THE FIRST MEETING OF THE 2024 ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM BOARD OF MANAGEMENT

COMMITTEE ROOM #304 **MARCH 19, 2024**

4:00 p.m. The meeting convened with Councillor Steve Peters, Chair presiding.

ATTENDANCE

Members
Councillor Steve Peters, City of St. Thomas
Councillor Norm Watson, Municipality of Central Elgin
Deputy Mayor Justin Pennings, Southwold Township
Councillor Rose Gibson, City of St. Thomas

Officials
K. De Leebeeck, Director of Environmental Services and City Engineer, City of St. Thomas
C. Andrew, Manager Water & Sewer, City of St. Thomas
G. Brooks, Director of Infrastructure and Community Services, Municipality of Central Elgin
K. Kamerman, Environmental Compliance Coordinator, City of St. Thomas
A. Piggott, Manager of Environmental Services, Municipality of Central Elgin
S. Reitsma, Manager of Development and Compliance, City of St. Thomas
A. VanOorspronk, Director of Infrastructure & Development Services, Township of Southwold
M. Smale, Legislative Services Coordinator, City of St. Thomas

DISCLOSURES OF INTEREST

Nil.

MINUTES

Motion by Gibson - Pennings:

THAT: The minutes of the meeting held on November 9, 2023, be confirmed.

Carried.

REPORTS OF COMMITTEE

UNFINISHED BUSINESS

Elgin-Middlesex Pumping Station Flowmeter Bypass - October 19, 2023 Debrief - *Appendix "A"*

The members noted that concerns appear to have been addressed through the implementation of a standard communications protocol.

Motion by Councillor Watson - Deputy Mayor Pennings:

THAT: Report SWB-02-24 relating to the Elgin-Middlesex Pumping Station Flowmeter Bypass - October 19th, 2023 Debrief be received for information.

Carried.

Southwold - Middlesex Centre Watermain Extension Inquiry - *Appendix "B"*

The members noted that the current arrangement had been in place for many years and that Southwold Township should entertain discussions with the Elgin Area Primary Water Supply System regarding any further future expansion of the drinking water system into Middlesex Centre.

CONFIRMED_____CHAIR

Motion by Councillor Gibson - Deputy Mayor Pennings:

THAT: Report SWB-03-24 relating to the Southwold - Middlesex Centre Watermain Extension Inquiry be received for information.

Carried.

Ford Water Tower - Status Update

The Manager of Development and Compliance provided a verbal update on the status of the Ford Water Tower and advised that the consultant has suggested various options such as installing release valves along the transmission line which may mitigate the risks of a pressure wave affecting the system.

The members inquired whether the consultant had considered uninterruptable power sources for the Elgin-Middlesex Pumping Station.

The Manager of Development and Compliance advised that uninterruptable power sources had been considered by the consultant and that a report outlining all options would be provided at a future meeting.

NEW BUSINESS

Southwold Local Service Connection Request - *Appendix "C"*

Deputy Mayor Pennings advised that the Township of Southwold had initiated this request and was supportive of staff's recommendation.

Motion by: Councillor Watson - Deputy Mayor Pennings:

THAT: Report SWB 04-24 relating to the Southwold Local Service Connection Request be received for information, and further;

THAT: The Joint Board of Management approves a single distribution system connection to the STASWSS subject to the submission of a water functional servicing report for the identified study area that is satisfactory to Administration, and further;

THAT: The Joint Board of Management directs that all local service connections to the STASWSS be removed along Wonderland Road between Ron McNeil Line and Clinton Line at the time this portion of the STASWSS is replaced.

Carried.

St. Thomas Secondary Water System 2023 Annual and Summary Reports - *Appendix "D"*

The members commended staff on achieving a 100% rating for the system.

The members inquired about incurred monetary expenses noted in the report.

The Manager of Water and Sewer advised that the incurred monetary expenses referred to items of maintenance performed by OCWA.

Motion by Councillor Gibson - Deputy Mayor Pennings:

THAT: Report SWB-01-24 relating to the St. Thomas Area Secondary Water Supply System 2023 Annual and Summary Reports be received for information.

Carried.

Yarmouth Yards Industrial Development

The City Engineer provided a verbal update on the Secondary Water Supply System Infrastructure impacts relating to the Yarmouth Yards industrial development.

The City Engineer advised that the proposed work would be completed as part of the Highbury Avenue widening project at no charge to the Secondary Water Supply System.

The members inquired if Water Supply System infrastructure would be completed at the time of road reconstruction

The City Engineer advised that water, sewer and road infrastructure work is coordinated where possible and that the Secondary Water Supply System infrastructure component of these projects are typically funded from rates and reserves held by the Board.

The members inquired whether water connections for industrial lands in Central Elgin north of Highway 3 were included in this project

The City Engineer advised that no servicing connections to industrial lands in Central Elgin were included with these works.

Motion by Pennings - Watson:

THAT: The Joint Board of Management authorize the replacement of 650 meters of 750 mm transmission pipeline from the East Chamber to Harper Road, and further;

THAT: The Joint Board of Management authorize an alternative supply connection located approximately 15 meters west of the East Chamber.

Carried.

NEXT MEETING

To be determined.

ADJOURNMENT

The meeting adjourned at 4:23 p.m.

CONFIRMED_____CHAIR

ST. THOMAS THE RAILWAY CITY	Appendix "A"	**Report No.** SWB 02-24
		File No.
Directed to:	Joint Board of Management for the St Thomas Area Secondary Water Board	**Meeting Date:** March 19th 2024
Department:	Environmental Services	**Attachment**
Prepared By:	Chris Andrew, Manager of Water and Sewer	Communication SOP
Subject:	**EMPS Flowmeter Bypass – October 19th 2023 Debrief**	

Recommendation:

THAT**:** Report SWB 02-24 EMPS Flowmeter Bypass - October 19th 2023 Debrief, be received as information.

Background:

The St Thomas Area Secondary flowmeter at the EMPS has reached end of life and is due for replacement. The replacement will take 4-8 hours, during which time no water will flow to the Secondary system or its members. A by-pass of the meter chamber by OCWA would supply the Secondary system and its members. On Oct 19th OCWA opened the by-pass to verify operation to facilitate the meter replacement. On Oct 20th the Township of Southwold received two dirty water complaints from residents in Talbotville.

Analysis:

The City of St. Thomas (CoStT) met with the Ontario Clean Water Agency (OCWA) at the Elgin Middlesex Pumping Station (EMPS) to perform a trial to feed the CoStT and the Secondary System via the By-Pass Valve in Chamber P045. Operators from OCWA performed valving operations at EMPS, CoStT operators were stationed at the East chamber, Ford Tower and monitoring on SCADA.

At approximately 10:15 Trial 1 was initiated.

Trial 1:

OCWA Isolated the Secondary pumps on both suction and discharge.
Cell #2 Inlet Valve to remain open.
With pump running at the Elgin WTP, open the valve in the Valve House.
Gradually open the by-pass valve in Chamber P045.

This trial caused the Ford Tower pressure to drop.

Contributing Factors:
Due to a miscommunication, there was no pump running at the Elgin WTP.
The Outlet Valve from Cell#1 was in the open position.

At approximately 13:15 Trial 2 was initiated

Trial 2:

OCWA Isolated the CoStT pumps on both suction and discharge.
Ford Tower isolated
With pump running at the Elgin WTP, open the valve in the Valve House.
Gradually transition the Inlet Valve to Cell #2 closed.
Gradually transition the By-Pass valve in Chamber P045 open.
As soon as the By-Pass Valve starts to open, open the isolation valve at the Ford Tower.

This trial caused the Ford Tower pressure to drop.

Contributing Factors:
As soon as the Tower pressure began to drop the by-pass trial was terminated. Due to gradual operation of valves, the system took a couple mins to return to normal operations.
During the first trial the pressure at the East Chamber dropped to 35 psi. It is normally around 43 psi. After the first trial the CoStT reviewed SCADA trending at the West Chamber and observed minimal change in pressure. The Ford Chamber located at Wonderland Rd and Clinton Line was offline.
OCWA has agreed with the CoStT that the by-pass of P045 is not a viable option and will not be attempted again.

