458.50	-394,464.92	-394,464.92	-473,261.00	0.00	83%
	Lambton Shores	-15,567.82	-15,567.82	-155,678.20	-155,678.20	-186,814.00	0.00	83%
	Warwick	-23,072.31	-23,072.31	-230,723.10	-230,723.10	-276,867.00	0.00	83%
	Point Edward	-19,799.08	-19,799.07	-197,990.75	-197,990.75	-237,589.00	0.00	83%
	Bluewater Power Distribution Corp.			0.00	0.00		0.00	
	4120 Brooke-Alvinston Revenue	-40,811.12	0.00	-123,021.14	0.00	-225,000.00	-123,021.14	55%
	Total Municipalities Revenue	-839,160.96	-798,369.83	-8,106,599.33	-7,983,578.19	-9,805,197.00	-123,021.14	83%
Other Revenue								
	4130 Emergency Water Taking		0.00	0.00	0.00	0.00	0.00	0%
	4150 LAWSS Other Revenue		0.00	0.00	0.00	0.00	0.00	0%
	Canada Coast Guard		0.00	0.00	0.00	-7,000.00	0.00	0%
	County of Lambton		0.00	-8,400.00	0.00	-7,000.00	-8,400.00	120%
	Bluewater Power- Reimbursement Progra,	-8,295.00	1.00	-14,495.76	0.00	-6,200.76	-14,495.76	
	4430 Misc. Revenue (HST Rebate)		0.00	0.00	0.00	-100,000.00	0.00	0%
	4430 Misc. Revenue from NOVA	-8,500.00	0.00	-8,500.00	0.00	0.00	-8,500.00	0%
	4430 Misc. Revenue from Canadian Coast Guard		0.00	-7,000.00	0.00	0.00	-7,000.00	0%
	4430 Misc. Revenue from OPA		0.00	0.00	0.00		0.00	
	Total Other Revenue	-16,795.00	1.00	-38,395.76	0.00	-120,200.76	-38,395.76	32%
Investment Interest								
	4420 Interest Earned	-21,144.78	-15,000.00	-183,389.76	0.00	-72,000.00	-183,389.76	255%
Project Expenses								
	Total Revenue	-877,100.74	-813,368.83	-8,328,384.85	-7,983,578.19	-9,997,397.76	-344,806.66	83%
5100	Project Expenses	54,477.95	0.00	1,102,113.28	1,200,131.21	9,477,383.00	96,093.00	12%
	19-01 Eng Studies - WTP HVAC Dehumidification		0.00	17,553.60	0.00	20,000.00	-2,446.40	88%
	19-02 Eng Studies- WTP SCADA Mitigation (Filtration Controls)	29,530.35	0.00	29,530.35	0.00	5,000.00	24,530.35	591%
	19-03 Eng Studies- WLPS Tank Re-Coating		0.00	0.00	0.00	30,000.00	-30,000.00	0%
	19-04 HVAC Admin Replacement Project		0.00	255,332.39	0.00	250,000.00	5,332.39	102%
	19-05 WTP PLC Conversion /upgrade construction		0.00	0.00	0.00	150,000.00	-150,000.00	0%
	19-06 WTP Exterior Transformers		0.00	0.00	0.00	500,000.00	-500,000.00	0%
	19-07 Transmission Watermain Leak Detection- Phase 1		0.00	0.00	0.00	230,000.00	-230,000.00	0%
	19-08 Flow Restruction/Chamber Removal Project(x6)		0.00	0.00	0.00	175,000.00	-175,000.00	0%
	R19-01 Engineering Study - LAWSS Accessibility Review	14,237.60	1.00	20,289.48	0.00	0.00	20,289.48	#DIV/0!
	R19-02 Engineering Study - CDM Study		2.00	9,153.31	0.00	0.00	9,153.31	#DIV/0!
	R19-03 Engineering Study - Electrical Reliability Study		3.00	15,874.56	0.00	0.00	15,874.56	#DIV/0!
	Tasks carried over from 2018	10,710.00	0.00	754,379.59	644,672.88	5,157,383.00	96,093.00	15%
	14-03 Polymer Systeme Replacement		0.00	1,967.71	0.00	0.00	1,967.71	
	14-09 Main Plant HVAC		0.00	0.00	73,422.88	587,383.00	-73,422.88	0%
	17-05 Engineering Design for Emergency Generators		0.00	66,398.40	31,250.00	250,000.00	35,148.40	27%
	18-01 Rebuild 32" Ross Valve at WLBS		0.00	0.00	8,750.00	70,000.00	-8,750.00	0%
	18-02 New Generators Replacement (Including Air Louvers	-1,198.53	0.00	257,649.21	500,000.00	4,000,000.00	-242,350.79	6%
	18-03 SCADA Radio Replacement Work (Installation)	11,908.53	0.00	354,648.52	18,750.00	150,000.00	335,898.52	236%
	18-04 Engineering Studies		0.00	62,069.74	12,500.00	100,000.00	49,569.74	62%
	R18-02 Admin HVAC		0.00	11,646.01				
					0.00			
5150	Distribution Repairs	1,912.30	3,000.00	41,911.06	25,000.00	200,000.00	16,911.06	21%
5175	Facility Maintenance	2,096.34	6,000.00	8,046.76	3,750.00	30,000.00	4,296.76	

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	October Actual	Month Budget	YTD - ACTUAL	YTD - Budget	Annual Budget	Variance	Percent of Budget Used
Major Maintenance	11,322.84	0.00	157,312.45	15,458.33	240,000.00	102,930.92	66%
MM19-01 WTP HMI Computer Replacement		0.00	0.00	833.33	10,000.00	-833.33	0%
MM19-02 WTP Crack Injection Leak Sealing		0.00	38,668.80	3,583.33	43,000.00	35,085.47	0%
MM19-03 WTP Emergency Lights Sealing		0.00	0.00	125.00	1,500.00	-125.00	0%
MM19-04 WTP Sluice gate Inspection and Maintenance		0.00	35,942.44	1,250.00	15,000.00	34,692.44	240%
MM19-05 WTP EQ Tank Cleanout Inspection		0.00	20,711.98	833.33	10,000.00	19,878.65	207%
MM19-06 WTP Eye Wash Station Upgrade		0.00	11,031.63	1,666.67	20,000.00	9,364.96	55%
MM19-07 WLPS Electrical Inspection- 3rd Party Contractor		0.00	8,939.62	833.33	10,000.00	8,106.29	89%
MM19-08 WLPS Motor HLP-2 (VFD Compliant)		0.00	0.00	2,083.33	25,000.00	-2,083.33	0%
MM19-09 WLPS Louvre Actuator Standby Generator Room		0.00	0.00	2,083.33	25,000.00	-2,083.33	0%
MM19-10 ELPS Pump #1 (Watford) Refurbishment		0.00	0.00	833.33	10,000.00	-833.33	0%
MM19-11 ELPS Electrical Inspection- 3rd Party Contractor		0.00	4,149.77	416.67	5,000.00	3,733.10	83%
MM19-12 Vibration Monitoring Program		0.00	1,790.98	83.33	1,000.00	1,707.65	179%
MM19-13 Valve 16" at Camalchie Rd and London Line	11,322.84	0.00	15,622.20	833.33	10,000.00	14,788.87	156%
MM19-14 Hydrant installation London Line (blow off)		0.00	0.00	1,250.00	15,000.00	-1,250.00	0%
MM19-15 Chamber (flow) abandonment		0.00	8,276.93	1,250.00	15,000.00	7,026.93	55%
MM19-16 Waterline Makers Rural		0.00	3,347.37	250.00	3,000.00	3,097.37	112%
MM19-17 Air Relief valves		0.00	1,110.20	125.00	1,500.00	985.20	74%
MM19-18 Concrete Pipe end closures and 20" lengths		0.00	0.00	833.33	10,000.00	-833.33	0%
MM19-19 Repair Clamps & Appurtenances		0.00	7,466.13	833.33	10,000.00	6,632.80	75%
MM18-12 Hydrant Replacement In Pt.Edward		0.00	254.40	0.00		254.40	#DIV/0!
General & Administrative Expenses							
5200 OCWA Operating & Maintenance	368,284.00	368,284.00	3,682,840.00	368,261.92	4,419,143.00	3,314,578.08	83%
5300 Flow Reconciliations		0.00	0.00	12,500.00	150,000.00	-12,500.00	0%
5400 LAWS Wages & Benefits	10,177.85	32,736.48	123,929.11	20,833.33	250,000.00	103,095.78	50%
5450 WSIB	0.00	0.00	915.49	125.00	1,500.00	790.49	61%
5500 Audit Fees	0.00	0.00	14,265.23	1,166.67	14,000.00	13,098.56	102%
5505 Consulting	0.00	1.00	1,989.12	208.33	2,500.00		
5510 Accounting & Legal	1,419.55	1,419.50	14,356.01	1,666.67	20,000.00	12,689.34	72%
5515 Advertising & Promotions		0.00	1,060.53	16.67	200.00	1,043.86	0%
5520 Membership Fees		0.00	407.04	166.67	2,000.00	240.37	20%
5522 Education / Conference		1,550.00	3,842.41	333.33	4,000.00	3,509.08	96%
5535 Courier & Postage		0.00	112.25	41.67	500.00	70.58	22%
5540 Income Taxes		0.00	0.00	0.00	0.00	0.00	0%
5545 Property Taxes	8,955.48	9,000.00	181,875.97	14,583.33	175,000.00	167,292.64	104%
5550 Property Administration	179.76	300.00	9,033.12	1,250.00	15,000.00	7,783.12	60%
5555 Insurance		0.00	21,772.80	1,750.00	21,000.00	20,022.80	104%
5560 Interest & Bank Charges		0.00	0.00	8.33	100.00	-8.33	0%
5565 Office Supplies	164.13	0.00	4,662.32	250.00	3,000.00	4,412.32	155%
5566 Computer Software	14,214.59	13,000.00	32,693.17	1,333.33	16,000.00	31,359.84	204%
5570 Internet	85.43	85.00	768.87	125.00	1,500.00	643.87	51%
5571 GIS and Internet Services		0.00	0.00	183.33	2,200.00	-183.33	0%
5575 Travel (Includes Mileage)	91.86	18.50	863.88	125.00	1,500.00	738.88	58%
5576 Vehicle Expenses		0.00	0.00	1,041.67	12,500.00	-1,041.67	0%
5580 Telephone	167.16	140.00	1,426.39	125.00	1,500.00	1,301.39	95%
5585 Mobile Phone	116.63	375.00	2,058.04	125.00	1,500.00	1,933.04	137%
5590 Meals & Entertainment	220.27	76.00	1,863.03	208.33	2,500.00	1,654.70	75%
5600 Miscellaneous Expense	177.06	270.00	1,427.06	166.67	2,000.00	1,260.39	71%
St.Clair Conservation Consult		0.00	0.00	2,500.00	30,000.00		
Total Expenses	460,644.02	430,255.48	5,411,545.39	2,314,357.67	20,223,909.00	3,673,785.80	27%

Lambton Area Water Supply System
Cash Balance Sheet as at October 31,2019

LAWSS Bank Account on October 1, 2019	<u>10,360,051.77</u>
LAWSS Accounts Receivable - Received	<u>645,201.61</u>
	<u>11,005,253.38</u>
LAWSS Accounts Payable - Paid	<u>99,537.31</u>
LAWSS Accounts Payable - Outstanding	<u>500,381.26</u>
	<u>599,918.57</u>
LAWSS Bank Account on October 31, 2019	<u>10,905,716.07</u>
Adjusted Bank Balance on October 31,2019	<u>10,405,334.81</u>
Cash in Reserve	<u>1,994,873.22</u>

		November Actual	Month Budget	YTD - ACTUAL	YTD - Budget	Annual Budget	Variance	Percent of Budget Used
Municipality Revenue								
4050	Municipality Revenue	-798,349.84	-798,369.83	-8,836,262.43	-8,836,262.43	-9,805,197.00	0.00	90%
	Sarnia	-491,623.80	-491,623.80	-5,407,861.80	-5,407,861.80	-5,899,486.00	0.00	92%
	St. Clair Township	-208,848.33	-208,848.33	-2,297,331.55	-2,297,331.55	-2,506,180.00	0.00	92%
	Plympton-Wyoming	-39,438.50	-39,458.50	-433,903.42	-433,903.42	-473,261.00	0.00	92%
	Lambton Shores	-15,567.82	-15,567.82	-171,246.02	-171,246.02	-186,814.00	0.00	92%
	Warwick	-23,072.31	-23,072.31	-253,795.41	-253,795.41	-276,867.00	0.00	92%
	Point Edward	-19,799.08	-19,799.07	-217,789.83	-217,789.83	-237,589.00	0.00	92%
	Bluewater Power Distribution Corp.			0.00	0.00		0.00	
4120	Brooke-Alvinston Revenue		0.00	-123,021.14	0.00	-225,000.00	-123,021.14	55%
	Total Municipalities Revenue	-798,349.84	-798,369.83	-8,904,949.17	-8,781,928.03	-9,805,197.00	-123,021.14	91%
Other Revenue								
4130	Emergency Water Taking		0.00	0.00	0.00	0.00	0.00	0%
4150	LAWSS Other Revenue		0.00	0.00	0.00	0.00	0.00	0%
	Canada Coast Guard		0.00	0.00	0.00	-7,000.00	0.00	0%
	County of Lambton		0.00	-8,400.00	0.00	-7,000.00	-8,400.00	120%
	Bluewater Power- Reimbursement Progra,		1.00	-14,495.76	0.00	-6,200.76	-14,495.76	
4430	Misc. Revenue (HST Rebate)		0.00	0.00	0.00	-100,000.00	0.00	0%
4430	Misc. Revenue from NOVA		0.00	-8,500.00	0.00	0.00	-8,500.00	0%
4430	Misc. Revenue from Canadian Coast Guard		0.00	-7,000.00	0.00	0.00	-7,000.00	0%
4430	Misc. Revenue from OPA		0.00	0.00	0.00	0.00	0.00	
	Total Other Revenue	0.00	1.00	-38,395.76	0.00	-120,200.76	-38,395.76	32%
Investment Interest								
4420	Interest Earned	-22,730.63	-15,000.00	-206,120.39	0.00	-72,000.00	-206,120.39	286%
Project Expenses								
5100	Total Revenue	-821,080.47	-813,368.83	-9,149,465.32	-8,781,928.03	-9,997,397.76	-367,537.29	92%
	Project Expenses	0.00	0.00	1,102,113.28	1,200,131.21	9,477,383.00	96,093.00	12%
	19-01 Eng Studies - WTP HVAC Dehumidification		0.00	17,553.60	0.00	20,000.00	-2,446.40	88%
	19-02 Eng Studies- WTP SCADA Mitigation (Filtration Controls)		0.00	29,530.35	0.00	5,000.00	24,530.35	591%
	19-03 Eng Studies- WLPS Tank Re-Coating		0.00	0.00	0.00	30,000.00	-30,000.00	0%
	19-04 HVAC Admin Replacement Project		0.00	255,332.39	0.00	250,000.00	5,332.39	102%
	19-05 WTP PLC Conversion /upgrade construction		0.00	0.00	0.00	150,000.00	-150,000.00	0%
	19-06 WTP Exterior Transformers		0.00	0.00	0.00	500,000.00	-500,000.00	0%
	19-07 Transmission Watermain Leak Detection- Phase 1		0.00	0.00	0.00	230,000.00	-230,000.00	0%
	19-08 Flow Restruction/Chamber Removal Project(x6)		0.00	0.00	0.00	175,000.00	-175,000.00	0%
	R19-01 Engineering Study - LAWSS Accessibility Review		1.00	20,289.48	0.00	0.00	20,289.48	#DIV/0!
	R19-02 Engineering Study - CDM Study		2.00	9,153.31	0.00	0.00	9,153.31	#DIV/0!
	R19-03 Engineering Study - Electrical Reliability Study		3.00	15,874.56	0.00	0.00	15,874.56	#DIV/0!
	Tasks carried over from 2018	0.00	0.00	754,379.59	644,672.88	5,157,383.00	96,093.00	15%
	14-03 Polymer Systeme Replacement		0.00	1,967.71	0.00	0.00	1,967.71	
	14-09 Main Plant HVAC		0.00	0.00	73,422.88	587,383.00	-73,422.88	0%
	17-05 Engineering Design for Emergency Generators		0.00	66,398.40	31,250.00	250,000.00	35,148.40	27%
	18-01 Rebuild 32" Ross Valve at WLBS		0.00	0.00	8,750.00	70,000.00	-8,750.00	0%
	18-02 New Generators Replacement (Including Air Louvers		0.00	257,649.21	500,000.00	4,000,000.00	-242,350.79	6%
	18-03 SCADA Radio Replacement Work (Installation)		0.00	354,648.52	18,750.00	150,000.00	335,898.52	236%
	18-04 Engineering Studies		0.00	62,069.74	12,500.00	100,000.00	49,569.74	62%
	R18-02 Admin HVAC		0.00	11,646.01				
					0.00			
5150	Distribution Repairs	21,288.40	3,000.00	63,199.46	25,000.00	200,000.00	38,199.46	32%
5175	Facility Maintenance	1,574.70	6,000.00	9,621.46	3,750.00	30,000.00	5,871.46	

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	November Actual	Month Budget	YTD - ACTUAL	YTD - Budget	Annual Budget	Variance	Percent of Budget Used
Major Maintenance	0.00	0.00	157,312.45	15,458.33	240,000.00	102,930.92	66%
MM19-01 WTP HMI Computer Replacement		0.00	0.00	833.33	10,000.00	-833.33	0%
MM19-02 WTP Crack Injection Leak Sealing		0.00	38,668.80	3,583.33	43,000.00	35,085.47	0%
MM19-03 WTP Emergency Lights Sealing		0.00	0.00	125.00	1,500.00	-125.00	0%
MM19-04 WTP Sluice gate Inspection and Maintenance		0.00	35,942.44	1,250.00	15,000.00	34,692.44	240%
MM19-05 WTP EQ Tank Cleanout Inspection		0.00	20,711.98	833.33	10,000.00	19,878.65	207%
MM19-06 WTP Eye Wash Station Upgrade		0.00	11,031.63	1,666.67	20,000.00	9,364.96	55%
MM19-07 WLPS Electrical Inspection- 3rd Party Contractor		0.00	8,939.62	833.33	10,000.00	8,106.29	89%
MM19-08 WLPS Motor HLP-2 (VFD Compliant)		0.00	0.00	2,083.33	25,000.00	-2,083.33	0%
MM19-09 WLPS Louvre Actuator Standby Generator Room		0.00	0.00	2,083.33	25,000.00	-2,083.33	0%
MM19-10 ELPS Pump #1 (Watford) Refurbishment		0.00	0.00	833.33	10,000.00	-833.33	0%
MM19-11 ELPS Electrical Inspection- 3rd Party Contractor		0.00	4,149.77	416.67	5,000.00	3,733.10	83%
MM19-12 Vibration Monitoring Program		0.00	1,790.98	83.33	1,000.00	1,707.65	179%
MM19-13 Valve 16" at Camalchie Rd and London Line		0.00	15,622.20	833.33	10,000.00	14,788.87	156%
MM19-14 Hydrant installation London Line (blow off)		0.00	0.00	1,250.00	15,000.00	-1,250.00	0%
MM19-15 Chamber (flow) abandonment		0.00	8,276.93	1,250.00	15,000.00	7,026.93	55%
MM19-16 Waterline Makers Rural		0.00	3,347.37	250.00	3,000.00	3,097.37	112%
MM19-17 Air Relief valves		0.00	1,110.20	125.00	1,500.00	985.20	74%
MM19-18 Concrete Pipe end closures and 20" lengths		0.00	0.00	833.33	10,000.00	-833.33	0%
MM19-19 Repair Clamps & Appurtenances		0.00	7,466.13	833.33	10,000.00	6,632.80	75%
MM18-12 Hydrant Replacement In Pt.Edward		0.00	254.40	0.00		254.40	#DIV/0!
General & Administrative Expenses							
5200 OCWA Operating & Maintenance	368,284.00	368,284.00	4,051,124.00	368,261.92	4,419,143.00	3,682,862.08	92%
5300 Flow Reconciliations		0.00	0.00	12,500.00	150,000.00	-12,500.00	0%
5400 LAWSS Wages & Benefits		32,736.48	123,929.11	20,833.33	250,000.00	103,095.78	50%
5450 WSIB		0.00	915.49	125.00	1,500.00	790.49	61%
5500 Audit Fees		0.00	14,265.23	1,166.67	14,000.00	13,098.56	102%
5505 Consulting		1.00	1,989.12	208.33	2,500.00		
5510 Accounting & Legal	1,419.55	1,419.50	15,775.56	1,666.67	20,000.00	14,108.89	79%
5515 Advertising & Promotions		0.00	1,060.53	16.67	200.00	1,043.86	0%
5520 Membership Fees	500.52	0.00	907.56	166.67	2,000.00	740.89	45%
5522 Education / Conference		1,550.00	3,842.41	333.33	4,000.00	3,509.08	96%
5535 Courier & Postage		0.00	112.25	41.67	500.00	70.58	22%
5540 Income Taxes		0.00	0.00	0.00	0.00	0.00	0%
5545 Property Taxes		9,000.00	181,875.97	14,583.33	175,000.00	167,292.64	104%
5550 Property Administration	190.95	300.00	9,224.07	1,250.00	15,000.00	7,974.07	61%
5555 Insurance		0.00	21,772.80	1,750.00	21,000.00	20,022.80	104%
5560 Interest & Bank Charges		0.00	0.00	8.33	100.00	-8.33	0%
5565 Office Supplies	300.12	0.00	4,962.44	250.00	3,000.00	4,712.44	165%
5566 Computer Software		13,000.00	32,693.17	1,333.33	16,000.00	31,359.84	204%
5570 Internet	85.43	85.00	854.30	125.00	1,500.00	729.30	57%
5571 GIS and Internet Services		0.00	0.00	183.33	2,200.00	-183.33	0%
5575 Travel (Includes Mileage)	99.07	18.50	962.95	125.00	1,500.00	837.95	64%
5576 Vehicle Expenses		0.00	0.00	1,041.67	12,500.00	-1,041.67	0%
5580 Telephone	167.16	140.00	1,593.55	125.00	1,500.00	1,468.55	106%
5585 Mobile Phone	166.22	375.00	2,224.26	125.00	1,500.00	2,099.26	148%
5590 Meals & Entertainment	1,869.51	76.00	3,732.54	208.33	2,500.00	3,524.21	149%
5600 Miscellaneous Expense		270.00	1,427.06	166.67	2,000.00	1,260.39	71%
St.Clair Conservation Consult		0.00	0.00	2,500.00	30,000.00		
Total Expenses	394,370.93	430,255.48	5,807,491.02	2,314,357.67	20,223,909.00	4,046,868.33	29%

Lambton Area Water Supply System
Cash Balance Sheet as at November 30,2019

LAWSS Bank Account on November 1, 2019	<u>10,905,716.07</u>
LAWSS Accounts Receivable - Received	<u>938,754.90</u>
	<u>11,844,470.97</u>
LAWSS Accounts Payable - Paid	1,122,211.95
LAWSS Accounts Payable - Outstanding	<u>11,379.26</u>
	<u>1,133,591.21</u>
LAWSS Bank Account on November 30, 2019	<u>10,722,259.02</u>
Adjusted Bank Balance on November 30,2019	<u>10,710,879.76</u>
Cash in Reserve	<u>1,994,873.22</u>

		December Actual	Month Budget	YTD - ACTUAL	YTD - Budget	Annual Budget	Variance	Percent of Budget Used
Municipality Revenue								
4050	Municipality Revenue	-834,037.56	-798,369.83	-9,670,300.00	-9,670,300.00	-9,805,197.00	0.00	99%
	Sarnia	-491,624.20	-491,623.80	-5,899,486.00	-5,899,486.00	-5,899,486.00	0.00	100%
	St. Clair Township	-208,848.45	-208,848.33	-2,506,180.00	-2,506,180.00	-2,506,180.00	0.00	100%
	Plympton-Wyoming	-39,358.58	-39,458.50	-473,262.00	-473,262.00	-473,261.00	0.00	100%
	Lambton Shores	-15,565.98	-15,567.82	-186,812.00	-186,812.00	-186,814.00	0.00	100%
	Warwick	-23,072.59	-23,072.31	-276,868.00	-276,868.00	-276,867.00	0.00	100%
	Point Edward	-19,799.16	-19,799.07	-237,589.00	-237,589.00	-237,589.00	0.00	100%
	Bluewater Power Distribution Corp.			0.00	0.00		0.00	
4120	Brooke-Alvinston Revenue	-35,768.60	0.00	-158,789.74	0.00	-225,000.00	-158,789.74	71%
	Total Municipalities Revenue	-834,037.56	-798,369.83	-9,738,986.74	-9,580,197.00	-9,805,197.00	-158,789.74	99%
Other Revenue								
4130	Emergency Water Taking		0.00	0.00	0.00	0.00	0.00	0%
4150	LAWSS Other Revenue		0.00	0.00	0.00	0.00	0.00	0%
	Canada Coast Guard		0.00	0.00	0.00	-7,000.00	0.00	0%
	County of Lambton		0.00	-8,400.00	0.00	-7,000.00	-8,400.00	120%
	Bluewater Power- Reimbursement Progra,		1.00	-14,495.76	0.00	-6,200.76	-14,495.76	
4430	Misc. Revenue (HST Rebate)		0.00	0.00	0.00	-100,000.00	0.00	0%
4430	Misc. Revenue from NOVA		0.00	-8,500.00	0.00	0.00	-8,500.00	0%
4430	Misc. Revenue from Canadian Coast Guard		0.00	-7,000.00	0.00	0.00	-7,000.00	0%
4430	Misc. Revenue from OPA		0.00	0.00	0.00	0.00	0.00	
	Total Other Revenue	0.00	1.00	-38,395.76	0.00	-120,200.76	-38,395.76	32%
Investment Interest								
4420	Interest Earned	-22,099.88	-15,000.00	-228,220.27	0.00	-72,000.00	-228,220.27	317%
Project Expenses								
5100	Total Revenue	-856,137.44	-813,368.83	-10,005,602.77	-9,580,197.00	-9,997,397.76	-425,405.77	100%
	Project Expenses	1,160,678.75	0.00	2,262,792.03	1,200,131.21	9,477,383.00	1,227,426.20	24%
	19-01 Eng Studies - WTP HVAC Dehumidification		0.00	17,553.60	0.00	20,000.00	-2,446.40	88%
	19-02 Eng Studies- WTP SCADA Mitigation (Filtration Controls)		0.00	29,530.35	0.00	5,000.00	24,530.35	591%
	19-03 Eng Studies- WLPS Tank Re-Coating		0.00	0.00	0.00	30,000.00	-30,000.00	0%
	19-04 HVAC Admin Replacement Project	29,345.55	0.00	284,677.94	0.00	250,000.00	34,677.94	114%
	19-05 WTP PLC Conversion /upgrade construction		0.00	0.00	0.00	150,000.00	-150,000.00	0%
	19-06 WTP Exterior Transformers		0.00	0.00	0.00	500,000.00	-500,000.00	0%
	19-07 Transmission Watermain Leak Detection- Phase 1		0.00	0.00	0.00	230,000.00	-230,000.00	0%
	19-08 Flow Restruction/Chamber Removal Project(x6)		0.00	0.00	0.00	175,000.00	-175,000.00	0%
	R19-01 Engineering Study - LAWSS Accessibility Review		1.00	20,289.48	0.00	0.00	20,289.48	#DIV/0!
	R19-02 Engineering Study - CDM Study		2.00	9,153.31	0.00	0.00	9,153.31	#DIV/0!
	R19-03 Engineering Study - Electrical Reliability Study		3.00	15,874.56	0.00	0.00	15,874.56	#DIV/0!
	Tasks carried over from 2018	1,131,333.20	0.00	1,885,712.79	644,672.88	5,157,383.00	1,227,426.20	37%
	14-03 Polymer Systeme Replacement		0.00	1,967.71	0.00	0.00	1,967.71	
	14-09 Main Plant HVAC		0.00	0.00	73,422.88	587,383.00	-73,422.88	0%
	17-05 Engineering Design for Emergency Generators		0.00	66,398.40	31,250.00	250,000.00	35,148.40	27%
	18-01 Rebuild 32" Ross Valve at WLBS		0.00	0.00	8,750.00	70,000.00	-8,750.00	0%
	18-02 New Generators Replacement (Including Air Louvers	1,120,875.50	0.00	1,378,524.71	500,000.00	4,000,000.00	878,524.71	34%
	18-03 SCADA Radio Replacement Work (Installation)	10,457.70	0.00	365,106.22	18,750.00	150,000.00	346,356.22	243%
	18-04 Engineering Studies		0.00	62,069.74	12,500.00	100,000.00	49,569.74	62%
	R18-02 Admin HVAC		0.00	11,646.01				
					0.00			
5150	Distribution Repairs	12,581.48	3,000.00	75,780.94	25,000.00	200,000.00	50,780.94	38%
5175	Facility Maintenance	1,312.16	6,000.00	10,933.62	3,750.00	30,000.00	7,183.62	

5125

	December Actual	Month Budget	YTD - ACTUAL	YTD - Budget	Annual Budget	Variance	Percent of Budget Used
Major Maintenance	16,711.97	0.00	174,024.42	15,458.33	240,000.00	110,514.89	73%
MM19-01 WTP HMI Computer Replacement	9,128.00	0.00	9,128.00	833.33	10,000.00	8,294.67	0%
MM19-02 WTP Crack Injection Leak Sealing		0.00	38,668.80	3,583.33	43,000.00	35,085.47	0%
MM19-03 WTP Emergency Lights Sealing		0.00	0.00	125.00	1,500.00	-125.00	0%
MM19-04 WTP Sluice gate Inspection and Maintenance		0.00	35,942.44	1,250.00	15,000.00	34,692.44	240%
MM19-05 WTP EQ Tank Cleanout Inspection		0.00	20,711.98	833.33	10,000.00	19,878.65	207%
MM19-06 WTP Eye Wash Station Upgrade		0.00	11,031.63	1,666.67	20,000.00	9,364.96	55%
MM19-07 WLPS Electrical Inspection- 3rd Party Contractor		0.00	8,939.62	833.33	10,000.00	8,106.29	89%
MM19-08 WLPS Motor HLP-2 (VFD Compliant)		0.00	0.00	2,083.33	25,000.00	-2,083.33	0%
MM19-09 WLPS Louvre Actuator Standby Generator Room	7,583.97	0.00	7,583.97	2,083.33	25,000.00	5,500.64	30%
MM19-10 ELPS Pump #1 (Watford) Refurbishment		0.00	0.00	833.33	10,000.00	-833.33	0%
MM19-11 ELPS Electrical Inspection- 3rd Party Contractor		0.00	4,149.77	416.67	5,000.00	3,733.10	83%
MM19-12 Vibration Monitoring Program		0.00	1,790.98	83.33	1,000.00	1,707.65	179%
MM19-13 Valve 16" at Camalchie Rd and London Line		0.00	15,622.20	833.33	10,000.00	14,788.87	156%
MM19-14 Hydrant installation London Line (blow off)		0.00	0.00	1,250.00	15,000.00	-1,250.00	0%
MM19-15 Chamber (flow) abandonment		0.00	8,276.93	1,250.00	15,000.00	7,026.93	55%
MM19-16 Waterline Makers Rural		0.00	3,347.37	250.00	3,000.00	3,097.37	112%
MM19-17 Air Relief valves		0.00	1,110.20	125.00	1,500.00	985.20	74%
MM19-18 Concrete Pipe end closures and 20" lengths		0.00	0.00	833.33	10,000.00	-833.33	0%
MM19-19 Repair Clamps & Appurtenances		0.00	7,466.13	833.33	10,000.00	6,632.80	75%
MM18-12 Hydrant Replacement In Pt.Edward		0.00	254.40	0.00		254.40	#DIV/0!

General & Administrative Expenses

5200	OCWA Operating & Maintenance	368,284.00	368,284.00	4,419,408.00	4,419,143.00	4,419,143.00	265.00	100%
5300	Flow Reconciliations		0.00	0.00	150,000.00	150,000.00	-150,000.00	0%
5400	LAWSS Wages & Benefits	20,022.39	32,736.48	143,951.50	250,000.00	250,000.00	-106,048.50	58%
5450	WSIB		0.00	915.49	1,500.00	1,500.00	-584.51	61%
5500	Audit Fees		0.00	14,265.23	14,000.00	14,000.00	265.23	102%
5505	Consulting		1.00	1,989.12	2,500.00	2,500.00		
5510	Accounting & Legal	709.78	1,419.50	16,485.34	20,000.00	20,000.00	-3,514.66	82%
5515	Advertising & Promotions		0.00	1,060.53	200.00	200.00	860.53	0%
5520	Membership Fees		0.00	907.56	2,000.00	2,000.00	-1,092.44	45%
5522	Education / Conference		1,550.00	3,842.41	4,000.00	4,000.00	-157.59	96%
5535	Courier & Postage	48.16	0.00	179.89	500.00	500.00	-320.11	36%
5540	Income Taxes		0.00	0.00	0.00	0.00	0.00	0%
5545	Property Taxes		9,000.00	181,875.97	175,000.00	175,000.00	6,875.97	104%
5550	Property Administration	9,043.10	300.00	18,267.17	15,000.00	15,000.00	3,267.17	122%
5555	Insurance		0.00	21,772.80	21,000.00	21,000.00	772.80	104%
5560	Interest & Bank Charges		0.00	0.00	100.00	100.00	-100.00	0%
5565	Office Supplies	154.45	0.00	5,116.89	3,000.00	3,000.00	2,116.89	171%
5566	Computer Software		13,000.00	32,693.17	16,000.00	16,000.00	16,693.17	204%
5570	Internet	85.43	85.00	939.73	1,500.00	1,500.00	-560.27	63%
5571	GIS and Internet Services	2,755.62	0.00	2,755.62	2,200.00	2,200.00	555.62	125%
5575	Travel (Includes Mileage)	151.97	18.50	1,114.92	1,500.00	1,500.00	-385.08	74%
5576	Vehicle Expenses		0.00	0.00	12,500.00	12,500.00	-12,500.00	0%
5580	Telephone	127.29	140.00	1,720.84	1,500.00	1,500.00	220.84	115%
5585	Mobile Phone	167.16	375.00	2,391.42	1,500.00	1,500.00	891.42	159%
5590	Meals & Entertainment	166.61	76.00	3,899.15	2,500.00	2,500.00	1,399.15	156%
5600	Miscellaneous Expense		270.00	1,427.06	2,000.00	2,000.00	-572.94	71%
5610	St.Clair Conservation Consult	28,160.00	30,000.00	28,160.00	30,000.00	30,000.00		
Total Expenses		1,619,848.16	460,255.48	7,428,670.82	7,034,405.42	20,223,909.00	-241,652.31	37%

Lambton Area Water Supply System
Cash Balance Sheet as at December 31,2019

LAWSS Bank Account on December 1, 2019	<u>10,722,259.02</u>
LAWSS Accounts Receivable - Received	<u>1,030,669.43</u>
	<u>11,752,928.45</u>
LAWSS Accounts Payable - Paid	1,569,745.55
LAWSS Accounts Payable - Outstanding	<u>29,834.40</u>
	<u>1,599,579.95</u>
LAWSS Bank Account on December 31 2019	<u>10,183,182.90</u>
Adjusted Bank Balance on December 31,2019	<u>10,153,348.50</u>
Cash in Reserve	<u>1,994,873.22</u>



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

2019 Client Monthly Operations Report

Lambton Area Water Supply System

November 30, 2019

Facility Description

Facility Name:	Lambton Area Water Supply System
Facility Type:	Municipal
Classification:	Class 4 Water Treatment Class 4 Water Distribution
Title Holder:	Municipality
Operation Status:	OCWA
Sr. Operations Manager:	Dave Hunt (519) 344-7429 Ext. 251
Business Development Manager:	Susan Budden
Capacity (m3/d):	181844
Service Area:	City of Sarnia, Village of Point Edward, Township of St. Clair, Township of Warwick-Watford, Municipality of Lambton Shores, Town of Plympton-Wyoming
Service Population:	104,162
In service Date:	1975

Operational Description

The Lambton WTP is a direct filtration surface water facility consisting of chemically assisted filtration with disinfection. The facility consists of an intake system (and alternate intake), a low lift pump station, a treatment system and distribution pumping system situated in the City of Sarnia. Water is drawn into the plant (a zebra mussel system is available as needed) and screened at the surge wells (pre-disinfection is utilized). Water flows to the pump wells where a total of 4 vertical turbine pumps are located and used as needed which pump to a discharge header. Coagulant is added, flashed mixed (PAC is also applied at this location when needed) the raw water is then flocculated (Polymer is added at the flocculation trains as needed) and diverted to filtration (10 dual media filters). The gravity fed filter effluents combine into two clear wells where sodium hypochlorite is injected. To maximize the contact time the water is diverted to the two baffled reservoirs (in series). Six vertical turbine pumps are available for supplying the distribution demand as needed. The entire water treatment system is continuously monitored (via SCADA) with continuous on-line analyzers equipped throughout the processes. The utility serves a large part of Lambton County and has over 250 kilometers of pipeline of various sizes and materials. There is also the East Lambton Booster Station with 9,000 cubic meters of storage capacity which is remotely monitored and controlled from the Lambton WTP via SCADA. During the 1997 calendar year the West Lambton Pumping Station, with the largest above ground water storage in the province with a capacity of 90,000m³, was brought on-line. This pumping station is also remotely monitored and controlled from Lambton WTP via SCADA. The LAWSS distribution system has 5 towers/elevated tanks that the utility monitors via SCADA. In 2007 the Residual Management System (RMS) which treats backwash effluent was brought on-line.

Treatment Process

Pre-treatment Chemicals:	Prechlorination (sodium hypochlorite); Zebra mussel control
Coagulation/Flocculation:	Aluminum Sulphate (Clar+Ion A7)
Filtration:	Dual Media; Filter Aid polymer
Disinfection Method:	Sodium hypochlorite
Post Treatment Chemical Addition:	Fluoride
Waste Residue Management:	Filter backwash effluent is treated by an Actiflo system.
Waste effluent/residue Disposal:	Sludge is hauled to Sarnia WPCP on a needed basis.

Inspections: None

Maintenance, Operations & Distribution Works Summary 2019

Maintenance

November:

Date	(P)reventative Capital Major Mtc (C)orrective	Description
Nov 1	P	Conducted monthly inspection of safety showers and eyewash stations at the water treatment plant.
Nov 1-5	C	Connecting level indicator probe for the North Clearwell.
Nov 1-8	C	Upgrading lighting at West Lambton Pumping Station.
Nov 4-6	C	Divers in to inspect reservoir at water treatment plant.
Nov 5	P	2 year inspection on MCC panels at the water treatment plant is complete.
Nov 5	P	Conducted monthly calibration of West Lambton Pumping Station chlorine analyzers.
Nov 5	P	Completed annual inspection of RMS polymer pumps.
Nov 5	P	Tested alarm system at West Lambton Pumping Station.
Nov 6	P	Tested diesel generators at East and West Lambton Pumping Stations. East Lambton Pumping Station generator did not start.
Nov 6	P	Completed monthly calibration of filter turbidity meters 1, 2, 3, 4, 5, 6, 7 and 9.
Nov 6	P	Completed semi-annual inspection of surface wash pump.
Nov 6	P	Completed semi-annual inspection of grit pump.
Nov 6	P	Completed monthly inspection of water treatment plant compressors.
Nov 6	P	Conducted annual inspection of air relief valve #34.

Nov 7	C	Alberts Generator Service on site at East Lambton Pumping Station to investigate failed start. Battery & Charging system was replaced and generator worked correctly.
Nov 7	P	Completed monthly calibration of East Lambton Pumping Station chlorine analyzers.
Nov 7	P	Adjusted sand hopper level sensor for auto shutoff at low level.
Nov 7	P	Completed six month inspection of low lift pumps.
Nov 8	P	Completed six month inspection of Forest and Watford Pumps.
Nov 8	P	Completed monthly calibration of filters 8 and 10 and Station 5 and 7 turbidity meters.
Nov 8	P	Completed monthly inspection of vacuum priming system at East Lambton Pumping Station.
Nov 12-13	P	Completed monthly maintenance on water treatment plant flocculators.
Nov 12-15	Major Mtc	Ainsworth at West Lambton Pumping Station to work on generator louvres.
Nov 12	C	Repaired small sodium hypochlorite leak at West Lambton Pumping Station.
Nov 12	P	Conducted monthly calibration of streaming current meters.
Nov 12	P	Completed monthly calibration of lab turbidity meter.
Nov 12	P	Tested generators at West Lambton Pumping Station.
Nov 13	P	Conducted monthly checks of RMS turbidity meters.
Nov 13	P	Completed monthly calibration of pH probes at the water treatment plant.
Nov 14	Capital	Balancing of Admin Area HVAC system being completed.
Nov 14	P	Annual inspection of backflow preventer starts.
Nov 14	P	Completed monthly inspection of travelling screens.
Nov 15	P	Completed monthly calibration of hand held chlorine analyzers.
Nov 15	P	Completed monthly inspection of online fluoride analyzer.
Nov 18	C	Repaired overhead heater in valve house hallway at the water treatment plant.
Nov 19	P	Cleaned out both Residual Management System Actiflo Units.
Nov 19-20	C	Repair sump issues at West Lambton Pumping Station and cleanup.
Nov 20	P	Sentry fire in at East Lambton for fire extinguisher and emergency lighting annual checks.
Nov 21	P	Cleaned out filter inlet channels.
Nov 21	P	Zelus on site at West Lambton Pumping Station to do annual inspection of lifting devices.
Nov 22	C	Ainsworth installed new bisulphite lines for plant drainage dechlorination.
Nov 25	Capital	Onsite for generator startup.

Nov 25	P	Zelus onsite to conduct annual inspection of lifting devices at the water treatment plant.
Nov 26	P	Completed annual overflow of Forest Standpipe to test for levels and chlorine residuals.
Nov 26	P	Completed final connection to injector for storm drain dechlorination project.
Nov 27	P	Zelus onsite to conduct annual inspection of lifting devices at the water treatment plant.
Nov 27	P	Completed annual overflow of Watford Standpipe to test for levels and chlorine residuals.
Nov 28	P	Zelus has completed annual inspection of lifting devices at the water treatment plant.
Nov 28	P	Completed annual inspection of drainage pumps at East Lambton Pumping Station.
Nov 28	P	Completed monthly calibration of East Lambton chlorine analyzers.
Nov 29	P	Ainsworth in to do annual backflow preventer inspection at East Lambton Pumping Station.

Operations and Compliance

November:

Nov 2	Operated Pump 1 at West Lambton Pumping Station
Nov 3	Operated Pump 5 at West Lambton Pumping Station
Nov 3	Pre CI Pump #3 faulted due to air lock. Pump and panel were reset with no issues.
Nov 4	Quarterly THM, HAA and nitrate samples taken.
Nov 5	South Clearwell Pump #2 faulted due to air lock. Pump and panel were reset with no issues.
Nov 8	Conducted management review.
Nov 9	Operated Pump 1 at West Lambton Pumping Station
Nov 10	Operated Pump 5 at West Lambton Pumping Station
Nov 12	Switched over alum dosing pumps and sample pumps at the water treatment plant.
Nov 13	West Lambton Pumping Station shut down for louvre work.
Nov 13	Ravenswood interconnect to allow for LAWSS water to be taken. Interconnect was closed the same day.
Nov 14	Fourth quarter THM reports completed and sent.
Nov 16	Operated Pump 1 at West Lambton Pumping Station
Nov 17	Operated Pump 5 at West Lambton Pumping Station
Nov 18	Sample calendars for 2020 created and sent out.
Nov 19	Conducted monthly test of chlorine residuals on the Residual Management System effluent.
Nov 20	South clearwell level probe not working. New probe has been ordered.
Nov 21	Switched to West Low Lift header from East.
Nov 23	Operated Pump 5 at West Lambton Pumping Station

Nov 24	Operated Pump 1 at West Lambton Pumping Station
Nov 25	Completed management review report with management review minutes and sent to client.
Nov 27	Power blip at water treatment plant. Reset pumps with no other issues.
Nov 28	Conducted monthly test of polymer system at the water treatment plant.
Nov 30	Operated Pump 5 at West Lambton Pumping Station
Nov 30	Power blip at water treatment plant. Reset pumps with no other issues.

