

A G E N D A

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

**ZOOM AND
COMMITTEE ROOM #304**

4:00 P.M.

JULY 9, 2026

APPOINTMENT OF CHAIR

DISCLOSURES OF INTEREST

MINUTES

Confirmation of the minutes of the meeting held on March 12, 2026.

NEW BUSINESS

2025 St. Thomas & Area Secondary Water Supply System Draft Financial Statements – to be
Presented by Auditor Christene Scrimgeour **Pages 2-17**

2026 Drinking Water Quality Management System (DWQMS) Management Review

Report SWB-04-26 of the Environmental Compliance Coordinator. **Pages 18-89**

2026 Rate Study and Financial Plan

Report SWB-05-26 of the Environmental Compliance Coordinator. **Page 90-198**

Elgin Middlesex Pumping Station – OCWA Combined Drinking Water Quality Management
System Operational Plan

Report SWB-06-25 of the Environmental Compliance Coordinator. **Pages 199-324**

Water Tower Branding Correspondence

A letter has been received from Jay and Jill Atcheson regarding branding of the new STASWSS
water tower. **Pages 325-326**

NEXT MEETING

ADJOURNMENT

**ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM
545 TALBOT STREET
ST. THOMAS, ONTARIO
N5P 3V7**

July 9, 2026

Scrimgeour & Company
Suite 1706, 148 Fullarton Street
London, Ontario
N6A 5P3

Dear Madame:

This representation letter is provided in connection with your audit of the financial statements (the “financial statements”) of St. Thomas Area Secondary Water Supply System for the year ended December 31, 2025, for the purpose of expressing an opinion as to whether the financial statements are presented fairly, in all material respects, in accordance with Canadian public sector accounting standards.

In making the representations outlined below, we took the time necessary to appropriately inform ourselves on the subject matter through inquiries of entity personnel with relevant knowledge and experience, and, where appropriate, by inspecting supporting documentation.

We confirm that (to the best of our knowledge and belief):

Financial statements

We have fulfilled our responsibilities as set out in the terms of the audit engagement letter dated September 3, 2025 for:

- Preparing and fairly presenting the financial statements in accordance with Canadian public sector accounting standards;
- Providing you with:
 1. Access to all information of which we are aware that is relevant to the preparation of the financial statements, such as:
 - a. Accounting records, supporting data and other relevant documentation.
 - b. Minutes of meetings or summaries of actions taken for which minutes have not yet been prepared, and
 - c. Information on any other matters, of which we are aware, that is relevant to the preparation of the financial statements;
 2. Additional information that you have requested from us for the purpose of the audit; and
 3. Unrestricted access to persons within the entity from whom you determine it necessary to obtain audit evidence.

- Ensuring that all transactions have been recorded in the accounting records and are reflected in the financial statements; and
- Designing and implementing such internal control as we determined is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error. We have also communicated to you any deficiencies in the design and implementation or the maintenance of internal control over financial reporting of which management is aware.

Fraud and Non-Compliance

We have disclosed to you:

- All of our knowledge in relation to actual, alleged or suspected fraud affecting the entity's financial statements involving:
 1. Management
 2. Employees who have significant roles in internal control; or
 3. Others where fraud could have a material effect on the financial statements;
- All of our knowledge in relation to allegations of fraud or suspected fraud communicated by employees, former employees, analysts, regulators or others;
- All known instances of non-compliance or suspected non-compliance with laws and regulations, including all aspects of contractual agreements that should be considered when preparing the financial statements; and
- All known, actual, or possible litigation and claims that should be considered when preparing the financial statements; and
- The results of our risk assessments regarding possible fraud or error in the financial statements.

Related Parties

We have disclosed to you the identity of the entity's related parties and all the related party relationships and transactions of which we are aware. We have appropriately accounted for and disclosed such relationships and transactions in accordance with the requirements of the accounting framework.

Estimates

We acknowledge our responsibility for determining the accounting estimates required for the preparation of the financial statements in accordance with Canadian public sector accounting standards. Those estimates reflect our judgement based on our knowledge and experience of past and current events, and on our assumptions about conditions we expect to exist and courses of action we expect to take. We confirm that the significant assumptions and measurement methods used by us in making accounting estimates, including those measured at fair value, are reasonable.

Subsequent Events

All events subsequent to the date of the financial statements and for which Canadian public sector accounting standards requires adjustment or disclosure have been adjusted or disclosed.

Commitments and Contingencies

There are no commitments, contingent liabilities/assets or guarantees (written or oral) that should be disclosed in the financial statements, other than as disclosed in the financial statements. This includes liabilities arising from contract terms, illegal acts or possible illegal acts, and environmental matters that would have an impact on the financial statements.

Adjustments

We have reviewed, approved and recorded all of your proposed adjustments, as attached, to our accounting records. This includes journal entries, changes to account coding, classification of certain transactions and preparation of, or changes to, certain accounting records.

Misstatements

The effects of uncorrected misstatements are immaterial, individually and in aggregate, to the financial statements as a whole. There are no uncorrected misstatements.

Accounting Policies

All significant accounting policies are disclosed in the financial statements and are consistent with those used in the previous period.

Future Plans

We have no plans or intentions that may materially affect the carrying value or classification of assets and liabilities reflected in the financial statements.

Yours very truly,

Name

Title

Name

Title

St. Thomas Area Secondary Water Supply System

Year End: December 31, 2025

Adjusting journal entries

Date: 1/1/2025 To 12/31/2025

5

Completed by	Reviewed by	Partner
EL 5/11/2026	CAS 6/18/2026	CAS 6/18/2026

370

Number	Date	Name	Account No	Debit	Credit	Recurrence	Misstatement
1	12/31/2025	Investment in Tangible Capital Assets	4-01-03-023-1850		73,244.43		
1	12/31/2025	Tsf to/from Capital Fund	4-80-80-080-9000	73,244.43			
		To reallocate TCA surplus for amortization.					
2	12/31/2025	Transfer to/from Reserve Fund	4-40-41-412-7111		78,714.99		
2	12/31/2025	Transfer to/from reserves	4-80-80-080-7011	78,714.99			
		To set up capital funding and transfer to the reserve.					
				151,959.42	151,959.42		
		Net Income (Loss)	(73,244.43)				

**ST. THOMAS AREA SECONDARY WATER SUPPLY
SYSTEM**

FINANCIAL STATEMENTS

FOR THE YEAR ENDED DECEMBER 31, 2025

**ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM
FINANCIAL STATEMENTS
FOR THE YEAR ENDED DECEMBER 31, 2025**

-1-	Independent Auditor's Report
-3-	Statement of Financial Position
-4-	Statement of Operations and Accumulated Surplus
-5-	Statement of Cash Flows
-6-	Statement of Change in Net Financial Assets
-7-	Notes to the Financial Statements
-10-	Schedule 1 - Schedule of Tangible Capital Assets



INDEPENDENT AUDITOR'S REPORT

To the Members of Board, Inhabitants and Ratepayers of the St. Thomas Area Secondary Water Supply System

Opinion

We have audited the accompanying financial statements of St. Thomas Area Secondary Water Supply System (the "Joint Board"), which comprise the Statement of Financial Position as at December 31, 2025, and Statements of Operations and Accumulated Surplus, Cash Flows and Change in Net Financial Assets for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of St. Thomas Area Secondary Water Supply System as at December 31, 2025 and its financial performance and its cash flows and change in net financial assets for the year then ended in accordance with Canadian public sector accounting standards.

Basis of Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Joint Board in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

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

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

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

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

SCRIMGEOUR & COMPANY
CPA PROFESSIONAL CORPORATION

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

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

We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Joint Board's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Joint Board's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Joint Board to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

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

July 9, 2026
London, Canada

LICENSED PUBLIC ACCOUNTANT

**ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM
STATEMENT OF FINANCIAL POSITION
AS AT DECEMBER 31, 2025**

	2025	2024
FINANCIAL ASSETS		
Due from the City of St. Thomas (note 3)	\$ 7,273,637	\$ 6,033,877
NET FINANCIAL ASSETS	7,273,637	6,033,877
NON-FINANCIAL ASSETS		
Capital assets - Schedule 1 (note 2.c)	983,249	1,056,494
	983,249	1,056,494
ACCUMULATED SURPLUS (page 4) (note 4)	\$ 8,256,886	\$ 7,090,371

Approved on behalf of the Board:

Approved on behalf of the Board:

The accompanying notes are an integral part of the financial statements

**ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM
STATEMENT OF OPERATIONS AND ACCUMULATED SURPLUS
FOR THE YEAR ENDED DECEMBER 31, 2025**

	Budget 2025	Actual 2025	Actual 2024
REVENUE			
Current interest	\$ -	\$ 249,911	\$ 276,575
Water billings	3,550,000	4,539,200	3,701,147
	3,550,000	4,789,111	3,977,722
EXPENDITURES			
Amortization	-	73,245	72,709
OCWA contract and callouts	335,300	338,669	291,758
Operating and maintenance	2,423,000	3,063,246	2,452,529
Wages	130,600	147,436	117,665
	2,888,900	3,622,596	2,934,661
EXCESS OF REVENUE OVER EXPENDITURES	661,100	1,166,515	1,043,061
ACCUMULATED SURPLUS, BEGINNING OF YEAR	7,090,371	7,090,371	6,047,310
ACCUMULATED SURPLUS, END OF YEAR	\$ 7,751,471	\$ 8,256,886	\$ 7,090,371

The accompanying notes are an integral part of the financial statements

**ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM
STATEMENT OF CASH FLOWS
FOR THE YEAR ENDED DECEMBER 31, 2025**

	2025	2024
NET INFLOW (OUTFLOW) OF CASH RELATED TO THE FOLLOWING ACTIVITIES:		
OPERATING ACTIVITIES		
Excess of revenue over expenditures (page 4)	\$ 1,166,515	\$ 1,043,061
Non-cash charges to operations		
Amortization	73,245	72,709
Net change in working capital other than cash (A)	(1,239,760)	(1,115,770)
Change in cash during the year	-	-
Cash, beginning of year	-	-
CASH, END OF YEAR	\$ -	\$ -

(A) Consists of changes in and due from the City of St. Thomas.

The accompanying notes are an integral part of the financial statements

**ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM
STATEMENT OF CHANGE IN NET FINANCIAL ASSETS
FOR THE YEAR ENDED DECEMBER 31, 2025**

	2025	2024
Excess of revenue over expenditures (page 4)	\$ 1,166,515	\$ 1,043,061
Amortization of tangible capital assets	73,245	72,709
Increase in net financial assets	1,239,760	1,115,770
NET FINANCIAL ASSETS, BEGINNING OF YEAR	6,033,877	4,918,107
NET FINANCIAL ASSETS, END OF YEAR	\$ 7,273,637	\$ 6,033,877

The accompanying notes are an integral part of the financial statements

**ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM
NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED DECEMBER 31, 2025**

1. Description of the Joint Board

Effective November 13, 1998, the Ministry of Environment issued a Transfer Order to transfer ownership and associated properties of the St. Thomas Area Secondary Water Supply System (the Joint Board) from the Ontario Clean Water Agency ("OCWA") to area municipalities. As part of the Transfer Order, a Joint Board of Management ("the Joint Board") was established to govern the management of the System. The Joint Board consists of one representative of the Councils of the Municipality of Central Elgin, the Township of Southwold, and two representatives of the Council of the City of St. Thomas. The City of St. Thomas is the administering municipality on behalf of the Municipalities and the Joint Board. The Joint Board has authority to manage the system on behalf of the Municipalities for the purpose of constructing, operating, repairing and improving the System.

2. Significant accounting policies

The financial statements of the St. Thomas Area Secondary Water Supply System have been prepared by management in accordance with Canadian public sector accounting standards. The significant accounting policies are summarized as follows:

a. Revenue recognition

Revenue is recognized when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured. Government grants and transfers are recognized in the financial statements as revenue in the period in which events giving rise to the transfer occur, providing the transfers are authorized, any eligibility criteria have been met, and reasonable estimates of the amounts can be made.

b. Use of estimates

The preparation of financial statements in conformity with Canadian public sector accounting standards requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenue and expenditures during the period. Actual results could differ from management's best estimates, as additional information becomes available in the future.

c. Tangible capital assets

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

Equipment	15 to 80 years
Reservoir	100 years
Waterlines	75 years

**ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM
NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED DECEMBER 31, 2025**

2. Significant accounting policies continued

d. Budget

The Joint Board set a budget based on the accounting policies adopted previous to PSAB Handbook policy for tangible capital assets.

e. Deferred revenue

Revenue received for specific purposes which are externally restricted by legislation, regulation or agreement and are not available for general municipal purposes are accounted for as deferred revenue on the Statement of Financial Position. The revenue is recognized in the Statement of Operations and Accumulated Surplus in the year in which it is used for the specified purpose.

f. Asset retirement obligations

An asset retirement obligation is recognized when as at the financial reporting date, all of the following criteria are met:

- there is a legal obligation to incur retirement costs in relation to a tangible capital asset;
- the past transaction or event giving rise to the liability has occurred;
- it is expected that the future economic benefits will be given up; and
- a reasonable estimate of the amount can be made.

Buildings and underground pipes containing asbestos, are estimated and recognized as a liability and an increase in the cost of the asset at the time of acquisition. The liability is discounted annually over the same useful life as the asset's annual amortization expense, calculated in accordance with the Joint Board's depreciation policies. Management has evaluated its tangible capital assets and determined that there is only a short portion of the underground pipe that may contain asbestos and therefore, has not recorded any asset retirement obligation.

3. Continuing operations

All banking activities are administered by the City of St. Thomas, on behalf of the Joint Board's activities. The amount due from the City of St. Thomas represents assets of the reserve fund held by the City of St. Thomas.

**ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM
NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED DECEMBER 31, 2025**

4. Accumulated Surplus

Accumulated surplus consists of the following surplus balance:

	2025	2024
Reserve fund for future operations	\$ 7,273,637	\$ 6,033,877
Invested in tangible capital assets	983,249	1,056,494
	\$ 8,256,886	\$ 7,090,371

5. Commitment

The Joint Board has contracted with OCWA to operate and maintain their portion of the Elgin Middlesex Pumping Station for a five year term which ending December 31, 2027. The Joint Board is responsible for 28.5% of the overall contracted amount with annual costs for 2025 of \$69,496 (2024 - \$68,201).

ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM
SCHEDULE 1 - SCHEDULE OF TANGIBLE CAPITAL ASSETS
FOR THE YEAR ENDED DECEMBER 31, 2025

	Equipment	Reservoir	Waterlines	Total
COST				
Balance, beginning of year	\$ 1,216,989	\$ 76,621	\$ 1,433,922	\$ 2,727,532
Add:				
Additions during the year	-	-	-	-
Less:				
Disposals during the year	-	-	-	-
BALANCE, END OF YEAR	1,216,989	76,621	1,433,922	2,727,532
ACCUMULATED AMORTIZATION				
Balance, beginning of year	709,083	43,673	918,282	1,671,038
Add:				
Amortization during the year	42,177	766	30,302	73,245
Less:				
Disposals during the year	-	-	-	-
BALANCE, END OF YEAR	751,260	44,439	948,584	1,744,283
NET BOOK VALUE OF TANGIBLE CAPITAL ASSETS	\$ 465,729	\$ 32,182	\$ 485,338	\$ 983,249

This schedule is provided for information purposes only



Report No.
SWB 04-26

File No.

Directed to: The Chair and Members of the Board of Management of the St. Thomas Area Secondary Water Supply System

Meeting Date:
July 9, 2026

Department: Environmental Services

Prepared By: Karel Kamerman, B.Sc., C.Tech.
Environmental Compliance Coordinator

Attachment
2026 Management Review Meeting Minutes

Subject: 2026 DWQMS Management Review

Recommendation:

THAT: Report SWB 04-26 relating to St. Thomas Area Secondary Water Supply System (STASWSS) Drinking Water Quality Management System (DWQMS) – 2026 Management Review, be received for information.

Background:

As the Operating Authority for the St. Thomas Area Secondary Water Supply System (STASWSS), the City of St. Thomas Environmental and Infrastructure Services is required to maintain accreditation to the Drinking Water Quality Management Standard (DWQMS). One requirement of the DWQM Standard is to conduct a meeting on an annual basis that evaluates the continuing suitability, adequacy, and effectiveness of our Drinking Water Quality Management System, which has been developed to meet the DWQM Standard. This annual meeting is labelled the Management Review and was conducted on May 26, 2026.

As part of the Management Review Meeting, information related to 16 mandatory (and additional) topics of discussion were reviewed pertaining to the DWQMS and the STASWSS’s drinking water system operations and maintenance. The minutes of the meeting are provided as an attachment to this report. Discussion and decisions made as part of the Management Review have been recorded and compiled in the meeting minutes, which were recorded by the Environmental Compliance Coordinator.

The Management Review Meeting was held on May 26, 2026, and was attended by Kevin De Leebeeck (OA Owner Representative/Top Management), Chris Andrew (Manager of Water and Sewer) Shayne Reitsma (QMS Representative) and Karel Kamerman (Environmental Compliance Coordinator).

Action Items identified as part of the Management Review Meeting have been added to the Corrective and Preventative Action Tracking Spreadsheet. As per the DWQMS Continual Improvement Procedure, the Environmental Compliance Coordinator will follow up on the action items identified to ensure they are addressed within the associated timelines.

Financial Impact:

There is no financial impact to the Board related to this report.

Respectfully,

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

Approved By:
Manager
Development and
Compliance

City Engineer



DWQMS Management Review

St. Thomas Area Secondary Water Supply System

May 26, 2026
1:00 PM

St. Thomas City Hall – ES Upper Boardroom

MEETING MINUTES

Attendee(s)

Present: **Kevin De Leebeeck** – Director of Environmental & Infrastructure Services and City Engineer, City of St. Thomas
Chris Andrew – Manager of Water/Sewer
Shayne Reitsma – Manager of Development & Compliance, City of St. Thomas
Karel Kamerman – Environmental Compliance Coordinator

Regrets: None

Agenda Items

a. Incidents Of Regulatory Non-Compliance

The St. Thomas Area Secondary Water Supply System (STASWSS) annual MECP inspection was held in November 2025, for the period of September 1, 2024, to September 30, 2025. The Inspection Report and Inspection Risk Rating documentation, attached, was received in December 2025. The STASWSS received a score of 84.97%, noting three (3) non-compliant matters.

STASWSS Inspection Finding	Actions Taken:
Changes to the system registration information were not provided within ten (10) days of the change. Changes to contact information for the drinking water system were not provided to the ministry within ten days of the change. The 'Operating Authority Alternate Contact' information was incorrect and out-of-date at the time of the inspection. It should be noted that prior to the issuance of this report the owner/operating authority submitted a DWIS profile update form to update the 'Operating Authority Alternate Contact' information. No further actions are required at this time.	When the Supervisor of Water and Sewer resigned, an update should have been made to the MECP's Drinking Water Information System to provide a new contact. As noted in the inspection finding itself, an updated DWIS form was submitted to the Ministry before the inspection period was completed.
All parts of the drinking water system were not disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit. The ministry's Watermain Disinfection Procedure details disinfection procedures for planned and emergency work on watermain and specifies the operating authority shall maintain records of the information listed as a minimum. As part of this inspection the owner/operating authority provided disinfection documents associated with new watermain installation work and watermain repair records. Upon review it was found that one of these documents contained incorrect	Follow-up internal investigations revealed that the findings were based on watermain commissioning records where incorrect dates were being recorded, resulting in records demonstrating for example, 3 hours of disinfection, where 27 hours of disinfection had actually taken place. As noted in the inspection finding itself, a third-party training provider was

information that is required to be documented in accordance with the ministry's Watermain Disinfection Procedure and Ontario Regulation 128/04, Section 27 regarding record keeping requirements. From herein the owner/operating authority shall ensure that the required information as a minimum will be documented in accordance with the ministry's Watermain Disinfection Procedure and O. Reg 128/04 Section 27. Compliance shall be assessed during next the inspection period. It should be noted that prior to the issuance of this report the owner/operating authority obtained a third-party trainer to deliver a record keeping course to the operators.	brought in to provide a session on Water System Record-Keeping, to help reiterate the importance of accurate record-keeping. Additionally, a review of the document used to collect information was undertaken and revisions were made to help reduce common record-keeping errors that were identified.
Secondary disinfectant residual was not tested as required for the large municipal residential distribution system. Ontario Regulation 170/03, Schedule 7-2 requires the owner/operating authority of a large municipal residential system that provides secondary disinfection to ensure that at least seven distribution samples are taken each week and tested immediately for free chlorine residual. At least four of the samples must be taken on one day of the week, and at least three samples must be taken on a second day of the week, at least 48 hours after the samples taken on the first day. Secondary disinfection is measured in the distribution system by operators who collect manual samples in accordance with the regulated schedule above. Grab samples are collected during different days of the week and tested for free chlorine from different locations within the distribution system with measured results being over 0.05mg/L for free chlorine residual for this inspection period. The system also uses process chlorine analyzers located at the East Chamber, West Chamber, Southwold Meter Chamber and the Ford Meter Chamber to continuously monitor the free chlorine residual within the distribution system. These continuous chlorine analyzers have alarm set points to ensure the free chlorine residual is maintained above 0.05mg/L. Upon review of the chlorine residual sample summary documents provided by the operating authority it was determined that a total of one (1) chlorine residual sample was missed during this inspection period. This sample was missed the week of December 30, 2024. From herein, the owner/operating authority shall ensure the secondary disinfection residual is measured as required by O.Reg.170/03, 7-2(3).	Over the course of 2024, 453 chlorine samples were taken to satisfy Schedule 7-2 of Ont. Reg. 170/03. Over the week of December 30, 2024, 1 chlorine sample was not taken and analyzed as required by the regulation. The Residual check schedule was adjusted to collect 4 samples per day of the week, such that any recording errors made can be adequately covered by the extra checks. In addition, a Work Order has been created for the ORO to review each years Christmas Break schedule and ensure that the sampling plan will adequately cover the water systems check and sampling requirements.

b. Incidents Of Adverse Drinking-Water Tests

Zero (0) adverse drinking water events have been reported for the STASWSS over 2025.

c. Deviations From Critical Control Point Limits And Response Actions

Zero (0) deviations from the Chlorination Critical Control Point (CCP) were recorded in 2025 on the STASWSS.

d. Effectiveness Of The Risk Assessment Process

The Hazard Assessment Team convened in October 2025 to assess the effect the addition of South Edgeware Booster Station to the drinking water systems, and the redundancies it provides in emergency response. The Team convened again on March 11, 2026 to complete a re-assessment exercise. **One (1) new critical control point for the STASWSS was identified as part of these events.** Action items exist to insert a critical control point limit into the Chlorine residual Critical Control Procedure and to document a procedure for flushing the line periodically.

e. Internal And Third-Party Audit Results

Two (2) audits of the DWQMS (reports attached as appendices) have been conducted since last management

review.

All audit findings were placed in the corrective action tracking spreadsheet, discussed in a follow-up meeting, and corresponding actions were taken, or are planned, for each identified non-conformance, as described below. Opportunities for Improvement (OFI's) identified by auditors are also placed in the corrective action tracking spreadsheet and discussed in a follow-up meeting. Actions may or may not be taken in response to OFI's, based on the merit of the finding.

One (1) external audit was completed since the last management review.

From the external audit conducted on July 4, 2025, there was one (1) non-conformance identified related to the operation or maintenance of the STASWSS Water System, as described below:

NC #1: CONTINUAL IMPROVEMENT – Corrective Action processes are not fully effective. There is no evidence available to demonstrate that root causes are routinely identified for internal audit non-conformities. E.g. 2 NCs from May 2025 audit did not have root cause identified.

Correction Made: The 2 NCs from May 2025 were assessed for root cause.

Continual Improvement: A fishbone diagram was introduced to the DWQMS as a template to use to show root cause analysis has been performed.

One (1) internal audit was completed since the last management review.

From the internal audit conducted on November 6, 2025, there were no non-conformance findings related to the operation of the STASWSS.

f. Results Of Emergency Response Testing

Emergency Response Testing was completed through the debrief of a real emergency situation encountered by the Operating Authority during 2025. Summaries are provided below of the resulting actions taken in response of the debrief exercise to better emergency responses in the future.

SYSTEM - Event	Action Items Identified (Status)
STWDS – Elm and Wilson Area Boil Water Advisory (Routine Sampling returned results indicating the presence of <i>E. coli</i> bacteria in the water for a sample collected from the Sample Station located at 80 Elm St.). The PHU issued a Boil Water Advisory for an area including approximately 500 homes. Notices were posted to social media. Resamples returned with no bacterial growth.	- Discuss with PHU – Notification methods vs. affected area size. (ON-GOING: PHU is in the process of developing an internal procedure for our reference) - Determine internal limit for door-to-door notice delivery, regardless of PHU direction to hand deliver or not, update response procedure accordingly. (COMPLETE)

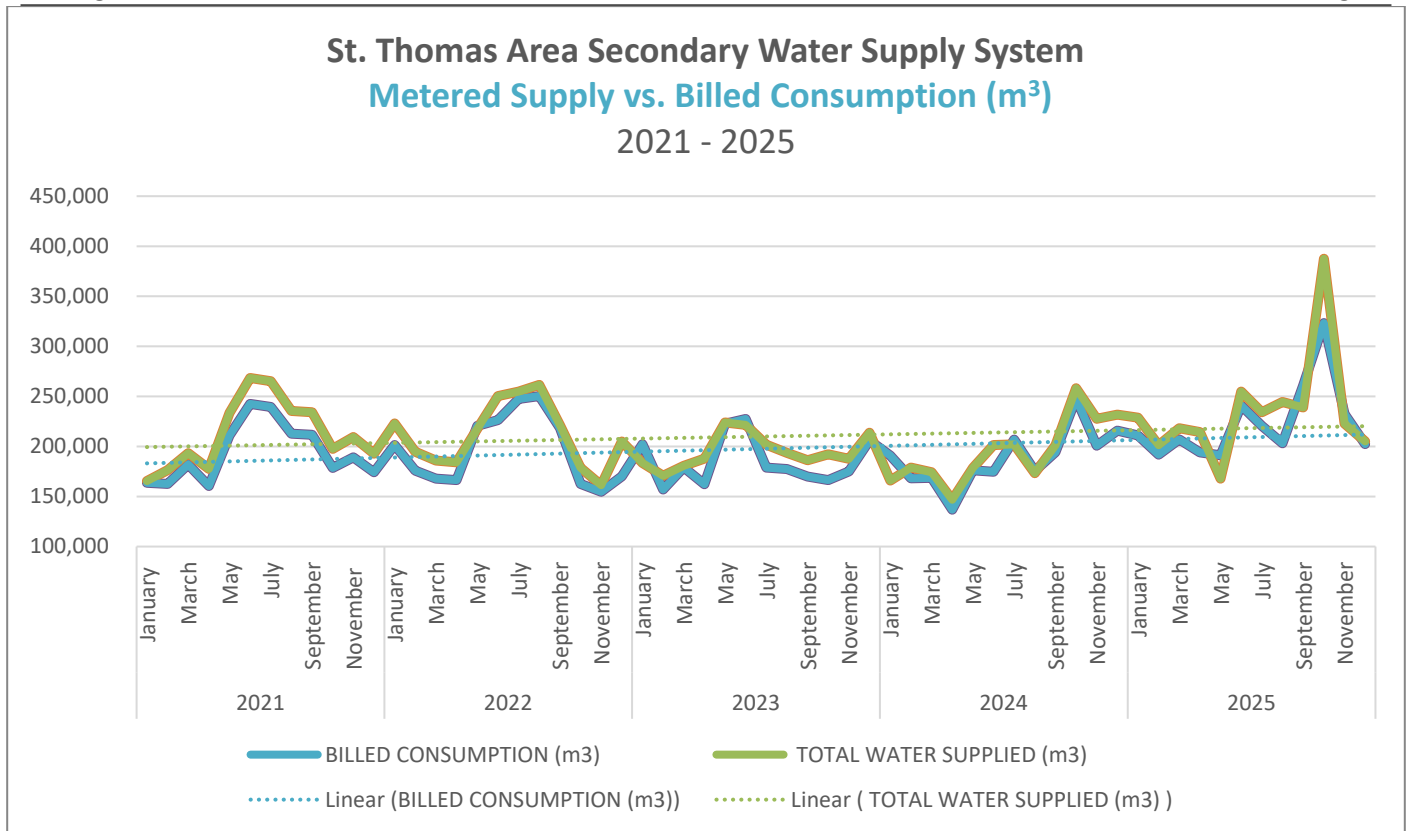
g. Operational Performance

- 2025 Summary Reports for St. Thomas Area Secondary WSS were reviewed.

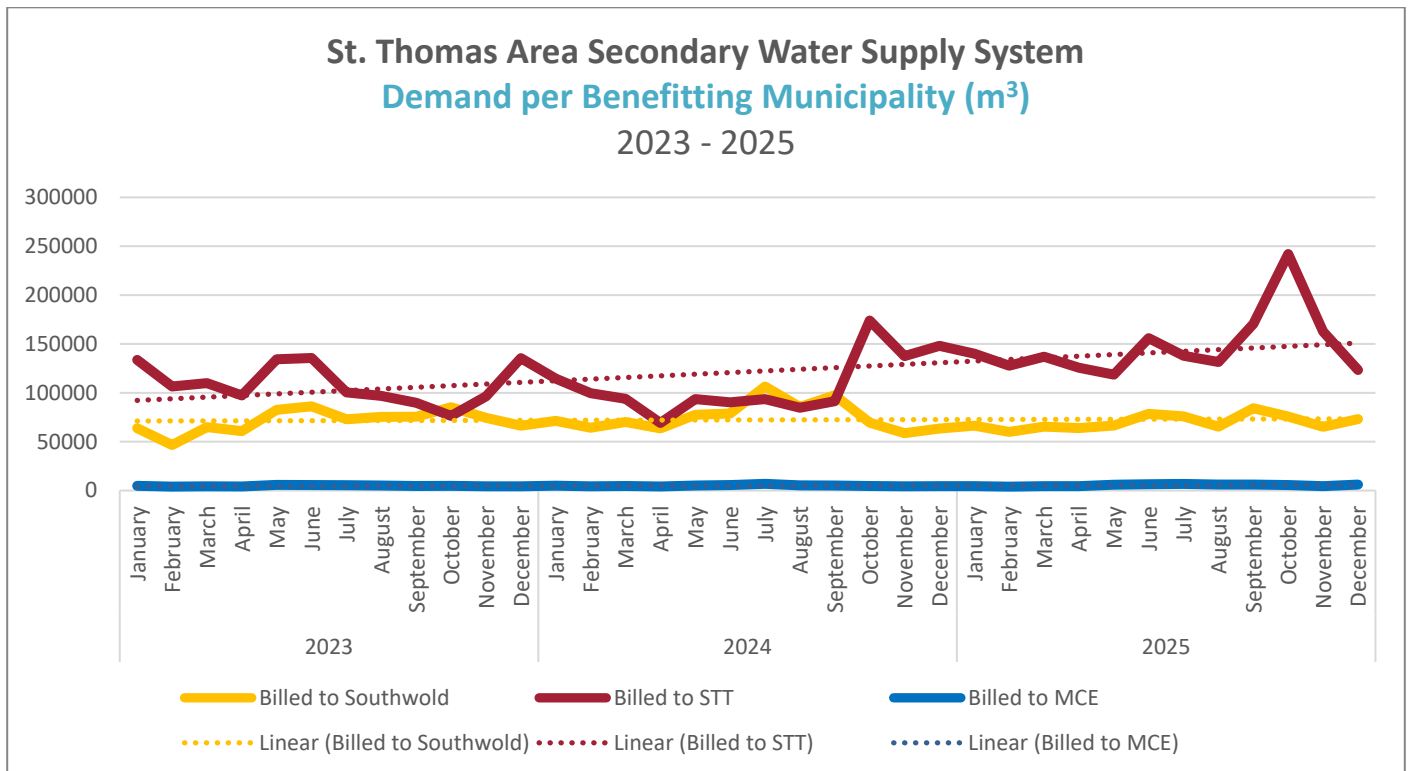
Supply and Demand Flow Trends – STASWSS

Over the year 2025, the STASWSS purchased a total of 2,818,178 m³ of water from the EAPWSS, an increase of 478,411 m³, or 20.4% increase from 2024.

STASWSS delivered a total of 2,678,626 m³ to its customers in 2025, an increase of 18.7% from the 2,256,551 m³ delivered in 2024. The graph below demonstrates the STASWSS Metered Supply vs Billed Consumption data for 2021 – 2025.



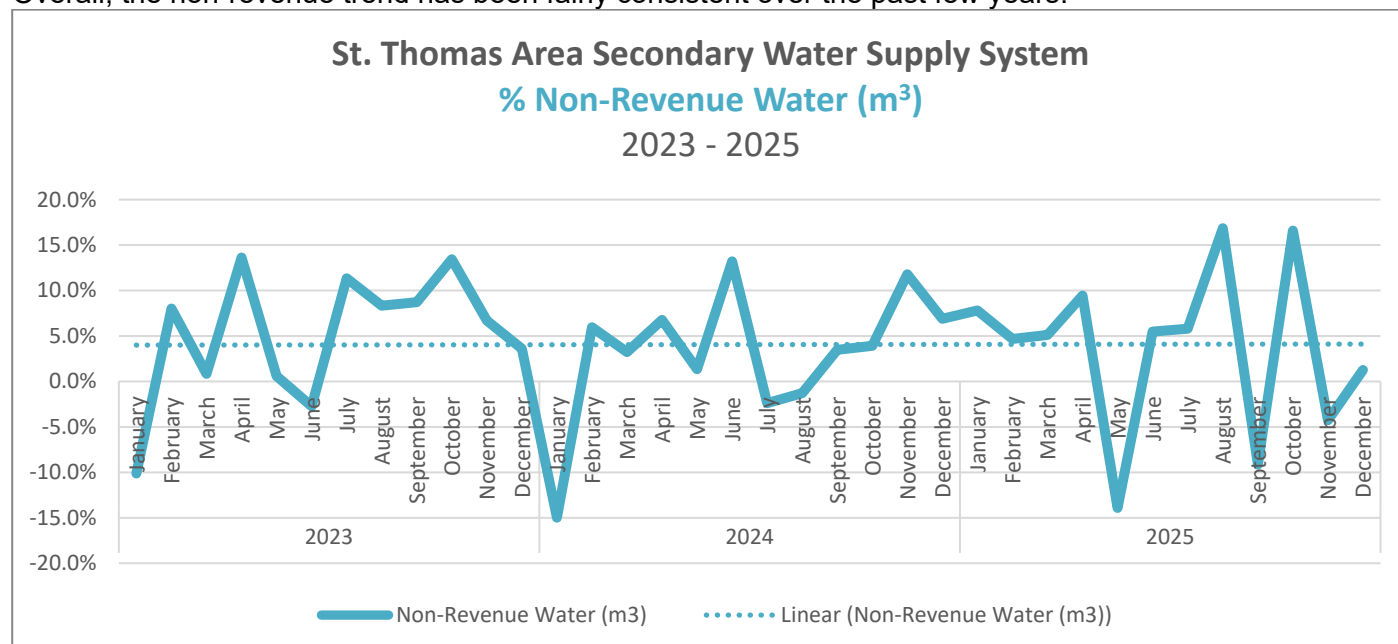
The flows delivered to each municipal partner from 2023 to 2025 are as shown in the graph below.



Non-Revenue Water – STASWSS

The graph below provides a representation of the % of Non-revenue Water from total amount of water purchased. Over the year 2025, a total of 139,552 m³ was unaccounted for, representing approx. loss of

5.0.% over the year. This is an increase from the 3.6 % loss recorded in 2024. Overall, the non-revenue trend has been fairly consistent over the past few years.