East Chamber – Oct. 19/23:

Nominal pressure: 296.57 kPa (43.0 psi).
During Trial 1, Minimum Pressure: 244.51 kPa (35.4 psi) at 10:20:50.
During Trial 2, Minimum Pressure: 117.63 kPa (17.0 psi) at 13:21:10, Maximum Pressure: 395.75 kPa (57.4 psi) at 13:24:40.

West Chamber – Oct. 19/23:

Minimal change observed during Trial 1.
During Trial 2, Minimum Pressure: 445.12 kPa (64.5 psi) at 13:21:00, Maximum Pressure: 736.41 kPa (106.7 psi) at 13:25:30.
Trial 1 - Minimum Flow: 0.0 L/s at 10:31:49, Maximum Flow: 64.39 L/s at 10:32:29.
Trial 2 - Minimum Flow: 0.0 L/s at 13:23:29, Maximum Flow: 101.71 L/s at 13:23:49.

Ford Tower – Oct. 19/23:

Trial 1, SCADA trending indicates a minimum pressure reading of 411.46 kPa (59.6 psi) occurred at 10:31.

Trial 2, SCADA trending indicates a minimum pressure reading of 443.05 kPa (64.2 psi) occurred at 13:33.

Normal pressure is 70psi and 78psi when full.

Southwold Panel

Trial 1 SCADA trending indicates a minimum pressure reading of 341.18 kPa (49.4 psi) which occurred on Oct. 19/23 at 10:31. The maximum pressure reading following the trial was 485.29 kPa (70.3 psi) which occurred at 11:24

Trial 2 SCADA trending indicates a minimum pressure reading at Southwold Panel of 374.44 kPa (54.3 psi) which occurred on Oct. 19/23 at 13:33. The maximum pressure reading following the trial was 488.99 kPa (70.9 psi) which occurred at 14:25.

On Oct. 18th and 19th trending shows the minimum pressure reading was 433.56 kPa (62.8 psi) and maximum reading was 511.16 kPa (74.1 psi).

Southwold PRV Chamber Flows:

1. Normal Operational Range:
Total Range Change (02:49:39 – 28.17 L/s, 02:52:29 – 0.73 L/s, 02:54:59 – 9.51 L/S): 36.95 L/s.
Elapse Time: 5 minutes, 20 seconds.

Normal operations on Oct. 18th, 00:00 to 24:00 - Minimum Flow: 4.39 L/S, Maximum Flow: 62.93 L/s.

Summary:

The Operating Authority has created a communication procedure within the DWQMS that outlines the responsibility of the Operating Authority to notify the respective ORO's of all members of the St Thomas Area Water System Board at any time when work is being completed either by the Operating Authority or if they are made aware of work being done to valving at the EMPS by others that has potential to affect the neighboring systems.

Respectfully,

Chris Andrew
Manager of Water and Sewer

Reviewed By: _____ _____ _____
City Engineer

ST. THOMAS THE RAILWAY CITY	***Standard Operating Procedure***
PROCEDURE TITLE: COMMUNICATION OF SYSTEM MAINTENANCE, REPAIR OR RENEWAL PROJECTS	**PROCEDURE NO.: DW-SOP-110**
EFFECTIVE DATE: FEBRUARY 1, 2024	**REVISION #: 2.0**
APPROVED BY: MANAGER OF DEVELOPMENT AND COMPLIANCE	Shayne Reitsma

Scope:
This procedure applies to the City of St. Thomas Environmental and Infrastructure Services Department. More specifically, the procedure is to be followed by management and staff having the ability to directly affect drinking water quality through the course of their work related to the drinking water system(s) operated by the City of St. Thomas Environmental and Infrastructure Services Department.

Purpose:
Effective communication of trials, maintenance, repair and renewal works being conducted on the St. Thomas Area Secondary Drinking Water System (STASWSS) and St. Thomas Drinking Water System (STWDS) must be conducted consistently to ensure all parties who may be affected by flow volumes into and/or within the system(s) or may be impacted by any disruption of service or degradation of water quality that may occur as a result of the work being performed.

Procedure:
St. Thomas Area Secondary Water Supply System Communication Protocols
Communication of any emergency repairs, planned maintenance, proposed trials and/or proposed renewal projects are to be conducted as described in **Table 1.0** below:

It is important to note that the operation of the Elgin Middlesex Pumping Station Reservoir and St. Thomas Secondary pumps within the Pumping station that feeds the STASWSS transmission main is currently contracted to the Ontario Clean Water Agency (OCWA) and they communicate their actions to the City of St. Thomas, in their capacity as the administering municipality and operating authority of the STASSWS transmission main. Any communication from OCWA that includes any of the described types of activities that are to take place within the EMPS shall be relayed to the pertinent parties in accordance with **Table 1.0**.

Table 1.0: Communications of work on the STASWSS

Type of Work	Project Lead	Stakeholders Communicated To	Responsible for Communication	Timeline of Communication	Method of Communication
Emergency Situations / Repairs	City of St. Thomas Water and Sewer Services	Southwold ORO Southwold Mgmt. Central Elgin ORO Central Elgin Mgmt. St. Thomas ES Mgmt.	Manager of Water and Sewer / ORO	As soon as reasonably possible	**Telephone Contact** - (Refer to Emergency Response Plan Contact Listing (DW-ERP-1)
NOTE: Any emergency situation or repair resulting in an Adverse Water Quality Incident (AWQI) MUST be communicated to the Ministry of Environment, Conservation and Parks Spills Action Centre (SAC) and Public Health Unit as soon as possible (Refer to Report of AWQI procedure DW-ERP-300)					
Planned Maintenance or Repairs (eg. Valve Exercising, Tower ROV Inspection) **and System Trials**	City of St. Thomas Water and Sewer Services	Southwold ORO Southwold Mgmt. Central Elgin ORO Central Elgin Mgmt. St. Thomas ES Mgmt.	Manager of Water and Sewer / ORO	**1.** During Annual Management Review Meeting. **2.** 2 weeks in advance of planned activities. **3.** Day prior to planned activities.	**1. Meeting Minutes** (Management Contacts) **2&3. E-mail to All Contacts -** (Refer to Emergency Response Plan Contact List (DW-ERP-1)

UNCONTROLLED – WHEN PRINTED (Refer to electronic documentation to ensure most recent version is in use)

Type of Work	Project Lead	Stakeholders Communicated To	Responsible for Communication	Timeline of Communication	Method of Communication
Renewal Projects	City of St. Thomas Water and Sewer Services or **OCWA (within EMPS)**	Southwold ORO Southwold Mgmt. Central Elgin ORO Central Elgin Mgmt. St. Thomas ES Mgmt.	Manager of Water and Sewer / ORO	**1.** During Annual Management Review Meeting. **2.** 2 weeks in advance of planned activities. **3.** Day prior to planned activities.	**1. Meeting Minutes** (Management Contacts) **2&3. E-mail to All Contacts -** (Refer to Emergency Response Plan Contact Listing (DW-ERP-1)
	City of St. Thomas Development and Compliance (Or Contracted Construction Inspector)	Southwold ORO Southwold Mgmt. Central Elgin ORO Central Elgin Mgmt. Water and Sewer Services ORO	Manager of Development and Compliance	**1.** During Annual Management Review Meeting. **2.** 2 weeks in advance of planned activities. **3.** Day prior to planned activities.	**1. Meeting and Minutes** (Management Contacts) **2&3. E-mail to All Contacts -** (Refer to Emergency Response Plan Contact Listing (DW-ERP-1)

St. Thomas Drinking Water System Communication Protocols

Communication of any emergency repairs, planned maintenance, proposed trials and/or proposed renewal or development projects within the St. Thomas Drinking Water System are to be conducted as described in **Table 1.1** below:

It is important to note that the City of St. Thomas is the Operating Authority for the Central Elgin (St. Thomas Suburban Areas) as well as, the Southwold (Lynhurst Park Drive) Drinking Water Systems, as such, the communication protocols listed in **Table 1.1** are applicable to these areas as well. Each respective municipality may have alternate methods of communicating to a wide area of their residents, which may be triggered by contacting the respective municipalities management as listed.