Distribution

November:

Nov 5	Valve operations in Plympton-Wyoming on Fleming and Lakeshore.
Nov 6	Chamber inspections on Lakeshore.
Nov 5-6	Onsite for third party work at 3539 Confederation Line
Nov 7	Onsite for third party work at 4359 Lakeshore Rd.
Nov 7	Chamber inspections in Plympton-Wyoming.
Nov 7	Valve operations in Sarnia.
Nov 8	Onsite for third party work at LaSalle Line and Highway 40.
Nov 14	Installed heat trace on sample line at Indian Rd Tower.
Nov 15	Installed GFI adaptor at Indian Road Tower sample shed.
Nov 15	Valve operations in Sarnia on Campbell St.
Nov 19	Onsite for third party work at 3574 St Clair Parkway.
Nov 19	Conducting valve operations and chamber checks on Lakeshore near Mandaumin.
Nov 19	Site meet with VanBree at Fleming Rd.
Nov 20	Conducting chamber inspection on Lakeshore Rd in Plympton-Wyoming.
Nov 21	Onsite for third party work at Cathcart and LeCaron.
Nov 25	Emergency service repair at 4083 London Line in Plympton-Wyoming.
Nov 26	Close and drain air relief valves on London Line at Telfer Creek.
Nov 29	Completed meter reads.

Call Outs 2019

November: Call out for watermain break at 4033 London Line on November 16th. Call out for flood alarm at West Lambton Pumping Station on November 19th.

One Call Utility Locates

These numbers represent the number of locate notifications that were cleared from LAWSS assets

Number of Locates/Month

YEAR	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
2018	50	64	107	149	189	166	163	146	141	163	111	58
2019	69	62	104	164	189	149	182	153	121	148	81	

RMS Sludge Haulage

These numbers represent total monthly amounts of sludge produced by the Residual Management System and hauled to Sarnia WPCP

Amount of sludge produced per month in m³

YEAR	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2018	493	300	239	320	230	318	240	240	79	227	238	234
2019	236	158	237	236	216	158	313	237	160	160	159	

Required Monthly Reports

Monthly System Flows- see separate attached summary report

Workplace Management System Reports – see separate attached reports

Performance Data and Compliance – See separate attached report

Required Financial Reports

Quarterly Financial Summary –Q4 due January 30, 2020

Semi-Annual “Schedule G” Reconcilable Commodities Report –Due January 30, 2020

Health & Safety Work Order Summary by Facility

Start Date: 2019-01-01

End Date: 2019-11-30

Hub: Lambton

Cluster	ORG ID	Facility ID	Health and Safety					Closure Rate		
			Initiated	Approved	Completed	Total Labor Hrs	Total Cost \$	Target	Actual	Variance
LAWSS (133000)	Lambton Area Water Treatment Plant (5544)	5544, East Lambton Distribution (5544-WDEL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, East Lambton PS (5544-WPEL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Forrest Standpipe (5544-WDFS)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Indian Road Tower (5544-WDIR)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Lambton Area RMS (5544-WWLA)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Lambton Area WTP (5544-WTLA)	43	43	43	79.50	3258.98	85.00%	100.00%	-15.00%
		5544, Port Lambton Standpipe (5544-WDPL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Watford Standpipe (5544-WDWF)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, West Lambton Booster Stn (5544-WPWL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, West ST.Clair Distribution (5544-WDWS)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		Lambton Area Water Treatment Plant (5544)	5	5	4	11.75	575.37	85.00%	80.00%	5.00%
		Total	48	48	47	91.25	3834.35	85.00%	97.92%	-12.92%

Key Column	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

Work Order Summary by Facility

Start Date: 2019-01-01
End Date: 2019-11-30
Hub: Lambton

Key Col	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

			Corrective Maintenance					Emergency Maintenance					Call Back				
			Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$
LAWSS (133000)	Lambton Area Water Treatment Plant (5544)	5544, East Lambton Distribution (5544-WDEL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, East Lambton PS (5544-WPEL)	16	16	14	130	5960.09	7	7	7	57	2630.24	0	0	0	0	0
		5544, Lambton Area RMS (5544-WWLA)	7	7	6	45	2106.1	0	0	0	0	0	0	0	0	0	0
		5544, Lambton Area WTP (5544-WTLA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, West Lambton Booster Stn (5544-WPWL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, West ST.Clair Distribution (5544-WDWS)	9	9	9	77	3225.48	0	0	0	0	0	1	1	1	15	662.4
		Lambton Area Water Treatment Plant (5544)	44	44	40	334.75	17209.38	1	1	1	1	46.68	4	4	4	36	1505.9
Grand Total			76	76	69	586.75	28501.05	8	8	8	58.00	2676.92	5	5	5	51.00	2168.30

0
0

Work Order Summary by Facility

Start Date: 2019-01-01
End Date: 2019-11-30
Hub: Lambton

Key Col	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

			Preventive Maintenance					Operational					Capital/Project Work					Closure Rate		
			Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Target	Actual	Variance
LAWSS (133000)	Lambton Area Water Treatment Plant (5544)	5544, East Lambton Distribution (5544-WDEL)	0	0	0	0	0	0	0	0	0	1	1	1	0	1795.2	85%	100%	-15.0%	
		5544, East Lambton PS (5544-WPEL)	9	9	9	17	1006.35	46	46	46	127.5	5593.32	5	5	4	36.5	22474.59	85%	97.43%	-12.4%
		5544, Lambton Area RMS (5544-WWLA)	60	60	59	124.25	6037.64	23	23	23	91.25	4295.38	0	0	0	0	0	85%	97.77%	-12.7%
		5544, Lambton Area WTP (5544-WTLA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
		5544, West Lambton Booster Stn (5544-WPWL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
		5544, West St.Clair Distribution (5544-WDWS)	28	28	28	59.5	2733.52	22	22	22	38.25	1519.48	1	1	1	27.25	22007.7	85%	100%	-15.0%
		Lambton Area Water Treatment Plant (5544)	398	398	375	1450.5	77573.12	136	136	135	17669	458705.2	7	7	4	193.75	55459.48	85%	95.19%	-10.1%
Grand Total			495	495	471	1651.25	87350.63	227	227	226	17926	470113.4	14	14	10	257.5	101737	85%	100%	-15.0%

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0

Ontario Clean Water Agency
Time Series Info Report

From: 01/01/2019 to 30/11/2019

Report extracted 12/03/2019 11:10

Facility Org Number: 5544
Facility Works Number: 210000906
Facility Name: LAMBTON AREA WATER SUPPLY SYSTEM (LAWSS)
Facility Owner: Local Services Board: LAMBTON AREA WATER SUPPLY SYSTEM
Facility Classification: Class 4 Water Treatment
Receiver:
Service Population: 100000.0
Total Design Capacity: 181844.0 m3/day

	01/2019	02/2019	03/2019	04/2019	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	Total	Avg	Max	Min
Coagulation/Floculation / Coagulant Dosage-Calculated - mg/L															
Max IH	38.605	29.517	32.268	31.172	26.559	26.095	23.836	25.822	22.272	31.139	26.33			38.605	
Mean IH	26.801	24.002	23.839	22.375	22.91	21.551	20.805	20.898	19.819	21.006	21.255		22.294		
Min IH	21.912	18.131	18.009	17.868	19.041	18.452	18.086	19.041	17.621	18.079	16.818				16.818
Coagulation/Floculation / Coagulant Used - kg															
Max IH	1792	1408	1651.2	1241.6	1344	2150.4	2060.8	1804.8	1356.8	1472	1203.2			2150.4	
Mean IH	1220.542	1167.086	1160.671	1009.067	1129.29	1339.307	1594.632	1397.677	1108.139	996.335	987.307		1193.014		
Min IH	972.8	947.2	832	768	934.4	921.6	1088	1100.8	844.8	652.8	729.6				652.8
Total IH	37836.8	32678.4	35980.8	30272	35008	40179.2	49433.6	43328	33244.16	30886.4	29619.2	398466.6			
Coagulation/Floculation / Coagulant Volume Used - m³															
Max IH	1.4	1.1	1.29	0.97	1.05	1.68	1.61	1.41	1.06	1.15	0.94			1.68	
Mean IH	0.954	0.912	0.907	0.788	0.882	1.046	1.246	1.092	0.866	0.778	0.771		0.932		
Min IH	0.76	0.74	0.65	0.6	0.73	0.72	0.85	0.86	0.66	0.51	0.57				0.51
Total IH	29560	25530	28110	23650	27350	31390	38620	33850	25972	24130	23140	311302			
Coagulation/Floculation / Polymer Dosage - mg/L															
Max IH	0.042			0.024										0.042	
Mean IH	0.02			0.024									0.021		
Min IH	0.002			0.024											0.002
Coagulation/Floculation / Polymer Used - kg															
Max IH	2.1			1.1										2.1	
Mean IH	1.025			1.1									1.04		
Min IH	0.1			1.1											0.1
Total IH	4.1			1.1								5.2			
DW THM Data / Trihalomethane: Total - µg/l															
Max Lab		30			37			58			55			58	
Mean Lab		27			31.667			52.667			50		40.333		
Min Lab		24			25			46			45				24
East Lambton Booster Station / Cl Residual: Inlet Free - mg/L															
Max OL	1.74	2.49	1.68	1.58	1.43	1.4	1.36	1.29	1.56	1.64	1.48			2.49	
Mean OL	1.535	1.401	1.428	1.388	1.3	1.277	1.22	1.124	1.344	1.348	1.356		1.338		
Min OL	0	0	0	0	0	0	0	0	0	0	0				0
Filter Backwash / Backwash Volume - m³															
Max IH	4792	2408	2992	3006	3004	3004	2998	3002	2418	2418	2410			4792	
Mean IH	2268.323	1929.786	2028.194	1927.733	1900.774	2043	2095.032	2056.903	1966.067	1893.871	1863.733		1998.76		
Min IH	1794	1788	1794	1198	1204	1792	1788	1059	1796	1204	1196				1059
HFS / Fluoride Dosage - mg/L															
Max IH	0.64	0.644	0.614	0.622	0.592	0.628	0.612	0.589	0.573	0.655	0.649			0.655	
Mean IH	0.556	0.557	0.559	0.557	0.542	0.548	0.535	0.537	0.531	0.533	0.6		0.55		
Min IH	0.46	0.417	0.482	0.487	0.486	0.464	0.486	0.49	0.474	0.476	0.531				0.417
HFS / Fluoride Used - l															

Max IH	108.877	97.419	97.419	94.553	100.284	186.246	171.916	143.263	117.475	114.611	103.149			186.246	
Mean IH	85.495	87.63	89.655	83.952	90.041	115.949	139.658	123.298	101.43	85.218	91.975		99.602		
Min IH	65.901	66.384	71.631	71.631	74.497	88.823	111.745	103.149	85.957	68.766	83.09				65.901
Total IH	2650.36	2453.634	2779.305	2518.562	2791.284	3478.466	4329.406	3822.244	3042.903	2641.76	2759.246		33267.17		
HFS / HFS (kg) - kg															
Max IH	132.83	118.851	118.851	115.355	122.347	227.22	209.737	174.781	143.32	139.825	125.842			227.22	
Mean IH	104.304	106.908	109.379	102.422	109.851	141.458	170.383	150.424	123.745	103.966	112.209		121.515		
Min IH	80.399	80.989	87.39	87.39	90.886	108.364	136.329	125.842	104.868	83.895	101.37				80.399
Total IH	3233.439	2993.434	3390.752	3072.646	3405.367	4243.728	5281.875	4663.138	3712.342	3222.947	3366.28		40585.95		
HFS / Treated Water Fluoride Residual - mg/L															
Max OL	0.71	0.7	0.7	2	0.84	0.82	0.79	0.7	0.68	2	0.75			2	
Mean OL	0.631	0.601	0.578	0.597	0.611	0.575	0.63	0.611	0.576	0.565	0.614		0.599		
Min OL	0.56	0.54	0.51	0	0.51	0.24	0.49	0.55	0.42	0	0.37				0
Post Disinfection / Chlorine Dosage - mg/L															
Max IH	1.668	1.854	1.682	1.832	1.795	3.071	2.185	2.463	2.654	2.116	2.04			3.071	
Mean IH	1.434	1.391	1.458	1.468	1.535	1.696	1.952	2.087	2.142	1.883	1.59		1.696		
Min IH	1.215	0.891	1.048	1.271	1.05	1.097	1.594	1.842	1.522	1.64	1.3				0.891
Post Disinfection / Hypochlorite Dosage - mg/L															
Max IH	13.899	15.45	14.016	15.268	14.96	25.593	18.208	20.526	22.113	17.637	16.997			25.593	
Mean IH	11.947	11.588	12.152	12.232	12.79	14.136	16.268	17.39	17.847	15.692	13.246		14.137		
Min IH	10.126	7.428	8.737	10.593	8.747	9.142	13.282	15.347	12.686	13.665	10.832				7.428
Post Disinfection / Hypochlorite Used - kg															
Max IH	653.3	665.05	681.5	706.175	808.4	1975.175	1590.95	1434.675	1257.25	974.075	768.45			1975.175	
Mean IH	543.456	564	590.191	552.994	632.264	885.167	1241.672	1162.454	997.614	749.157	614.016		777.787		
Min IH	444.15	326.65	454.725	407.725	431.225	460.6	956.45	930.6	689.725	471.175	488.8				326.65
Total IH	16847.15	15792	18295.93	16589.83	19600.18	26555	38491.83	36036.08	29928.43	23223.88	18420.48		259780.8		
Post Disinfection / Hypochlorite Volume-Total - m³															
Max IH	0.556	0.566	0.58	0.601	0.688	1.681	1.354	1.221	1.07	0.829	0.654			1.681	
Mean IH	0.463	0.48	0.502	0.471	0.538	0.753	1.057	0.989	0.849	0.638	0.523		0.662		
Min IH	0.378	0.278	0.387	0.347	0.367	0.392	0.814	0.792	0.587	0.401	0.416				0.278
Total IH	14338	13440	15571	14119	16681	22600	32759	30669	25471	19765	15677		221090		
Post Disinfection / Station 7 Cl Residual: Free - mg/L															
Max OL	1.89	1.85	1.92	1.78	1.71	1.75	5	1.76	1.91	1.87	1.82			5	
Mean OL	1.699	1.712	1.716	1.608	1.521	1.504	1.533	1.562	1.716	1.706	1.657		1.63		
Min OL	1.52	1.54	1.53	1.4	1.29	0	1.26	1.33	1.44	0	1.49				0
PrTr / P.A.C. Dosage - mg/L															
Max IH						0.464	0.367	0.54	0.624	0.731	0.796			0.796	
Mean IH						0.338	0.291	0.409	0.525	0.622	0.632		0.479		
Min IH						0.176	0.218	0.274	0.431	0.499	0.53				0.176
PrTr / P.A.C. Used - kg															
Max IH						28.9	25.634	29.462	29.452	29.452	33.815			33.815	
Mean IH						22.199	21.929	26.752	29.152	29.311	29.205		26.74		
Min IH						12.27	16.36	22.089	26.179	25.09	22.907				12.27
Total IH						377.381	679.812	829.31	874.545	908.636	876.162		4545.846		
Pre-chlorination / Chlorine Dosage - mg/L															
Max IH	1.248	1.52	1.193	1.467										1.52	
Mean IH	1.173	1.106	1.07	1.111									1.115		
Min IH	1.061	0.931	0.91	0.972											0.91
Pre-chlorination / Cl Residual: Free - mg/L															
Max IH	0.74	0.74	0.68	0.7										0.74	
Mean IH	0.632	0.657	0.623	0.623									0.634		
Min IH	0.55	0.59	0.5	0.56											0.5
Pre-chlorination / Cl Residual: Total - mg/L															
Max IH	0.91	0.89	0.83	0.84										0.91	
Mean IH	0.783	0.824	0.774	0.783									0.79		
Min IH	0.69	0.78	0.66	0.72											0.66

Pre-chlorination / Hypochlorite Dosage - mg/L																
Max IH	10.399	12.665	9.939	12.221											12.665	
Mean IH	9.773	9.216	8.92	9.258										9.294		
Min IH	8.838	7.76	7.581	8.098												7.581
Pre-chlorination / Hypochlorite Used - kg																
Max IH	524.05	556.95	511.125	560.475											560.475	
Mean IH	443.657	447.717	433.461	417.692										435.629		
Min IH	383.05	394.8	340.75	338.4												338.4
Total IH	13753.38	12536.08	13437.3	12113.08									51839.83			
Pre-chlorination / Hypochlorite Volume-Total-1 - m³																
Max IH	0.446	0.474	0.435	0.477											0.477	
Mean IH	0.378	0.381	0.369	0.355										0.371		
Min IH	0.326	0.336	0.29	0.288												0.288
Total IH	11705	10669	11436	10309									44119			
Raw Water / Background - cfu/100mL																
Max Lab	160	82	82	410	260	720	2800	2800	8600	56	2				8600	
Mean Lab	69.2	33.25	21.5	105.8	69.25	346.25	751.2	1137.5	2760	15.5	0.5			519.292		
Min Lab	18	0	1	13	0	0	0	0	160	0	0					0
Raw Water / Conductivity - µS/cm																
Max IH	228.5	223.2	231.5	232.3	243.7	238.2	238.8	236.2	235.2	228.6	225.3				243.7	
Mean IH	221.019	219.725	222.174	225.038	233.042	232.617	236.165	235.252	231.17	227.025	222.907			227.902		
Min IH	217.8	218	217.9	170	222.6	228.5	232.2	234.1	223.8	225.2	221.3					170
Raw Water / E. Coli: EC - cfu/100mL																
Max Lab	1	0	0	1	0	0	10	< 10	< 10	0	0			< 10		
Mean Lab	0.4	0	0	0.2	0	0	3.8	< 3.25	< 2.4	0	0			< 0.979		
Min Lab	0	0	0	0	0	0	0	< 0	0	0	0				< 0	
Raw Water / Raw Flow Daily - m³/d																
Max IH	52987	56479	56245	51694	56670	100783	98594	80666	61463	59068	55288				100783	
Mean IH	45445.45	48755.75	48621.65	45139.4	49348.52	62028.87	76680.9	66893.58	55870.33	47562.55	46442.57			53954.28		
Min IH	40082	40763	41664	36877	42212	47569	60157	54511	47226	34339	37635					34339
Raw Water / Raw Flow Rate - l/s																
Max IH	613.27	653.69	650.98	598.31	654.75	1166.47	1141.13	933.63	926.67	683.66	639.91				1166.47	
Mean IH	526.72	565.27	562.75	522.45	571.13	717.93	887.51	774.13	653.31	550.49	534.28			624.91		
Min IH	463.91	471.79	482.22	426.82	488.56	550.57	696.26	630.91	546.6	397.44	435.9					397.44
Raw Water / Raw Water Turbidity - NTU																
Max OL	21.4	7.14	13.7	12.2	6.8	3.1	7	2.17	2.4	26.5	5.63				26.5	
Mean OL	2.887	1.135	2.448	2.458	1.769	1.08	0.97	0.75	0.785	2.341	1.526			1.65		
Min OL	0.46	0.23	0.201	0.57	0.445	0.365	0.33	0.34	0.2	0.284	0.28					0.2
Raw Water / Raw Water pH - ---																
Max IH	8.22	8.12	8.2	8.9	8.35	8.35	8.41	8.41	8.39	8.4	8.28				8.9	
Mean IH	8.045	8.008	8.056	8.197	8.239	8.269	8.331	8.355	8.307	8.241	8.192			8.205		
Min IH	7.94	7.88	7.86	8.09	8.18	8.2	8.26	8.26	8.22	8.11	8.08					7.86
Raw Water / Temperature - °C																
Max IH	8.01	6	8	11.5	13.1	18.5	23	25	22.5	17.6	12.7				25	
Mean IH	6.396	5.025	5.653	9.285	11.661	15.612	21.142	23.064	19.033	14.308	10.062			12.902		
Min IH	3	3.25	4	7	10	13	17.8	22	16	12	7.75					3
Raw Water / Total Coliform: TC - cfu/100mL																
Max Lab	39	15	10	31	4	2	100	71	< 66	0	0			< 100		
Mean Lab	10.2	4.5	2.5	8.2	1.25	0.75	23.6	< 20.25	< 29.2	0	0			< 9.854		
Min Lab	2	0	0	0	0	0	0	< 0	0	0	0				< 0	
Treated Water / Background - cfu/100mL																
Max Lab	0	0	0	0	0	0	0	0	0	0	0				0	
Mean Lab	0	0	0	0	0	0	0	0	0	0	0			0		
Min Lab	0	0	0	0	0	0	0	0	0	0	0					0
Treated Water / E. Coli: EC - cfu/100mL																
Max Lab	0	0	0	0	0	0	0	0	0	0	0				0	

Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Treated Water / Electrical Consumption - kWh																	
Total IH	963849.2	1042697	1022817	1067361	931726.5	922742.6	979665.2	1081486	978235.3	849895.7	785786.5	10626262					
Treated Water / Flow: Total of All Sources - m³/d																	
Max IH	51137	53292	51967	49343	52401	97988	96442	77634	64029	60875	50600				97988		
Mean IH	44841	46364	46748.23	44048.37	48460.74	61126.97	76220.23	67154.84	56044.43	47285.74	45425.17			53142.44			
Min IH	41397	41527	41284	39452	41184	41283	60988	56137	50125	41493	42109						39452
Total IH	1390071	1298192	1449195	1321451	1502283	1833809	2362827	2081800	1681333	1465858	1362755	17749574					
Treated Water / HPC - cfu/mL																	
Max Lab	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Mean Lab	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Min Lab	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Treated Water / Total Coliform: TC - cfu/100mL																	
Max Lab	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mean Lab	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Lab	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Treated Water / Turbidity - NTU																	
Max OL	0.117	0.08	0.1	0.082	0.11	0.095	0.096	0.097	0.096	0.088	0.096				0.117		
Mean OL	0.062	0.063	0.065	0.063	0.064	0.066	0.066	0.067	0.067	0.066	0.067			0.065			
Min OL	0.043	0.047	0.046	0.047	0.046	0.046	0.049	0.052	0.052	0.047	0.051						0.043
West Lambton Booster Station / Cl Residual: Outlet Free - mg/L																	
Max OL	2.19	1.86	1.83	1.8	1.6	1.62	4.99	1.67	2.17	4.99	2.6				4.99		
Mean OL	1.684	1.685	1.595	1.586	1.429	1.413	1.395	1.395	1.651	1.868	2.001			1.609			
Min OL	0	0	0	0	0	0	0	0	0	0	0						0
Zebra Mussel Control / Chlorine Dosage - mg/L																	
Max IH				1.125	1.173	1.25	1.327	1.29	1.218	1.285	1.228				1.327		
Mean IH				1.125	1.068	1.127	1.158	1.206	1.126	1.112	1.058			1.122			
Min IH				1.125	0.955	1.01	1.028	1.113	0.948	0.955	0.953						0.948
Zebra Mussel Control / Cl Residual: Free - mg/L																	
Max IH				0.36	0.67	0.66	0.63	0.64	0.64	0.63	0.66				0.67		
Mean IH				0.36	0.6	0.588	0.559	0.586	0.59	0.587	0.595			0.586			
Min IH				0.36	0.44	0.52	0.39	0.52	0.52	0.5	0.43						0.36
Zebra Mussel Control / Cl Residual: Total - mg/L																	
Max IH				0.54	0.81	0.8	0.79	0.79	0.81	0.78	0.84				0.84		
Mean IH				0.54	0.746	0.712	0.679	0.72	0.736	0.726	0.745			0.722			
Min IH				0.54	0.55	0.63	0.51	0.66	0.66	0.62	0.54						0.51
Zebra Mussel Control / Hypochlorite Dosage - mg/L																	
Max IH				9.374	9.777	10.417	11.057	10.753	10.149	10.71	10.231				11.057		
Mean IH				9.374	8.898	9.392	9.649	10.049	9.382	9.266	8.813			9.352			
Min IH				9.374	7.961	8.418	8.569	9.277	7.9	7.954	7.938						7.9
Zebra Mussel Control / Hypochlorite Used - kg																	
Max IH				433.575	514.65	848.35	851.875	774.325	598.075	548.725	517				851.875		
Mean IH				433.575	439.147	582.408	735.512	670.735	524.246	439.715	409.488			543.052			
Min IH				433.575	336.05	444.15	619.225	538.15	413.6	367.775	321.95						321.95
Total IH				433.575	13613.55	17472.25	22800.88	20792.8	15727.38	13631.18	12284.63	116756.2					
Zebra Mussel Control / Hypochlorite Volume-Total-1 - m³																	
Max IH				0.369	0.438	0.722	0.725	0.659	0.509	0.467	0.44				0.725		
Mean IH				0.369	0.374	0.496	0.626	0.571	0.446	0.374	0.349			0.462			
Min IH				0.369	0.286	0.378	0.527	0.458	0.352	0.313	0.274						0.274
Total IH				369	11586	14870	19405	17696	13385	11601	10455	99367					



Ontario Clean Water Agency
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2019 Client Monthly Operations Report

Lambton Area Water Supply System

December 31, 2019

Facility Description

Facility Name:	Lambton Area Water Supply System
Facility Type:	Municipal
Classification:	Class 4 Water Treatment Class 4 Water Distribution
Title Holder:	Municipality
Operation Status:	OCWA
Sr. Operations Manager:	Dave Hunt (519) 344-7429 Ext. 251
Business Development Manager:	Susan Budden
Capacity (m3/d):	181844
Service Area:	City of Sarnia, Village of Point Edward, Township of St. Clair, Township of Warwick-Watford, Municipality of Lambton Shores, Town of Plympton-Wyoming
Service Population:	104,162
In service Date:	1975

Operational Description

The Lambton WTP is a direct filtration surface water facility consisting of chemically assisted filtration with disinfection. The facility consists of an intake system (and alternate intake), a low lift pump station, a treatment system and distribution pumping system situated in the City of Sarnia. Water is drawn into the plant (a zebra mussel system is available as needed) and screened at the surge wells (pre-disinfection is utilized). Water flows to the pump wells where a total of 4 vertical turbine pumps are located and used as needed which pump to a discharge header. Coagulant is added, flashed mixed (PAC is also applied at this location when needed) the raw water is then flocculated (Polymer is added at the flocculation trains as needed) and diverted to filtration (10 dual media filters). The gravity fed filter effluents combine into two clear wells where sodium hypochlorite is injected. To maximize the contact time the water is diverted to the two baffled reservoirs (in series). Six vertical turbine pumps are available for supplying the distribution demand as needed. The entire water treatment system is continuously monitored (via SCADA) with continuous on-line analyzers equipped throughout the processes. The utility serves a large part of Lambton County and has over 250 kilometers of pipeline of various sizes and materials. There is also the East Lambton Booster Station with 9,000 cubic meters of storage capacity which is remotely monitored and controlled from the Lambton WTP via SCADA. During the 1997 calendar year the West Lambton Pumping Station, with the largest above ground water storage in the province with a capacity of 90,000m³, was brought on-line. This pumping station is also remotely monitored and controlled from Lambton WTP via SCADA. The LAWSS distribution system has 5 towers/elevated tanks that the utility monitors via SCADA. In 2007 the Residual Management System (RMS) which treats backwash effluent was brought on-line.

Treatment Process

Pre-treatment Chemicals:	Prechlorination (sodium hypochlorite); Zebra mussel control
Coagulation/Flocculation:	Aluminum Sulphate (Clar+Ion A7)
Filtration:	Dual Media; Filter Aid polymer
Disinfection Method:	Sodium hypochlorite
Post Treatment Chemical Addition:	Fluoride
Waste Residue Management:	Filter backwash effluent is treated by an Actiflo system.
Waste effluent/residue Disposal:	Sludge is hauled to Sarnia WPCP on a needed basis.

Inspections: None

Maintenance, Operations & Distribution Works Summary 2019

Maintenance

December:

Date	(P)reventative Capital Major Mtc (C)orrective	Description
Dec 2	Capital	Onsite at Toromont Mississauga to inspect startup of generators.
Dec 3	P	Conducted six month inspection of safety spill kits at the water treatment plant.
Dec 3	P	Pumped water from out of diesel and HFS containment areas.
Dec 3	P	Completed annual inspection of Residual Management System mixers.
Dec 3	P	Completed annual maintenance on portable generators and pumps at the water treatment plant.
Dec 4	P	Annual inspection of VFD at West Lambton Pumping Station completed by Eaton.
Dec 4	P	Completed monthly inspection of eyewash and emergency showers at the water treatment plant.
Dec 4	P	Completed monthly maintenance on West Lambton Pumping Station chlorine analyzers.
Dec 4	C	Investigated/corrected issue with failed sump pump at the Sombra PRV chamber.
Dec 5	C	Replaced UPS on East surge anticipator valve at the water treatment plant.
Dec 5	P	Completed six month inspection of spill kits at West Lambton

		Pumping Station.
Dec 5	P	Diesel fuel delivered for all generators.
Dec 6	Capital	Conducting factory acceptance test on radio project at Experteers.
Dec 6	P	Completed six month inspection of backwash pump.
Dec 6	P	Conducted annual maintenance on Filters 3 and 1.
Dec 9	P	Conducted monthly inspection of water treatment plant compressor.
Dec 9	C	Replaced float of sewage pump at West Lambton Pumping Station.
Dec 9-11	Capital	Testing existing PLC equipment to ensure it work with new radio equipment.
Dec 10	P	Conducted annual maintenance on Filters 5, 7 and 9.
Dec 11	P	Completed monthly maintenance on all online chlorine analyzers at the water treatment plant.
Dec 11	Capital	Onsite at Toromont Mississauga to inspect startup of generators.
Dec 12	C	Replacing backflow preventer for HFS and PAC room service water. During install of backflow preventer the flange was broken delaying the repair.
Dec 12	P	Conducted annual inspection of filter effluent actuators.
Dec 12-13	P	Completed monthly maintenance on all online turbidity meters at the water treatment plant.
Dec 13	P	Completed monthly maintenance on lab turbidity meter at the water treatment plant.
Dec 13	C	Replaced broken flange on HFS and PAC room backflow preventer.
Dec 13	P	Conducted monthly inspection of traveling screens at the water treatment plant.
Dec 16	P	Conducted annual maintenance on Filters 4, 6 and 8.
Dec 16	P	Calibrated new online pH probes.
Dec 16	P	Completed monthly maintenance on East Lambton Pumping Station chlorine analyzers.
Dec 17	P	Conducted annual maintenance on Filters 2 and 10.
Dec 17	P	Installed new pH probes for online meters at the water treatment plant.
Dec 17	P	Completed annual inspection of Residual Management System recirculation pumps.
Dec 18	P	Flush clearwell sodium hypochlorite feed lines.
Dec 18	C	Installed South Clearwell level indicator.
Dec 18	P	Conducted monthly test of diesel generators at the water treatment plant.
Dec 19	P	Tested generators at East and West Lambton Pumping Stations.
Dec 19	P	Completed monthly inspection of vacuum priming system at East Lambton Pumping Station.

Dec 19	P	Eaton on site to conduct two year inspection on VFD starter.
Dec 20	P	Completed three year inspection on transformer oil at the water treatment plant.
Dec 20	P	Completed three year inspection on transformer oil at West Lambton Pumping Station.
Dec 23	P	Conducted monthly maintenance on Residual Management System turbidity units.
Dec 23	P	Conducted monthly maintenance on streaming current meters at the water treatment plant.
Dec 23	P	Conducted monthly maintenance on Hach portable chorine units.
Dec 23	P	Conducted monthly maintenance on online fluoride meter.
Dec 24 & 27	P	Completed monthly inspection of all flocculator gear drives at the water treatment plant.
Dec 27	P	Ainsworth in to test Pac and HFS Building backflow preventer.
Dec 31	C	Repaired issue with Wyoming radio system.

Operations and Compliance

December:

Dec 2	TSS sample for Residual Management System taken.
Dec 2	95% rule for filters completed.
Dec 2	Primed and reset East Lambton Pumping Station chlorine pump and panel.
Dec 2	Running polymer system due to high raw water turbidity.
Dec 3	Reviewed contractors and suppliers WSIB certificates.
Dec 3	Primed and reset East Lambton Pumping Station chlorine pump and panel.
Dec 7	Operated Pump #1 at West Lambton Pumping Station.
Dec 8	Operated Pump #5 at West Lambton Pumping Station.
Dec 9	DWSP samples taken.
Dec 11	Tested polymer system at water treatment plant.
Dec 12	Meeting with MECP in regards to reservoir repair.
Dec 12	DWSP samples taken for raw and treated water.
Dec 12	Due to replacement of HFS and PAC room service water backflow preventer water has been shut down and HFS and PAC were turned off. MECP and Public Health Unit were informed verbally and by fax for loss of HFS.
Dec 13	HFS system restored. Fax confirmations sent to MECP and Public Health unit.
Dec 14	Operated Pump #1 at West Lambton Pumping Station.
Dec 15	Operated Pump #5 at West Lambton Pumping Station.
Dec 16	Short power outage. Pumps were reset with no issues.
Dec 19	PAC system shut down for winter season.
Dec 19	Tested for chlorine residuals from effluent of Actiflo units in the Residual Management System. No issues found.

Dec 20	Quarterly staff meeting.
Dec 20	Notified MECP and affected Municipalities that bacteriological samples taken December 9 th were lost by Purolator and did not make it to SGS labs for sampling.
Dec 22	LAWSS pre chlorine pump failed due to air lock. Pump and panel were reset with no issues.
Dec 22	Operated Pumps 1 and 5 at West Lambton Pumping Station.
Dec 23	ORO responsibilities changed to Mark Harris from Dave Hunt
Dec 23	South clearwell Pump #2 failed due to P+. Pump and panel was reset with no issues.
Dec 28	Pump #5 at West Lambton Pumping Station failed after startup.
Dec 29	Operated Pump #1 at West Lambton Pumping Station.
Dec 30	Short power bump at water treatment plant. No major issues noted.
Dec 30	Wyoming radio signal failed.

Distribution

December:

Dec 2	Onsite with Union Gas for third party work at 4739 Confederation Line.
Dec 9	Onsite for third party work at Murphy and Isabella.
Dec 10	Onsite for third party work on London Line at Lottie Neely Park.
Dec 11	Site visit at Union Gas work on London Line in Plympton-Wyoming.
Dec 12	Onsite for third party locate on LaSalle Line near fire school. Cancelled due to lack of permits.
Dec 17	Operating valves in City of Sarnia on Brock St and Confederation Line.
Dec 18	Onsite for abandonment of service line at 3569 Confederation Line.
Dec 18	Site visit with VanBree project on Fleming Rd.
Dec 19	Valve operations on Murphy Rd complete.
Dec 19	Locating connection valve at Nova Moore location.

Call Outs 2019

December: Call out on December 8th for an intruder alarm at East Lambton Pumping Station. Call out on December 21st for service line water repair at 4102 St Clair Parkway.

One Call Utility Locates

These numbers represent the number of locate notifications that were cleared from LAWSS assets

Number of Locates/Month

YEAR	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
2018	50	64	107	149	189	166	163	146	141	163	111	58
2019	69	62	104	164	189	149	182	153	121	148	81	50

RMS Sludge Haulage

These numbers represent total monthly amounts of sludge produced by the Residual Management System and hauled to Sarnia WPCP

Amount of sludge produced per month in m³

YEAR	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2018	493	300	239	320	230	318	240	240	79	227	238	234
2019	236	158	237	236	216	158	313	237	160	160	159	163

Required Monthly Reports

Monthly System Flows- see separate attached summary report

Workplace Management System Reports – see separate attached reports

Performance Data and Compliance – See separate attached report

Required Financial Reports

Quarterly Financial Summary –Q4 due January 30, 2020

Semi-Annual “Schedule G” Reconcilable Commodities Report –Due January 30, 2020

Health & Safety Work Order Summary by Facility

Start Date: 2019-12-01

End Date: 2019-12-31

Hub: Lambton

Cluster	ORG ID	Facility ID	Health and Safety					Closure Rate		
			Initiated	Approved	Completed	Total Labor Hrs	Total Cost \$	Target	Actual	Variance
LAWSS (133000)	Lambton Area Water Treatment	5544, East Lambton Distribution (5544-WDEL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, East Lambton PS (5544-WPEL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Forrest Standpipe (5544-WDFS)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Indian Road Tower (5544-WDIR)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Lambton Area RMS (5544-WWLA)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Lambton Area WTP (5544-WTLA)	3	3	3	6.50	248.83	85.00%	100.00%	-15.00%
		5544, Port Lambton Standpipe (5544-WDPL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Watford Standpipe (5544-WDWF)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, West Lambton Booster Stn (5544-WPWL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, West ST.Clair Distribution (5544-WDWS)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		Lambton Area Water Treatment Plant (5544)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		Total	3	3	3	6.50	248.83	85.00%	100.00%	-15.00%

Key Column	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

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Work Order Summary by Facility

Start Date: 2019-12-01
End Date: 2019-12-31
Hub: Lambton

Key Col	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

			Corrective Maintenance					Emergency Maintenance					Call Back				
			Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$
LAWSS (133000)	Lambton Area Water Treatment Plant (5544)	5544, East Lambton Distribution (5544-WDEL)	1	1	1	8	301.16	0	0	0	0	0	1	1	1	6	309.67
		5544, East Lambton PS (5544-WPEL)	2	2	2	2.75	101.06	0	0	0	0	0	0	0	0	0	0
		5544, Lambton Area RMS (5544-WWLA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, Lambton Area WTP (5544-WTLA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, West Lambton Booster Stn (5544-WPWL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, West ST.Clair Distribution (5544-WDWS)	4	3	3	16	916.53	0	0	0	0	0	0	0	0	0	0
		Lambton Area Water Treatment Plant (5544)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total			7	6	6	26.75	1318.75	0	0	0	0.00	0.00	1	1	1	6.00	309.67

0
0

Work Order Summary by Facility

Start Date: 2019-12-01
End Date: 2019-12-31
Hub: Lambton

Key Col	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

			Preventive Maintenance					Operational					Capital/Project Work					Closure Rate		
			Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Target	Actual	Variance
LAWSS (133000)	Lambton Area Water Treatment Plant (5544)	5544, East Lambton Distribution (5544-WDEL)	0	0	0	0	0	4	4	4	12	529.43	0	0	0	0	0	85%	100%	-15.0%
		5544, East Lambton PS (5544-WPEL)	4	4	4	5.25	230.81	3	3	3	10.5	448.79	0	0	0	0	0	85%	100%	-15.0%
		5544, Lambton Area RMS (5544-WWLA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
		5544, Lambton Area WTP (5544-WTLA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
		5544, West Lambton Booster Stn (5544-WPWL)	5	5	5	10	485.69	2	2	2	7	263.26	0	0	0	0	0	85%	100%	-15.0%
		5544, West St.Clair Distribution (5544-WDWS)	27	27	27	71	3122.1	11	11	11	1466.5	42284.43	0	0	0	0	0	85%	100%	-15.0%
		Lambton Area Water Treatment Plant (5544)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
Grand Total			36	36	36	86.25	3838.6	20	20	20	1496	43525.91	0	0	0	0	0	85%	100%	-15.0%

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0

Ontario Clean Water Agency
Time Series Info Report

From: 01/01/2019 to 31/12/2019

Report extracted 01/07/2020 13:47

Facility Org Number: 5544
Facility Works Number: 210000906
Facility Name: LAMBTON AREA WATER SUPPLY SYSTEM (LAWSS)
Facility Owner: Local Services Board: LAMBTON AREA WATER SUPPLY SYSTEM
Facility Classification: Class 4 Water Treatment
Receiver:
Service Population: 100000.0
Total Design Capacity: 181844.0 m3/day

	01/2019	02/2019	03/2019	04/2019	05/2019	06/2019	07/2019	08/2019	09/2019	10/2019	11/2019	12/2019	Total	Avg	Max	Min
Coagulation/Floculation / Coagulant Dosage-Calculated - mg/L																
Max IH	38.605	29.517	32.268	31.172	26.559	26.095	23.836	25.822	22.272	31.139	26.33	32.538			38.605	
Mean IH	26.763	24.002	23.839	22.375	22.91	21.558	20.805	20.901	19.819	21.006	21.377	20.607		22.158		
Min IH	21.912	18.131	18.009	17.868	19.041	18.665	18.086	19.041	17.621	18.079	17.595	16.691				16.691
Coagulation/Floculation / Coagulant Used - kg																
Max IH	1792	1408	1651.2	1241.6	1344	2150.4	2060.8	1804.8	1356.8	1472	1203.2	1408			2150.4	
Mean IH	1220.542	1167.086	1160.671	1009.067	1129.29	1339.307	1594.632	1397.677	1108.139	996.335	987.307	955.871		1172.873		
Min IH	972.8	947.2	832	768	934.4	921.6	1088	1100.8	844.8	652.8	729.6	755.2				652.8
Total IH	37836.8	32678.4	35980.8	30272	35008	40179.2	49433.6	43328	33244.16	30886.4	29619.2	29632	428098.6			
Coagulation/Floculation / Coagulant Volume Used - m³																
Max IH	1.4	1.1	1.29	0.97	1.05	1.68	1.61	1.41	1.06	1.15	0.94	1.1			1.68	
Mean IH	0.954	0.912	0.907	0.788	0.882	1.046	1.246	1.092	0.866	0.778	0.771	0.747		0.916		
Min IH	0.76	0.74	0.65	0.6	0.73	0.72	0.85	0.86	0.66	0.51	0.57	0.59				0.51
Total IH	29560	25530	28110	23650	27350	31390	38620	33850	25972	24130	23140	23150	334452			
Coagulation/Floculation / Polymer Dosage - mg/L																
Max IH	0.042			0.024								0.019			0.042	
Mean IH	0.02			0.024								0.006		0.016		
Min IH	0.002			0.024								0				0
Coagulation/Floculation / Polymer Used - kg																
Max IH	2.1			1.1								1			2.1	
Mean IH	1.025			1.1								0.333		0.775		
Min IH	0.1			1.1								0				0
Total IH	4.1			1.1								1	6.2			
DW THM Data / Trihalomethane: Total - µg/l																
Max Lab		30			37			58			55				58	
Mean Lab		27			31.667			52.667			50			40.333		
Min Lab		24			25			46			45					24
East Lambton Booster Station / Cl Residual: Inlet Free - mg/L																
Max OL	1.74	2.49	1.68	1.58	1.43	1.4	1.36	1.29	1.56	1.64	1.48	1.5			2.49	
Mean OL	1.535	1.401	1.428	1.388	1.3	1.277	1.22	1.124	1.344	1.348	1.356	1.363		1.34		
Min OL	0	0	0	0	0	0	0	0	0	0	0	0				0
Filter Backwash / Backwash Volume - m³																
Max IH	4792	2408	2992	3006	3004	3004	2998	3002	2418	2418	2410	4702			4792	
Mean IH	2268.323	1929.786	2028.194	1927.733	1900.774	2043	2095.032	2056.903	1966.067	1893.871	1863.733	2015.29		2000.164		
Min IH	1794	1788	1794	1198	1204	1792	1788	1059	1796	1204	1196	0				0
HFS / Fluoride Dosage - mg/L																
Max IH	0.64	0.644	0.614	0.622	0.592	0.628	0.612	0.589	0.573	0.655	0.649	0.634			0.655	
Mean IH	0.556	0.557	0.559	0.557	0.542	0.548	0.535	0.537	0.531	0.533	0.6	0.549		0.55		
Min IH	0.46	0.417	0.482	0.487	0.486	0.464	0.486	0.49	0.474	0.476	0.531	0.196				0.196
HFS / Fluoride Used - l																
Max IH	108.877	97.419	97.419	94.553	100.284	186.246	171.916	143.263	117.475	114.611	103.149	100.284			186.246	
Mean IH	85.495	87.63	89.655	83.952	90.041	115.949	139.658	123.298	101.43	85.218	91.975	83.739		98.255		
Min IH	65.901	66.384	71.631	71.631	74.497	88.823	111.745	103.149	85.957	68.766	83.09	28.652				28.652
Total IH	2650.36	2453.634	2779.305	2518.562	2791.284	3478.466	4329.406	3822.244	3042.903	2641.76	2759.246	2595.922	35863.09			

[illegible]