- Maintenance Tasks

The following table provides a summary of Maintenance tasks completed on the STASWSS in 2025.

St. Thomas Secondary WSS		
Task	Maintenance Standard	2025 Completion
Valve Checks	Ongoing	100%
Hydrant Checks	Annual Maintenance Frost Checks as required	100% 2 complete rounds
Hydrant Painting	As required	None
Fire Flow Testing	On Demand	None
Tower Inspection	Every 5 years	2023

h. Raw Water Supply and Drinking Water Quality Trends

Raw Water Supply

Raw water is supplied through the Elgin Area Primary Water Supply System. On March 11, 2025 and October 1, 2025 the EAPWSS issued Taste and Odour Advisories. The March event was attributed to wind, rain and significant spring runoff and the October advisory was a result of analytical results showing the presence of Geosmin and MIB. A summary of historical colour, taste and odour events is below:

Year	Summary of Event
2021	Fall – colour and odour event related to lake turnover events (numerous complaints received)
2022	Fall – pre-emptive communication, no noticeable deterioration in water quality (no complaints)
2023	Fall (November) – a number of taste and odour complaints from various locations throughout the city. PAC treatment resumed and complaints stopped.
2024	Fall (August) – lake turnover event.
2025	Spring (March) – EAPWSS issued advisory following a number of complaints. Fall (October – December 1) – EAPWSS issued pre-emptive notice following

	detection of Geosmin and MIB in raw water.
--	--

Water Quality Test Results

Reviewed 2025 STASWSS Annual and Summary Reports and 2025. A summary of historical water quality results are below.

Microbiological Testing Result Summary				
	# samples	Range of E. coli (cfu/100ml)	Range of Total Coliform (cfu/100 ml)	Range of HPC results (cfu/mL)
		MAC: 0 cfu/100 mL	MAC: 0 cfu/100 mL	No Reg. Limit
2021	104	0 - 0	0 - 0	<10 - 20
2022	161***	0 - 0	0 - 0	<10 - 1170
2023	156***	0 - 0	0 - 0	<10 - 100
2024	105	0 - 0	0 - 0	<10 - NDOG**
2025	106	0 - 0	0 - 0	<10 - 1790
** - NDOG is a lab code that means there was no data reportable on the sample due to overgrowth that may or may not be representative of water quality. The NDOG result was from a sample taken on April 15, 2024. Resamples were taken on April 18, 2024, returning with a result of <10 CFU/mL. Omitting the NDOG result, the next highest HPC result in 2024 was 100 CFU/mL *** - includes samples collected by OCWA.				

Chlorine Residual Grab Sample Results Summary			
	# samples	MIN Free Chlorine Residual (mg/L)	MAX Free Chlorine Residual (mg/L)
		Minimum: 0.05 mg/L	Aesthetic Obj.: 4.0 mg/L
2021	104	0.89	2.09
2022	161	0.77	1.85
2023	156	0.74	1.68
2024	105	0.65	1.47
2025	411*	0.79*	1.91*
* - began reporting on O. Reg 170/03 Schedule 7 checks residuals collected, rather than those collected with bacti samples.			

Trihalomethane / Haloacetic Acid Monitoring Result Summary			
	# samples	Total THM (Annual Average) ug/L	Total HAA (Annual Average) ug/L
		MAC: 100 ug/L	MAC: 80 ug/L
2021	4	30	8.05
2022	4	28.5	6.1
2023	4	31	6.6
2024	4	31	7
2025	4	28.3	6.2

No discernable trends have been observed in drinking water quality based on water quality testing and monitoring results.

i. Follow-Up Action Items From Previous Management Reviews

All action items identified in previous management reviews have been addressed. One (1) action item was identified in the most recent management review.

Item #	Action	Deadline	Responsible Party	Status
1.	Report STASWSS Management Review Meeting Minutes to Owner.	10-31-2025	SR / KK	COMPLETE

j. The Status Of Management Action Items Identified Between Reviews

No Management action items were identified between the reviews.

Throughout the year, there are many discussions between the St. Thomas Secondary System members with regards to the water distribution systems and their performance. Although there might not be any specific action items noted here, many discussions take place to help improve the system.

k. Changes That Could Affect The DWQMS, QMS Elements, Or Legislative Changes

Anticipated changes that could have an effect on the DWQMS, include:

- DWQMS 3.0 has been approved – Conformance required by first audit in 2028.
- Director's Directions for Minimum Requirements for Operational Plans has been updated. Allows for consolidation of operational plans for systems with different owners. City plans to consolidate Operational Plans to realize savings on audit costs and paperwork. – to be completed by December 31, 2026.
- MECP Best Management Practices have been published. Meetings have been set for May 2026 to consider their implementation.
- Connection to the SEBS allows for alternate feed and provides redundancy
- Tower Replacement
- Realignment of the Transmission Line to facilitate Highway 3 By-pass.
- MDWL renewal coming up in September.

l. Consumer Feedback (Including Any Concerns, Complaints, Or Expectations From Customers)

Over the 2025 calendar year, no complaints or concerns related to water quality or pressures within the STASWSS were received.

m. The Resources Needed to Maintain the Quality Management System

There are adequate resources available to St. Thomas Area Secondary Water Supply System staff to maintain the DWQMS.

n. The results of the infrastructure review

Infrastructure review is an ongoing process.

2026 Proposed projects are listed below. Meetings are held with Central Elgin and Southwold to allow for coordination of projects and shut-downs between the City, STASWSS, Central Elgin and Southwold in order

to increase awareness of planned works within the vicinity.

STASWSS - Capital / Development Projects

- Water Tower Project
- Hwy 3 Bypass STASWSS re-routing
- SEBS connection to STASWSS and St Thomas WDS.

o. Operational Plan Currency, Content, And Updates

The St. Thomas Secondary Systems Operational Plan was updated effective January 15, 2026, and revisions made to a number of procedures to reflect the Cities new Supervisor of Water and Sewer.

Significant changes made to the DWQMS since last management review include:

1. SEBS was inserted in system descriptions, etc. (MUN-DW-SOP-560)
2. Transitioning away from reference to Ford in STASWSS system. Ford Chamber now referenced as Clinton Line Chamber, likewise, the Ford Tower is now referenced as STASWSS Tower.
3. Inserted a discussion on how serviced population is estimated, to determine bacteriological sampling requirements, etc. (MUN-DW-QMS-1000)

Updates will be required in response to any system changes discussed in item K above.

p. Staff Suggestions

No staff suggestions were recorded over the 2025 calendar year.

q. Status of Municipal Drinking Water Licence and Drinking Water Works Permits

The St. Thomas AWSS is currently classified as a Level III water distribution system and is operated and maintained under approval provided by Ministry of Environment, Conservation and Parks. The system holds the below list of approvals and classification certificates, which are appended to these minutes.

	ID #	Issue #	Renewal Application Date
DWWP	190-201	3 - Sept. 30, 2021	N/A
MDWL	190-101	5 - Sept. 30, 2021	29-Mar-26 – application was made on March 26, 2026. Awaiting Financial Plan to complete application.
Classification Certificate	5724	Water Distribution Level III	N/A

Identified Action Items

Item #	Action	Deadline	Responsible Party
1.	Report STASWSS Management Review Meeting Minutes to Owner.	10-31-2026	SR / KK
2.			
3.			
4.			

Next Meeting Date: Spring 2027 (TBD)

These minutes were completed by Karel Kamerman and reviewed by Shayne Reitsma, P.Eng.. Any changes or discrepancies should be forwarded to kkamerman@stthomas.ca.

**Ministry of the Environment,
Conservation and Parks**Drinking Water and Environmental
Compliance DivisionSouthwest Region
733 Exeter Road
London, ON N6E 1L3
Phone: 519-873-5000**Ministère de l'Environnement, de la
Protection de la nature et des Parcs**Division de la conformité en matière d'eau
potable et d'environnement*Région Sud-Ouest*
733 rue Exeter
London, ON N6E 1L3
Tél: 519-873-5000

January 6, 2026

The Corporation of the City of St Thomas
545 Talbot Street
St Thomas, ON N5P 3V7Attention: Kevin De Leebeeck, Director of Environmental Services/City Engineer
Re: St. Thomas Area Secondary Water Supply System Final Inspection Report (#260078897)

Enclosed is the report on the 2025-26 inspection of the St. Thomas Area Secondary Water Supply System and the corresponding Inspection Rating Report (IRR) and Risk Methodology document.

Section 19 of the Safe Drinking Water Act (Standard of Care) creates a number of obligations for individuals who exercise decision-making authority over municipal drinking water systems. Please be aware that the Ministry has encouraged such individuals, particularly municipal councillors, to take steps to be better informed about the drinking water systems over which they have decision-making authority. These steps could include asking for a copy of this inspection report and a review of its findings. Further information about Section 19 can be found in "Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils" on the Drinking Water Ontario website at <https://www.ontario.ca/environment-and-energy/taking-care-your-drinking-water-guide-members-municipal-councils>.

The IRR is a summarized quantitative measure of the drinking water system's annual inspection and is published in the Ministry's Chief Drinking Water Inspector's Annual Report. The Risk Methodology document describes the risk rating methodology which has been applied to the findings of the Ministry's municipal residential drinking water system inspection results.

If you have any questions or concerns regarding the rating, please contact Mark Smith, Water Compliance Supervisor, at 519-317-8116.

Sincerely,

*M. Morgan*Meghan Morgan
Provincial Officer, Water Inspector
London District Office
Meghan.Morgan@ontario.cacc. Southwestern Public Health Unit
Kettle Creek Conservation Authority



ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM

Physical Address: 490 SOUTH EDGEWARE, ST.
THOMAS, ON

INSPECTION REPORT

System Number: 260078897

Entity: CORPORATION OF THE CITY
OF ST THOMAS
ST. THOMAS AREA
SECONDARY WATER SUPPLY
SYSTEM JOINT BOARD OF
MANAGEMENT

Inspection Start Date: October 20, 2025

Inspection End Date: December 18, 2025

Inspected By: Meghan Morgan

Badge #: 1315



(signature)

INTRODUCTION

Purpose

This announced, detailed inspection was conducted to confirm compliance with Ministry of the Environment, Conservation and Parks' (MECP) legislation and conformance with ministry drinking water policies and guidelines.

Scope

The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as management and the operation of the system.

The inspection of the drinking water system included both the physical inspection of the component parts of the system listed in section 4 "Systems Components" of the report and the review of data and documents associated with the operation of the drinking water system during the review period.

This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O. Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA.

This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

Facility Contacts and Dates

The drinking water system is owned by The Joint Board of Management of the St Thomas Area Secondary Water Supply System and operated by the City of St. Thomas - Environmental Services Operations Division and the Ontario Clean Water Agency.

The system conveys water to three large municipal residential systems continuously and one large municipal residential system intermittently and is categorized as a Large Municipal Residential System. Information reviewed for this inspection covered the time period of September 1, 2024 to September 30, 2025.

Systems/Components

The St. Thomas Area Secondary Water Supply System only maintains/provides secondary disinfection and distribution of water. Primary disinfection is undertaken by another regulated

drinking water system which provides treated water to this drinking water system.

Treated water is received from the Elgin Area Primary Water Supply System and the St. Thomas Area Secondary Water Supply System provides secondary disinfection boosting, water storage and pressure boosting for the drinking water system.

The Elgin Area Primary Water Supply System is inspected separately from this drinking water system.

Permissions/Approvals

This drinking water system was subject to specific conditions contained within the following permissions and/or approvals (please note this list is not exhaustive) at the time of the inspection in addition to the requirements of the SDWA and its regulations:

Municipal Drinking Water Licence Number: 190-101, Issue 5, dated Sept 30, 2021

Drinking Water Works Permit Number: 190-201, Issue 3, dated Sept 30, 2021

NON-COMPLIANCE

The following item(s) have been identified as non-compliance, based on a "No" response captured for a legislative question(s).

For additional information on each question see the Inspection Details section of the report.

Ministry Program: DRINKING WATER | **Regulated Activity:** DW Municipal Residential

Item	Question	Compliance Response/Corrective Action(s)
NC-1	Question ID: DWMR1113001 Were changes to the system registration information provided to the ministry within ten (10) days of the change?	Changes to the system registration information were not provided within ten (10) days of the change. Changes to contact information for the drinking water system were not provided to the ministry within ten days of the change. The 'Operating Authority Alternate Contact' information was incorrect and out-of-date at the time of the inspection. It should be noted that prior to the issuance of this report the owner/operating authority submitted a DWIS profile update form to update the 'Operating Authority Alternate Contact' information. No further actions are required at this time.
NC-2	Question ID: DWMR1025001 Were all parts of the drinking water system that came in contact with drinking water disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?	All parts of the drinking water system were not disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit. The ministry's Watermain Disinfection Procedure details disinfection procedures for planned and emergency work on watermain and specifies the operating authority shall maintain records of the information listed as a minimum. As part of this inspection the owner/operating authority provided disinfection documents associated with new watermain installation work and watermain repair records. Upon review it was found that one of these documents contained incorrect information that is required to be documented in accordance

	with the ministry's Watermain Disinfection Procedure and Ontario Regulation 128/04, Section 27 regarding record keeping requirements. From herein the owner/operating authority shall ensure that the required information as a minimum will be documented in accordance with the ministry's Watermain Disinfection Procedure and O. Reg 128/04 Section 27. Compliance shall be assessed during next the inspection period. It should be noted that prior to the issuance of this report the owner/operating authority obtained a third party trainer to deliver a record keeping course to the operators.
NC-3 Question ID: DWMR1033001 Was secondary disinfectant residual tested as required for the large municipal residential distribution system?	Secondary disinfectant residual was not tested as required for the large municipal residential distribution system. Ontario Regulation 170/03, Schedule 7-2 requires the owner/operating authority of a large municipal residential system that provides secondary disinfection to ensure that at least seven distribution samples are taken each week and tested immediately for free chlorine residual. At least four of the samples must be taken on one day of the week, and at least three samples must be taken on a second day of the week, at least 48 hours after the samples taken on the first day. Secondary disinfection is measured in the distribution system by operators who collect manual samples in accordance with the regulated schedule above. Grab samples are collected during different days of the week and tested for free chlorine from different locations within the distribution system with measured results being over 0.05mg/L for free chlorine residual for this inspection period. The system also uses process chlorine analyzers located at the East Chamber, West Chamber, Southwold Meter Chamber and the Ford Meter Chamber to

continuously monitor the free chlorine residual within the distribution system. These continuous chlorine analyzers have alarm set points to ensure the free chlorine residual is maintained above 0.05mg/L.

Upon review of the chlorine residual sample summary documents provided by the operating authority it was determined that a total of one (1) chlorine residual sample was missed during this inspection period. This sample was missed the week of December 30, 2024. From herein, the owner/operating authority shall ensure the secondary disinfection residual is measured as required by O.Reg.170/03, 7-2(3).

RECOMMENDATIONS

This should not be construed as a confirmation of full conformance with all potential applicable BMPs. These inspection findings are limited to the components and/or activities that were assessed, and the legislative framework(s) that were applied. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

If you have any questions related to this inspection, please contact the signed Provincial Officer.

INSPECTION DETAILS

This section includes all questions that were assessed during the inspection.

Ministry Program: DRINKING WATER | **Regulated Activity:** DW Municipal Residential

Question ID	DWMR1018001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Did the owner ensure that equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner ensured that equipment was installed as required.			

Question ID	DWMR1020001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Were Form 1 documents prepared as required?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Form 1 documents were prepared as required. The owner/operating authority completed one (1) "Form 1 – Record of Watermains Authorized as a Future Alteration" document for the replacement of existing 750mm watermain on South Edgeware.			

Question ID	DWMR1021001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Were Form 2 documents prepared as required?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Form 2 documents were prepared as required. The owner/operating authority completed four (4) "Form 2 - Record of Minor Modifications or Replacements to the Drinking Water System" documents during this inspection period. The minor modifications included two watermain connections installed on existing watermain,			

replacement of two chlorine gas regulators at the EMPS and replacement of one high lift pump flow control valve.

Question ID	DWMR1028001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Were up-to-date plans for the drinking water system made available in such a manner that they could be readily viewed by all persons responsible for all or part of the operation of the drinking water system, in accordance with the Drinking Water Works Permit and Municipal Drinking Water Licence?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Plans for the drinking water system were kept up-to-date and made available as required.			

Question ID	DWMR1025001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Were all parts of the drinking water system that came in contact with drinking water disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?			
Compliance Response(s)/Corrective Action(s)/Observation(s): All parts of the drinking water system were not disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit. The ministry's Watermain Disinfection Procedure details disinfection procedures for planned and emergency work on watermains and specifies the operating authority shall maintain records of the information listed as a minimum. As part of this inspection the owner/operating authority provided disinfection documents associated with new watermain installation work and watermain repair records. Upon review it was found that one of these documents contained incorrect information that is required to be documented in accordance with the ministry's Watermain Disinfection Procedure and Ontario Regulation 128/04, Section 27 regarding record keeping requirements. From herein the owner/operating authority shall ensure that the required information as a minimum will be documented in accordance with the ministry's Watermain Disinfection Procedure and O. Reg 128/04 Section 27. Compliance shall be assessed during next the inspection period. It should be noted that prior to the issuance of this report the owner/operating authority obtained a third party trainer to deliver a record keeping course to the operators.			

Question ID	DWMR1027001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Did the owner have evidence indicating that chemicals and materials that came in contact with water within the drinking water system met all applicable AWWA and ANSI standards in accordance with the Municipal Drinking Water Licence and Drinking Water Works Permit?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner had evidence indicating that chemicals and materials that came in contact with water within the drinking water system met the applicable standards.			

Question ID	DWMR1024001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 1-2 (2);			
Question: Did records confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection was operated as required?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection was operated as required. Re-chlorination occurs at the St. Thomas Booster Station in the Elgin-Middlesex Pumping Station (EMPS) Building to ensure acceptable residuals throughout the distribution system. The re-chlorination system is a gas chlorination disinfection system with facilities shared between the Aylmer Secondary Water Supply System (ASWSS) and St. Thomas Area Secondary Water Supply System (STASWSS). The system consists of one dual weigh scale with space for two cylinders (one duty and one stand-by) with automatic switchover, two chlorinators and associated equipment (one dedicated to ASWSS and one dedicated to STASWSS) and one free chlorine residual analyzer. A review of the free chlorine residual logs that were submitted for the inspection review period indicated that free available chlorine was maintained at an acceptable level throughout the distribution system.			

Question ID	DWMR1033001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 7-2 (3); SDWA O. Reg. 170/03 7-2 (4);			
Question: Was secondary disinfectant residual tested as required for the large municipal residential distribution system?			

Compliance Response(s)/Corrective Action(s)/Observation(s):

Secondary disinfectant residual was not tested as required for the large municipal residential distribution system.

Ontario Regulation 170/03, Schedule 7-2 requires the owner/operating authority of a large municipal residential system that provides secondary disinfection to ensure that at least seven distribution samples are taken each week and tested immediately for free chlorine residual. At least four of the samples must be taken on one day of the week, and at least three samples must be taken on a second day of the week, at least 48 hours after the samples taken on the first day.

Secondary disinfection is measured in the distribution system by operators who collect manual samples in accordance with the regulated schedule above. Grab samples are collected during different days of the week and tested for free chlorine from different locations within the distribution system with measured results being over 0.05mg/L for free chlorine residual for this inspection period. The system also uses process chlorine analyzers located at the East Chamber, West Chamber, Southwold Meter Chamber and the Ford Meter Chamber to continuously monitor the free chlorine residual within the distribution system. These continuous chlorine analyzers have alarm set points to ensure the free chlorine residual is maintained above 0.05mg/L.

Upon review of the chlorine residual sample summary documents provided by the operating authority it was determined that a total of one (1) chlorine residual sample was missed during this inspection period. This sample was missed the week of December 30, 2024. From herein, the owner/operating authority shall ensure the secondary disinfection residual is measured as required by O.Reg.170/03, 7-2(3).

Question ID	DWMR1049001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Did records confirm that disinfectant residuals were routinely checked at the extremities and dead ends of the distribution system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Records confirmed that disinfectant residuals were routinely checked at the extremities and dead ends of the distribution system.			

Question ID	DWMR1036001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 6-7 (1);			

Question:

Where continuous monitoring equipment was not used for chlorine residual analysis, were samples tested using an acceptable portable device?

Compliance Response(s)/Corrective Action(s)/Observation(s):

Samples for chlorine residual analysis were tested using an acceptable portable device.

Question ID	DWMR1099001	Question Type	Information
Legislative Requirement(s): Not Applicable			
Question: Do records show that water provided by the drinking water system met the Ontario Drinking Water Quality Standards?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Records showed that all water sample results met the Ontario Drinking Water Quality Standards.			

Question ID	DWMR1081001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 10-2 (1); SDWA O. Reg. 170/03 10-2 (2); SDWA O. Reg. 170/03 10-2 (3);			
Question: Were distribution microbiological sampling requirements prescribed by Schedule 10-2 of O. Reg. 170/03 for large municipal residential systems met?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Distribution microbiological sampling requirements were met. Ontario Regulation 170/03 – Schedule 10-2 stipulates that distribution water samples are required to be collected for testing every week within the frequency prescribed by the Regulation. Based on a service population of zero as no users draw water directly from this system the owner/operating authority is required to take a minimum of 8 distribution samples every month. Every distribution system sample must be analyzed for: E.coli; total coliforms; and 25% of the required samples must be tested for general bacteria population expressed as colony counts on a heterotrophic plate count with the prescribed frequency stipulated in Schedule 6-1.1(1) of O.Reg 170/03. A review of the records for the inspection period indicate the number of microbiological samples collected ranged from 12-15.			

Question ID	DWMR1096001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 6-3 (1);			
Question: Did records confirm that chlorine residual tests were conducted at the same time and location as microbiological samples?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Records confirmed that chlorine residual tests were conducted as required.			

Question ID	DWMR1086001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 13-6.1 (1); SDWA O. Reg. 170/03 13-6.1 (2); SDWA O. Reg. 170/03 13-6.1 (3); SDWA O. Reg. 170/03 13-6.1 (4); SDWA O. Reg. 170/03 13-6.1 (5); SDWA O. Reg. 170/03 13-6.1 (6);			
Question: Were haloacetic acid sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Haloacetic acid sampling requirements were met. Haloacetic Acid samples are required to be collected and tested each calendar quarter from the distribution system in accordance with Schedule 13-6.1 of O.Reg. 170/03 with the frequency stipulated in Schedule 6-1.1(4), and shall be taken from a point in the drinking water system's distribution system that is likely to have an elevated potential for the formation of haloacetic acids. A review of the records provided for the inspection review period indicate that this requirement has been met, and all sample results were below the standard.			

Question ID	DWMR1087001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 13-6 (1); SDWA O. Reg. 170/03 13-6 (2); SDWA O. Reg. 170/03 13-6 (3); SDWA O. Reg. 170/03 13-6 (4); SDWA O. Reg. 170/03 13-6 (5); SDWA O. Reg. 170/03 13-6 (6);			
Question: Were trihalomethane sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Trihalomethane sampling requirements were met. Trihalomethane samples are required to be collected and tested each calendar quarter from the distribution system in accordance with Schedule 13-6 of O.Reg. 170/03 with the			

frequency stipulated in Schedule 6-1.1(4), and shall be taken from a point in the drinking water system's distribution system that is likely to have an elevated potential for the formation of trihalomethanes. A review of the records provided for the inspection review period indicate that this requirement has been met, and all sample results were below the standard.

Question ID	DWMR1092001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 6-2;			
Question: Were water samples taken at the prescribed location?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Water samples were taken at the prescribed location.			

Question ID	DWMR1110001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 11 (6);			
Question: Was the annual report prepared by February 28th of the following year and did it contain the required information?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The annual report requirements were met.			

Question ID	DWMR1057001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 11 (2.1);			
Question: Did the owner of this system provide an annual report to the owner(s) of all standalone distribution systems connected to this system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner provided an annual report to the standalone distribution system(s) connected to this system.			

Question ID	DWMR1056001	Question Type	Information
Legislative Requirement(s): Not Applicable			
Question: Did the donor provide an annual report to the owner of this receiver drinking water system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The donor provided an annual report to the owner of the receiver drinking water system.			

Question ID	DWMR1111001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 22-2 (1); SDWA O. Reg. 170/03 22-2 (2); SDWA O. Reg. 170/03 22-2 (3); SDWA O. Reg. 170/03 22-2 (4);			
Question: Did the summary report contain the required information and was it completed and distributed as required?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The summary report requirements were met.			

Question ID	DWMR1113001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 10.1 (3);			
Question: Were changes to the system registration information provided to the ministry within ten (10) days of the change?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Changes to the system registration information were not provided within ten (10) days of the change. Changes to contact information for the drinking water system were not provided to the ministry within ten days of the change. The 'Operating Authority Alternate Contact' information was incorrect and out-of-date at the time of the inspection. It should be noted that prior to the issuance of this report the owner/operating authority submitted a DWIS profile update form to update the 'Operating Authority Alternate Contact' information. No further actions are required at this time.			

Question ID	DWMR1114001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Did the owner have evidence that, when required, all legal owners associated with the drinking water system were notified of the requirements of the Municipal Drinking Water Licence and Drinking Water Works Permit?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner had evidence that the required notifications were made. Requirements of the MDWL and the DWWP are provided to legal owners within the municipal office. The owner is reminded that these requirements also need to be shared with developers that own subdivisions that have not yet been transferred to the municipality.			

Question ID	DWMR1098001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 13 (1); SDWA O. Reg. 170/03 13 (2); SDWA O. Reg. 170/03 13 (3);			
Question: Were the required records kept for the periods prescribed by section 13 of O. Reg. 170/03?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The required records were kept for the prescribed periods.			

Question ID	DWMR1045001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Did the owner update the document describing the distribution components within 12 months of completion of alterations to the system in accordance with the Drinking Water Works Permit?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner had up-to-date documents describing the distribution components.			

Question ID	DWMR1046001	Question Type	BMP
Legislative Requirement(s): Not Applicable			

Question:

Was there a backflow prevention program, policy and/or bylaw in place that addressed cross connections and connections to high hazard facilities?

Compliance Response(s)/Corrective Action(s)/Observation(s):

There was a backflow prevention program, policy and/or bylaw in place.

Backflow prevention program is enforced through the City of St. Thomas "ByLaw 44-2000 Regulation of Water Supply". This bylaw states no person shall connect, cause to be connected or allow to remain connected to the waterworks distribution system any piping, fixture, fitting, container or appliance, in a manner which under any circumstances, may allow water, waste water, non-potable water, or any other liquid, chemical or substance to enter the water works distribution system.

Question ID	DWMR1053001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Was the owner able to maintain proper pressures in the distribution system and was pressure monitored to alert the operator of conditions of loss of pressure below the value under which the system was designed to operate?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner was able to maintain proper pressures in the distribution system and pressure was monitored to alert the operator of conditions which may lead to loss of pressure below the value under which the system is designed to operate.			

Question ID	DWMR1047001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Did the owner have a program or maintain a schedule for routine cleanout, inspection and maintenance of reservoirs and elevated storage tanks within the distribution system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner had a program or maintained a schedule for routine cleanout, inspection and maintenance of reservoirs and elevated storage tanks within the distribution system. The owner maintains a 5 year inspection cycle for the elevated storage tank. The inspection is performed by a third party contractor. The most recent inspection occurred June 30, 2023. The resulting report was provided to the undersigned officer for review.			

Question ID	DWMR1048001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Had the owner implemented a program for the flushing of watermain as per industry standards?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner had implemented a program for the flushing of watermain. According to documentation submitted and discussions with the owner/operating authority flushing typically occurs annually in the fall during the overnight hours. The standard operating procedures are outlined in a document entitled "MUN-DW-SOP-410 Preventative Maintenance – Watermain Flushing".			

Question ID	DWMR1050001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Was there a program in place for inspecting and exercising valves?			
Compliance Response(s)/Corrective Action(s)/Observation(s): There was a program in place for inspecting and exercising valves. The standard operating procedures are outlined in a document entitled "MUN-DW-SOP-420 Preventative Maintenance – Valve Exercising Program".			

Question ID	DWMR1051001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Was there a program in place for inspecting and operating hydrants?			
Compliance Response(s)/Corrective Action(s)/Observation(s): There was a program in place for inspecting and operating hydrants. The standard operating procedures are outlined in a document entitled "MUN-DW-SOP-210 Inspections - Hydrants". The hydrants are inspected annually in warm weather typically in conjunction with the watermain flushing program.			

Question ID	DWMR1052001	Question Type	BMP
Legislative Requirement(s): Not Applicable			

Question: Was there a bylaw or policy in place limiting access to hydrants?
Compliance Response(s)/Corrective Action(s)/Observation(s): There was a bylaw or policy in place limiting access to hydrants. The City of St. Thomas "ByLaw 44-2000 Regulation of Water Supply" states no person other than a person authorized by the Engineer for that purpose shall be permitted to open or otherwise interfere or take water from any fire hydrant.

Question ID	DWMR1058001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 128/04 28;			
Question: Did operators and maintenance personnel have ready access to operations and maintenance manuals?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Operators and maintenance personnel had ready access to operations and maintenance manuals.			

Question ID	DWMR1059001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 128/04 28;			
Question: Did the operations and maintenance manuals contain plans, drawings, and process descriptions sufficient for the safe and efficient operation of the system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The operations and maintenance manuals contained plans, drawings, and process descriptions sufficient for the safe and efficient operation of the system. Two Operations and Maintenance Manuals were provided for the inspection period. One manual was provided by the City of St. Thomas for the portion of the Secondary system to which they are the Operating Authority and the Ontario Clean Water agency provided one manual for the Elgin Middlesex Reservoir and Pumping Station which houses the St. Thomas Booster Station. A review of both manuals indicated that they contain the required information in accordance with Ontario Regulation 128/04, Section 28.			

Question ID	DWMR1060001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			

Question:

Did the operations and maintenance manual(s) meet the requirements of the Municipal Drinking Water Licence?

Compliance Response(s)/Corrective Action(s)/Observation(s):

The operations and maintenance manual(s) met the requirements of the Municipal Drinking Water Licence.

Municipal Drinking Water Licence #190-101, Issue #5, Section 16 of Schedule B outline the minimum requirements for the Operation and Maintenance Manuals. A review of each of the manuals that were submitted by both operating authorities indicate they contain the requirements as stated in the MDWL including but not limited to; contingency plans, procedures to deal with emergencies and procedures for dealing with complaints associated with the drinking water system.

Question ID	DWMR1064001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 128/04 26 (2);			
Question: Did an operator-in-charge ensure that records were maintained of all adjustments to the processes within their responsibility?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The operator-in-charge ensured that records were maintained of all adjustments to the processes within their responsibility.			

Question ID	DWMR1062001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 7-5;			
Question: Did records or other record keeping mechanisms confirm that operational testing not performed by continuous monitoring equipment was done by a certified operator, water quality analyst, or person who met the requirements of Schedule 7-5 of O. Reg. 170/03?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was done by a certified operator, water quality analyst, or person who met the requirements of Schedule 7-5 of O. Reg. 170/03. Documentation submitted for review indicated that only certified operators performed the operational testing.			

Question ID	DWMR1063001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 6-10 (1);			
Question: For every required operational test and sample, was a record made of the date, time, location, results, and name of the person conducting the test?			
Compliance Response(s)/Corrective Action(s)/Observation(s): For every required operational test and sample, a record was made as required.			

Question ID	DWMR1061001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 128/04 27 (1); SDWA O. Reg. 128/04 27 (2); SDWA O. Reg. 128/04 27 (3); SDWA O. Reg. 128/04 27 (4); SDWA O. Reg. 128/04 27 (5); SDWA O. Reg. 128/04 27 (6); SDWA O. Reg. 128/04 27 (7);			
Question: Were logbooks properly maintained and did they contain the required information?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Logbooks were properly maintained and contained the required information.			

Question ID	DWMR1065001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 128/04 27 (6);			
Question: Were logs and other record keeping mechanisms available for at least five (5) years?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Logs or other record keeping mechanisms were available for at least five (5) years.			

Question ID	DWMR1066001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Was spill containment provided for process chemicals and standby power generator fuel?			

Compliance Response(s)/Corrective Action(s)/Observation(s):

Spill containment was provided for process chemicals and/or standby power generator fuel.

At the time of the inspection one standby diesel generator was observed for this system. One 600 kW standby diesel generator was observed within the EMPS. The room also houses two fuel transfer pumps and an auxiliary tank which are located within a containment unit. A double walled diesel storage tank is located outside the building and is equipped with a vacuum monitoring alarm in the event of a rupture.

Question ID	DWMR1067001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Were equipment and materials in place for the clean up of spills?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Equipment and materials were in place for the clean up of spills.			

Question ID	DWMR1068001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: If available, were standby power generators tested under normal load conditions?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Standby power generators were tested under normal load conditions.			

Question ID	DWMR1069001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Were all storage facilities completely covered and secure?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Storage facilities were completely covered and secure. At the time of the site inspection the Ford Water Tower was leaking potable water from the storage facility into the natural environment. The leak is allowing chlorinated water to constantly flow out of the overflow pipe and into a watercourse. This has been an ongoing issue documented in previous inspection reports. The owner/operating authority is currently			

dechlorinating the discharge of potable water and should continue to do so until the issue has been corrected. The owner/operating authority advised that the board has approved a new water tower to be built.

Question ID	DWMR1070001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Were air vents and overflows associated with reservoirs and elevated storage structures equipped with screens?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Air vents and overflows associated with reservoirs and elevated storage structures were equipped with screens.			

Question ID	DWMR1071001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Did the owner provide security measures to protect components of the drinking water system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner provided security measures to protect components of the drinking water system. The Elgin Middlesex Pumping Station is equipped with door alarms and motion detectors which are transmitted through SCADA to the Elgin Area Primary Water Supply which is monitored 24 hours a day by the Ontario Clean Water Agency (OCWA). The Elgin Middlesex Pumping Station is also enclosed with security fencing and visited regularly by operators from OCWA. The East Chamber is located on the property of the Elgin Middlesex Pumping Station and therefore also enclosed by security fencing. The West Chamber, Southwold Meter Chamber and the Ford Meter Chamber are all kept locked and are equipped with intrusion alarms.			

Question ID	DWMR1072001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Had the owner and/or operating authority undertaken efforts to promote water conservation and reduce water losses in the drinking water system?			

Compliance Response(s)/Corrective Action(s)/Observation(s):

The owner and/or operating authority undertook efforts to promote water conservation and reduce water losses in their system.

The City of St. Thomas website contains a page of information promoting water conservation and includes tips for residents to prevent water loss.

Question ID	DWMR1073001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 128/04 23 (1);			
Question: Was an overall responsible operator designated for all subsystems which comprise the drinking water system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): An overall responsible operator was designated for all subsystem.			

Question ID	DWMR1074001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 128/04 25 (1);			
Question: Were operators-in-charge designated for all subsystems which comprise the drinking water system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Operators-in-charge were designated for all subsystems.			

Question ID	DWMR1075001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 128/04 22;			
Question: Were all operators certified as required?			
Compliance Response(s)/Corrective Action(s)/Observation(s): All operators were certified as required.			

Question ID	DWMR1076001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 1-2 (2);			
Question: Were adjustments to the treatment equipment only made by certified operators?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Adjustments to the treatment equipment were only made by certified operators.			



Stakeholder References

Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

Many useful materials are available to help you operate your drinking water system. Below is a list of key materials owners and operators of municipal residential drinking water systems frequently use.

To access these materials online click on their titles in the table below or use your web browser to search for their titles. Contact the Ministry if you need assistance or have questions at 1-866-793-2588 or waterforms@ontario.ca.