Table 1.1: Communications of work within the St. Thomas, Central Elgin (St. Thomas Suburban Areas), and/or Southwold (Lynhurst Park Drive) Drinking Water Systems

Type of Work	Project Lead	Stakeholders Communicated To	Responsible for Communication	Timeline of Communication	Method of Communication
Emergency Situations / Repairs	City of St. Thomas Water and Sewer Services	All Possible Affected Users	Manager of Water and Sewer / ORO	As soon as reasonably possible	**Wide Area:** Social Media Blast (Refer to DW-ERP-1 for Communications contacts) **Small Area**: Door Hangers etc. (Dependant on situation, and as advised by PHU, if applicable)
		St. Thomas ES Mgmt (and Fire Dept) Southwold Mgmt (if Lynhurst Dr may be affected) Central Elgin Mgmt (if MCE areas may be affected)			**Telephone Contact** - (Refer to Emergency Response Plan Contact Listing (DW-ERP-1)

NOTE: Any emergency situation or repair resulting in an Adverse Water Quality Incident (AWQI) MUST be communicated to the Ministry of Environment, Conservation and Parks Spills Action Centre (SAC) and Public Health Unit as soon as possible (Refer to Report of AWQI procedure DW-ERP-300)

Type of Work	Project Lead	Stakeholders Communicated To	Responsible for Communication	Timeline of Communication	Method of Communication
Planned Maintenance or Repairs (eg. Flushing) **and System Trials**	City of St. Thomas Water and Sewer Services	All Possible Affected Users	Manager of Water and Sewer / ORO	**1.** 2 weeks in advance of planned maintenance. **2.** Day prior to planned maintenance (as is reasonable).	**Wide Area:** Social Media Blast (Refer to DW-ERP-1 for City Communications contact info.) **Small Area:** Door Hangers
		City of St. Thomas Mgmt (and Fire Dept).		**1.** 2 weeks in advance of planned maintenance. **2.** Day prior to planned maintenance (as is reasonable).	**E-mail to All Contacts -** (Refer to Emergency Response Plan Contact Listing (DW-ERP-1)
		Southwold Mgmt. (if Lynhurst Drive may be affected)			
		Central Elgin Mgmt. (if MCE areas may be affected)			
Renewal / Development Projects	City of St. Thomas Water and Sewer Services	All Possible Affected Users	Manager of Water and Sewer / ORO	**1.** 2 weeks in advance of planned activities. **2.** Day prior to planned activities (as is reasonable).	**Wide Area:** Social Media Blast (Refer to DW-ERP-1 for City Communications contact info.) **Small Area:** Door Hangers
		Southwold Mgmt. (if Lynhurst Drive may be affected)		**1.** At Annual Management Review Meeting. **2.** 2 weeks in advance of planned activities. **3.** Day prior to planned activities.	**1. Meeting and Minutes** (Management Contacts) **2&3. E-mail to All Contacts** - (Refer to Emergency Response Plan Contact Listing (DW-ERP-1)
		Central Elgin Mgmt. (if MCE areas may be affected)			
		City of St. Thomas Mgmt / Fire Dept.			
	City of St. Thomas Development and Compliance OR Capital Works	All Possible Affected Users	Manager of Development and Compliance OR Manager of Capital Works	**1.** At Public Meetings **2.** 2 weeks in advance of planned activities. **3.** Day prior to planned activities (as is reasonable).	**1. Meeting Notice** **2&3. Wide Area:** Social Media Blast **Small Area:** Door Hangers
		Southwold Mgmt. (if Lynhurst Drive may be affected)		**1.** During Annual Management Review Meeting. **2.** 2 weeks in advance of planned activities. **3.** Day prior to planned activities.	**1. Meeting and Minutes** (Management Contacts) **2&3. E-mail to All Contacts** - (Refer to Emergency Response Plan Contact Listing (DW-ERP-1)
		Central Elgin Mgmt. (if MCE areas may be affected)			
		St. Thomas Mgmt and Water and Sewer ORO/ Fire Dept.			

Applicable Environmental Procedures

- *None*

Table of Revisions

Revision No.	*Date*	*Description of Revision*
2.0	February 2, 2024	Initial Issue.

ST. THOMAS THE RAILWAY CITY	Appendix "B"	**Report No.** SWB 03-24
		File No.
Directed to:	Joint Board of Management of the St. Thomas Area Secondary Water Supply System	**Meeting Date:** March 19th 2024
Department:	Environmental Services	**Attachment**
Prepared By:	Karel Kamerman, B. Sc., C.Tech. Environmental Compliance Coordinator	
Subject:	**Southwold – Middlesex Centre Watermain Extension Inquiry**	

Recommendations:

THAT: Report SWB 03-24, Southwold – Middlesex Centre Watermain Extension Inquiry, be received for information;

Origin:

During the November 9th 2023 meeting of the St. Thomas Area Secondary Water Supply System Joint Board of Management, Southwold inquired on the process to obtain approval to extend an existing watermain further into the Municipality of Middlesex Centre, that would extend the serviced population.

Analysis:

The Township of Southwold receives water under a four-party Water Supply Agreement between the Elgin Area Primary Water Supply System (EAPWSS), St. Thomas Area Secondary Water Supply System (STASWSS), Southwold, and Dutton-Dunwich. Prior to this four-party Water Supply Agreement was an agreement executed in July 2003 between the EAPWSS, STASWSS, Southwold & the Tri-County Management Committee.

It is the understanding of administration that there was an agreement executed between Middlesex Centre and Southwold in October 2002, approving the extension of the Southwold System, crossing municipal boundaries into the Township of Middlesex Centre.

A provision of the current four-party Water Supply Agreement reads as follows (Note that a similar provision was also included in the July 2003 agreement): "**6.2.6 *Extension of Service* – Southwold shall not extend or permit the extension of water supplied by the Elgin Transmission System beyond the municipal boundaries of Southwold without the express authorization of the Elgin Board, by written notice of resolution or bylaw of the Elgin Board.**"

As such, the extension of the water system within Middlesex Centre is a matter to be decided by the Elgin Area Primary Board and its members as a first step. The EAPWSS claims that it was not aware of the current extension of water servicing into Middlesex Centre and does not assume any responsibility to Middlesex Centre for water quality, water quantity, or related obligations identified in the four-party Water Supply Agreement.

In discussion with staff of the EAPWSS, it was suggested that the current extension into Middlesex Centre is now a longstanding arrangement and would be difficult to disallow at this point. Further extension, however, is a matter of legal approval, as well as hydraulic capacity. It was suggested that if extension is desired, the ownership of the distribution system may have to be transferred to Middlesex Centre and the current four-party Water Supply Agreement may need to be amended to include Middlesex Centre. The EAPWSS indicated that they are open to discussing and reviewing this matter further with all parties.

Respectfully,

K. Kamerman

Karel Kamerman, B.Sc., C.Tech.
Compliance Coordinator

Shayne Reitsma

Shayne Reitsma, P.Eng
Manager of Development and Compliance

Reviewed By: _____ _____ _____ _____ _____ _____
City Engineer

ST. THOMAS THE RAILWAY CITY	Appendix "C"	**Report No.** SWB 04-24
		File No.
Directed to:	Joint Board of Management of the St. Thomas Area Secondary Water Supply System	**Date Authored:** **Meeting Date:** March 19th 2024
Department:	Environmental Services	**Attachment**
Prepared By:	Shayne Reitsma, P.Eng. Manager of Development and Compliance	
Subject:	**Southwold Local Service Connection Request**	

Recommendation:

THAT: Report SWB 04-24, Southwold Local Service Connection Request be received for information, and further;

THAT: The Joint Board of Management approves a single distribution system connection to the STASWSS subject to the submission of a water functional servicing report for the identified study area that is satisfactory to Administration, and further;

THAT: The Joint Board of Management directs that all local service connections to the STASWSS be removed along Wonderland Road between Ron McNeil Line and Clinton Line at the time this portion of the STASWSS is replaced.