Total IH		13753.38	12536.08	13437.3	12113.08												51839.83					
Pre-chlorination / Hypochlorite Volume-Total-1 - m³																						
Max IH		0.446	0.474	0.435	0.477														0.477			
Mean IH		0.378	0.381	0.369	0.355													0.371				
Min IH		0.326	0.336	0.29	0.288																0.288	
Total IH		11705	10669	11436	10309												44119					
Raw Water / Background - cfu/100mL																						
Max Lab		160	82	82	410	260	720	2800	2800	8600	56	2	4					8600				
Mean Lab		69.2	33.25	21.5	105.8	69.25	346.25	751.2	1137.5	2760	12.4	0.5	1.333				479.423					
Min Lab		18	0	1	13	0	0	0	0	160	0	0	0								0	
Raw Water / Conductivity - µS/cm																						
Max IH		228.5	223.2	231.5	232.3	243.7	238.2	238.8	236.2	235.2	228.6	225.3	223.4					243.7				
Mean IH		221.019	219.725	222.174	225.038	233.042	232.617	236.165	235.252	231.17	227.025	222.907	220.674				227.288					
Min IH		217.8	218	217.9	170	222.6	228.5	232.2	234.1	223.8	225.2	221.3	219								170	
Raw Water / E. Coli: EC - cfu/100mL																						
Max Lab		1	0	0	1	0	0	10	< 10	< 10	0	0	0					< 10				
Mean Lab		0.4	0	0	0.2	0	0	3.8	< 3.25	< 2.4	0	0	0				< 0.904					
Min Lab		0	0	0	0	0	0	0	< 0	0	0	0	0							< 0		
Raw Water / Raw Flow Daily - m³/d																						
Max IH		52987	56479	56245	51694	56670	100783	98594	80666	61463	59068	55288	52646					100783				
Mean IH		45508.9	48755.75	48621.65	45139.4	49348.52	62008.87	76680.9	66884.77	55870.33	47562.55	46161.03	46399.06				53292.46					
Min IH		40082	40763	41664	36877	42212	47569	60157	54511	47226	34339	37635	39959								34339	
Raw Water / Raw Flow Rate - l/s																						
Max IH		613.27	653.69	650.98	598.31	654.75	1166.47	1141.13	933.63	926.67	683.66	639.91	609.33					1166.47				
Mean IH		526.72	565.27	562.75	522.45	571.13	717.93	887.51	774.13	653.31	550.49	534.28	537.02				617.45					
Min IH		463.91	471.79	482.22	426.82	488.56	550.57	696.26	630.91	546.6	397.44	435.9	462.49								397.44	
Raw Water / Raw Water Turbidity - NTU																						
Max OL		21.4	7.14	13.7	12.2	6.8	3.1	7	2.17	2.4	26.5	5.63	10.9					26.5				
Mean OL		2.887	1.135	2.448	2.458	1.769	1.08	0.97	0.75	0.785	2.341	1.526	1.049				1.6					
Min OL		0.46	0.23	0.201	0.57	0.445	0.365	0.33	0.34	0.2	0.284	0.28	0.18								0.18	
Raw Water / Raw Water pH - ---																						
Max IH		8.22	8.12	8.2	8.9	8.35	8.35	8.41	8.41	8.39	8.4	8.28	8.26					8.9				
Mean IH		8.045	8.008	8.056	8.197	8.239	8.269	8.331	8.355	8.307	8.241	8.192	8.156				8.201					
Min IH		7.94	7.88	7.86	8.09	8.18	8.2	8.26	8.26	8.22	8.11	8.08	8.04								7.86	
Raw Water / Temperature - °C																						
Max IH		8.01	6	8	11.5	13.1	18.5	23	25	22.5	17.6	12.7	10.1					25				
Mean IH		6.396	5.025	5.653	9.285	11.661	15.612	21.142	23.064	19.033	14.308	10.062	8.437				12.523					
Min IH		3	3.25	4	7	10	13	17.8	22	16	12	7.75	7.25								3	
Raw Water / Total Coliform: TC - cfu/100mL																						
Max Lab		39	15	10	31	4	2	100	71	< 66	0	0	0					< 100				
Mean Lab		10.2	4.5	2.5	8.2	1.25	0.75	23.6	< 20.25	< 29.2	0	0	0				< 9.096					
Min Lab		2	0	0	0	0	0	0	< 0	0	0	0	0							< 0		
Treated Water / Background - cfu/100mL																						
Max Lab		0	0	0	0	0	0	0	0	0	0	0	0					0				
Mean Lab		0	0	0	0	0	0	0	0	0	0	0	0				0					
Min Lab		0	0	0	0	0	0	0	0	0	0	0	0							0		
Treated Water / E. Coli: EC - cfu/100mL																						
Max Lab		0	0	0	0	0	0	0	0	0	0	0	0					0				
Mean Lab		0	0	0	0	0	0	0	0	0	0	0	0				0					
Min Lab		0	0	0	0	0	0	0	0	0	0	0	0								0	
Treated Water / Electrical Consumption - kWh																						
Total IH		963849.2	1042697	1022817	1067361	931726.5	922742.6	979665.2	1081486	978235.3	849895.7	785786.5	982628.6	11608890								
Treated Water / Flow: Total of All Sources - m³/d																						
Max IH		51137	53292	51967	49343	52401	97988	96442	77634	64029	60875	50600	51407					97988				
Mean IH		44841	46364	46748.23	44048.37	48460.74	61126.97	76220.23	67154.84	56044.43	47285.74	45425.17	45201.1				52467.97					
Min IH		41397	41527	41284	39452	41184	41283	60988	56137	50125	41493	42109	40167								39452	
Total IH		1390071	1298192	1449195	1321451	1502283	1833809	2362827	2081800	1681333	1465858	1362755	1401234	19150808								
Treated Water / HPC - cfu/mL																						
Max Lab		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10					< 10				
Mean Lab		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10				< 10					



Ontario Clean Water Agency
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2020 Client Monthly Operations Report

Lambton Area Water Supply System

January 31, 2020

Facility Description

Facility Name: Lambton Area Water Supply System
Facility Type: Municipal
Classification: Class 4 Water Treatment
Class 4 Water Distribution
Title Holder: Municipality
Operation Status: OCWA
Sr. Operations Manager: Mark Harris (519) 344-7429 Ext. 251
Business Development Manager: Susan Budden
Capacity (m3/d): 181844
Service Area: City of Sarnia, Village of Point Edward, Township of St. Clair, Township of Warwick-Watford, Municipality of Lambton Shores, Town of Plympton-Wyoming
Service Population: 104,162
In service Date: 1975

Operational Description

The Lambton WTP is a direct filtration surface water facility consisting of chemically assisted filtration with disinfection. The facility consists of an intake system (and alternate intake), a low lift pump station, a treatment system and distribution pumping system situated in the City of Sarnia. Water is drawn into the plant (a zebra mussel system is available as needed) and screened at the surge wells (pre-disinfection is utilized). Water flows to the pump wells where a total of 4 vertical turbine pumps are located and used as needed which pump to a discharge header. Coagulant is added, flashed mixed (PAC is also applied at this location when needed) the raw water is then flocculated (Polymer is added at the flocculation trains as needed) and diverted to filtration (10 dual media filters). The gravity fed filter effluents combine into two clear wells where sodium hypochlorite is injected. To maximize the contact time the water is diverted to the two baffled reservoirs (in series). Six vertical turbine pumps are available for supplying the distribution demand as needed. The entire water treatment system is continuously monitored (via SCADA) with continuous on-line analyzers equipped throughout the processes. The utility serves a large part of Lambton County and has over 250 kilometers of pipeline of various sizes and materials. There is also the East Lambton Booster Station with 9,000 cubic meters of storage capacity which is remotely monitored and controlled from the Lambton WTP via SCADA. During the 1997 calendar year the West Lambton Pumping Station, with the largest above ground water storage in the province with a capacity of 90,000m³, was brought on-line. This pumping station is also remotely monitored and controlled from Lambton WTP via SCADA. The LAWSS distribution system has 5 towers/elevated tanks that the utility monitors via SCADA. In 2007 the Residual Management System (RMS) which treats backwash effluent was brought on-line.

Treatment Process

Pre-treatment Chemicals:	Prechlorination (sodium hypochlorite); Zebra mussel control
Coagulation/Flocculation:	Aluminum Sulphate (Clar+Ion A7)
Filtration:	Dual Media; Filter Aid polymer
Disinfection Method:	Sodium hypochlorite
Post Treatment Chemical Addition:	Fluoride
Waste Residue Management:	Filter backwash effluent is treated by an Actiflo system.
Waste effluent/residue Disposal:	Sludge is hauled to Sarnia WPCP on a needed basis.

Inspections

January: None

Maintenance, Operations & Distribution Works Summary 2020

Maintenance

January:

Date	(P)reventative Capital Major Mtc (C)orrective	Description
Jan 2	C	Replaced one UPS battery and reset UPS at East Lambton Pumping Station.
Jan 2	P	Completed monthly inspection of water treatment plant compressors.
Jan 6	C	ESA inspection corrective actions at East Lambton Pumping Station are completed.
Jan 6	P	Completed monthly inspection on emergency eyewash and safety showers.
Jan 7	C	Repaired leak on Filter #8 surface wash valve near the air relief valve.
Jan 7	P	Completed monthly calibration on West Lambton Pumping Station chlorine analyzers.
Jan 7	P	Pumped out HFS and diesel containment areas.
Jan 7-9	C	Installing 2 heaters in basement at West Lambton Pumping Station.
Jan 8	P	Calibrated lab pH probe.
Jan 9	C	Repaired leak on Filter #10 surface wash valve.
Jan 10	P	Completed annual inspection on PRV for Forest and Watford Pumps 1 and 2 at East Lambton Pumping Station.

Jan 10	P	Completed monthly inspection on vacuum priming system at East Lambton Pumping Station.
Jan 10	P	Completed three year inspection on PRV for fill valve at East Lambton Pumping Station.
Jan 13	P	Completed monthly inspection of travelling screens at the water treatment plant.
Jan 14	C	Replaced SCADA computer at East Lambton Pumping Station.
Jan 15-16	C	Updating SCADA computer at East Lambton Pumping Station.
Jan 15-16	P	Completed monthly inspection of all Floc gear drives at the water treatment plant.
Jan 16	P	Tested generators at West Lambton Pumping Station.
Jan 20	Capital	With Experteers in regards to radio project at Indian Rd Tower and West Lambton Pumping Station.
Jan 21	C	Replaced UPS batteries at East Lambton Pumping Station.
Jan 21	Capital	With Experteers as part of radio project at Port Lambton and East and West Lambton Pumping Station.
Jan 21-22	C	Restore PLC at West Lambton Pumping Station.
Jan 22	Capital	With Experteers as part of the radio project at Wyoming Pit, Forest and Watford.
Jan 23	P	Conducted monthly polymer system test at the water treatment plant.
Jan 23	P	Tested generators at the water treatment plant.
Jan 24	P	Completed monthly calibration of all turbidity meters at the water treatment plant.
Jan 27-28	C	Drying out turbidity meter emitters due to moisture issues.
Jan 28	C	Investigated Filter #1 high turbidity issues. Did not see any issues with media. Backwashed filter in manual mode. Turbidity returned to normal.
Jan 28	P	Completed monthly calibration on lab turbidity meter.
Jan 29	P	Completed monthly calibration of portable chlorine analyzers.
Jan 29	P	Completed monthly calibration and maintenance of online fluoride analyzer.
Jan 29	P	Completed monthly maintenance on streaming current meters at the water treatment plant.
Jan 29	P	Completed monthly maintenance on turbidity meters in the Residual Management System.

Operations and Compliance

January:

Jan 3	Pre chlorine pump air lock failed. Pump and panel were reset.
Jan 4	Pre chlorine pump #3 air lock failed. Pump and panel were reset.
Jan 5	Pumps 1 and 5 at West Lambton Pumping Station tested.
Jan 8	Made adjustments to SCADA/PLC Failure Contingency.
Jan 8	Resampled late bacteriological samples.
Jan 9	Pre chlorine pump #3 air lock failed. Pump and panel were reset.
Jan 13	Pre chlorine pump air lock failed. Pump and panel were reset.
Jan 16	Annual and Annual Summary Reports completed and sent to Clinton for approval.
Jan 16	Tested chlorine residual from Residual Management System effluent. No issues.
Jan 19	Pre chlorine pump #3 air lock failed. Pump and panel were reset.
Jan 21	West Lambton Pumping Station out during radio project work.
Jan 21	Chlorine pump fault at East Lambton Pumping Station. Pump and panel were reset.
Jan 22	Pumped out chamber on Venetian and tested chlorine residual from chamber as part of reservoir repair work preparation.
Jan 23	Taking residuals from Sandy Lane Apartments in preparation of reservoir repair work.
Jan 24	Filter #1 out of service due to high turbidity after backwash.
Jan 25	Calibrated lab pH probe.
Jan 26	Ran Pump #1 at West Lambton Pumping Station.
Jan 27	THM/HAA quarterly samples taken.
Jan 27	Pre chlorine pump #1 air lock failed. Pump and panel were reset.
Jan 28	Filter #1 returned to service after turbidity reached normal levels.
Jan 28-29	Conducted quarterly test of critical alarms.
Jan 28	Chlorine pump fault at East Lambton Pumping Station due to air lock. Pump and panel were reset.
Jan 29	Pre chlorine pump #3 air lock failed. Pump and panel were reset.

Distribution

January:

Jan 6	Check PRV chamber at Sombra and the hydrant at 3966 St Clair Parkway.
Jan 8	Onsite for third party on Confederation Line in Plympton-Wyoming.
Jan 11	After hours emergency locate #2020030010 at 1492 Venetian Blvd.
Jan 20	Site meet for directional bore at Bickford and Greenfield.
Jan 21	Inspecting chamber in preparation for site meet at chamber on Fleming and Lakeshore.
Jan 22	After hours emergency locate #2020046277.
Jan 22	Onsite for third party work on Indian Rd and Plank Rd.
Jan 23	Site meet at Lakeshore and Fleming in regards to future fiber optic cable.
Jan 24	On site for third party work on Fleming for exposure of LAWSS watermain.

Jan 24	Investigated a service leak in Plympton-Wyoming.
Jan 25	Isolating Nova Moore watermain for Nova work.
Jan 26	After hours emergency locate on Michigan Ave.
Jan 29	Site meet at Fleming Rd in regards to future work in Plympton-Wyoming.

Call Outs 2020

January: January 1 due to a UPS fault at East Lambton Pumping Station.

One Call Utility Locates

These numbers represent the number of locate notifications that were cleared from LAWSS assets

Number of Locates/Month

YEAR	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
2019	69	62	104	164	189	149	182	153	121	148	81	50
2020	57											

RMS Sludge Haulage

These numbers represent total monthly amounts of sludge produced by the Residual Management System and hauled to Sarnia WPCP

Amount of sludge produced per month in m³

YEAR	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2019	236	158	237	236	216	158	313	237	160	160	159	163
2020	241											

Required Monthly Reports

Monthly System Flows- see separate attached summary report

Workplace Management System Reports – see separate attached reports

Performance Data and Compliance – See separate attached report

Required Financial Reports

Quarterly Financial Summary –Q4 was due January 30, 2020. Q1 due April 30, 2020.

Semi-Annual “Schedule G” Reconcilable Commodities Report – Was due January 30, 2020. Next due July 30, 2020.

Health & Safety Work Order Summary by Facility

Start Date: 2020-01-01

End Date: 2020-01-31

Hub: Lambton

Cluster	ORG ID	Facility ID	Health and Safety					Closure Rate		
			Initiated	Approved	Completed	Total Labor Hrs	Total Cost \$	Target	Actual	Variance
LAWSS (133000)	Lambton Area Water Treatment Plant (5544)	5544, East Lambton Distribution (5544-WDEL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, East Lambton PS (5544-WPEL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Forrest Standpipe (5544-WDFS)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Indian Road Tower (5544-WDIR)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Lambton Area RMS (5544-WWLA)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Lambton Area WTP (5544-WTLA)	4	4	3	5.75	260.25	85.00%	75.00%	10.00%
		5544, Port Lambton Standpipe (5544-WDPL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Watford Standpipe (5544-WDWF)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, West Lambton Booster Stn (5544-WPWL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, West ST.Clair Distribution (5544-WDWS)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		Lambton Area Water Treatment Plant (5544)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		Total			4	4	3	5.75	260.25	85.00%

Key Column	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

2/10/20 15:06:44

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Work Order Summary by Facility

Start Date: 2020-01-01
End Date: 2020-01-31
Hub: Lambton

Key Col	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

			Corrective Maintenance					Emergency Maintenance					Call Back				
			Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$
LAWSS (133000)	Lambton Area Water Treatment Plant (5544)	5544, East Lambton Distribution (5544-WDEL)	0	0	0	0	0	0	0	0	0	0	1	1	1	10	3499.61
		5544, East Lambton PS (5544-WPEL)	1	1	0	9	381.78	0	0	0	0	0	0	0	0	0	0
		5544, Lambton Area RMS (5544-WWLA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, Lambton Area WTP (5544-WTLA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, West Lambton Booster Strn (5544-WPWL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, West ST.Clair Distribution (5544-WDWS)	2	2	0	8	459.76	0	0	0	0	0	0	0	0	0	0
		Lambton Area Water Treatment Plant (5544)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total			3	3	0	17	841.54	0	0	0	0.00	0.00	1	1	1	10.00	3499.61

0
0

Work Order Summary by Facility

Start Date: 2020-01-01
End Date: 2020-01-31
Hub: Lambton

Key Col	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

			Preventive Maintenance					Operational					Capital/Project Work					Closure Rate		
			Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Target	Actual	Variance
LAWSS (133000)	Lambton Area Water Treatment Plant (5544)	5544, East Lambton Distribution (5544-WDEL)	2	2	0	0	0	4	4	4	2.25	80.85	0	0	0	0	0	85%	71.42%	13.57%
		5544, East Lambton PS (5544-WPEL)	10	10	9	7.25	384.99	2	2	2	6.75	277.03	0	0	0	0	0	85%	84.61%	0.384%
		5544, Lambton Area RMS (5544-WWLA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
		5544, Lambton Area WTP (5544-WTLA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
		5544, West Lambton Booster Stn (5544-WPWL)	2	2	2	5	230.34	2	2	2	2.5	100.31	0	0	0	0	0	85%	100%	-15.0%
		5544, West ST.Clair Distribution (5544-WDWS)	38	38	27	107	4854.47	13	13	12	1635	48421.49	4	4	2	23	1007.64	85%	73.58%	11.41%
		Lambton Area Water Treatment Plant (5544)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
Grand Total			52	52	38	119.25	5469.8	21	21	20	1646.5	48879.68	4	4	2	23	1007.64	85%	100%	-15.0%

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0

Ontario Clean Water Agency
Time Series Info Report

Report extracted 02/11/2020 10:25

From:

01/01/2020 to 31/01/2020

Facility Org Number: 5544
Facility Works Number: 210000906
Facility Name: LAMBTON AREA WATER SUPPLY SYSTEM (LAWSS)
Facility Owner: Local Services Board: LAMBTON AREA WATER SUPPLY SYSTEM
Facility Classification: Class 4 Water Treatment
Receiver:
Service Population: 100000.0
Total Design Capacity: 181844.0 m3/day

	01/2020	Total	Avg	Max	Min								
Coagulation/Floculation / Coagulant Dosage-Calculated - mg/L													
Max IH	26.437			26.437									
Mean IH	20.802		20.802										
Min IH	15.602				15.602								
Coagulation/Floculation / Coagulant Used - kg													
Max IH	1241.6			1241.6									
Mean IH	964.129		964.129										
Min IH	691.2				691.2								
Total IH	29888	29888											
Coagulation/Floculation / Coagulant Volume Used - m³													
Max IH	0.97			0.97									
Mean IH	0.753		0.753										
Min IH	0.54				0.54								
Total IH	23350	23350											
DW THM Data / Trihalomethane: Total - µg/l													
Max Lab	31			31									
Mean Lab	29.667		29.667										
Min Lab	28				28								
East Lambton Booster Station / Cl Residual: Inlet Free - mg/L													
Max OL	1.49			1.49									
Mean OL	1.359		1.359										
Min OL	0				0								
Filter Backwash / Backwash Volume - m³													
Max IH	2988			2988									
Mean IH	2017.581		2017.581										
Min IH	1208				1208								
HFS / Fluoride Dosage - mg/L													
Max IH	0.63			0.63									
Mean IH	0.55		0.55										
Min IH	0.477				0.477								

HFS / Fluoride Used - l												
Max IH	88.823				88.823							
Mean IH	83.185			83.185								
Min IH	68.766					68.766						
Total IH	2578.73	2578.73										
HFS / HFS (kg) - kg												
Max IH	108.364				108.364							
Mean IH	101.486			101.486								
Min IH	83.895					83.895						
Total IH	3146.051	3146.051										
HFS / Treated Water Fluoride Residual - mg/L												
Max OL	2				2							
Mean OL	0.544			0.544								
Min OL	0					0						
Post Disinfection / Chlorine Dosage - mg/L												
Max IH	2.078				2.078							
Mean IH	1.449			1.449								
Min IH	0.822					0.822						
Post Disinfection / Hypochlorite Dosage - mg/L												
Max IH	17.316				17.316							
Mean IH	12.072			12.072								
Min IH	6.854					6.854						
Post Disinfection / Hypochlorite Used - kg												
Max IH	777.85				777.85							
Mean IH	559.262			559.262								
Min IH	254.975					254.975						
Total IH	17337.13	17337.13										
Post Disinfection / Hypochlorite Volume-Total - m³												
Max IH	0.662				0.662							
Mean IH	0.476			0.476								
Min IH	0.217					0.217						
Total IH	14755	14755										
Post Disinfection / Station 7 Cl Residual: Free - mg/L												
Max OL	5				5							
Mean OL	1.608			1.608								
Min OL	0					0						
Raw Water / Background - cfu/100mL												
Max Lab	10				10							
Mean Lab	2.5			2.5								
Min Lab	0					0						
Raw Water / Conductivity - µS/cm												
Max IH	223.4				223.4							
Mean IH	220.597			220.597								
Min IH	217.1					217.1						
Raw Water / E. Coli: EC - cfu/100mL												
Max Lab	0				0							

Mean Lab	0		0						
Min Lab	0				0				
Raw Water / Raw Flow Daily - m³/d									
Max IH	51462			51462					
Mean IH	46223.13		46223.13						
Min IH	37203				37203				
Raw Water / Raw Flow Rate - l/s									
Max IH	595.62			595.62					
Mean IH	534.99		534.99						
Min IH	430.59				430.59				
Raw Water / Raw Water Turbidity - NTU									
Max OL	14			14					
Mean OL	2.445		2.445						
Min OL	0.26				0.26				
Raw Water / Raw Water pH - ---									
Max IH	8.27			8.27					
Mean IH	8.114		8.114						
Min IH	8.02				8.02				
Raw Water / Temperature - °C									
Max IH	10			10					
Mean IH	7.466		7.466						
Min IH	5.5				5.5				
Raw Water / Total Coliform: TC - cfu/100mL									
Max Lab	0			0					
Mean Lab	0		0						
Min Lab	0				0				
Treated Water / Background - cfu/100mL									
Max Lab	0			0					
Mean Lab	0		0						
Min Lab	0				0				
Treated Water / E. Coli: EC - cfu/100mL									
Max Lab	0			0					
Mean Lab	0		0						
Min Lab	0				0				
Treated Water / Electrical Consumption - kWh									
Total IH	1060323	1060323							
Treated Water / Flow: Total of All Sources - m³/d									
Max IH	48147			48147					
Mean IH	44815.48		44815.48						
Min IH	37737				37737				
Total IH	1389280	1389280							
Treated Water / HPC - cfu/mL									
Max Lab	< 10		< 10						
Mean Lab	< 10	< 10							
Min Lab	< 10				< 10				
Treated Water / Total Coliform: TC - cfu/100mL									

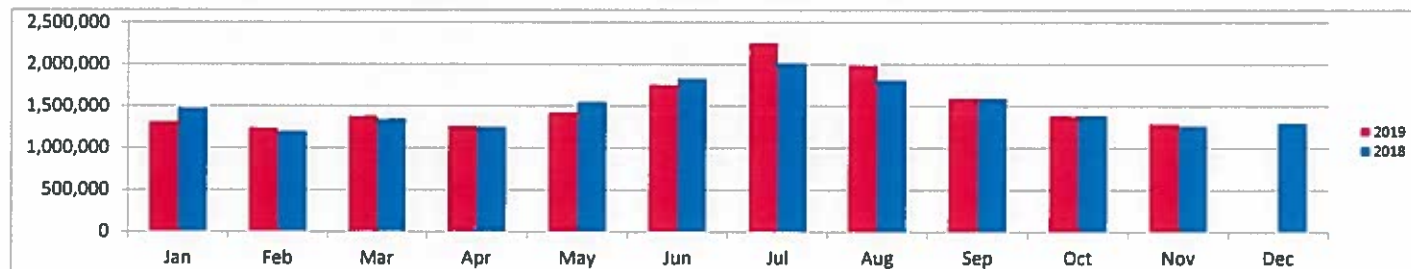
Max Lab	0				0							
Mean Lab	0			0								
Min Lab	0					0						
Treated Water / Turbidity - NTU												
Max OL	0.094				0.094							
Mean OL	0.069			0.069								
Min OL	0.052					0.052						
West Lambton Booster Station / Cl Residual: Outlet Free - mg/L												
Max OL	4.98				4.98							
Mean OL	1.666			1.666								
Min OL	0					0						
Zebra Mussel Control / Chlorine Dosage - mg/L												
Max IH	1.251				1.251							
Mean IH	1.057			1.057								
Min IH	0.972					0.972						
Zebra Mussel Control / Cl Residual: Free - mg/L												
Max IH	0.66				0.66							
Mean IH	0.597			0.597								
Min IH	0.46					0.46						
Zebra Mussel Control / Cl Residual: Total - mg/L												
Max IH	0.84				0.84							
Mean IH	0.759			0.759								
Min IH	0.61					0.61						
Zebra Mussel Control / Hypochlorite Dosage - mg/L												
Max IH	10.423				10.423							
Mean IH	8.812			8.812								
Min IH	8.102					8.102						
Zebra Mussel Control / Hypochlorite Used - kg												
Max IH	470				470							
Mean IH	407.081			407.081								
Min IH	339.575					339.575						
Total IH	12619.5	12619.5										
Zebra Mussel Control / Hypochlorite Volume-Total-1 - m³												
Max IH	0.4				0.4							
Mean IH	0.346			0.346								
Min IH	0.289					0.289						
Total IH	10740	10740										

LAWSS Flow Summary

Draft

Total Flows as of Nov 2019

LAWSS Member		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Year To Date for: Jan - Nov	% Total
Sarnia	2019	763,540	710,071	793,833	772,802	859,360	928,004	1,306,982	1,232,482	954,642	843,767	740,144	0	9,905,627	59.31
	2018	847,619	716,829	792,231	722,416	903,800	1,090,866	1,140,761	992,451	914,117	808,898	717,749	743,262	10,390,999	58.34
Point Edward	2019	27,627	25,262	28,086	27,709	32,081	38,498	50,463	53,100	36,311	31,273	40,091	0	390,502	2.34
	2018	29,104	24,457	27,752	27,203	39,328	47,078	54,106	49,612	41,322	34,228	26,687	26,579	427,456	2.40
St. Clair	2019	407,497	389,310	437,481	329,430	376,717	607,849	669,638	489,505	436,191	363,446	370,260	0	4,877,324	29.20
	2018	420,890	328,358	381,560	356,736	416,692	475,796	604,876	568,576	499,609	420,941	409,299	420,293	5,303,627	29.78
Plympton/Wyoming	2019	60,624	55,794	61,245	63,800	73,513	86,825	126,745	108,289	79,740	69,076	65,525	0	851,175	5.10
	2018	63,990	52,511	56,621	60,990	83,851	102,062	116,025	89,396	74,865	66,964	58,463	61,040	886,779	4.98
Lambton Shores	2019	12,193	15,213	12,491	14,747	28,233	32,872	43,978	43,586	42,789	28,509	31,238	0	305,849	1.83
	2018	37,681	23,324	25,198	31,014	30,618	34,312	39,802	63,896	14,903	16,800	14,901	12,241	344,689	1.94
Watford/Warwick	2019	29,976	28,550	30,013	31,163	35,804	35,885	41,573	41,590	34,374	33,837	29,148	0	371,915	2.23
	2018	39,195	35,905	39,130	37,248	45,667	46,959	46,842	37,035	37,798	32,988	30,508	29,142	458,416	2.57
														2019	16702392
Others														2018	17811967
Alvinston	2019	7,072	6,668	10,291	12,120	16,322	18,398	15,460	11,028	8,694	9,193	10,813	0	126,059	0.75
	2018	10,209	6,415	7,160	7,177	7,951	7,484	7,326	5,996	6,317	6,411	6,293	7,174	85,913	0.48
Petrolia	2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
	2018	25,392	2,810	10,788	4,496	0	24,533	0	0	0	0	0	0	68,019	0.38
Chatham-Kent	2019	0	1,071	0	778	129	0	0	0	0	0	0	0	1,978	0.01
	2018	0	0	0	0	20,782	0	0	0	0	0	0	0	20,782	0.12
Totals	2019	1,308,530	1,231,940	1,373,440	1,252,550	1,422,160	1,748,330	2,254,838	1,979,580	1,592,740	1,379,100	1,287,220	0	16,830,429	
	2018	1,474,080	1,190,611	1,340,440	1,247,280	1,548,690	1,829,090	2,009,738	1,806,962	1,588,930	1,387,230	1,263,900	1,299,730	17,986,681	



Note:

Work Sheet Revision Date: 07-Jan-2019

Current Year 2019
Last month entered Nov

Year to Date
Total

LAWSS Members	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan - Nov
City of Samial:	763,540	710,071	793,833	772,802	859,360	928,004	1,306,982	1,232,482	954,642	843,767	740,144	0	9,905,627
Point Edward:	27,627	25,262	28,086	27,709	32,081	38,498	50,463	53,100	36,311	31,273	40,091	0	390,502
St. Clair Township:	407,497	389,310	437,481	329,430	376,717	607,849	669,638	489,505	436,191	363,446	370,260	0	4,877,324
Plympton/Wyoming:	60,624	55,794	61,245	63,800	73,513	86,825	126,745	108,289	79,740	69,076	65,525	0	851,175
Lambton Shores:	12,193	15,213	12,491	14,747	28,233	32,872	43,978	43,586	42,789	28,509	31,238	0	305,849
Watford/Warwick:	29,976	28,550	30,013	31,163	35,804	35,885	41,573	41,590	34,374	33,837	29,148	0	371,915
	1,301,458	1,224,201	1,363,150	1,239,652	1,405,708	1,729,932	2,239,379	1,968,552	1,584,046	1,369,907	1,276,407	0	16,702,392
Others													
Town of Alvinston:	7,072	6,668	10,291	12,120	16,322	18,398	15,460	11,028	8,694	9,193	10,813	0	126,059
Town of Petrolia:	0	0	0	0	0	0	0	0	0	0	0	0	0
Chatham-Kent:	0	1,071	0	778	129	0	0	0	0	0	0	0	1,978
	1,308,530	1,231,940	1,373,440	1,252,550	1,422,160	1,748,330	2,254,838	1,979,580	1,592,740	1,379,100	1,287,220	0	16,830,429
	1,308,530	1,231,940	1,373,440	1,252,550	1,422,160	1,748,330	2,254,838	1,979,580	1,592,740	1,379,100	1,287,220	0	16,830,429

Last Years Data 2018

LAWSS Members	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan - Nov
City of Samial:	847,619	716,829	792,231	722,416	903,800	1,090,866	1,140,761	992,451	914,117	808,898	717,749	743,262	10,390,999
Point Edward:	29,104	24,457	27,752	27,203	39,328	47,078	54,106	49,612	41,322	34,228	26,687	26,579	427,456
St. Clair Township:	420,890	328,358	381,560	356,736	416,692	475,796	604,876	568,576	499,609	420,941	409,299	420,293	5,303,627
Plympton/Wyoming:	63,990	52,511	56,621	60,990	83,851	102,062	116,025	89,396	74,865	66,964	58,463	61,040	886,779
Lambton Shores:	37,681	23,324	25,198	31,014	30,618	34,312	39,802	63,896	14,903	16,800	14,901	12,241	344,689
Watford/Warwick:	39,195	35,905	39,130	37,248	45,667	46,959	46,842	37,035	37,798	32,988	30,508	29,142	458,416
	1,438,479	1,181,386	1,322,492	1,235,607	1,519,957	1,797,073	2,002,412	1,800,966	1,582,613	1,380,819	1,257,607	1,292,556	17,811,967
Others													
Town of Alvinston:	10,209	6,415	7,160	7,177	7,951	7,484	7,326	5,996	6,317	6,411	6,293	7,174	85,913
Town of Petrolia:	25,392	2,810	10,788	4,496	0	24,533	0	0	0	0	0	0	68,019
Chatham-Kent:	0	0	0	0	20,782	0	0	0	0	0	0	0	20,782
	1,474,080	1,190,611	1,340,440	1,247,280	1,548,690	1,829,090	2,009,738	1,806,962	1,588,930	1,387,230	1,263,900	1,299,730	17,986,681
	1,474,080	1,190,611	1,340,440	1,247,280	1,548,690	1,829,090	2,009,738	1,806,962	1,588,930	1,387,230	1,263,900	1,299,730	17,986,681

Work Sheet Revision Date: 07-Jan-2019

LAWSS Water used by the

City of SarniaFor the Month of: **November 2019****Lambton Area Water Supply System****1215 Fort St. Sarnia, On N7V 1M1**

Phone: (519) 344-7429

Fax: (519) 344-4337

Meter num	Meter Location	Read date 30-Nov-19	Last Read date 31-Oct-19	Difference	Calibration Adjustments As Found	As Left	X	Flow
15	HighL High Net Flow Totalizer	1,928,466.1	1,928,466.1	0			1	0
13	HighL Low Net Flow Totalizer	190,097,280.0	188,810,060.0	1,287,220			1	1,287,220

Entering Sarnia: 1,287,220

Members Monthly % Used

Leaving Sarnia to LAWSS Members:

Village of Point Edward - Grand Total:	40,091	3.1
St. Clair Township - Grand Total:	370,260	29.0
Plympton/Wyoming - Grand Total:	65,525	5.1
Lambton Shores - Grand Total:	31,238	2.4
Village of Watford/Township of Warwick - Grand Total:	29,148	2.3

Leaving Sarnia to Others:

Town of Alvinston - Grand Total:	10,813
Town of Petrolia - Grand Total:	0
Chatham-Kent Area Water - Grand Total:	0

Metered Consumption: 740,144**Adjustments:****Reason for Adjustment:****City of Sarnia - Total Consumption:** 740,144**Leakage rate adjustment** 0% 0**City of Sarnia - Grand Total:** 740,144 58.0**Overall Grand Total:** 1,287,220 100.0.....
Dave Hunt (Operations Manager)

LAWSS Water used by the

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone: (519) 344-7429

Fax: (519) 344-4337

Village of Point Edward

For the Month of: November 2019

Meter num	Meter Location	Read date 30-Nov-19	Last Read date 31-Oct-19	Difference	Calibration Adjustments		X	Flow	%
					As Found	As Left			
CH01	Venetian Vill (Mag)	474,600.4	456,198.5	18,402			1	18,402	47.7
CH02	Ven & Exmouth (Mag)	41,676.4	40,888.9	788			1	788	2.0
CH03	Michigan & Monk (Mag)	1,044,416.1	1,027,016.8	17,399			1	17,399	45.1
CH04	Michigan & Front (Mag)	134,548.6	132,587.9	1,961			1	1,961	5.1

Metered Consumption: 38,549 100.0

Adjustments:

Reason for Adjustment:

Village of Point Edward - Total Consumption: 38,549

Leakage rate adjustment 4%: 1,542

Village of Point Edward - Grand Total: 40,091



Dave Hunt (Operations Manager)

LAWSS Water used by the

St. Clair Township

For the Month of: November 2019

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone:(519)344-7429

Fax: (519)344-4337

Meter num	Meter Location	Read date 30-Nov-19	Last Read date 31-Oct-19	Difference	Calibration Adjustments		X	Flow	%
					As Found	As Left			
WL-O	WL High Net Flow - West Lambton	37,725,364.0	37,369,268.0	356,096			1	356,096	100.0
3100	Plank Road (3/4)	3,520	3,480	40			1	40	0.0
Back to Sarnia									
1100	LaSalle & Parkway	8,911	8,911	0			1	0	
1090	LaSalle & Tashmoo	5,052	4,935	117			1	117	0.0
								<u>356,136</u>	<u>100.0</u>
<u>Entering St. Clair Township:</u>									
<u>Leaving St. Clair Township</u>									
Back to Sarnia:								117	0.0
Chatham-Kent Area Water - Total Consumption:								0	
<u>Metered Consumption:</u>								<u>356,019</u>	<u>100.0</u>
Adjustments:									

Reason for Adjustment:

St. Clair Township - Total Consumption: 356,019
 Leakage rate adjustment 4% 14,241
St. Clair Township - Grand Total: 370,260



Dave Hunt (Operations Manager)

Township of Plympton / Village of WyomingFor the Month of: **November 2019**

Meter num	Meter Location	Read date 30-Nov-19	Last Read date 31-Oct-19	Difference	Calibration Adjustments As Found	As Left	X	Flow	%
Entering Plympton									
5001	Ch05 Low Net Flow - Maundaumin	57,809.0	57,809.0	0			1	0	
5002	Ch05 High Net Flow - Maundaumin	18,004,126.0	17,872,244.0	131,882			1	131,882	
Village of Wyoming									
8001	Wyoming	432,670	432,670	0			1	0	
8002	Wyoming	8,486	7,544	942			10	9,420	
Back to Sarnia									
1005	Brights Grove (Sarnia)	610	610	0			0.1	0	
1006	Brights Grove (Sarnia)	81,540	81,540	0			10	0	

Entering Plympton: 131,882**Leaving Plympton**

Village of Wyoming: 9,420

Back to Sarnia: 0

Lambton Shores - Total Consumption: 30,037

Watford/Warwick - Total Consumption: 28,027

Town of Alvinston - Total Consumption: 10,813

Town of Petrolia - Total Consumption: 0

Metered Consumption For Plympton: 53,585

Village of Wyoming: 9,420

Adjustments:**Reason for Adjustment:****Plympton/Wyoming - Total Consumption:** 63,005

Leakage rate adjustment 4% 2,520

Plympton/Wyoming - Grand Total: 65,525**Dave Hunt (Operations Manager)**

LAWSS Water used by the

Lambton Shores

For the Month of: November 2019

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone:(519)344-7429

Fax: (519)344-4337

Meter num	Meter Location	Read date 30-Nov-19	Last Read date 31-Oct-19	Difference	Calibration Adjustments As Found	As Left	X	Flow	%
7003	Ch07 High Net Flow - Townsend	3,577,783.2	3,549,156.2	28,627			1	28,627	
7004	Ch07 Low Net Flow - Townsend	246,661.2	245,251.7	1,410			1	1,410	

Metered Consumption: 30,037

Reason for Adjustment:

Adjustments:

Lambton Shores - Total Consumption: 30,037

Leakage rate adjustment 4% 1,201

Lambton Shores - Grand Total: 31,238



Dave Hunt (Operations Manager)

LAWSS Water used by the
Village of Watford/Township of Warwick
For the Month of: **November 2019**

Lambton Area Water Supply System
1215 Fort St. Sarnia, On N7V 1M1
Phone: (519) 344-7429
Fax: (519) 344-4337

Meter num	Meter Location	Read date 30-Nov-19	Last Read date 31-Oct-19	Difference	Calibration Adjustments As Found As Left	X	Flow	%
Entering Watford/Warwick								
9001	Ch10 High Net Flow - London Line	6,629,028.0	6,584,099.0	44,929			1	44,929
9002	Ch10 Low Net Flow - London Line	627,945.7	624,222.5	3,723			1	3,723
9003	Ch11 High Net Flow - Confederation	1,119,994.1	1,109,864.8	10,129			1	10,129
9004	Ch11 Low Net Flow - Confederation	58,687.1	59,507.8	-821			1	-821
Leaving Watford/Warwick								
5013	Ch09 High Net Flow - Egremont	2,686,117.8	2,666,997.8	19,120			1	19,120
AF	Alvin High Net Flow Totalizer	1,524,787.6	1,513,974.2	10,813			1	10,813

Entering Watford/Warwick:	57,961
Leaving Watford/Warwick:	29,933
Metered Consumption:	28,027
Adjustments:	

Reason for Adjustment:

Watford/Warwick - Total Consumption:	28,027
Leakage rate adjustment 4%	1,121
Village of Watford/Township of Warwick - Grand Total:	29,148

Dave Hunt

Dave Hunt (Operations Manager)

LAWSS Water used by the

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone:(519)344-7429

Fax: (519)344-4337

Town of Alvinston

For the Month of: November 2019

Meter num	Meter Location	Read date	Last Read date	Difference	Calibration Adjustments	X	Flow	%
AF	Alvin High Net Flow Totalizer	30-Nov-19	31-Oct-19	10,813	As Found	As Left	1	10,813

Metered Consumption: 10,813

Reason for Adjustment:

Adjustments:

Town of Alvinston - Total Consumption: 10,813

Leakage rate adjustment 0% 0

Town of Alvinston - Grand Total: 10,813



Dave Hunt (Operations Manager)

LAWSS Water used by the

Town of Petrolia

For the Month of: November 2019

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone: (519) 344-7429

Fax: (519) 344-4337

Meter num	Meter Location	Read date	Last Read date	Difference	Calibration Adjustments	X	Flow	%
PF	Petrolia Flows	30-Nov-19	31-Oct-19		As Found	As Left		
		133,549	133,549	0			1	0

Metered Consumption: 0

Reason for Adjustment:

Adjustments:

Town of Petrolia - Total Consumption: 0

Leakage rate adjustment 0% 0

Town of Petrolia - Grand Total: 0



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Dave Hunt (Operations Manager)

LAWSS Water used by the

Chatham-Kent Area Water

For the Month of: November 2019

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone:(519)344-7429

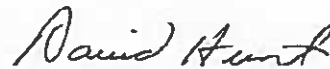
Fax: (519)344-4337

Meter num	Meter Location	Read date	Last Read date	Difference	Calibration Adjustments	X	Flow	%
CKF	Chatham-Kent Flows	30-Nov-19	31-Oct-19		As Found	As Left		
		907	907	0			1	0

Metered Consumption: 0
Adjustments:

Reason for Adjustment:

Chatham-Kent Area Water - Total Consumption: 0
Leakage rate adjustment 0% 0
Chatham-Kent Area Water - Grand Total: 0

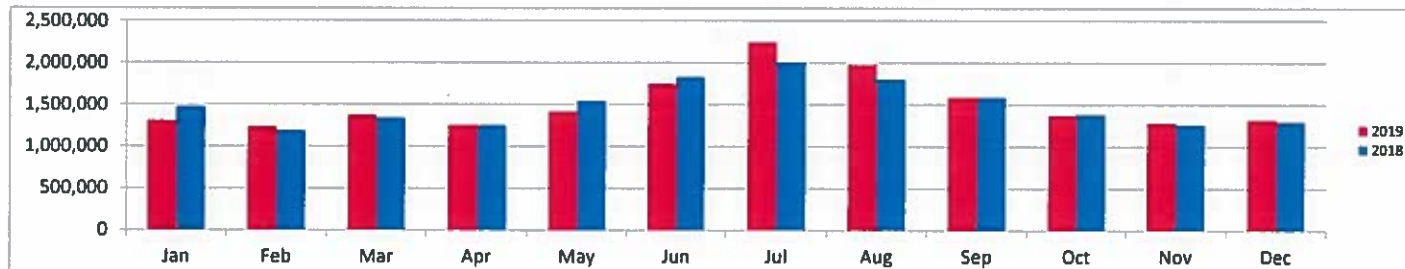


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Dave Hunt (Operations Manager)

LAWSS Flow Summary

Draft

Total Flows as of Dec 2019														Year To Date for:	
LAWSS Member		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan - Dec	
Sarnia	2019	763,540	710,071	793,833	772,802	859,360	928,004	1,306,982	1,232,482	954,642	843,767	740,144	786,066	10,691,693	59.34
	2018	847,619	716,829	792,231	722,416	903,800	1,090,866	1,140,761	992,451	914,117	808,898	717,749	743,262	10,390,999	58.34
Point Edward	2019	27,627	25,262	28,086	27,709	32,081	38,498	50,463	53,100	36,311	31,273	40,091	26,845	417,348	2.32
	2018	29,104	24,457	27,752	27,203	39,328	47,078	54,106	49,612	41,322	34,228	26,687	26,579	427,456	2.40
St. Clair	2019	407,497	389,310	437,481	329,430	376,717	607,849	669,638	489,505	436,191	363,446	370,260	379,175	5,256,498	29.18
	2018	420,890	328,358	381,560	356,736	416,692	475,796	604,876	568,576	499,609	420,941	409,299	420,293	5,303,627	29.78
Plympton/Wyoming	2019	60,624	55,794	61,245	63,800	73,513	86,825	126,745	108,289	79,740	69,076	65,525	62,935	914,109	5.07
	2018	63,990	52,511	56,621	60,990	83,851	102,062	116,025	89,396	74,865	66,964	58,463	61,040	886,779	4.98
Lambton Shores	2019	12,193	15,213	12,491	14,747	28,233	32,872	43,978	43,586	42,789	28,509	31,238	28,078	333,927	1.85
	2018	37,681	23,324	25,198	31,014	30,618	34,312	39,802	63,896	14,903	16,800	14,901	12,241	344,689	1.94
Watford/Warwick	2019	29,976	28,550	30,013	31,163	35,804	35,885	41,573	41,590	34,374	33,837	29,148	30,712	402,627	2.23
	2018	39,195	35,905	39,130	37,248	45,667	46,959	46,842	37,035	37,798	32,988	30,508	29,142	458,416	2.57
													2019	18016202	
Others													2018	17811967	
Alvinston	2019	7,072	6,668	10,291	12,120	16,322	18,398	15,460	11,028	8,694	9,193	10,813	10,829	136,888	0.75
	2018	10,209	6,415	7,160	7,177	7,951	7,484	7,326	5,996	6,317	6,411	6,293	7,174	85,913	0.48
Petrolia	2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
	2018	25,392	2,810	10,788	4,496	0	24,533	0	0	0	0	0	0	68,019	0.38
Chatham-Kent	2019	0	1,072	0	778	129	0	0	0	0	0	0	0	1,979	0.01
	2018	0	0	0	0	20,782	0	0	0	0	0	0	0	20,782	0.12
Totals	2019	1,308,530	1,231,940	1,373,440	1,252,550	1,422,160	1,748,330	2,254,838	1,979,580	1,592,740	1,379,100	1,287,220	1,324,640	18,155,069	
	2018	1,474,080	1,190,611	1,340,440	1,247,280	1,548,690	1,829,090	2,009,738	1,806,962	1,588,930	1,387,230	1,263,900	1,299,730	17,986,681	