For more information on Ontario's drinking water visit www.ontario.ca/drinkingwater



PUBLICATION TITLE	PUBLICATION NUMBER
FORMS: Drinking Water System Profile Information Laboratory Services Notification Adverse Test Result Notification	012-2149E 012-2148E 012-4444E
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	Website
Procedure for Disinfection of Drinking Water in Ontario	Website
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids	Website
Filtration Processes Technical Bulletin	Website
Ultraviolet Disinfection Technical Bulletin	Website
Guide for Applying for Drinking Water Works Permit Amendments, & License Amendments	Website
Certification Guide for Operators and Water Quality Analysts	Website
Guide to Drinking Water Operator Training Requirements	9802E
Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption	Website
Drinking Water System Contact List	7128E01
Ontario's Drinking Water Quality Management Standard - Pocket Guide	Website
Watermain Disinfection Procedure	Website
List of Licensed Laboratories	Website

Principaux guides et documents de référence sur les réseaux résidentiels municipaux d'eau potable

De nombreux documents utiles peuvent vous aider à exploiter votre réseau d'eau potable. Vous trouverez ci-après une liste de documents que les propriétaires et exploitants de réseaux résidentiels municipaux d'eau potable utilisent fréquemment. Pour accéder à ces documents en ligne, cliquez sur leur titre dans le tableau ci-dessous ou faites une recherche à l'aide de votre navigateur Web. Communiquez avec le ministère au 1-866-793-2588, ou encore à waterforms@ontario.ca si vous avez des questions ou besoin d'aide.



Pour plus de renseignements sur l'eau potable en Ontario, consultez le site www.ontario.ca/eaupotable

TITRE DE LA PUBLICATION	NUMÉRO DE PUBLICATION
Renseignements sur le profil du réseau d'eau potable	012-2149F
Avis de demande de services de laboratoire	012-2148F
Avis de résultats d'analyse insatisfaisants et de règlement des problèmes	012-4444F
Prendre soin de votre eau potable - Un guide destiné aux membres des conseils municipaux	Site Web
Marche à suivre pour désinfecter l'eau potable en Ontario	Site Web
Stratégies pour minimiser les trihalométhanes et les acides haloacétiques de sous-produits de désinfection	Site Web
Filtration Processes Technical Bulletin (en anglais seulement)	Site Web
Ultraviolet Disinfection Technical Bulletin (en anglais seulement)	Site Web
Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable	Site Web
Guide sur l'accréditation des exploitants de réseaux d'eau potable et des analystes de la qualité de l'eau de réseaux d'eau potable	Site Web
Guide sur les exigences relatives à la formation des exploitants de réseaux d'eau potable	9802F
Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption	Site Web
Liste des personnes-ressources du réseau d'eau potable	Site Web
L'eau potable en Ontario - Norme de gestion de la qualité - Guide de poche	Site Web
Procédure de désinfection des conduites principales	Site Web
Laboratoires autorisés	Site Web



Ministry of the Environment, Conservation and Parks
Drinking Water System Inspection Report Appendix B

Inspection Rating Record and Inspection Risk Methodology

APPLICATION OF THE RISK METHODOLOGY USED FOR MEASURING MUNICIPAL RESIDENTIAL DRINKING WATER SYSTEM INSPECTION RESULTS



The Ministry of the Environment (MOE) has a rigorous and comprehensive inspection program for municipal residential drinking water systems (MRDWS). Its objective is to determine the compliance of MRDWS with requirements under the Safe Drinking Water Act and associated regulations. It is the responsibility of the municipal residential drinking water system owner to ensure their drinking water systems are in compliance with all applicable legal requirements.

This document describes the risk rating methodology, which has been applied to the findings of the Ministry's MRDWS inspection results since fiscal

year 2008-09. The primary goals of this assessment are to encourage ongoing improvement of these systems and to establish a way to measure this progress.

MOE reviews the risk rating methodology every three years.

The Ministry's Municipal Residential Drinking Water Inspection Protocol contains up to 14 inspection modules and consists of approximately 120 regulatory questions. Those protocol questions are also linked to definitive guidance that ministry inspectors use when conducting MRDWS inspections.

ontario.ca/drinkingwater

Determining Potential to Compromise the Delivery of Safe Water

The questions address a wide range of regulatory issues, from administrative procedures to drinking water quality monitoring. The inspection protocol also contains a number of non-regulatory questions.

A team of drinking water specialists in the ministry assessed each of the inspection protocol regulatory questions to determine the risk (not complying with the regulation) to the delivery of safe drinking water. This assessment was based on established provincial risk assessment principles, with each question receiving a risk rating referred to as the Question Risk Rating. Based on the number of areas where a system is deemed to be non-compliant during the inspection, and the significance of these areas to administrative, environmental, and health consequences, a risk-based inspection rating is calculated by the ministry for each drinking water system.

It is important to be aware that an inspection rating less than 100 per cent does not mean the drinking water from the system is unsafe. It shows areas where a system's operation can improve. The ministry works with owners and operators of systems to make sure they know what they need to do to achieve full compliance.

The inspection rating reflects the inspection results of the specific drinking water system for the reporting year. Since the methodology is applied consistently over a period of years, it serves as a comparative measure both provincially and in relation to the individual system. Both the drinking water system and the public are able to track the performance over time, which encourages continuous improvement and allows systems to identify specific areas requiring attention.

The ministry's annual inspection program is an important aspect of our drinking water safety net. The ministry and its partners share a common commitment to excellence and we continue to work toward the goal of 100 per cent regulatory compliance.

The risk management approach used for MRDWS is aligned with the Government of Ontario's Risk Management Framework. Risk management is a systematic approach to identifying potential hazards, understanding the likelihood and consequences of the hazards, and taking steps to reduce their risk if necessary and as appropriate.

The Risk Management Framework provides a formula to be used in the determination of risk:

$$\text{RISK} = \text{LIKELIHOOD} \times \text{CONSEQUENCE}$$

(of the consequence)

Every regulatory question in the inspection protocol possesses a likelihood value (L) for an assigned consequence value (C) as described in **Table 1** and **Table 2**.

TABLE 1:

Likelihood of Consequence Occurring	Likelihood Value
0% - 0.99% (Possible but Highly Unlikely)	L = 0
1 – 10% (Unlikely)	L = 1
11 – 49% (Possible)	L = 2
50 – 89% (Likely)	L = 3
90 – 100% (Almost Certain)	L = 4

TABLE 2:

Consequence	Consequence Value
Medium Administrative Consequence	C = 1
Major Administrative Consequence	C = 2
Minor Environmental Consequence	C = 3
Minor Health Consequence	C = 4
Medium Environmental Consequence	C = 5
Major Environmental Consequence	C = 6
Medium Health Consequence	C = 7
Major Health Consequence	C = 8

The consequence values (0 through 8) are selected to align with other risk-based programs and projects currently under development or in use within the ministry as outlined in **Table 2**.

The Question Risk Rating for each regulatory inspection question is derived from an evaluation of every identified consequence and its corresponding likelihood of occurrence:

- All levels of consequence are evaluated for their potential to occur
- Greatest of all the combinations is selected.

The Question Risk Rating quantifies the risk of non-compliance of each question relative to the others. Questions with higher values are those with a potentially more significant impact on drinking water safety and a higher likelihood of occurrence. The highest possible value would be 32 (4×8) and the lowest would be 0 (0×1).

Table 3 presents a sample question showing the risk rating determination process.

TABLE 3:							
Does the Operator in Charge ensure that the equipment and processes are monitored, inspected and evaluated?							
Risk = Likelihood × Consequence							
C=1	C=2	C=3	C=4	C=5	C=6	C=7	C=8
Medium Administrative Consequence	Major Administrative Consequence	Minor Environmental Consequence	Minor Health Consequence	Medium Environmental Consequence	Major Environmental Consequence	Medium Health Consequence	Major Health Consequence
L=4 (Almost Certain)	L=1 (Unlikely)	L=2 (Possible)	L=3 (Likely)	L=3 (Likely)	L=1 (Unlikely)	L=3 (Likely)	L=2 (Possible)
R=4	R=2	R=6	R=12	R=15	R=6	R=21	R=16

Application of the Methodology to Inspection Results

Based on the results of a MRDWS inspection, an overall inspection risk rating is calculated. During an inspection, inspectors answer the questions related to regulatory compliance and input their “yes”, “no” or “not applicable” responses into the Ministry’s Laboratory and Waterworks Inspection System (LWIS) database. A “no” response indicates non-compliance. The maximum number of regulatory questions asked by an inspector varies by: system (i.e., distribution, stand-alone); type of inspection (i.e., focused, detailed); and source type (i.e., groundwater, surface water).

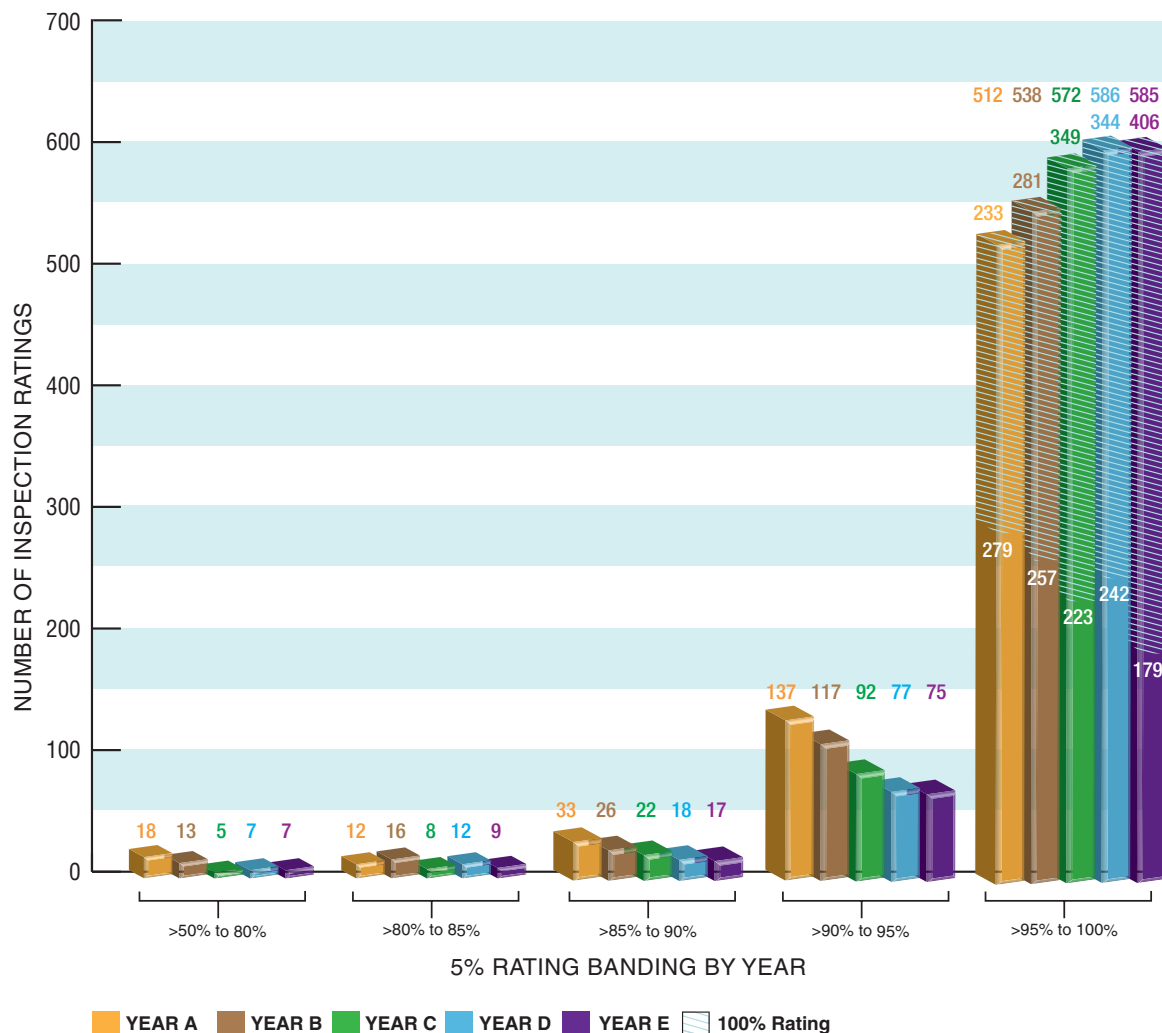
The risk ratings of all non-compliant answers are summed and divided by the sum of the risk ratings of all questions asked (maximum question rating). The resulting inspection risk rating (as a percentage) is subtracted from 100 per cent to arrive at the final inspection rating.

Application of the Methodology for Public Reporting

The individual MRDWS Total Inspection Ratings are published with the ministry's Chief Drinking Water Inspector's Annual Report.

Figure 1 presents the distribution of MRDWS ratings for a sample of annual inspections. Individual drinking water systems can compare against all the other inspected facilities over a period of inspection years.

Figure 1: Year Over Year Distribution of MRDWS Ratings



Reporting Results to MRDWS Owners/Operators

A summary of inspection findings for each system is generated in the form of an Inspection Rating Record (IRR). The findings are grouped into the 14 possible modules of the inspection protocol,

which would provide the system owner/operator with information on the areas where they need to improve. The 14 modules are:

- | | | | |
|-------------------------|------------------------|---------------------------------------|--|
| 1. Source | 5. Process Wastewater | 9. Contingency and Emergency Planning | 12. Water Quality Monitoring |
| 2. Permit to Take Water | 6. Distribution System | 10. Consumer Relations | 13. Reporting, Notification and Corrective Actions |
| 3. Capacity Assessment | 7. Operations Manuals | 11. Certification and Training | 14. Other Inspection Findings |
| 4. Treatment Processes | 8. Logbooks | | |

For further information, please visit www.ontario.ca/drinkingwater

DWS Name: ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM
DWS Number: 260078897
DWS Owner: CORPORATION OF THE CITY OF ST THOMAS
Municipal Location: ST. THOMAS

Regulation: O.REG. 170/03
DWS Category: DW Municipal Residential
Type of Inspection: Detailed
Compliance Assessment Start Date: Oct-20-2025
Ministry Office: London District Office

Maximum Risk Rating: 306

Inspection Module	Non Compliance Risk (X out of Y)
Certification and Training	0/42
Distribution System	0/8
Logbooks	0/30
Operations Manuals	0/42
Reporting & Corrective Actions	4/16
Treatment Processes	42/105
Water Quality Monitoring	0/63
Overall - Calculated	46/306

Inspection Risk Rating:	15.03%
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Final Inspection Rating:	84.97%
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DWS Name: ST. THOMAS AREA SECONDARY WATER SUPPLY SYSTEM
DWS Number: 260078897
DWS Owner Name: CORPORATION OF THE CITY OF ST THOMAS
Municipal Location: ST. THOMAS

Regulation: O.REG. 170/03

DWS Category: DW Municipal Residential

Type of Inspection: Detailed

Compliance Assessment Start Date: Oct-20-2025

Ministry Office: London District Office

Non-Compliance Question(s)	Non Compliance Risk
Reporting & Corrective Actions	
Were changes to the system registration information provided to the ministry within ten (10) days of the change?	4
Treatment Processes	
Were all parts of the drinking water system that came in contact with drinking water disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?	21
Was secondary disinfectant residual tested as required for the large municipal residential distribution system?	21
Overall - Total	46

Maximum Question Rating: 306

Inspection Risk Rating: 15.03%

FINAL INSPECTION RATING: 84.97%



NSF International Strategic Registrations Audit Report

City of St. Thomas Environmental & Infrastructure Services (STASWSS)

545 Talbot Street P.O. Box 520
St. Thomas, Ontario N5P 3V7 CAN

C0811335

Audit Type

Surveillance Audit

Auditor

Rose Johnson

Standard

Ontario's Drinking Water Quality Management Standard Version 2
(Exp Date: 18-AUG-2027)

Audit Date(s):

07/03/2025 - 07/03/2025

Recommendation

Ontario's Drinking Water Quality Management Standard Version 2 : Continue Certification
Pending Closure of Minor NCR(s)



Executive Summary

Ontario's Drinking Water Quality Management Standard Version 2

This was a remote system audit for the St. Thomas Area Secondary Water Supply System (STASWSS).

The audit results are summarized as follows:

Zero major non-conformities (NCs)

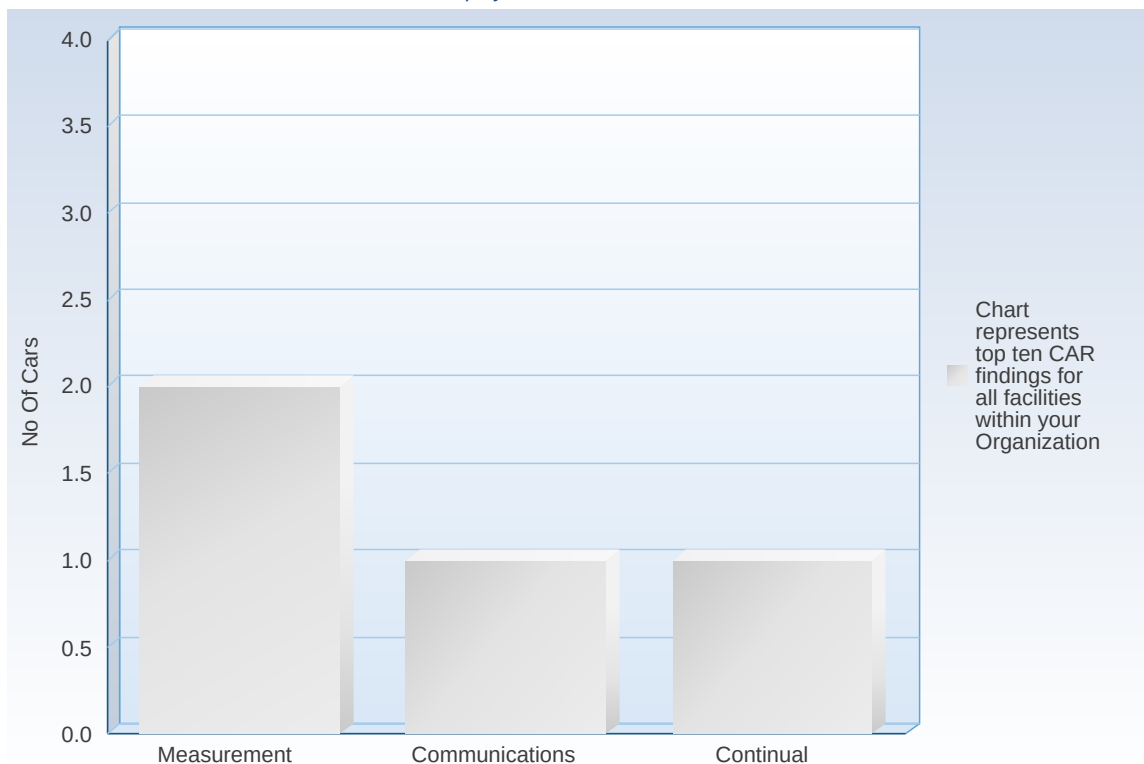
One minor non-conformity

Five Opportunities for Improvement (OFIs)

Please respond to the minor NC via NSF-Connect, with containment, root cause, and corrective action plan. Note: OFIs do not require a formal response, but are included in this report for consideration by the DWQMS team.

The support and cooperation of all involved in the audit is acknowledged and appreciated. Thank you for choosing NSF for your DWQMS accreditation.

Top 10 Non Compliant Standard Clauses
CAR Chart Displays Current and Previous Years Data



City of St. Thomas Environmental & Infrastructure Services

Standard Clause Description

Measurement & Recording Equipment, Calibration & Maintenance

Communications

Continual Improvement

Opportunities

Ontario's Drinking Water Quality Management Standard Version 2

See below

Corrective Action Request Summary By Type

Car Type	Car Count
MINOR	1



Corrective Action Request Summary By Standard Clause

Standard Clause	Car Count
Continual Improvement	1

Corrective Action Requests

CAR No	T00015536367-1	Type	MINOR
Standard & Clause	DWQMSV2, Continual Improvement	Discussed with	Karel Kamerman / Shayne Reitsma
Auditor Name	Rose Johnson		
Statement of Requirement	PLAN – The Operating Authority shall develop a procedure for tracking and measuring continual improvement of its Quality Management System by: ...b) documenting a process for identification and management of Quality Management System Corrective Actions that includes: i. investigating the cause(s) of an identified non-conformity, ii. documenting the action(s) that will be taken to correct the nonconformity and prevent the non-conformity from re-occurring, and iii. reviewing the action(s) taken to correct the non-conformity, verifying that they are implemented and are effective in correcting and preventing the re-occurrence of the nonconformity.		
Statement of Nonconformity	Corrective action processes are not fully effective		
Objective Evidence	There is no evidence available to demonstrate that root causes are routinely identified for internal audit nonconformities (NCs), e.g. 2 NCs resulting from the May 2025 internal audit.		
Location of Finding	Corrective action records		

Corrective Action Information and Instructions

See NSF-ISR Policies for Accredited Registration Services for corrective action information and instructions. (Available in the "Standards and Policies" section of [NSFOnline](#))

Also, submit all corrective actions through [NSFOnline](#). For instructions on how to use [NSFOnline](#), please click "Help" in the upper right-hand corner. If you require any assistance in accessing your [NSFOnline](#) account, please contact your Registration Specialist (Natasha Kwas email: KWAS@NSF-ISR.ORG).

Site Information

The audit was based on a sampling of the company's management system.

Industry Codes

N/A

Scope of Registration

Ontario's Drinking Water Quality Management Standard Version 2 : St. Thomas Area Secondary Water Supply System, 190-OAB, Entire Full Scope Accreditation



Opportunities for Improvements

Ontario's Drinking Water Quality Management Standard Version 2

Opportunity	Observations / Auditor Notes
Opportunities for Improvements (DWQMS)-01	Location of OFI Operational Plan; Discussed With Karel Kamerman / Shayne Reitsma; Description Although generally found to be meeting the requirements of the Standard, an opportunity exists to include a table of contents in the Operational Plan;
Opportunities for Improvements (DWQMS)-02	Location of OFI Operational Plan - Commitment / Endorsement; Discussed With Karel Kamerman / Shayne Reitsma; Description Although generally found to be meeting the requirements of the Standard, an opportunity exists to reference Appendix A (top management endorsement) in Section 3 of the Operational Plan;
Opportunities for Improvements (DWQMS)-03	Location of OFI Risk Assessment records; Discussed With Karel Kamerman / Shayne Reitsma; Description Although generally found to be meeting the requirements of the Standard, an opportunity exists to review identified CCPs to confirm that they can truly be controlled (vs. triggering a response). Note: repeated from previous audit;
Opportunities for Improvements (DWQMS)-04	Location of OFI Management Review records; Discussed With Karel Kamerman / Shayne Reitsma; Description Although generally found to be meeting the requirements of the Standard, an opportunity exists to clarify the period covered by the Management Review;
Opportunities for Improvements (DWQMS)-05	Location of OFI Continual Improvement / Corrective Action records; Discussed With Karel Kamerman / Shayne Reitsma; Description In addition to the minor nonconformity referenced in this report, consideration could be given to developing a numbering system for Nonconformities & Opportunities for Improvement;

General Information

Operating Authority: Legal Name & Address	City of St. Thomas Environmental & Infrastructure Services 545 Talbot Street, PO Box 520, St. Thomas, ON N4P 3V7
Owner: Legal Name and Address	St. Thomas Area



	Secondary Water Supply System Board of Management 545 Talbot Street, PO Box 520, St. Thomas, ON N4P 3V7
Operating Authority Representative Information (Name, Title, Phone, Email & Address, if different from the OA Address)	Karel Kamerman, Compliance Coordinator Tel: 519-631-1680 x4224 kkamerman@stthomas.ca www.stthomas.ca
Accreditation Option	Full Scope - Entire DWQMS
List Drinking water system names and Population of the Subject System(s)	St. Thomas Area Secondary Water Supply System: 0
Activities:	Distribution

Processes



Summary of Findings

Requirement	Finding
1. Quality Management System	OFI
2. Quality Management System Policy	N/A
3. Commitment and Endorsement	OFI
4. Quality Management System Representative	C
5. Document and Record Control	N/A
6. Drinking-Water System	N/A
7. Risk Assessment	C
8. Risk Assessment Outcomes	OFI
9. Organizational Structure, Roles, Responsibilities, and Authorities	N/A
10. Competencies	N/A
11. Personnel Coverage	N/A
12. Communications	N/A
13. Essential Supplies and Services	N/A
14. Review and Provision of Infrastructure	N/A
15. Infrastructure Maintenance, Rehabilitation & Renewal	N/A
16. Sampling, Testing & Monitoring	N/A
17. Measurement & Recording Equipment, Calibration & Maintenance	N/A
18. Emergency Management	N/A
19. Internal Audits	C
20. Management Review	OFI
21. Continual Improvement	Mn, OFI
Mj	Major Non-Conformity. The auditor has determined one of the following: (a) a required element of the DWQMS has not been incorporated into a QMS; (b) a systemic problem with a QMS is evidenced by two or more minor conformities; or (c) a minor non-conformity identified in a corrective action request has not been remedied.
Mn	Minor Non-Conformity. In the opinion of the auditor, part of a required element of the DWQMS has not been incorporated satisfactorily into a QMS.
OFI	Opportunity for Improvement. Conforms to requirement, but there is opportunity for improvement.
C	Conforms to requirement.
	Not Applicable to this audit
*	Additional Comment added by auditor in the body of the report.



Verification of CARs For Ontario's Drinking Water Quality Management Standard Version 2

Have you verified the effectiveness of all previous CARs? (List all new CAR's that you initiated in this report because you did not verify effective implementation of a previous CAR)

Yes.

Discuss your evaluation in detail.

Reviewed corrective action implementation relating to previous audit minor NCs:

T00015467532-1 – Calibration Standards

Previously confirmed that Procedure DW-ADMIN-1100 Equipment Calibration Procedure has been updated to include required review of calibration records. Confirmed via email records provided.

Previously confirmed that Standards kit was replaced in March 2024; also reviewed annual Work Order to review / replace Standards kit. No further issues.

T00015467532-2 – Calibration – Analyzers

Previously confirmed that DW-ADMIN-1100 Equipment Calibration Procedure has been updated to include requirement to adjust on-line analyzers if out of calibration (+/- 0.05 mg/L or greater); related training records also previously reviewed.

Reviewed logbook entries during this audit confirming that the procedure is being followed correctly. No further issues.

T00015467532-3 – Communications

Previously confirmed that DW-ADMIN-800 Essential Supplies & Services Procedure has been updated to reflect removal of Anchem and addition of R&S Pools & Spas; related training records also previously reviewed, as well as signed Essential Supplier record for Elgin Pure Water.

One new Essential Supplier added since previous audit – Hach Sales & Service Canada – confirmed signed Essential Supplier record available, dated September 3, 2024. No further issues.

DRINKING WATER QUALITY MANAGEMENT SYSTEM INTERNAL AUDIT REPORT

Audit Date(s): November 6, 2025

Audit Objective:

The objective of the internal audit was to verify and evaluate the degree of conformance of the City of St. Thomas' Quality Management System (QMS), utilized in the operation and maintenance of the St. Thomas Secondary - **STASWSS**, St. Thomas Distribution - **STWDS**, Southwold (Lynhurst Area) - **SW** and Central Elgin (St. Thomas Suburban Area) - **MCE** Drinking Water Systems, to Ontario's Drinking Water Quality Management Standard, Version 2.0. The internal audit will provide an opportunity to identify process variations within the QMS by auditing all elements. By identifying these sources of variation and by eliminating them through the application of effective corrective action, the operating authority can begin to focus on preventive action and continual improvement.

Audit Scope:

The internal audit was conducted on November 6th, 2025. Physical inspections of the Albert Roberts Pump Station and South Edgeware Booster Station were undertaken as part of this audit. The internal audit was conducted as outlined in MUN-DW- ADMIN-1200, Rev. 2.9 of the QMS manual. The internal audit was carried out through a review of a sampling of documents and records, interviews and observations by the auditors to demonstrate conformance with the standard by auditing a sampling of elements as the action items from non-conforming items from the Spring 2025 internal or August 2025 external audit have yet to come due. The review and audit should not be construed as a complete and comprehensive review of all aspects, documents and records.

Internal Auditor(s):

- LEAD: Karel Kamerman, Environmental Compliance Coordinator

Auditor Qualifications can be found in Appendix A to this report.

Audit Criteria:

Ontario's Drinking Water Quality Standard – Version 2.0 as released in February 2017.

Definitions:

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

Audit Findings:

The following is a summary of the audit findings, including non-conformances and opportunities for improvement. The detailed checklist can be found in Appendix B of this report.

Non-Conformances:

~ None ~

Opportunities for Improvement

OFI#1: Essential Supplies and Services

Applies to: STWDS

An OFI exists to list fuel supplier and an alternate in the essential supplies and services listing and obtain a DWQMS acknowledgement sign-off form from them.

OFI#2: Essential Supplies and Services

Applies to: ALL

An OFI exists to review the OP for references to Execulink and update to reflect Rogers wireless communications, and ERAMOSA as service provider for communications issues.

OFI#3: Drinking Water System

Applies to: STWDS, STASWSS

An OFI exists to complete the review and update of documentation to reflect the addition of SEBS to the systems.

OFI#4: Drinking Water System

Applies to: STWDS

An OFI exists to review the microbiological and residual sampling plans and update and ensure the YY area is adequately covered.

OFI#5: Measurement and Recording

Applies to: SW, STWDS, STASWSS

An OFI exists to complete a review of the equipment listing vs. equipment on site vs. calibration records and verify identification information for equipment at each site.

Appendix A



CERTIFICATE OF ACHIEVEMENT

KAREL KAMERMAN

has successfully completed the

Internal Auditing for the Drinking Water Quality Management Standard Course

November 5 & 6, 2009

Director Approved Continuing Education Units: 1.4

Dr. Saad Jasim, P. Eng.
Chief Executive Officer

www.wcwc.ca

November 6, 2009

Date

Appendix B



Drinking Water Quality Management System

PROCEDURE TITLE		DWQMS AUDIT CHECKLIST			
PROCEDURE No.		MUN-DW-QMS-1202F		REVIEW FREQUENCY	Annually
EFFECTIVE DATE	June 1, 2009	REVISION No.	2.9	REVISION DATE	July 1, 2025
APPROVAL BY	Manager of Development & Compliance				
APPLICABLE TO THE FOLLOWING DRINKING WATER SYSTEM(S):					
☒ St. Thomas Secondary		☒ St. Thomas Distribution		☒ Southwold Distribution	
				☒ Central Elgin Distribution	

DATE OF INTERNAL AUDIT:	~~October 22, 2025~~ November 6/25
AUDITOR NAMES:	Karel Kamerman
DRINKING WATER SYSTEM(S):	STASWSS St. Thomas WDS Southwold DWS (Lynhurst Park Drive) Central Elgin DWS (St. Thomas Suburban Areas)
AREA(S)/FACILITY VISITED:	SEBS ARBS Collective System in Yarmouth Yards.
PEOPLE INTERVIEWED:	Chris Andrew ~~Chris Kenny~~ John Marrs.
DOCUMENTS VIEWED:	↳ Audit Report (Spring 2025). ↳ CARS (external Audit). ↳ CR Tracking System & sheet. ↳ Calibration Records

DWQMS Requirement	Notes	Findings (C/OFI/NC)
1. Quality Management System PLAN - The Operational Plan shall document a QMS that meets the requirements of this Standard.		
DO - The Operating Authority shall establish and maintain the QMS in accordance with the requirements of this Standard and the policies and procedures documented in the Operational Plan.		
2. Quality Management System Policy PLAN - The Operational Plan shall document a QMS Policy that provides the foundation for the QMS, and:		
a) includes a commitment to the maintenance and continual improvement of the QMS,		a)
b) includes a commitment to the consumer to provide safe drinking water,		b)
c) includes a commitment to comply with applicable legislation and regulations, and		c)
d) is in a form that provides for ready communication to all Operating Authority personnel, the Owner and the public.		d)
DO - The Operating Authority shall establish and maintain a QMS that is consistent with the Policy.		
3. Commitment and Endorsement PLAN - The Operational Plan shall contain a written endorsement of its contents by Top Management and the Owner.		
DO - Top Management shall provide evidence of its commitment to an effective QMS by:		
a) ensuring that a QMS is in place that meets the requirements of this Standard,		a)
b) ensuring that the Operating Authority is aware of all applicable legislative and regulatory requirements,		b)
c) communicating the QMS according to the procedure for		c)



communications, and d) determining, obtaining or providing the resources needed to maintain and continually improve the QMS.		d)
4. Quality Management System Representative PLAN - The Operational Plan shall identify a QMS representative.		
DO - Top Management shall appoint, and authorize a QMS representative who, irrespective of other responsibilities, shall:		
a) administer the QMS by ensuring that processes and procedures needed for the QMS are established and maintained,		a)
b) report to Top Management on the performance of the QMS and any need for improvement,		b)
c) ensure that current versions of documents required by the QMS are being used at all times,		c)
d) ensure that personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the operation of the subject system, and		d)
e) promote awareness of the QMS throughout the Operating Authority.		e)
5. Document and Records Control PLAN - The Operational Plan shall document a procedure for document and records control that describes how:		
a) documents required by the QMS are:		a)i.
i. kept current, legible and readily identifiable		
ii. retrievable		a)ii.
iii. stored, protected, retained and disposed of, and		a)iii.
b) records required by the QMS are:		b)i.
i. kept legible, and readily identifiable		
ii. retrievable		b)ii.
iii. stored, protected, retained and disposed of.		b)iii.
DO - The Operating Authority shall implement and conform to the procedure for document and records control and shall ensure that the QMS documentation for the		

subject system includes: a) the Operational Plan and its associated policies and procedures, b) documents and records determined by the Operating Authority as being needed to ensure the effective planning, operation and control of its operations, and c) the results of internal and external audits and management reviews.		a)
		b)
		c)
6. Drinking-Water System PLAN – The Operational Plan shall document, as applicable: a) for the Subject System: i. the name of the Owner and Operating Authority, ii. if the system includes equipment that provides Primary Disinfection and/or Secondary Disinfection: A. a description of the system including all applicable Treatment System processes and Distribution System components, B. a Treatment System process flow chart, C. a description of the water source, including: I. general characteristics of the raw water supply, II. common event-driven fluctuations, and III. any resulting operational challenges and threats. iii. if the system does not include equipment that provides Primary Disinfection or Secondary Disinfection: A. a description of the system including all Distribution System components, and B. a description of any procedures that are in place to maintain disinfection residuals. b) if the Subject System is an Operational Subsystem, a summary description of the Municipal	<i>None confirmed I'd leave C.A. deadlines of Dec. 2025</i> <i>-viewed DRAFT OPM Manual & Updated Sample locations & ~~Chlorination~~ Discharge Maps.</i> <i>OFL Marathon Yards Kew FSEBS not currently commissioned. Remains to reflect in documents w/in 1 yr.</i> <i>OFL Fuel Supplier: (Sign-off form)</i>	a) i.
		a) ii.
		A.
		B.
		C. I.
		C. II.
		C. III.
		a) iii. A.
		a) iii. B.
		b)

Procedure No. MUN-DW-QMS-1202F Page 5 of 13 Revision No. 2.9
UNCONTROLLED – WHEN PRINTED (Refer to electronic document to ensure most recent version is used)

g) identifies a method to verify, at least once every calendar year, the currency of the information and the validity of the assumptions used in the risk assessment, h) ensures that the risks are assessed at least once every thirty-six months, and i) considers the reliability and redundancy of equipment.		g) h) i)
DO - The Operating Authority shall perform a risk assessment consistent with the documented process.		
8. Risk Assessment Outcomes PLAN - The Operational Plan shall document: a) the identified potential hazardous events and associated hazards, b) the assessed risks associated with the occurrence of hazardous events, c) the ranked hazardous events, d) the identified control measures to address the potential hazards and hazardous events e) the identified critical control points and their respective critical control limits, f) procedures and/or processes to monitor the critical control limits, g) procedures to respond to deviations from the critical control limits, and h) procedures for reporting and recording deviations from the critical control limits.		a) b) c) d) e) f) g) h)
DO - The Operating Authority shall implement and conform to the procedures.		
9. Organizational Structure, Roles, Responsibilities and Authorities PLAN - The Operational Plan shall: a) describe the organizational structure of the Operating Authority including respective roles, responsibilities and authorities, b) delineate corporate oversight roles, responsibilities and authorities in the case where the Operating		a) b)

Authority operates multiple subject systems, c) identify the person, persons or group of people within the management structure of the organization responsible for undertaking the Management Review, d) identify the person, persons or group of people, having Top Management responsibilities required by this Standard, along with their responsibilities, and e) Identify the Owner of the subject system.		c) d) e)
DO - The Operating Authority shall keep current the description of the organizational structure including respective roles, responsibilities and authorities, and shall communicate this information to Operating Authority personnel and the Owner.		
10. Competencies PLAN - The Operational Plan shall document: a) competencies required for personnel performing duties directly affecting drinking water quality, b) activities to develop and/or maintain competencies for personnel performing duties directly affecting drinking water quality, and c) activities to ensure that personnel are aware of the relevance of their duties and how they affect safe drinking water.		a) b) c)
DO - The Operating Authority shall undertake activities to: a) meet and maintain competencies for personnel directly affecting drinking water quality and shall maintain records of these activities, and b) ensure that personnel are aware of the relevance of their duties and how they affect safe drinking water, and shall maintain records of these activities.		a) b)

11. Personnel Coverage PLAN - The Operational Plan shall document a procedure to ensure that sufficient personnel meeting identified competencies are available for duties that directly affect drinking water quality.		
DO - The Operating Authority shall implement and conform to the procedure.		
12. Communications PLAN - The Operational Plan shall document a procedure for communications that describes how the relevant aspects of the QMS are communicated between Top Management and: a) the Owner, b) Operating Authority personnel, c) Suppliers that have been identified as essential under Plan (a) of Element 13 of this Standard, and, d) the public.		a) b) c) d)
DO - The Operating Authority shall implement and conform to the procedure.		
13. Essential Supplies and Services PLAN - The Operational Plan shall: a) identify all supplies and services essential for the delivery of safe drinking water and shall state, for each supply or service, the means to ensure its procurement, and b) include a procedure by which the Operating Authority ensures the quality of essential supplies and services, in as much as they may affect drinking water quality.	OFF Fuel Supplies not listed. Pak-test reagents not listed.	a) EXECULINK b) GLOBE ERAMOSA instead
DO - The Operating Authority shall implement the procedure.		
14. Review and Provision of Infrastructure PLAN - The Operational Plan shall document a procedure for reviewing the adequacy of the infrastructure necessary to operate and maintain the Subject System that: a) Considers the outcomes of the risk assessment documented under Element 8, and b) Ensures that the adequacy of the infrastructure necessary to operate and maintain the Subject System is reviewed at least once every Calendar Year.	ADD REFUEL (24 Hour) + Parker Kewer	a) AH. b)

DO - The Operating Authority shall implement and conform to the procedure and communicate the findings of the review to the Owner.		
15. Infrastructure Maintenance, Rehabilitation and Renewal PLAN – The Operational Plan shall document: a) a summary of the Operating Authority's infrastructure maintenance, rehabilitation and renewal programs for the Subject System, and b) a long term forecast of major infrastructure maintenance, rehabilitation and renewal activities.		a)
		b)
DO – The Operating Authority shall: a) keep the summary of the infrastructure maintenance, rehabilitation and renewal programs current, b) ensure that the long term forecast is reviewed at least once every Calendar Year, c) communicate the programs to the Owner, and d) monitor the effectiveness of the maintenance program.		a)
		b)
		c)
		d)
16. Sampling, Testing and Monitoring PLAN - The Operational Plan shall document: a) a sampling, testing and monitoring procedure for process control and finished drinking water quality including requirements for sampling, testing and monitoring at the conditions most challenging to the subject system, b) a description of relevant sampling, testing or monitoring activities that take place upstream of the subject system, and c) a procedure that describes how sampling, testing and monitoring results are recorded and shared between the Operating Authority and the Owner, where applicable.		a)
		b)
		c)
DO - The Operating Authority shall implement and conform to the procedures.		