Background:

The Municipality of Southwold has requested a service connect to the Secondary Water Supply System on behalf of Marcel Equipment, located on Wonderland Road south of Clinton Line, for the purpose of servicing a 3,094m^2 building with the potential for a second building. Reference to this location can be seen in **Figure 1** below.

Analysis:

Schedule B of the Transfer Order for the St. Thomas Area Secondary Water Supply System (STASWSS) defines the STASWSS as a Transmission Pipeline. Transmission pipelines are large diameter pipes dedicated to the transport of water from source, storage, or treatment facilities to points of distribution or to distribution mains. Transmission pipelines also provide connection from one section of a distribution system to another section of a distribution system. By industry standards no local service connections are permitted along transmission pipelines.

Currently the STASWSS transmission pipeline in the section along Wonderland Road between Ron McNeil Line and Clinton Line has both distribution system connections and local service connections. Permitting further local service connections to a large diameter transmission pipeline on a piecemeal or ad-hoc approach does not represent best management practices. Therefore, in the best interest of the STASWSS system, Administration is recommending the Board limit its approval to a single distribution system connection for Southwold to plan the servicing of its zoned industrial area (see **Figure 2**). To that end Administration is also recommending that the Boards approval be conditional upon the submission of a comprehensive water functional servicing report for the study area identified in **Figure 1** within Southwold's zoned industrial area for review and approval by Administration, of which is not to be unreasonably withheld. Furthermore, to restore the STASWSS to its original and intended function as a transmission pipeline, Administration is recommending that all existing local service connections be removed and transferred to a Southwold local distribution system at the time this portion of the STASWSS is replaced.

Financial Impact:

There are no direct financial impacts associated with the recommendations of this report to the STASWSS.

Respectfully,

Shayne Reitsma, P. Eng.
Manager of Development and Compliance

Reviewed By: _____ _____
City Engineer

Figure 1 - Study Area

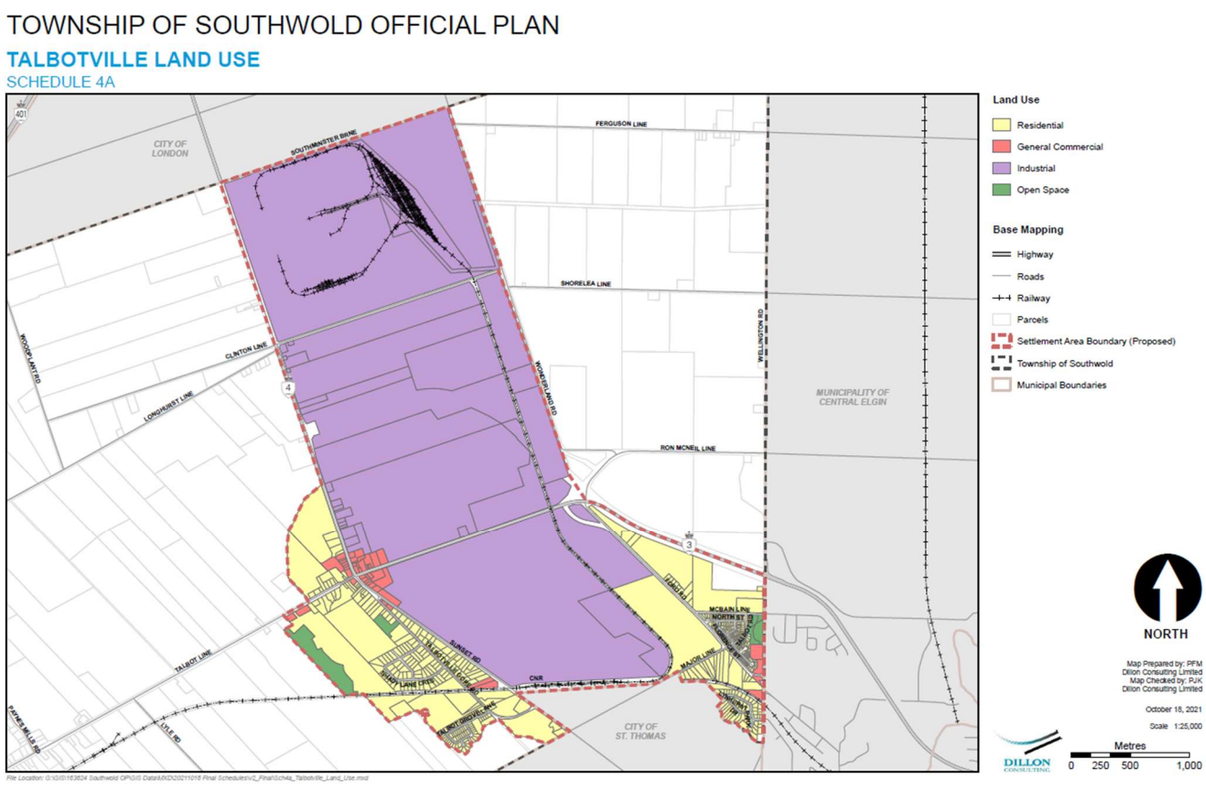

Figure 2- Township of Southwold Zoning

ST. THOMAS THE RAILWAY CITY	Appendix "D"	**Report No.** SWB 01-24
		File No.
Directed to:	Joint Board of Management for the St. Thomas Area Secondary Water Supply System	**Meeting Date:** March 19th, 2024
Department:	Environmental Services	**Attachment**
Prepared By:	Chris Andrew, Manager of Water and Sewer	2023 Summary and Annual Report
Subject:	**St. Thomas Secondary Water System 2023 Annual and Summary Reports**	

Recommendation:

THAT: Report SWB 01-24 St. Thomas Area Secondary Water Supply System 2023 Annual and Summary Reports, be received for information.

Background:

The City of St. Thomas, Township of Southwold, and Municipality of Central Elgin own the St. Thomas Area Secondary Water Supply System (STASWSS) including the STASWSS portion of the Elgin Middlesex Pumping Station (EMPS) and collectively govern its affairs through a Joint Board of Management. The STASWSS transmits water to St. Thomas, Southwold, Central Elgin, and Dutton-Dunwich. The City of St. Thomas administers the STASWSS on behalf of the Joint Board of Management and operates the transmission main while the Ontario Clean Water Agency (OCWA) operates the STASWSS portion of the EMPS.

Analysis:

The Safe Drinking Water Act, Regulation 170/03, Section 11, requires that owners and administrators of drinking water systems prepare Annual Reports by February 28th of each year. Under Schedule 22, the Regulation also requires the owner of a drinking water system to prepare a Summary Report no later than March 31st of each year.

The Annual Report has been completed by the required date of February 28, 2024, on standard forms provided by the Ministry of Environment, Conservation and Parks (MECP), and will be filed as required. The Summary Report has also been completed prior to the required submission deadline of March 31, 2024.

As required by the regulations, arrangements have been made to post the reports on the City's web site and copies will be sent to the drinking water systems that receive water from the STASWSS. Copies of the reports will be made available to the Public upon request at the Environmental Services Department.

Every year, the MECP inspects each drinking water system to assess compliance with the requirements of the Safe Drinking Water Act, 2002 and the Ontario Water Resource Act, 1990. The 2023 STAWSS inspection was conducted by the MECP in November 2023 with the STASWSS system achieving a perfect overall rating of 100% demonstrating that the STASWSS system meets all the stringent regulatory requirements and associated terms and conditions of applicable Municipal Drinking Water Licences.

Respectfully,

Chris Andrew
Manager of Water and Sewer

Reviewed By: _____ _____ _____ _____ _____ _____
City Engineer

SUMMARY REPORT

St. Thomas Area Secondary Water Supply System

License Number: 190-101
Permit Number: 190-201

Provincial Regulation 170/03
Summary Report

For the Period
January 1, 2023 – December 31, 2023

ST. THOMAS
THE RAILWAY CITY

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1 Summary Report Requirements

1.1 Introduction

The 2023 Summary Report for the St. Thomas Area Secondary Water Supply System (STASWSS) is being submitted to satisfy Schedule 22 of Ontario Regulation 170/03, the requirement to prepare and distribute a summary report of water system operations, outlining regulatory non-compliance with respect to water quality and water system management and administration and evaluating the water system infrastructure adequacy (with respect to its ability to continuing meeting the water demands of the serviced community).