Note:

Work Sheet Revision Date: 07-Jan-2019

Current Year 2019
Last month entered Dec

Year to Date
Total

LAWSS Members	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan - Dec
City of Sarnia:	763,540	710,071	793,833	772,802	859,360	928,004	1,306,982	1,232,482	954,642	843,767	740,144	786,066	10,691,693
Point Edward:	27,627	25,262	28,086	27,709	32,081	38,498	50,463	53,100	36,311	31,273	40,091	26,845	417,348
St. Clair Township:	407,497	389,310	437,481	329,430	376,717	607,849	669,638	489,505	436,191	363,446	370,260	379,175	5,256,498
Plympton/Wyoming:	60,624	55,794	61,245	63,800	73,513	86,825	126,745	108,289	79,740	69,076	65,525	62,935	914,109
Lambton Shores:	12,193	15,213	12,491	14,747	28,233	32,872	43,978	43,586	42,789	28,509	31,238	28,078	333,927
Watford/Warwick:	29,976	28,550	30,013	31,163	35,804	35,885	41,573	41,590	34,374	33,837	29,148	30,712	402,627
	1,301,458	1,224,200	1,363,150	1,239,652	1,405,708	1,729,932	2,239,379	1,968,552	1,584,046	1,369,907	1,276,407	1,313,811	18,016,202
Others													
Town of Alvinston:	7,072	6,668	10,291	12,120	16,322	18,398	15,460	11,028	8,694	9,193	10,813	10,829	136,888
Town of Petrolia:	0	0	0	0	0	0	0	0	0	0	0	0	0
Chatham-Kent:	0	1,072	0	778	129	0	0	0	0	0	0	0	1,979
	1,308,530	1,231,940	1,373,440	1,252,550	1,422,160	1,748,330	2,254,838	1,979,580	1,592,740	1,379,100	1,287,220	1,324,640	
	1,308,530	1,231,940	1,373,440	1,252,550	1,422,160	1,748,330	2,254,838	1,979,580	1,592,740	1,379,100	1,287,220	1,324,640	18,155,069

Last Years Data 2018

LAWSS Members													
City of Sarnia:	847,619	716,829	792,231	722,416	903,800	1,090,866	1,140,761	992,451	914,117	808,898	717,749	743,262	10,390,999
Point Edward:	29,104	24,457	27,752	27,203	39,328	47,078	54,106	49,612	41,322	34,228	26,687	26,579	427,456
St. Clair Township:	420,890	328,358	381,560	356,736	416,692	475,796	604,876	568,576	499,609	420,941	409,299	420,293	5,303,627
Plympton/Wyoming:	63,990	52,511	56,621	60,990	83,851	102,062	116,025	89,396	74,865	66,964	58,463	61,040	886,779
Lambton Shores:	37,681	23,324	25,198	31,014	30,618	34,312	39,802	63,896	14,903	16,800	14,901	12,241	344,689
Watford/Warwick:	39,195	35,905	39,130	37,248	45,667	46,959	46,842	37,035	37,798	32,988	30,508	29,142	458,416
	1,438,479	1,181,386	1,322,492	1,235,607	1,519,957	1,797,073	2,002,412	1,800,966	1,582,613	1,380,819	1,257,607	1,292,556	17,811,967
Others													
Town of Alvinston:	10,209	6,415	7,160	7,177	7,951	7,484	7,326	5,996	6,317	6,411	6,293	7,174	85,913
Town of Petrolia:	25,392	2,810	10,788	4,496	0	24,533	0	0	0	0	0	0	68,019
Chatham-Kent:	0	0	0	0	20,782	0	0	0	0	0	0	0	20,782
	1,474,080	1,190,611	1,340,440	1,247,280	1,548,690	1,829,090	2,009,738	1,806,962	1,588,930	1,387,230	1,263,900	1,299,730	
	1,474,080	1,190,611	1,340,440	1,247,280	1,548,690	1,829,090	2,009,738	1,806,962	1,588,930	1,387,230	1,263,900	1,299,730	17,986,681

Work Sheet Revision Date: 07-Jan-2019

LAWSS Water used by the

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone:(519)344-7429

Fax: (519)344-4337

City of Sarnia

For the Month of: December 2019

Meter num	Meter Location	Read date 31-Dec-19	Last Read date 30-Nov-19	Difference	Calibration Adjustments As Found As Left	X	Flow
15	HighL High Net Flow Totalizer	1,928,466.1	1,928,466.1	0		1	0
13	HighL Low Net Flow Totalizer	191,421,920.0	190,097,280.0	1,324,640		1	1,324,640

Entering Sarnia: 1,324,640

Members Monthly % Used

Leaving Sarnia to LAWSS Members:

Village of Point Edward - Grand Total:	26,845	2.0
St. Clair Township - Grand Total:	379,175	28.9
Plympton/Wyoming - Grand Total:	62,935	4.8
Lambton Shores - Grand Total:	28,078	2.1
Village of Watford/Township of Warwick - Grand Total:	30,712	2.3

Leaving Sarnia to Others:

Town of Alvinston - Grand Total:	10,829
Town of Petrolia - Grand Total:	0
Chatham-Kent Area Water - Grand Total:	0

Metered Consumption: 786,066**Adjustments:****Reason for Adjustment:****City of Sarnia - Total Consumption:** 786,066**Leakage rate adjustment** 0% 0**City of Sarnia - Grand Total:** 786,066 59.8**Overall Grand Total:** 1,324,640 100.0

Mark Harris (Operations Manager)

Village of Point Edward

For the Month of: December 2019

Meter num	Meter Location	Read date 31-Dec-19	Last Read date 30-Nov-19	Difference	Calibration Adjustments		X	Flow	%
					As Found	As Left			
CH01	Venetian Vill (Mag)	480,990.1	474,600.4	6,390			1	6,390	24.8
CH02	Ven & Exmouth (Mag)	42,190.9	41,676.4	515			1	515	2.0
CH03	Michigan & Monk (Mag)	1,061,643.4	1,044,416.1	17,227			1	17,227	66.7
CH04	Michigan & Front (Mag)	136,229.9	134,548.6	1,681			1	1,681	6.5

Metered Consumption: 25,813 100.0
Adjustments:

Reason for Adjustment:

Village of Point Edward - Total Consumption: 25,813
Leakage rate adjustment 4% 1,033
Village of Point Edward - Grand Total: 26,845



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Mark Harris (Operations Manager)

St. Clair TownshipFor the Month of: **December 2019**

Meter num	Meter Location	Read date 31-Dec-19	Last Read date 30-Nov-19	Difference	Calibration Adjustments As Found	As Left	X	Flow	%
WL-O	WL High Net Flow - West Lambton	38,089,952.0	37,725,364.0	364,588			1	364,588	100.0
3100	Plank Road (3/4)	3,545	3,520	25			1	25	0.0
Back to Sarnia									
1100	LaSalle & Parkway	8,931	8,911	20			1	20	0.0
1090	LaSalle & Tashmoo	5,054	5,052	2			1	2	0.0

Entering St. Clair Township:	364,613	100.0
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Leaving St. Clair Township		
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Back to Sarnia:	22	0.0
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Chatham-Kent Area Water - Total Consumption:	0	
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Metered Consumption:	364,591	100.0
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Adjustments:		
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Reason for Adjustment:

St. Clair Township - Total Consumption:	364,591
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Leakage rate adjustment 4%	14,584
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St. Clair Township - Grand Total:	379,175
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Mark Harris (Operations Manager)

Township of Plympton / Village of Wyoming

For the Month of: December 2019

Meter num	Meter Location	Read date 31-Dec-19	Last Read date 30-Nov-19	Difference	Calibration Adjustments As Found As Left	X	Flow	%
Entering Plympton								
5001	Ch05 Low Net Flow - Maundaumin	57,809.0	57,809.0	0		1	0	
5002	Ch05 High Net Flow - Maundaumin	18,131,998.0	18,004,126.0	127,872		1	127,872	
Village of Wyoming								
8001	Wyoming	432,670	432,670	0		1	0	
8002	Wyoming	9,609	8,486	1,123		10	11,230	
Back to Sarnia								
1005	Brights Grove (Sarnia)	610	610	0		0.1	0	
1006	Brights Grove (Sarnia)	81,540	81,540	0		10	0	

Entering Plympton: 127,872**Leaving Plympton**

Village of Wyoming: 11,230

Back to Sarnia: 0

Lambton Shores - Total Consumption: 26,998

Watford/Warwick - Total Consumption: 29,531

Town of Alvinston - Total Consumption: 10,829

Town of Petrolia - Total Consumption: 0

Metered Consumption For Plympton: 49,284

Village of Wyoming: 11,230

Adjustments:**Reason for Adjustment:****Plympton/Wyoming - Total Consumption:** 60,514

Leakage rate adjustment 4% 2,421

Plympton/Wyoming - Grand Total: 62,935

Mark Harris (Operations Manager)

LAWSS Water used by the

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone: (519) 344-7429

Fax: (519) 344-4337

Lambton Shores

For the Month of: December 2019

Meter num	Meter Location	Read date	Last Read date	Difference	Calibration Adjustments		X	Flow	%
		31-Dec-19	30-Nov-19		As Found	As Left			
7003	Ch07 High Net Flow - Townsend	3,603,542.2	3,577,783.2	25,759			1	25,759	
7004	Ch07 Low Net Flow - Townsend	247,900.3	246,661.2	1,239			1	1,239	

Metered Consumption: 26,998
Adjustments:

Reason for Adjustment:

Lambton Shores - Total Consumption: 26,998
Leakage rate adjustment 4% 1,080
Lambton Shores - Grand Total: 28,078



Mark Harris (Operations Manager)

Village of Watford/Township of Warwick

For the Month of: December 2019

Meter num	Meter Location	Read date 31-Dec-19	Last Read date 30-Nov-19	Difference	Calibration Adjustments As Found As Left	X	Flow	%
Entering Watford/Warwick								
9001	Ch10 High Net Flow - London Line	6,676,338.0	6,629,028.0	47,310			1	47,310
9002	Ch10 Low Net Flow - London Line	631,885.4	627,945.7	3,940			1	3,940
9003	Ch11 High Net Flow - Confederation	1,129,864.1	1,119,994.1	9,870			1	9,870
9004	Ch11 Low Net Flow - Confederation	58,222.9	58,687.1	-464			1	-464
Leaving Watford/Warwick								
5013	Ch09 High Net Flow - Egremont	2,706,413.5	2,686,117.8	20,296			1	20,296
AF	Alvin High Net Flow Totalizer	1,535,616.4	1,524,787.6	10,829			1	10,829

Entering Watford/Warwick: 60,656**Leaving Watford/Warwick:** 31,125**Metered Consumption:** 29,531**Adjustments:****Reason for Adjustment:****Watford/Warwick - Total Consumption:** 29,531**Leakage rate adjustment 4%** 1,181**Village of Watford/Township of Warwick - Grand Total:** 30,712**Mark Harris (Operations Manager)**

LAWSS Water used by the

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone: (519) 344-7429

Fax: (519) 344-4337

Town of Alvinston

For the Month of: December 2019

Meter num	Meter Location	Read date	Last Read date	Difference	Calibration Adjustments	X	Flow	%
		31-Dec-19	30-Nov-19		As Found	As Left		
AF	Alvin High Net Flow Totalizer	1,535,616.4	1,524,787.6	10,829			1	10,829

Metered Consumption: 10,829

Adjustments:

Reason for Adjustment:

Town of Alvinston - Total Consumption: 10,829

Leakage rate adjustment 0% 0

Town of Alvinston - Grand Total: 10,829



Mark Harris (Operations Manager)

LAWSS Water used by the

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone:(519)344-7429

Fax: (519)344-4337

Town of Petrolia

For the Month of: December 2019

Meter num	Meter Location	Read date	Last Read date	Difference	Calibration Adjustments		X	Flow	%
		31-Dec-19	30-Nov-19		As Found	As Left			
PF	Petrolia Flows	133,549	133,549	0			1	0	

Metered Consumption: 0

Reason for Adjustment:

Adjustments:

Town of Petrolia - Total Consumption: 0

Leakage rate adjustment 0%

Town of Petrolia - Grand Total: 0



Mark Harris (Operations Manager)

LAWSS Water used by the

Chatham-Kent Area Water

For the Month of: December 2019

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone: (519) 344-7429

Fax: (519) 344-4337

Meter num	Meter Location	Read date	Last Read date	Difference	Calibration Adjustments	X	Flow	%
CKF	Chatham-Kent Flows	31-Dec-19	30-Nov-19	907	907	0		
					As Found	As Left		

Metered Consumption: 0

Adjustments:

Reason for Adjustment:

Chatham-Kent Area Water - Total Consumption: 0

Leakage rate adjustment 0% 0

Chatham-Kent Area Water - Grand Total: 0

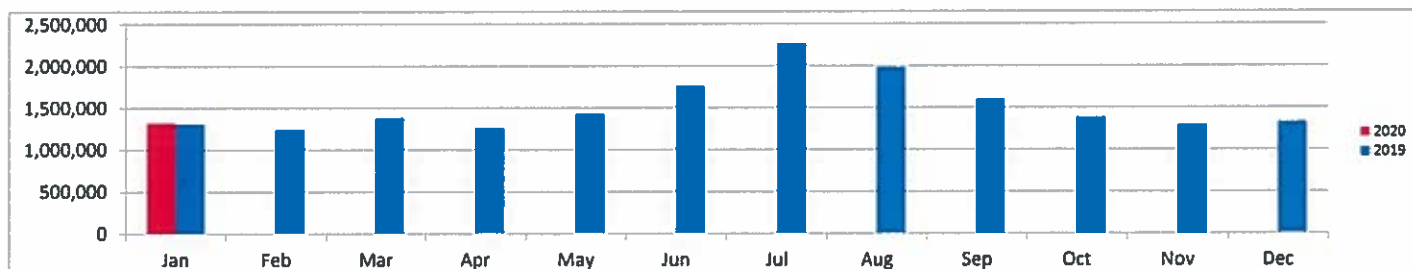


Mark Harris (Operations Manager)

LAWSS Flow Summary

Draft

Total Flows as of Jan 2020														Total	% Total
LAWSS Member		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year To Date for: Jan - Jan	
Sarnia	2020	776,102	0	0	0	0	0	0	0	0	0	0	0	776,102	59.11
	2019	763,540	710,071	793,833	772,802	859,360	928,004	1,306,982	1,232,482	954,642	843,767	740,144	786,066	10,691,693	59.34
Point Edward	2020	27,526	0	0	0	0	0	0	0	0	0	0	0	27,526	2.10
	2019	27,627	25,262	28,086	27,709	32,081	38,498	50,463	53,100	36,311	31,273	40,091	26,845	417,348	2.32
St. Clair	2020	387,392	0	0	0	0	0	0	0	0	0	0	0	387,392	29.50
	2019	407,497	389,310	437,481	329,430	376,717	607,849	669,638	489,505	436,191	363,446	370,260	379,175	5,256,498	29.18
Plympton/Wyoming	2020	61,058	0	0	0	0	0	0	0	0	0	0	0	61,058	4.65
	2019	60,624	55,794	61,245	63,800	73,513	86,825	126,745	108,289	79,740	69,076	65,525	62,935	914,109	5.07
Lambton Shores	2020	30,090	0	0	0	0	0	0	0	0	0	0	0	30,090	2.29
	2019	12,193	15,213	12,491	14,747	28,233	32,872	43,978	43,586	42,789	28,509	31,238	28,078	333,927	1.85
Watford/Warwick	2020	30,802	0	0	0	0	0	0	0	0	0	0	0	30,802	2.35
	2019	29,976	28,550	30,013	31,163	35,804	35,885	41,573	41,590	34,374	33,837	29,148	30,712	402,627	2.23
														2020	1312970
Others														2019	18016202
Alvinston	2020	6,170	0	0	0	0	0	0	0	0	0	0	0	6,170	0.47
	2019	7,072	6,668	10,291	12,120	16,322	18,398	15,460	11,028	8,694	9,193	10,813	10,829	136,888	0.75
Petrolia	2020	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
	2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Chatham-Kent	2020	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
	2019	0	1,072	0	778	129	0	0	0	0	0	0	0	1,979	0.01
Totals	2020	1,319,140	0	0	0	0	0	0	0	0	0	0	0	1,319,140	
	2019	1,308,530	1,231,940	1,373,440	1,252,550	1,422,160	1,748,330	2,254,838	1,979,580	1,592,740	1,379,100	1,287,220	1,324,640	18,155,069	



Note:

Work Sheet Revision Date: 04-Feb-2020

Current Year 2020
Last month entered Jan

LAWSS Members													Year to Date Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan - Jan
City of Sarnia:	776,102	0	0	0	0	0	0	0	0	0	0	0	776,102
Point Edward:	27,526	0	0	0	0	0	0	0	0	0	0	0	27,526
St. Clair Township:	387,392	0	0	0	0	0	0	0	0	0	0	0	387,392
Plympton/Wyoming:	61,058	0	0	0	0	0	0	0	0	0	0	0	61,058
Lambton Shores:	30,090	0	0	0	0	0	0	0	0	0	0	0	30,090
Watford/Warwick:	30,802	0	0	0	0	0	0	0	0	0	0	0	30,802
	1,312,970	0	0	0	0	0	0	0	0	0	0	0	1,312,970
Others													
Town of Alvinston:	6,170	0	0	0	0	0	0	0	0	0	0	0	6,170
Town of Petrolia:	0	0	0	0	0	0	0	0	0	0	0	0	0
Chatham-Kent:	0	0	0	0	0	0	0	0	0	0	0	0	0
	1,319,140	0	0	0	0	0	0	0	0	0	0	0	1,319,140
	1,319,140	0	0	0	0	0	0	0	0	0	0	0	1,319,140

Last Years Data 2019

LAWSS Members													
City of Sarnia:	763,540	710,071	793,833	772,802	859,360	928,004	1,306,982	1,232,482	954,642	843,767	740,144	786,066	10,691,693
Point Edward:	27,627	25,262	28,086	27,709	32,081	38,498	50,463	53,100	36,311	31,273	40,091	26,845	417,348
St. Clair Township:	407,497	389,310	437,481	329,430	376,717	607,849	669,638	489,505	436,191	363,446	370,260	379,175	5,256,498
Plympton/Wyoming:	60,624	55,794	61,245	63,800	73,513	86,825	126,745	108,289	79,740	69,076	65,525	62,935	914,109
Lambton Shores:	12,193	15,213	12,491	14,747	28,233	32,872	43,978	43,586	42,789	28,509	31,238	28,078	333,927
Watford/Warwick:	29,976	28,550	30,013	31,163	35,804	35,885	41,573	41,590	34,374	33,837	29,148	30,712	402,627
	1,301,458	1,224,200	1,363,150	1,239,652	1,405,708	1,729,932	2,239,379	1,968,552	1,584,046	1,369,907	1,276,407	1,313,811	18,016,202
Others													
Town of Alvinston:	7,072	6,668	10,291	12,120	16,322	18,398	15,460	11,028	8,694	9,193	10,813	10,829	136,888
Town of Petrolia:	0	0	0	0	0	0	0	0	0	0	0	0	0
Chatham-Kent:	0	1,072	0	778	129	0	0	0	0	0	0	0	1,979
	1,308,530	1,231,940	1,373,440	1,252,550	1,422,160	1,748,330	2,254,838	1,979,580	1,592,740	1,379,100	1,287,220	1,324,640	
	1,308,530	1,231,940	1,373,440	1,252,550	1,422,160	1,748,330	2,254,838	1,979,580	1,592,740	1,379,100	1,287,220	1,324,640	18,155,069

Work Sheet Revision Date: 04-Feb-2020

LAWSS Water used by the

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone: (519) 344-7429

Fax: (519) 344-4337

City of Sarnia

For the Month of: January 2020

Meter num	Meter Location	Read date 31-Jan-20	Last Read date 31-Dec-19	Difference	Calibration Adjustments As Found	As Left	X	Flow
15	HighL High Net Flow Totalizer	1,928,466	1,928,466	0			1	0
13	HighL Low Net Flow Totalizer	192,741,060	191,421,920	1,319,140			1	1,319,140

Entering Sarnia: 1,319,140

Members Monthly % Used

Leaving Sarnia to LAWSS Members:

Village of Point Edward - Grand Total:	27,526	2.1
St. Clair Township - Grand Total:	387,392	29.5
Plympton/Wyoming - Grand Total:	61,058	4.7
Lambton Shores - Grand Total:	30,090	2.3
Village of Watford/Township of Warwick - Grand Total:	30,802	2.3

Leaving Sarnia to Others:

Town of Alvinston - Grand Total:	6,170
Town of Petrolia - Grand Total:	0
Chatham-Kent Area Water - Grand Total:	0

Metered Consumption: 776,102**Adjustments:****Reason for Adjustment:****City of Sarnia - Total Consumption:** 776,102**Leakage rate adjustment** 0% 0**City of Sarnia - Grand Total:** 776,102 59.1**Overall Grand Total:** 1,319,140 100.0

Mark Harris (Operations Manager)

Village of Point EdwardFor the Month of: **January 2020**

Meter num	Meter Location	Read date 31-Jan-20	Last Read date 31-Dec-19	Difference	Calibration Adjustments		X	Flow	%
					As Found	As Left			
CH01	Venetian Vill (Mag)	488,166	480,990	7,176			1	7,176	27.1
CH02	Ven & Exmouth (Mag)	42,765	42,191	574			1	574	2.2
CH03	Michigan & Monk (Mag)	1,078,800	1,061,643	17,156			1	17,156	64.8
CH04	Michigan & Front (Mag)	137,792	136,230	1,562			1	1,562	5.9

Metered Consumption: 26,467 100.0
Adjustments:

Reason for Adjustment:

Village of Point Edward - Total Consumption: 26,467
Leakage rate adjustment 4% 1,059
Village of Point Edward - Grand Total: 27,526



Mark Harris (Operations Manager)

LAWSS Water used by the

St. Clair TownshipFor the Month of: **January 2020****Lambton Area Water Supply System****1215 Fort St. Sarnia, On N7V 1M1**

Phone: (519) 344-7429

Fax: (519) 344-4337

Meter num	Meter Location	Read date 31-Jan-20	Last Read date 31-Dec-19	Difference	Calibration Adjustments		X	Flow	%
					As Found	As Left			
WL-O	WL High Net Flow - West Lambton	38,462,364	38,089,952	372,412			1	372,412	100.0
3100	Plank Road (3/4)	3,625	3,545	80			1	80	0.0
	Back to Sarnia								
1100	LaSalle & Parkway	8,931	8,931	0			1	0	
1090	LaSalle & Tashmoo	5,054	5,054	0			1	0	
Entering St. Clair Township:								372,492	100.0
Leaving St. Clair Township									
Back to Sarnia:								0	
Chatham-Kent Area Water - Total Consumption:								0	
Metered Consumption:								372,492	100.0
Adjustments:									

Reason for Adjustment:

St. Clair Township - Total Consumption: 372,492
Leakage rate adjustment 4% 14,900
St. Clair Township - Grand Total: 387,392



 Mark Harris (Operations Manager)

Township of Plympton / Village of Wyoming

For the Month of: January 2020

Meter num	Meter Location	Read date 31-Jan-20	Last Read date 31-Dec-19	Difference	Calibration Adjustments As Found	As Left	X	Flow	%
Entering Plympton									
5001	Ch05 Low Net Flow - Maundaumin	57,809	57,809	0			1	0	
5002	Ch05 High Net Flow - Maundaumin	18,255,428	18,131,998	123,430			1	123,430	
Village of Wyoming									
8001	Wyoming	432,670	432,670	0			1	0	
8002	Wyoming	713	9,609	1,104			10	11,040	
Back to Sarnia									
1005	Brights Grove (Sarnia)	610	610	0			0.1	0	
1006	Brights Grove (Sarnia)	81,540	81,540	0			10	0	

Entering Plympton: 123,430**Leaving Plympton:**

Village of Wyoming: 11,040

Back to Sarnia: 0

Lambton Shores - Total Consumption: 28,932

Watford/Warwick - Total Consumption: 29,618

Town of Alvinston - Total Consumption: 6,170

Town of Petrolia - Total Consumption: 0

Metered Consumption For Plympton: 47,670

Village of Wyoming: 11,040

Adjustments:**Reason for Adjustment:****Plympton/Wyoming - Total Consumption:** 58,710

Leakage rate adjustment 4% 2,348

Plympton/Wyoming - Grand Total: 61,058**Mark Harris (Operations Manager)**

LAWSS Water used by the

Lambton Shores

For the Month of: January 2020

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone: (519) 344-7429

Fax: (519) 344-4337

Meter num	Meter Location	Read date 31-Jan-20	Last Read date 31-Dec-19	Difference	Calibration Adjustments		X	Flow	%
					As Found	As Left			
7003	Ch07 High Net Flow - Townsend	3,631,130	3,603,542	27,588			1	27,588	
7004	Ch07 Low Net Flow - Townsend	249,245	247,900	1,344			1	1,344	

Metered Consumption: 28,932

Reason for Adjustment:

Adjustments:

Lambton Shores - Total Consumption: 28,932

Leakage rate adjustment 4% 1,157

Lambton Shores - Grand Total: 30,090



Mark Harris (Operations Manager)

Village of Watford/Township of Warwick

For the Month of: January 2020

Meter num	Meter Location	Read date 31-Jan-20	Last Read date 31-Dec-19	Difference	Calibration Adjustments As Found	As Left	X	Flow	%
Entering Watford/Warwick									
9001	Ch10 High Net Flow - London Line	6,720,011	6,676,338	43,673			1	43,673	
9002	Ch10 Low Net Flow - London Line	635,543	631,885	3,658			1	3,658	
9003	Ch11 High Net Flow - Confederation	1,139,767	1,129,864	9,903			1	9,903	
9004	Ch11 Low Net Flow - Confederation	56,424	58,223	-1,799			1	-1,799	
Leaving Watford/Warwick									
5013	Ch09 High Net Flow - Egremont	2,726,059	2,706,414	19,646			1	19,646	
AF	Alvin High Net Flow Totalizer	1,541,787	1,535,616	6,170			1	6,170	

Entering Watford/Warwick: 55,434**Leaving Watford/Warwick:** 25,816**Metered Consumption:** 29,618**Adjustments:****Reason for Adjustment:****Watford/Warwick - Total Consumption:** 29,618**Leakage rate adjustment 4%** 1,185**Village of Watford/Township of Warwick - Grand Total:** 30,802**Mark Harris (Operations Manager)**

LAWSS Water used by the

Town of Alvinston

For the Month of: January 2020

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone: (519) 344-7429

Fax: (519) 344-4337

Meter num	Meter Location	Read date	Last Read date	Difference	Calibration Adjustments	X	Flow	%
AF	Alvin High Net Flow Totalizer	31-Jan-20	31-Dec-19	6,170	As Found	As Left	1	6,170
							Metered Consumption:	6,170

Reason for Adjustment:

Adjustments:



Mark Harris (Operations Manager)

Town of Alvinston - Total Consumption: 6,170

Leakage rate adjustment 0% 0

Town of Alvinston - Grand Total: 6,170

LAWSS Water used by the

Town of Petrolia

For the Month of: January 2020

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone: (519) 344-7429

Fax: (519) 344-4337

Meter num	Meter Location	Read date	Last Read date	Difference	Calibration Adjustments		X	Flow	%
		31-Jan-20	31-Dec-19		As Found	As Left			
PF	Petrolia Flows	133,549	133,549	0			1	0	

Metered Consumption: 0
Adjustments:

Reason for Adjustment:

Town of Petrolia - Total Consumption: 0
Leakage rate adjustment 0% 0
Town of Petrolia - Grand Total: 0



Mark Harris (Operations Manager)

LAWSS Water used by the

Chatham-Kent Area Water

For the Month of: January 2020

Lambton Area Water Supply System

1215 Fort St. Sarnia, On N7V 1M1

Phone: (519) 344-7429

Fax: (519) 344-4337

Meter num	Meter Location	Read date	Last Read date	Difference	Calibration Adjustments	X	Flow	%
CKF	Chatham-Kent Flows	31-Jan-20	31-Dec-19	907	907	0		
							1	0

Metered Consumption: 0

Reason for Adjustment:

Adjustments:

Chatham-Kent Area Water - Total Consumption: 0

Leakage rate adjustment 0% 0

Chatham-Kent Area Water - Grand Total: 0



Mark Harris (Operations Manager)



Drinking-Water System

Number:

Drinking-Water System Name:

Drinking-Water System Owner:

Drinking-Water System

Category:

Period being reported:

210000906

Lambton Area Water Supply System

Lambton Area Water Supply System Joint Board of Management

Large Municipal Residential System

January 1, 2019 to December 31, 2019



<u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u>	<u>Complete for all other Categories.</u>
Does your Drinking-Water System serve more than 10,000 people? Yes [X] No [] Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No [] The report is available at: www.lawss.org	Number of Designated Facilities served: N/A Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No [X] Number of Interested Authorities you report to: N/A Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No [X]



Locations where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

Lambton Area Water Supply System

1215 Fort St. Sarnia, ON
N7V 1M1
519-344-7429

Sarnia City Hall

255 N Christina St. Sarnia, ON
N7T 7N2
519-332-0330

Village of Point Edward Municipal Office

135 Kendall St. Pt. Edward, ON
N7M 4G6
519-337-3021

St. Clair Civic Centre

1155 Emily St. Mooretown, ON
N0N 1M0
519-867-2021

Town Of Plympton-Wyoming Municipal Office

546 Niagara St. Wyoming, ON
N0N 1T0
519-845-3939

Township of Warwick Municipal Office

6332 Nauvoo Rd. Watford, ON
N0M 2S0
519-849-3926

Lambton Shores Municipal Office

7883 Amtelecom Parkway Forest, ON
N0N 1J0
519-786-2335

Township of Brooke-Alvinston Municipal Office

3234 River St. P.O. Box 28 Alvinston, ON
N0N 1A0
519-898-2173



This list shows all the Drinking-Water Systems, which receive all of their drinking water from the Lambton Area Water Supply System:

Drinking Water System Name	Drinking Water System Number
Sarnia Distribution System	260003136
Village of Point Edward Distribution System	210000924
St. Clair Distribution System	260006464
Plympton-Wyoming Distribution System	260006594
Township of Warwick Distribution System	260001799
Alvinston Distribution System	260040170
Municipality of Lambton Shores (West Lambton Shores Water Distribution System)	260006581

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Yes ☒ No ☐

Indicate how you notified system users that your annual report is available, and is free of charge.

- ☒ Public access/notice via the web
 - ☒ Public access/notice via Government Office
 - ☐ Public access/notice via a newspaper
 - ☐ Public access/notice via Public Request
 - ☐ Public access/notice via a Public Library
 - ☐ Public access/notice via other method
-



Description of the Lambton Area Water Supply System

The Lambton Area Water Supply System (LAWSS) is a direct filtration facility with a maximum rated capacity of 181,844 m³/day. The Water Treatment Plant (WTP) uses chemically assisted filtration with disinfection. The facility consists of an intake system, a low lift pumping system, a treatment system and distribution pumping system that supplies water to seven different drinking water systems. Water is drawn into the plant (a zebra mussel chemical control system is available when needed) via a 1675 mm intake pipe, located approximately 100 m into the St. Clair River at a depth of 15 m. The water passes through travelling screens prior to entering the surge wells and pre-disinfection is utilized. Water flows to the low lift pump wet wells where a total of 4 vertical turbine pumps are located and used as needed. The water is then pumped to a common discharge header where a coagulant is added and then flash mixed. Powdered activated carbon (PAC) is also applied at this location when needed to control taste and odor problems. The water is then flocculated with polymer being added when needed. Polymer can be added to any and all of the following as required: to the flocculation trains, filter inlet channels and each filter. Water from the flocculators is then sent to be filtered by dual media filters (10 filters in total). The filter effluents combine into two clearwells via gravity where sodium hypochlorite is added. To increase the chlorine contact time, the treated water is diverted to two baffled reservoirs (in series with total capacity of 67460 m³). The water is fluoridated upon exiting the reservoirs. Six vertical turbine pumps are available for supplying water to the distribution system. The water treatment process and distribution components are controlled by a dedicated supervisory control and data acquisition (SCADA) computer system and are monitored by a certified operator 24 hours a day. Emergency generators powered by diesel are available at the WTP to keep the plant in operation should a power failure occur. The utility serves a large part of Lambton County and has about 250 km of water main of various size and materials. The LAWSS distribution system has three standpipes and one elevated tower. The East Lambton Booster Station has a water storage capacity of 9,000 m³ and the West Lambton Pumping Station has 90,000 m³ of water storage capacity. The booster stations are controlled and monitored from the WTP via the SCADA system. Backwash from the dual media filters is treated using a high rate clarification process (ACTIFLO). The clarified water is dechlorinated and then discharged to the St. Clair River and the settled material is sent to the Sarnia Water Pollution Control Plant for final treatment and disposal. This system is referred to as the Residual Management System.

Emergency Water Line connections exist between the LAWSS system and the following drinking water systems to provide water to either system in case of emergencies:

Chatham-Kent: A connection exists at Whitebread Line and Highway #40
Petrolia: A connection exists at Confederation Line and Ploughing Match Rd.



Lambton Shores: A connection exists at Lakeshore Rd. and the Northwest corner of Ravenswood Rd.

The following is a list of all water treatment chemicals used over this reporting period

Sodium Hypochlorite: Pre and post disinfection
Hydrofluosilicic Acid: Fluoridation
Clar-Ion A7: Coagulation
Powdered Activated Carbon: Taste and Odor (when required)
Polymer 8103+: Filter/Coagulant aid (when required)
Polymer Zetag 4120: Residual Management System coagulant
Sodium Bisulfite: Residual Management System dechlorination system

Note: All water treatment chemicals are NSF/ANSI approved and certified.

There were significant expenses incurred to the following.

- ☒ [X] Install required equipment
- ☒ [X] Repair required equipment
- ☒ [X] Replace required equipment

The following is a brief description and a breakdown of monetary expenses incurred.

WTP HVAC Admin Replacement Project	\$249164
WTP Polymer System Replacement	\$1967
WTP New Generators Replacement (including air louvres)	\$1327644
SCADA Radio Replacement Work (Installation)	\$340198
WTP HMI Computer Replacement	\$9128
WTP Crack Injection Leak Sealing	\$38669
WTP Flocculation Mixer Inspection	\$35942
WTP EQ Tank Cleanout	\$20712
WTP Eye Wash Station Upgrade	\$11032
West Lambton Third Party Electrical Inspection	\$8940
West Lambton Generator Louvre Actuator	\$7584
East Lambton Third Party Electrical Inspection	\$4150
Vibration Monitoring Program	\$1791
Repair of 16" Valve at Camlachie Rd and London Line	\$4299
Flow Chamber Abandonment	\$8277
Waterline Markers Rural	\$3347
Air Relief Valve	\$1110
Repair Clamps and Appurtenances	\$7466



The following are the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
	Zero noted				

The below table shows microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Or Fecal Results (min #) - (max #) Units: cfu /100 mL	Range of Total Coliform Results (min #)- (max #) Units: cfu /100 mL	Range of Background Results (min #)- (max #) Units: cfu /100 mL	Range of HPC Results (min #)- (max #) Units: cfu /100 mL
Raw	52	0-10	0-100	0-8600	N/A
Treated	52	0-0	0-0	0-0	<10-<10

The table below shows operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)	Unit of Measure
Turbidity	8760	0.00-5.0	NTU
Chlorine	8760	1.35-1.90	mg/L
Fluoride	8760	0.00-2.0	mg/L

Notes: Turbidity is measured on each filter effluent line at a frequency greater than is required under O. Reg 170/03 Schedule 6-5. Fluoride max residual of 2.0 mg/L was caused by testing of critical control alarm points.

The table below is a summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument. The three parameters on this list are a requirement for the Residual Management System.

Date of legal instrument issued	Parameter	Result Range	Unit of Measure
October 14, 2015	Total Suspended Solids	4-72	mg/L
October 14, 2015	Aluminum	0.012-0.347	mg/L
October 14, 2015	Total Chlorine Residual	0-0.04	mg/L

The table below is a summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	May 8, 2019	0.68	ppb	No
Arsenic	May 8, 2019	<0.2	ppb	No
Barium	May 8, 2019	14.3	ppb	No
Boron	May 8, 2019	15	ppb	No
Cadmium	May 8, 2019	0.004	ppb	No
Chromium	May 8, 2019	0.15	ppb	No
Mercury	May 8, 2019	<0.01	ppb	No
Selenium	May 8, 2019	0.16	ppb	No
Sodium	April 27, 2015	5.9	mg/L	No
Uranium	May 8, 2019	0.146	ppb	No
Nitrite	Nov 4, 2019	<0.003	mg/L	No
Nitrate	Nov 4, 2019	0.282	mg/L	No

The table below is a summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Unit of Measure	Number of Exceedances
Plumbing	-	-	-	-
Distribution	-	-	-	-

Note: Lead results are available from each Municipality from their annual results.



The below table is a summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	May 8, 2019	<0.02	ppb	No
Atrazine + N-dealkylated metabolites	May 8, 2019	0.03	ppb	No
Azinphos-methyl	May 8, 2019	<0.05	ppb	No
Benzene	May 8, 2019	<0.32	ppb	No
Benzo(a)pyrene	May 8, 2019	<0.004	ppb	No
Bromoxynil	May 8, 2019	<0.33	ppb	No
Carbaryl	May 8, 2019	<0.05	ppb	No
Carbofuran	May 8, 2019	<0.01	ppb	No
Carbon Tetrachloride	May 8, 2019	<0.17	ppb	No
Chlorpyrifos	May 8, 2019	<0.02	ppb	No
Atrazine	May 8, 2019	0.01	ppb	No
Desethyl atrazine	May 8, 2019	0.01	ppb	No
Diazinon	May 8, 2019	<0.02	ppb	No
Dicamba	May 8, 2019	<0.2	ppb	No
1,2-Dichlorobenzene	May 8, 2019	<0.41	ppb	No
1,4-Dichlorobenzene	May 8, 2019	<0.36	ppb	No
1,2-Dichloroethane	May 8, 2019	<0.35	ppb	No
1,1-Dichloroethylene (vinylidene chloride)	May 8, 2019	<0.33	ppb	No
Dichloromethane	May 8, 2019	<0.35	ppb	No
2-4 Dichlorophenol	May 8, 2019	<0.15	ppb	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	May 8, 2019	<0.19	ppb	No
Diclofop-methyl	May 8, 2019	<0.4	ppb	No
Dimethoate	May 8, 2019	<0.06	ppb	No
Diquat	May 8, 2019	<1.0	ppb	No
Diuron	May 8, 2019	<0.03	ppb	No
Glyphosate	May 8, 2019	<1.0	ppb	No
Malathion	May 8, 2019	<0.02	ppb	No
MCPA	May 8, 2019	<.00012	ppm	No
Metolachlor	May 8, 2019	<0.01	ppb	No
Metribuzin	May 8, 2019	<0.02	ppb	No
Monochlorobenzene	May 8, 2019	<0.3	ppb	No
Paraquat	May 8, 2019	<1.0	ppb	No
Pentachlorophenol	May 8, 2019	<0.15	ppb	No
Phorate	May 8, 2019	<0.01	ppb	No
Picloram	May 8, 2019	<1.0	ppb	No



Polychlorinated Biphenyls(PCB)	May 8, 2019	<0.04	ppb	No
Prometryne	May 8, 2019	<0.03	ppb	No
Simazine	May 8, 2019	<0.01	ppb	No
HAA (NOTE: show latest annual average)		21.37	ppb	No
THM (NOTE: show latest annual average)		40.33	ppb	No
Terbufos	May 8, 2019	<0.01	ppb	No
Tetrachloroethylene	May 8, 2019	<0.35	ppb	No
2,3,4,6-Tetrachlorophenol	May 8, 2019	<0.2	ppb	No
Triallate	May 8, 2019	<0.01	ppb	No
Trichloroethylene	May 8, 2019	<0.44	ppb	No
2,4,6-Trichlorophenol	May 8, 2019	<0.25	ppb	No
Trifluralin	May 8, 2019	<0.02	ppb	No
Vinyl Chloride	May 8, 2019	<0.17	ppb	No

Below is a list of any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample
N/A			



Ontario Clean Water Agency
Agence Ontarienne Des Eaux



Annual Summary Report

Lambton Area Water Supply System

2019

Prepared for the Lambton Area Water Supply System Board

By the Ontario Clean Water Agency

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Lambton Area Water Supply System Annual Summary Report 2019

SECTION 1

Statement of Compliance

This report is a summary of water quality information for the Lambton Area Water Supply System and published in accordance with Schedule 22 of Ontario's Safe Drinking Water Act, Ontario Regulation 170/03 for the reporting period of January 1, 2019 to December 31, 2019. The Lambton Area Water Supply System is categorized as a Large Municipal Residential Drinking Water System.

This report was prepared by the Ontario Clean Water Agency on behalf of the Lambton Area Water Supply System Board.

The Lambton Area Water Supply System was operated and maintained in such a manner that the water supplied to the consumers serviced by the system satisfied all the requirements in the Safe Drinking Water Act, the Certificate of Approval and the Municipal Drinking Water Licence. There were no adverse water quality events/non-compliance issues reported.

SECTION 2

Details of the non-compliance issues as well as how and when any non-compliance issues were corrected

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Notice of Resolution
	Zero noted				

SECTION 3

Summary and discussion of quantity of water supplied

In accordance with Schedule 22-2 (3) *“the report must also include the following information for the purpose of enabling the owner of the system to assess the capability of the system to meet existing and planned uses of the system.”*

- 1. A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows and daily instantaneous peak flow rate.*
- 2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval must be discussed.*

The rated capacity specified in the Municipal Drinking Water Licence (Licence Number: 020-101) for the Lambton Area Water Supply System is 181,844 m³/day. The maximum treated daily flow for the reporting period was 97,988 m³/day on June 27, 2019. The rated capacity from the Municipal Drinking Water Licence was not exceeded.

The Permit to Take Water (Number 3657-7DJL86) states the maximum amount of water taken is 182,000,000 L/Day. The maximum amount of raw water taken in 2019 was 100,783,000 L on June 27, 2019. The Permit to Take Water limit was not exceeded.

Attached in Appendix A, are the average daily volume (m³), the maximum daily volume (m³) and the peak daily flow rate (L/sec) for treated water and raw. Also noted is the % of Design Volume for each.

The quantity of water supplied during the reporting period did not exceed the rated capacity of this facility.