Chubine No 85

(Serial #)

*Southside Chubine Pressure.
Wallerstein Rd Pressure.*

Pressure No Ford Tower; No Ford chamber?

17. Measurement and Recording Equipment Calibration and Maintenance PLAN - The Operational Plan shall document a procedure for the calibration and maintenance of measurement and recording equipment.

DO - The Operating Authority shall implement and conform to the procedure.

18. Emergency Management PLAN - The Operational Plan shall document a procedure to maintain a state of emergency preparedness that includes:

- a) a list of potential emergency situations or service interruptions,
- b) processes for emergency response and recovery,
- c) emergency response training and testing requirements,
- d) Owner and Operating Authority responsibilities during emergency situations,
- e) references to municipal emergency planning measures as appropriate, and
- f) an emergency communication protocol and an up-to-date list of emergency contacts.

DO - The Operating Authority shall implement and conform to the procedure.

19. Internal Audits PLAN - The Operational Plan shall document a procedure for internal audits that:

- a) evaluates conformity of the QMS with the requirements of this Standard,
- b) identifies internal audit criteria, frequency, scope, methodology and record-keeping requirements,
- c) considers previous internal and external audit results, and
- d) describes how Quality Management System corrective actions are identified and initiated.

a)
b)
c)
d)
e)
f)

a)
b)
c)
d)

DO - The Operating Authority shall implement and conform to the procedure and shall ensure that internal audits are conducted at least once every calendar year.		
20. Management Review PLAN - The Operational Plan shall document a procedure for management review that evaluates the continuing suitability, adequacy and effectiveness of the QMS and that includes consideration of: a) incidents of regulatory non-compliance, b) incidents of adverse drinking-water tests, c) deviations from critical control point limits and response actions, d) the effectiveness of the risk assessment process, e) internal and third-party audit results, f) results of emergency response testing, g) operational performance, h) raw water supply and drinking water quality trends, i) follow-up on action items from previous management reviews, j) the status of management action items identified between reviews, k) changes that could affect the QMS, l) consumer feedback, m) the resources needed to maintain the QMS, n) the results of the infrastructure review, o) Operational Plan currency, content and updates, and p) staff suggestions.		- a) - b) - c) - d) - e) - f) - g) - h) - i) - j) - k) - l) - m) - n) - o) - p)
DO - Top Management shall implement and conform to the procedure and shall: a) ensure that a management review is conducted at least once every calendar, b) consider the results of the management review and identify		a)

deficiencies and actions items to address the deficiencies, c) provide a record of any decisions and action items related to the management review including the personnel responsible for delivering the action items and the proposed timelines for their implementation, d) report the results of the management review, the identified deficiencies, decisions and action items to the Owner.		b)
21. Continual Improvement PLAN – The Operating Authority shall develop a procedure for tracking and measuring continual improvement of its QMS by: a) reviewing and considering applicable best management practices, including any published by the Ministry of the Environment and Climate Change and available on www.ontario.ca/drinkingwater, at least once every thirty-six months; b) documenting a process for identification and management of QMS Corrective Actions that includes: i. investigating the cause(s) of an identified non-conformity, ii. documenting the action(s) that will be taken to correct the non-conformity and prevent the non-conformity from re-occurring, and iii. reviewing the action(s) taken to correct the non-conformity, verifying that they are implemented and are effective in correcting and preventing the re-occurrence of the non-conformity. c) documenting a process for		c)
		d)
		a)
		b) i.
		b) ii.
		b) iii.

identifying and implementing Preventive Actions to eliminate the occurrence of potential non-conformities in the QMS that includes: i. reviewing potential non-conformities that are identified to determine if preventive actions may be necessary, ii. documenting the outcome of the review, including the action(s), if any, that will be taken to prevent a non-conformity from occurring, and iii. reviewing the action(s) taken to prevent a non-conformity, verifying that they are implemented and are effective in preventing the occurrence of the non-conformity.		c) i.
DO- The Operating Authority shall strive to continually improve the effectiveness of its QMS through the use of corrective actions.		c) ii.
		c) iii.



Report No.
SWB 05-26

File No.

Directed to: The Chair and Members of the Board of Management of the St. Thomas Area Secondary Water Supply System

Meeting Date:
July 9, 2026

Department: Environmental Services

Attachment

Prepared By: Karel Kamerman, B.Sc., C.Tech.
Environmental Compliance Coordinator

- 1. STASWSS Rate Study
- 2. Financial Plan 190-301

Subject: 2026 Rate Study and Financial Plan

Recommendation:

- THAT: Report SWB 05-26 - 2026 Rate Study and Financial Plan, be received for information, and further,
- THAT: The 2026 St. Thomas Area Secondary Water Supply System Rate Study (2027-2036) be approved in principle; and further,
- THAT: The Board approve Water Financial Plan #190-301 to be submitted to the Ministry of Municipal Affairs and Housing and provided to the Ministry of the Environment, Conservation and Parks; and further,
- THAT: Notice be provided through the City’s website regarding the availability of Water Financial Plan #190-301.

Background:

Ontario Regulation 453/07, passed under the *Safe Drinking Water Act, 2002*, requires all municipal drinking water system owners to create and maintain financial plans as a prerequisite for obtaining and renewing their operating licence. The purpose of the regulation is to ensure the long-term financial sustainability of these systems by having system owners plan for future revenues and expenses, including operations, capital needs, and debt. The St. Thomas Area Secondary Water Supply System (STASWSS) Municipal Drinking Water Licence (MDWL) 190-101 is due for renewal in 2026.

Water usage rates remain the STASWSS’s only revenue stream, as such, it is imperative that the water system maintain its financial sustainability through the water rates imposed. Rate Studies aim to identify the funding levels necessary to operate, maintain, rehabilitate and renew the drinking water system and recommend the water rates necessary to maintain sustainability into the future. In addition to ensuring these systems are financially sustainable, Rate Studies look to balance intergeneration equity, rate stability and affordability while also providing the financial information basis on which the Water Financial Plan is prepared.

Watson and Associates have prepared a Water Rate Study and has completed the Water Financial Plan for the STASWSS. Upon approval of Water Financial Plan #190-301, it will be submitted to the Ministry of Municipal Affairs and Housing and provided to the Ministry of the Environment, Conservation and Parks for renewal of the STASWSS MDWL.

Water Rate Study

The Water Rate Study, appended as **Attachment 1**, provides an assessment of the full costs of managing the water system over the 2026 - 2036 planning period, and the recovery of those costs through rates that are sufficient to fund the operational, maintenance, administrative, rehabilitation and renewals costs of the system in a sustainable manner.

Previously, provisions were not included within STASWSS rates to ensure adequate funding for future replacement of capital infrastructure. These contributions have since been accounted for and in 2026, rates will be funding approximately 40% of the long-term lifecycle funding target. To ensure the STASWSS is working towards fully funding their future needs, it is being recommended that increasing this funding be phased in over time to reduce impacts on rates. By the end of the forecast period it is anticipated that rates will be funding 60% of the long-term lifecycle funding target.

Table 1 demonstrates the recommended volumetric rates for the forecast period. The rates have been developed to achieve improved cost recovery for the water system over time, while maintaining affordability.

Table 1: Volumetric Rates

Rate Component	Forecast Rate (\$/m³)										
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
EAPWSS Rate	1.0699	1.1073	1.1405	1.1747	1.2099	1.2462	1.2836	1.3221	1.3618	1.4026	1.4447
STASWSS Rate	0.6824	0.7110	0.7408	0.7718	0.8042	0.8379	0.8730	0.9095	0.9477	0.9874	1.0287
Anticipated % change EAPWSS Rate		3.5 %	3.0 %	3.0 %	3.0 %	3.0 %	3.0 %	3.0 %	3.0 %	3.0 %	3.0 %
Anticipated % change STASWSS Rate	-	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%

Overall, the STASWSS volumetric rates are forecast to increase by 4.2% per year on average over the forecast period.

Water Rate Impacts

Within the City, customers are charged a Common Water Rate, the St. Thomas Capital Rate and the Blended Water Rate. The Secondary Rate makes its way into the City’s water rate as a component of the Blended Water Rate and is calculated as the sum of the primary rate charged by the EAPWSS and 30% of the Secondary Rate imposed by the STASWSS. For the average St. Thomas residential customer (i.e., consuming 148 m3 of water) the increases to the secondary rates would result in an average annual increase of \$4.43 over the forecast period.

For the Municipality of Central Elgin and Township of Southwold, when purchasing water from the STASWSS the fee charged is the sum of the primary rate and secondary rate. For an average residential customer, the increases to the secondary rate would result in an average annual increase of \$5.13 over the forecast period.

O. Reg. 453/07 Water Financial Plan

The 2026-2036 Water Financial Plan 190-301 (Attachment 2) has been prepared by Watson & Associates in full accordance with the requirements of Ontario Regulation 453/07. The objective of the Financial Plan is to convert the findings of the 2026 Rate Study into the prescribed reporting requirements within Ontario Regulation 453/07 and project the financial position over a ten-year forecast period.

The prepared Financial Plan includes:

- projected financial position
- projected financial operations
- projected gross cash receipts and gross cash payments
- details on the replacement of lead service pipes, if any

Financial Impact:

The Rate Study forecasts provide a financial roadmap that informs rate-setting decisions during the annual budget process. However, these studies are dynamic and subject to fluctuation in response to changes in key variables, including financing strategies, consumption trends, inflationary pressures, and evolving regulatory requirements. Accordingly, regular updates and reviews are necessary to ensure rates remain aligned with the Boards financial and service delivery objectives.

Respectfully,


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

Approved By: 

Manager
Development and
Compliance



City Engineer



2026 St. Thomas Area Secondary Water Supply System Rate Study

City of St. Thomas

Final Report

June 16, 2026

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List of Acronyms and Abbreviations

Acronym	Full Description of Acronym
A.M.P.	Asset Management Plan
A.R.L.	Annual Repayment Limit
C.I.R.C.	Canadian Infrastructure Report Card
D.C.	Development Charges
D.C.A.	<i>Development Charges Act, 1997</i>
E.A.P.W.S.S.	Elgin Area Primary Water Supply System
F.P.	Financial Plan
H.E.W.S.F.	Housing-Enabling Water Systems Fund
I.J.P.A.	<i>Infrastructure for Jobs and Prosperity Act, 2015</i>
I.O.	Infrastructure Ontario
M.O.E.C.P.	Ministry of the Environment, Conservation and Parks
O.C.I.F.	Ontario Community Infrastructure Fund
O. Reg.	Ontario Regulation
P.S.A.B.	Public Sector Accounting Board
S.T.A.S.W.S.S.	St. Thomas Area Secondary Water Supply System
S.T.D.W.S.	St. Thomas and Suburban Area Drinking Water System
S.W.S.S.A.	<i>Sustainable Water and Sewage Systems Act, 2002</i>

Executive Summary



Executive Summary

Overview

Watson & Associates Economists Ltd. (Watson) was retained to undertake the 2026 St. Thomas Area Secondary Water Supply System (S.T.A.S.W.S.S.) Rate Study. The purpose of this study is to establish wholesale water rates that support full cost recovery, regulatory compliance, and the long-term financial sustainability of the S.T.A.S.W.S.S. over a ten-year forecast period from 2026 to 2036.

The study updates the S.T.A.S.W.S.S. rate model using updated consumption forecasts for the serviced municipalities, capital infrastructure requirements identified through capital forecasting, operating cost projections, and a recommended capital financing strategy. The analysis also supports the Water Financial Plan required under Ontario Regulation 453/07 of the Safe Drinking Water Act for the S.T.A.S.W.S.S.

Existing System and Customer Base

The S.T.A.S.W.S.S. is a wholesale water supply system that purchases treated water from the Elgin Area Primary Water Supply System (E.A.P.W.S.S.) and conveys it to the City of St. Thomas, the Municipality of Central Elgin, and the Township of Southwold (with subsequent pass-through to the Municipality of Dutton-Dunwich via the serviced municipalities). In 2026, total water purchases from S.T.A.S.W.S.S. across the three directly serviced municipalities is estimated at approximately 2.4 million m³ per year.

Costs to operate, maintain, and renew the S.T.A.S.W.S.S. are recovered through a variable water rate charged per cubic metre to the serviced municipalities. For customers within the St. Thomas and Suburban Area Drinking Water System (S.T.D.W.S.), the S.T.A.S.W.S.S. rate is blended with the E.A.P.W.S.S. rate based on the proportion of water supplied from each system.

Growth and Water Demand Forecast

Forecasts of water demand for the S.T.A.S.W.S.S. are based on growth projections for the serviced municipalities and reflect historical system water losses of approximately 6%. In 2026, the S.T.A.S.W.S.S. is forecast to deliver approximately 2.4 million m³ of



water and purchase approximately 2.6 million m³ from the E.A.P.W.S.S. when losses are included.

Over the 2026 to 2036 forecast period, supplied water from the S.T.A.S.W.S.S. is projected to increase by approximately 287,000 m³. Accounting for losses, total purchases by the S.T.A.S.W.S.S. from the E.A.P.W.S.S. are projected to increase by approximately 305,000 m³ by the end of the forecast period.

Capital Infrastructure Needs

Based on the capital forecast, and input from administration, total capital investment requirements for the S.T.A.S.W.S.S. over the 2026 to 2036 period are estimated at approximately \$19.0 million in 2026 dollars (i.e., excluding inflation).

The capital program includes replacement, major maintenance, and lifecycle renewal of existing assets. The most significant capital need relates to the Ford Tower replacement and related transmission main works (approximately \$17.5 million).

Capital Financing Strategy

The recommended capital financing approach balances affordability with long-term system sustainability and intergenerational equity. Over the forecast period, capital expenditures (inclusive of 3.5% annual capital inflation) total approximately \$19.9 million and are funded through a combination of transfers from rate-supported reserves and debenture financing.

New debt represents approximately 49% of the forecast funding mix, with transfers from rate-supported reserves funding the remaining approximately \$10.1 million. Based on the estimated uncommitted year-end 2025 water reserve balance, the opening capital reserve fund balance is approximately \$6.2 million and is forecast to close at approximately \$2.8 million in 2036.

Operating Expenditures

The 2026 operating budget was used as the base year for operating cost projections for the S.T.A.S.W.S.S. Operating costs were forecast using 3% annual inflation for most items, 5% annual inflation for utilities and insurance, and water purchase cost increases consistent with the E.A.P.W.S.S. rate forecast.



Operating expenditures for the S.T.A.S.W.S.S. (excluding transfers to reserves) are forecast to increase from approximately \$3.4 million in 2026 to approximately \$5.1 million by 2036, driven primarily by increases in water purchase costs.

Water Rate Forecast and Impacts

Water rates have been developed to achieve full cost recovery for the S.T.A.S.W.S.S. while maintaining a prudent approach to affordability and long-term sustainability. The recommended forecast funds projected operating expenditures, capital reserve contributions, and debt servicing requirements associated with existing and future capital investments.

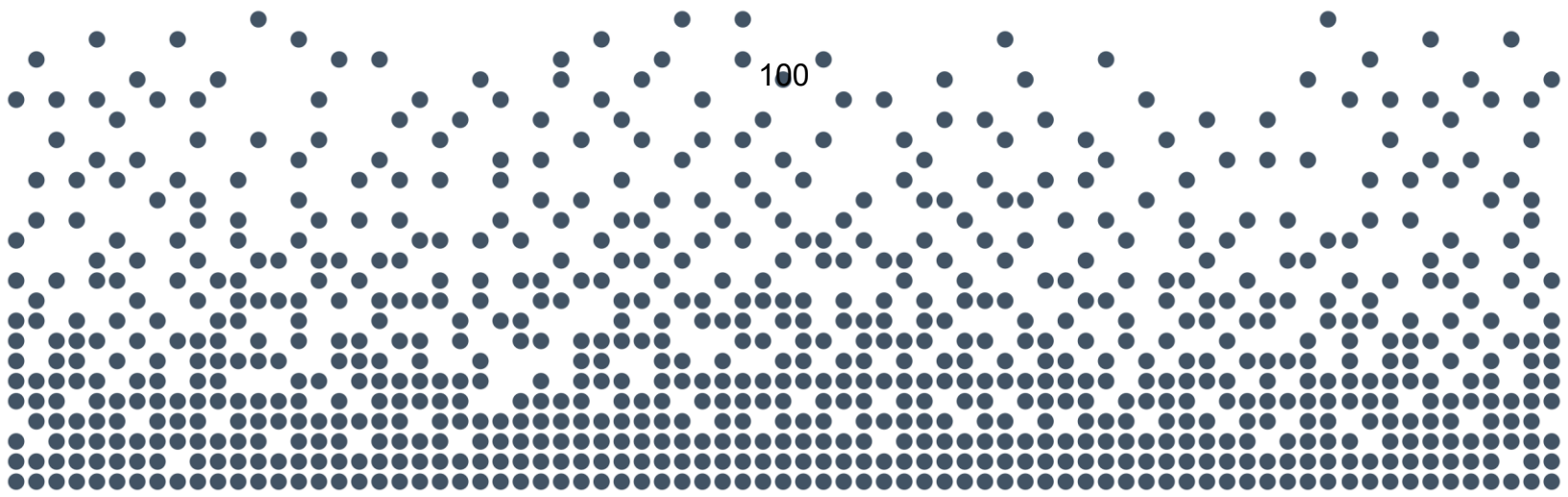
To support full cost recovery, the secondary consumptive water rate is forecast to increase by 4.2% annually over the 2026 to 2036 period.

These increases are intended to move the system from funding approximately 40% of the established long-term lifecycle funding target in 2026 to approximately 60% by the end of the forecast period, with the intent that future rate increases will continue to progress toward recovering 100% of the annual lifecycle funding target over time.

The resulting S.T.A.S.W.S.S. rate forecast is summarized in Table ES-1, with detailed calculations and supporting continuity schedules provided in Appendix A.

Table ES-1
S.T.A.S.W.S.S. Rate Forecast

Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Water Rates - STASWSS											
Primary Rate (per m ³)	\$1.0699	\$1.1073	\$1.1405	\$1.1747	\$1.2099	\$1.2462	\$1.2836	\$1.3221	\$1.3618	\$1.4026	\$1.4447
Secondary Rate (per m ³)	\$0.6824	\$0.7110	\$0.7408	\$0.7718	\$0.8042	\$0.8379	\$0.8730	\$0.9095	\$0.9477	\$0.9874	\$1.0287
Total	\$1.7523	\$1.8183	\$1.8813	\$1.9465	\$2.0141	\$2.0841	\$2.1566	\$2.2316	\$2.3094	\$2.3900	\$2.4734
% Change - Primary Rate		3.5%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
% Change - Secondary Rate		4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%



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Report



Chapter 1

Introduction



1. Introduction

1.1 Background

Watson & Associates Economists Ltd. (Watson) was retained to complete both a Water Rate Study and requisite Water Ontario Regulation 453/07 Financial Plan for the St. Thomas Area Secondary Water Supply System (S.T.A.S.W.S.S.).

The S.T.A.S.W.S.S. purchases its water from the E.A.P.W.S.S. and transfers the water to the City of St. Thomas and parts of the Municipality of Central Elgin and the Township of Southwold, which then subsequently allows pass-through to the Municipality of Dutton-Dunwich. This report reviews the rates that are imposed for water services within the S.T.A.S.W.S.S.

The S.T.A.S.W.S.S. does not directly provide water to customers but provides water to the S.T.D.W.S., the Municipality of Central Elgin and the Township of Southwold. In 2026 it is estimated that the total water purchases from all three areas is 2.4 million m³. Table 1-1 outlines the current base consumption (m³ per year) from each area that has been utilized in the review.

Costs to operate and maintain the system are recovered through a variable water rate that is charged to each municipality for the purchase of water. For water customers within the S.T.D.W.S., the water rate for the S.T.A.S.W.S.S. is blended with the water rate charged by the E.A.P.W.S.S. based on the proportion of water coming from each system.

As the S.T.A.S.W.S.S. is purchasing its water from the E.A.P.W.S.S. and the blended rate includes 100% of all water purchase costs from the E.A.P.W.S.S., it follows that the secondary rate excludes the costs to purchase this water, but includes other related operating costs and capital related expenditures.

The water rate for the S.T.A.S.W.S.S. is \$0.6824 per m³ for a total rate of \$1.7523 per m³ when the purchase of water from the E.A.P.W.S.S. is accounted for. This results in the blended rate being \$1.2746 per m³ for those customers connected to the S.T.D.W.S.



Table 1-1
Current Consumption by Municipality

Description	Base Consumption (m ³)
Central Elgin	62,391
Southwold	872,423
St. Thomas	1,494,747
Grand Total	2,429,560

1.2 Study Process

Periodically conducting water rate studies helps to ensure rates reflect the costs incurred. In addition to this, municipalities and local boards must prepare a Water Financial Plan as part of the five-year submission requirements for the purpose of obtaining a municipal drinking water license as per the *Safe Drinking Water Act, 2002*.

The objectives of the study and the steps involved in carrying out the assignment are summarized below:

- Calculate service demand assumptions based on analysis of historical consumption and recent trends;
- Estimate future consumption levels by applying demand assumptions to forecast system growth;
- Develop a capital program consisting of lifecycle needs and needs identified by the Administration;
- Forecast annual operating costs and rate-based funding requirements;
- Develop a long-term rate forecast;
- Provide an impact assessment on rate payers;
- Prepare the Financial Plan required under the Municipal Drinking Water Licensing Program, as prescribed by the *Safe Drinking Water Act* (Ontario Regulation (O. Reg.) 453/07); and
- Present findings to staff and the Joint Board of Management for their consideration.

The following analysis is provided in this report:

- Chapter 2 – Forecast Growth and Servicing Requirements
- Chapter 3 – Capital Infrastructure Needs



- Chapter 4 – Capital Cost Financing
- Chapter 5 – Operating Expenditure and Revenue
- Chapter 6 – Forecast Water Rates
- Chapter 7 – Recommendations

Unless otherwise noted, 2026 is used as the base year for existing rates and observed consumption, with the recommended rate forecast implemented beginning in 2027 and presented through 2036.

1.3 Legislative Context

Significant regulatory changes have occurred in Ontario since the Walkerton water crisis. These changes result from the Walkerton Commission and the 93 recommendations made in the Walkerton Inquiry Part II report. Areas of recommendation include:

- watershed management and source protection;
- quality management;
- preventative maintenance;
- research and development;
- new performance standards;
- sustainable asset management; and
- lifecycle costing.

The legislation that would have most impacted municipal water and wastewater rates was the Sustainable Water and Sewage Systems Act, 2002 (S.W.S.S.A.), which required municipalities to implement full-cost pricing. The legislation was enacted in 2002; however, it had not been implemented pending the approval of its regulations. The Act was repealed as of January 1, 2013. It is expected that the provisions of the *Water Opportunities Act* will implement the requirements of S.W.S.S.A. Furthermore, on December 27, 2017, O. Reg. 588/17 was released under the *Infrastructure for Jobs and Prosperity Act, 2015* (I.J.P.A.), which outlines the requirements for asset management for municipalities. The results of the asset management review under this Act will need to be considered in light of the recent investments undertaken by the City and the capital spending plan provided herein.

The following sections describe these various resulting changes.



1.3.1 Safe Drinking Water Act

The *Safe Drinking Water Act* was passed in December 2002. The *Safe Drinking Water Act* provides for 50 of the 93 Walkerton Part II recommendations. It focuses on the administrative and operational aspects of the provision of water.

The purposes of the *Safe Drinking Water Act* are to “recognize that the people of Ontario are entitled to expect their drinking water to be safe and to provide for the protection of human health and the prevention of drinking water health hazards through the control and regulation of drinking water systems and drinking water testing. 2002, c. 32, s. 1.”

The following is a brief summary of the key elements included in the *Safe Drinking Water Act*:

- Mandatory licensing and accreditation of testing laboratories;
- New standards for treatment, distribution quality and testing;
- Mandatory operator training and certification;
- Mandatory licensing of municipal water providers;
- Stronger enforcement and compliance provisions; and
- “Standard of care” requirements for municipalities.

This legislation impacts the costs of operating a water system with the need for higher-skilled operators, including increased training costs, increased reporting protocols and requirements, continuing enhancements to quality standards, and the costs to license each water system.

1.3.2 Financial Plans Regulation

On August 16, 2007, the Ministry of Environment, Conservation, and Parks (M.O.E.C.P.) issued O. Reg. 453/07, which requires the preparation of financial plans for water systems. The M.O.E.C.P. has also provided a Financial Plan Guidance Document to assist in preparing the plans. A summary of the key elements of the regulation is provided below:

- The financial plan will represent one of the key elements for the City to retain its Drinking Water Licence;



- The financial plans shall be for a period of at least six years, but longer planning horizons are encouraged;
- As the regulation is under the *Safe Drinking Water Act, 2002*, the preparation of the plan is mandatory for water and encouraged for wastewater;
- The plan is considered a living document (i.e., will be updated as annual budgets are prepared) but will need to be undertaken, at a minimum, every five years;
- The plans generally require the forecasting of capital, operating and reserve fund positions, providing detailed inventories, forecasting future users and volume usage, and corresponding calculation of rates. In addition, Public Sector Accounting Board (P.S.A.B.) information on the system must be provided for each year of the forecast (i.e., total non-financial assets, tangible capital asset acquisitions, tangible capital asset construction, betterments, write-downs, disposals, total liabilities, and net debt);
- The financial plans must be made available to the public (at no charge) upon request and be available on the City's website. The availability of this information must also be advertised; and
- The financial plans are to be approved by Resolution of the Council or governing body indicating that the drinking water system is financially viable.

In general, the financial principles of the draft regulations follow the intent of S.W.S.S.A. to move municipalities towards financial sustainability. Many of the prescriptive requirements, however, have been removed (e.g., preparation of two separate documents for provincial approval, auditor opinions, engineer certifications, etc.).

A Guideline ("Towards Financially Sustainable Drinking-Water and Wastewater Systems") had been developed to assist municipalities in understanding the Province's direction and provided a detailed discussion on possible approaches to sustainability. The Province's Principles of Financially Sustainable Water and Wastewater Services are provided below:

- Principle #1: Ongoing public engagement and transparency can build support for, and confidence in, financial plans, and the system(s) to which they relate.
- Principle #2: An integrated approach to planning for water, wastewater, and stormwater systems is desirable given the inherent relationship of these services.



- Principle #3: Revenues collected for the provision of water and wastewater services should ultimately be used to meet the needs of those services.
- Principle #4: Lifecycle planning with mid-course corrections is preferable to planning over the short term, or not planning at all.
- Principle #5: An asset management plan is a key input to the development of a financial plan.
- Principle #6: A sustainable level of revenue allows for reliable service that meets or exceeds environmental protection standards, while providing sufficient resources for future rehabilitation and replacement needs.
- Principle #7: Ensuring users pay for the services they are provided leads to equitable outcomes and can improve conservation. In general, metering and the use of rates can help ensure users pay for services received.
- Principle #8: Financial plans are “living” documents that require continuous improvement. Comparing the accuracy of financial projections with actual results can lead to improved planning in the future.
- Principle #9: Financial plans benefit from the close collaboration of various groups, including engineers, accountants, auditors, utility staff, and municipal Council.

This Rate Study provides the foundation for the required financial plan. The Water Financial Plan, which meets the requirements of O. Reg. 453/07, is provided under separate cover.

1.3.3 Water Opportunities Act, 2010

Since the passage of the *Safe Drinking Water Act, 2002*, further changes and refinements to the legislation have been introduced. Some of these Bills have found their way into law, while others have not been approved. Bill 72, the *Water Opportunities Act, 2010*, was introduced into legislation on May 18, 2010, and received Royal Assent on November 29, 2010.



The Act provides for the following elements:

- The fostering of innovative water, wastewater and stormwater technologies, services, and practices in the private and public sectors;
- Preparation of water conservation plans to achieve water conservation targets established by the regulations; and
- Preparation of sustainability plans for municipal water services, municipal wastewater services, and municipal stormwater services.

Regarding the sustainability plans:

- The Act extends from the water financial plans and requires a more detailed review of the water financial plan and requires a full plan for wastewater and stormwater services; and
- Regulations will provide performance targets for each service – these targets may vary based on the jurisdiction of the regulated entity or the class of entity.

The financial plan shall include:

- An asset management plan for the physical infrastructure;
- A financial plan;
- For water, a water conservation plan;
- An assessment of risks that may interfere with the future delivery of the municipal service, including, if required by the regulations, the risks posed by climate change and a plan to deal with those risks; and
- Strategies for maintaining and improving the municipal service, including strategies to ensure the municipal service can satisfy future demand, consider technologies, services and practices that promote the efficient use of water and reduce negative impacts on Ontario's water resources, and increase co-operation with other municipal service providers.

Performance indicators will be established by service, with the following considerations:

- Financing, operation, or maintenance of a municipal service, or to any other matter in respect of what information may be required to be included in a plan;
- Different municipal service providers or for municipal services in different areas of the Province.



Regulations will prescribe:

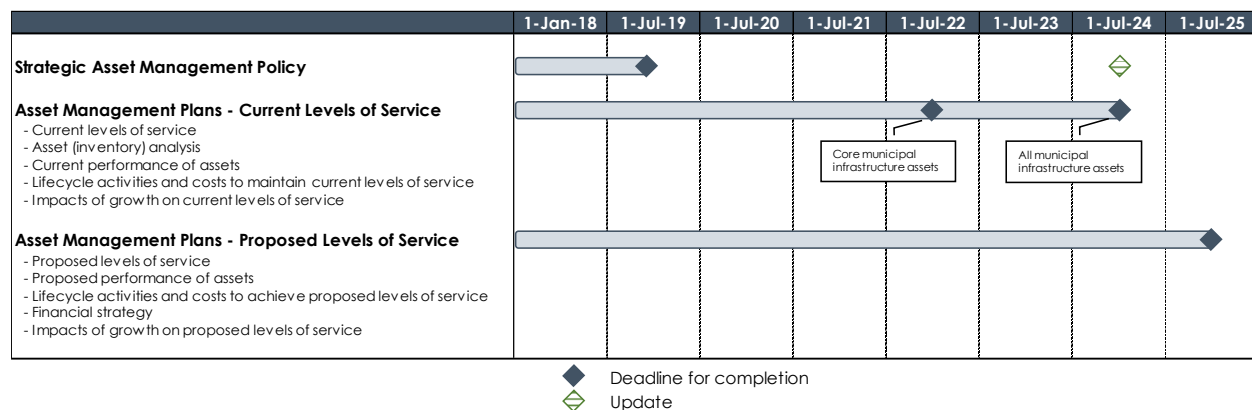
- Timing;
- Contents of the plans;
- Which identified portions of the plan will require certification;
- Public consultation process; and
- Limitations, updates, refinements, etc.

As noted earlier, it is expected that this Act will implement the principles of the S.W.S.S.A. once all regulations are put in place.

1.3.4 Infrastructure for Jobs and Prosperity Act, 2015

On June 4, 2015, the Province passed the *Infrastructure for Jobs and Prosperity Act, 2015* (I.J.P.A.), which, over time, will require municipalities to undertake and implement asset management plans for all infrastructure they own. On December 27, 2017, the Province of Ontario released O. Reg. 588/17 under I.J.P.A., which sets out three phases municipalities must meet. The timelines for the three phases were later extended by O. Reg. 193/21, filed on March 15, 2021. The timelines are presented in Figure 1-1 below.