As per Ontario Regulation 170/03, the summary report must:

a. List the requirements of the Act, the regulations, the system's approval, drinking water works permit, municipal drinking water licence, and any orders applicable to the system that were not met at any time during the period covered by the report; and
b. For each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure.

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:

- 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.
- A comparison of the summary to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence, or if the system is receiving all of its water from another system under an agreement, to the flow rates specified in the written agreement.

The information provided is for the purpose of enabling the owner of the system to assess the capacity of the system. This report covers the reporting period from January 1, 2023 to December 31, 2023.

1.2 System Description

The STASWSS is supplied water from the Elgin Middlesex Pumping Station (EMPS) and Reservoir. The EMPS reservoir is filled by the Elgin Area Primary Water Supply System (EAPWSS) which obtains its water from Lake Erie and provides water treatment at the Elgin Area Primary Water Treatment Plant, located on Dexter Line, East of Port Stanley Ontario.

Operation and Maintenance of the EMPS- St. Thomas section is currently under contract with the Ontario Clean Water Agency (OCWA). The operation and maintenance of the associated transmission main and distribution system of the STASWSS is currently conducted by the City of St. Thomas – Environmental Services Dept.

The STASWSS is considered a distribution-only system, providing water directly to the City of St. Thomas and sections of the Southwold and Central Elgin Water Distribution Systems.

1.3 System Approvals and Regulatory Requirements

Operation and Maintenance of the STASWSS is governed by the Safe Drinking Water Act, 2002, and the regulations established under this Act. In accordance with the Safe Drinking Water Act, The Joint Board of Management of the St. Thomas Area Secondary Water Supply System holds a Municipal Drinking Water Licence and Drinking Water Works Permit, which provide approval for the establishment of drinking water infrastructure and provide the authority to operate and maintain said water system.

During the reporting period, The St. Thomas Area Secondary Water Supply System was operated pursuant to the approvals, licences and permits listed below:

- MDWL No. 190-101, issue 5
- DWWP No. 190-201, issue 3

Ontario Regulation 170/03 – Drinking Water Systems, governs the operation, maintenance, and water quality monitoring requirements for municipal drinking water systems in Ontario. Ontario Regulation 128/04 – Certification of Drinking Water System Operators and Water Quality Analysts sets out the requirements for persons performing operational or maintenance activities on the water system. The Safe Drinking Water Act, 2002 and the associated regulations are enforced by the Ministry of Environment, Conservation and Parks (MECP) and monitored through annual inspections by Ministry personnel. Any non-compliant conditions identified during the course of the annual inspection are listed in the Inspection Report issued at the conclusion of the inspection period and are summarized in section 4.1 of this report.

Ontario Regulation 169/03 – Ontario Drinking Water Quality Standards sets the limits for parameters of concern in drinking water. Drinking water quality is monitored by the Operating Authority and any exceedance of the Drinking Water Quality Standards must be reported to the MECP and Public Health Unit, verbally and in written form through the use of a Notice of Adverse Test Results and Issue Resolution Form. Any non-compliant conditions identified through water quality monitoring exercises over the reporting period have been documented on a Notice of Adverse Test Results and Issue Resolution Form and are summarized in section 4.2 of this report.

2 Evaluation of Water Quantities and Flow Rates

The EMPS is situated on a site owned by the Elgin Area Primary Water Supply System and includes the original St. Thomas pump station, constructed in 1966 that services St. Thomas, and sections of the Municipality of Central Elgin and Township of Southwold. Two additional pump stations were completed in 1994 and service the City of London, as well as the Municipality of Malahide, Town of Aylmer, and areas of the Municipality of Central Elgin.

The St. Thomas pump station is comprised of three high-lift pumps that deliver water through a transmission main that services the St. Thomas Area Secondary Water Supply System. A gas re-chlorination system provides re- chlorination for water being directed to the St. Thomas Area Secondary Water Supply System.
The Ontario Clean Water Agency (OCWA) is currently the Operating Authority for all 3 pump stations located within the EMPS, and ultimately control the pumps directing water into the STASWSS.

OCWA has prepared a Summary Report for their operations at the EMPS for the reporting period, which evaluates the volumes of water delivered to the STASWSS. The report is attached as Appendix A.

3 Water Quality Summary

A summary of water quality testing completed by OCWA over the course of the reporting period is available as an appendix to the OCWA EMP Summary Report (Appendix A).

A summary of water quality testing completed by the City of St. Thomas – Environmental Services Dept. over the course of the reporting period is available in the Annual Report (Appendix B).

4 Summary of Non-Compliant Conditions

4.1 Ministry of the Environment, Conservation and Parks Inspection

The Ontario Ministry of the Environment, Conservation and Parks (MECP) conducts an inspection of the St. Thomas portion of the Elgin-Middlesex Pumping Station, operated by OCWA, annually along with the St Thomas Area Secondary Water System, operated by the City of St Thomas.

An MECP inspection was completed in November 2023. There were no non-compliances identified in the report. The systems resulting inspection risk rating was identified as 0% and an overall final inspection rating of 100**%**.

MECP Inspection Finding	O.A. Responsible	Action Taken
N/A	**N/A**	**N/A**

4.2 Adverse Test Results and Issue Resolution

Any non-compliant conditions identified through water quality monitoring exercises undertaken by St. Thomas Environmental Services over the reporting period, and actions taken are summarized in the table below.

Adverse Test Result (Date / Location)	O.A. Responsible	Action Taken
Prior to putting the new Ford Chamber back into service, a Free Chlorine Residual of <0.05 mg/L was recorded as a result of the portion of the transmission main from Southwold Chamber to the Ford Chamber being out of service for several months to facilitate the Ford Chamber replacement.	St. Thomas	The transmission main was flushed until a suitable Free Chlorine Residual was achieved prior to putting the new Ford Chamber into service.

5 List of Appendices

Appendix A – OCWA EMPS – St. Thomas Secondary Water Supply System – 2023 Summary Report

Appendix B - St. Thomas Secondary Water Supply System – 2023 Annual Report

APPENDIX A

ELGIN-MIDDLESEX PUMPING STATION

ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM

2023 COMPLIANCE REPORT

(Schedule 22 Summary Report)

Facility Name: Elgin-Middlesex Pumping Station -
St. Thomas Area Secondary Water Supply System

Mailing Address: Elgin Area Primary Water Supply System
P.O. Box 220
Port Stanley, ON N5L 1J4

Average Daily Flow	6,443 m^3/day
Max. Daily Flow	10,766 m^3/day
Source Water	Elgin Area Primary Water Supply System

CONTACT INFO:

Contract Administration:
City of St. Thomas, City Hall
Environmental Services
545 Talbot Street, St. Thomas, ON N5P3V7
Contact: Mr. Kevin De LeeBeeck
Director of Environmental
Services and City Engineer

Operator:
Ontario Clean Water Agency.
P.O. Box 220, Port Stanley, Ontario N5L 1J4
Contact: Mr. Greg Henderson - Senior Operations Manager
(226) 378-5154

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Appendix A: EMPS St. Thomas Water Quality Summary for 2023

Appendix B: EMPS St. Thomas Total Daily Flow for 2023

Appendix C: EMPS St. Thomas Daily Instantaneous Peak Flow for 2023

Appendix D: EMPS St. Thomas 2023 Annual Report

Appendix E: EMPS Chemical Consumption for 2023

System Approvals:

The St. Thomas Area Secondary Water Supply System (STASWSS) is supplied water through the Elgin-Middlesex Pump Station, which receives water from the Elgin Area Primary Water Supply System (EAPWSS) on Dexter Line, east of Port Stanley, Ontario. During the reporting period, The St. Thomas Area Secondary Water Supply System was operated pursuant to the approvals, licenses and permits listed below.