Lambton Area Water Supply System Annual Summary Report 2019

Appendix A

Lambton Area Water Supply System Annual Volume Record for 2019

Design Rated Capacity (Treated Flows): 181,844 m³/day

Month	Average Daily Volume of Treated Water (m³)	% of Design Volume	Maximum Daily Volume (m³)	% of Design Volume	Peak Daily Rate (L/sec)	% of Design Rate of 2104 L/sec
January	44841	24.7	51137	28.1	789	37.5
February	46364	25.5	53292	29.3	793	37.7
March	46748	25.7	51967	28.6	916	43.5
April	44048	24.2	49343	27.1	795	37.8
May	48461	26.6	52401	28.8	968	46.0
June	61126	33.6	97988	53.9	1363	64.8
July	76220	41.9	96442	53.0	1340	63.7
August	67155	36.9	77634	42.7	1081	51.4
September	56044	30.8	64029	35.2	1029	48.9
October	47286	26.0	60875	33.5	863	41.0
November	45425	25.0	50600	27.8	861	40.9
December	45201	24.9	51407	28.3	830	39.4

Lambton Area Water Supply System Annual Summary Report 2019

Permit to Take Water Max Flow (Raw Water): 182,000 m³/day

Month	Average Daily Volume of Raw Water (m³)	% of Permit Volume	Maximum Daily Volume (m³)	% of Permit Volume	Peak Daily Rate (L/sec)	% of Permit Rate of 2106 L/sec
January	45509	25.0	52987	29.1	613	29.1
February	48756	26.8	56479	31.0	654	31.1
March	48622	26.7	56245	30.9	651	30.9
April	45139	24.8	51694	28.4	598	28.4
May	49349	27.1	56670	31.1	655	31.1
June	62009	34.1	100783	55.4	1166	55.4
July	76681	42.1	98594	54.2	1141	54.2
August	66885	36.7	80666	44.3	934	44.3
September	55970	30.8	61463	33.8	927	44.0
October	47563	26.1	59068	32.5	684	32.5
November	46161	25.3	55288	30.3	640	30.4
December	46399	25.5	52646	28.9	609	28.9

Report No.:	2020-02-10
Report Page:	Page 1 of 2
Meeting Date:	February 27, 2020
File No.:	



To: Chair and Members
Lambton Area Water Supply System Joint Board of Management

From: Clinton Harper
General Manager

Subject: WTP Reservoir Update

Recommendation

"That the LAWSS Joint Board of Management **RECEIVE** as information."

Background:

During rounds the OCWA Operator noticed water on the surface of the rear service roadway between the treatment plant and the reservoir. Testing of the water on the roadway indicated the presence of chlorine at a level similar to what is usually observed at a watermain break. A reservoir leak was assumed and appeared to be coming from the first control joint east of the southwest corner of the structure.

The following week, divers entered the reservoir over two days and completed a preliminary internal inspection of the area adjacent to the exterior leak. The dive inspection confirmed the water found on the roadway originated from the reservoir and the leaks location in the structure wall. The preliminary internal inspection report and video were provided to GM Blueplan Engineering and a workplan was requested to complete a reservoir condition assessment. GM Blueplan is an Engineering Consultant familiar with reservoir repairs of similar type.

Comments:

The WTP reservoir will need to be offline for 1.5 weeks beginning on Monday, March 2, 2020. During the time the reservoir is offline, the WTP will be operating under a modified operational narrative with approx. 65 ML reduced capacity. OCWA and LAWSS staff at the WTP will need to be provided an alternative source of potable water for the duration of this work. Due to Sarnia Yacht Club's (SYC) proximity to the WTP, an alternative supply of potable water will also need to be provided to the SYC for the duration of this work. LAWSS staff have been in contact with representation at the SYC and the City of Sarnia Public Works Department to coordinate the supply of potable water. The Ministry of Environment Conservation and Parks and Lambton Public Health are also aware of the situation and will be kept up-to-date on how work is progressing.

Report No.:	2020-02-10
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Consultation:

The report was prepared in consultation with OCWA Operational Staff, GM Blueplan, Ministry of Environment Conservation and Parks, City of Sarnia Public Works and Sarnia Yacht Club.

Financial Implications:

The LAWSS Board approved \$50,000 from reserves to drain the reservoir, conduct a structural investigation and then complete the recommissioning. While the reservoir is offline it is important that a qualified contractor be prepared to complete spot repairs at the engineer's direction if repairs are expected to achieve sufficient cost versus benefit. At this time the total work, including a provision for spot repairs are being managed with the original \$50,000 budget for this work.

This report was prepared by Clinton Harper, LAWSS General Manager

Attachment(s):

Report No.:	2020-02-14
Report Page:	Page 1 of 2
Meeting Date:	February 27, 2020
File No.:	



To: Chair and Members
Lambton Area Water Supply System Joint Board of Management

From: Clinton Harper
General Manager

Subject: Admin HVAC Rebuild Update

Recommendation

That the following action be taken with regard to Lambton Area Water Supply System Capital Projects:

"That the Admin HVAC Rebuild project **BE CLOSED** with the surplus funds in the approximate amount of \$15,995 released to the Board's reserve fund."

Background:

The LAWSS Joint Board of Management approved \$250,000 for an Admin HVAC Rebuild project in 2019. The tender process yielded 4 bids and on December 20, 2018, at staff's recommendation, the project was awarded to TSM Limited for the net cost of \$286,207.07. As a result the 2019 budget was increased by \$50,000.

Comments:

In general, the project was executed within budget with very minor utilization of contingency funding. A labour dispute involving one of the project's primary trades delayed progress on the project for approx. 6 weeks. The new HVAC system was substantially completed and operating as intended by September 2019. The final pieces were in place, and close out documents for the project were provided back to the Engineer in January 2020.

Consultation:

As-built drawings and the Operations and Maintenance Manual are currently being compiled by the Project Engineer.

Report No.: 2020-02-14
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File No.:



Financial Implications:

Final contract cost for the Admin HVAC project was \$284,004.79. The final cost was \$2202.28 less than the quoted amount and \$15,995.21 less than 2019 budgeted amount.

This report was prepared by Clinton Harper, LAWSS General Manager

Attachment(s): none.

Report No.:	2020-02-03
Report Page:	Page 1 of 2
Meeting Date:	February 27, 2020
File No.:	



To: Chair and Members
Lambton Area Water Supply System Joint Board of Management

From: Clinton Harper
General Manager

Subject: WLPS Special Valve Project

Recommendation

"That the LAWSS Joint Board of Management **AUTHORIZE** OCWA Engineering Group to administer a specialized valve replacement project at West Lambton Pumping Station for the quoted amount of \$25,600 +taxes."

Background:

The West Lambton Pumping Station is a booster pumping station located on Indian Road. It consists of pumping, above ground storage and re-chlorination equipment. The station is primarily used as an intermediate storage facility providing pressure stabilization and system redundancy.

A 36" backpressure sustaining valve is utilized in the station's operation. The existing valve is leaking and needs to be isolated and removed from the operation. Once removed, it can be rebuilt or replaced as necessary. A preliminary investigation was completed at the beginning of 2019 to explore how the valve could be isolated and to assist in developing an operational narrative for the temporary system configuration. The investigation revealed a failure with the isolation valve immediately upstream of the project target valve.

Comments:

The original 36" backpressure sustaining valve project scope would have required heavy coordination with OCWA's operational staff. The isolation valve failure has further complicated this project. OCWA Engineering group provided a quote that includes:

1) All costs related to research and engineering necessary to establish project scope; Including recommendation for preferred replacement or rebuild method. Method selection should be geared towards long term reliability and ease of maintenance of the system. Consultation with LAWSS-OCWA to finalize project scope will be required.

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2) All costs related to creation of contract documents and project tendering as per OCWA procurement policies and procedures. This part will also include a recommendation based on the results of the tendering process.

3) All costs related to Project Management for duration of project including coordination of contractor and LAWSS-OCWA Operational staff to ensure no interruptions in system supply. As the project manager it will be expected that an OCWA Engineering representative, or a non-LAWSS-OCWA designate, will be on site with the contractor at all times.

4) Project close out complete with o/m documentation and training to LAWSS-OCWA operational staff if necessary.

Once the tendering process is complete, it is expected that a recommendation for a bidder will be provided to LAWSS staff. Final award of the project will be at the discretion of the LAWSS Board. The Board decision will be based on a future staff report detailing the project scope and results of the tendering process.

Consultation:

Local industry and the LAWSS-OCWA Operational Group were consulted in the development of this progress.

Financial Implications:

OCWA Engineering group has submitted a price of \$25,600 +taxes for the scope detailed above. Once the project has been tendered a report will be brought to the Board that will contain further details with respect to financial implications. A budget of \$75,000 was established for this project in 2019. Due to the change of scope, it can be expected that the total project cost will exceed what was originally budgeted. A conservative estimate of final project cost is in the \$150,000-\$175,000 range.

This report was prepared by Clinton Harper, LAWSS General Manager

Attachment(s): none

Report No.:	2020-02-04
Report Page:	Page 1 of 4
Meeting Date:	February 27, 2020
File No.:	



To: Chair and Members
Lambton Area Water Supply System Joint Board of Management

From: Clinton Harper
General Manager

Subject: LAWSS Master Plan Update – Demand Projections & Twinning & Grid Reinforcement Class EA Addendum

Recommendation

It is recommended that the LAWSS Joint of Board of Management;

1. **ENDORSE** the growth projections outlined in AECOM's report titled, "Water Demand Projection Analysis" dated February 19, 2020 for development of LAWSS Master Plan Update.
2. **HIRE** AECOM to complete Twinning & Grid Reinforcement Class EA Addendum as per quoted amount of \$61,329.16+taxes as per section 6 under Negotiate Method in the LAWSS Procurement Policy.

Background:

On January 16th the 2020 Master Water Plan Update was awarded to AECOM for \$202,614.33+taxes. The Master, Financial and Asset Management Plan are guidance documents that assist staff in establishing the best direction for capital investment. These three documents continually grow as projects are completed and added. The Master Water Plan update shall examine current regulations and anticipated future trends in regulation involving the water supply industry in Ontario.

Comments:

On January 22, 2020 AECOM Project Management, OCWA Operational Management and LAWSS attended a project kick off meeting to discuss the project. The foundation of the Master Plan update is growth. AECOM has requested that each LAWSS Member Municipality provide feedback to assist in establishing a combination of population and ICI growth that would allow for development for the system over the planning horizon.

The original Demand Projection report prepared by AECOM was focused primarily on population and relied heavily on the accuracy of the population growth projections described in the Lambton County Official Plan. Issues with their methodology were

identified by the LAWSS Technical Team. The key issues the technical team had with the original report were as follows.

- 1) The population growth projections outlined in the County of Lambton Official Plan were considered too low and did not represent actual growth observed.
- 2) The population growth in of itself is not an indication of total growth and in some cases non-residential growth is the primary driving factor with request to water demand.

AECOM was asked to redo the Demand Projection report based on this feedback. The resulting report is based on actual flow data, actual census data, and available development studies. The report indicates an overall level of system growth at LAWSS that equally considers both residential and non-residential growth factors and is based on historic water demand.

Table 1: Overall Growth Summary (2016 – 2031)

	Sarnia	Point Edward	St. Clair	Plympton / Wyoming	Lambton Shores	Watford-Warwick	LAWSS
<i>Residential Growth</i>	3.8%	0.3%	3.2%	5.3%	6.9%	-1.3%	3.6%
<i>ICI Growth</i>	21.2%	9.5%	3.1%	12.6%	29.6%	10.3%	11.5%
<i>Total Growth</i>	11.2%	7.6%	4.7%	8.2%	17.0%	3.2%	9.5%

Note: ICI Growth for Point Edward was adjusted to LAWSS Average; which is 9.5% as opposed to negative growth.

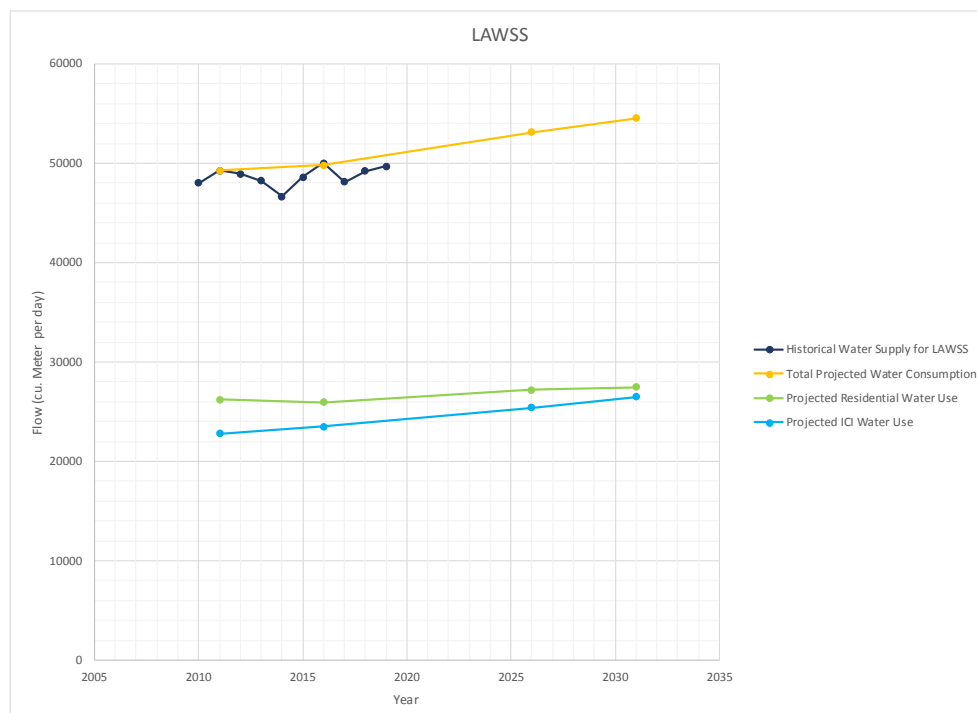


Figure 1: Flow Projections for LAWSS

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In 2012 LAWSS undertook a Class EA to address redundancy and reliability issues in south Sarnia and St. Clair Township. A twinning of the transmission network between LaSalle Line and Courtright Line along Tashmoo Ave. and the grid re-enforcement of the section between Confederation and Lasalle Line along Indian Road and MacGregor, in the City of Sarnia, were identified as the best solution.

In June 2021 the Class EA for this project expires. There have been a number of major changes and additional requirements that have been imposed by the Province since 2012. In the 2020 budget proposal \$105,000 was approved to complete review of the original Class EA. The review, also know as an "Addendum" at this point will allow LAWSS to complete the additional requirements and effectively extend the project start window out an additional ten years.

The kick-off meeting on January 22, 2020 included a discussion around the multiple Municipal Class Environmental Assessments being undertaken, as part of the Master Plan Update, to address the issues identified in the recent modeling project completed in 2019. Based on these conversations I believe it is in the best interest of the LAWSS Board to initiate the "Negotiated Method" with respect to the Twinning & Grid Reinforcement Class EA Addendum and award the project to AECOM to complete as part of the Master Plan Update. In the LAWSS Procurement Policy, the "Negotiated Method" can be used in place of an open competition when the extension or reinstatement of the existing contract would be the most cost effective or beneficial method and is in the best interest of the Board. As both the successful proponent of the Master Plan Update and the original author of the 2012 Twinning & Grid Reinforcement Class EA, AECOM fulfills this requirement.

Consultation:

This report was prepared in consultation with AECOM and the LAWSS Technical Team.

Financial Implications:

The approved 2020 budget the for Twinning & Grid Reinforcement Class EA Addendum is \$105,000. AECOM has provided a quote for \$61,329.16+taxes to complete the work.

In the LAWSS Procurement Policy, the "Negotiated Method" can be used in place of an open competition when the extension or reinstatement of the existing contract would be the most cost effective or beneficial method and is in the best interest of the Board. As both the successful proponent of the Master Plan Update and the original author of the 2012 Twinning & Grid Reinforcement Class EA, AECOM fulfills this requirement.

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Report Page:	Page 4 of 4
Meeting Date:	February 27, 2020
File No.:	



This report was prepared by: Clinton Harper, LAWSS General Manager

Attachment(s): Letter: AECOM Growth and Demand Presentation

Quotation: MCEA Addendum for Grid Reinforcement & Transmission
Main Twinning Sarnia/St. Clair Township Area (2011)

To:
Clinton Harper
General Manager
Lambton Area Water Supply System
1215 Fort Street
Sarnia, Ontario, N7V 1M1

CC:
Semyon Chaymann
John Haasen

Project name:
LAWSS Water Master Plan Update

Project ref:

From:
Benny Wan, M.Sc., P.Eng.

Date:
February 19 2020

Water Demand Projection Analysis

Objective:

AECOM would like to request that LAWSS members review and confirm the projected consumption to support the current LAWSS Master Plan Study. With the confirmed consumption projection, AECOM will then proceed with the Master Plan Update for LAWSS. This memo summarizes the approach and results for estimating the projected water demands for each municipality.

Population

The population information was obtained from the following sources:

- Census from Statistic Canada for years 2011 and 2016 for all LAWSS members
- Future population as per Development Charge Study for:
 - Sarnia
 - St. Clair
 - Plympton / Wyoming
 - Lambton Shores

The following table summarizes the population information for each LAWSS members. Please note that population information for Alvinston, Petrolia and Chatham-Kent was not listed as the demand analysis for these members was completed based on historical flows only.

Table 1: Population Summary

Residential Population	Sarnia	Point Edward	St. Clair	Plympton / Wyoming	Lambton Shores	Watford- Warwick
2011	72,366	2,034	14,515	7,576	2,664	3,717
2016	71,594	2,037	14,086	7,795	2,658	3,692
2026	75,080	2,040	14,975	7,981	2,849	3,667
2031	75,260	2,043	15,420	8,360	2,935	3,688

Note:

Font in **Black** = Census data

Font in **Blue** = Development Charge Study data

Font in **Red** = Estimation (extrapolation or interpolation)

Water Consumption

Water consumption records were provided for the period of 2010 to 2019 from LAWSS Flow Summary. The data was process in order to obtain the yearly average consumption for each LAWSS member. The following table summarizes the yearly flow in cubic meter per day.

Table 2: Historical Water Consumption for LAWSS members

Year	Sarnia	Point Edward	St. Clair	Plympton/ Wyoming	Lambton Shores	Watford- Warwick	Alvinston	LAWSS*
2010	30,001	1,229	11,665	2,394	1,051	1,431	257	48,027
2011	29,032	1,359	13,920	2,354	1,002	1,373	224	49,265
2012	29,720	1,198	13,002	2,353	1,015	1,397	226	48,919
2013	28,361	1,023	13,831	2,358	1,026	1,398	258	48,255
2014	27,656	962	12,743	2,434	1,139	1,442	258	46,654
2015	28,363	1,039	13,576	2,842	1,033	1,415	257	48,628
2016	29,549	1,168	13,915	2,685	1,031	1,381	270	50,005
2017	29,379	1,180	12,487	2,357	934	1,381	239	48,132
2018	28,448	1,169	14,508	2,425	942	1,256	235	49,225
2019	29,250	1,142	14,399	2,500	913	1,102	374	49,686

*Note: Included water supply for Petrolia and Chatham-Kent

Water Demand Analysis

Realizing the significance of the non-residential (also referred as ICI) water uses in LAWSS, the ICI water use was estimated by the following procedures:

- Based on various master planning studies that were completed by AECOM, a typical unit consumption for residential landuse of 255 L/ca/d was assumed and applied for demand estimations.
- Calculate the residential water use by applying 255L/ca/d to the existing (2011 and 2016) residential population as noted in Table 1
- Calculate the ICI water use by subtracting the calculated residential water use by the total water supply as per Table 2
- Analyze the trend for ICI water use and determine the projected ICI use
- Calculate the projected residential water uses by multiplying the 255L/ca/d and the projected residential population (2026 and 2031) as per Table 1

By applying the above noted procedures, the following summarizes the key findings from the water demand analysis:

- ICI water use rate (% per year):
 - LAWSS = 0.87%
 - Sarnia = 1.35%
 - Point Edward = -4.55%
 - Negative increase could be resulted from the abnormal water consumption drop in 2016,
 - For the purpose of the LAWSS Master Plan, overall ICI increase rate of 0.87% (LAWSS) was applied
 - St. Clair = 0.2%
 - Plympton / Wyoming = 0.82%
 - Lambton Shores = 1.86%
 - Watford-Warwick = 0.67%
- Due to lack of data for Alvinston, Petrolia and Chatham-Kent for completing the analysis, the flow projections for these LAWSS members were completed by analyzing the consumptions trend for 2010 to 2019.

Figure 1 shows the overall flow projections for LAWSS and the flow projections for each LAWSS member were presented in the subsequent figures. Table 3 summarizes the overall growth rates for each LAWSS member.

Table 3: Overall Growth Summary (2016 – 2031)

	Sarnia	Point Edward	St. Clair	Plympton / Wyoming	Lambton Shores	Watford-Warwick	LAWSS
Residential Growth	3.8%	0.3%	3.2%	5.3%	6.9%	-1.3%	3.6%
ICI Growth	21.2%	9.5%	3.1%	12.6%	29.6%	10.3%	11.5%
Total Growth	11.2%	7.6%	4.7%	8.2%	17.0%	3.2%	9.5%

Note: ICI Growth for Point Edward was adjusted to LAWSS Average; which is 9.5% as opposed to negative growth.