Figure 1-1
Legislative Timelines set out by the Jobs and Prosperity Act
Legislation related to Asset Management Plans



Every municipality in Ontario will have to prepare a strategic asset management policy by July 1, 2019. Municipalities will be required to review their strategic asset



management policies at least every five years and make updates as necessary. The subsequent phases are as follows:

- Phase 1 – Asset Management Plan (by July 1, 2022) for core assets, municipalities must have the following:
 - Inventory of assets;
 - Current levels of service, including some prescribed measures; and
 - Lifecycle management strategies and associated costs to maintain current levels of service.
- Phase 2 – Asset Management Plan (by July 1, 2024):
 - Same steps as Phase 1, but for all assets.
- Phase 3 – Asset Management Plan (by July 1, 2025) builds on Phases 1 and 2, adding:
 - Proposed levels of service; and
 - Financial strategy that supports achieving proposed levels of service.

In relation to water and wastewater services (which are considered core assets), municipalities were required to have an asset management plan that addressed the related infrastructure by July 1, 2022 (Phase 1). O. Reg. 588/17 specifies that the municipality's asset management plan must include the following for each asset category:

- The current levels of service being provided, determined in accordance with the following qualitative descriptions and technical metrics and based on data from at most the two calendar years prior to the year in which all information required under this section is included in the asset management plan;
- The current performance of each asset category, including:
 - a summary of the assets in the category;
 - the replacement cost of the assets in the category;
 - the average age of the assets in the category, determined by assessing the average age of the components of the assets;
 - the information available on the condition of the assets in the category;
 - a description of the municipality's approach to assessing the condition of the assets in the category, based on recognized and generally accepted good engineering practices where appropriate; and
 - the lifecycle activities that would need to be undertaken to maintain the current levels of service.



1.4 Rate Calculation Methodology

Figure 1-2 illustrates the general methodology used in determining the full cost recovery of water services.

The methodology employed generally consists of 5 major elements:

1. Customer Demands and Consumption Forecast

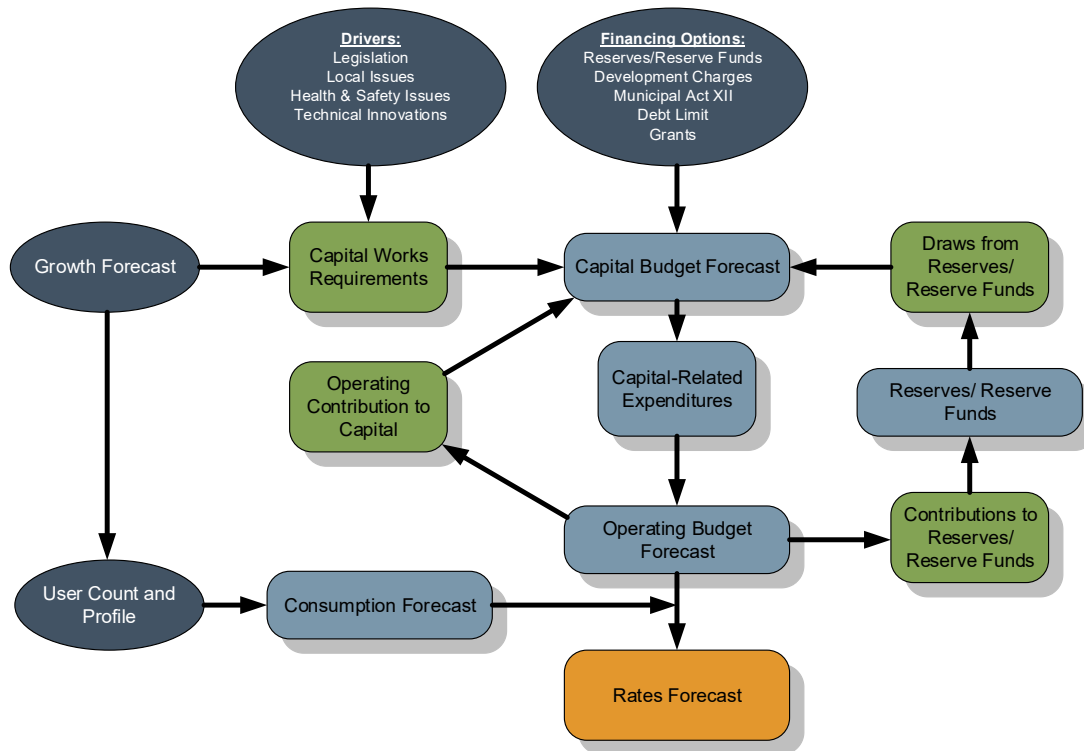
This first step in the analysis is to assess the number of water connections and volume of water consumption over the forecast period. This is an important first step because it produces the customer base and consumption estimates for revenue generation. The water volume forecasts are prepared by applying average annual consumption/flow estimates to future development. Volume estimates were determined based on a review of historical average levels across the S.T.A.S.W.S.S.

2. Capital Needs Forecast

The capital needs forecasts are developed to measure program/service-level adjustments and lifecycle requirements. Capital expenditures are forecast with inflationary adjustments based on capital cost indices.



Figure 1-2
Water Rate Calculation Methodology



3. Capital Funding Plan

The capital funding plans consider the available funding sources to address the forecast capital needs. Sources of capital funding include rate-based support, reserves/reserve funds, grants, and debt for program/service-level improvements. The use of rate-based funding is measured against the revenue projections and affordability impacts. The reserve/reserve fund sources are measured against their sustainability relative to lifecycle demands, revenue projections, and affordability impacts. Debt financing is considered for significant capital expenditures that require funding beyond long-term lifecycle needs or to facilitate rate transition policies. Debt financing is measured against debt policies and annual repayment limits to ensure a practical and sustainable funding mix.

4. Operating Budget Forecast

The operating budget forecast considers adjustments to the S.T.A.S.W.S.S.'s base budget reflecting program/service level changes, operating fund impacts associated with infrastructure, water purchase costs, and financing for capital projects. The operating expenditures are forecast with inflationary adjustments and growth in service



demand, based on fixed and variable cost characteristics as well as the operation of new infrastructure. The operating budget forecast ties the capital funding plan and reserve/reserve fund continuity forecast to the rate-based revenue projections. This ensures sufficient funding for both the ongoing annual operations and maintenance of water services, as well as the capital cost requirements to ensure service sustainability.

5. Rate Forecast and Structure

The rate forecast and rate structure components of the analysis may consider various rate structures to recover forecast rate-based revenue from projected customer demand. At this stage in the analysis, the full costs of service are measured against customer growth and volume demands to determine full-cost recovery rates. The analysis may consider alternative structures, including amalgamating individual systems within a municipality, consistent with municipal policies/strategies, industry practice, and customer affordability. The rate forecasts are applied across a range of customer types and compared with other municipalities to measure the annual impacts on total water bills. Appendix B includes an overview of the different types of rate structures imposed across the province.



Chapter 2

Forecast Growth and Servicing Requirements



2. Forecast Growth and Servicing Requirements

Several information sources were used to inform the growth forecast utilized for the Rate Study. For the S.T.A.S.W.S.S., the growth forecast is derived for each of the serviced municipalities (i.e., the City, Municipality of Central Elgin and the Township of Southwold) based on the following information :

- St. Thomas – St. Thomas 2025 Housing Needs Assessment
- Municipality of Central Elgin – Central Elgin 2024 Water & Wastewater Rate Study and Input from staff regarding additional development in the Psych Lands (Note: the Psych Lands growth currently has not been included within the analysis while the City assesses and confirms the needs of the Municipality of Central Elgin).
- Township of Southwold – Township of Southwold 2026 Development Charge Background Study (ongoing)

The forecast growth over the 2026-2036 period is presented in Table 2-1. In 2026, there is an estimated 2.4 million m³ of water that is purchased from the S.T.A.S.W.S.S. Accounting for water loss in the system, based on historical trends, there is an assumed approximately 6% water loss in the system resulting in a total water purchased by the S.T.A.S.W.S.S. of 2.6 million m³. It is forecast that there will be an additional 287,000 m³ purchased from the S.T.A.S.W.S.S. which relates to an additional 306,000 m³ purchased by the S.T.A.S.W.S.S. from the E.A.P.W.S.S. by the end of the forecast period.



Table 2-1
S.T.A.S.W.S.S. Water Forecast Summary

Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Central Elgin	62,391	63,583	64,776	65,968	67,160	68,353	69,545	70,738	71,930	73,122	74,315
Southwold	872,423	877,964	883,506	889,047	894,588	900,130	905,671	911,213	916,754	922,296	927,837
St. Thomas	1,494,747	1,527,122	1,366,234	1,421,269	1,476,304	1,531,339	1,586,374	1,618,470	1,650,567	1,682,664	1,714,761
Total Purchased from S.T.A.S.W.S.S.	2,429,560	2,468,669	2,314,515	2,376,284	2,438,053	2,499,821	2,561,590	2,600,421	2,639,251	2,678,082	2,716,913
Total Purchased by S.T.A.S.W.S.S. (including water loss)	2,584,638	2,626,244	2,462,250	2,527,961	2,593,673	2,659,384	2,725,096	2,766,405	2,807,714	2,849,023	2,890,333



Chapter 3

Capital Infrastructure Needs



3. Capital Infrastructure Needs

3.1 Capital Forecast

The forecast capital needs include replacements and lifecycle requirements. A list of the capital works for this system is provided in Table 3-1. The total capital costs over the 2026 – 2036 period are estimated at \$19.0 million. The most significant expenditure relates to the Ford Tower replacement and related transmission mains projects totaling \$17.5 million.

Note that the capital costs identified in Table 3-1 exclude inflation.



Table 3-1
S.T.A.S.W.S.S. Capital Needs (uninflated)

Program/Service Area	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	Total	Annual Average Expenditure
Existing Capital Needs													
Chlorination Equipment (50% shared with Aylmer) - S.T.A.S.W.S.S. share	10,000	-	50,000	-	-	-	-	-	-	-	-	60,000	5,455
Generator Replacement (50% shared with Aylmer) - S.T.A.S.W.S.S. share	-	125,000	-	-	-	-	-	-	-	-	-	125,000	11,364
Drawing Revisions	-	15,000	-	-	-	-	-	-	-	-	-	15,000	1,364
Pump dismantle and rebuild	15,000	-	-	20,000	20,000	-	-	-	-	-	-	55,000	5,000
Analyzer and pressure replace	-	-	-	30,000	-	-	-	-	-	-	-	30,000	2,727
Valves in chambers	-	-	-	-	-	-	500,000	-	-	-	-	500,000	45,455
Ford Tower Replacement & Decommissioning	8,200,000	-	-	-	-	-	-	-	-	-	-	8,200,000	745,455
Transmission Main	-	4,500,000	4,750,000	-	-	-	-	-	-	-	-	9,250,000	840,909
Annual Minor Capital Assumption	-	-	-	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	800,000	72,727
GRAND TOTAL	8,225,000	4,640,000	4,800,000	150,000	120,000	100,000	600,000	100,000	100,000	100,000	100,000	19,035,000	1,730,455



3.2 Overview of Lifecycle Costing

3.2.1 *Definition*

Lifecycle costing is widely used in maintenance engineering and in evaluating the benefits of alternative materials in construction and production design. Over time, the approach has gained broader acceptance in industrial decision-making and in the management of physical assets.

Lifecycle costs represent all costs incurred over the service life of an asset. This service life begins when the asset is first considered for acquisition and ends when it is removed from service for disposal or redeployment. Throughout its lifecycle, an asset progresses through several stages, including specification, design, manufacture or construction, installation, commissioning, operation, maintenance, and disposal. These stages are illustrated in Figure 3-1.

3.2.2 *Financing Costs*

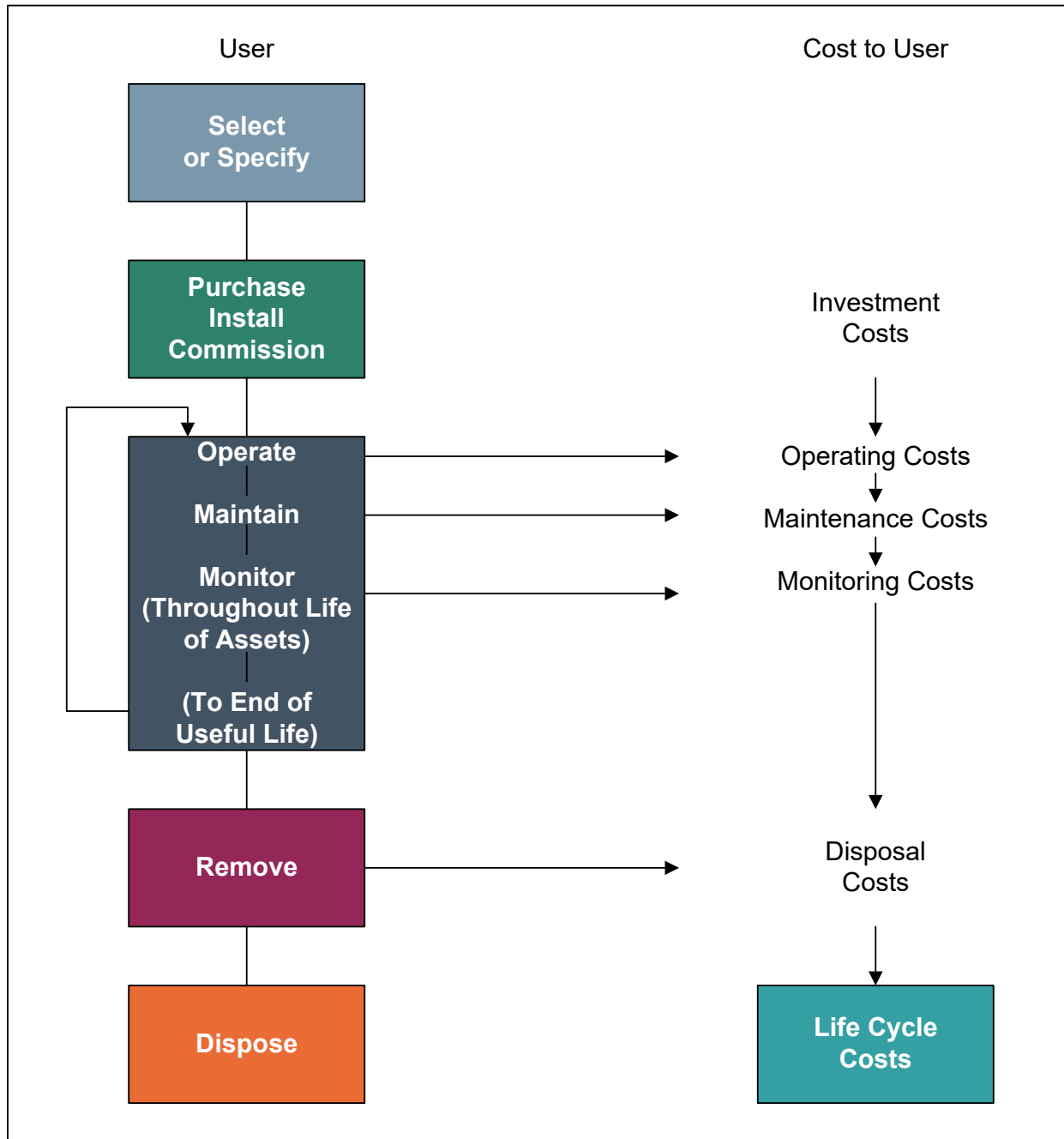
This section focuses on the financing mechanisms used to fund the costs incurred throughout an asset's service life. In a municipal context, services are provided to benefit rate payers, and the acquisition of assets is typically timed to address direct needs within the community. Operating costs, which represent the cost of delivering the service in a given year, are funded directly by existing rate payers through taxes or user rates. Capital expenditures may be financed through a variety of methods, including contributions from the operating budget, development charges, connection fees, reserves, developer contributions, grants, and debentures.

Capital construction to replace existing infrastructure is generally not related to growth and therefore does not produce D.C.s, connection fees, or developer contributions. As a result, municipalities rely on debentures, reserves, and contributions from the operating budget to fund these works.

Figure 3-2 illustrates the costs associated with an asset from its initial conception through to its eventual replacement and then through to the next replacement cycle.



Figure 3-1
Lifecycle Costing



Growth-related financing methods, such as D.C.s, connection fees, and developer contributions, can be used to fund the growth-related share of new assets. These revenues are collected indirectly from new homeowners who benefit from the asset's installation. Other financing tools are used to fund the non-growth-related share of these



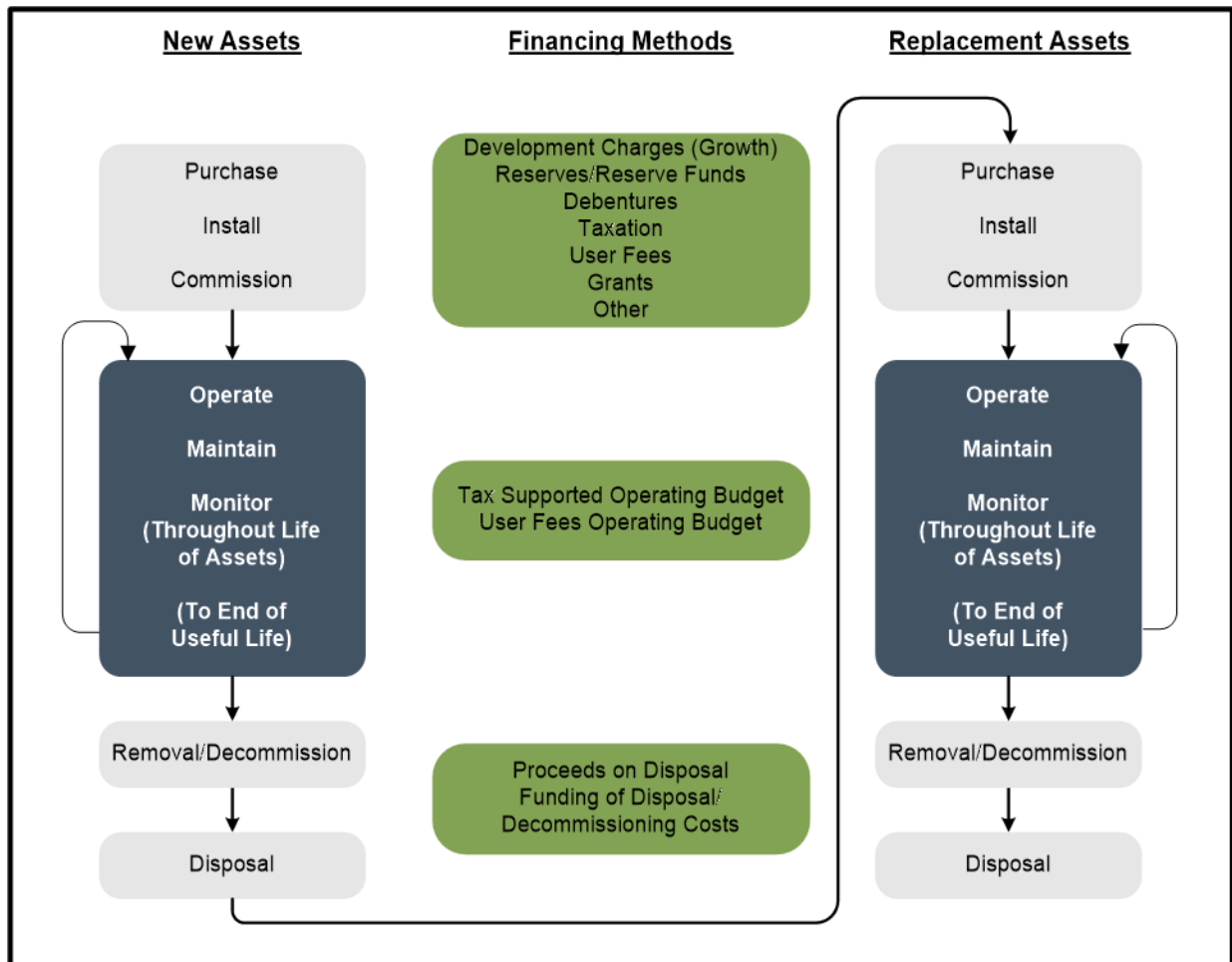
projects, including reserves funded by past rate payers, operating budget contributions funded by existing rate payers, and debentures repaid by future rate payers. Ongoing monitoring, operating, and maintenance costs are recovered annually from existing rate payers.

When an asset requires replacement, the available financing tools are typically limited to reserves, debentures, and contributions from the operating budget. This raises the question of whether past or future rate payers should bear the cost of replacing an asset. If past rate payers are expected to fund the replacement, contributions should be collected annually throughout the asset's life to ensure sufficient funds are available when needed. If future rate payers are expected to fund the replacement, debentures, and operating budget contributions can be used.

The concept of charging users for the consumption of an asset is consistent with depreciation methods used in the private sector. Depreciation recognizes the use of an asset over time and incorporates these costs into the price of goods or services. A similar approach can be applied in the municipal sector by allocating the cost of asset use to current users and setting aside these funds in reserves to finance future replacement needs.



Figure 3-2
Financing Lifecycle Costs



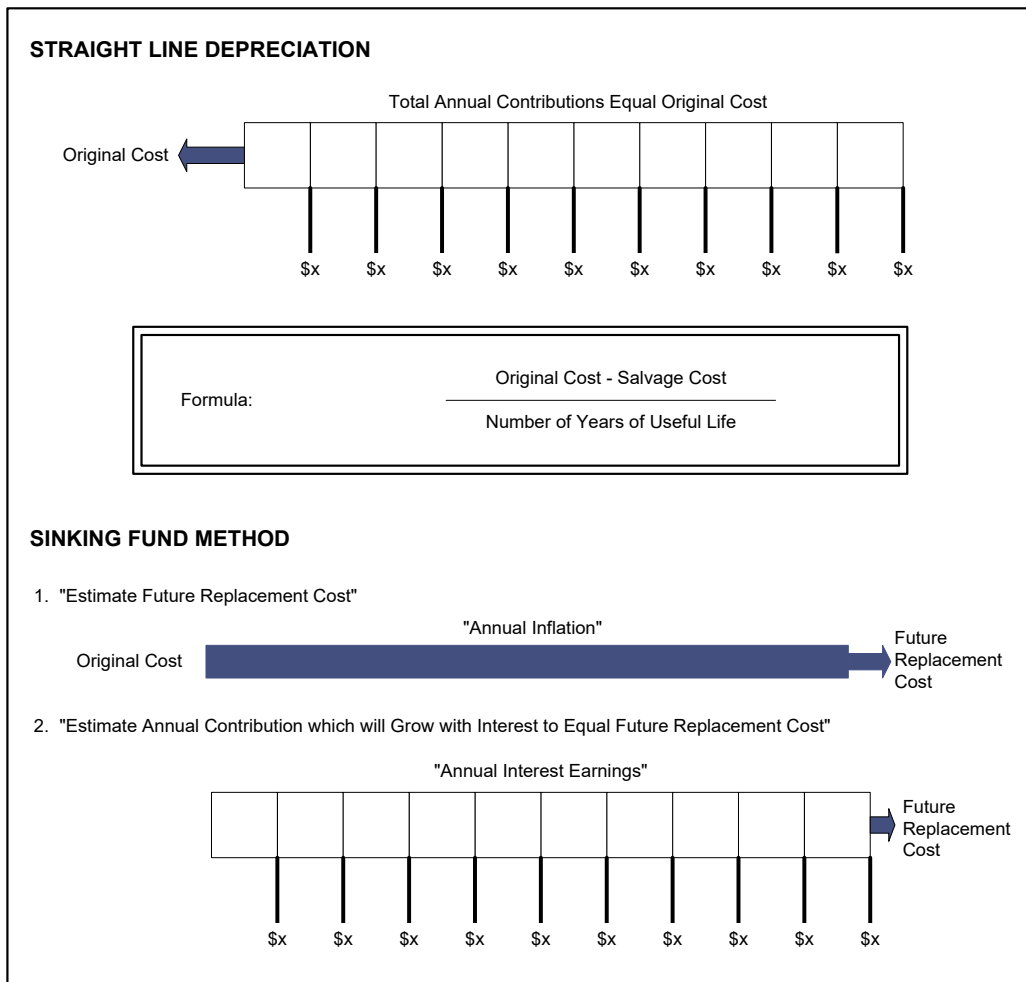
3.2.3 Costing Methods

There are two primary methods used to calculate the cost of utilizing an asset and to determine the level of revenue required for its eventual retirement and replacement. The first is the depreciation method, which recognizes the reduction in the value of an asset over time due to wear, deterioration, and aging. Two forms of depreciation are commonly applied: the straight-line method and the reducing balance method, as illustrated in Figure 3-3. Under the straight-line method, the annual depreciation expense is calculated by subtracting the estimated salvage value of the asset from its original cost and dividing the result by the estimated number of years of useful life. Under the reducing balance method, a fixed percentage rate is applied annually to the remaining, undepreciated value of the asset.



The second method is the sinking fund method. This approach first estimates the future replacement cost of the asset by applying an assumed annual inflation rate to the original cost. The next step is to calculate the annual contributions required so that, when invested, they will accumulate with interest to equal the future replacement cost at the time the asset must be replaced. Contributions may be equal or varied depending on the financial strategy adopted by the municipality.

Figure 3-3



3.3 Summary

The annual lifecycle contribution amounts have been calculated to determine the level of capital investment that should be included in the full cost assessment and rate forecast. Table 3-2 summarizes the current asset replacement value and the long-term annual lifecycle replacement needs in 2026 dollars. These replacement values were



derived from Administration's detailed capital asset inventories. Two methods were used to calculate the average annual lifecycle costs: the amortization method, which applies straight-line depreciation based on historical costs and useful life assumptions and the Canadian Infrastructure Report Card approach, which involves applying established reinvestment rates to the total replacement values. The annual lifecycle costs of all linear infrastructure was calculated using the amortization method, while the annual lifecycle costs for non-infrastructure was calculated by applying the suggested reinvestment rates identified in the Canadian Infrastructure Report Card.

The average annual lifecycle costs for the S.T.A.S.W.S.S. are estimated at approximately \$2.0 million. While these lifecycle costs establish the funding level to ensure sufficient reserves are available for the replacement of capital infrastructure, it should be noted that prior to the S.T.A.S.W.S.S.'s last rate study, provisions were not included within rates to ensure there were funds for future replacement of capital infrastructure. Since then, these contributions have been accounted for and, in 2026, rates will be funding approximately 40% of the established funding target. To ensure the S.T.A.S.W.S.S. is working towards fully funding their future funding requirements and through discussions with the Administration, it is being recommended that this funding be phased in over-time to reduce impacts on rates. By the end of the forecast period it is anticipated that rates will be funding 60% of the overall lifecycle funding target.

Table 3-2
Summary of S.T.A.S.W.S.S. Infrastructure (2026\$)

Description	Replacement Cost	Annual Lifecycle Costs
<i>Water:</i>		
STASWSS	\$141,443,845	\$1,959,284



Chapter 4

Capital Costs Financing



4. Capital Costs Financing

4.1 Summary of Capital Cost Financing Alternatives

Historically, the powers that municipalities have had to raise alternative revenues to taxation to fund capital costs have been restrictive. Over the past number of years, several legislative reforms have been introduced. Some of these have expanded municipal powers (e.g., Bill 26, introduced in 1996 to provide for expanded powers for imposing fees and charges), while others appear to limit them (e.g., Bill 98 in 1997 and Bill 23 in 2022 providing amendments to the D.C.A.).

The current Municipal Act came into force on January 1, 2003, with significant amendments in 2006 through the Municipal Statute Law Amendment Act. Part XII of the Act and O. Reg. 584/06 govern a municipality's ability to impose fees and charges. This legislation provides municipalities with broadly defined powers and the ability to impose fees for both operating and capital purposes. Under s.484 of Municipal Act, 2001, the Local Improvement Act was repealed with the in-force date of the Municipal Act (January 1, 2003). The municipal powers granted under the Local Improvement Act now fall under the jurisdiction of the Municipal Act.

The methods of capital cost recovery available to municipalities are provided as follows:

Recovery Methods	Section Reference
• <i>Development Charges Act, 1997</i> , as amended	4.2
• <i>Municipal Act</i>	4.3
○ Fees and Charges	
○ Stormwater Area Charges	
○ Connection Fees	
○ Local Improvements	
• Grant Funding Availability	4.4
• Existing Reserves/Reserve Funds	4.5
• Debenture Financing	4.6
• Recommended Capital Financing Approach	4.7



4.2 Development Charges Act, 1997

D.C.s are a revenue tool used by municipalities to recover the capital costs associated with new development and redevelopment. These costs are in addition to what a developer/builder normally constructs as part of their subdivision (i.e., Local Services). Empowered by the D.C.A., as amended, municipalities may pass by-laws to impose charges to recover the capital costs associated with development and redevelopment.

4.3 Municipal Act

Part XII of the Municipal Act provides municipalities with broad powers to impose fees and charges via passage of a by-law. These powers, as presented in s.391(1), include imposing fees or charges:

“for services or activities provided or done by or on behalf of it;
for costs payable by it for services or activities provided or done by or on
behalf of any other municipality or local board; and
for the use of its property including property under its control.”

Restrictions are provided to ensure that the form of the charge is not akin to a poll tax. Any charges not paid under this authority may be added to the tax roll and collected in a like manner. The fees and charges imposed under this part are not appealable to the Ontario Land Tribunal (OLT).

The *Municipal Act* provides the ability of municipalities to impose capital charges for water and sewer services on landowners not receiving an immediate benefit from the works. Under s.391(2) of the Act, “a fee or charge imposed under subsection (1) for capital costs related to sewage or water services or activities may be imposed on persons not receiving an immediate benefit from the services or activities but who will receive a benefit at some later point in time.” Also, capital charges imposed under s.391 are not appealable to the OLT because the charges are “unfair or unjust.”

Under the new *Municipal Act*, municipalities are permitted to pass a by-law requiring buildings to connect to the municipality's sewer and water systems and charging the owner for the cost of constructing services from the mains to the property line under Part II, General Municipal Powers (s.9 (3) b of the *Municipal Act*). Enforcement and penalties for this use of power are contained in s.427 (1) of the *Municipal Act*.



4.4 Grant Funding Availability

Federal Infrastructure Funding

The Government of Canada has provided funding to assist municipalities with their water and wastewater systems, including repair and rehabilitation projects. Some funding programs are time-limited, for example, the Clean Water and Wastewater Fund and the Investing in Canada Infrastructure Program.

Other programs are ongoing and provide a permanent source of funding. For example, the Canada Community-Building Fund (formerly known as the Federal Gas Tax Fund). The Canada Community-Building Fund provides over \$2 billion each year to communities across Canada. Each municipality then chooses how to use the money. They can make strategic investments in 18 different projects, including water and wastewater services.

Ontario Government

The Province has taken steps to increase municipal infrastructure funding. The Ontario Community Infrastructure Fund (O.C.I.F.) was launched in 2014 and currently provides \$400 million in formula-based funding to help eligible communities renew and rehabilitate their infrastructure. The Ontario government also provides funding through the Connecting Links program (\$30 million in 2023-2024) to help pay for the construction and repair costs of municipal roads that connect communities to provincial highways. This is on top of the Building Ontario Up investment of \$130 billion in public infrastructure over 10 years starting in 2015.

Additionally, in the 2023 budget, the Province announced it was providing \$825 million over three years through the Housing-Enabling Water Systems Fund (H.E.W.S.F.). Funding through the H.E.W.S.F. would help municipalities repair, rehabilitate, and expand drinking water, wastewater, and stormwater infrastructure needed to build more homes. Since the original announcement, the Province has increased the total available funding through the H.E.W.S.F. to nearly \$1.7 billion.

4.5 Existing Reserves and Reserve Funds

The S.T.A.S.W.S.S. has established reserves and reserve funds for water capital costs. These reserves have been used in the capital funding forecast for rate-based needs.



The following table shows the water reserves used in this analysis and their estimated balances as of December 31, 2025. These balances are net of outstanding capital commitments for 2025 and earlier.

Table 4-1
Uncommitted Reserve/Reserve Fund Balances as of December 31, 2025

Reserve	Dec. 31 2025
Secondary Water	
Capital Reserve	6,283,352

4.6 Debenture Financing

Although it is not a direct way to reduce overall costs to rate payers, municipalities use debentures to finance large capital expenditures. In addition, debenture financing can promote inter-generational equity whereby future tax and rate payers who will benefit from the infrastructure pay for the cost of the infrastructure.

The Ministry of Municipal Affairs and Housing controls the amount of debt Ontario municipalities can incur. This is done through its powers under the Municipal Act. O. Reg. 403/02 provides the current rules respecting municipal debt and financial obligations. Under these rules, a municipality's debt capacity is capped at 25% of the municipality's own purpose revenue. That is, only 25% of these revenues may be allotted for servicing debt (i.e., principal and interest payments).

4.6.1 *Infrastructure Ontario*

Infrastructure Ontario (I.O.) is an arms-length crown corporation, which has been set up as a tool to offer low-cost and longer-term financing to assist municipalities in renewing their infrastructure (this corporation merged the former Ontario Strategic Infrastructure Financing Authority (O.S.I.F.A.) into its operations). I.O. combines the infrastructure renewal needs of municipalities into an infrastructure investment "pool". I.O. will raise investment capital to finance loans to the public sector by selling Infrastructure Renewal Bonds to individual and institutional investors.

I.O. provides access to infrastructure capital that would not otherwise be available to smaller borrowers. Larger borrowers receive longer loan terms than they could get in the financial markets. They can also save on costs such as legal fees and underwriting commissions. Under the I.O. approach, all borrowers receive the same low interest rate.



I.O. will enter into a financial agreement with each municipality, subject to technical and credit reviews, for a loan up to the maximum amount of the loan request.

To be eligible to receive these loans, municipalities must submit a formal application along with pertinent financial information. Allotments are prioritized and distributed based on the Province's assessment of need.

4.6.2 Building Ontario Fund

The Province, through the *Building Ontario Fund Act, 2024*, has continued the Ontario Infrastructure Bank under the name Building Ontario Fund. The Building Ontario Fund is an arms-length, board-governed Crown agency intended to help enable large-scale infrastructure projects by working with institutional investors and other partners. As this organization and its programs continue to evolve, municipalities are encouraged to monitor eligibility criteria and potential opportunities as they become available.

4.7 Recommended Capital Financing Approach

Figure 4-1 summarizes the total capital costs and the funding sources for the 2026 to 2036 capital forecast. All costs are presented inclusive of 3.5% annual capital inflation. For clarity, the capital needs summarized in Chapter 3 are presented in 2026 dollars (uninflated), while the financing plan and continuity schedules in this chapter reflect the same program inclusive of 3.5% annual capital inflation. In addition, Table 4-2 provides the detailed capital expenditure and funding program by year for the S.T.A.S.W.S.S.

In total, \$19.9 million in capital expenditures are anticipated over the forecast period. These capital needs are expected to be fully funded through a combination of transfers from reserves, and debentures. New debt represents 49% of the funding mix. Transfers from rate-supported reserves total \$10.1 million.

Based on the detailed capital funding plan and the 2025 year-end water reserve balances discussed in Section 4.5, the water reserve continuity schedule are presented in Table 4-3. The S.T.A.S.W.S.S.'s opening capital reserve fund balance is \$6.3 million. The significant non-growth capital requirements between 2026 and 2027 result in the capital reserve being fully utilized by 2029, after which annual expenditure decreases and the reserve fund begins to accumulate funds again, resulting in a forecast closing balance of \$2.8 million in 2036.



The S.T.A.S.W.S.S.'s debt is to be recognized proportionately in the financial statements of the municipalities serviced by the system. Each municipality's share of the debt will be measured against its respective provincially legislated Annual Repayment Limit (i.e., 25% of net revenues).