The supply and distribution of water to the system is governed by the following Municipal Drinking Water Licenses (MDWL) and Drinking Water Works Permits (DWWP):

- MDWL No. 190-101, issue 5, on September 30, 2021
- DWWP No. 190-201, issue 3, on September 30, 2021

The DWWP and MDWL were issued in accordance with the Safe Drinking Water Act (SDWA), 2002.

Treated Water Requirements:

The requirements fall under the Drinking Water Systems Regulation (O.Reg.170/03) and the Ontario Drinking Water Quality Standards (O.Reg.169/03) under the Safe Drinking Water Act, 2002.

Staff Complement and Training:

In 2023, the St. Thomas facility at the Elgin-Middlesex Pump Station (EMPS) was operated and maintained under the operating authority, Ontario Clean Water Agency. The operational and maintenance staff are based at the EAPWSS and share their time between the two facilities. Employees responsible for the operations and maintenance of the facility included one (1) senior operations manager, two (2) team leads, eight (8) full time operations staff, four (4) full time maintenance staff, one (1) technical support specialist, one (1) asset maintenance specialist and four (4) administrative support positions.

In 2023, all employees received Director Approved and practical on-the-job training, which contributed to annual Ministry of the Environment, Conservation and Parks (MECP) training requirements.

History of Facility:

The EMPS is an integrated booster station occupied by three secondary systems, which are fed from two in-ground storage reservoirs, each having a capacity of 27.3 million liters. The two storage reservoirs and the site upon which the three booster stations are situated are owned by the EAPWSS. The original St. Thomas pump station, constructed in 1966 that services St. Thomas, and sections of the Municipalities of Central Elgin and Southwold. Two more pump stations were completed in 1994 that service the Town of Aylmer, Municipality of Malahide, and the City of London.

The STASWSS portion is comprised of three high-lift pumps that deliver water through a transmission main that services the STASWSS. A gas chlorination system provides secondary chlorination for water being directed to the STASWSS.

In the event of a power failure, an on-site generator can provide sufficient standby power to operate the facility and run the St. Thomas pumps.

Remote monitoring and control of all three pump stations is performed by staff at the EAPWSS. Remote monitoring and control capabilities are made possible via the EAPWSS and the EMPS SCADA systems

Process Description:

The EMPS receives treated water from the EAPWSS, which treats water at the water treatment plant located on the shores of Lake Erie to the east of Port Stanley. Water from the plant is pumped into the EAPWSS reservoirs located at the EMPS where it is subsequently fed via a series of headers to each of the pumping stations serving the Aylmer Area Secondary Water Supply System (AASWSS), the City of London Distribution System, and the STASWSS.

Post-Treatment:

The AASWSS and STASWSS both utilize a gas chlorination system for secondary disinfection. The system consists of two scaled 68 kg gas chlorine cylinders and three chlorinators equipped with booster pumps and a dosing capacity of 1-60kg/h.

High Lift Pump Station:

The three high lift pumps provide redundant pumping capacity into the STASWSS. The St. Thomas pumps are equipped with variable frequency drives (VFD) with each pump having a rated capacity of 263 L/s. With the current VFDs being utilized as soft and stop variable frequency drives.

Maintenance:

Site maintenance was carried out by Ontario Clean Water Agency (OCWA) field services staff based at the EAPWSS. Specialty maintenance services are provided on an as needed basis by external service providers.

All maintenance scheduling is monitored through a computerized maintenance management system (Maximo).

In addition to the routine preventative maintenance program, several maintenance projects were completed at the EMPS in 2023. A summary of non-routine maintenance is available in Appendix D, the 2023 Annual Report.

Sampling Procedures:

All samples collected by licensed OCWA personnel are submitted to Canadian Association for Laboratory Accreditation (CALA) accredited laboratories for bacteriological and chemical analysis.

Distribution water samples are taken twice per week at the inlet to the reservoir and submitted for bacteriological analysis. The distribution water entering the STASWSS is sampled weekly and submitted to an external laboratory for bacteriological analysis. Chlorine residual, for the water entering the STASWSS, is monitored continuously from the EAPWSS through the SCADA system.

On a quarterly basis the distribution water entering the reservoir, as well as the water entering the STASWSS is sampled and submitted to an accredited laboratory for testing of total trihalomethanes (THM) and haloacetic acids (HAA). Twice annually, the distribution water entering the reservoir is sampled and submitted to an accredited laboratory for testing of lead concentrations.

All water quality sampling at the EMPS was performed in accordance with Ontario Regulation 170/03.

Water Quality Monitoring and Flow Measurement:

Water quality is monitored remotely by means of free chlorine analyzer that was verified by EAPWSS staff. See Appendix A for a summary of 2023 water quality data. Flow leaving the EMPS directed to STASWSS is measured utilizing a magnetic flow measuring device. See Appendix B for 2023 total daily flow values and Appendix C for 2023 daily instantaneous peak flow rates.

Statement of Comparison:

The previous Certificate of Approval and new Municipal Drinking Water License for the STASWSS does not identify a rated capacity for the system. The pumping station has an available capacity of 68,169m3/day, whereby instantaneous peak flow capacity is rated at 789 L/s.

The maximum total daily flow witnessed by the system in 2023 was 10,766 m3/day, approximately 16% of the capacity. The maximum instantaneous peak flow witnessed by the system in 2023 was 503 L/s, approximately 64% of the capacity. The average total daily flow witnessed by the system in 2023 was 6,443 m3/day, approximately 9% of the capacity.

Ministry of the Environment Conservation and Parks Inspections:

The MECP conducted an inspection of the St. Thomas portion of the EMPS annually along with the STASWSS operated by the City of St Thomas. A MECP inspection took place November 23, 2023 and the final inspection report was issued on January 25 2024. There were no non-compliances identified in the inspection report. The final inspection rating received for the 2022-2023 reporting year was 100.00%.

Benefiting Municipalities:

Following the adoption of the Municipal Water and Sewer Transfer Act in 1997, the Ontario Ministry of the Environment Conservation and Parks transferred the ownership of the three booster stations from the Province of Ontario to the water systems' benefiting municipalities. As a result, the AASWSS portion of the EMPS and associated equipment is owned by the Aylmer Area Secondary Water Supply System Joint Board of Management, the London portion of the EMPS is owned by the Corporation of the City of London, and the STASWSS portion of the EMPS and associated appurtenances are owned by the St. Thomas Area Secondary Water System Joint Board of Management. Jointly these water systems benefit, and are managed on behalf of, the communities of Aylmer, Central Elgin, London, Malahide, Southwold and St. Thomas. A list of municipalities that receive water directly and indirectly from the STSWSS at the EMPS is provided in Appendix D.

The Ontario Clean Water Agency operates and maintains the EMPS, under contracts to the AASWSS, The Corporation of the City of London and the STASWSS.

This report was prepared by Ontario Clean Water Agency, the Operating Authority for the St. Thomas portion of the EMPS, on behalf of the St. Thomas Area Secondary Water Supply System Joint Board of Management.

APPENDIX A – EMPS ST. THOMAS
WATER QUALITY SUMMARY 2023

MONTH	POST TREATMENT Free Cl_2 mg/L
January	
Minimum	0.85
Maximum	1.62
Average	1.37
February	
Minimum	0.32
Maximum	1.65
Average	1.25
March	
Minimum	0.65
Maximum	1.77
Average	1.42
April	
Minimum	0.83
Maximum	1.78
Average	1.45
May	
Minimum	0.94
Maximum	1.63
Average	1.46
June	
Minimum	0.80
Maximum	1.63
Average	1.43
July	
Minimum	0.79
Maximum	2.14
Average	1.42
August	
Minimum	0.81
Maximum	1.68
Average	1.39
September	
Minimum	0.73
Maximum	1.54
Average	1.36
October	
Minimum	0.77
Maximum	2.72
Average	1.36
November	
Minimum	0.81
Maximum	1.47
Average	1.36
December	
Minimum	0.86
Maximum	1.48
Average	1.27
Yearly Minimum	0.32
Yearly Maximum	2.72
Yearly Average	1.38

Note: Chlorine residuals obtained from SCADA.