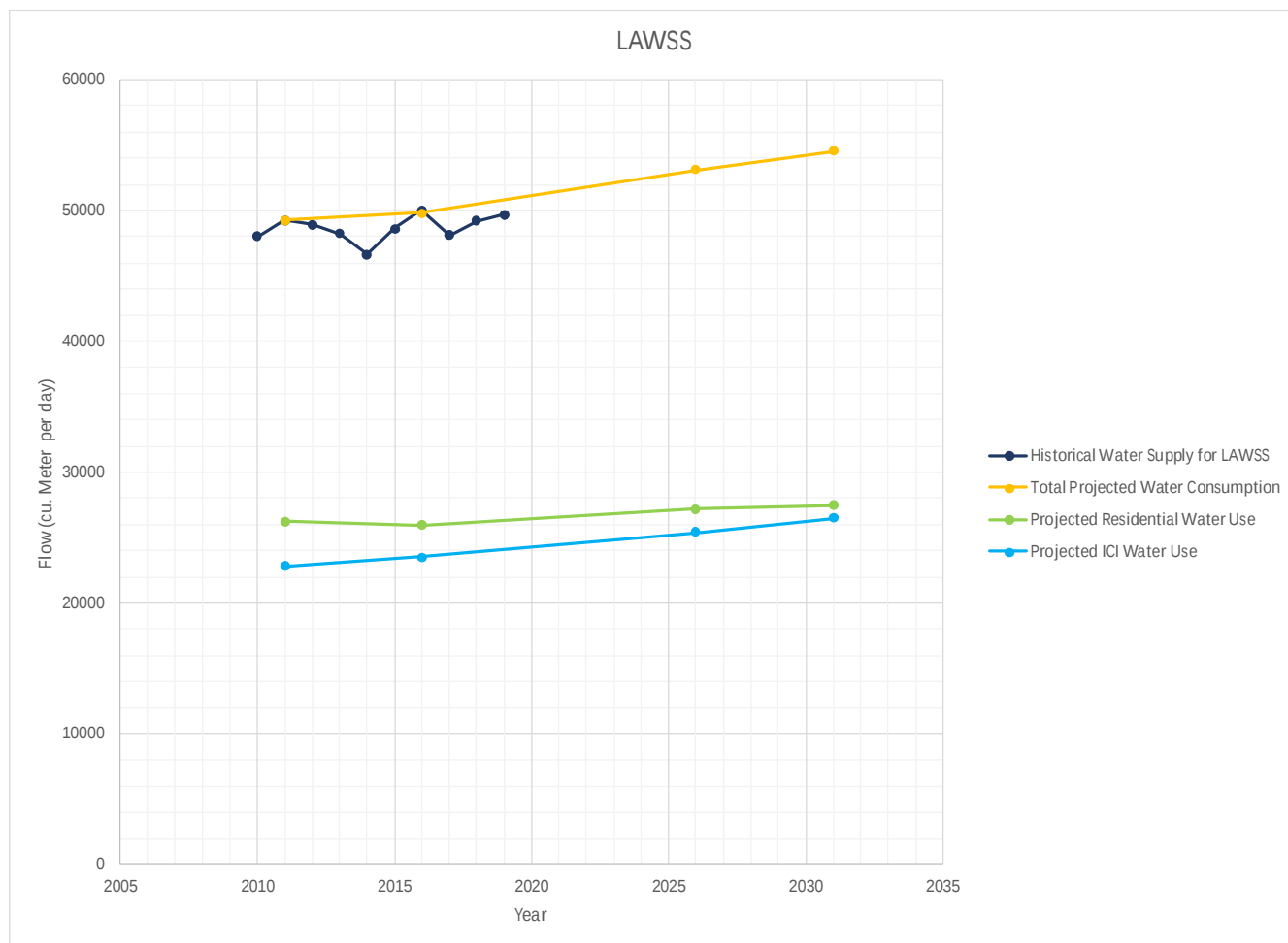


Figure 1: Flow Projections for LAWSS

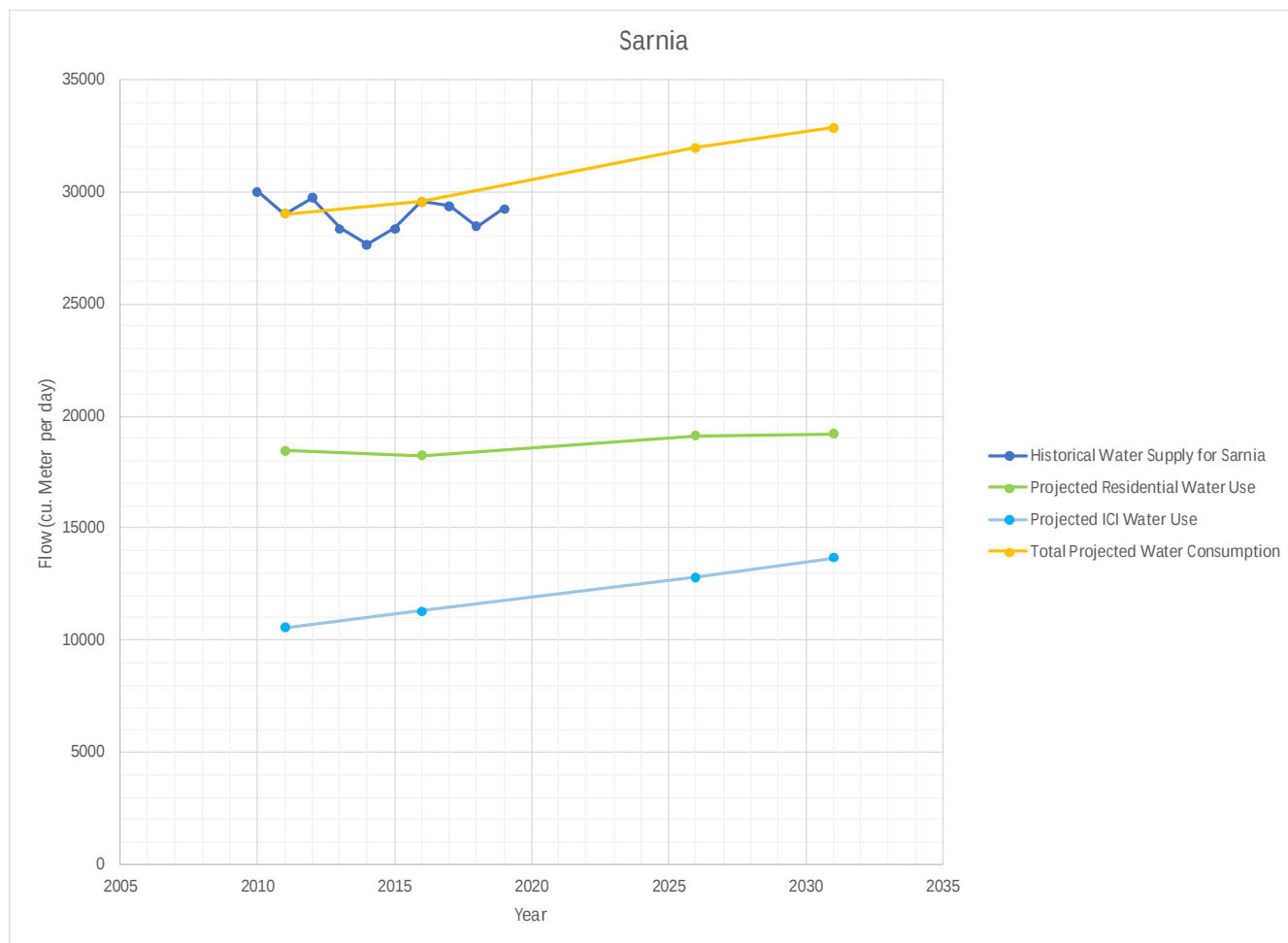


Figure 2: Flow Projections for Sarnia

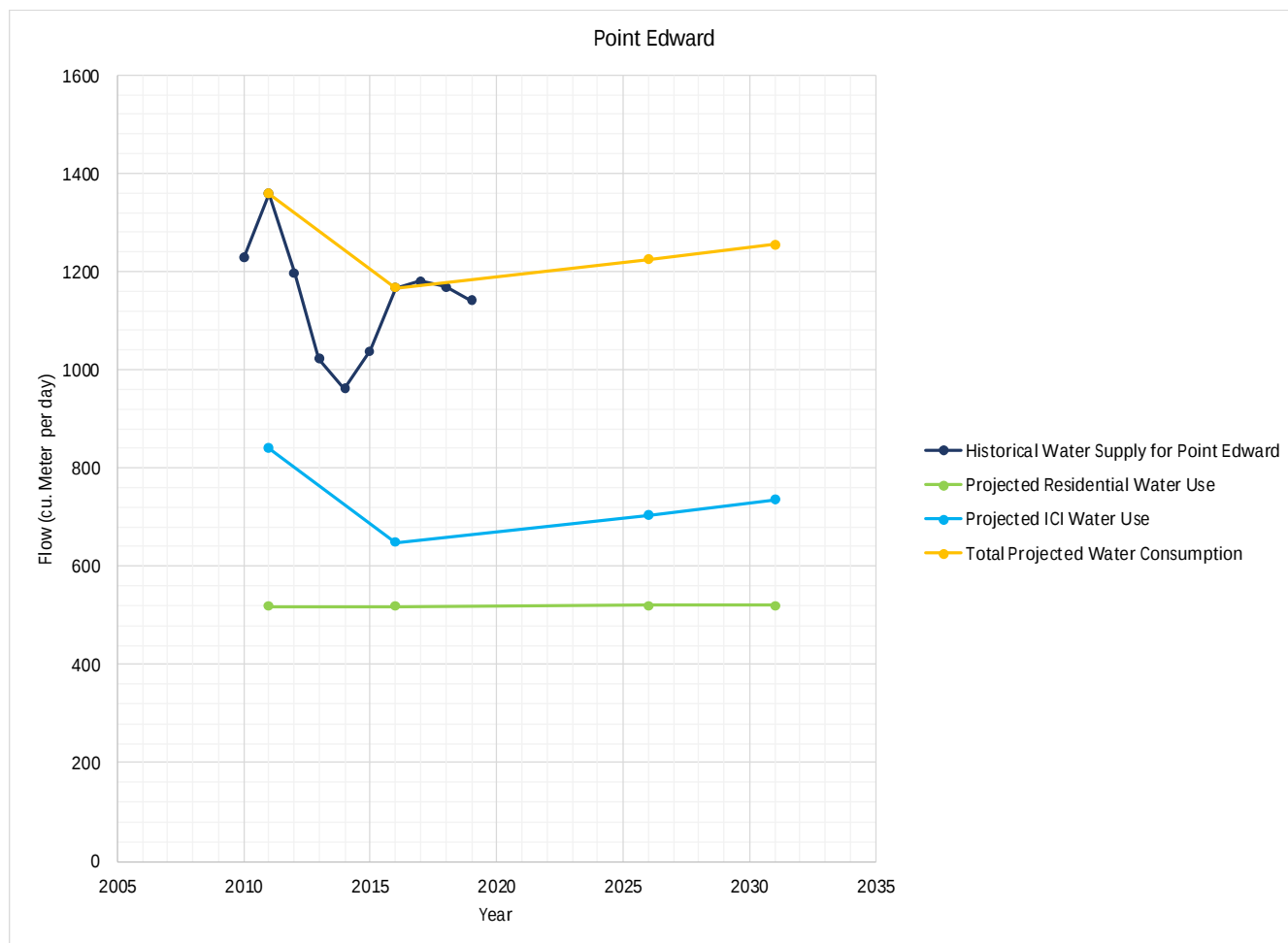


Figure 3: Flow Projections for Point Edward

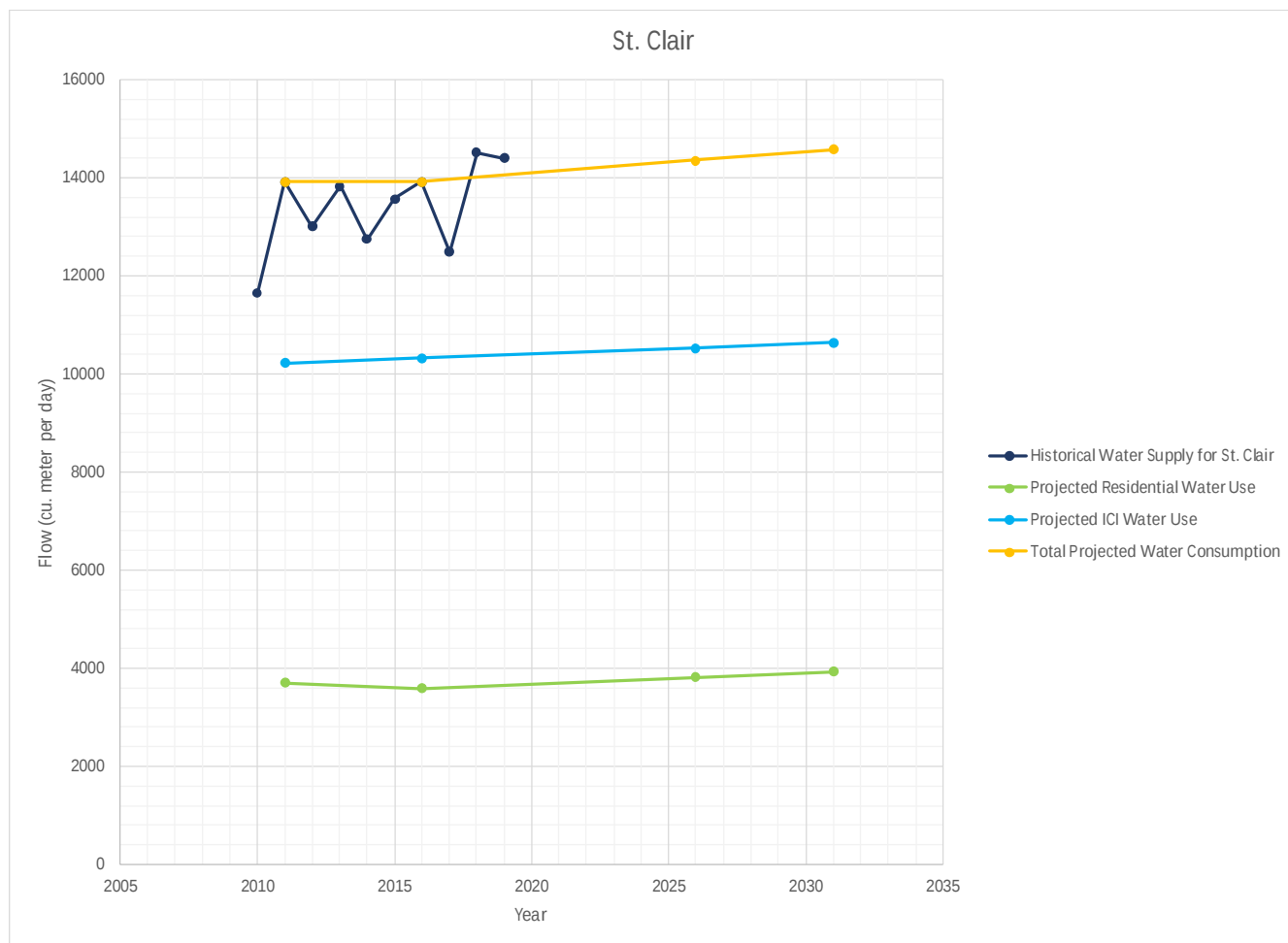


Figure 4: Flow Projections for St. Clair

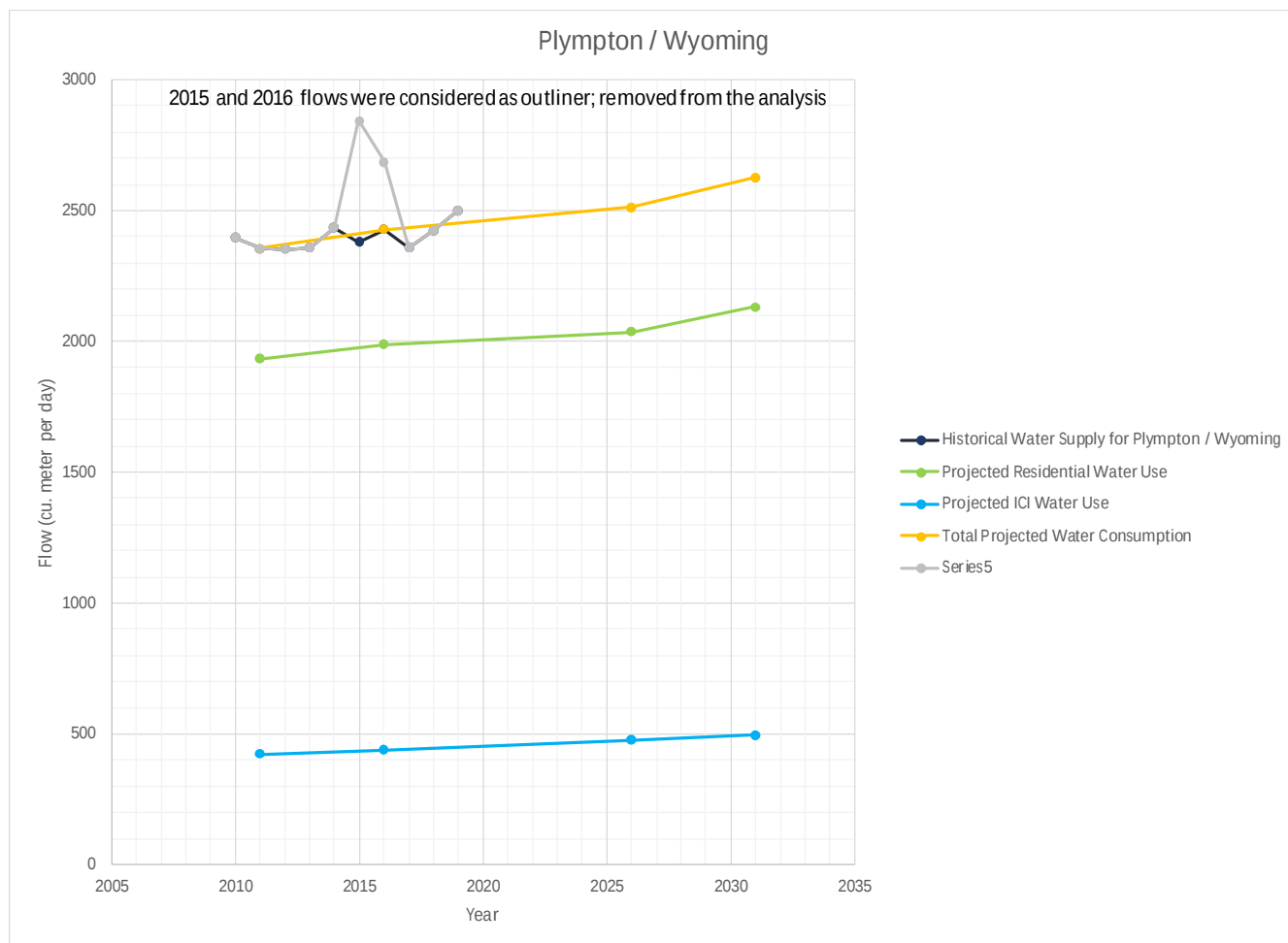


Figure 5: Flow Projections for Plympton and Wyoming

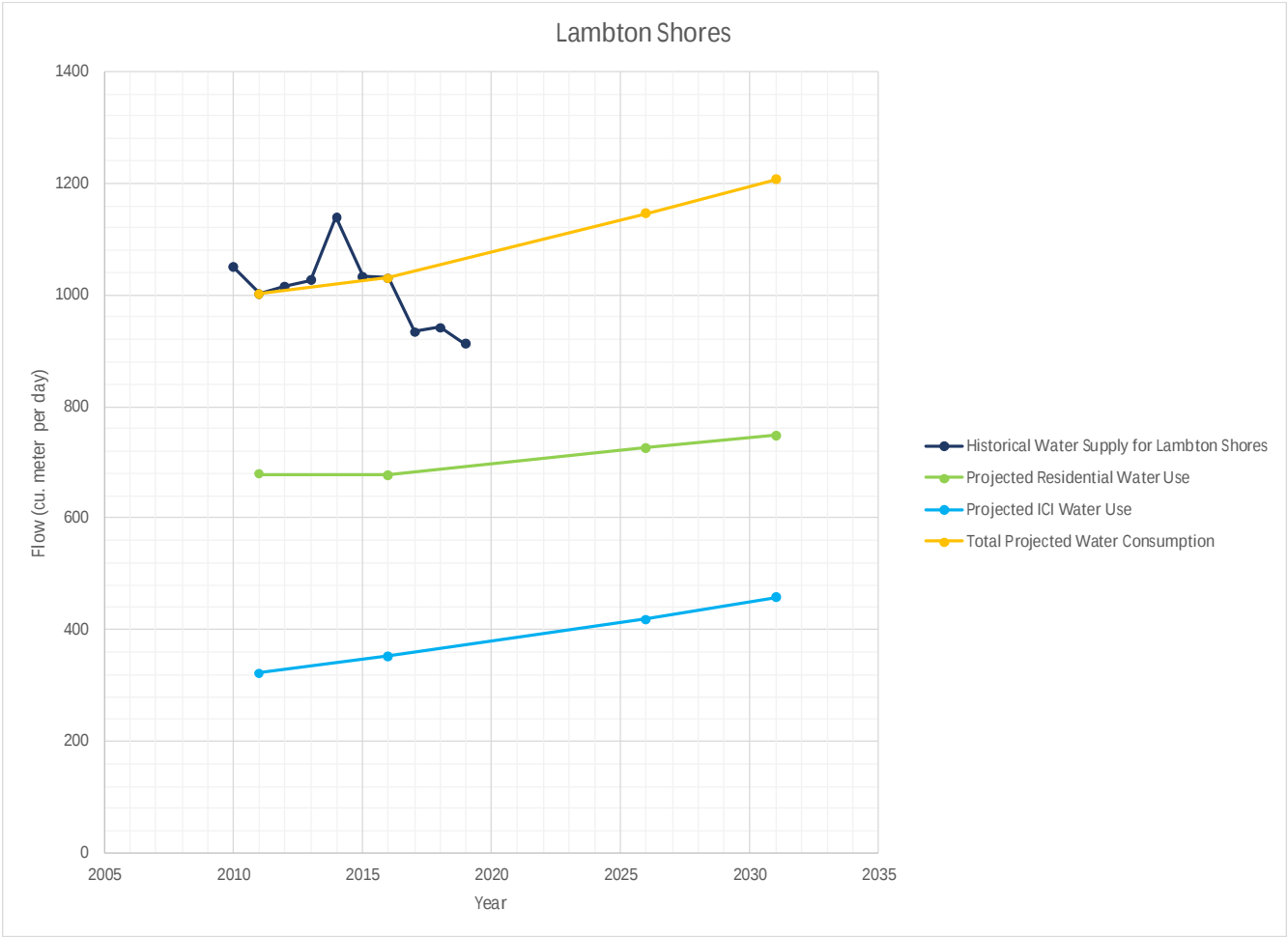


Figure 6: Flow Projections for Lambton Shores

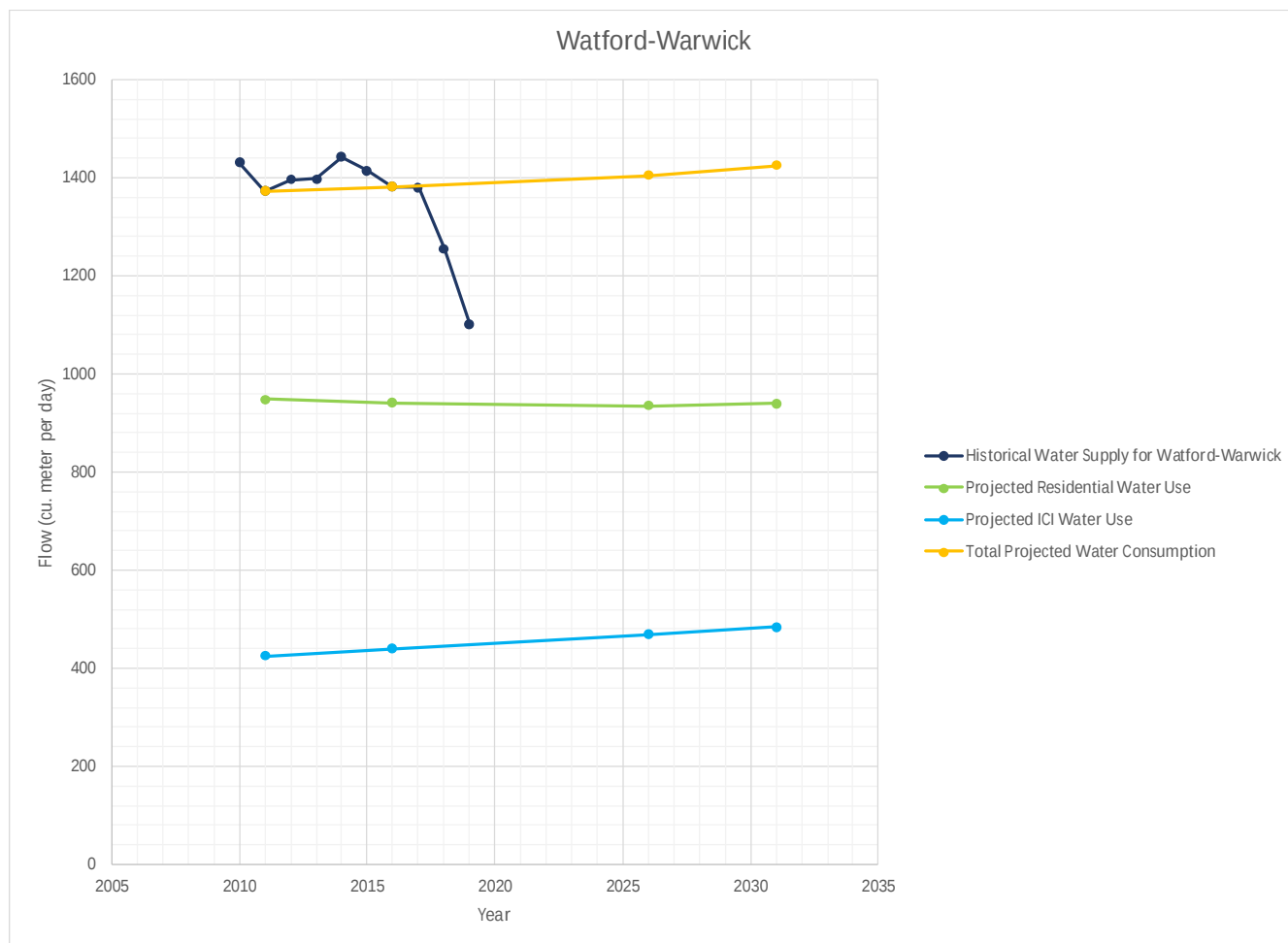


Figure 7: Flow Projections for Watford-Warwick

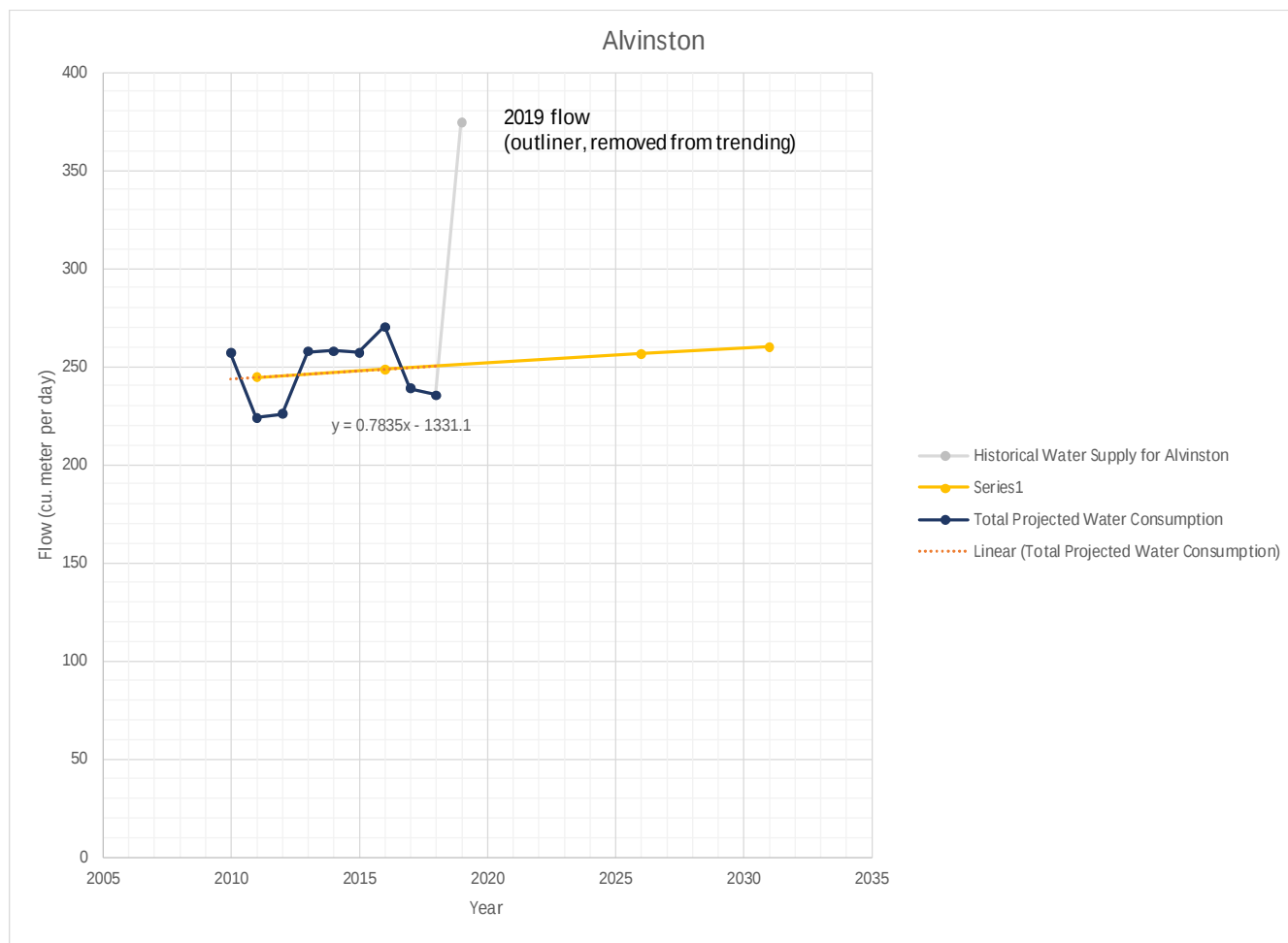


Figure 8: Flow Projections for Alvinston

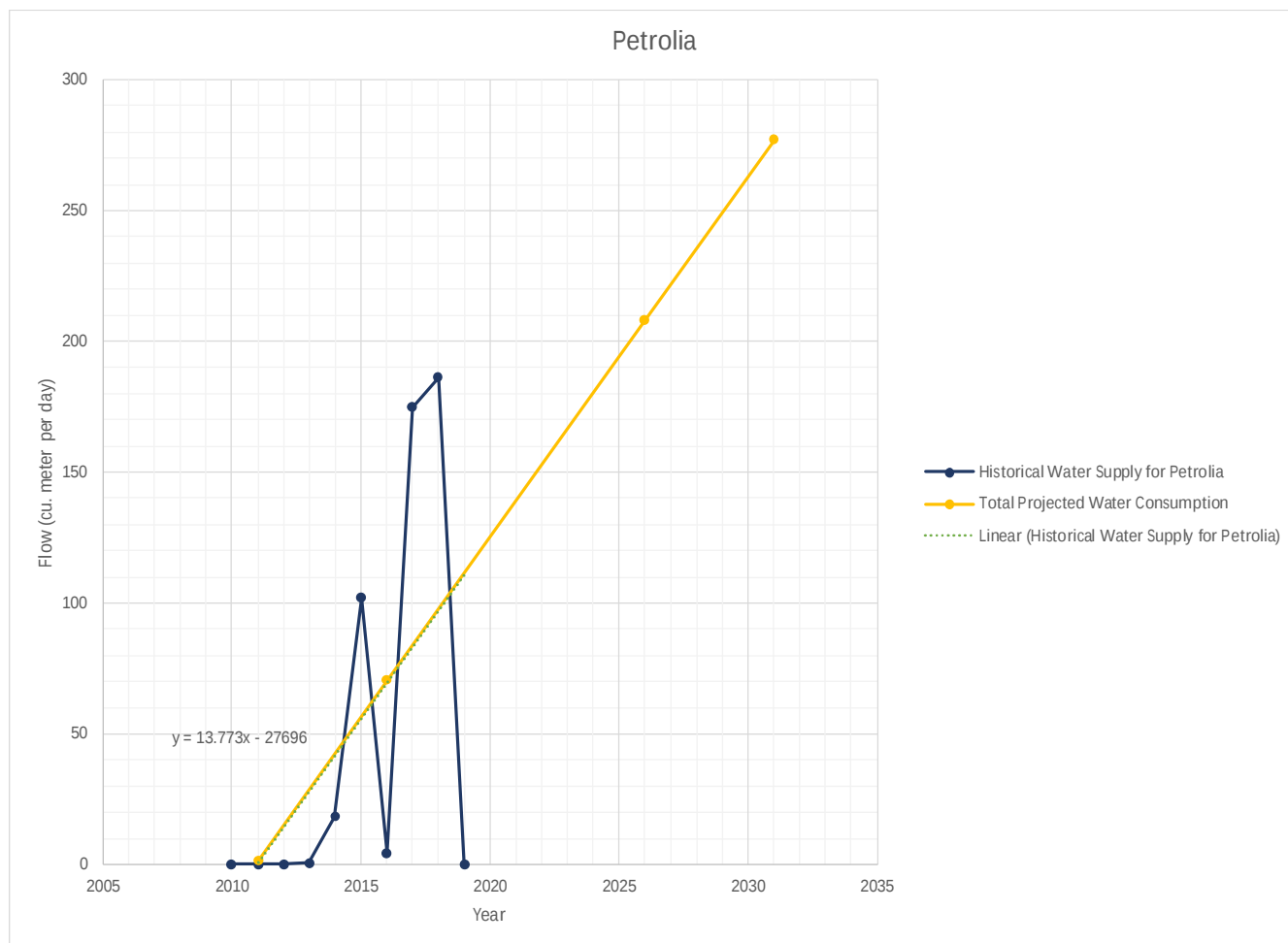


Figure 9: Flow Projections for Petrolia

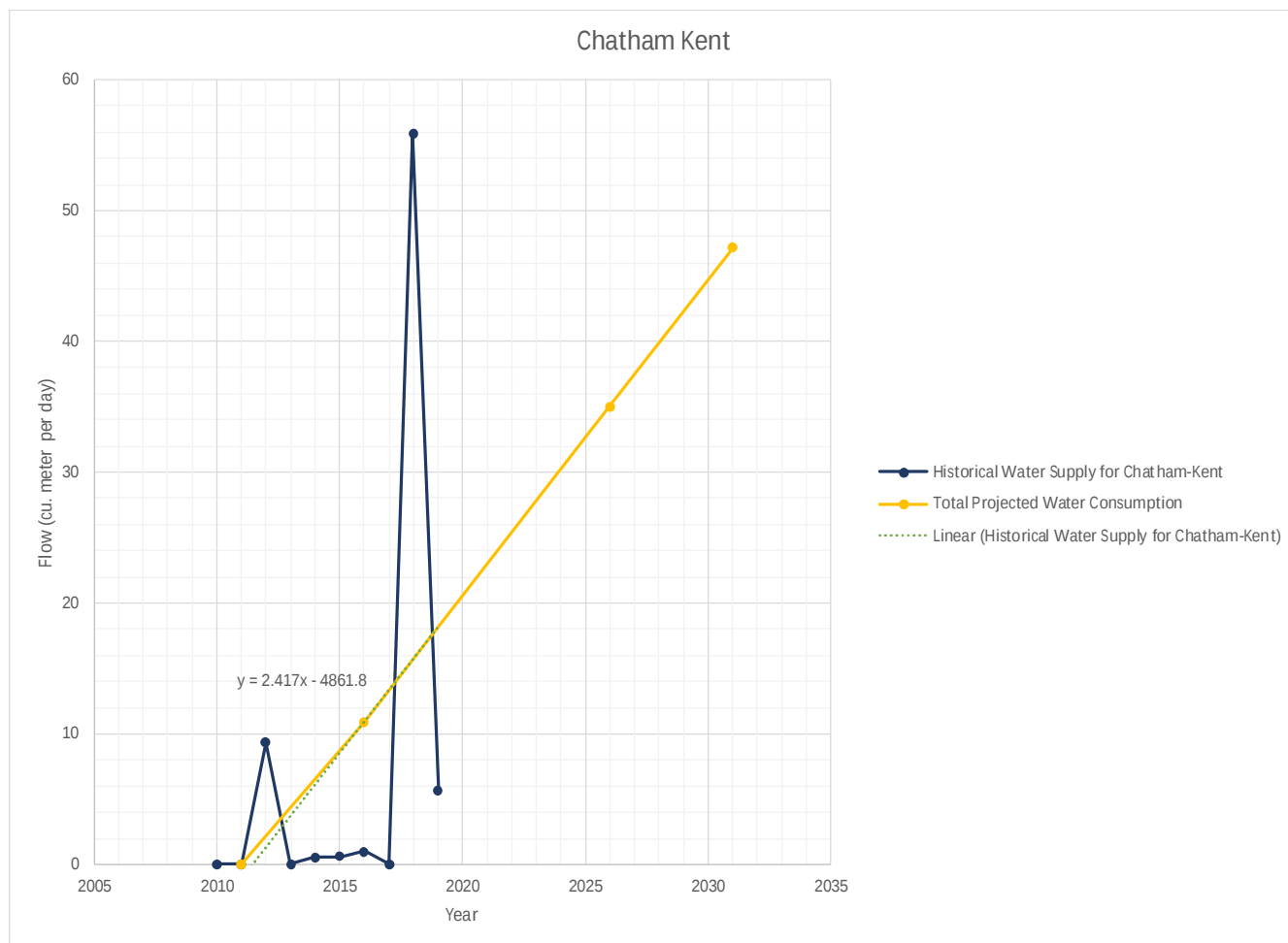


Figure 10: Flow Projections for Chatham Kent

Clinton Harper
General Manager
Lambton Area Water Supply System
1215 Fort Street
Sarnia, Ontario N7V 1M1

February 19, 2020

Project #
60624749

Dear Mr. Harper:

**Subject: Scope Change – MCEA Addendum for Grid Reinforcement & Transmission Main Twinning
Sarnia/St. Clair Township Area (2011)**

In response to your request, AECOM is pleased to submit our proposal for updating the Municipal Class Environmental Assessment (MCEA) for the Grid Reinforcement & Transmission Main Twinning MCEA that AECOM completed for LAWSS in 2011. Although design work for the recommended alternative was completed, construction has not been started, so this update will be an MCEA Addendum to confirm-update the proposed improvements and effectively extend the deadline for project initiation for another 10 years in keeping with the Municipal Engineers Association (MEA) MCEA manual (as recently amended in 2015) 10-year “Lapse of Time” before construction commencement. The MCEA addendum will be completed within the framework of the 2020 LAWSS Water Master Plan Update.

1. Scope of Services

1.1 MCEA Study Update – Addendum

1.1.1 Background – 2011 MCEA

The 2011 MCEA study followed the Schedule B planning process which required completing Phases 1 & 2 of the MCEA planning process. The preferred solution – water servicing strategy was as follows:

- **Phase 1A:** Option 5C is the preferred alternative, which twins the existing water system south of LaSalle Line to Courtright Line.
- **Phase 1B:** The preliminary preferred alternative for Phase 1B is Option 5C. The need for grid redundancy south of Courtright Line has been determined through this MCEA to ensure Phase 1A servicing will be consistent with a possible future transmission main alignment. However, the 2011 MCEA identified the need for a future MCEA study to determine the preferred transmission main routing. The evaluation of Phase 1B in conjunction with Phase 1A provides a comprehensive approach to servicing the study area. The timing of the future EA would be dependent on potential industrial servicing needs resulting from future growth demands south of Courtright Line. This phase would also depend on the position of LAWSS to proceed with expansion of servicing infrastructure based on capital funding.
- **Phase 2:** Option 5D is the preferred alternative that involves grid reinforcement of the existing water system north of LaSalle Line.

See the attached Notice of Completion from 2011 and the corresponding figures that highlight the Phase 1A and Phase 2 recommended alignments.

As part of the MCEA, an extensive consultation program was undertaken to solicit input from directly affected residents, the general public, Indigenous communities and review agencies. One PIC was held (May 20, 2010), in addition to a series of meetings with directly affected Indigenous communities, namely Bkejwanong Territory First

Nations (Walpole Island) (WIFN) and Aamjiwnaang First Nations (AFN).

The 2011 MCEA Study documentation was filed for the mandatory 30-day review starting April 30, 2011. During the 30-day public review period the following comments or concerns were received and addressed:

- A neighbouring resident inquired about the impact of the potential construction to existing drainage tiles.
- Clarification was requested from Neegan Burnside Ltd. on behalf of WIFN and AFN regarding their opportunity to review field investigation methodology in the future.
- MTO provided information on the requirements for permits when encroaching on provincial highways.
- Chippewas of the Thames responded to the Notice of Completion stating that the project falls within their Traditional Territory and their consultation staff would review the project and follow up with a letter indicating their interest.

No Part II Orders were received, however, as per the MEA MCEA manual, if the period of time from the filing of the Notice of Study Completion to the proposed commencement of construction exceeds ten (10) years, the proponent is required to review the planning and design process and the current environmental setting to ensure that the Project and the mitigation measures are still valid given the current planning period. This review is to be documented in an addendum that will be required to be placed on public record.

Given the 10-year window is approaching and LAWSS does not plan to proceed with construction within this timeframe, it is necessary to complete a MCEA Addendum that will include a review of the planning and design process of the original 2011 MCEA study. The current LAWSS Master Plan Update planning process provides an efficient and cost-effective means to complete the MCEA Addendum.

1.1.2 Scope

The scope of the Addendum only applies to what has changed from the original MCEA Phases 1 & 2 Report. The MCEA Addendum will include a review of the planning and design process of the original MCEA report in light of what has changed since 2011. The MCEA Addendum report will:

- Confirm the study area – servicing boundary and document what has changed in terms of the study area's existing conditions, including natural environment, existing/future land uses and planning policy context.
- Review infrastructure servicing requirements.
- Review the 2011 servicing alternatives (options 5C and 5D) and associated phasing and confirm validity or modify as required.
- Identify temporary/permanent easements and approval requirements.
- Review the 2011 mitigation measures and confirm they are still valid given current conditions and the current planning context.
- Review stakeholder, agency, Indigenous communities and public comments and EA commitments;
- Complete and append supporting studies to the Addendum report not undertaken as part of the original MCEA. This includes:
 - Terrestrial and Aquatic Field Investigations including Species at Risk (SAR) Screening based on the current SAR listings.
 - A Stage 1 Archaeological Assessment. As per the 2011 MCEA study, AECOM will contact Aamjiwnaang First Nation (AFN) and Bkejwanong Territory First Nations (Walpole Island) (WIFN) prior to undertaking the investigations to allow the communities to review the methodologies and provide input.
 - MHTCSI (formerly MTCS) checklist to document any potential built and cultural heritage resources.
- Review and update the existing hydraulic model with updated water demand projections (if any)

- Review and update the latest hydraulic model with improvements that have been made since the 2011 Class EA Study, based on LAWSS available GIS
- Review and re-confirm design criteria with LAWSS
- Review and analyze a modelling scenario with preferred alignment and sizing of watermain previously identified in 2011 Class EA Study, which are:
 - Phase 1A:
 - Tecumseh Road – Courtright Line to LaSalle Line (10.8km) 900mm
 - Courtright Line – Tecumseh Road to Greenfield Road (4.7km) 600mm
 - Phase 2:
 - Highway 40 – McGregor Road to Indian Road (0.9km) 900mm
 - Indian Road – Highway 40 to Confederation Line (2.7km) 900mm
 - McGregor Road – LaSalle Line to Highway 40 (2.7km) 900mm
 - LaSalle Line – Tecumseh Road to McGregor Road (0.2km) 900mm
 - Indian Road – Highway 40 to existing reservoir & booster pumping station (0.3km) 900mm
- Update capital costs and conceptual drawings/plans/figures based on the preferred solution

1.1.3 Consultation Activities

As part of the communications and consultation program for the original 2011 MCEA, a Public Information Centre (PIC) was held to inform the local community of the nature and scope of the project and solicit feedback. For the MCEA Addendum the following tasks will be completed:

- Update the 2011 contact list.
- Consult with key stakeholders (e.g. City of Sarnia, St. Clair Township, St. Clair Region Conservation Authority, MNRF, MHTSCI, Lambton County) and Indigenous communities, to facilitate the exchange and review of information and preparation for meetings, where required.
- A “drop-in” style PIC for the MCEA Addendum will be held and advertised as part of the 2020 LAWSS Water Master Plan Update Notice of PIC #2 for the Master Plan Update.
- Prepare and issue the MCEA Notice of EA Addendum Commencement and Notice of EA Addendum Completion (through the 2020 LAWSS Water Master Plan Update) to the study’s contact list.

1.1.4 Indigenous Consultation

Based upon the extensive Indigenous consultation completed as part of the 2011 MCEA consultation program, current Indigenous community consultation protocols and feedback from the Notice of MCEA Addendum Commencement, the need for additional consultation efforts will be gauged and discussed with LAWSS. To this end, we have budgeted for information sharing and four face-to-face meetings (2 with Walpole Island and 2 with Aamjiwnaang First Nations). Both meeting will be facilitated by Jennifer Pereira, AECOM’s Indigenous Consultation Specialist. AECOM’s scope of services does not include any accommodation fees, fees issued by Indigenous Communities for participation in the MCEA Addendum. This similarly applies to the 2020 LAWSS Water Master Plan Update.

2. Deliverables

As part of the Scope of Services, AECOM would provide the deliverables outlined in Table 1.

Table 1: Project Deliverables

Deliverable Description	PDF Copy	Paper Copies
Agenda and Minutes for each Meeting	Yes	-
Notice of MCEA Addendum Commencement (Captured in the Water Master Plan Notice)	Yes	-
Draft MCEA Addendum Report (Appended to Master Plan Update)	Yes	2
Final MCEA Addendum Report (Appended to Master Plan Update)	Yes	2
Notice of MCEA Addendum Completion (Captured in the Water Master Plan Notice)	Yes	-
MCEA Addendum Close-out Memorandum	Yes	-

Two (2) weeks has been allowed for review and commenting on each submission.

3. Schedule

The estimated Schedule for the work will be in line with the 2020 LAWSS Water Master Plan Update Schedule.

4. Personnel

The personnel proposed for the work are those identified in AECOM's 2019, 2020 LAWSS Water Master Plan Update proposal submission and attached TTB.

5. Commercial Terms

We propose to perform the services on a cost-reimbursable basis to an upset limit of \$61,329.16. Refer to the attached TTM for the breakdown of the estimated cost of the work.

AECOM will perform all professional services in accordance with the standard of care customarily observed by professional consulting firms performing similar services at the same time and location. The standard of care will include adherence to all applicable published standards of the profession and laws, regulations, by-laws, building codes and governmental rules. In no event, however, will AECOM be liable for indirect or consequential damages including without limitation loss of use or production, loss of profits or business interruption. Our proposal is valid for your acceptance for 30 days, after which time, a review of the terms and conditions offered may be required.

Thank you for considering AECOM for this work. Please let us know if you have any questions.

Sincerely,
AECOM Canada Ltd.



John Haasen, C.E.T., P.M.P.
Senior Vice President
Project Delivery Excellence, Canada
John.haasen@aecom.com

Encl. TTM

cc:

TIME-TASK BREAKDOWN - Workplan, Level of Staff Commitment and Fee Schedule

Proposed Time Task Breakdown for Base Scope Consulting Services for the Lambton Area Water Supply System 2011 Grid Reinforcement & Transmission Main Twinning Sarnia/St. Clair Township Area MCEA Addendum		Project Management and Advisory		Hydraulic Modelling		Engineering			Class EA and Planning							Total Hours	Total Fees	Disbursements	Total Fees
		John Haasen, Project Manager	Joe Gemin/ Neil Awde/ Eppo Eerkes, Project Advsiors and QA/QC	Amir Samadi, Project Controls	Benny Wan, Modelling Lead	Kevin Sze/ Luke Yang, Modelling Support	Mathew Simons, Engineering Lead	Cristina Alfano, Engineering Support	Jennifer Pereira, Indigenous Consultation	Karl Grueneis, EA Planning & Consultation Lead	Samatha Zandvliet/Paul Adams/ Semyon Chaymann, Class EA & Planning Support	Adria Grant, Archaeology	Michael Seaman, Cultural Heritage	Brandon Holden, Terrestrial Ecology	Wendy Ott, Aquatic Ecology				
Hourly Rate		\$296	\$204	\$107	\$193	\$109	\$119	\$75	\$103	\$153	\$85	\$185	\$169	\$106	\$148				
Task 0 - Project Management		7	0	8	3	0	3	0	0	3	0	0	0	0	0	0	\$4,316.91	\$215.85	\$4,532.76
0.1	Project Management	4		8													\$2,036.86	\$101.84	\$2,139
0.2	Monthly Progress Conference Calls (6) - Added to Water Master Plan Update Monthly Calls	3			3		3			3							\$2,280.05	\$114.00	\$2,394
Task 1 - Collect and Review Background Information		0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	\$219	\$11	\$230
1.1	Collect and review relevant reports, including hydraulic model, GIS, drawings, and SCADA data					2											\$218.97	\$10.95	\$230
1.2	Review of existing natural heritage, water resource systems, and natural hazards																\$0.00	\$0.00	\$0
1.3	Review of existing archaeological and cultural heritage resources																\$0.00	\$0.00	\$0
Task 2 -Hydraulic Analysis		0	0	0	8	29	0	0	0	0	4	0	0	0	0	41	\$5,056	\$253	\$5,308
2a	Model Update	0	0	0	6	18	0	0	0	0	0	0	0	0	0	24	\$3,126.49	\$156.32	\$3,282.81
2.1	Update existing transmission system based on projects completed since 2011 and available GIS				1	6										7	\$849.53	\$42.48	\$892
2.2	Update existing transmission with up to date demand projections				1	4										5	\$630.57	\$31.53	\$662
2.3	Update model to include improvements made since the 2011 Class EA Study				1	8										9	\$1,068.50	\$53.43	\$1,122
2.4	Review and confirm design criteria with LAWSS staff				3											3	\$577.89	\$28.89	\$607
2b	Hydraulic Analysis	0	0	0	2	11	0	0	0	0	4	0	0	0	0	17	\$1,929.21	\$96.46	\$2,025.67
2.5	Review and analyze preferred alternative identified in 2011 Class EA Study				2	8										10	\$1,261.13	\$63.06	\$1,324
2.6	Summarize hydraulic modelling results in summary memo format					3										3	\$328.45	\$16.42	\$345
2.7	Summarize hydraulic modelling results in map format										4					4	\$339.63	\$16.98	\$357
2c	Hydraulic Modeling Report															0	\$0.00	\$0.00	\$0.00
Task 3 - MCEA Addendum		16	0	0	4	0	0	0	40	36	148	32	16	60	16	368	\$45,054.71	\$2,252.74	\$47,307.45
3.1	Review 2011 Phases 1 & 2 Report including any recent background reports, Public/Agency Comments and County/City/Township Official Plans, Zoning Bylaw, Municipal Staff Reports				2					2	8					12	\$1,369.60	\$68.48	\$1,438
3.2	Update Class EA Mailing List and Prepare and Issue Notice of Class EA Addendum Commencement (and on-line PIC #2 to be part of Water Master Plan Update Notice)										4					4	\$339.63	\$16.98	\$357
3.3	Telephone/Email follow-up with Key Agencies and Land Owners										4					4	\$339.63	\$16.98	\$357
3.4	Prepare Aerial Base Plan, Specific to GRID Study Area										8					8	\$679.25	\$33.96	\$713
3.5	Update Existing Conditions - Study Area Profile/Existing and Future Land Use/Ccurrent infrastructure including Figures and Supporting studies (Stage 1 Archaeological Assessment, Cultural Heritage Screening, Ecological-Species at Risk) - Field Investigations									2		24	16	40	16	98	\$14,064.73	\$703.24	\$14,768
3.6	Review Impacts from Proposed Service Area and ??? Related alignment changes, confirm pipe sizing, need for temporary and permaneth easements, identify mitigative measures and confirm net effects										4					4	\$339.63	\$16.98	\$357
3.7	Prepare and attend meetings with City/Township, Agency/other stakeholdes (3)	12									16					28	\$4,910.70	\$245.54	\$5,156
3.8	Prepare Draft Class EA Project File Addendum Report and associated figures/appendices (including City/Township meeting to review Draft)	2			2					6	32					42	\$4,609.58	\$230.48	\$4,840
3.9	Finalize and file Class EA Addendum Report including newspaper notice of EA Addendum Completion, letter to Review Agencies/Stakeholders (to part of Water Master Plan Update Notice)									2	16					18	\$1,663.60	\$83.18	\$1,747
3.10	Monitor and resolve issues during 30-day review period	2							4	4	8			4		22	\$2,718.48	\$135.92	\$2,854
Indigenous Community Engagement																			

TIME-TASK BREAKDOWN - Workplan, Level of Staff Commitment and Fee Schedule

Proposed Time Task Breakdown for Base Scope Consulting Services for the Lambton Area Water Supply System 2011 Grid Reinforcement & Transmission Main Twinning Sarnia/St. Clair Township Area MCEA Addendum																			
		Project Management and Advisory			Hydraulic Modelling		Engineering			Class EA and Planning						Total Hours	Total Fees	Disbursements	Total Fees
John Haasen, Project Manager	Joe Gemin/ Neil Awde/ Eppo Eerkes, Project Advsiors and QA/QC	Amir Samadi, Project Controls	Benny Wan, Modelling Lead	Kevin Sze/ Luke Yang, Modelling Support	Mathew Simons, Engineering Lead	Cristina Alfano, Engineering Support	Jennifer Pereira, Indigenous Consultation	Karl Grueneis, EA Planning & Consultation Lead	Samatha Zandvliet/Paul Adams/ Semyon Chaymann, Class EA & Planning Support	Adria Grant, Archaeology	Michael Seaman, Cultural Heritage	Brandon Holden, Terrestrial Ecology	Wendy Ott, Aquatic Ecology						
Hourly Rate		\$296	\$204	\$107	\$193	\$109	\$119	\$75	\$103	\$153	\$85	\$185	\$169	\$106	\$148				
3.11	Review past MCEA correspondence, identify anticipated issues.								4	2	4					10	\$1,057.41	\$52.87	\$1,110
3.12	Undertake pre-consultation with local Indigenous Communities (letter/email/follow up)								4	2	8					14	\$1,397.03	\$69.85	\$1,467
3.13	Face-to-face staff and leadership meetings (4), prepare/issue meeting minutes								24	16	12	8		8		68	\$8,266.35	\$413.32	\$8,680
3.14	Document issues resolution and outstanding work, share information										12			8		20	\$1,867.52	\$93.38	\$1,961
3.15	Maintain communications log.								4		12					16	\$1,431.57	\$71.58	\$1,503
4.0	Conceptual Design / Capital Cost Estimate	0	0	0	0	0	14	28	0	0	0	0	0	0	0	42	\$3,762.44	\$188.12	\$3,950.56
4.2	Provide-update cost estimates						6	12								18	\$1,612.47	\$80.62	\$1,693
4.6	Finalize conceptual drawings/plans/figures						8	16								24	\$2,149.96	\$107.50	\$2,257
5.0	Provisional - Note: Nnot included with "Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	\$0.00	\$0.00	\$0.00
5.1	Cultural Heritage Assessment Report (if required by MTCS)																\$0.00	\$0.00	\$0.00
	TOTALS	23	0	8	15	31	17	28	40	39	152	32	16	60	16	451	\$58,408.73	\$2,920.44	\$61,329.16
	Total Cost	\$6,808	\$0	\$853	\$2,889	\$3,394	\$2,020	\$2,099	\$4,127	\$5,949	\$12,906	\$5,928	\$2,696	\$6,365	\$2,375				

Notice of Project Completion

The Lambton Area Water Supply System (LAWSS) initiated a Municipal Class Environmental Assessment (Class EA) for grid reinforcement of the south Sarnia/LAWSS network and transmission main twinning to St. Clair Township to ensure an uninterrupted supply of water to all users in this area. AECOM Canada Ltd. was retained to assess alternative solutions as per Municipal Engineers Association Class EA requirements.

As part of the Class EA project, an extensive First Nations, agency and public consultation program was completed seeking input from directly affected residents, the general public, Aboriginal communities and review agencies. One public meeting was held (May 20, 2010) for all stakeholders to review the work completed and provide comments on the project. In addition, a series of meetings with directly affected First Nation communities was also undertaken. Input was received and incorporated as part of the recommendations where appropriate.

The preferred alternatives for the project include the following:

Phase 1A - the construction of a 600 mm diameter watermain along Courtright Line from Greenfield Road to Tecumseh Road; the construction of a 900 mm diameter watermain along Tecumseh Road north to LaSalle Line (Figure 1).

Phase 2 - the construction of a 900 mm diameter watermain along McGregor Road from LaSalle Line to Churchill Road, along Churchill Road west to Indian Road; south along Indian Road to the West Lambton Reservoir and Pumping Station; and north along Indian Road to Confederation Street (Figure 2).

By this notice, the draft Screening Report for this project will be placed on public record on May 9, 2011, for thirty (30) days to be reviewed by members of the public and/or any other interested party at the following locations:

Lambton County Library

Sarnia Branch
124 Christina Street South
Sarnia ON, N7T 8E1

Hours:

Monday-Thursday 9:30 am – 9:00 pm
Friday 9:30 - 5:30 pm
Saturday 9:30 am – 5:30 pm
Sunday 2:00 pm – 5:00 pm

St. Clair Civic Centre

1155 Emily Street
Mooretown ON, N0N 1M0

Office hours:

Monday-Friday 8:30 am – 4:30 pm

The Class EA process entitles members of the public, First Nation communities, interested groups and review agencies who have significant concerns about the project, to request the Minister of Environment to issue an order to comply with Part II of the EA Act (if such concerns cannot be resolved). This is known as a “Part II Order”, bumping up the status of this project to a full Individual Environmental Assessment. The procedure for a “Part II Order” request is as follows:

- First, the person with concerns directs them to the Lambton Area Water Supply System and AECOM Canada Ltd. during the 30 day review period for consideration and mitigation.
- Second, if the concerns cannot be resolved, the person may submit a “Part II Order” request to the Minister of Environment, at 135 St. Clair Avenue West, 12th Floor, Toronto, Ontario, M4V 1P5, by June 7, 2011 with a copy of the request being sent to the Lambton Area Water Supply System and AECOM.

Please contact the following project team leaders if you have any questions or comments on the information provided in the draft Screening Report no later than June 7, 2011.

Ms. Corri Marr,
Project Manager - AECOM Canada Ltd.

Citi Plaza 250 York Street
Suite 410 London ON, N6A 6K2

Tel: 519-963-5872
Fax: 519-673-5975
Email: corri.marr@aecom.com

Ms. Susan MacFarlane, Ph.D., P.Eng.
LAWSS Manager

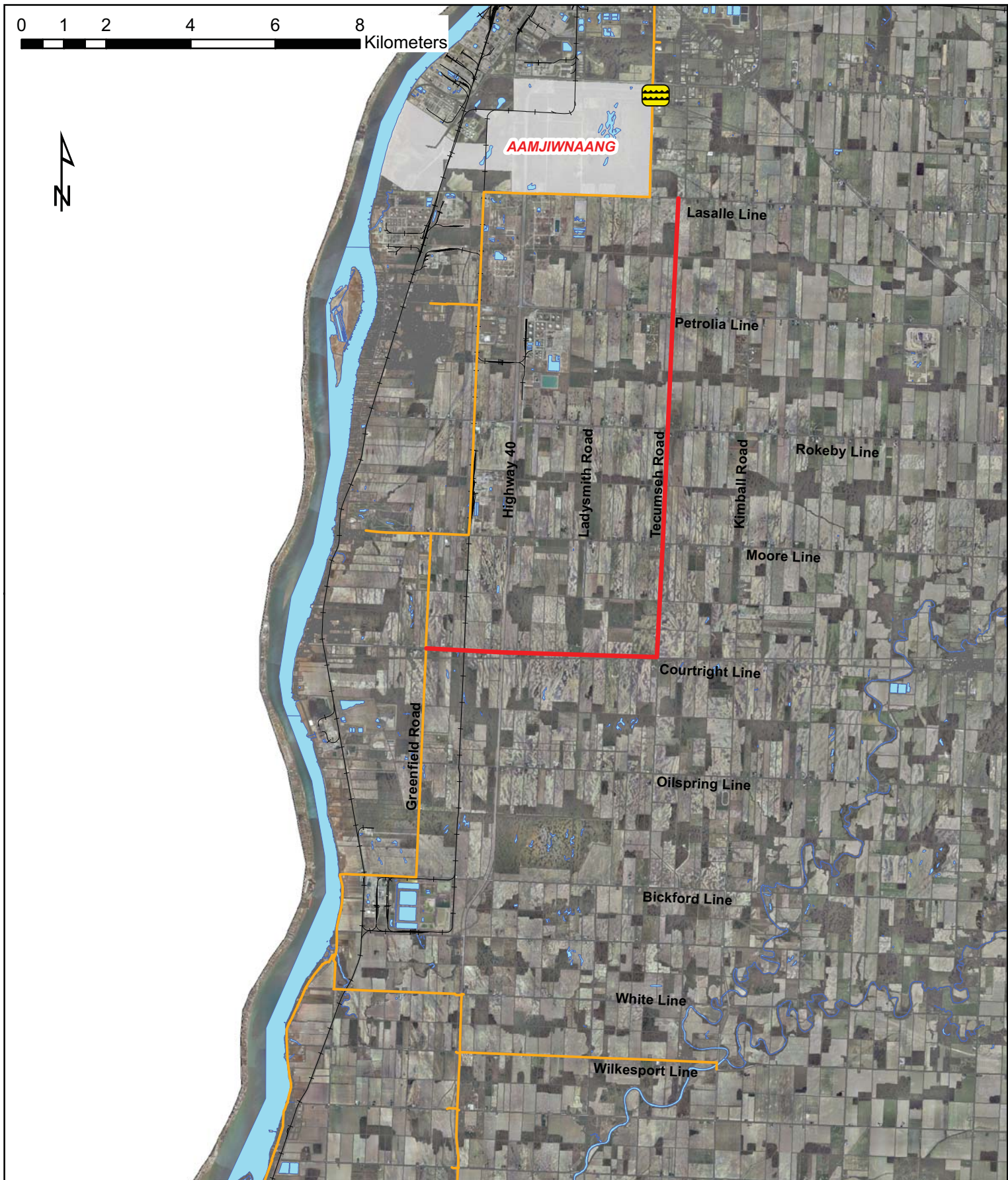
1215 Fort Street
Sarnia, ON N7V 1M1

Tel: (519) 344-7429 (ext. 250)
Fax: (519) 344-4337
Email: susan.macfarlane@lawss.org

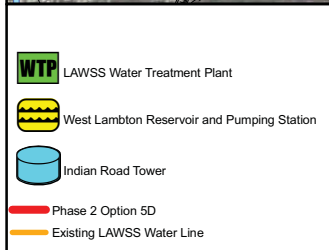
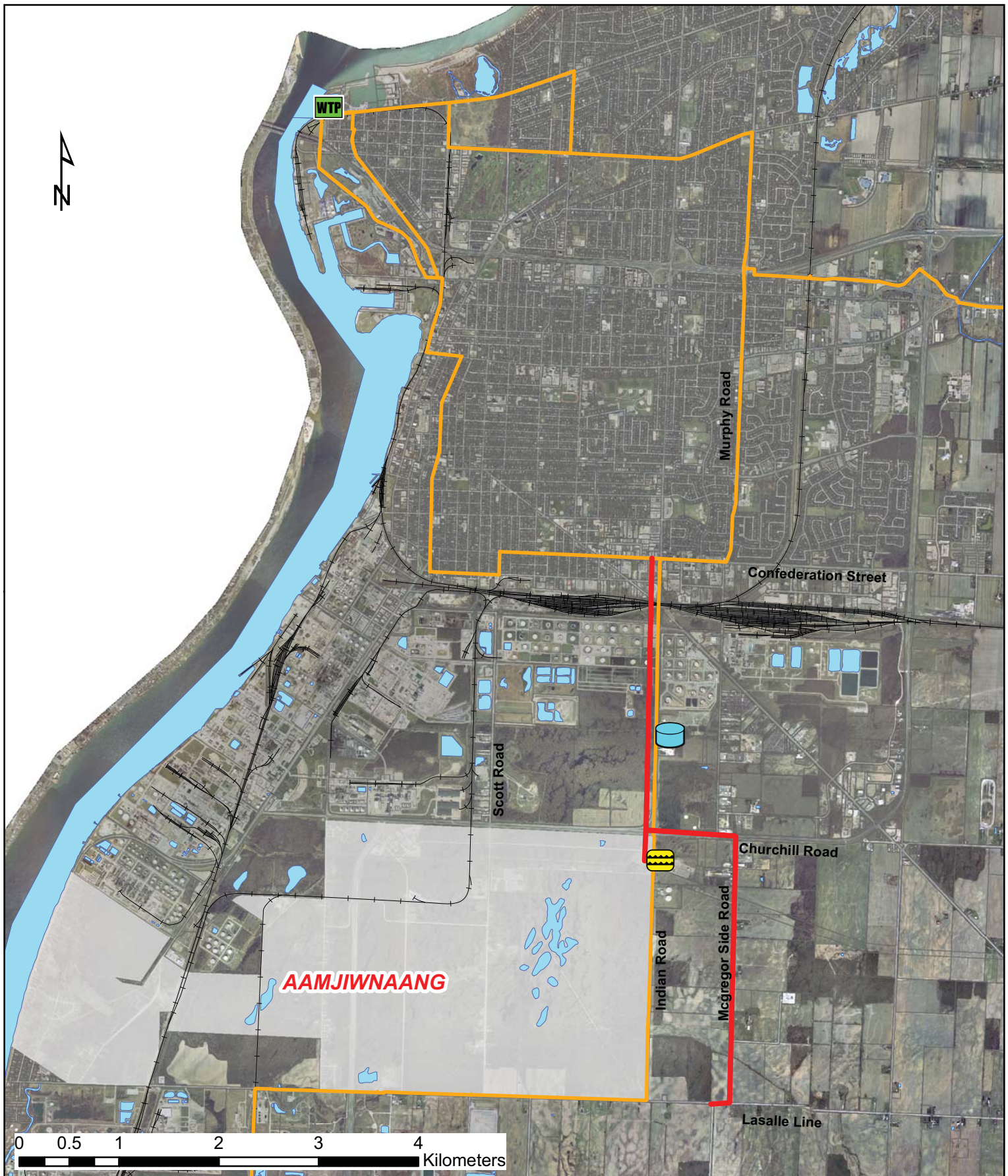
With the exception of personal information, all comments received will become part of the public record.

Subject to the comments received as a result of this notice and receipt of necessary approvals, implementation of the recommended works can proceed.

This notice issued on April 27, 2011.



Legend  West Lambton Reservoir and Pumping Station  Phase 1A Option 5C  Existing LAWSS Water Line  Water  Lot Lines	GRID REINFORCEMENT & TWINNING OF THE LAWSS TRANSMISSION MAIN IN THE SARNIA/ST. CLAIR TOWNSHIP AREA  Page 172 of 236 	Figure 1 Recommended Option Phase 1A Scale: As Shown PN: 106801 Date: June 2010 Datum: NAD83 UTM Zone 17N
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Report No.: 2020-02-12
Report Page: Page 1 of 3
Meeting Date: February 27, 2020
File No.:



To: Chair and Members
Lambton Area Water Supply System Joint Board of Management

From: Clinton Harper
General Manager

Subject: Scope of Work- Engineering Design for Main Plant HVAC

Recommendation

"That the LAWSS Joint Board of Management **ENDORSE** the scope of work for Engineering Design for Main Plant HVAC."

Evaluation Process:

Staff will use a Qualification-Based Selection process utilizing a "two (2) step method" procurement process in which bids are received and evaluated in two (2) separate phases.

The first step (Phase 1) consists of technical and qualitative information and is opened and evaluated first. The second step (Phase 2) consists of cost and price information which may be opened and evaluated only after the information in Phase 1 has been evaluated in accordance with the requirements of the RFP document.

Technical proposal Submissions will be assessed and scored based on the evaluation criteria, but not limited to, the following:

Criteria	Weighting
Project Manager Qualifications and Experience on Directly Related Projects	15
Technical and Support Staff Qualifications and Experience on Directly Related Projects	25
Understanding of Project Goals, Methodology, and Approach	25
Implementation Strategy, Schedule of Key Activities, and Commitment to Maintaining Timeline and Deliverables	25
Innovation and Recommendations	10

The Technical Proposal must receive a score of seventy (70) points or greater, based on the technical evaluation criteria to be considered for the Cost Proposal phase. Proposals that do not achieve this score will not be considered further.