Figure 4-1
2026-2036 Water Capital Funding Sources (Inflated \$)

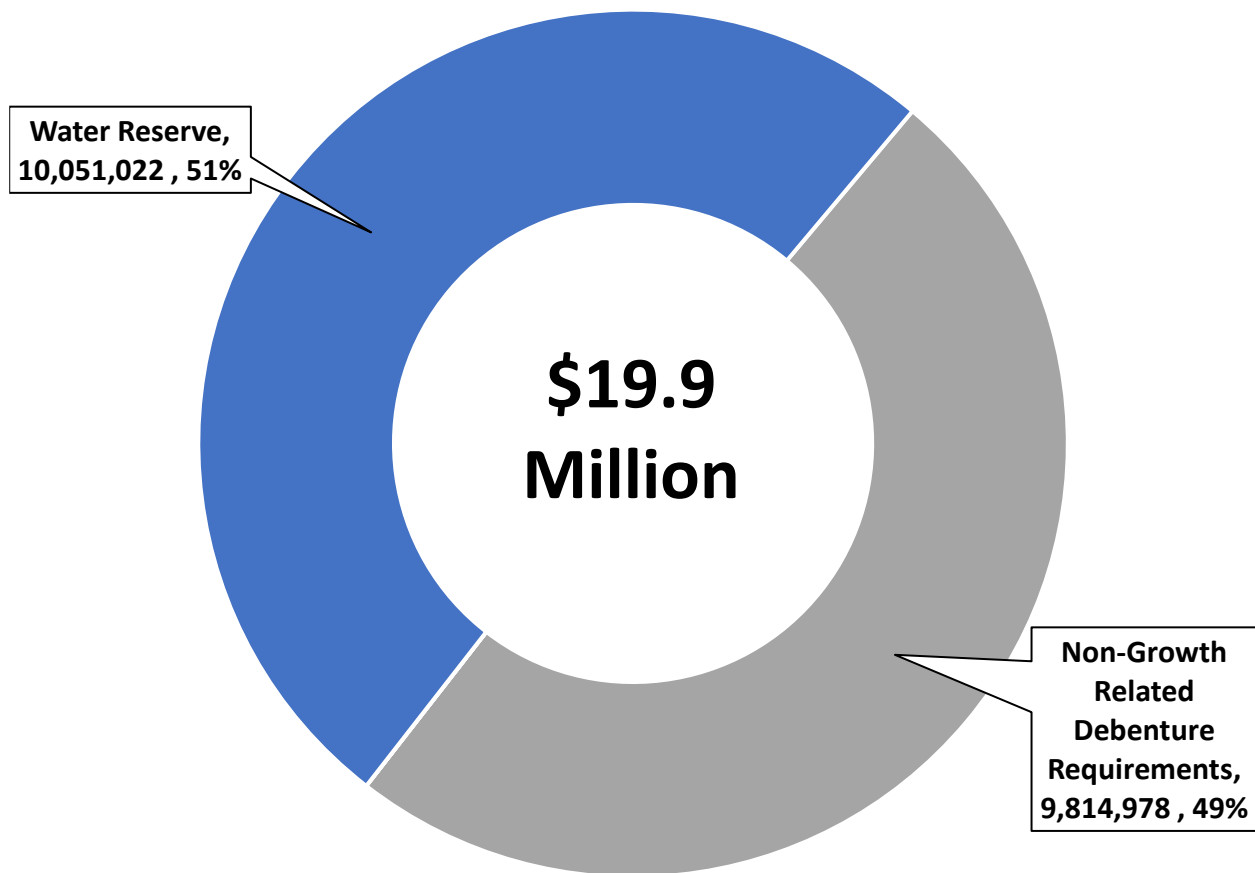




Table 4-2
Capital Budget Forecast and Recommended Capital Financing (Inflated \$)

Description	Budget 2026	Forecast									
		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
S.T.A.S.W.S.S. Needs	8,225,000	4,802,000	5,142,000	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000
Total Capital Expenditures	8,225,000	4,802,000	5,142,000	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000
Capital Financing											
Non-Growth Related Debenture Requirements	2,200,000	2,954,101	4,660,877	-	-	-	-	-	-	-	-
Water Reserve	6,025,000	1,847,899	481,123	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000
Total Capital Financing	8,225,000	4,802,000	5,142,000	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000

Table 4-3
Water Reserve Continuity – Inflated \$

Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Opening Balance	6,233,637	1,084,185	-	-	46,394	214,567	502,636	273,899	752,950	1,330,564	2,014,432
Transfer from Operating	864,813	763,714	481,123	211,935	304,049	402,092	506,551	598,595	696,441	799,923	909,594
Transfer to Capital	6,025,000	1,847,899	481,123	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
Closing Balance	1,073,450	-	-	45,935	212,443	497,660	271,188	745,495	1,317,390	1,994,487	2,783,026
Interest	10,735	-	-	459	2,124	4,977	2,712	7,455	13,174	19,945	27,830



Chapter 5

Operating Expenditures and Revenues



5. Operating Expenditures and Revenues

5.1 Operating Expenditures

The S.T.A.S.W.S.S.'s 2026 operating budget was provided to inform the Rate Study. All operating costs have been inflated by 3% per year over the forecast period, except for the cost of utilities, insurance (both of which were inflated by 5% annually) and water purchases which reflects the increases in the primary water system's rate forecast. The primary water system rates are based on the forecast prepared by the E.A.P.W.S.S.

The S.T.A.S.W.S.S.'s 2026 operating budget anticipates a total of \$3.4 million in operating expenditures related to the S.T.A.S.W.S.S., excluding transfers to reserves and including adjustments to anticipated water purchase costs based on the rate study. These expenditures are anticipated to increase to \$5.1 million by 2036, reflecting a \$1.7 million increase over the forecast period. The increases are primarily driven by the increases in the costs related to water purchases from the E.A.P.W.S.S.

These forecasts are presented in Table 5-1.

5.2 Operating Revenues

The revenue generated for the S.T.A.S.W.S.S. through variable rates per cubic meter consumed. As outlined in Section 1.1, the S.T.A.S.W.S.S.'s water consumptive rate is constructed from two components: the E.A.P.W.S.S.'s water rates for the purchases of water and the rate charged by the S.T.A.S.W.S.S. for the remainder of the system's associated costs. The S.T.A.S.W.S.S. water rates have been designed to recover the following:

- Water purchase costs from the Primary System;
- Other operating expenses; and
- S.T.A.S.W.S.S. related capital expenditures.

Total annual operating revenues for water services within the S.T.A.S.W.S.S. are forecast to increase from \$4.3 million in 2026 to \$6.7 million in 2036.



Table 5-1
Operating Budget Forecast – Water (Inflated \$)

Description	Budget 2026	Forecast									
		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Expenditures											
<u>Operating Costs</u>											
Salary, Wage and Benefits	152,500	157,100	161,800	166,700	171,700	176,900	182,200	187,700	193,300	199,100	205,100
Miscellaneous	68,500	70,600	72,700	74,900	77,100	79,400	81,800	84,300	86,800	89,400	92,100
Contracted Services	180,000	185,400	191,000	196,700	202,600	208,700	215,000	221,500	228,100	234,900	241,900
SCADA	52,000	53,600	55,200	56,900	58,600	60,400	62,200	64,100	66,000	68,000	70,000
Job Costing	13,000	13,400	13,800	14,200	14,600	15,000	15,500	16,000	16,500	17,000	17,500
Insurance	36,200	38,000	39,900	41,900	44,000	46,200	48,500	50,900	53,400	56,100	58,900
Water Purchases	2,765,305	2,908,040	2,808,196	2,969,596	3,138,085	3,314,117	3,497,887	3,657,438	3,823,414	3,996,056	4,175,617
Utilities	115,000	120,800	126,800	133,100	139,800	146,800	154,100	161,800	169,900	178,400	187,300
Chemical	10,000	10,300	10,600	10,900	11,200	11,500	11,800	12,200	12,600	13,000	13,400
Sub Total Operating	3,392,505	3,557,240	3,479,996	3,664,896	3,857,685	4,059,017	4,268,987	4,455,938	4,650,014	4,851,956	5,061,817
<u>Capital-Related</u>											
New Non-Growth Related Debt (Principal)		73,913	172,229	329,801	344,345	359,531	375,386	391,941	409,225	427,272	446,115
New Non-Growth Related Debt (Interest)		93,898	220,914	418,864	404,320	389,134	373,279	356,724	339,439	321,393	302,550
Transfer to Capital Reserve	864,813	763,714	481,123	211,935	304,049	402,092	506,551	598,595	696,441	799,923	909,594
Sub Total Capital Related	864,813	931,525	874,267	960,600	1,052,713	1,150,757	1,255,216	1,347,260	1,445,105	1,548,588	1,658,258
Total Expenditures	4,257,318	4,488,765	4,354,263	4,625,496	4,910,398	5,209,774	5,524,203	5,803,198	6,095,119	6,400,544	6,720,075
Revenues											
Rate Revenues	4,257,318	4,488,765	4,354,263	4,625,496	4,910,398	5,209,774	5,524,203	5,803,198	6,095,119	6,400,544	6,720,075
Total Revenue	4,257,318	4,488,765	4,354,263	4,625,496	4,910,398	5,209,774	5,524,203	5,803,198	6,095,119	6,400,544	6,720,075



Chapter 6

Forecast Water Rates



6. Forecast S.T.A.S.W.S.S. Rates

6.1 Introduction

To summarize the analysis undertaken thus far, Chapter 2 provided the growth and service demands for S.T.A.S.W.S.S. Chapter 3 reviewed the capital-related infrastructure needs and funding sources, including addressing the provincial directives to maintain and upgrade infrastructure to required levels. Chapter 4 provided a review of capital financing options. Water reserve contributions and future debentures will be the predominant methods for financing future capital replacement. Chapter 5 established the 10-year operating expenditure forecast, including an annual capital reserve contribution. The following calculations will be based on the net operating expenditures provided in Chapter 5, divided by the customer and volume forecasts provided in Chapter 2. The S.T.A.S.W.S.S.'s current rate structure is proposed to be maintained.

The forecast water rates are discussed in Section 6.2.

6.2 Forecast Water Rates

The recommended water rate forecasts have been developed to fund 100% of operating costs and move towards full capital cost recovery over the forecast period. The rates are designed to fund projected operating expenditures, capital reserve contributions, and debt servicing requirements associated with both existing and future capital investments.

To move towards full cost recovery and maintain financial sustainability, the secondary consumptive water rate is forecast to increase 4.2% annually for the entire forecast period. As discussed in Section 3.3, these increases will move the system's current funding of approximately 40% of the established lifecycle funding target up to 60% by the end of the forecast period with the intent that future rate will continue to increase to move towards funding 100% of the established funding target.

The resulting water rate forecast is summarized in Table 6-1. Detailed financial forecasts and rate calculations supporting the recommended water rates are provided in Appendix A.



Table 6-1
S.T.A.S.W.S.S. Rate Forecast

Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Water Rates - STASWSS											
Primary Rate (per m ³)	\$1.0699	\$1.1073	\$1.1405	\$1.1747	\$1.2099	\$1.2462	\$1.2836	\$1.3221	\$1.3618	\$1.4026	\$1.4447
Secondary Rate (per m ³)	\$0.6824	\$0.7110	\$0.7408	\$0.7718	\$0.8042	\$0.8379	\$0.8730	\$0.9095	\$0.9477	\$0.9874	\$1.0287
Total	\$1.7523	\$1.8183	\$1.8813	\$1.9465	\$2.0141	\$2.0841	\$2.1566	\$2.2316	\$2.3094	\$2.3900	\$2.4734
% Change - Primary Rate		3.5%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
% Change - Secondary Rate		4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%

6.3 Water Rate Impacts

6.3.1 City of St. Thomas

Within the City, customers are charged a Common Water Rate, the St. Thomas Capital Rate and the Blended Water Rate. The Secondary Rate makes its way into the City's water rate as a component of the Blended Water Rate and is calculated as the sum of the primary rate charged by the E.A.P.W.S.S. and 30% of the Secondary Rate imposed by the S.T.A.S.W.S.S.

For the average residential customer (i.e., consuming 148 m³ of water) the increases to the secondary rates would result in an average annual increase of \$4.43 over the forecast period.

6.3.2 Municipality of Central Elgin and Township of Southwold

For the Municipality of Central Elgin and Township of Southwold, when purchasing water from the secondary system they are paying the total of the primary rate and secondary rate (as depicted in Table 6-1). For an average residential customer, the increases to the secondary rate would result in an average annual increase of \$5.13 over the forecast period.



Chapter 7

Recommendations



7. Recommendations

As presented within this report, capital and operating expenditures have been identified and projected over a 10-year forecast period for water services provided through the S.T.A.S.W.S.S. Updated rates have been calculated to fund the increased capital and operating expenditures. Based on the analysis in this report, the following recommendations are provided for the Board's consideration:

1. That the Board provide for the recovery of all water service costs through full cost recovery rates and maintain reserve funds for water services;
2. That the Board considers the capital plans for water services as provided in Tables A-1 of the Appendix, and the recommended capital financing plan as set out in Table 4-2.
3. That the Board consider the 2027 to 2036 water rates as shown in Chapter 6 of this Rate Study for implementation as part of the annual budgeting process; and
4. That the Board approve the Water Financial Plan required under O. Reg. 453/07.

Appendices



Appendix A

Detailed Water Rate Calculations



Table A-1
Capital Budget Forecast (Uninflated \$) – Water

Description	Budget 2026	Forecast									
		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
S.T.A.S.W.S.S. Needs	8,225,000	4,640,000	4,800,000	150,000	120,000	100,000	600,000	100,000	100,000	100,000	100,000
Total Capital Expenditures	8,225,000	4,640,000	4,800,000	150,000	120,000	100,000	600,000	100,000	100,000	100,000	100,000

Table A-2
Capital Budget Forecast and Recommended Capital Financing (Inflated \$) – Water

Description	Budget 2026	Forecast									
		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
S.T.A.S.W.S.S. Needs	8,225,000	4,802,000	5,142,000	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000
Total Capital Expenditures	8,225,000	4,802,000	5,142,000	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000
Capital Financing											
Non-Growth Related Debenture Requirements	2,200,000	2,954,101	4,660,877	-	-	-	-	-	-	-	-
Water Reserve	6,025,000	1,847,899	481,123	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000
Total Capital Financing	8,225,000	4,802,000	5,142,000	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000

Table A-3
Schedule of Non-Growth-Related Debenture Repayments

Debenture Year	2026	Forecast									
		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
2026		167,811	167,811	167,811	167,811	167,811	167,811	167,811	167,811	167,811	167,811
2027			225,332	225,332	225,332	225,332	225,332	225,332	225,332	225,332	225,332
2028				355,521	355,521	355,521	355,521	355,521	355,521	355,521	355,521
2029					-	-	-	-	-	-	-
2030						-	-	-	-	-	-
2031							-	-	-	-	-
2032								-	-	-	-
2033									-	-	-
2034										-	-
2035											-
2036											
Total Annual Debt Charges	-	167,811	393,143	748,665	748,665	748,665	748,665	748,665	748,665	748,665	748,665



Table A-4
Water Reserve/Reserve Funds Continuity (Inflated \$)

Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Opening Balance	6,233,637	1,084,185	-	-	46,394	214,567	502,636	273,899	752,950	1,330,564	2,014,432
Transfer from Operating	864,813	763,714	481,123	211,935	304,049	402,092	506,551	598,595	696,441	799,923	909,594
Transfer to Capital	6,025,000	1,847,899	481,123	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
Closing Balance	1,073,450	-	-	45,935	212,443	497,660	271,188	745,495	1,317,390	1,994,487	2,783,026
Interest	10,735	-	-	459	2,124	4,977	2,712	7,455	13,174	19,945	27,830

Table A-5
Operating Budget Forecast (Inflated \$) – Water

Description	Budget 2026	Forecast									
		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Expenditures											
Operating Costs											
Salary, Wage and Benefits	152,500	157,100	161,800	166,700	171,700	176,900	182,200	187,700	193,300	199,100	205,100
Miscellaneous	68,500	70,600	72,700	74,900	77,100	79,400	81,800	84,300	86,800	89,400	92,100
Contracted Services	180,000	185,400	191,000	196,700	202,600	208,700	215,000	221,500	228,100	234,900	241,900
SCADA	52,000	53,600	55,200	56,900	58,600	60,400	62,200	64,100	66,000	68,000	70,000
Job Costing	13,000	13,400	13,800	14,200	14,600	15,000	15,500	16,000	16,500	17,000	17,500
Insurance	36,200	38,000	39,900	41,900	44,000	46,200	48,500	50,900	53,400	56,100	58,900
Water Purchases	2,765,305	2,908,040	2,808,196	2,969,596	3,138,085	3,314,117	3,497,887	3,657,438	3,823,414	3,996,056	4,175,617
Utilities	115,000	120,800	126,800	133,100	139,800	146,800	154,100	161,800	169,900	178,400	187,300
Chemical	10,000	10,300	10,600	10,900	11,200	11,500	11,800	12,200	12,600	13,000	13,400
Sub Total Operating	3,392,505	3,557,240	3,479,996	3,664,896	3,857,685	4,059,017	4,268,987	4,455,938	4,650,014	4,851,956	5,061,817
Capital-Related											
New Non-Growth Related Debt (Principal)		73,913	172,229	329,801	344,345	359,531	375,386	391,941	409,225	427,272	446,115
New Non-Growth Related Debt (Interest)		93,898	220,914	418,864	404,320	389,134	373,279	356,724	339,439	321,393	302,550
Transfer to Capital Reserve	864,813	763,714	481,123	211,935	304,049	402,092	506,551	598,595	696,441	799,923	909,594
Sub Total Capital Related	864,813	931,525	874,267	960,600	1,052,713	1,150,757	1,255,216	1,347,260	1,445,105	1,548,588	1,658,258
Total Expenditures	4,257,318	4,488,765	4,354,263	4,625,496	4,910,398	5,209,774	5,524,203	5,803,198	6,095,119	6,400,544	6,720,075
Revenues											
Rate Revenues	4,257,318	4,488,765	4,354,263	4,625,496	4,910,398	5,209,774	5,524,203	5,803,198	6,095,119	6,400,544	6,720,075
Total Revenue	4,257,318	4,488,765	4,354,263	4,625,496	4,910,398	5,209,774	5,524,203	5,803,198	6,095,119	6,400,544	6,720,075



Table A-6
Water Rate Forecast

Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Water Rates - STASWSS											
Primary Rate (per m ³)	\$1.0699	\$1.1073	\$1.1405	\$1.1747	\$1.2099	\$1.2462	\$1.2836	\$1.3221	\$1.3618	\$1.4026	\$1.4447
Secondary Rate (per m ³)	\$0.6824	\$0.7110	\$0.7408	\$0.7718	\$0.8042	\$0.8379	\$0.8730	\$0.9095	\$0.9477	\$0.9874	\$1.0287
Total	\$1.7523	\$1.8183	\$1.8813	\$1.9465	\$2.0141	\$2.0841	\$2.1566	\$2.2316	\$2.3094	\$2.3900	\$2.4734
% Change - Primary Rate		3.5%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
% Change - Secondary Rate		4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%



Appendix B

Pricing Structures

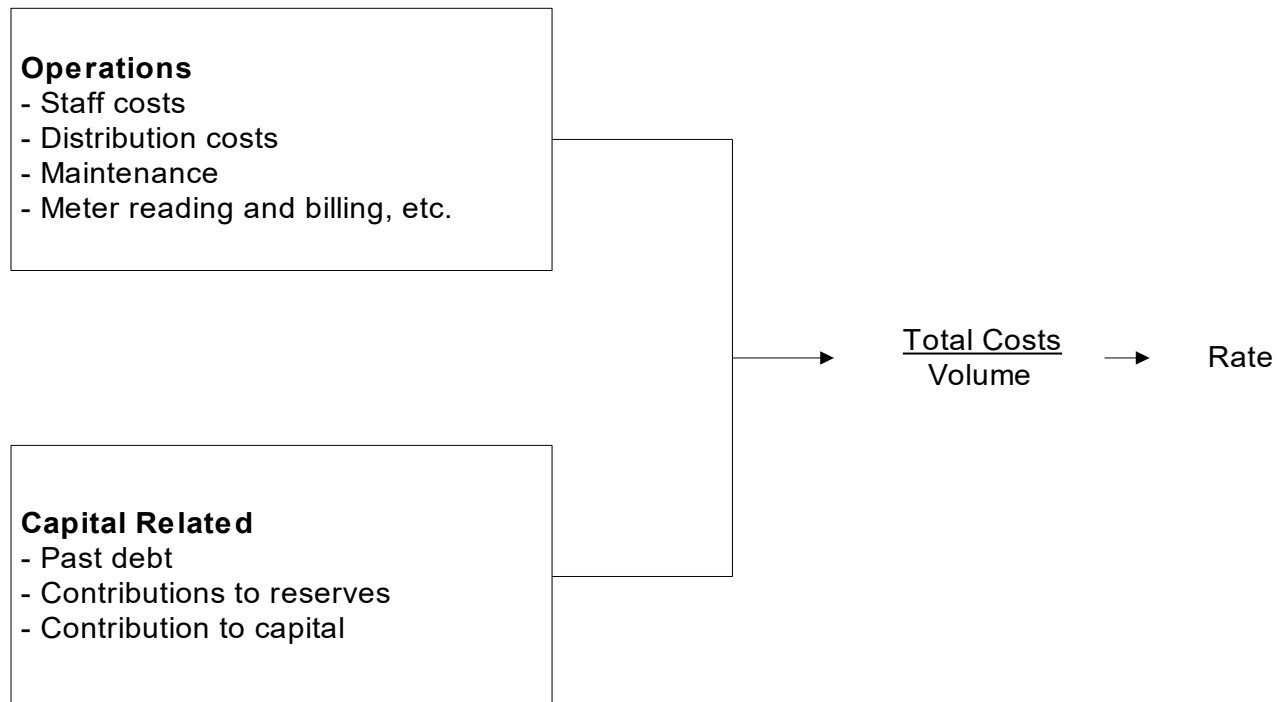


Pricing Structures

Introduction

Rates, in their simplest form, can be defined as total costs to maintain the utility function divided by the total expected volume to be generated for the period. Total costs are usually a combination of operating costs (e.g., staff costs, distribution costs, maintenance, administration, etc.) and capital-related costs (e.g., past debt to finance capital projects, transfers to reserves to finance future expenditures, etc.). The schematic below provides a simplified illustration of the rate calculation for water.

“Annual Costs”



These operating and capital expenditures will vary over time. Examples of factors affecting expenditures over time are provided below.

Operations

- Inflation;
- Increased maintenance as the system ages; and
- Changes to provincial legislation.



Capital-Related

- New capital will be built as areas expand;
- Replacement capital needed as the system ages; and
- Financing of capital costs is a function of policy regarding reserves and direct financing from rates (pay as you go), debt, and user pay methods (development charges, *Municipal Act*).

2. Alternative Pricing Structures

Across Ontario and elsewhere in Canada, pricing mechanisms vary between municipalities. The use of a particular form of pricing depends upon numerous factors, including Council preference, administrative structure, surplus/deficit system capacities, economic/demographic conditions, to name a few.

Municipalities in Ontario have two basic ways of collecting revenue for water purposes: by incorporating the costs into the tax rate charged on property assessment, and/or by establishing a specific water rate billed to the customer. Within the rate methods, there are five basic rate structures employed along with other variations:

- Flat Rate (non-metered customers);
- Constant Rate;
- Declining Block Rate;
- Increasing (or Inverted) Block Rate;
- Hump Back Block Rate; and
- Base Charges.

The definitions and general application of the various methods are as follows:

Property Assessment: This method incorporates the total costs of providing water into the municipality's general requisition or assessment base. This form of collection is a "wealth tax," as payments increase directly with the value of property owned and bear no necessary relationship to actual consumption. This form is easy to administer, as the costs to be recovered are incorporated into the calculation for all general services, which are normally collected through property taxes.

Flat Rate: This rate is a constant charge applicable to all customers served. The charge is calculated by dividing the total number of user households and other entities (e.g.,



businesses) by the costs to be recovered. This method does not recognize differences in actual consumption but provides for a uniform spreading of costs across all users. Some municipalities define users into different classes of similar consumption patterns, that is, a commercial user, residential user, and industrial user, and charge a flat rate by class. Each user is then billed on a periodic basis. No water meters are required to facilitate this method, but an accurate estimate of the number of users is required. This method ensures a set revenue for the collection period but is not sensitive to consumption, which may cause a shortfall or surplus in collected revenue.

Constant Rate: This is a volume-based rate in which the consumer pays the same price per unit, regardless of volume. The price per unit is calculated by dividing the total cost of the service by the total volume used by total consumers. The bill to the consumer climbs uniformly as consumption increases. This form of rate requires water meters to record the volume consumed by each user. This method closely aligns revenue recovery with consumption. Revenue collected varies directly with consumption volume.

Declining Block Rates: This rate structure charges a successively lower price for set volumes, as consumption increases through a series of "blocks." That is, within set volume ranges (or blocks), the charge per unit is set at a single rate. Within the next volume range, the charge per unit decreases, and so on. Typically, the first, or first and second blocks, cover residential and light commercial uses. Subsequent blocks are normally used for heavier commercial and industrial uses. This rate structure requires water meters to record the volume consumed by each user type. This method requires the collection and analysis of consumption patterns by user classification to establish rates that do not over-collect or under-collect revenue from rate payers.

Increasing or Inverted Block Rates: The increasing block rate works essentially the same way as the declining block rate, except that the price of water in successive blocks increases rather than declines. Under this method, the consumer's bill rises faster as volumes increase. This rate structure also requires water meters to record each user's consumption volume. This method, as with the declining block structure, requires the collection and analysis of consumption patterns by user classification to establish rates that do not over-collect or under-collect from rate payers.

The Hump Back Rate: The hump back rate is a combination of an increasing block rate and a declining block rate. Under this method, the consumer's bill rises with higher



volumes up to a certain level, and then begins to fall for volumes exceeding the levels set for the increasing block rate.





 **Watson
& Associates**
ECONOMISTS LTD.

Water Ontario Regulation 453/07 Financial Plan

St. Thomas Area Secondary Water Supply System

Financial Plan #190-301

June 19, 2026

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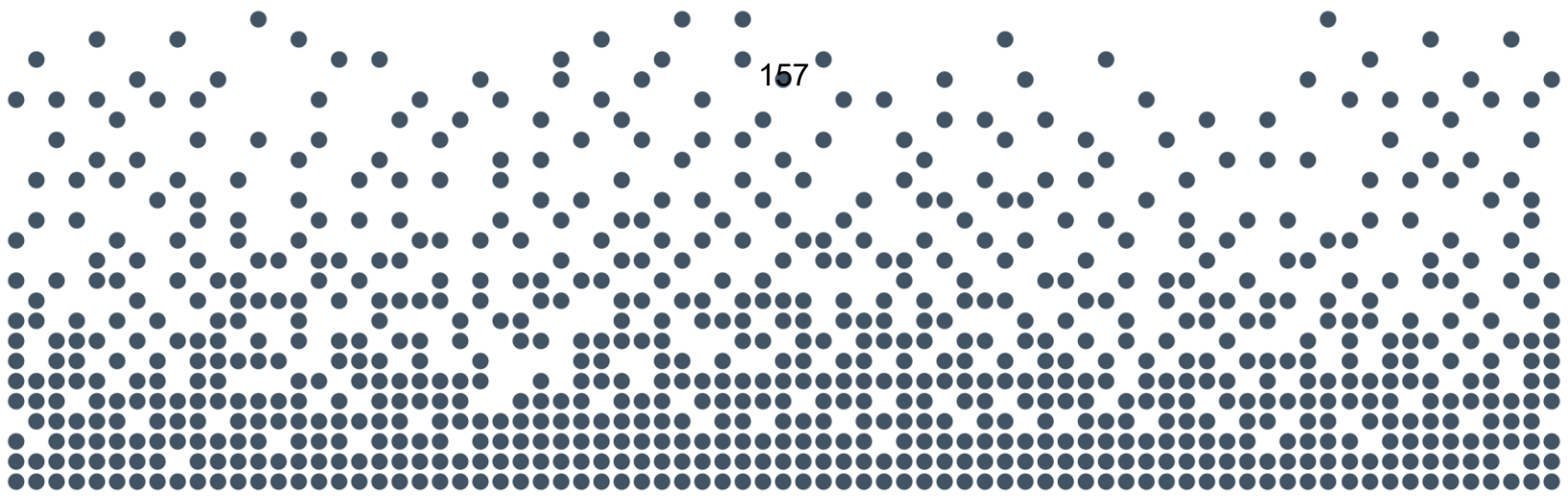


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List of Acronyms and Abbreviations

Acronym	Full Description of Acronym
D.C.	Development Charge
F.I.R.	Financial Information Return
MECP	Ministry of the Environment, Conservation and Parks
MMAH	Ministry of Municipal Affairs and Housing
O. Reg.	Ontario Regulation
P.S.A.B.	Public Sector Accounting Board
S.D.W.A.	<i>Safe Drinking Water Act, 2002</i>
S.T.A.S.W.S.S.	St. Thomas Area Secondary Water Supply System
W.O.A.	<i>Water Opportunities Act, 2010</i>



Report



Chapter 1

Introduction



1. Introduction

1.1 Study Purpose

Watson & Associates Economists Ltd. (Watson) was retained to prepare a water financial plan as part of the five submission requirements for the purposes of obtaining a municipal drinking water licence as per the *Safe Drinking Water Act, 2002*. In general, a financial plan requires an in-depth analysis of capital and operating needs, a review of current and future demand versus supply, and consideration of available funding sources. This detailed financial planning and forecasting regarding the St. Thomas Area Secondary Water Supply System (S.T.A.S.W.S.S.) has already been completed and documented in the “2026 St. Thomas Area Secondary Water Supply System Rate Study” dated June 16, 2026 (2026 Rate Study).

The S.T.A.S.W.S.S. is governed by the Joint Board of Management (Board) and is supported by the Systems Administration.

The objective of the report provided herein is to convert the findings of the 2026 Rate Study into the prescribed reporting requirements for a financial plan as defined by Ontario Regulation (O. Reg.) 453/07 and project the financial position over a ten-year forecast period. This Financial Plan will form part of the submission of the Board’s application to renew its drinking water licence.

1.2 Background

The *Safe Drinking Water Act, 2002* (S.D.W.A.) was passed in December 2002 in order to address some of the recommendations made by the Walkerton Inquiry Part II report. One of the main requirements of the Act is the mandatory licensing of municipal water providers. Section 31 (1) specifically states,

“No person shall,

- a) establish a new municipal drinking water system or replace or carry out an alteration to a municipal drinking water system except under the authority of and in accordance with an approval under this Part or a drinking water works permit; or



- b) use or operate a municipal drinking water system that was established before or after this section comes into force except under the authority of and in accordance with an approval under this Part or municipal drinking water licence.”

In order to become licensed, a municipality must satisfy five key requirements as per section 44 (1):

1. Obtain a drinking water works permit.
2. Acceptance of the operational plan for the system based on the Drinking Water Quality Management Standard.
3. Accreditation of the Operating Authority.
4. Prepare and provide a financial plan.
5. Obtain permit to take water.

The preparation of a financial plan is a key requirement for licensing and as such, must be undertaken by all water providers.

1.2.1 Financial Plan Defined

Subsection 30 of the S.D.W.A. provides the following definition of financial plans:

“financial plans” means financial plans that satisfy the requirements prescribed by the Minister. 2017, c. 2, Sched. 11, s. 6 (3)

These requirements are outlined in O. Reg. 453/07 and will be examined in detail below.

1.2.2 Financial Plan Requirements – Existing System

O. Reg. 453/07 also provides details with regard to s.30 (1) part b of the S.D.W.A. for existing water systems. The requirements for existing systems are summarized as follows:

- Financial plans must be approved by Council resolution (or governing body);



- Financial plans must include a statement that the financial impacts have been considered and apply for a minimum six-year period, commencing in the year of licence expiry (i.e., 2026 for the S.T.A.S.W.S.S.);
- Financial plans must include detail regarding proposed or projected financial operations itemized by total revenues, total expenses, annual surplus/deficit and accumulated surplus/deficit (i.e. the components of a “Statement of Operations” as per the Public Section Accounting Board (P.S.A.B.)) for each year in which the financial plans apply;
- Financial plans must present financial position itemized by total financial assets, total liabilities, net debt, non-financial assets, and tangible capital assets (i.e. the components of a “Statement of Financial Position” as per P.S.A.B.) for each year in which the financial plans apply;
- Gross cash receipts/payments itemized by operating transactions, capital transactions, investing transactions and financial transactions (i.e. the components of a “Statement of Cash Flow” as per P.S.A.B.) for each year in which the financial plans apply;
- Financial plans applicable to two or more solely owned drinking water systems can be prepared as if they are for one drinking water system;
- Financial plans are to be made available to the public upon request and at no charge;
- If a website is maintained, financial plans are to be made available to the public through publication on the Internet at no charge;
- Notice of the availability of the financial plans is to be given to the public; and
- Financial plan is to be submitted to the Ministry of Municipal Affairs and Housing.

1.2.3 Financial Plan Requirements – General

Given that the requirement for a financial plan is legislated under the Act, a financial plan is mandatory for water systems. The financial plans shall be for a forecast period of at least six years but longer planning horizons are encouraged. The 2026 to 2035 forecast included in this financial plan meets that requirement. The financial plan is to be completed and approved by resolution of Council or the governing body (e.g., in accordance with subsection 3 (1) 1 of O. Reg. 453/07. Confirmation of approval of the financial plan must be submitted at the time of municipal drinking water licence renewal (i.e., six months prior to licence expiry).



A copy of the financial plan must be submitted to the Ministry of Municipal Affairs and Housing (MMAH). The financial plan does not need to be submitted to the Ministry of the Environment, Conservation, and Parks (MECP); however, the MECP may request it in the course of review of the licence renewal. Financial plans may be amended and additional information beyond what is prescribed can be included if deemed necessary. The financial plan must contain on the front page, the appropriate financial plan number as set out in Schedule A of the Municipal Drinking Water Licence.

1.2.4 Public Sector Accounting Board (P.S.A.B.) Requirements

The components of the financial plans indicated by the regulation are consistent with the requirements for financial statement presentation as set out in section PS 1201 of the Canadian Institute of Chartered Accountants Public Sector Accounting Handbook:

“Financial statements should include a Statement of Financial Position, a Statement of Operations, a Statement of Change in Net Debt, and a Statement of Cash Flow.”

The format required is to conform to the requirements of PS 1201 and PS 3150. The financial statements are to be reported on a full accrual accounting basis. The accrual accounting method recognizes revenues and expenses in the same period as the activities that give rise to them regardless of when they are actually paid for. Since an exchange of cash is not necessary to report a financial transaction, the accrual method is meant to provide a more accurate picture of financial position.

The accounting treatment of tangible capital assets is prescribed under section PS 3150. Tangible capital assets are to be capitalized to ensure an inventory of the assets owned is recorded and to account for their ability to provide future benefits.

The Statement of Cash Flow and the Statement of Change in Net Financial Assets/Debt are required statements. The Statement of Change in Net Financial Assets/Debt reports on whether enough revenue was generated in a period to cover the expenses in the period and whether sufficient resources have been generated to support current and future activities. The Statement of Cash Flow reports on how activities were financed for a given period providing a measure of the changes in cash for that period.