APPENDIX B
ST. THOMAS TOTAL DAILY FLOW - 2023

Date	January m^3	February m^3	March m^3	April m^3	May m^3	June m^3	July m^3	August m^3	September m^3	October m^3	November m^3	December m^3	
1	6,929	6,081	5,335	6,375	5,293	9,662	6,429	6,182	7,684	5704	6,498	5,420	
2	6,511	5,828	6,037	5,427	5,936	10,230	5,421	6,420	5,472	5958	6,221	5,313	
3	5,648	5,691	5,784	5,559	5,544	9,655	6,101	6,392	6,043	5689	6,221	6,013	
4	6,200	6,410	6,203	5,700	5,092	10,547	5,974	8,078	8,600	7071	6,385	9,517	
5	6,727	5,358	7,222	5,519	6,231	9,636	6,728	5,607	8,364	5151	7,978	7,026	
6	5,492	5,524	5,555	4,899	6,441	8,341	6,760	5,494	5,517	6300	6,791	6,402	
7	6,112	4,527	6,287	5,800	6,309	9,205	5,358	5,101	5,885	4932	6,254	6,015	
8	6,511	6,302	5,679	6,707	6,198	8,033	6,036	5,712	6,103	4724	5,520	5,924	
9	5,619	5,343	5,957	5,650	6,039	8,397	5,624	5,583	5,049	5208	5,594	5,667	
10	6,650	5,335	5,717	6,114	6,270	9,244	6,507	7,598	5,069	6818	5,339	7,548	
11	6,678	5,792	5,916	5,603	6,520	7,015	5,564	5,544	5,375	4773	6,211	7,060	
12	6,567	6,417	6,158	6,354	7,047	6,049	6,160	6,751	5,494	6574	5,893	5,712	
13	6,748	5,978	6,803	5,999	8,212	6,020	5,851	7,229	5,605	4790	5,185	6,244	
14	6,087	5,432	7,125	5,863	6,534	6,296	7,624	6,248	7,364	5766	7,367	7,314	
15	6,595	5,513	4,941	6,084	7,617	6,015	6,069	4,534	8,205	5952	4,839	6,479	
16	7,589	5,889	6,328	7,080	7,219	6,509	5,440	6,730	7,418	6647	4,535	7,210	
17	7,699	5,134	5,879	6,350	6,499	8,947	6,324	5,166	5,798	4804	5,299	7,732	
18	5,717	6,179	6,673	6,087	6,745	8,963	6,226	5,951	7,432	6078	6,748	7,088	
19	5,715	6,047	7,814	6,122	6,832	8,829	6,760	5,608	6,715	5855	7,353	6,842	
20	6,170	6,043	6,993	5,877	5,759	8,902	6,444	5,775	7,340	9950	7,222	6,649	
21	6,401	5,654	5,617	6,233	6,477	9,043	5,990	6,727	6,496	5512	6,324	7,305	
22	6,692	5,976	6,125	7,083	8,455	7,290	5,528	6,259	6,814	5544	7,039	7,386	
23	6,536	7,002	5,564	6,931	6,986	6,479	7,374	5,239	6,114	5863	6,674	8,296	
24	5,062	5,653	5,013	6,499	7,692	6,511	7,815	6,369	7,014	5064	6,448	6,756	
25	7,261	6,578	5,917	5,536	7,782	8,304	6,340	7,082	5,817	5155	6,921	5,665	
26	7,441	6,560	6,257	6,450	7,635	6,471	6,793	6,506	5,478	5086	6,279	5,710	
27	6,757	6,424	5,517	5,719	9,102	5,703	5,413	7,313	5,491	6996	7,057	5,846	
28	8,042	5,224	5,768	6,639	10,535	6,825	6,432	8,425	5,094	5658	6,669	6,868	
29	8,023		5,578	5,511	10,766	7,134	5,749	5,649	5,909	5107	6,568	7,657	
30	6,704		5,763	6,680	9,490	8,917	5,238	5,828	5,782	5858	6,808	6,587	
31	6,302		5,133		8,579		6,303	6,650		6256		6,414	
Total	203,185	163,894	186,658	182,450	221,836	239,172	192,375	193,750	190,541	180,843	190,240	207,665	2,352,609
Minimum	5,062	4,527	4,941	4,899	5,092	5,703	5,238	4,534	5,049	4,724	4,535	5,313	4,527
Maximum	8,042	7,002	7,814	7,083	10,766	10,547	7,815	8,425	8,600	9,950	7,978	9,517	10,766
Average	6,554	5,853	6,021	6,082	7,156	7,972	6,206	6,250	6,351	5,834	6,341	6,699	6,443

APPENDIX C
ST. THOMAS DAILY INSTANTANEOUS PEAK FLOW - 2023

Date	January L/s	February L/s	March L/s	April L/s	May L/s	June L/s	July L/s	August L/s	September L/s	October L/s	November L/s	December L/s	
1	273	279	274	270	280	279	281	281	270	276	295	279	
2	273	279	272	271	283	280	279	278	266	289	286	285	
3	272	282	272	271	277	275	272	271	269	285	295	279	
4	265	276	266	271	275	273	281	272	284	287	282	286	
5	270	276	270	269	277	286	278	280	276	290	291	303	
6	270	281	269	281	278	271	281	284	284	276	287	287	
7	273	283	277	278	277	270	284	276	295	269	285	273	
8	272	278	282	278	278	268	283	285	282	271	282	282	
9	272	273	282	280	276	280	283	278	280	271	282	274	
10	272	276	281	281	275	265	273	298	284	268	281	277	
11	282	274	282	279	296	269	284	289	284	284	279	274	
12	283	275	281	280	286	266	286	286	277	286	286	273	
13	280	276	279	274	279	269	268	283	286	291	280	271	
14	280	278	282	271	276	274	281	272	276	283	289	278	
15	281	277	276	272	279	277	286	279	280	277	282	270	
16	282	276	277	272	282	275	271	288	287	283	275	279	
17	281	275	278	275	279	273	267	275	295	280	275	269	
18	279	275	274	277	285	278	278	275	296	280	274	270	
19	276	277	275	275	274	276	288	276	292	503	278	270	
20	274	274	276	281	283	278	286	285	290	270	278	279	
21	274	274	280	271	273	284	279	293	285	278	275	278	
22	276	275	273	274	276	279	287	279	285	281	278	279	
23	277	275	275	269	273	276	277	281	278	286	272	283	
24	272	275	270	273	293	288	279	272	273	282	276	284	
25	274	275	271	270	289	284	282	273	279	286	276	280	
26	273	276	271	288	278	282	297	290	288	273	284	282	
27	274	276	273	281	275	285	287	285	287	282	289	282	
28	274	276	271	291	277	280	271	273	273	271	280	276	
29	272		271	277	286	284	279	290	275	271	280	283	
30	273		271	279	280	274	285	280	278	269	283	273	
31	274		269		276		275	293		280		276	
Minimum	265	273	266	269	273	265	267	271	266	268	272	269	265
Maximum	283	283	282	291	296	288	297	298	296	503	295	303	503
Average	275	277	275	276	280	277	280	281	282	286	282	279	279

Drinking-Water System Number:	260078897
Drinking-Water System Name:	**Elgin Middlesex Pumping Station - St. Thomas Area Secondary Water Supply System**
Drinking-Water System Owner:	St. Thomas Area Secondary Water Supply System Joint Board of Management
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2023 through December 31, 2023

Complete if your Category is Large Municipal Residential or Small Municipal Residential

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 [ ]

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

City of St. Thomas, City Hall
Environmental Services
545 Talbot Street
St Thomas, ON.
N5P 3V7
www.city.st-thomas.on.ca

Elgin Area Primary Water Supply System
Treatment Plant
43665 Dexter Line, Union, ON
N0L 2L0

Complete for all other Categories.