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Description of Work:

Execute project outlined in Capital Renewal Plan created by Building Innovation dated June 2019.

Goals of this project include:

- Replace/right size HVAC Equipment that has surpassed its life expectancy.
- Reinstate dehumidification. The dehumidification air handler which services the majority of the plant area has been modified in a recent project, including removal of the refrigeration coil. Humidity sources are still introduced into the WTP due to required outdoor air ventilation.
- Correct the remaining HVAC once-through water utilization that is currently being used for cooling and dehumidification.
- Address potential risk of uninsulated components to condensation.
- Update and combine the various building automation systems.

Scope of Work:

Part 1 (to be completed in 2020)

Development and Design

a) Identification and review of acceptable equipment model replacements that can meet the physical limitations of the facility. This shall include at a minimum the following:

1. Right sized components based on current requirements;
2. Warranty of all components;
3. Parts availability through expected life cycle;
4. Diagnostic requirements for trouble shooting and repairs
5. Equipment Staging and delivery co-ordination

b) Engineering design including civil, electrical, SCADA, mechanical and including the required panel in the MCC;

Compliance Documentation and Tendering

- a) Complete all regulatory requirements licence and permit updates;
- b) Prepare tender documents including all requirements and comprehensive 5-year maintenance contract;
- c) Include complete disposal of existing equipment off site;

Part 2 (to be completed in 2021)

Project Administration

- a) Provide complete project oversight and management;
- b) Review weekly with LAWSS Representative(s) project construction status;

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- c) Review weekly with LAWSS Representative(s) project budget management;
- d) Provide review of contractor progress payments for approval by LAWSS Representative(s);
- e) Address all Environmental requirements with the MECP as required;
- f) Provide Form 6 for notice of substantial completion.

Project Commissioning and Closeout

- a) Provide complete as-built drawings for all equipment and changes completed;
- b) Provide operator training, manuals, maintenance guidelines, and part sources for all equipment installed as part of the project;
- c) Provide a 5-year Maintenance Plan.

Tendering:

The Tender/Proposal Process, as outlined in the LAWSS Procurement Bylaw will be used to secure prices for this work. Every effort will be made to secure three competitive bids. The results of the Tender/Proposal Process will be used to establish a recommendation in a future report to the Board.

Financial Implications:

An assessment of the Main Plant HVAC was completed in 2019. The assessment resulted in the development of the 2021 replacement project estimated at \$750,000. In 2020, \$111,000 was budgeted to complete the engineering and project management necessary to complete this project.

This report was prepared by Clinton Harper, LAWSS General Manager

Attachment(s): none

Report No.: 2020-02-11
Report Page: Page 1 of 5
Meeting Date: February 27, 2020
File No.:



To: Chair and Members
Lambton Area Water Supply System Joint Board of Management

From: Clinton Harper
General Manager

Subject: Scope of Work- Supervisor Control and Data Acquisition
(SCADA) Master Plan

Recommendation

That the LAWSS Joint Board of Management **ENDORSE** the scope of work for a Supervisor Control and Data Acquisition (SCADA) Master Plan

Evaluation Process:

Staff will use a Qualification-Based Selection process utilizing a “two (2) step method” procurement process in which bids are received and evaluated in two (2) separate phases.

The first step (Phase 1) consists of technical and qualitative information and is opened and evaluated first. The second step (Phase 2) consists of cost and price information which may be opened and evaluated only after the information in Phase 1 has been evaluated in accordance with the requirements of the RFP document.

Technical proposal Submissions will be assessed and scored based on the evaluation criteria, but not limited to, the following:

Criteria	Weighting
Project Manager Qualifications and Experience on Directly Related Projects	15
Technical and Support Staff Qualifications and Experience on Directly Related Projects	25
Understanding of Project Goals, Methodology, and Approach	25
Implementation Strategy, Schedule of Key Activities, and Commitment to Maintaining Timeline and Deliverables	25
Innovation and Recommendations	10

The Technical Proposal must receive a score of seventy (70) points or greater, based on the technical evaluation criteria to be considered for the Cost Proposal phase. Proposals that do not achieve this score will not be considered further.

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Report Page:	Page 2 of 5
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Description of Work:

The work includes development of a SCADA Master Plan that includes the following four components:

1. Evaluate the existing SCADA system to determine any deficiencies.
2. Identify LAWSS operational requirements and information/control needs.
3. Evaluate communication path performance.
4. Develop a Master Plan to upgrade to existing SCADA/PLC components to maximize reliability, responsiveness, cost effectiveness, security, and scalability.

Providing recommendations for system-wide software and communication hardware that will be utilized at all LAWSS facilities, in order to ensure all systems are compatible.

Successful proponent will provide equipment, materials, and labour to complete the Scope of Work, and to prepare interim technical memoranda as documentation of the project elements. LAWSS will provide successful proponent with access to staff for interviews as needed throughout the project. Technical memoranda shall be prepared as a draft for LAWSS review, followed by final revision that incorporates comments received. It is expected that the Master Plan report will be based upon the interim technical memoranda, and will outline a planned approach and schedule to implement recommended changes or upgrades. Planning level cost estimates for each modification shall be included.

Scope of Work:

The objective of this Scope of Work is to provide a framework for the development of a SCADA Master Plan to achieve a flexible, reliable, and comprehensive SCADA environment. The Master Plan shall include specific recommendations with budgetary cost estimates and schedule for the next five to ten years. The Scope of Work anticipates four steps to developing the Master Plan: Assess Current Environment; Identify Goals and Metrics; Assess existing Communication Path; and Prepare SCADA Master Plan report. Deliverables will include one electronic copy (.pdf) for each element of each deliverable.

Element 1: Assess Current Environment

For this element the successful proponent will provide an inventory and detailed written and graphical description of the current environment that will enable effective analysis and recommendations.

The assessment shall accomplish the following tasks:

1. Review and inventory the existing SCADA system.

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File No.:



2. Document how the current SCADA system is used by operations staff
3. Provide recommendations regarding capabilities that should be considered based on the observed operational practices
4. Review and document current SCADA system deficiencies or needed upgrades.

The assessment report will include graphical presentations of each component in sufficient detail to analyze performance improving opportunities. The report will document details of each component, including:

1. Hardware (brand name, model, CPU type, speed, memory, age of equipment, etc.)
2. Software (application vendor, product name, version, number of users, etc.)
3. Network (network diagram showing media, number of channels/pairs, and protocols, list of network equipment with brand name, model, age, etc.)
4. Databases (conceptual data model showing key indices, applications, interfaces and attributes)
5. Functions (brief description of the function and necessary components)

Element 2: Identify Goals and Metrics

In this step the successful proponent will establish a programming and operational narrative that will be implemented throughout LAWSS SCADA in all future projects.

In addition to the establishment of a programming and operational narrative, the successful proponent will establish SCADA system performance goals and metrics designed to meet LAWSS needs. Examples of performance goals include:

- Capital cost
- Communication
- Cost for implementation
- Backup
- Resiliency
- Redundancy/disaster recovery
- Reliability
- Security
- Flexibility
- Functionality
- Hardware
- Software
- Support
- Expandability
- Maintenance
- Ease of use
- Operator interface (cloud-based, local, central, etc.)

Element 3: Assess existing Communication Path

LAWSS has recently transitioned away from the radio-based communication system to a software defined wide area network at all sites. In this element the successful proponent will provide a third-party assessment of the new communication network. The assessment should identify any deficiencies or issues with the new system. The assessment will explore how the new communication network can be expanded.

During the Goals and Metrics and Communication Path meeting with LAWSS, the successful proponent shall solicit feedback from LAWSS on goals for the SCADA system

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and future system upgrades. The successful proponent shall discuss options and alternatives with LAWSS, compile LAWSS goals and requirements, and document OCWA's understanding, along with alternatives and recommendations to meet the identified requirements. The outcome of the Goals and Metrics and Communication Path Task shall provide successful proponent with sufficient information to develop the recommendations of the Master Plan. The successful proponent shall prepare a draft and final Technical Memoranda (TM) summarizing the understanding of LAWSS needs and goals. The TM shall include a thorough discussion of solutions to be carried forward in the Master Plan.

Element #4: Master Plan Report

Following review and incorporation of LAWSS comments in all previous tasks, the successful proponent shall incorporate all deliverables produced, and prepare a SCADA Master Plan Report and executive summary. The executive summary will include a summary description and a Gantt chart showing all action items for a five to ten-year implementation program.

This task shall include an evaluation of a variety of systems, a ranking and discussion of recommended solutions, and shall provide a thorough discussion of final recommendations.

The Master Plan Report shall include:

- Recommendations for replacement SCADA systems.
- Information developed in interim Technical Memoranda.
- Recommendations that meet Best Management Practices in Ontario.
- Written Disaster Recovery Plan.
- Written programming and control narrative.
- Recommendations for redundancy requirements (e.g. hot standby for primary PLCs)
- Recommendations that all packaged control systems utilize standardized PLCs recommended for all LAWSS facilities.
- Recommendations for Factory Performance Testing (FAT) requirements during construction.
- Cost estimates for implementation.
- Ongoing system maintenance requirements (e.g. staffing needs, licensing, associated cost estimates).
- Estimated system life cycle and strategies to maximize the system life.
- Remote site instrumentation and PLC I/O lists.
- Communication recommendations.
- Recommended Historian and reporting additions.
- Timeline for 5-year to 10-year implementation.

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Tendering:

The Tender/Proposal Process, as outlined in the LAWSS Procurement Bylaw will be used to secure prices for this work. Every effort will be made to secure three competitive bids. The results of the Tender/Proposal Process will be used to establish a recommendation in a future report to the Board.

Financial Implications:

The LAWSS Board budgeted \$150,000 for this work in 2020.

This report was prepared by Clinton Harper, LAWSS General Manager

Attachment(s):

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To: Chair and Members
Lambton Area Water Supply System Joint Board of Management

From: Clinton Harper
General Manager

Subject: Scope of Work- RFP Engineering Design for 5kV Motor Control Group A&B Replacement.

Recommendation

"That the LAWSS Joint Board of Management **ENDORSE** the scope of work for RFP-Engineering Design for 5kV Motor Control Group A&B Replacement."

Evaluation Process:

Staff will use a Qualification-Based Selection process utilizing a "two (2) step method" procurement process in which bids are received and evaluated in two (2) separate phases.

The first step (Phase 1) consists of technical and qualitative information and is opened and evaluated first. The second step (Phase 2) consists of cost and price information which may be opened and evaluated only after the information in Phase 1 has been evaluated in accordance with the requirements of the RFP document.

Technical proposal Submissions will be assessed and scored based on the evaluation criteria, but not limited to, the following:

Criteria	Weighting
Project Manager Qualifications and Experience on Directly Related Projects	15
Technical and Support Staff Qualifications and Experience on Directly Related Projects	25
Understanding of Project Goals, Methodology, and Approach	25
Implementation Strategy, Schedule of Key Activities, and Commitment to Maintaining Timeline and Deliverables	25
Innovation and Recommendations	10

The Technical Proposal must receive a score of seventy (70) points or greater, based on the technical evaluation criteria to be considered for the Cost Proposal phase. Proposals that do not achieve this score will not be considered further.

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Description:

Provide a proposal for full replacement.

Motor Control Centre - Group A

The existing Group 'A' MCC is a Federal Pacific Electric make, is rated for 4160V, 3PH, 1200A and serves the High Lift Wash Water Pump, High Lift Pump #2, High Lift Pump #3, High Lift Pump #8, Low Lift Pump #2 and Low Lift Pump #3. The unit appears to have been well maintained and has no visible signs of rust or other damage. This MCC is original to the 1972 building and is past the typical life cycle of 25 to 30 years. Technology in the components are outdated and are bound to be showing signs of wear and tear and replacement parts may be impossible to find. It was noted that the starter for the High Lift Wash Water Pump was retrofitted in July 2002, the High Lift Pump #2 was retrofitted in March 2003 and Low Lift Pump #4 was retrofitted in September of 2001.

Motor Control Centre - Group B

The existing Group 'B' MCC is a Federal Pacific Electric make, and is rated for 4160V, 3PH, 1200A and serves High Level Pump #1, High Level Pump #4, High Level Pump #6, Low Level Pump #3 and Low-Level Pump #5.

Scope of Work:

Part 1 (to be completed in 2020)

Development and Design

a) Identification and review of acceptable equipment model replacements that can meet the physical limitations of the facility. This shall include at a minimum the following:

1. Right size all components based on current requirements;
2. Warranty of all components;
3. Parts availability through expected life cycle;
4. Diagnostic requirements for trouble shooting and repairs
5. Equipment Staging and delivery co-ordination

b) Engineering design including civil, electrical, SCADA, mechanical and including the required panel in the MCC;

Compliance Documentation and Tendering

- a) Complete all regulatory requirements licence and permit updates;
- b) Prepare tender documents including all requirements and comprehensive 5-year maintenance contract;
- c) Include complete disposal of existing equipment off site;

Part 2 (to be completed in 2021)

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Project Administration

- a) Provide complete project oversight and management;
- b) Review weekly with LAWSS Representative(s) project construction status;
- c) Review weekly with LAWSS Representative(s) project budget management;
- d) Provide review of contractor progress payments for approval by LAWSS Representative(s);
- e) Address all Environmental requirements with the MECP as required;
- f) Provide Form 6 for notice of substantial completion.

Project Commission and Closeout

- a) Provide complete as-built drawings for all equipment and changes completed;
- b) Provide operator training, manuals, maintenance guidelines, and part sources for all equipment installed as part of the project;
- c) Provide a 5-year Maintenance Plan.

Tendering:

The Tender/Proposal Process, as outlined in the LAWSS Procurement Bylaw will be used to secure prices for this work. Every effort will be made to secure three competitive bids. The results of the Tender/Proposal Process will be used to establish a recommendation that will be outlined in a future report to the Board.

Financial Implications:

An electrical reliability study completed in 2019 identified a path for replacement for the major electrical components downstream of the main plant switchgear. The 5kV Motor Control Group A&B is the first step in that process after the generator replacement and main plant switchgear project is complete. The 5kV Motor Control Group A&B project is estimated at \$700,000 and is proposed in 2021. In 2020, \$90,000 was budgeted to complete the engineering and project management necessary to complete this project.

This report was prepared by Clinton Harper, LAWSS General Manager

Attachment(s): none

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To: Chair and Members
Lambton Area Water Supply System Joint Board of Management

From: Clinton Harper
General Manager

Subject: Radiological Effluent Monitoring at LAWSS

Recommendation

"That the LAWSS Joint Board of Management **RECEIVE** as information and that staff proceed with <Option Selection>."

Background:

At the December 5, 2019 meeting of the LAWSS Board, staff were directed to provide a report back with options for testing of radiologically contaminated raw water at LAWSS. The testing would be used to protect LAWSS from an emergency release event at the Nuclear Generating Station (BNGS) if no advanced warning is received. This report provides background information on what the issue is with radiological material in source water, how it is currently being tested for in Lake Huron (Appendix A) and what can be done at LAWSS.

Comments:

Heavy water is D₂O (Deuterium Oxide). BNGS uses CANDU reactors. These are pressurized heavy water reactors, which use D₂O in their moderator system. D₂O slows (moderates) the neutrons in the reactor to a speed at which they are able to bump into other atoms to cause them to-break apart. When they break apart they create the heat that then travels in a closed loop to the boilers where it creates steam out of the water flowing through another loop, this steam then travels to the turbine, which spins the generator to make electricity. The BNGS has real time detection of D₂O in its light cooling water system.

All potential effluent from the site is captured and stored in tanks. The contents of the tanks are tested for a variety of parameters prior to being cleared for release into Lake Huron. If the contents of the tanks do not meet the allowable release limit(s) it is cycled back through the system for further treatment, until it meets the release limits.

The Canadian Nuclear Safety Board (CNSB) conducts an Independent Environmental Monitoring Program (IEMP) of the lake water near the BNGS. As an initial step, I

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requested that the CNSB consider using the LAWSS intake as a sample location for their IEMP going forward. If the LAWSS intake could be incorporated into the existing system used by the Federal Government to double check the BNGS I thought it would go a long way to relieve any anxiety related to this issue. If it was determined the LAWSS intake couldn't be used, I requested LAWSS be provided access to the Federal Laboratory if LAWSS decided to complete its own independent testing. The response I receive the CNSB was as follows:

"In terms of responding to your questions regarding the CNSC Independent Environmental Monitoring Program (IEMP), we have the following information to offer:

- 1. The CNSC's IEMP is intended to complement existing and ongoing compliance activities to verify that the public and the environment around CNSC-regulated facilities are not adversely affected by releases to the environment.*
- 2. CNSC IEMP sampling locations are near and far field locations generally within or around 20 km from the Bruce site. Locations beyond 20 km could be chosen as a background or reference locations.*
- 3. In 2019, the sampling campaign was modified to respond to requests and concerns from Indigenous communities. Sampling in communities was completed further afield, and the communities understood that these locations were beyond reference or background locations and any results of contaminants found would likely be natural background variations.*

Based on this information, the CNSC IEMP wouldn't be in a position to include the LAWSS intake, as it is located much further afield than the ± 20 km distance that the IEMP samples within. The CNSC's IEMP does take a sample near the Kincardine Water Supply Plan, which is 15 km SSW of the Bruce site. These results can be found at <http://www.nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/bruce.cfm> with the specific sample being BP22-W12.

I would encourage the LAWSS to consider using this result, along with the results from the Bruce Power Environmental Monitoring Program as an analogue for your purpose. Furthermore, the CNSC laboratory isn't a contract lab that accepts samples from outside sources, nor is it a provincial licensed drinking water testing laboratory. I would encourage the LAWSS to contract a certified laboratory for radionuclide testing should you still feel that testing is required."

After considering the background information provided in Appendix A and the response from the CNSC detailed above, if the Board wished to proceed with independent testing one of the following options could be implemented.

Option #1: Enhanced Sample Protocol

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OCWA completes approx. 2250 samples annually for water quality on LAWSS behalf. Similarly to what is already completed at the Kincardine and Saugeen Shores water treatment plants, grab samples could be collected from the LAWSS WTP intake and sent away for testing. Please note that the turn around for Tritium and Gross Alpha/Beta analysis is expected to be 14 days. This option requires that the Board trust that emergency notification infrastructure, and real-time testing currently employed, is adequate in the event of a major leak.

Option #2: Purchase/Install On-line Water Radioactivity Monitoring

Similar to turbidity, pH, temperature, chlorine, fluoride, pressure, conductivity and streaming current it is possible to install an on-line monitor that measures radioactivity. The online monitoring equipment is intended to provide real-time monitoring of drinking water and would be integrated into current operation.

Option #3: Annual Review

In the response from the CNSC it is suggested that LAWSS consider using the results from the IEMP, along with the results from the Bruce Power Environmental Monitoring Program be used as an analogue for our purpose. The updated annual environmental report from the Bruce is due to be published on May. If the Board believes the current real-time warning and monitoring systems are sufficient, an annual report could be prepared by staff in the summer that provides the Board with a summary that highlights drinking water aspects of the BrucePower and CNSC reporting. This option also requires that the Board trust that emergency notification infrastructure, and real-time testing, is adequate in the event of a major leak.

Consultation:

OCWA Operational Staff, BrucePower staff, the Canadian Nuclear Safety Commission staff, representatives at the Kincardine and Saugeen Shores water operating authority, SGS London and equipment suppliers.

Financial Implications:

The financial implications for the three options provided are as follows:

Option #1	Enhanced Sample Protocol Standard (14 days): Enhanced Sample Protocol Rush (5 days):	\$323/sample \$969/sample
Option #2	Purchase/Install/Commission On-line Water Radioactivity Monitoring (Wilma System quote attached)	\$90,000 USD
Option #3	Annual Review and staff report	none

*taxes are not included

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This report was prepared by Clinton Harper

Attachment(s): Appendix A

Figure 2: Annual Average Tritium Concentrations (Bq/L) In Municipal Water Supply Plants Near the Bruce Power Site Over Time.

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Appendix A

What is Tritium?

Tritium is a radioactive form, or "isotope", of hydrogen. It has two neutrons where regular hydrogen does not have any, which makes tritium unstable and therefore radioactive. It is also produced as a by-product of nuclear reactors.

Like all radioactive isotopes, tritium decays. As it decays it gives off, or emits, beta radiation.

The Canadian Nuclear Safety Commission (CNSC) regulates releases of tritium by nuclear reactors and tritium processing facilities to ensure the health and safety of workers and the public, and the protection of the environment.

Tritium in Drinking Water

The most common form of tritium is tritiated water (HTO). This happens when a tritium atom replaces a hydrogen atom in water (H₂O) to form HTO. HTO has the same chemical properties as water and is also odourless and colourless.

The standard international unit for measuring radioactive decay or radioactivity is the becquerel (Bq). The amount of tritium in water is measured in becquerels per litre (Bq/l). Water with a tritium activity of 1 Bq/l, contains less than 1 tritium atom per 100,000 million (1 in 10¹⁷) molecules.

The highest average annual tritium level measured in the drinking water of Canadian communities neighbouring nuclear facilities is about 18 Bq/l. This is well below drinking water limits recommended by Health Canada of 7,000 Bq/l.

Health Effects of Tritium

Tritium is a relatively weak source of beta radiation. The beta particle itself does not have enough energy to penetrate the skin. However, it can pose a health risk if taken directly into the body in extremely large quantities; for example, a person would need to take in billions of becquerels before seeing a health effect.

Tritium molecules can enter the body by breathing air containing tritium, or by ingesting tritiated food and water. Tritiated water can be absorbed through the skin like regular water. Most tritium leaves the body as tritiated water in urine, breath moisture and perspiration. Most inhaled tritiated hydrogen gas is exhaled immediately.

A radiation dose from tritium is like a radiation dose from any other type of radiation, including natural background radiation and doses received during medical procedures. In Canada, members of the public receive annual doses of radiation from tritium of 0.0001 to 0.013 millisieverts (mSv), although very few, if any, members of the public receive

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doses in the upper end of this range. Near nuclear facilities, where tritium levels are slightly higher, the average annual dose to adults is about 0.0015 mSv. These doses are well below the public dose limit of 1 mSv as set in the *Radiation Protection Regulations*, and the average Canadian dose due to natural background radiation of 1.8 mSv.

Studies have not shown health effects at a chronic exposure below about 100 mSv. The regulatory public dose limit of 1 mSv is equivalent to 1% of this amount.

Source: Canadian Nuclear Safety Commission Fact Sheet
(<https://nuclearsafety.gc.ca/eng/resources/fact-sheets/tritium.cfm>)

Highlights from BrucePower 2018 Environmental Protection Report

Lake Huron Historical Tritium Water Sample Results

Background levels of tritium are a combination of natural cosmogenic sources (produced by the action of cosmic rays) and residual fallout from historical nuclear weapons testing. Atomic Energy Canada Limited (AECL) developed a mathematical model for estimating background Lake Huron tritium activity from cosmogenic sources and fallout from nuclear weapons testing source. A graphical representation of this is shown in Figure 1. Natural Lake Huron tritium levels, in the absence of Canadian Deuterium Uranium (CANDU) Reactor tritium emissions, are estimated to be 1.6 Bq/L.

The impact of site emissions on the local water supply plants varies and is dependent on the distance from the stations, lake current direction, and general dispersion conditions. In order to minimize the impact of emissions, Bruce Power has a long-standing stakeholder commitment to keep the municipal water supply plants annual average tritium levels below 100 Bq/L. As shown in Figure 2, the annual average tritium concentrations at all local water supply plants have remained relatively constant. Concentrations are well below 100 Bq/L and remain a small fraction of the provincial drinking water limit of 7,000 Bq/L.

Municipal Water Supply

Municipal drinking water sources are sampled twice per day during regular business hours from two Water Supply Plants on Lake Huron near the Bruce Power site.

- Southampton Water Supply Plant, 22 km NE of Bruce A
- Kincardine Water Supply Plant, 15 km SW of Bruce B

Municipal drinking water well samples are also collected and analyzed. Weekly composite samples are analyzed for tritium by liquid scintillation counting (a process that measures the activity of a sample of radioactive material) and monthly composite samples are analyzed for gross beta by proportional counting and a gross gamma screening. The 2018 annual average for tritium at the Kincardine WSP was 5.0 Bq/L and at the Southampton WSP was 9.9 Bq/L. In 2018, the water from the WSPs were well below the annual average Ontario Drinking Water Standard of 7000 Bq/L and also below the 100

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Bq/L (annual average) objective set forth in a stakeholder commitment with the Municipalities.

Source: 2018 BrucePower Environmental Protection Report <https://s14083.pcdn.co/wp-content/uploads/2019/04/2018-Environmental-Protection-Report.pdf>

Canadian Nuclear Safety Commission Independent Environmental Monitoring Program

Under the *Nuclear Safety and Control Act* (NSCA), the licensee of each nuclear facility is required to develop, implement and maintain an environmental monitoring program to demonstrate that the public and the environment are protected from emissions related to the facility's nuclear activities. The results of these monitoring programs are submitted to the Canadian Nuclear Safety Commission (CNSC) to ensure compliance with applicable guidelines and limits, as set out in regulations that oversee Canada's nuclear industry. As part of the CNSC's regulatory oversight, CNSC staff also conduct extensive compliance verification activities. These include reviews of the licensees' environmental protection programs to ensure they are adequate, as well as regular inspections to ensure the programs are being implemented accordingly.

The CNSC has implemented its Independent Environmental Monitoring Program (IEMP) to verify that the public and the environment around licensed nuclear facilities are safe. It is separate from, but complementary to, the CNSC's ongoing compliance verification program. The IEMP involves taking samples from public areas around the facilities, and measuring and analyzing the amount of radiological (nuclear) and hazardous substances in those samples. CNSC staff collect the samples and send them to the CNSC's laboratory for testing and analysis.

The IEMP is implemented for facilities in all segments of the nuclear fuel cycle: uranium mines and mills, uranium and nuclear processing facilities, nuclear power plants, research and medical isotope production facilities, and waste management facilities. The CNSC's program aligns with those of other national and international regulatory bodies and complements the CNSC's ongoing environmental protection activities.

CNSC regulatory oversight reports

The CNSC publishes annual regulatory oversight reports on the nuclear industry, which include results from the IEMP and other compliance verification activities. These reports focus on the licensees' annual performance in 14 safety and control areas, including environmental protection, radiation protection, conventional health and safety, waste management, and emergency management.

The reports are discussed at public Commission meetings. The CNSC encourages the public and Indigenous groups to comment on these reports.

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Independent Environmental Monitoring Program: Bruce A and B Nuclear Generating Stations

Bruce Power is licensed by the CNSC to operate the Bruce A and B nuclear generating stations, located along the eastern shore of Lake Huron in Kincardine, Ontario. The Bruce Power site includes the Bruce A and Bruce B nuclear power plants, which house eight Canadian Deuterium Uranium (CANDU) reactors. All eight of these units are currently operational, with a production capacity of 6,232 megawatts of electricity per day. Bruce Power also operates the Central Maintenance and Laundry Facility (CMLF) at the Bruce Power site.

Releases result from the operation of the Bruce Power site, the OPG WWMF and the CNL Douglas Point Waste Management Facility. The predominant releases from the Bruce Power site are from the BNGS. Bruce Power runs a comprehensive environmental protection program to monitor and control nuclear and hazardous substances released from the Bruce Nuclear Generating Station (BNGS), determine concentrations of contaminants in the environment and assess exposure to the public.

The Independent Environmental Monitoring Program (IEMP) results for 2013 through 2016 confirm that the public and the environment around the site are safe and that there are no expected health impacts.

The IEMP results indicate that the public and the environment around the BNGS are protected and that there is no unreasonable risk to health and the environment. The IEMP results are consistent with the results submitted by Bruce Power, demonstrating that the licensee's environmental protection program protects the health and safety of people and the environment.

Source: Canadian Nuclear Safety Commission Independent Environmental Monitoring Program (IEMP) <http://www.nuclearsafety.gc.ca/eng/resources/maps-of-nuclear-facilities/iemp/index-iemp.cfm>

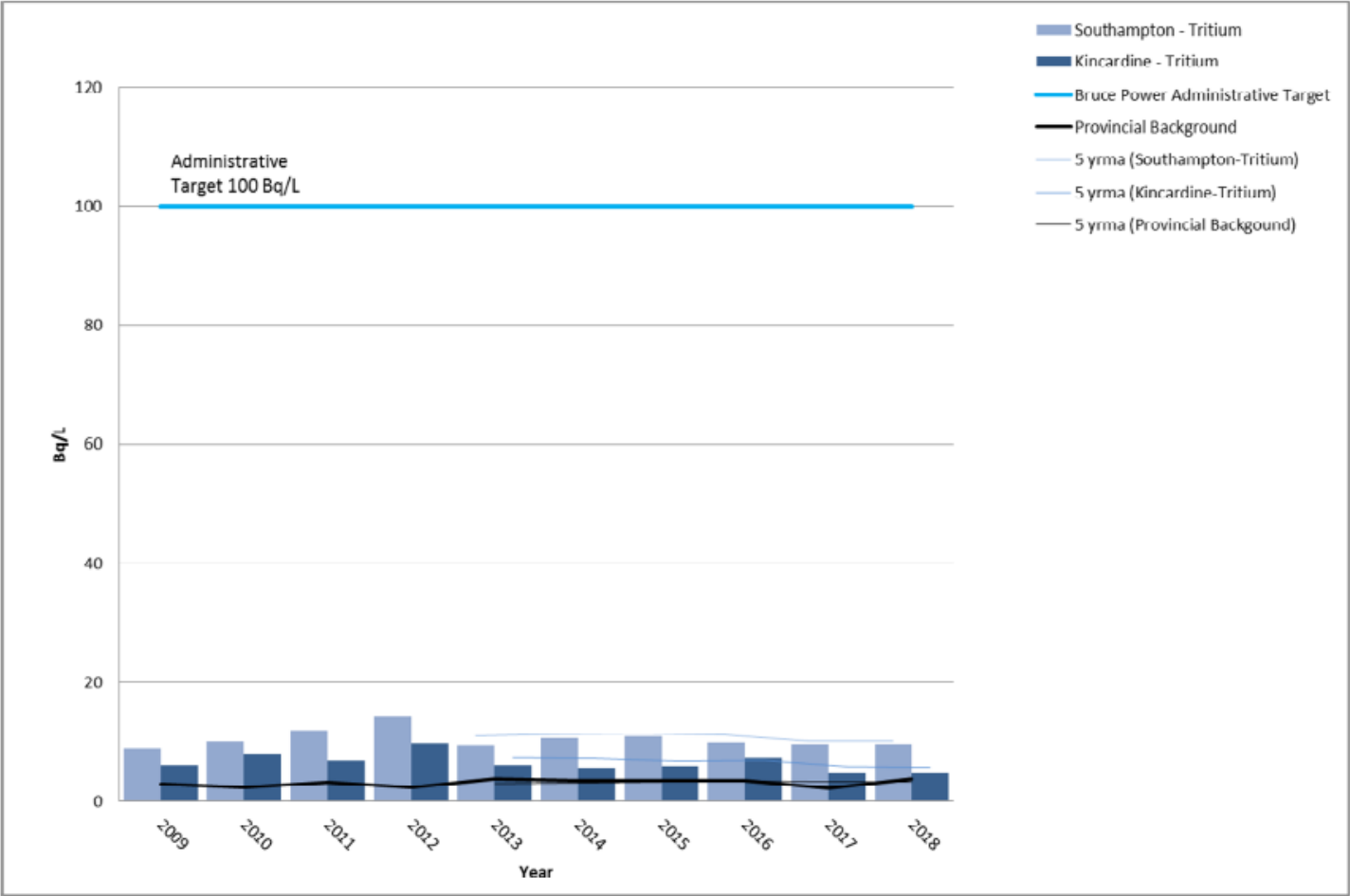


Figure 2: Annual Average Tritium Concentrations (Bq/L) In Municipal Water Supply Plants Near the Bruce Power Site Over Time.

Note: Bruce Power’s commitment is 100 Bq/L at the Municipal Water Supply Plant (monthly and annual) Ontario Drinking Water Standard is 7000 Bq/L at the Municipal Water Supply Plant (annual).

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To: Chair and Members
Lambton Area Water Supply System Joint Board of Management

From: Clinton Harper
General Manager

Subject: Brooke-Alvinston Water Supply System Modifications

Recommendation

"That the LAWSS Joint Board of Management **RECEIVE** this report as information."

Background:

In June 2019, LAWSS staff was approached by a municipal representative of Brooke-Alvinston requesting that LAWSS enter into a conversation with Brooke-Alvinston aimed at allowing them to de-commission their pumping station reservoir. Brooke-Alvinston currently operates a reservoir pumping station and standpipe within the municipal subsystem. At a connection point on Old Walnut, LAWSS supply's potable water to the municipal system. Once through the meter point, potable water from LAWSS first fills a small reservoir at the old site of the Alvinston WTP, from there water is pumped into the standpipe.

Based on an agreed upon scope and criteria, Brooke-Alvinston hired AECOM to determine the impact the modification would have on LAWSS. AECOM concluded that under existing and future demand conditions water serviceability can be achieved without the Alvinston pumping station reservoir. They further advised that to prevent the standpipe from overfilling, a flow/pressure control valve would need to be installed to regulate water levels in the standpipe.

This information was presented to the LAWSS Board on December 5, 2019. The Board asked staff to provide further detail on how the modifications would impact LAWSS. The Board also requested a review of the service agreement between LAWSS and Brooke-Alvinston.

Comments:

What is the affect on LAWSS?

The modifications that Brook-Alvinston are proposing will have no negative affect on LAWSS. Brooke-Alvinston is requesting to remove the 150m³ reservoir from the Alvinston operation. The reservoir holds roughly 10% of the municipality's standpipe

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volume and does not represent a large variable in system operation. The modifications are expected to provide a minor but overall benefit to the Watford Subsystem. The benefit is reduced flow demand due to the Brook-Alvinston standpipe being filled over a much longer duration.

Brooke-Alvinston Standpipe Capacity	1544m ³
Brooke-Alvinston Reservoir Storage Capacity	150m ³
Current Brook-Alvinston Reservoir Fill Rate from Watford Subsystem:	25L/s
Resulting Brook-Alvinston Standpipe fill rate from Watford Subsystem	10L/s

Service Agreement Review Highlights In relation to the proposed modifications:

Attached is the Brooke-Alvinston and LAWSS service agreement. Highlight from the agreement are as follows:

5. All of the terms and conditions of this Agreement notwithstanding, it is expressly agreed and understood by the parties hereto that nothing herein contained creates any obligation, express or implied on LAWSS to supply water hereunder which, as determined by LAWSS, would not be in accordance with good engineering principals or practice, and without limiting the generality of the foregoing, nothing herein contained creates any obligation, express or implied on LAWSS to enlarge, extend, alter or modify their respective waterworks.
7. The initial daily maximum allowance to Brooke-Alvinston shall be 460 m³ / day. Brooke-Alvinston shall monitor and adjust usage to remain within this limit. Should flows exceed 460 m³ / day, Brooke-Alvinston shall immediately institute all reasonable measures to lower flows below 460 m³/ day.
8. LAWSS undertakes to:
 - a. Exercise all due care and diligence in carrying out the terms of this Agreement. As part of the consideration for this Agreement, Brooke-Alvinston agrees to indemnify LAWSS against any action which may be brought against it by reason of the supplying of water or any interruption, lack of continuity, or variation of pressure is a result of negligence on the part of LAWSS, its agents, servants or employees.
 - b. To notify Brooke-Alvinston as soon as possible of any planned interruption, lack of continuity or variation of pressure, and of any emergency situation which may arise and which would affect the obligations of LAWSS under this Agreement.

Under the current agreement LAWSS is obligated to provide water to Brooke-Alvinston up to 460m³/day.

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Consultation:

This report was prepared in consultation with representatives at GMSB, LAWSS-OCWA Operational Staff and OCWA staff with Brooke-Alvinston.

Financial Implications:

There are no financial implications to LAWSS. All costs associated with the modifications are at Brooke-Alvinston's expense.

The rate Brooke-Alvinston pays to LAWSS was reviewed in 2018 and is subject to annual CPI increases. Due to the non-impact of the modification to LAWSS, a review of this rate for possible increase is not being recommended.

This report was prepared by Clinton Harper, LAWSS General Manager

Attachment(s): Service Agreement between to Corporation of the Township of Brooke-Alvinston and Lambton Area Water Supply System.

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To: Chair and Members
Lambton Area Water Supply System Joint Board of Management

From: Clinton Harper
General Manager

Subject: 2020 Emergency Preparedness Scenario at LAWSS.

Recommendation

It is recommended that:

- 1) The LAWSS Joint Board of Management **ENDORSE** the 2020 emergency preparedness scenario as outlined below.
- 2) The LAWSS Joint Board of Management **AUTHORIZE** the LAWSS General Manager's request for Member Municipality participation in the 2020 emergency preparedness scenario.
- 3) That LAWSS Joint Board of Management **AUTHORIZE** AECOM to proceed with hydraulic modeling in the amount of \$6746+taxes to combine Lake Huron Primary Water Supply System (LHPWS) hydraulic water model with LAWSS hydraulic water model to measure LHPWS ability to support LAWSS.
- 4) That LAWSS Joint Board of Management **AUTHORIZE** hydraulic water modeling in relation to the 2020 emergency preparedness scenario, including system wide recommissioning, to an upset limit of \$83,231.11

Background:

At the LAWSS Technical Group Meeting on February 14, 2019 a table top emergency scenario was discussed for 2019. The discussion centered around exploring a "Loss of Service" event that required response and involvement of all the local Community Emergency Management Coordinators (CEMC).

On March 21, 2019 a brief presentation was made to a local group of CEMCs at a meeting called by County of Lambton to introduce the Lambton County's new Community Emergency Management Coordinator and have a general discussion on emergency preparedness. The presentation outlined the following scenario that was based on and expanded on what was originally discussed by the technical group. Due to other commitments made by the various groups the scenario was postponed to 2020.

Proposed Scenario

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- Loss of service resulting in threat to Public health.
- Ongoing source water contamination.
- “Do not use” water advisory issued to area supplied by LAWSS.

Proposed Scenario Timeline

1. Initial Event- Ongoing source water contamination due to marine traffic incident near LAWSS primary and secondary intake.
2. Primary and secondary LAWSS intake closed to protect the WTP and Distribution Network.
3. Water users serviced by LAWSS are asked to conserve. System storage is slowly and eventually depleted. Unable to sustain minimum pressure in distribution network.
4. “Do not use” water advisory issued by Lambton Public Health for the LAWSS at the recommendation of OCWA and the MECP 72 hours after initial event. All Member Municipalities and “preferred customer” Alvinston affected.
5. Establish alternative drinking water and fire protection concurrently with spill containment and cleanup operations.
6. Once source water is restored, re-commissioning of LAWSS will begin. Re-commissioning will be completed concurrently with supply of alternative drinking water and fire protection.
7. Re-commissioning of LAWSS complete.

Comments:

Preliminary meeting between the County CEMC, Lambton Public Health, County Fire, OCWA, and LAWSS in the beginning of 2020 has re-confirmed that the group wished to explore this type of scenario this summer. The scenario has been tentatively scheduled for November 24, 2020. Through the County CEMC, the local CEMCs will be contacted and asked if they would like to participate in the scenario.

In this type of County wide event the responsibility of supplying potable water to the residents of Lambton County would inevitably fall to the CEMCs as LAWSS-OCWA and the LAWSS member municipalities and their operating authorities work to re-commission the distribution/transmission network. Executing the recommissioning of the major LAWSS infrastructure after this type event will take time but is relatively straight forward. Due to the complexity of the member municipalities subsystems recommissioning of these systems is expected to be much more complicated.

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While the group is confident that they can respond to this type of event in an emergency and effectively recommission their respective systems, hydraulic water modeling can be used to develop the best systematic approach for LAWSS and its Members to efficiently recommission the transmission/distribution network safely.

Since LAWSS controls the major infrastructure that feeds the Member systems, and since LAWSS also has a water model that contains the entire transmission/distribution network for both LAWSS and its Members, it is recommended that a project of this type originate at LAWSS. In consultation with the LAWSS Technical Team Members, staff will develop a scope of work and attempt to secure x3 bids.

It is recommended that the following information be sought:

- 1) Plan for systematic recommissioning of the LAWSS and its Municipal Members' subsystems. Among other things, this part will include sequencing and timeline.
- 2) Model neighbour's ability to pressurize the LAWSS and its Municipal Member's subsystems. (Chatham-Kent, Petrolia, Lake Huron Primary Water Supply System)

The Lake Huron Primary Water Supply (LHPWS) and LAWSS share a connection point at what is referred to as the Ravenswood interconnect. The interconnect is regularly operated to allow LAWSS to provide additional water to the LHPWS portion of the Lambton Shores subsystem. OCWA Operational staff are unaware of a situation where the interconnect operated in the reverse direction and provided support to LAWSS. Currently the LHPWS hydraulic water model is also housed with AECOM. A quotation in the amount of \$17,722+taxes total cost was provided by AECOM to make the necessary updates to the LHPWS model, make the two hydraulic water model compatible and to provide a report that details LHPWS ability to support the LAWSS system. Of the quoted amount, LAWSS' portion is \$6,746+taxes. I have confirmed that LHPWS is prepared to issue a PO for the remaining amount if LAWSS wishes to proceed.

Consultation:

This report was prepared in consultation with the LAWSS Technical Team and OCWA Operational Staff. An effort was also made, with the assistance of AECOM and representatives at LHPWS, to provide the cost fir modeling between LAWSS and LHPWS.

Financial Implications:

This type of focused hydraulic water modeling was not included in the 2020 LAWSS budget proposal. A cost estimate to complete this type of modeling would not be expected to exceed \$100,000. In advance of the March meeting of the LAWSS Board,

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staff will attempt to finalize a scope of work with the members, tenders and secure x3 bidders. Please consider the following:

2020 Engineering Studies	Budgeted	Awarded (includes non-refundable portion of H.S.T.)	Difference
Master Plan Update:	\$250,000	\$202,614.34	\$47,385.66
Addendum: Twinning & Grid Reinforcement Class EA:	\$105,000	\$62,408.55 (Pending Approval)	\$42,591.45
LHPWS Study:			-\$6,746
		Total:	\$83,231.11

It is requested that the Board permit staff to proceed with this work if the preferred proposal is quoted less than what remains in the budget between the Master Plan Update and the Twinning & Grid Reinforcement Class EA Addendum minus the work related to the LHPWS modeling. Otherwise, staff would bring the proposals to the Board at the next regular meeting for review.

This report was prepared by Clinton Harper, LAWSS General Manager

Attachment(s): none

Re: 'Nuclear Waste Management Organization' (NWMO)
Presentation to LAWSS on Thursday, December 5, 2019 (held at the
Tourism Board Room, Venetian Blvd)

Thank you for giving us the opportunity to present to your committee and provide follow-up information to your questions.

Ensuring the long-term, safe and secure management of used nuclear fuel is an important responsibility we all share. Today Canada's used nuclear fuel is safely stored on an interim basis at facilities near the reactor sites, but we must plan for the future. Canadians have told us that this generation has an ethical responsibility to find a long-term solution and not leave this burden to future generations.

The Nuclear Waste Management Organization is responsible for the safe, long-term management of Canada's used nuclear fuel, in a manner that protects both people and the environment. Currently the NWMO is leading a site selection process to identify a single, preferred location for a deep geological repository for used nuclear fuel, to be located in an area with informed and willing hosts.

This process is ongoing in two areas, Ignace, in northwestern Ontario and South Bruce in southern Ontario. Next steps include ongoing technical site evaluation work and continued engagement with the municipal and Indigenous communities in the potential siting areas. The NWMO expects to identify a single, preferred location for a deep geological repository by 2023.

For more information please visit our website at www.nwmo.ca and stay up to date on our work by following us on social media @NWMOCanada.

General questions from LAWSS Board members:

Q. Are there many communities actually interested in hosting the spent uranium?

A. In 2010 the NWMO initiated a site selection process with the goal to identify a single site for a deep geological repository in a willing

host community. By 2012 we had 22 communities express interest in learning more about the project and exploring their potential to host it. Since that time we have progressively narrowed our focus to two communities through a series of increasingly intensive technical studies and social engagement activities. We are currently advancing social and technical work in the Municipality of South Bruce in southern Ontario and the Township of Ignace in northwestern Ontario.

Q. Are some communities better positioned than others, geographically?

A. At this stage we have two communities that have a very strong potential to host the project. As we work towards identifying a single preferred site our work will focus on three areas: safety, transportation and partnership.

Q. When will a decision be made on all this?

A. The NWMO expects to be in a position to identify a single preferred site for a deep geological repository in a willing host community in 2023. Shortly after that, we expect to begin the rigorous set of regulatory processes that will need to be completed.