Chapter 2

Sustainable Financial Planning



2. Sustainable Financial Planning

2.1 Introduction

In general, sustainability refers to the ability to maintain a certain position over time. While the S.D.W.A. requires a declaration of the financial plan's sustainability, it does not give a clear definition of what would be considered sustainable. Instead, the MECP released a guideline ("Towards Financially Sustainable Drinking-Water and Wastewater Systems") that provides possible approaches to achieving sustainability. The Province's Principles of Financially Sustainable Water Services are provided below:

Principle #1: Ongoing public engagement and transparency can build support for, and confidence in, financial plans and the system to which they relate.

Principle #2: An integrated approach to planning among water, wastewater, and storm water systems is desirable given the inherent relationship among these services.

Principle #3: Revenues collected for the provision of water services should ultimately be used to meet the needs of those services.

Principle #4: Lifecycle planning with mid-course corrections is preferable to planning over the short-term or not planning at all.

Principle #5: An asset management plan is a key input to the development of a financial plan.

Principle #6: A sustainable level of revenue allows for reliable service that meets or exceeds environmental protection standards, while providing sufficient resources for future rehabilitation and replacement needs.

Principle #7: Ensuring users pay for the services they are provided leads to equitable outcomes and can improve conservation. In general, metering and the use of rates can help ensure users pay for services received.

Principle #8: Financial plans are "living" documents that require continuous improvement. Comparing the accuracy of financial projections with actual results can lead to improved planning in the future.



Principle #9: Financial plans benefit from the close collaboration of various groups, including engineers, accountants, auditors, utility staff, and municipal council.

2.2 Water Opportunities Act, 2010

Since the passage of the S.D.W.A., changes and refinements to the legislation have been introduced, including the *Water Opportunities Act, 2010* (W.O.A). The W.O.A. was introduced into legislation on May 18, 2010, and received Royal Assent on November 29, 2010.

The purposes of the W.O.A. are to foster innovative water, wastewater and storm water technologies, services, and practices; create opportunities for economic development and clean-technology jobs; and conserve and sustain water resources. To achieve this, the W.O.A. provides for the creation of performance targets (financial, operational and maintenance related), which will vary by service type and location and the required submission of conservation and sustainability plans for water, wastewater, and stormwater.

The sustainability plan in the W.O.A. expands on interim legislation for financial plans included in O. Reg. 453/07, to include the following:

- an asset management plan for the physical infrastructure;
- financial plan;
- water conservation plan (for water service only);
- a risk assessment;
- a strategy for maintaining and improving the services; and
- additional information considered advisable.

Where a Board has jurisdiction over a service, the plan (and any plan amendments) must be approved by the municipality in which the municipal service is provided before submission to the Minister. The Minister may also direct preparation of joint or partially joint plans.

Regulations (still forthcoming) will prescribe details in regard to any time periods or time limits, contents of the plans, identifying which portions of the plan will require



certification, the public consultation process (if required), limitations updates and refinements.

2.3 Infrastructure for Jobs and Prosperity Act (I.J.P.A.), 2015

On June 4, 2015, the Province passed the *Infrastructure for Jobs and Prosperity Act, 2015* (I.J.P.A.), which, over time, will require prescribed broader public sector entities, which include municipalities and joint municipal water boards, to undertake and implement asset management plans for all the infrastructure they own.

On December 27, 2017, the Province of Ontario released O. Reg. 588/17 under I.J.P.A., which has three phases that municipalities must meet. The timelines associated with the three phases were later extended by O. Reg. 193/21, which was filed on March 15, 2021.

Every municipality in Ontario will have to prepare a strategic asset management policy by July 1, 2019. Municipalities will be required to review their strategic asset management policies at least every five years and make updates, as necessary. The subsequent phases are as follows:

- Phase 1 – Asset Management Plan (by July 1, 2022):
 - For core assets – Municipalities must have the following:
 - Inventory of assets;
 - Current levels of service, including some prescribed measures; and
 - Lifecycle management strategies and associated costs to maintain current levels of service.
- Phase 2 – Asset Management Plan (by July 1, 2024):
 - Same steps as Phase 1 but for all assets.
- Phase 3 – Asset Management Plan (by July 1, 2025):
 - Builds on Phase 1 and 2 by adding:
 - Proposed levels of service; and
 - Financial strategy that supports achieving proposed levels of service.

In relation to water (which is considered a core asset), municipalities will need to have an asset management plan that addresses the related infrastructure by July 1, 2022 (Phase 1). O. Reg. 588/17 specifies that a municipality's asset management plan must include the following for each asset category:



- the current levels of service being provided;
 - determined in accordance with the following qualitative descriptions and technical metrics and based on data from at most the two calendar years prior to the year in which all information required under this section is included in the asset management plan.
- the current performance of each asset category;
- a summary of the assets in the category;
- the replacement cost of the assets in the category;
- the average age of the assets in the category, determined by assessing the average age of the components of the assets;
- the information available on the condition of the assets in the category;
- a description of the Administration's approach to assessing the condition of the assets in the category, based on recognized and generally accepted good engineering practices where appropriate; and
- the lifecycle activities that need to be undertaken to maintain the current levels of service.

Joint municipal water boards, including the S.T.A.S.W.S.S., are not currently subject to the asset management planning requirements under I.J.P.A. The Board, however, has incorporated asset management planning principles, including consideration of lifecycle costs and long-term sustainability, as part of its asset management processes.

2.4 Water Forecast

Financial planning for the S.T.A.S.W.S.S. has already been completed through its 2026 Rate Study. The rate study process is designed to address "full cost" principles and reflect the guiding principles toward sustainable financial planning.

As a result of employing this process, the ten-year forecasts contained in the 2026 Rate Study provide the basis for the S.T.A.S.W.S.S. financial plan by including:

- An analysis of operating costs in order to determine how they will be impacted by evolving infrastructure needs and system growth;
- An analysis of required water rates that ensure revenues are equitable and sufficient to meet system needs; and
- A public process that involves consultation with the main stakeholders including the Administration, Board, the general public (specifically the users of the



system) and others, with the aim of gaining input and collaboration on the sustainability of the financial plans.

The details of the water financial plan arising from the 2026 Rate Study are contained in Appendix A.



Chapter 3

Approach



3. Approach

3.1 Overview

The 2026 Rate Study, along with additional detailed information provided by the Administration, has been used as a starting point to prepare the water financial plans. The water forecasts are prepared on a modified cash basis; therefore, a conversion is required in order to present a full accrual financial plan for the purposes of this report. The conversion process used will help to establish the structure of the financial plans along with the opening balances that will underpin the forecasts. This chapter outlines the conversion process utilized and summarizes the adjustments made to prepare the financial plans.

3.2 Conversion Process

The conversion from the existing modified cash basis financial plan to the full accrual reporting format required under O. Reg. 453/07 can be summarized in the following steps:

1. Calculate Tangible Capital Asset Balances
2. Convert Statement of Operations
3. Convert Statement of Financial Position
4. Convert Statement of Cash Flow and Net Assets/Debt
5. Verification and Note Preparation

3.2.1 Calculate Tangible Capital Asset Balances

In calculating tangible capital asset balances, existing and future purchased, developed, and/or contributed assets will need to be considered. For existing water and wastewater assets, an inventory has already been compiled and summarized by the Administration as part of their annual PS 3150 compliance processes. As required, for PS 3150 reporting purposes, the asset inventory listing included historical cost (which is the original cost to purchase, develop, or construct each asset) along with an estimated



useful life for each asset and any anticipated salvage value is recorded. The following calculations are made to determine net book value:

- Accumulated amortization up to the year prior to the first forecast year.
- Amortization expense on existing assets for each year of the forecast period.
- Acquisition of new assets for each year of the forecast period.
- Disposals and related gains or losses for each year of the forecast period.

Future water capital needs have also been determined and summarized by the Administration. However, these estimates only represent future assets that the S.T.A.S.W.S.S. anticipates purchasing or constructing. At present, the S.T.A.S.W.S.S. does not anticipate any assets will be contributed by developers and other parties (at no or partial cost to the S.T.A.S.W.S.S.). If, over the forecast period, additional capital needs arise or contributed assets are anticipated, the financial plan may need to be adjusted to properly account for these transactions. Once the sequence and total asset acquisition has been determined for the forecast period, annual amortization of these assets for each year is calculated in a similar manner as that used for existing assets.

Once the historical cost, accumulated amortization, and amortization expenses are calculated as described above, the total net book value of the tangible capital assets can be determined and recorded on the Statement of Financial Position.

3.2.2 Convert Statement of Operations

A wide range of adjustments will be considered, dependent on the size and complexity of the system, in order to convert from the cash to full accrual basis. For example, debt repayment costs relating to the principal payment portion only need to be removed under the accrual basis, as they no longer qualify as an expense for reporting purposes. Principal payments are reported as a decrease in debt liability on the Statement of Financial Position. Transfers to and from reserves are removed as these transactions are represented by changes in cash and accumulated surplus. Finally, expenses relating to tangible capital assets, such as amortization, write-offs, and (gain)/loss on disposal of assets are reported on the Statement of Operations in order to capture the allocation of the cost of these assets to operating activities over their useful lives and therefore are added in under the accrual basis.



Table 3-1
Conversion Adjustments
Statement of Operations (Water)

Modified Cash Basis	Budget 2026	Adjustments		Full Accrual Budget 2026	Accrual Basis
		DR	CR		
Revenues					Revenues
Rate Based Revenue	4,257,318			4,257,318	Rate Based Revenue
Other Revenue	-		10,735	10,735	Other Revenue
Total Revenues	4,257,318			4,268,053	Total Revenues
Expenditures					Expenses
Operating	3,392,505	-		3,392,505	Operating Expenses
Capital					
Transfers to Reserves	864,813		864,813		
		125,288		125,288	Amortization
Total Expenditures	4,257,318			3,517,793	Total Expenses
Net Expenditures	-			750,260	Annual Surplus/(Deficit)
Increase (decrease) in amounts to be recovered	-			7,169,564	Accumulated Surplus/(Deficit), beginning of year
Change in Fund Balances	-	750,260	-	7,919,824	Accumulated Surplus/(Deficit), end of year
TOTAL ADJUSTMENTS		875,548	875,548		

Note: The combined adjustments above should be balanced and net to \$0 (i.e. Total DR = Total CR)



3.2.3 Convert Statement of Financial Position

Once the Statement of Operations has been converted and the net book value of tangible capital assets has been recorded, balances for the remaining items on the Statement of Financial Position are determined and recorded (see Table 3-2). The opening/actual balances for the remaining accounts such as accounts receivable, inventory, accounts payable, outstanding debt (principal only), are recorded and classified according to the structure of the Statement of Financial Position as outlined in PS 1201.

It is acknowledged that some of the balances required on the Statement of Financial Position will be consolidated across the Municipality and as such, will be difficult to isolate the information that is relevant to water. An example of this is accounts receivable, which may be administered centrally by the Finance Department. Ontario Regulation 453/07 allows for the exclusion of these numbers if they are not known at the time of preparing the financial plan. Please refer to the Financial Plan Notes in Chapter 4 for more details.

3.2.4 Convert Statement of Cash Flow and Net Financial Assets/Debt

The Statement of Cash Flow summarizes how the Municipality financed its activities or in other words, how the costs of providing services were recovered. The statement is derived using comparative Statement of Financial Position, the current Statement of Operations and other available transaction data.

The Statement of Change in Net Financial Assets/Debt is a statement which reconciles the difference between the surplus or deficit from current operations and the change in net financial assets/debt for the year. This is significant, as net debt provides an indication of future revenue requirements. In order to complete the Statement of Net Financial Assets/Debt, information regarding any gains/losses on disposals of assets, asset write-downs, acquisition/use of supplies inventory, and the acquisition use of prepaid expenses is necessary, (if applicable). Although the Statement of Change in Net Financial Assets/Debt is not required under O. Reg. 453/07, it has been included in this report as a further indicator of financial viability.



Table 3-2
Conversion Adjustments
Statements of Financial Position (Water)

Modified Cash Basis	Budget 2026	Adjustments		Full Accrual Budget 2026	Accrual Basis
		DR	CR		
ASSETS					ASSETS
Financial Assets					Financial Assets
Cash	910,501			910,501	Cash
Accounts Receivable	805,527			805,527	Accounts Receivable
Total Financial Assets	1,716,028			1,716,028	Total Financial Assets
LIABILITIES					Liabilities
Accounts Payable & Accrued Liabilities	631,843			631,843	Accounts Payable & Accrued Liabilities
Gross Long-term Liabilities	2,200,000			2,200,000	Debt (Principal only)
Deferred Revenue	-			-	Deferred Revenue
Total Liabilities	2,831,843			2,831,843	Total Liabilities
Net Assets/(Debt)	(1,115,815)			(1,115,815)	Net Financial Assets/(Debt)
					Non-Financial Assets
		9,035,639	-	9,035,639	Tangible Capital Assets
				9,035,639	Total Non-Financial Assets
Municipal Position					
Water Reserves	1,084,185	1,084,185	-		
Amounts to be Recovered	(2,200,000)	-	2,200,000		
Total Municipal Position	(1,115,815)		7,919,824	7,919,824	Accumulated Surplus/(Deficit), end of year
TOTAL ADJUSTMENTS		10,119,824	10,119,824		

Note: The combined adjustments above should be balanced and net to \$0 (i.e. Total DR = Total CR)



3.2.5 Verification and Note Preparation

The final step in the conversion process is to ensure that all the statements created by the previous steps are in balance. The Statement of Financial Position summarizes the resources and obligations of the S.T.A.S.W.S.S. at a set point in time. The Statement of Operations summarizes how these resources and obligations changed over the reporting period. To this end, the accumulated surplus/deficit reported on the Statement of Financial Position should equal the accumulated surplus/deficit reported on the Statement of Operations.

The Statement of Change in Net Financial Assets/Debt and the Statement of Financial Position are also linked in terms of reporting on net financial assets/debt. On the Statement of Financial Position, net financial assets/debt is equal to the difference between financial assets and liabilities and should equal net financial assets/debt as calculated on the Statement of Net Financial Assets/Debt.

While not part of the financial plan, the accompanying notes are important to summarize the assumptions and estimates made in preparing the financial plan. Some of the significant assumptions that need to be addressed within the financial plan are as follows:

- a) Opening Cash Balances – Opening cash balances are necessary to complete the Statement of Cash Flows and balance the Statement of Financial Position. Preferably, opening cash balances should be derived from actual information contained within the S.T.A.S.W.S.S.'s ledgers. It may not, however, be possible to extract this information from the ledgers for water alone; therefore, a reasonable proxy will be needed. One approach is to assume that opening cash balances equal ending reserve and reserve fund balances from the previous year adjusted for accrual-based transactions reflected by accounts receivable/payable balances. The following equation outlines this approach:

Ending Reserve/Reserve Fund Balance
 Plus: Ending Accounts Payable Balance
Less: Ending Accounts Receivable Balance
 Equals: Approximate Ending Cash Balance

- b) Amortization Expense – The method and timing of amortization should be based on the S.T.A.S.W.S.S.' amortization policy.



- c) Accumulated Amortization – Will be based on the culmination of accumulated amortization expenses throughout the life of each asset, however derived, along with information on construction/acquisition date and useful life obtained from the capital asset listing provided.
- d) Contributed Assets – As noted earlier, contributed assets could represent a significant part of the S.T.A.S.W.S.S.'s infrastructure acquisitions. As such, a reasonable estimate of value and timing of acquisition/donation may be required in order to adequately capture these assets. In the case where contributed assets are deemed to be insignificant or unknown, an assumption of “no contributed assets within the forecast period” will be made.
- e) Accumulated Surplus – The magnitude of the surplus in this area may precipitate the need for additional explanation, especially in the first year of reporting. This Accumulated Surplus captures the historical infrastructure investment which has not been reported in the past but has accumulated to significant levels. It also includes all water reserve and reserve fund balances.
- f) Other Revenues – Will represent the recognition of minor miscellaneous revenues.



Chapter 4

Financial Plan



4. Financial Plan

4.1 Introduction

The following tables provide the complete financial plan for the S.T.A.S.W.S.S. A brief description and analysis of each table is provided below. It is important to note that the financial plan that follows is a forward look at the financial position of the S.T.A.S.W.S.S. It is not an audited document¹ and contains various estimates as detailed in the “Notes to the Financial Plan” section below.

4.2 Water Financial Plan

4.2.1 *Statement of Financial Position (Table 4-1)*

The Statement of Financial Position provides information that describes the assets, liabilities, and accumulated surplus of the S.T.A.S.W.S.S. The first important indicator is net financial assets/(debt), which is defined as the difference between financial assets and liabilities. This indicator provides an indication of the system’s “future revenue requirement.” A net financial asset position is where financial assets are greater than liabilities and implies that the system has the resources to finance future operations. Conversely, a net debt position implies that the future revenues generated by the system will be needed to finance past transactions, as well as future operations. Table 4-1 indicates that in 2026, the S.T.A.S.W.S.S. will be in a net debt position of approximately \$1.1 million. The financial plan forecasts that net debt will increase from 2026 to 2028 due to anticipated debt issuance, then improve over the remainder of the forecast period as accumulated surpluses are generated and debt is repaid.

Another important indicator in the Statement of Financial Position is the tangible capital asset balance. As noted earlier, providing this information is a requirement for municipalities as part of PS 3150 compliance and is significant from a financial planning perspective for the following reasons:

- Tangible capital assets such as water mains and treatment plants are imperative to water service delivery.

¹ O. Reg. 453/07 does not require an audited financial plan.



- These assets represent significant economic resources in terms of their historical and replacement costs. Therefore, ongoing capital asset management is essential to managing significant replacements and repairs.
- The annual maintenance required by these assets has an enduring impact on water operational budgets.

In general terms, an increase in the tangible capital asset balance indicates that assets may have been acquired either through purchase by the S.T.A.S.W.S.S. or donation/contribution by a third party. A decrease in the tangible capital asset balance can indicate a disposal, write down, or use of assets. The use of assets is usually represented by an increase in accumulated amortization due to annual amortization expenses arising as a result of allocating the cost of the asset to operations over the asset's useful life. Table 4-1 shows that the S.T.A.S.W.S.S.'s tangible capital assets are expected to increase by approximately \$8.2 million over the forecast period. This indicates that the S.T.A.S.W.S.S. plans to invest in tangible capital assets in excess of the anticipated use of existing assets over the forecast period.

4.2.2 Statement of Operations (Table 4-2)

The Statement of Operations summarizes the revenues and expenses generated by the S.T.A.S.W.S.S. for a given period. The annual surplus/deficit measures whether the revenues generated were sufficient to cover the expenses incurred and in turn, whether net financial assets have been maintained or depleted. Table 4-2 illustrates the ratio of expenses to revenues at 82% in 2026 and initially increases to 95% in 2029, before decreasing to 87% by 2035. As a result, annual surpluses ranging from approximately \$246,200 to approximately \$853,600 are anticipated throughout the forecast period. It is important to note that an annual surplus is beneficial to ensure funding is available to non-expense costs such as tangible capital asset acquisitions, reserve/reserve fund transfers and debt principal payments in the future.

Another important indicator on this statement is accumulated surplus/deficit. An accumulated surplus indicates that the available net resources are sufficient to provide future water services. An accumulated deficit indicates that resources are insufficient to provide future services and that borrowing or rate increases are required to finance annual deficits. From Table 4-2, the financial plan proposes adding approximately \$5.5 million to a 2026 accumulated surplus (at the beginning of the year) of approximately \$7.2 million over the forecast period. This accumulated surplus, as indicated in Table 4-



2, is predominantly composed of reserve and reserve fund balances, as well as historical investments in tangible capital assets.

4.2.3 Statement of Change in Net Financial Assets/Debt (Table 4-3)

The Statement of Change in Net Financial Assets/Debt indicates whether revenues generated were sufficient to cover operating and non-financial asset costs (i.e., inventory supplies, prepaid expenses, tangible capital assets, etc.) and in so doing, explains the difference between the annual surplus/deficit and the change in net financial assets/debt for the period.

Table 4-3 indicates that in the years 2026, 2027, 2028 and 2032, forecasted tangible capital asset acquisitions exceed the forecasted annual surplus (before amortization), resulting in decreases in the net financial assets balance. This is due to the significant capital assets anticipated to be constructed over the forecast. This is further evidenced by the ratio of cumulative annual surplus before amortization to cumulative tangible capital asset acquisitions, which gradually improves from 0.11 to 0.45 over the forecast period (note: a desirable ratio is 1:1 or better).

4.2.4 Statement of Cash Flow (Table 4-4)

The Statement of Cash Flow summarizes how the S.T.A.S.W.S.S. is expected to generate and use cash resources during the forecast period. The transactions that provide/use cash are classified as operating, capital, investing, and financing activities as shown in Table 4-4. This statement focuses on the cash aspect of these transactions and thus is the link between cash-based and accrual-based reporting. Table 4-4 indicates that cash from operations will be used to fund capital transactions (i.e., tangible capital asset acquisitions) and build internal reserves and reserve funds over the forecast period. The financial plan projects the cash position of the S.T.A.S.W.S.S. to decrease from approximately \$6.0 million at the beginning of 2026 to a balance of approximately \$2.0 million by the end of 2035. For further discussion on projected cash balances please refer to the Notes to the Financial Plan.



Table 4-1
Statement of Financial Position: Water Services
UNAUDITED: For Financial Planning Purposes Only
2026-2035

	Notes	Forecast									
		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Financial Assets											
Cash	1	910,501	-	-	-	133,199	438,171	221,677	715,714	1,307,529	2,004,839
Accounts Receivable	1	805,527	849,319	830,570	884,725	938,631	991,534	1,051,027	1,103,816	1,159,050	1,216,840
Total Financial Assets		1,716,028	849,319	830,570	884,725	1,071,830	1,429,705	1,272,704	1,819,530	2,466,579	3,221,679
Liabilities											
Accounts Payable & Accrued Liabilities	1	631,843	662,525	648,138	682,575	718,482	755,979	795,085	829,904	866,050	903,662
Debt (Principal only)	2	2,200,000	5,080,188	9,568,836	9,239,035	8,894,689	8,535,158	8,159,772	7,767,832	7,358,606	6,931,334
Deferred Revenue	3	-	-	-	-	-	-	-	-	-	-
Total Liabilities		2,831,843	5,929,507	10,363,644	9,990,350	9,613,171	9,291,137	8,954,857	8,597,736	8,224,656	7,834,996
Net Financial Assets/(Debt)		(1,115,815)	(5,080,188)	(9,533,074)	(9,105,625)	(8,541,341)	(7,861,432)	(7,682,153)	(6,778,206)	(5,758,077)	(4,613,317)
Non-Financial Assets											
Tangible Capital Assets	4	9,035,639	13,582,400	18,419,959	18,238,718	18,014,277	17,757,986	18,104,751	17,824,173	17,535,645	17,244,517
Total Non-Financial Assets		9,035,639	13,582,400	18,419,959	18,238,718	18,014,277	17,757,986	18,104,751	17,824,173	17,535,645	17,244,517
Accumulated Surplus/(Deficit)	5	7,919,824	8,502,212	8,886,885	9,133,093	9,472,936	9,896,554	10,422,598	11,045,967	11,777,568	12,631,200
Financial Indicators	Total Change										
1) Increase/(Decrease) in Net Financial Assets	(10,846,954)	(7,349,452)	(3,964,373)	(4,452,886)	427,449	564,284	679,909	179,279	903,947	1,020,129	1,144,760
2) Increase/(Decrease) in Tangible Capital Assets	16,308,590	8,099,712	4,546,761	4,837,559	(181,241)	(224,441)	(256,291)	346,765	(280,578)	(288,528)	(291,128)
3) Increase/(Decrease) in Accumulated Surplus	5,461,636	750,260	582,388	384,673	246,208	339,843	423,618	526,044	623,369	731,601	853,632



Table 4-2
Statement of Operations: Water Services
UNAUDITED: For Financial Planning Purposes Only
2026-2035

	Notes	Forecast									
		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Water Revenue											
Rate Based Revenue		4,257,318	4,488,765	4,389,671	4,675,887	4,960,789	5,240,388	5,554,816	5,833,812	6,125,734	6,431,158
Other Revenue	6	10,735	-	353	1,322	3,500	6,672	4,729	9,797	15,848	22,951
Total Revenues		4,268,053	4,488,765	4,390,024	4,677,209	4,964,289	5,247,060	5,559,545	5,843,609	6,141,582	6,454,109
Water Expenses											
Operating Expenses	Sch. 4-1	3,392,505	3,573,240	3,479,996	3,664,896	3,857,685	4,059,017	4,268,987	4,455,938	4,650,014	4,851,956
Interest on Debt	2	-	93,898	220,914	418,864	404,320	389,134	373,279	356,724	339,439	321,393
Amortization	4	125,288	239,239	304,441	347,241	362,441	375,291	391,235	407,578	420,528	427,128
Total Expenses		3,517,793	3,906,377	4,005,351	4,431,001	4,624,446	4,823,442	5,033,501	5,220,240	5,409,981	5,600,477
Annual Surplus/(Deficit)		750,260	582,388	384,673	246,208	339,843	423,618	526,044	623,369	731,601	853,632
Accumulated Surplus/(Deficit), beginning of year	5	7,169,564	7,919,824	8,502,212	8,886,885	9,133,093	9,472,936	9,896,554	10,422,598	11,045,967	11,777,568
Accumulated Surplus/(Deficit), end of year		7,919,824	8,502,212	8,886,885	9,133,093	9,472,936	9,896,554	10,422,598	11,045,967	11,777,568	12,631,200
Note 5:											
Accumulated Surplus/(Deficit) Reconciliation:		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Reserve Balances											
Reserves: Capital/Other		1,084,185	-	35,762	133,410	353,348	673,726	477,619	989,626	1,600,529	2,318,017
Total Reserves Balance		1,084,185	-	35,762	133,410	353,348	673,726	477,619	989,626	1,600,529	2,318,017
Less: Debt Obligations and Deferred Revenue		(2,200,000)	(5,080,188)	(9,568,836)	(9,239,035)	(8,894,689)	(8,535,158)	(8,159,772)	(7,767,832)	(7,358,606)	(6,931,334)
Add: Tangible Capital Assets	4	9,035,639	13,582,400	18,419,959	18,238,718	18,014,277	17,757,986	18,104,751	17,824,173	17,535,645	17,244,517
Total Ending Balance		7,919,824	8,502,212	8,886,885	9,133,093	9,472,936	9,896,554	10,422,598	11,045,967	11,777,568	12,631,200
Financial Indicators	Total Change	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1) Expense to Revenue Ratio		82%	87%	91%	95%	93%	92%	91%	89%	88%	87%
2) Increase/(Decrease) in Accumulated Surplus	5,461,636	750,260	582,388	384,673	246,208	339,843	423,618	526,044	623,369	731,601	853,632



Schedule 4-1
Statement of Operating Expenses: Water Services
UNAUDITED: For Financial Planning Purposes Only
2026-2035

	Notes	Forecast									
		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Operating Expenses											
Salary, Wage and Benefits		152,500	157,100	161,800	166,700	171,700	176,900	182,200	187,700	193,300	199,100
Miscellaneous		68,500	70,600	72,700	74,900	77,100	79,400	81,800	84,300	86,800	89,400
Contracted Services		180,000	185,400	191,000	196,700	202,600	208,700	215,000	221,500	228,100	234,900
SCADA		52,000	53,600	55,200	56,900	58,600	60,400	62,200	64,100	66,000	68,000
Job Costing		13,000	13,400	13,800	14,200	14,600	15,000	15,500	16,000	16,500	17,000
Insurance		36,200	38,000	39,900	41,900	44,000	46,200	48,500	50,900	53,400	56,100
Water Purchases		2,765,305	2,908,040	2,808,196	2,969,596	3,138,085	3,314,117	3,497,887	3,657,438	3,823,414	3,996,056
Utilities		115,000	120,800	126,800	133,100	139,800	146,800	154,100	161,800	169,900	178,400
Chemical		10,000	10,300	10,600	10,900	11,200	11,500	11,800	12,200	12,600	13,000
Non TCA - Expenses from Capital Budget	7	-	16,000	-	-	-	-	-	-	-	-
TOTAL OPERATING EXPENSES		3,392,505	3,573,240	3,479,996	3,664,896	3,857,685	4,059,017	4,268,987	4,455,938	4,650,014	4,851,956

Table 4-3
Statement of Changes in Net Financial Assets/Debt: Water Services
UNAUDITED: For Financial Planning Purposes Only
2026-2035

	Notes	Forecast									
		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Annual Surplus/(Deficit)		750,260	582,388	384,673	246,208	339,843	423,618	526,044	623,369	731,601	853,632
Less: Acquisition of Tangible Capital Assets	4	(8,225,000)	(4,786,000)	(5,142,000)	(166,000)	(138,000)	(119,000)	(738,000)	(127,000)	(132,000)	(136,000)
Add: Amortization of Tangible Capital Assets	4	125,288	239,239	304,441	347,241	362,441	375,291	391,235	407,578	420,528	427,128
		(8,099,712)	(4,546,761)	(4,837,559)	181,241	224,441	256,291	(346,765)	280,578	288,528	291,128
Increase/(Decrease) in Net Financial Assets/(Net Debt)		(7,349,452)	(3,964,373)	(4,452,886)	427,449	564,284	679,909	179,279	903,947	1,020,129	1,144,760
Net Financial Assets/(Net Debt), beginning of year		6,233,637	(1,115,815)	(5,080,188)	(9,533,074)	(9,105,625)	(8,541,341)	(7,861,432)	(7,682,153)	(6,778,206)	(5,758,077)
Net Financial Assets/(Net Debt), end of year		(1,115,815)	(5,080,188)	(9,533,074)	(9,105,625)	(8,541,341)	(7,861,432)	(7,682,153)	(6,778,206)	(5,758,077)	(4,613,317)
Financial Indicators		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1) Acquisition of Tangible Capital Assets (Cumulative)		8,225,000	13,011,000	18,153,000	18,319,000	18,457,000	18,576,000	19,314,000	19,441,000	19,573,000	19,709,000
2) Annual Surplus/Deficit before Amortization (Cumulative)		875,548	1,697,175	2,386,289	2,979,738	3,682,022	4,480,931	5,398,210	6,429,157	7,581,286	8,862,046
3) Ratio of Annual Surplus before Amortization to Acquisition of TCAs (Cumulative)		0.11	0.13	0.13	0.16	0.20	0.24	0.28	0.33	0.39	0.45



Table 4-4
Statement of Cash Flow – Indirect Method: Water Services
UNAUDITED: For Financial Planning Purposes Only
2026-2035

	Notes	Forecast									
		2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Operating Transactions											
Annual Surplus/Deficit		750,260	582,388	384,673	246,208	339,843	423,618	526,044	623,369	731,601	853,632
Add: Amortization of TCAs	4	125,288	239,239	304,441	347,241	362,441	375,291	391,235	407,578	420,528	427,128
Change in A/R (Increase)/Decrease		100,621	(43,792)	18,749	(54,155)	(53,907)	(52,903)	(59,493)	(52,788)	(55,235)	(57,790)
Change in A/P Increase/(Decrease)		(14,552)	30,682	(14,387)	34,437	35,907	37,497	39,106	34,819	36,146	37,612
Less: Interest Proceeds		(10,735)	-	(354)	(1,321)	(3,498)	(6,671)	(4,729)	(9,798)	(15,847)	(22,951)
Cash Provided by Operating Transactions		950,882	808,517	693,122	572,410	680,786	776,832	892,163	1,003,180	1,117,193	1,237,631
Less: Cash Used to acquire Tangible Capital Assets	4	(8,225,000)	(4,786,000)	(5,142,000)	(166,000)	(138,000)	(119,000)	(738,000)	(127,000)	(132,000)	(136,000)
Cash Applied to Capital Transactions		(8,225,000)	(4,786,000)	(5,142,000)	(166,000)	(138,000)	(119,000)	(738,000)	(127,000)	(132,000)	(136,000)
Investing Transactions											
Proceeds from Investments		10,735	-	354	1,321	3,498	6,671	4,729	9,798	15,847	22,951
Cash Provided by (applied to) Investing Transactions		10,735	-	354	1,321	3,498	6,671	4,729	9,798	15,847	22,951
Financing Transactions											
Proceeds from Debt Issue	2	2,200,000	2,954,101	4,660,877	-	-	-	-	-	-	-
Less: Debt Repayment (Principal only)	2	-	(73,913)	(172,229)	(329,801)	(344,345)	(359,531)	(375,386)	(391,941)	(409,225)	(427,272)
Cash Applied to Financing Transactions		2,200,000	2,880,188	4,488,648	(329,801)	(344,345)	(359,531)	(375,386)	(391,941)	(409,225)	(427,272)
Increase in Cash and Cash Equivalents		(5,063,383)	(1,097,295)	40,124	77,930	201,939	304,972	(216,494)	494,037	591,815	697,310
Cash and Cash Equivalents, beginning of year	1	5,973,884	910,501	(186,794)	(146,670)	(68,740)	133,199	438,171	221,677	715,714	1,307,529
Cash and Cash Equivalents, end of year	1	910,501	(186,794)	(146,670)	(68,740)	133,199	438,171	221,677	715,714	1,307,529	2,004,839



Water

Notes to Financial Plan

The financial plan format as outlined in Chapter 4 closely approximates the full accrual format used by municipalities (2009 onward) on their audited financial statements. However, the financial plan is not an audited document and contains various estimates. In this regard, Section 3 (2) of O. Reg. 453/07 states the following:

“Each of the following sub-subparagraphs applies only if the information referred to in the sub-subparagraph is known to the owner at the time the financial plans are prepared:

1. Sub-subparagraphs 4 i A, B and C of subsection (1)
2. Sub-subparagraphs 4 iii A, C, E and F of subsection (1).”

The information referred to in sub-subparagraphs 4 i A, B and C of subsection (1) includes:

- A. Total financial assets (i.e., cash and receivables);
- B. Total liabilities (i.e., payables, debt, and deferred revenue);
- C. Net debt (i.e., the difference between A and B above).

The information referred to in sub-subparagraphs 4 iii A, C, E and F of subsection (1) includes:

- A. Operating transactions are cash received from revenues, cash paid for operating expenses and finance charges.
- B. Investing transactions that are acquisitions and disposal of investments.
- C. Changes in cash and cash equivalents during the year.
- D. Cash and cash equivalents at the beginning and end of the year.

In order to show a balanced financial plan in a full accrual format for the S.T.A.S.W.S.S., some of the items listed above have been estimated given that the S.T.A.S.W.S.S. does not maintain all financial asset and liability data separately for water. Usually, this type of data is combined with the financial assets and liabilities of other departments and services given that there is not a current obligation to disclose this data separately (as there is with revenue and expenses).



The assumptions used have been documented below:

1. Cash, Receivables and Payables

It is assumed that the opening cash balances required to complete the financial plan are equal to:

Ending Reserve/Reserve Fund Balance
Plus: Ending Accounts Payable Balance
Less: Ending Accounts Receivable Balance
Equals: *Approximate Ending Cash Balance*

For the S.T.A.S.W.S.S., receivable and payable balances were estimated for each year of the forecast based on the following factors:

- a) Receivables: Based on historical levels of municipal-wide receivables as a percentage of annual municipal-wide revenue earned (as provided in the City's audited financial statements for 2022 through 2024); and
- b) Payables: Based on historical levels of municipal-wide receivables as a percentage of annual municipal-wide revenue earned (as provide in the City's audited financial statements for 2022 through 2024).

2. Debt

Outstanding water-related debt at the beginning of 2026 is \$0. New debt financing of approximately \$2.2 million is anticipated in 2026, with additional issuance anticipated in 2027 and 2028. No further debt issuance is anticipated over the remainder of the forecast period.



Estimated principal repayments over the forecast period are scheduled as follows:

Year	Principal Payments
2026	-
2027	73,913
2028	172,229
2029	329,801
2030	344,345
2031	359,531
2032	375,386
2033	391,941
2034	409,225
2035	427,272
Total	\$2,883,643

For financial reporting purposes, debt principal payments represent a decrease in debt liability and the interest payments represent a current year operating expense.