Number of Designated Facilities served:

N/A

Did you provide a copy of your annual report to all Designated Facilities you serve?
Yes [ ] No [ ]

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 [ ]

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Systems that receive their drinking water directly from the St. Thomas EMPS:

Drinking Water System Name	Drinking Water System Number
St. Thomas Area Secondary Water Supply System	260078897
St. Thomas Distribution System	260002187

Systems that receive their drinking water indirectly from the St. Thomas EMPS:

Drinking Water System Name	Drinking Water System Number
Dutton/Dunwich Distribution System	220002967
Municipality of Central Elgin	260004761
Southwold Distribution Supply	210001362

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 [X] No [ ]

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

[X] Public access/notice via the web
[X] Public access/notice via Government Office
[ ] Public access/notice via a newspaper
[X] Public access/notice via Public Request
[ ] Public access/notice via a Public Library
[ ] Public access/notice via other method

Describe your Drinking-Water System

The Elgin Middlesex Pumping Station (EMPS) receives water from the Elgin Area Primary Water Supply System (EAPWSS), which is located to the east of Port Stanley. Water from the EAPWSS is pumped into the EAPWSS site reservoirs located at the EMPS. The total capacity of the 2 reservoirs is 54,600m$^{3.}$ Through various secondary water supply systems, the EMPS serves the Cities of London, St. Thomas, Town of Aylmer, and Municipalities of Central Elgin, Malahide, Dutton-Dunwich and Southwold.

The EMPS is a shared facility. Booster pumps are dedicated to directing water to the City of London, St. Thomas Secondary and/or Aylmer Area Secondary Water Supply Systems. A gas chlorine system is utilized to provide re-chlorination for water being directed to the St. Thomas and Aylmer Area Secondary Water Supply Systems. The facility also houses a 600kW standby diesel generator that provides emergency power to support pumping of water into the St. Thomas and Aylmer systems during a power interruption.

Three pipelines exit the EMPS: one exits to the south of the EMPS property and extends west to service the St. Thomas Secondary Water Supply System; the second services the City of London distribution system; the third services the municipalities on the Aylmer Area Secondary Water Supply System.

List all water treatment chemicals used over this reporting period

Chlorine Gas

Were any significant expenses incurred to?

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

Please provide a brief description and a breakdown of monetary expenses incurred

- Chlorine System Repairs
- Chlorine Booster Pump Replacement
- Elgin Middlesex PS PFD Consolidation
- Generator and Chlorine Room Lighting Upgrades
- UPS Replacement
- Discharge Surge Control Valve (Flow control valve also purchased)
- Generator Full Load Test and Engine & Transfer Switch Condition Assessment

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
N/A	N/A	N/A	N/A	N/A	**N/A**

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 Results (CFU/100 mL) (min #)-(max #)	Range of Total Coliform Results (CFU/100 mL) (min #)-(max #)	Number of Heterotrophic Plate Count (HPC) Samples	Range of HPC Results (CFU/1 mL) (min #)-(max #)
Distribution	58	(0) – (0)	(0) – (0)	58	(<10) - (100)

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

Parameter	Number of Grab Samples (Continuous Monitoring)	Min	Max	Avg
Free Chlorine Residual (mg/L)	8760	0.32	2.72	1.38

Note:

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
THM **(**NOTE**:** result value is based on one sample**)**	January 4, 2023 April 4, 2023 July 4, 2023 October 3, 2023	13 15 27 32	µg/L µg/L µg/L µg/L	NO
THM **Running Annual Average (RAA)**	2023	22	µg/L	NO
HAA **(**NOTE**:** result value is based on one sample**)**	January 4, 2023 April 4, 2023 July 4, 2023 October 3, 2023	ND ND 8.2 6.5	µg/L µg/L µg/L µg/L	NO
HAA **Running Annual Average (RAA)**	2023	7.4	µg/L	NO

ND= Non-detect

APPENDIX E EMPS Chemical Consumption - 2023	
Month	**Total Chlorine Gas Usage - Kg**
January	159
February	136
March	143
April	153
May	173
June	184
July	163
August	167
September	181
October	181
November	177
December	142
Yearly Total	**1959**

Please note: Aylmer and St.Thomas combined cl2 usage

APPENDIX B

Drinking-Water System Number:	**260078897**
Drinking-Water System Name:	**St. Thomas Area Secondary Water Supply System (Transmission Main)**
Drinking-Water System Owner:	Joint Board of Management of the St. Thomas Area Secondary Water Supply System
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2023 through December 31, 2023

Complete if your Category is Large Municipal Residential or Small Municipal Residential

Does your Drinking-Water System serve more than 10,000 people? Yes [ ] No [X]

Is your annual report available to the public at no charge on a web site on the Internet?
Yes [X] No [ ]

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

City of St. Thomas, City Hall
Environmental Services
545 Talbot Street
St Thomas, Ontario

Complete for all other Categories.

Number of Designated Facilities served:

NA

Did you provide a copy of your annual report to all Designated Facilities you serve?
Yes [ ] No [ ]

Number of Interested Authorities you report to: NA

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?
Yes [ ] No [ ]

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
City of St. Thomas Water Distribution System	260002187
Municipality of Central Elgin	260004761
Township of Southwold	210001362
Dutton/Dunwich Distribution System	220002967

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 [X] No [ ]

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

[x] Public access/notice via the web
City of St. Thomas Website – www.st.thomas.ca
[x] Public access/notice via Government Office
[ ] Public access/notice via a newspaper
[x] Public access/notice via Public Request
[ ] Public access/notice via a Public Library
[ ] Public access/notice via other method _____

Describe your Drinking-Water System

The St. Thomas Area Secondary Water Supply System (STASWSS) consists of a Pumping Station within the Elgin Middlesex Pumping Station (EMPS), a 0..76 ML elevated water tower , several meter chambers, transmission watermains of 500 mm and 750 mm diameter.

The STASWSS is supplied water from the Elgin Middlesex Pumping Station (EMPS) and Reservoir. The EMPS reservoir is filled by the Elgin Area Primary Water Supply System (EAPWSS) which obtains its water from Lake Erie and provides water treatment at the Elgin Area Primary Water Treatment Plant, located on Dexter Line, East of Port Stanley Ontario.

Operation and Maintenance of the EMPS- St. Thomas section is currently under contract with the Ontario Clean Water Agency (OCWA). The operation and maintenance of the associated transmission main and distribution system of the STASWSS is currently conducted by the City of St. Thomas – Environmental Services Dept.

List all water treatment chemicals used over this reporting period

12% Sodium Hypochlorite Chlorine Gas (EMPS)
Sodium Metabisulphite

Were any significant expenses incurred to?

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

Please provide a brief description and a breakdown of monetary expenses incurred

$13,000	**Ford Chamber pole replacement**
$8300	**Chamber F015 valve replacement**
$7800	**Ford Chamber Commissioning**

Provide details on 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
NA	NA	NA	NA	NA	NA

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 #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	NA	NA	NA	NA	NA
Treated	NA	NA	NA	NA	NA
Distribution	156	(0)-(0)	(0)-(0)	156	(<10)-(100)

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 #)
Chlorine (Grab Samples)	156	(0.74)-(1.68)
Chlorine (Continuous Monitoring)	8760	(0.00)-(2.00)

***NOTE**: For continuous monitors use 8760 as the number of samples.*

***NOTE**: The value of 0.00 mg/L was recorded on the continuous chlorine sampler as a result of equipment abnormality/SCADA issue/maintenance work or calibration.*

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
NA	NA	NA	NA	NA

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
NA	NA	NA	NA	NA

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 #)	Number of Exceedances
Plumbing	NA	NA	NA

Distribution	NA	NA	NA

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
HAA5 (NOTE: show latest annual average)	Feb 21, 2023 Apr 24, 2023 July 04, 2023 Oct 02, 2023	6.6	ug/L	no
THM (NOTE: show latest annual average)	Feb 21, 2023 Apr 24, 2023 July 04, 2023 Oct 02, 2023	31.0	ug/L	no

List 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
NA	NA	NA	NA
NA	NA	NA	NA