Q. How long will this underground repository have to be in existence?

A. Implementation of this national infrastructure project will take place over the course of approximately 150 years. After such time, future generations will make decisions about monitoring and decommissioning of the repository. The repository is designed to be passively safe after closure, with no need for human intervention and maintenance.

Q. Is spent uranium still radioactive?

A. Canada has been generating electricity from nuclear power for more than half a century. Used nuclear fuel is a by-product of this process. The radionuclides in the used fuel will decay with time. It will take about one million years for the radioactivity level to reach about that of an equivalent amount of natural uranium, which is why used fuel must be contained and isolated from people and the environment – essentially indefinitely.

Q. Because the repository is so deep, once you have filled everything in above ground, will farmers still be able to operate tractors and the like?

A. Yes, the repository is designed to safely contain and isolate the fuel from people and the environment indefinitely.

Q. When you go all over Canada with this presentation, what are you met with - does everyone have the same concerns?

A. We engage with thousands of Canadians every year through a wide range of forums and our goal is to ensure that people are in a place to make an informed decision about the project.

Through this ongoing dialogue we work to be responsive to citizen expectations, priorities and concerns. The feedback we get shapes the development of our policies, plans and activities.

Every year we publish a *What We Heard* report that summarizes what we are hearing from our ongoing dialogue and engagement activities. You can find the latest *What We Heard* report [here](#) or under the [report section](#) of our website.

Dialogue has been critical in implementing Canada's plan and is designed to encourage people to interact and reflect upon the views of others as they work together to reconcile those views with deeper values that underpin the choices facing us in decision-making.

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To: Chair and Members
Lambton Area Water Supply System Joint Board of Management

From: Clinton Harper
General Manager

Subject: LAWSS Compliance Coordinator (new FTE at LAWSS)

Recommendation

"That the LAWSS Joint Board of Management **APPROVE** hiring a new employee at LAWSS within "Band 6" of the City of Sarnia's non-unionized rate scale."

Background:

The 2020 Budget proposal contained provision to hire a full time Compliance Coordinator at LAWSS. A Compliance Coordinator will assist the LAWSS General Manager in review, monitor and audit of the operation of the Lambton Area Water Supply System for compliance with regulatory and legal requirements, water quality control and assurance, compliance of the contract operator with the Service Agreement, and compliance with the system's Environmental Management System and ISO14001 standard. The Compliance Coordinator will also assist and coordinate preparing reports and public information on the performance of the Lambton Area Water Supply System.

Summary of Duties:

- Monitor and conduct reviews of the operation of the Lambton Area Water Supply System water treatment and transmission systems for compliance and conformance to best management practices, policy/procedure, contractual operational requirements, regulatory and legal requirements, develop Environmental Management Systems, and water quality management systems.
- Coordinate and conduct periodic (internal) audits of the Lambton Area Water Supply System for compliance and conformance to best management practices, policy/procedure, contractual operational requirements, regulatory and legal requirements, Environmental Management Systems (ISO14001), and water quality management systems.
- Participate or assist in the development and implementation of Environmental Management System programs and other management system programs.

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- Prepares reports and supporting documentation for water supply Joint Boards of Management and recommendations to General Manager for approval.
- Schedule, arrange, attend and chair meetings with members of LAWSS technical leads, contractors, individuals, utilities, and other external agencies and authorities to plan, coordinate and discuss projects, including public meetings and forums.
- Investigate complaints and inquiries and provide information and/or make recommendations on resolving problems.
- On-site investigation, providing technical expertise and resolution of water quality, operational and regulatory issues.
- Carry out field liaison with contractors, stakeholders, businesses and other non-member and member municipalities as a Lambton Area Water Supply System representative.
- Prepare "Requests for Proposals" for Consulting Engineers and professional consultants/contractors. Review and recommend submitted proposals for approval.
- Prepare in-house contract documents and provides resident site inspection as "City" Inspector.
- Administer capital works projects. Monitor the project for compliance with policy/procedure, and Safety Act and Regulations and take action appropriate to correct contraventions. Audit for conformance to policies and procedures.
- Review, assess for compliance and recommend acceptance of various technical studies, computer analyses, designs, drawings, applications and proposals submitted by consultants, contractors and others for approval by General Manager.
- Maintain and manage the LAWSS Geographical Information System.
- Assist in the creation, maintenance, modifications and dissemination of public information through the water supply website, media release, brochures, and documentation.

Qualifications, Experience and necessary Skills/Abilities:

- Three-year Community College Environmental Technology Diploma, or equivalent education and directly related work experience.
- Four years related experience
- Valid Driver's Licence - Class G
- Demonstrated proficiency in word processing, spreadsheets, databases, and various software.
- Working knowledge of Management Systems and Standards.
- Working knowledge of the Ontario Health and Safety Regulations for construction and inspection projects, and industrial establishments.

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- Working knowledge of provincial and federal water and related environmental regulations and standards Working knowledge of the Ontario Safe Drinking Water Act and regulations.

Financial Implications:

The approved 2020 Budget proposal contained provision to hire an additional full-time employee at LAWSS. The position is proposed to be within "Brand 6" of the City of Sarnia's non-unionized rate scale. Range is approx. \$71,000 - \$89,000 annual salary.

This report was prepared by Clinton Harper, LAWSS General Manager

Attachment(s):

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To: Chair and Members
Lambton Area Water Supply System Joint Board of Management

From: Clinton Harper
General Manager

Subject: Treatment Investigations at LAWSS Water Treatment Plant

Recommendation

"That the LAWSS Joint Board of Management **HIRE** Jacobs to complete the Municipal Impact Study with an upset limit of \$113,000 as per section 6 of the Negotiate Method of the LAWSS Procurement Policy".

Background:

Late in 2018, the City of Sarnia began a 3-year interim data collection period focused on verification sampling. The sampling was outlined in their Lead Reduction Plan (LRP) prepared by Jacob's and accepted by the Ministry of Environment Conservation and Parks (MECP).

In addition to the verification sampling, the City's LRP included treatment investigations at the LAWSS water treatment plant (WTP). The intent of the treatment investigations were to ensure the LAWSS WTP was prepared for corrosion control if the City's interim sampling indicates that LSL removal cannot be achieved in a reasonable timeframe.

In December 2019, the City of Sarnia Engineering Department reported to City of Sarnia Council the results for the first year of sampling. Attached is the report received by City of Sarnia Council. In summary, the sampling results indicate that full removal of all lead service lines is expected to be achievable in a reasonable timeframe within the City. The number of lead service lines identified in the first-year sampling was in fact so far below the 50% assumption used in LRP development that it was suggested that the treatment investigations proposed at LAWSS WTP be postponed by 1 year.

Comments:

In January 2020, LAWSS contacted the MECP and requested a meeting to discuss how the MECP would receive a recommendation to postpone treatment investigations by 1 year. A teleconference meeting between all groups was held on January 29th. At this

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meeting, the MECP requested that an effort be made by LAWSS to determine how previous lead testing had been completed in the other municipalities serviced by LAWSS. With OCWA's assistance, this information was provided back to the MECP on February 11, 2020. The additional information that was provided by OCWA further reinforced the original request to allow for a 1-year delay to treatment investigations.

On February 18, 2020 a response was received for the MECP was not in favor of the postponement beyond 2020.

It is recommended that Jacobs is awarded this project under Section 6 of the Negotiated Method as outlines in the LAWSS Procurement Policy. Due to the work already completed in the City of Sarnia, an extension of the existing contract, to the member municipalities, would be the most cost-effective method and is in the best interest of the LAWSS Board.

Scope of Work for the Municipal Impact Study:

Task 1: Project Management and Meetings

Effort associated with managing the project, including meetings.

- Project initiation and team chartering
- Ongoing project management and coordination
- Project kick-off meeting (1 in-person)
- Teleconference progress meetings (6)

Task 2: Background Information Review

Review for five municipalities, similar to what was done for the Sarnia LRP, with some effort for an update of Sarnia's information (e.g., lead results and service line estimates).

- Develop water quality sampling plan (assumed 10 residential lead samples per municipality) + coordination w/ OCWA
- Develop and issue municipality survey (online questionnaire)
- Collect and review background data and information
- Conduct teleconference interview with each municipality
- Summarize results and develop summary document for each municipality

Task 3: Evaluation and Reporting

Assessment of results from information review task to identify potential impacts from corrosion control alternatives, with recommendation on feasible options and associated implementation needs.

- Identify potential impacts on member municipalities from corrosion control treatment alternatives implemented at the LAWSS WTP (e.g., water quality impacts, lead reductions/increases, increased flushing; wastewater treatment upgrades)

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- Evaluate feasibility of corrosion control alternatives based on findings
- Draft summary report
- Final summary report
- In-person meeting to present results

Consultation:

This report was prepared in consultation with OCWA Operational Staff, The City of Sarnia and the MECP.

Financial Implications:

It is recommended that Jacobs is awarded this project under Section 6 of the negotiated method as outlines in the LAWSS Procurement Policy. Due to the work already completed in the City of Sarnia, an extension of the existing contract, to the member municipalities, would be the most cost-effective method and is in the best interest of the LAWSS Board. There is budget of \$113,000 for this initial treatment investigations related to the City of Sarnia's LRP in 2020.

This report was prepared by Clinton Harper, LAWSS General Manager

Attachment(s): City of Sarnia Council Report Subject: "Lead Reduction Plan Update", dated December 9, 2019.

THE CORPORATION OF THE CITY OF SARNIA
People Serving People

ENGINEERING DEPARTMENT

OPEN SESSION REPORT

TO: Mayor and Members of Council

FROM: David Jackson, Director of Engineering

DATE: December 9, 2019

SUBJECT: Lead Reduction Plan Update

Recommendation:

For Council's Information

Background:

The Ministry of the Environment, Conservation and Parks requires lead sampling for all drinking water systems in the province. Sampling of the Lambton Area Water Supply System and the City's water distribution system have never identified any exceedances of the maximum allowable concentration but samples at individual private properties in certain areas of the City have. The exceedances at the private properties is due to lead service lines that connect the private property to the watermain distribution system. Lead service lines were commonly used until the mid 1950's.

In 2016, the Ministry of the Environment, Conservation and Parks notified the City that we would be required to develop a proactive Lead Reduction Plan. The plan must either identify a plan to remove lead service lines within a 15 year time period or, if that cannot be achieved, must consider implementation of a corrosion control plan, which involves altering the water chemistry to support the development of a protective scale layer build up on the inside of the pipes to act as a barrier between the lead pipe and the water.

In 2018, the City retained Jacobs Engineering Group (formerly CH2M Hill) to complete a [lead reduction plan](#) for the City that was presented to Council at the May 28, 2018 Council meeting. Based on the date of watermain construction there was an initial estimate that there could be as many as 8,643 private side lead services (property line to home) and 4,483 public side lead services (watermain to property line). The plan proposed

conducting a three year verification period to sample each home within the lead zone to determine exactly how many potential lead services exist. It was anticipated that the actual number of lead service lines is less than estimated, and if so, a plan to remove them within the set time period could be confirmed and avoid the implementation of a corrosion control plan

Comments:

This report is intended to provide Council an update on progress to date for the six components of the Lead Service Line (LSL) Replacement Program:

1. LSL Verification Program

A primary Lead Zone was developed by examining the age of water-mains within the City. Since the use of lead as a service line material was discontinued in the mid 1950's, water-mains installed after this would have non-lead services. For safety, a cutoff of 1960 was utilized with approximately 8700 locations identified. Since sampling is offered to all homeowners within the City, this area may be expanded as results require. In 2019 the public response to the sampling program exceeded expectations. Over 2000 homes were sampled as opposed to the original 1200 home goal. It is hoped that increased awareness and education will maintain a similar level of public support for the 2020 sampling season. The in-home sampling identified potential sites for LSL's, but in many locations no documentation exists to positively identify the service line material on the public or private portion. To complete further verification, staff will work with local contractors to excavate the services in an effort to determine the location of a lead service (public/private side).

After concluding the 2019 sampling season, approximately 2% (40 properties), of the 2000 samples completed, registered above the Ontario drinking water quality standard. This is significantly less than the 50% originally estimated in the lead reduction plan completed by JACOBS in 2018. These samples are well distributed across the Lead Zone with an average of 25% of the locations sampled in each block. Increased homeowner participation in 2020 will allow for further pinpointing of areas dense in LSL's which will decrease the overall budget requirement. City staff will also be communicating our results with the MECP in an effort to review the Lead Reduction Plan.

2. LSL Replacement Program

Due to a lack of actionable information on the location of public LSL's pre-sampling in 2019, the LSL Replacement Program was suspended until 2020. This allows for targeted replacement to occur in areas with the highest concentration of public LSL's in 2020. Collaboration with capital projects to replace known public LSL's efficiently will be discussed. Public LSL's

continued to be replaced through capital projects in 2019 as they were discovered.

In addition, the program will include targeted replacements arising from homeowner requests to replace private LSL's at the same time as the public portion.

3. Treatment and Distribution System Maintenance

Modifying the chemistry of the water to mitigate lead would have an impact on the other municipalities who receive water from the Lambton Area Water Supply System (LAWSS). Studies of LAWSS member's impact of implementing a chemical corrosion control plan will begin in future years based on the outcome of the LSL Verification Program. In 2019, meetings were held with LAWSS to discuss a pipe loop study potentially commencing in 2020. The pipe loop study involves taking service lines that are being replaced and examining the effects that different water chemistries will have on the distribution system. No funds have been budgeted at this time. Staff will review with the MECP if this portion of the plan could be deferred due to the testing to date having identified a considerably lower number of suspected lead service lines.

4. Homeowner Support Program

Due to the suspension of the LSL Replacement portion of the program, the private LSL loan support is also suspended until 2020. This will allow for the entire portion of the LSL to be replaced at once if the homeowner desires to replace the private portion. Due to significantly less LSL's being discovered through sampling than expected, Engineering is reviewing the interest free loan to encourage more homeowners to replace the private portion of their LSL.

A Filter Rebate Program was implemented in 2019. To qualify, homeowners must have a confirmed LSL and/or participate in the sampling program with results returning over the Ontario drinking water quality standard for lead. Filter rebates are also being offered to homeowners who have received a partial or full LSL replacement to counteract the effects of possible post replacement lead level spikes. With the reduced number of properties with lead services, the requirement for filters was far below original projections.

5. Public Outreach Program

In 2019 many different avenues were pursued for the Public Outreach Program. All homeowners of properties with a suspected LSL were contacted through an informational notice in the mail. City social media accounts provided updates and reminders throughout the sampling season. Information and frequently asked questions are on the [City website](#). An ad

on the back of a City bus also ran, informing homeowners of how to contact the Lead Reduction Office. The lead reduction team attended the 2019 home-show to educate and set up sampling appointments. Lawn signs were printed and placed at various locations in the Primary Lead Zone with homeowner's consent. Lastly, Lambton Public Health was notified for all exceedances to ensure that homeowners are receiving an informed education on the health risks associated with lead consumption. In 2020 the Public Outreach will include mail-outs, door hangers and other options for public outreach will be reviewed.

6. Monitoring for Effectiveness

Monitoring is a key component of the lead reduction approach that will allow the City to assess the strategy's success in reducing lead levels at the tap. Engineering will provide sampling post LSL replacement to ensure reduction of exposure 6-months after the LSL replacement. The proposed budget for post replacement monitoring is built into the 2020 sampling budget.

Financial Implications:

There are no additional financial requirements within this report.

Reviewed by:

A handwritten signature in blue ink, appearing to read "David Jackson".

David Jackson
Director of Engineering

Approved by:

A handwritten signature in black ink, appearing to read "Chris Carter".

Chris Carter
Chief Administrative Officer

This report was prepared by Zac Ives, Lead Reduction Administrator.

Attachment(s): None

Lambton Area Water Supply System

BY-LAW Number 1 of 2020

Being a By-Law to confirm the proceedings of the Lambton Area Water Supply System

WHEREAS pursuant to the terms of Municipal Water and Sewage Transfer Act. 1997, as amended, and pursuant to the terms of the Minister's Transfer Order which outlined the provisions governing the Lambton Area Water Supply System (LAWSS) the powers of LAWSS shall be executed by its Joint Board of Management; and

WHEREAS pursuant to Part V of the Municipal Act, 2001, S.O. 2001, c.25 as amended, a municipal services board including a joint municipal services board shall be governed by the terms outlined by the member municipalities and the municipal services board's originating documents; and

WHEREAS the Lambton Area Water Supply System is joint municipal services board as defined in the Municipal Act, 2001 c.25 as amended; and

WHEREAS it is deemed expedient that a By-law be passed to authorize the execution of agreements and other documents and that the Proceedings of the Joint Board of Management of the Lambton Area Water Supply System at its meetings be confirmed and adopted by By-law; and

NOW THEREFORE the Joint Board of Management (Joint Board) of LAWSS enacts as follows:

1. **THAT** all actions of Joint Board in respect of all recommendations in reports and minutes of committees, all motions and resolutions and all actions passed and taken by the Joint Board, documents and transactions entered into during the calendar year of 2019 meetings of the Joint Board are hereby adopted and confirmed, as if the same were expressly contained in this By-law;
2. **THAT** the Chair and the General Manager of the Joint Board are hereby authorized and directed to do all things necessary to give effect to the actions of Joint Board during the said meetings referred to in Section 1 of this By-law;
3. **THAT** the Chair and the General Manager are hereby authorized and directed to execute all documents necessary to the actions taken by this Joint Board as described in Section 1.

By-Law read a first, second and third time and finally passed this 27th day of February, 2020.

Clinton Harper
LAWSS General Manager

Beverly Hand
Chair of Joint Board

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To:	Chair and Members Lambton Area Water Supply System Joint Board of Management
From:	Clinton Harper General Manager
Subject:	By-Law Number 2-2020 to regulate the proceedings of the Lambton Area Water Supply System Joint Board of Management

Recommendation

That the LAWSS Joint Board of Management **REPEAL** By-Law Number 2-2016 and **REPLACE** with By-Law Number 2-2020 to regulate the proceedings of the Lambton Area Water Supply System Joint Board of Management.

Background:

For housekeeping purposes, from time to time it is necessary to update key By-Laws that regulate LAWSS administration and governance. By-Law 2-2020 is designed to replace the existing Procedural Bylaw.

In this report each change has been listed. The changes include the original staff recommendations, and the additional comments received at the LAWSS Board Meeting on October 31, 2019. An email to the group on November 6, 2019 requesting feedback by December 5, 2019 did not yield any comments.

Comments:

Original Staff recommendations:

Section: 2
Repeal:
The regular meetings shall be held the last Thursday of each month at the LAWSS Water Treatment Plant at the hour of 10:00 a.m. standard time and daylight saving time when applicable or at the call of the Chair.
Replace with:
The regular meetings shall be held the last Thursday of each month at the Tourism Sarnia-Lambton Assembly Room, 1455 Venetian Blvd. Point Edward, ON N7T 7W77 at the hour of 12:00 p.m. standard time and daylight-saving time when applicable or at the call of the Chair.

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Reason: Motion of the LAWSS Board affecting venue and time.

Section: 7
Repeal:
The prepared Agenda shall include: 1. Declaration of pecuniary interest. 2. Adoption of Minutes of the previous meeting. 3. Delegations. 4. Business updates. 5. Financial reports. 6. Operational/capital update. 7. Reports of Committees. 8. Miscellaneous Reports. 9. Ongoing issues. 10. Correspondence. 11. New Business. 12. By-laws. 13. In Camera Items.
Replace with:
The prepared Agenda shall include: 1. Call to Order 1.1 Disclosure of Pecuniary Interest 1.2 Delegations 2. Adoption of Minutes 3. Consent Items 4. Items for Discussion 5. Deferred Matters/Additional Business 6. Upcoming Meeting Dates 7. Adjournment
Reason: This change will separate most items going to the board into two basic streams in an effort to simplify how items are presented. An example of an item presented to the Board for consent is The Monthly Operational Reports. Reports and documents the Board are accustomed to seeing monthly, and accepting as information, will be placed at the beginning of the Agenda as separate items. Items are brought to the Board for discussion when direction on a specific matter is needed by the LAWSS General Manager. An example of an item brought to the Board

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for discussion when it is necessary to awarding a contract to a specific contractor or approving a specific By-Law. This change does not affect the General Manager's reporting requirements.

Section 40:

Added new Section:

This By-Laws repeals the By-Law number 2-2016 and all amendments thereto. This By-Laws supersedes and corresponding By-Law of LAWSS, through inadvertence, might not have been repealed.

Reason: missing Section

Section 41:

Added new Section:

The short title for this By-Law is the "LAWSS Procedural By-Law".

Reason: missing Section

Changes discussed on October 31, 2019 at the meeting of the LAWSS Board:

Section: 8, Subsection j.

Repeal:

To authenticate, by his signature, when necessary, all by-laws, resolutions, minutes of Board;

Replace with:

To authenticate, by their signature, when necessary, all by-laws, resolutions, minutes of Board;

Reason: updated to gender neutral statement.

Section: 8, Subsection l.

Repeal:

To select the members who are to serve on committees;

Replace with:

To call for nominations between members who are to serve on committees;

Reason:

Section: 8, Subsection p.

Repeal:

To adjourn the meeting without question in the case of grave disorder arising in the Board Chamber.

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Replace with:
To adjourn the meeting without question in the case of grave disorder arising in the meeting room.
Reason: more accurately stated venue.

Additional changes recommended by staff after further review.

Section: 24, Subsection a.
Repeal:
Immediately preceding the taking of the vote thereon, the Chair may state a question in the form introduced and shall do so if required by a member except when a motion for the previous question has been resolved in the affirmative he shall state the question in the precise form in which it was recorded in the minutes.
Replace with:
Immediately preceding the taking of the vote thereon, the Chair may state a question in the form introduced and shall do so if required by a member except when a motion for the previous question has been resolved in the affirmative they shall state the question in the precise form in which it was recorded in the minutes.
Reason: updated to gender neutral statement.

Consultation:

The City of Sarnia and Township of Warwick staff were consulted on the mechanics of this change.

Financial Implications:

none

This report was prepared by Clinton Harper, LAWSS General Manager

Attachment(s): By-Law 2-2019 Procedural By-Law

Lambton Area Water Supply System

By-Law Number 2-2019

To regulate the proceedings of Lambton Area Water Supply System Joint Board of Management

The Board of the Lambton Area Water Supply System enact as follows:

General

1. In all proceedings at or taken in this Board, the following rules and regulations shall be observed and shall be the rules and regulations for the order and dispatch of business in the Board, and in the committees thereof, and all rules existing and inconsistent with this by-law (not including the governance agreement contained in the July 3, 2003 transfer order - #W1-R/2003) at the time of passing thereof are hereby repealed.

Convening Meetings of Board

2. The regular meetings shall be held the last Thursday of each month at the Tourism Sarnia-Lambton Assembly Room, 1455 Venetian Blvd. Point Edward, ON N7T 7W77 at the hour of 12:00 p.m. standard time and daylight-saving time when applicable or at the call of the Chair.
3. Except as otherwise provided by the Municipal Act or other statutes, Board may, by resolution, dispense with, alter the time, day or place of any meeting.

Notice of Meeting

4.
 - a. The LAWSS General Manager shall give notice of each regular and special meeting of Board and of each Committee to the members of the Board.
 - b. The Notice shall be accompanied by the Agenda and any matter, so far as known, to be brought before such a meeting.
5.
 - a. The Board Chair may, at any time, summon a special meeting.
 - b. The Board Chair shall summon a special meeting upon receipt of the petition of the majority of the Board members, for the purpose and at the time mentioned in the petition.
 - c. In either case, notice must be given to all members of Board by the General Manager, in writing, but if time does not allow, it may be by telephone but confirmed in writing.

It Shall be the Duty of the Manager

6. To prepare the Agenda of Board and Committees.
 - a. The Manager shall accept items for the Agenda from the members of Board.
 - b. The Manager may also receive petitions and communication from the public and if in his/her opinion shall place the petition or communication on the Agenda of the Board.
 - c. Copies of all correspondence and petitions or a short statement of its contents, as well as any required report, must be attached to all Board and Committee agendas or noted thereon and forwarded to all members of Board.
 - d. All items for the agendas shall be delivered in writing to the Manager not less than the Thursday prior to Board and Committee meetings.

The Manager Shall have prepared for the use of the members at regular meetings the "Order of the Day" as follows

7. The prepared Agenda shall include:
 1. Call to Order
 - 1.1 Disclosure of Pecuniary Interest
 - 1.2 Delegations
 2. Adoptions of Minutes
 3. Consent Items
 4. Items for Discussion
 5. Deferred Matters/Additional Business
 6. Upcoming Meeting Dates
 7. Adjournment

The Conduct of Proceedings at a Meeting of the Board

8. It shall be the duty of the Chair:
 - a. To open the meeting of Board by taking the chair and calling the members to Order;
 - b. To announce the business before the Board in the order of which it is to be acted upon;
 - c. To receive and submit, in the proper manner, all motions presented by the members of Board;

- d. To put to vote all questions, which are regularly moved and seconded, or necessarily arise in the course of the proceedings, and to announce the result;
- e. To decline to put to vote motions which infringe the rules of procedure;
- f. To restrain the members, when engaged in debate, within the rules of order;
- g. To enforce on all occasions the observance of order and decorum among the members,
- h. To call by name any member persisting in breach of the rules of order of the Board, thereby ordering him/her to vacate the Board Chamber;
- i. To receive all messages and other communications and announce them to the Board;
- j. To authenticate, by his signature, when necessary, all by-laws, resolutions, minutes of Board;
- k. To inform the Board, when necessary or when referred to for the purpose, in a point of order or usage;
- l. To call for nominations between members for who are to serve on committees;
- m. To represent and support the Board, declaring its will, and implicitly obeying its decisions in all things;
- n. To ensure that the decisions of Board are in conformity with the laws and by-laws governing the activities of the Board;
- o. To adjourn the meeting when the business is concluded;
- p. To adjourn the meeting without question in the case of grave disorder arising in the meeting room.

Decorum

- 9. No member of Board shall:
 - a. Disturb another, or the Board itself, by any disorderly deportment disconcerting to any member speaking;
 - b. Resist the rules of Board or disobey the decisions of the Chair or of the Board on questions or order or practice or upon the interpretations of the rules of order of the Board;

- c. Be permitted to retake his seat at any meeting after being ordered by the Chair to vacate after committing a breach of any rule of order of the Board, without making apology and the consent of Board expressed by a majority vote of the other members present, determined without debate.

Rules of Debate

- 10. In directing the course of debate, the Chair shall:
 - a. Designate the member who has the floor when two or more members rise to speak;
 - b. Preserve order and decide questions or order;
 - c. Read all motions presented in writing and state all motions presented verbally before permitting debate on the question, except when otherwise provided in this by-law.

Members

- 11. In addressing the Board no member shall:
 - a. Speak disrespectfully of Her Majesty the Queen or any of the Royal Family, or of the Governor-General, Lieutenant Governor or any member of the Senate, the House of Commons of Canada or the Legislative Assembly of Ontario;
 - b. Use indecent, offensive, libelous or insulting language in or against the Board, its members or any person or group, staff, or delegation;
 - c. Interrupt the member who has the floor except to raise a point or order.
- 12.
 - a. Any member may require the question or motion under discussion to be read at any time during the debate, but not so as to interrupt a member while speaking.
 - b. Any member may appeal the decision of the Chair on a point of order to the Board which shall decide the question without debate upon a majority vote of the members present.

Motions

- 13. Introduction Without Notice.
 - a. A motion may be introduced without notice in which case it shall be set out in full in the minutes of the meeting of Board at which it is considered.

14. Must Be Seconded.
 - a. A motion must be formally seconded before the Chair can put the question or be recorded in the minutes.
15. Withdrawal.
 - a. After a motion is read or has been stated by the Chair, it shall be deemed to be in the possession of the Board and can be withdrawn before decision or amendment only with leave of the Board and expressed by resolution.
16. Priority of Disposition.
 - a. A motion properly before Board for decision must receive disposition before any other motion can be received except a motion to amend, for the previous question, to adjourn, to extend the hour of closing proceedings, to commit or on a matter of privilege.
17. To Amend.

A notice to amend:

 - a. Only one motion to amend an amendment to the question shall be allowed and any further amendment must be to the main question;
 - b. shall be relevant to the question to be received;
 - c. Shall not be received proposing a direct negative to the question;
 - d. Two separate distinct proposals of a question may be made;
 - e. Shall be put in the reverse order to that in which it is moved.
18. To Adjourn.

A notice to Adjourn:

 - a. The meeting shall always be in order except as provided in this paragraph and shall be put immediately without debate;
 - b. When resolved in the negative, cannot be made again until after some intermediate proceeding shall have been completed by the Board;
 - c. Is not in order when a member is speaking, nor during the verification of a vote;

- d. Cannot be amended.
- 19. Repetition.
 - a. A motion called in the order in which it stands upon the Agenda of the routine of business of a meeting and which is not decided by Board, shall be allowed to stand retaining their precedence upon the agenda of the routine of business of the next ordinary meeting of Board
- 20. Reconsideration.
 - a. A motion for reconsideration of a question which has been decided upon but not acted upon may be made at any time by a member who voted thereon with the majority and until decided by Board no further discussion of the question shall be allowed, but no such motion for the previous question or postponement.
- 21. To Commit.
 - a. A motion to commit or recommit a question to a committee or committees with or without instructions may be amended but must receive disposition by Board before the question or an amendment to the question, and when made prior thereto, before decision on a motion for the previous question or postponement.
- 22. Verbal
 - a. Incidental motions in respect of a matter of special privilege, suspension of rules of procedure, adjournment, postponement, for the previous question, or commitment may be made verbally.
- 23. Divided Motions
 - a. A motion containing distinct proposals may be divided with leave of Board

Voting on Motions

- 24. Question Stated
 - a. Immediately preceding the taking of the vote thereon, the Chair may state a question in the form introduced and shall do so if required by a member except when a motion for the previous question has been resolved in the affirmative the Chair shall state the question in the precise form in which it was recorded in the minutes.

25. No Interruption After Question Stated
 - a. After a question is finally put by the Chair no member shall speak to the question nor shall any other motion be made until after the vote is taken and the result has been declared.
26. Division of Question
 - a. A separate vote shall be taken upon each proposal contained in a question divided with leave of Board.
27. Vote of Chair
 - a. When the Chair determines to vote on a question, his vote shall be spoken, signified, polled and recorded after the votes of each member voting.
28. Abstention Recorded Negative
 - a. If any member of Board does not vote when a question is put and a recorded vote taken, he shall be deemed as voting in the negative except where the member is prohibited from voting from statute.
29. Vote May Not Be Allowed
 - a. A member not present before the result of a division on a question is declared may not be entitled to vote on that question as determined by the Chair.
30. Unrecorded Vote
 - a. The manner of determining the decision of Board on a motion shall be at the discretion of the Chair and may be by voice, show of hands, standing or otherwise.
31. Recorded Vote
 - a. Upon the request of the Chair or member and before a vote is taken on a motion, the Recording Secretary shall record, in the minutes, the names of each Board member present and each member's vote in the affirmative or negative to the motion.
32. Member Social Media Etiquette

- a. During a meeting information shall not be posted to any Social Media outlet and videotaping of the meeting is prohibited unless approved by the LAWSS Board.
- 33. Order of Business
 - a. The Manager shall have prepared a list of the items in order of the topics set out as the routine of business for the use of each member at an ordinary meeting.
- 34. Minutes

The minutes shall record:

 - a. The place, date and time of meeting;
 - b. The names of the Chair and of the members present;
 - c. The reading, presentation, correction and adoption of the minutes of prior meetings.
- 35. Deputation
 - a. Persons desiring to verbally present information on matters of fact or make a request of Board may be heard on leave of Board but shall be limited in speaking not more than ten minutes except that a deputation consisting of more than five person shall be limited to two speakers each limited to speaking not more than ten minutes. All speakers should submit their presentation in writing to the Manager not less than the Thursday prior to the Board meetings.
- 36. Committee Reports
 - a. Shall be received upon leave of Board;
 - b. May be recommitted to the same or a different Committee.
- 37. Unfinished Business
 - a. The items listed in the order of the topics set out as the routine of business of prior meetings which have not been disposed of by Board and the date of their first appearance on the Order of Business shall be noted, and repeated on each subsequent Order of Business until disposed of by Board unless removed for the Order of Business by leave of Board.
- 38. In Camera Board Meetings

In accordance with the Municipal Act, a meeting or part of a meeting may be closed to the public only if the subject matter is as follows:

- a. The security of property.
- b. Personal matters about an identifiable individual.
- c. Acquisition or sale of property for municipal purposes.
- d. Labour relations or employee negotiations.
- e. Litigation or potential litigation.
- f. The receiving of advice subject to solicitor-client privilege.
- g. A matter authorized to be closed by another Act.
- h. A matter subject to the Municipal Freedom of Information and Right to Privacy Act.

Before holding an in camera meeting the Board shall state the following by resolution:

- a. the fact of the holding of the in-camera meeting
- b. the general nature of the matter to be considered at the closed

The only exceptions to the above would be as in the Municipal Act.

39. Points Not Provided For

- a. All points of order or procedure not provided for in these rules shall be decided in accordance with Robert's Rules of Order.

40. This By-Laws repeals the By-Law number 2-2016 and all amendments thereto. This By-Laws supersedes and corresponding By-Law of LAWSS, through inadvertence, might not have been repealed.

41. The short title for this By-Law is the "LAWSS Procedural By-Law"

Read a first, second and third time and finally passed this _____ day of _____, 2020.

Mayor Bev Hand, Chair

Mayor Steve Arnold, Vice-Chair

Lambton Area Water Supply System

BY-LAW NO.2 - 2016

To regulate the proceedings of Lambton Area Water Supply System Joint Board of Management

The Board of the Lambton Area Water Supply System ENACTS AS FOLLOWS:

GENERAL

1. In all proceedings at or taken in this Board, the following rules and regulations shall be observed and shall be the rules and regulations for the order and dispatch of business in the Board, and in the committees thereof, and all rules existing and inconsistent with this by-law (not including the governance agreement contained in the July 3, 2003 transfer order - #W1-R/2003) at the time of passing thereof are hereby repealed.

CONVENING MEETINGS OF BOARD

2. The regular meetings shall be held the last Thursday of each month at the LAWSS Water Treatment Plant at the hour of 10:00 a.m. standard time and daylight saving time when applicable or at the call of the Chair.
3. Except as otherwise provided by the *Municipal Act* or other statutes, Board may, by resolution, dispense with, alter the time, day or place of any meeting.

NOTICE OF MEETING

4. a. The LAWSS Manager shall give notice of each regular and special meeting of Board and of each Committee to the members of the Board.

b. The Notice shall be accompanied by the Agenda and any matter, so far as known, to be brought before such a meeting.
5. a. The Board Chair may, at any time, summon a special meeting.

b. The Board Chair shall summon a special meeting upon receipt of the petition of the majority of the Board members, for the purpose and at the time mentioned in the petition.

c. In either case, notice must be given to all members of Board by the Manager, in writing, but if time does not allow, it may be by telephone but must be

confirmed in writing.

IT SHALL BE THE DUTY OF THE MANAGER

6. To prepare the Agenda of Board and Committees.
 - a. The Manager shall accept items for the Agenda from the members of Board.
 - b. The Manager may also receive petitions and communication from the public and if in his/her opinion shall place the petition or communication on the Agenda of the Board.
 - c. Copies of all correspondence and petitions or a short statement of its contents, as well as any required report, must be attached to all Board and Committee agendas or noted thereon and forwarded to all members of Board.
 - d. All items for the agendas shall be delivered in writing to the Manager not less than the Thursday prior to Board and Committee meetings.

THE MANAGER SHALL HAVE PREPARED FOR THE USE OF THE MEMBERS AT REGULAR MEETINGS THE "ORDERS OF THE DAY" AS FOLLOWS

7. The prepared Agenda shall include:
 - a. Declaration of pecuniary interest.
 - b. Adoption of Minutes of the previous meeting.
 - c. Delegations.
 - d. Business updates.
 - e. Financial reports.
 - f. Operational/capital update.
 - g. Reports of Committees.
 - h. Miscellaneous Reports.
 - i. Ongoing issues.
 - j. Correspondence.
 - k. New Business.
 - l. By-laws.
 - m. In Camera Items.

And all business shall be taken upon the order of routines in which it stands unless otherwise decided by the Board.

THE CONDUCT OF PROCEEDINGS AT A MEETING OF BOARD

8. It shall be the duty of the Chair:
 - a. To open the meeting of Board by taking the chair and calling the members to Order;

- b. To announce the business before the Board in the order of which it is to be acted upon;
- c. To receive and submit, in the proper manner, all motions presented by the members of Board;
- d. To put to vote all questions, which are regularly moved and seconded, or necessarily arise in the course of the proceedings, and to announce the result;
- e. To decline to put to vote motions which infringe the rules of procedure;
- f. To restrain the members, when engaged in debate, within the rules of order;
- g. To enforce on all occasions the observance of order and decorum among the members,
- h. To call by name any member persisting in breach of the rules of order of the Board, thereby ordering him/her to vacate the Board Chamber;
- i. To receive all messages and other communications and announce them to the Board;
- j. To authenticate, by his signature, when necessary, all by-laws, resolutions, minutes of Board;
- k. To inform the Board, when necessary or when referred to for the purpose, in a point of order or usage;
- l. To select the members who are to serve on committees;
- m. To represent and support the Board, declaring its will, and implicitly obeying its decisions in all things;
- n. To ensure that the decisions of Board are in conformity with the laws and by-laws governing the activities of the Board;
- o. To adjourn the meeting when the business is concluded;
- p. To adjourn the meeting without question in the case of grave disorder arising in the Board Chamber.

DECORUM

9. No member of Board shall:

- a. Disturb another, or the Board itself, by any disorderly deportment disconcerting to any member speaking;
- b. Resist the rules of Board or disobey the decisions of the Chair or of the Board on questions of order or practice or upon the interpretations of the rules of order of the Board;
- c. Be permitted to retake his seat at any meeting after being ordered by the Chair

to vacate after committing a breach of any rule of order of the Board, without making apology and the consent of Board expressed by a majority vote of the other members present, determined without debate.

RULES OF DEBATE

10. In directing the course of debate, the Chair shall:
- a. Designate the member who has the floor when two or more members rise to speak;
 - b. Preserve order and decide questions or order;
 - c. Read all motions presented in writing and state all motions presented verbally before permitting debate on the question, except when otherwise provided in this by-law.

MEMBERS

11. In addressing the Board no member shall:
- a. Speak disrespectfully of Her Majesty the Queen or any of the Royal Family, or of the Governor-General, Lieutenant Governor or any member of the Senate, the House of Commons of Canada or the Legislative Assembly of Ontario;
 - b. Use indecent, offensive, libelous or insulting language in or against the Board, its members or any person or group, staff, or delegation;
 - c. Interrupt the member who has the floor except to raise a point or order.

GENERAL

12. a) Any member may require the question or motion under discussion to be read at any time during the debate, but not so as to interrupt a member while speaking.
- b) Any member may appeal the decision of the Chair on a point of order to the Board which shall decide the question without debate upon a majority vote of the members present.

MOTIONS

13. Introduction Without Notice

A motion may be introduced without notice in which case it shall be set out in full in the minutes of the meeting of Board at which it is considered.

14. Must Be Seconded

A motion must be formally seconded before the Chair can put the question or be recorded in the minutes.

15. Withdrawal

After a motion is read or has been stated by the Chair, it shall be deemed to be in the possession of the Board and can be withdrawn before decision or amendment only with leave of the Board and expressed by resolution.

16. Priority of Disposition

A motion properly before Board for decision must receive disposition before any other motion can be received except a motion to amend, for the previous question, to adjourn, to extend the hour of closing proceedings, to commit or on a matter of privilege.

17. To Amend

A notice to amend:

- a. Only one motion to amend an amendment to the question shall be allowed and any further amendment must be to the main question;
- b. Shall be relevant to the question to be received;
- c. Shall not be received proposing a direct negative to the question;
- d. Two separate distinct proposals of a question may be made;
- e. Shall be put in the reverse order to that in which it is moved.

18. To Adjourn

A motion to adjourn:

- a. The meeting shall always be in order except as provided in this paragraph and shall be put immediately without debate;
- b. When resolved in the negative, cannot be made again until after some intermediate proceeding shall have been completed by the Board;
- c. Is not in order when a member is speaking, nor during the verification of a vote;
- d. Cannot be amended.

19. Repetition

A motion called in the order in which it stands upon the Agenda of the routine of business of a meeting and which is not decided by Board, shall be allowed to stand retaining their precedence upon the agenda of the routine of business of the next

ordinary meeting of Board.

20. Reconsideration

A motion for reconsideration of a question which has been decided upon but not acted upon may be made at any time by a member who voted thereon with the majority and until decided by Board no further discussion of the question shall be allowed, but no such motion for the previous question or postponement.

21. To Commit

A motion to commit or recommit a question to a committee or committees with or without instructions may be amended but must receive disposition by Board before the question or an amendment to the question, and when made prior thereto, before decision on a motion for the previous question or postponement.

22. Verbal

Incidental motions in respect of a matter of special privilege, suspension of rules of procedure, adjournment, postponement, for the previous question, or commitment may be made verbally.

23. Divided Motion

A motion containing distinct proposals may be divided with leave of Board.

VOTING ON MOTIONS

24. Question Stated

Immediately preceding the taking of the vote thereon, the Chair may state a question in the form introduced and shall do so if required by a member except when a motion for the previous question has been resolved in the affirmative he shall state the question in the precise form in which it was recorded in the minutes.

25. No Interruption After Question Stated

After a question is finally put by the Chair no member shall speak to the question nor shall any other motion be made until after the vote is taken and the result has been declared.

26. Division Of Question

A separate vote shall be taken upon each proposal contained in a question divided with leave of Board.

27. Vote of Chair

When the Chair determines to vote on a question, his vote shall be spoken, signified, polled and recorded after the votes of each member voting.

28. Abstention Recorded Negative

If any member of Board does not vote when a question is put and a recorded vote taken, he shall be deemed as voting in the negative except where the member is prohibited from voting from statute.

29. Vote May Not Be Allowed

A member not present before the result of a division on a question is declared may not be entitled to vote on that question as determined by the Chair.

30. Unrecorded Vote

The manner of determining the decision of Board on a motion shall be at the discretion of the Chair and may be by voice, show of hands, standing or otherwise.

31. Recorded Vote

Upon the request of the Chair or member and before a vote is taken on a motion, the Recording Secretary shall record, in the minutes, the names of each Board member present and each member's vote in the affirmative or negative to the motion.

GENERAL

32. Member Social Media Etiquette

During a meeting information shall not be posted to any Social Media outlet and videotaping of the meeting is prohibited unless approved by the LAWSS Board.

33. Order of Business

The Manager shall have prepared a list of the items in order of the topics set out as the routine of business for the use of each member at an ordinary meeting.

34. Minutes

The minutes shall record:

- a. The place, date and time of meeting;
- b. The names of the Chair and of the members present;
- c. The reading, presentation, correction and adoption of the minutes of prior meetings.

35. Deputation

- a. Persons desiring to verbally present information on matters of fact or make a request of Board may be heard on leave of Board but shall be limited in speaking not more than ten minutes except that a deputation consisting of more than five person shall be limited to two speakers each limited to speaking not more than ten minutes. All speakers should submit their presentation in writing to the Manager not less than the Thursday prior to the Board meetings.

36. Committee Reports

- a. Shall be received upon leave of Board;
- b. May be recommitted to the same or a different Committee.

37. Unfinished Business

The items listed in the order of the topics set out as the routine of business of prior meetings which have not been disposed of by Board and the date of their first appearance on the Order of Business shall be noted, and repeated on each subsequent Order of Business until disposed of by Board unless removed for the Order of Business by leave of Board.

38. In Camera Board Meetings

In accordance with the *Municipal Act*, a meeting or part of a meeting may be closed to the public only if the subject matter is as follows:

- a. The security of property.
- b. Personal matters about an identifiable individual.
- c. Acquisition or sale of property for municipal purposes.
- d. Labour relations or employee negotiations.

- e. Litigation or potential litigation.
- f. The receiving of advice subject to solicitor-client privilege.
- g. A matter authorized to be closed by another Act.
- h. A matter subject to the *Municipal Freedom of Information and Right to Privacy Act*.

Before holding an in camera meeting the Board shall state the following by resolution:

- a. the fact of the holding of the in camera meeting
- b. the general nature of the matter to be considered at the closed meeting The only exceptions to the above would be as in the *Municipal Act*.

39. Points Not Provided For

All points of order or procedure not provided for in these rules shall be decided in accordance with Robert's Rules of Order.

Read a first, second and third time and finally passed this _____ day of _____, 2017.

Chair

Vice-Chair