3. Deferred Revenue

Deferred revenue is typically made up of water development charge (D.C.), and Canada Community-Building Fund (C.C.B.F.) fund balances which are considered to be a liability for financial reporting purposes until the funds are used to emplace the works for which they have been collected.

The S.T.A.S.W.S.S. does not collect water D.C.s to fund growth-related water capital expenditures. The S.T.A.S.W.S.S. does not anticipate the use of C.C.B.F. funding over the forecast period.

4. Tangible Capital Assets

- Opening net book value of tangible capital assets includes water related assets in the following categories:
 - i. Watermains;
 - ii. Valves;
 - iii. Water Chambers
 - iv. Facilities; and



v. Machinery and Equipment Assets.

- Amortization is calculated based on the straight-line approach with half year amortization applied in the year of acquisition or construction and in the last year of the asset's useful life.
- Write-offs are assumed to equal \$0 for each year in the forecast period.
- Tangible capital assets are shown on a net basis. It is assumed that disposals occur when the asset is being replaced. To calculate the value of each asset disposal, the replacement value (of each new asset that has been identified as a "replacement") has been deflated (by weighted average useful life for all assets on hand in the respective asset category) to an estimated historical cost. This figure was used to calculate disposals only. Future assets are disposed of when fully amortized.
- Gains/losses on disposal for all assets except vehicles are assumed to be \$0 (it is assumed that historical cost is equal to accumulated amortization for all disposals).
- Residual value is assumed to be \$0 for all assets contained within the forecast period.
- Contributed Assets, as described in Section 3.2.1, are deemed to be insignificant or unknown during the forecast period and are therefore assumed to be \$0.
- The S.T.A.S.W.S.S. is not aware of any lead service piping in the system. The S.T.A.S.W.S.S., however, will replace any lead service pipes identified as older watermain are replaced.



The balance of tangible capital assets is summarized as follows:

Asset Historical Cost	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Opening Tangible Capital Asset Balance	2,727,529	10,007,733	14,600,163	19,564,726	19,623,134	19,669,744	19,702,705	20,315,597	20,327,935	20,336,181
Acquisitions	8,225,000	4,786,000	5,142,000	166,000	138,000	119,000	738,000	127,000	132,000	136,000
Disposals	944,796	193,570	177,437	107,592	91,390	86,039	125,108	114,662	123,754	131,554
Closing Tangible Capital Asset Balance	10,007,733	14,600,163	19,564,726	19,623,134	19,669,744	19,702,705	20,315,597	20,327,935	20,336,181	20,340,627
Opening Accumulated Amortization	1,791,602	972,094	1,017,763	1,144,767	1,384,416	1,655,467	1,944,719	2,210,846	2,503,762	2,800,536
Amortization Expense	125,288	239,239	304,441	347,241	362,441	375,291	391,235	407,578	420,528	427,128
Amortization on Disposal	944,796	193,570	177,437	107,592	91,390	86,039	125,108	114,662	123,754	131,554
Ending Accumulated Amortization	972,094	1,017,763	1,144,767	1,384,416	1,655,467	1,944,719	2,210,846	2,503,762	2,800,536	3,096,110
Net Book Value	9,035,639	13,582,400	18,419,959	18,238,718	18,014,277	17,757,986	18,104,751	17,824,173	17,535,645	17,244,517



5. Accumulated Surplus

Opening accumulated surplus for the forecast period is reconciled as follows:

Water	2026 Opening Accumulated Surplus
Reserve Balances	
Reserves: Capital/Other	6,233,637
Total Reserves Balance	\$6,233,637
Add: Tangible Capital Assets	935,927
Total Opening Balance	\$7,169,564

The accumulated surplus reconciliation for all years within the forecast period is contained in Table 4-2.

6. Other Revenue

Other revenues include interest earned on reserve balances.

7. Operating Expenses

Capital expenditures for items not meeting the definition of tangible capital assets have been reclassified as operating expenses and have been expensed in the year in which they occur.



Chapter 5

Process for Financial Plan Approval and Submission to the Province



5. Process for Financial Plan Approval and Submission to the Province

As mentioned in section 1.2, preparation and approval of a financial plan for water assets that meets the requirements of the Act is mandatory for municipal water providers. Proof of the plan preparation and approval is a key submission requirement for municipal drinking water licensing and, upon completion, must be submitted to the MECP. The process established for plan approval, public circulation and filing is set out in O. Reg. 453/07 and can be summarized as follows:

1. The financial plan must be approved by resolution of Council of the municipality who owns the drinking water system or the governing body of the owner. (O. Reg. 453/07, section 3 (1) 1).
2. The owner of the drinking water system must provide notice advertising the availability of the financial plan. The plans will be made available to the public upon request and without charge. The plans must also be made available to the public on the municipality's website. (O. Reg. 453/07, section 3 (1) 5).
3. The owner of the drinking water system must provide a copy of the financial plan to the Director of Policy Branch, Ministry of Municipal Affairs and Housing. (O. Reg. 453/07, section 3 (1) 6).
4. The owner of the drinking water system must provide proof satisfactory to the Director that the financial plans for the system satisfy the requirements under the *Safe Drinking Water Act*. (S.D.W.A. section 32 (5) 2. ii.).



Chapter 6

Recommendations



6. Recommendations

This report presents the water financial plan for the S.T.A.S.W.S.S. in accordance with the mandatory reporting formats for water systems as detailed in O. Reg. 453/07. It is important to note that while mandatory for water, the financial plan is provided for the Board's interest and approval, however, for decision making purposes, it may be more informative to rely on the information contained within the S.T.A.S.W.S.S.'s 2026 Rate Study. Nevertheless, the Board is required to pass certain resolutions with regard to this plan and regulations and it is recommended that:

1. The St. Thomas Area Secondary Water Supply System Financial Plan prepared by Watson & Associates Economists Ltd. dated June 19, 2026, be approved.
2. Notice of availability of the Financial Plan be advertised.
3. The Financial Plan dated June 19, 2026, be submitted to the Ministry of Municipal Affairs and Housing. (O. Reg. 453/07, Section 3 (1) 6)
4. The Council Resolution approving the Financial Plan be submitted to the Ministry of the Environment, Conservation and Parks satisfying the requirements under the *Safe Drinking Water Act*. (S.D.W.A. Section 32 (5) 2 ii)).



Appendix A

2026 St. Thomas Area Secondary Water Supply System Rate Study Summary Tables



Table A-1
St. Thomas Area Secondary Water Supply System
Water Capital Budget Forecast (uninflated \$)

Description	Budget 2026	Forecast									
		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
S.T.A.S.W.S.S. Needs	8,225,000	4,640,000	4,800,000	150,000	120,000	100,000	600,000	100,000	100,000	100,000	100,000
Total Capital Expenditures	8,225,000	4,640,000	4,800,000	150,000	120,000	100,000	600,000	100,000	100,000	100,000	100,000

Table A-2
St. Thomas Area Secondary Water Supply System
Water Capital Budget Forecast and Recommended Capital Financing (inflated \$)

Description	Budget 2026	Forecast									
		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Secondary Charge Needs	8,225,000	4,802,000	5,142,000	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000
Total Capital Expenditures	8,225,000	4,802,000	5,142,000	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000
Capital Financing											
Non-Growth Related Debenture Requirements	2,200,000	2,954,101	4,660,877	-	-	-	-	-	-	-	-
Water Reserve	6,025,000	1,847,899	481,123	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000
Total Capital Financing	8,225,000	4,802,000	5,142,000	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000

Table A-3
St. Thomas Area Secondary Water Supply System
Water - Schedule of Non-Growth-Related Debenture Repayments (inflated \$)

Debenture Year	2026	Principal (Inflated)	Forecast									
			2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
2026		2,200,000	167,811	167,811	167,811	167,811	167,811	167,811	167,811	167,811	167,811	167,811
2027		2,954,101	-	225,332	225,332	225,332	225,332	225,332	225,332	225,332	225,332	225,332
2028		4,660,877	-	-	355,521	355,521	355,521	355,521	355,521	355,521	355,521	355,521
2029		-	-	-	-	-	-	-	-	-	-	-
2030		-	-	-	-	-	-	-	-	-	-	-
2031		-	-	-	-	-	-	-	-	-	-	-
2032		-	-	-	-	-	-	-	-	-	-	-
2033		-	-	-	-	-	-	-	-	-	-	-
2034		-	-	-	-	-	-	-	-	-	-	-
2035		-	-	-	-	-	-	-	-	-	-	-
2036		-	-	-	-	-	-	-	-	-	-	-
Total Annual Debt Charges	-	9,814,978	167,811	393,143	748,665	748,665	748,665	748,665	748,665	748,665	748,665	748,665



Table A-4
St. Thomas Area Secondary Water Supply System
Water Reserve/Reserve Fund Continuity (inflated \$)

Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Opening Balance	6,233,637	1,084,185	-	35,763	133,409	353,347	673,725	477,619	989,626	1,600,528	2,318,016
Transfer from Operating	864,813	763,714	516,532	262,326	354,440	432,707	537,165	629,209	727,055	830,537	940,208
Transfer to Capital	6,025,000	1,847,899	481,123	166,000	138,000	119,000	738,000	127,000	132,000	136,000	141,000
Transfer to Operating	-	-	-	-	-	-	-	-	-	-	-
Closing Balance	1,073,450	-	35,408	132,088	349,849	667,054	472,890	979,828	1,584,682	2,295,065	3,117,224
Interest	10,735	-	354	1,321	3,498	6,671	4,729	9,798	15,847	22,951	31,172

Table A-5
St. Thomas Area Secondary Water Supply System
Operating Budget Forecast – Water (inflated \$)

Description	Budget 2026	Forecast									
		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Expenditures											
<u>Operating Costs</u>											
Salary, Wage and Benefits	152,500	157,100	161,800	166,700	171,700	176,900	182,200	187,700	193,300	199,100	205,100
Miscellaneous	68,500	70,600	72,700	74,900	77,100	79,400	81,800	84,300	86,800	89,400	92,100
Contracted Services	180,000	185,400	191,000	196,700	202,600	208,700	215,000	221,500	228,100	234,900	241,900
SCADA	52,000	53,600	55,200	56,900	58,600	60,400	62,200	64,100	66,000	68,000	70,000
Job Costing	13,000	13,400	13,800	14,200	14,600	15,000	15,500	16,000	16,500	17,000	17,500
Insurance	36,200	38,000	39,900	41,900	44,000	46,200	48,500	50,900	53,400	56,100	58,900
Water Purchases	2,765,305	2,908,040	2,808,196	2,969,596	3,138,085	3,314,117	3,497,887	3,657,438	3,823,414	3,996,056	4,175,617
Utilities	115,000	120,800	126,800	133,100	139,800	146,800	154,100	161,800	169,900	178,400	187,300
Chemical	10,000	10,300	10,600	10,900	11,200	11,500	11,800	12,200	12,600	13,000	13,400
Sub Total Operating	3,392,505	3,557,240	3,479,996	3,664,896	3,857,685	4,059,017	4,268,987	4,455,938	4,650,014	4,851,956	5,061,817
<u>Capital-Related</u>											
New Non-Growth Related Debt (Principal)	-	73,913	172,229	329,801	344,345	359,531	375,386	391,941	409,225	427,272	446,115
New Non-Growth Related Debt (Interest)	-	93,898	220,914	418,864	404,320	389,134	373,279	356,724	339,439	321,393	302,550
Transfer to Capital Reserve	864,813	763,714	516,532	262,326	354,440	432,707	537,165	629,209	727,055	830,537	940,208
Sub Total Capital Related	864,813	931,525	909,675	1,010,991	1,103,104	1,181,371	1,285,830	1,377,874	1,475,720	1,579,202	1,688,872
Total Expenditures	4,257,318	4,488,765	4,389,671	4,675,887	4,960,789	5,240,388	5,554,816	5,833,812	6,125,734	6,431,158	6,750,689
Revenues											
Rate Based Revenues	4,257,318	4,488,765	4,389,671	4,675,887	4,960,789	5,240,388	5,554,816	5,833,812	6,125,734	6,431,158	6,750,689
Total Operating Revenue	4,257,318	4,488,765	4,389,671	4,675,887	4,960,789	5,240,388	5,554,816	5,833,812	6,125,734	6,431,158	6,750,689



Table A-6
St. Thomas Area Secondary Water Supply System
Water Rate Forecast Summary

Description	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Water Rates - St. Thomas Area Secondary Water Supply System											
Primary Rate (per m ³)	\$1.0699	\$1.1073	\$1.1405	\$1.1747	\$1.2099	\$1.2462	\$1.2836	\$1.3221	\$1.3618	\$1.4026	\$1.4447
Secondary Rate (per m ³)	\$0.6824	\$0.7110	\$0.7408	\$0.7718	\$0.8042	\$0.8379	\$0.8730	\$0.9095	\$0.9477	\$0.9874	\$1.0287
Total	\$1.7523	\$1.8183	\$1.8813	\$1.9465	\$2.0141	\$2.0841	\$2.1566	\$2.2316	\$2.3094	\$2.3900	\$2.4734
% Change - Primary Rate		3.5%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
% Change - Secondary Rate		4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%



Report No.
SWB 06-26

File No.

Directed to: The Chair and Members of the Board of Management of the St. Thomas Area Secondary Water Supply System

Meeting Date:
July 9, 2026

Department: Environmental Services

Prepared By: Karel Kamerman, B.Sc., C.Tech.
Environmental Compliance Coordinator

- Attachment
- 1. Operational Plan – EMPS
 - 2. OP-03B Signed Commitment and Endorsement

Subject: EMPS - OCWA - Combined DWQMS Operational Plan

Recommendation:

THAT: Report SWB 06-26 EMPS – OCWA – Combined DWQMS Operational Plan, be received for information, and further;

THAT: The Board authorize the Board Chair and City of St. Thomas City Engineer to endorse the Operational Plan - EMPS through signature of the OP-03B Signed Commitment and Endorsement document.

Background:

In March 2026, the Ontario Ministry of the Environment, Conservation and Parks released an update to the Directors – Minimum Requirements for Operational Plans (Municipal Drinking Water Systems), relating to Drinking Water Quality Management System Operational Plan. Amongst other requirements, the update allows for a single operational plan to be prepared for and apply to multiple subject systems that have different owners where:

- 1. The systems have the same Operating Authority,
- 2. The systems are physically connected and operated as if they were a single system, and
- 3. All requirements in the Drinking Water Quality Management Standard that refer to “owner” are interpreted to mean the owners of all subject systems for which the operational plan has been prepared.

As such, the Operating Authority for the infrastructure owned by the City of London, the Aylmer Area Secondary Water Supply System Board of Management (BOM), and the St. Thomas Area Secondary Water Supply System BOM within the Elgin Middlesex Pump Station (EMPS), operated by the Ontario Clean Water Agency (OCWA) has combined the three (3) Operational Plans into the attached “Operational Plan – EMPS” document (Attachment 1), and are seeking endorsement of the updated plan.

Through the endorsement of the “OP-03B Signed Commitment and Endorsement” document (Attachment 2), the STASWSS Board of Management is demonstrating its commitment to working with OCWA to facilitate the common goals of:

- 1. Providing safe drinking water to our users,
- 2. Operating and maintaining the system in accordance with applicable legislative and regulatory requirements, and
- 3. Continual improvement of the Quality and Environmental Management System (QEMS),

Financial Impact:

Consolidation of the three (3) Operational Plans reduces administrative burden, audit times and expense of approximately \$700.

Respectfully,

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

Approved By:
Manager
Development and Compliance

City Engineer

OPERATIONAL PLAN

For the Elgin Middlesex Pumping Station

Aylmer Area Secondary Water Supply System

City of London Distribution System

St. Thomas Area Secondary Water Supply System



This Operational Plan is designed for the exclusive use of the system(s) specified in this Operational Plan.

This Operational Plan has been developed with OCWA's operating practices in mind and utilizing OCWA personnel to implement it.

Any use which a third party makes of this Operational Plan, or any part thereof, or any reliance on or decisions made based on information within it, is the responsibility of such third parties. OCWA accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this Operational Plan or any part thereof.

This Operational Plan is current as of June 2, 2026. Refer to the revision date, revision number and revision history for the currency of each QEMS Procedure contained within this Operational Plan.

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Doc: OP-ToC Issue Date: 2026-01-31 Pages: 1 of 1
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Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

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OP-02	Quality & Environmental Management System Policy
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OP-03B	Signed Commitment and Endorsement-St. Thomas
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OP-04	Quality Management System Representative
OP-05	Document and Records Control
OP-05A	Document and Records Control Locations
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OP-17	Measurement and Recording Equipment Calibration and Maintenance
OP-18	Emergency Management
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Schedule "C"	Ministry's Director's Directions <i>Minimum Requirements for Operational Plans</i>

	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-01 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 2
QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS)		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To document OCWA's Quality & Environmental Management System (QEMS). This Operational Plan defines and documents the QEMS for the Elgin Middlesex Pumping Station (EMPS) operated by the Ontario Clean Water Agency (OCWA). It sets out the OCWA's policies and procedures with respect to quality and environmental management in accordance with the requirements of Ontario's Drinking Water Quality Management Standard (DWQMS).

2. Definitions

Drinking Water Quality Management Standard (DWQMS) – has the same meaning as Quality Management Standard for Drinking Water Systems approved under section 21 of the Safe Drinking Water Act (SDWA).

Operational Plan – means the operational plan required by the Director's Direction.

Quality & Environmental Management System (QEMS) – a system to:

- a) Establish policy and objectives, and to achieve those objectives; and
- b) Direct and control an organization with regard to quality.

Ministry - means the Ontario government ministry responsible for the administration of the SDWA.

3. Procedure

3.1 OCWA is the contracted Operating Authority for the EMPS which includes the following facilities:

- EMPS-Aylmer Area Secondary Water Supply System Portion;
- EMPS-St. Thomas Area Secondary Water Supply System Portion;
- EMPS-City of London Drinking Water System Portion

3.2 OCWA's Quality & Environmental Management System (QEMS) is structured and documented with the purpose of:

1. Establishing policy and objectives with respect to the effective management and operation of water/wastewater facilities;
2. Understanding and controlling the risks associated with the facility's activities and processes;
3. Achieving continual improvement of the QEMS and the facility's performance.

3.3 The Operational Plan for the facilities listed above fulfils the requirements of Ontario's DWQMS. The 21 QEMS Procedures within this Operational Plan align with the 21 elements of the DWQMS.

4. Related Documents

	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-01 Rev Date: 2026-01-31 Rev No: 0 Pages: 2 of 2
QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS)		
Reviewed by: SPC Manager		Approved by: Senior Operations Manager

Ontario's Drinking Water Quality Management Standard, as amended from time to time
All QEMS Procedures and Documents referenced in this Operational Plan

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued-Previous OP versions were separate for each drinking water system

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-02 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 2
QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS) POLICY		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To document a QEMS Policy that provides the foundation for OCWA's Quality & Environmental Management System.

2. Definitions

Quality Management System Policy – means the policy described in Element 2 developed for the Subject System or Subject Systems

3. Procedure

- 3.1 The Ontario Clean Water Agency, its Board of Directors, Officers and entire staff are committed to the principles and objectives set out in our QEMS Policy.

OCWA's Policy is to:

- Deliver safe water and wastewater services that protect public health, the environment, and the sustainability of communities.
- Comply with applicable legislation and regulations.
- Promote client, consumer and stakeholder confidence through service excellence, effective communications and reporting.
- Train staff on their QEMS responsibilities.
- Maintain and continually improve the QEMS.

Originally issued as Environmental Policy on June 8, 1995

Last revised, approved by OCWA's Board of Directors on April 4, 2024

(This policy is annually reviewed)

- 3.2 Our Board of Directors, Officers and entire staff will act to ensure the implementation of this Policy and will monitor progress of the Quality & Environmental Management System (QEMS).
- 3.3 OCWA's QEMS Policy is readily communicated and available to all OCWA personnel, through OCWA's intranet. The Owner and members of the public can access the policy through OCWA's public website (www.ocwa.com). A hardcopy of the QEMS Policy is posted as specified in the OP-05 Document and Records Control procedure.
- 3.4 Essential suppliers and service providers are advised of OCWA's QEMS Policy as per the OP-13 Essential Supplies and Services procedure.

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-02 Rev Date: 2026-01-31 Rev No: 0 Pages: 2 of 2
QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS) POLICY		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

3.5 Corporate Compliance coordinates the annual review and approval of the QEMS Policy by the Board of Directors and communicates the approval to all OCWA employees via an electronic communication.

3.6 The current version of the policy indicates the date of the last revision and that the policy is annually reviewed. Electronic and hard-copy documents that include the QEMS Policy will only be required to be updated in years when the Policy has been revised. A complete review/revision history of the QEMS Policy (documenting the annual policy review and/or revision approval date) is accessible to all staff on OCWA's intranet and is available upon request for external stakeholders.

4. Related Documents

Current QEMS Policy (Posted on OCWA's intranet and internet)
 QEMS Policy Revision History (Posted on OCWA's intranet)
 OP-05 Document and Records Control
 OP-13 Essential Supplies and Services

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued-Previous OP versions were separate for each drinking water system

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-03 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 2
COMMITMENT AND ENDORSEMENT		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To document the endorsement of the Operational Plan for the Elgin Middlesex Pumping Station by OCWA Top Management and the City of London, City of St. Thomas and Aylmer Area Secondary Water Supply System Board of Management (Owners) and to set out when re-endorsement would be required.

2. Definitions

Top Management – a person, persons or a group of people at the highest management level within an Operating Authority that makes decisions respecting the QMS and recommendations to the Owner respecting the Subject System or Subject Systems

3. Procedure

3.1 The Operational Plan is provided to OCWA Top Management and to the Owner for endorsement. The signed written endorsement is presented in Appendix OP-03A, OP-03B and OP-03C. At a minimum, two members of Top Management must endorse the Operational Plan; however, the Operational Plan is made available to all members of Top Management in the specified document control location (refer to OP-05 Document and Records Control). Endorsement by OCWA's Top Management is represented by the Senior Operations Manager and Safety, Process and Compliance Manager.

3.2 Any major revision of the operational plan will be re-endorsed by OCWA Top Management and the Owner. Major revisions include:

1. A revision to OCWA's QEMS Policy;
2. A change to both representatives of the facility's Top Management and/or both of the Owner's representatives that endorsed the Operational Plan;
3. A modification to the drinking water system processes/components that would require a major change to the description in OP-06 Drinking Water System;

Any other changes would be considered a minor change and would not require the Operational Plan to be re-endorsed.

4. Related Documents

OP-03A, OP-03B, OP-03C Signed Commitment and Endorsement
 OP-05 Document and Records Control
 OP-06 Drinking Water System

5. Revision History

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-03 Rev Date: 2026-01-31 Rev No: 0 Pages: 2 of 2
COMMITMENT AND ENDORSEMENT		
Reviewed by: SPC Manager		Approved by: Senior Operations Manager

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued-Previous OP versions were separate for each drinking water system

 Ontario Clean Water Agency	OPERATIONAL PLAN EMPS-London Portion	QEMS Doc: OP-03A Rev Date: 2026-06-02 Rev No: 0 Pages: 1 of 2
SIGNED COMMITMENT AND ENDORSEMENT		

This Operational Plan sets out the framework for OCWA's Quality & Environmental Management System (QEMS) that is specific and relevant to your drinking water system and supports the overall goal of OCWA and the Corporation of the City of London (Owner) to provide safe, cost-effective drinking water through sustained cooperation. OCWA will be responsible for developing, implementing, maintaining and continually improving its QEMS with respect to the operation and maintenance of the Elgin Middlesex Pumping Station-London Portion and will do so in a manner that ensures compliance with applicable legislative and regulatory requirements.

Through the endorsement of this Operational Plan, the Owner commits to work with OCWA to facilitate this goal.

OCWA Top Management Endorsement

Owner Endorsement

Mark MacKenzie Senior Operations Manager, Elgin Cluster	Date	[Insert Name] Authorized municipal representative of Owner	Date
Cindy Sigurdson Safety, Process and Compliance Manager, Huron Elgin Region	Date	[Insert Name] Authorized municipal representative of Owner	Date

The endorsement above is based on the Operational Plan that was current as of the revision date of this document (OP-03A).

 Ontario Clean Water Agency	OPERATIONAL PLAN EMPS-London Portion	QEMS Doc: OP-03A Rev Date: 2026-06-02 Rev No: 0 Pages: 2 of 2
SIGNED COMMITMENT AND ENDORSEMENT		

 Ontario Clean Water Agency	OPERATIONAL PLAN EMPS-St. Thomas Portion	QEMS Doc: OP-03B Rev Date: 2026-06-02 Rev No: 0 Pages: 1 of 1
SIGNED COMMITMENT AND ENDORSEMENT		

This Operational Plan sets out the framework for OCWA's Quality & Environmental Management System (QEMS) that is specific and relevant to your drinking water system and supports the overall goal of OCWA and the St. Thomas Area Secondary Water Supply System (STASWSS) Joint Board of Management (Owner) to provide safe, cost-effective drinking water through sustained cooperation. OCWA will be responsible for developing, implementing, maintaining and continually improving its QEMS with respect to the operation and maintenance of the Elgin Middlesex Pumping Station-St. Thomas Portion and will do so in a manner that ensures compliance with applicable legislative and regulatory requirements.

Through the endorsement of this Operational Plan, the Owner commits to work with OCWA to facilitate this goal.

OCWA Top Management Endorsement

Mark MacKenzie
 Senior Operations Manager,
 Elgin Cluster

Cindy Sigurdson
 Safety, Process and Compliance Manager,
 Huron Elgin Region

Owner Endorsement

Justin Pennings
 Chair, STASWSS Board of Management
 (Deputy Mayor, Twp. Of Southwold)

Kevin De Leebeeck
 City Engineer, City of St. Thomas-Administering
 Municipality for the STASWSS Board of Management

The endorsement above is based on the Operational Plan that was current as of the revision date of this document (OP-03B).

 Ontario Clean Water Agency	OPERATIONAL PLAN EMPS-Aylmer Portion	QEMS Doc: OP-03C Rev Date: 2026-06-02 Rev No: 0 Pages: 1 of 1
SIGNED COMMITMENT AND ENDORSEMENT		

This Operational Plan sets out the framework for OCWA's Quality & Environmental Management System (QEMS) that is specific and relevant to your drinking water system and supports the overall goal of OCWA and the Aylmer Area Secondary Water Supply System Joint Board of Management (Owner) to provide safe, cost-effective drinking water through sustained cooperation. OCWA will be responsible for developing, implementing, maintaining and continually improving its QEMS with respect to the operation and maintenance of the Elgin Middlesex Pumping Station-Aylmer Portion and will do so in a manner that ensures compliance with applicable legislative and regulatory requirements.

Through the endorsement of this Operational Plan, the Owner commits to work with OCWA to facilitate this goal.

OCWA Top Management Endorsement

Mark MacKenzie
 Senior Operations Manager,
 Elgin Cluster

Cindy Sigurdson
 Safety, Process and Compliance Manager,
 Huron Elgin Region

Owner Endorsement

Dominique Giguere
 Mayor, Township of Malahide-Administering
 Municipality for the AASWSS Board of Management

Alison Adams
 Clerk, Township of Malahide-Administering Municipality
 for the AASWSS Board of Management

The endorsement above is based on the Operational Plan that was current as of the revision date of this document (OP-03C).

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-04 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 1
QUALITY & ENVIRONMENTAL MANAGEMENT SYSTEM (QEMS) REPRESENTATIVE		
Reviewed by: SPC Manager		Approved by: Senior Operations Manager

1. Purpose

To identify and describe the specific roles and responsibilities of the QEMS Representative(s) for the [insert facility/system name].

2. Definitions

None

3. Procedure

3.1 The role of QEMS Representative for the EMPS is the Safety, Process and Compliance Manager. The Process and Compliance Technician will act as an alternate QEMS Representative when required.

3.2 The QEMS Representative is responsible for:

- Administering the QEMS for the EMPS by ensuring that processes and procedures needed for the facility's QEMS are established and maintained;
- Reporting to Top Management on the facility's QEMS performance and identifying opportunities for improvement;
- Ensuring that current versions of documents related to the QEMS are in use;
- Promoting awareness of the QEMS to all operations personnel; and
- In conjunction with Top Management, ensuring that operations personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the operation of the system.

4. Related Documents

None

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued - Previous OP versions were separate for each drinking water system

	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-05 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 5
DOCUMENT AND RECORDS CONTROL		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To describe how OCWA's QEMS documents are kept current and how QEMS documents and records are kept legible, readily identifiable, retrievable, stored, protected, retained and disposed of. Applies to QEMS Documents and QEMS records pertaining to the EMPS, as identified in this procedure.

2. Definitions

Document – includes a sound recording, video tape, film, photograph, chart, graph, map, plan, survey, book of account, and information recorded or stored by means of any device

Record – a document stating results achieved or providing proof of activities performed

QEMS Document – any document required by OCWA's QEMS as identified in this procedure

QEMS Record – any record required by OCWA's QEMS as identified in this procedure

Controlled – managed as per the conditions of this procedure

Retention Period – length of time that a document or record must be kept; starts from the date of issue for QEMS records or from the point of time when a QEMS document is replaced by a new or amended document

3. Procedure

- 3.1 Documents and records required by OCWA's QEMS and their locations are listed in Appendix OP-05A Document and Records Control Locations.
- 3.2 Internally developed QEMS documents and QEMS records (whenever possible) are generated electronically to ensure legibility and are identified through a header/title and revision date. Handwritten records must be legible and permanently rendered in ink or non-erasable marker.
- 3.3 Controls for the Operational Plan include the use of an authorized approval and a header on every page that includes a title, alpha-numeric procedure code, revision date, revision number and page numbers. A revision history is also included at the end of each procedure.

The authorized personnel responsible for the review and approval of this Operational Plan are:

Review	SPC Manager
Approval	Senior Operations Manager

	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-05 Rev Date: 2026-01-31 Rev No: 0 Pages: 2 of 5
DOCUMENT AND RECORDS CONTROL		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

The QEMS Representative ensures that updated documents are provided to the above authorized personnel for review or approval prior to issuance.

Authorized personnel authenticate their review/approval of this Operational Plan by using email confirmations.

- 3.4 The QEMS Representative is responsible for ensuring that current versions of QEMS documents are being used at all times. Current QEMS documents and records are readily accessible to operations personnel and to internal and external auditors/inspectors at established document control locations. The currency of internal documents is ensured by comparing the date on the document to that of the master hardcopy and/or electronic copy residing in the designated document control location(s) specified in Appendix OP-05A.

Document control locations are established in areas that provide adequate protection to prevent unauthorized use/access, damage, deterioration or loss of QEMS documents and records. Copies of QEMS documents and records located outside of designated control locations are considered uncontrolled.

- 3.5 Access to OCWA's computer network infrastructure is restricted through use of individually-assigned usernames and passwords and local area servers. Network security is maintained by OCWA's Information Technology department through a number of established mechanisms and practices such as daily back-up of files stored on servers, password expiry, limitations on login attempts, multi-factor authentication and policies outlining specific conditions of use.

Access to facility QEMS records contained within internal electronic databases and applications (e.g., Wonderware, OPEX, PDM, WMS) is administered by designated application managers/trustees, requires the permission of Operations Management and is restricted through use of usernames and passwords. Records are protected by means of regular network back-ups of electronic files stored on servers and/or within databases.

SCADA records are maintained as per Appendix OP-05A and are accessible to all staff when required.

- 3.6 Any employee of the drinking water system may request, to the QEMS Representative, a revision be made to improve an existing internal QEMS document or the preparation of a new document. Any written requests should indicate the reason for the requested change. The need for new or updated documents may also be identified through the Management Review or system audits.

The QEMS Representative communicates any changes made to QEMS documents to relevant operations personnel and coordinates related training (as required). Changes to corporately controlled QEMS documents are communicated and distributed to facility QEMS Representatives by OCWA's Corporate Compliance Group through e-mails, memos and/or provincial, regional hub/cluster or facility-level training sessions.

	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-05 Rev Date: 2026-01-31 Rev No: 0 Pages: 3 of 5
DOCUMENT AND RECORDS CONTROL		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

- 3.7 When a QEMS document is superseded, the hardcopy and the electronic copy of the document (as applicable) are promptly removed from the applicable designated document control locations specified in OP-05A. The QEMS Representative ensures that the hardcopy and electronic copy are disposed of or retained (as appropriate).
- 3.8 The authorized method for disposal of hardcopy documents and records after the specified retention requirements have been met is shredding. Any shredding completed by a third-party is conducted in accordance with an agreement between the shredding company and OCWA.

The authorized method for disposal of electronic documents and records after the specified retention requirements have been met is deleting.

- 3.9 QEMS documents and records are retained in accordance with applicable regulations and legal instruments. Relevant regulatory and corporate minimum retention periods are as follows:

Type of Document/Record	Minimum Retention Time	Requirement Reference
Operational Plan (OP-01 to OP-21 and appendices, including Schedule "C" – Subject System Description Form) FEP Long term forecast of major infrastructure maintenance, rehabilitation and renewal activities Sampling plan/schedule/ calendar	10 years	Director's Direction under SDWA
Internal QEMS Audit Results	10 years	OCWA Requirement
External QEMS Audit Results	10 years	OCWA Requirement
Management Review Documentation	10 years	OCWA Requirement
Documents/records required to demonstrate conformance with the DWQMS (specifically documents/records listed in OP-05A)	3 years*if no specified legislative requirement identified in this table or in the facility's legal instruments *	OCWA Requirement
Log Books or other record-keeping mechanisms	5 years	O. Reg. 128/04
Training Records for water operators and water quality analysts	5 years	O. Reg. 128/04
Operational checks, sampling and testing (e.g., chlorine residuals, turbidity, fluoride, sampling records), microbiological sampling and testing and chain of custody	2 years	O. Reg. 170/03

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-05 Rev Date: 2026-01-31 Rev No: 0 Pages: 4 of 5
DOCUMENT AND RECORDS CONTROL		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

Type of Document/Record	Minimum Retention Time	Requirement Reference
Schedule 23 & 24 sampling, chain of custodies and test results	6 years LMR	O. Reg. 170.03
THM, HAA, nitrates, nitrites and lead program (including pH and alkalinity) sampling, chain of custodies, and test results, Section 11 Annual Reports and Schedule 22 Summary Reports	6 years	O. Reg. 170/03
Sodium sampling, chain of custody and test results and related corrective action records/reports, 60 month fluoride sampling, chain of custody and test results (if the system doesn't fluoridate), Engineering Reports, GUDI/Non-GUDI Reports	15 years	O. Reg. 170/03
Corrective action records/reports for E. Coli, Total Coliforms and bacterial species	2 years	O. Reg. 170/03
Corrective action records/reports for chemical and radiological parameters under SDWA O. Reg. 169/03, pesticides not listed under O. Reg. 169/03 and health-related parameters in an order or approval	6 years LMR	O. Reg. 170/03
Flow Meter Calibration Records, Analyzer Calibration Reports Maintenance Records/Work Orders	2 years	O. Reg. 170/03
Records required by or created in accordance with the Municipal Drinking Water Licence (MDWL) or Drinking Water Works Permit (DWWP). Except records specifically referenced in O. Reg. 170/03 or otherwise specified in the MDWL or DWWP.	5 years	MDWL
Ministry forms referenced in the DWWP, including Form 1, Form 2, Form 3 and Director Notifications (applies to forms that have been completed by OCWA as the authorized by the owner)	10 years	DWWP

3.10 The Operational Plan is reviewed for currency by the QEMS Representative during internal/external audit and Management Review processes. Other QEMS-related documents are reviewed as per the frequencies set out in this Operational Plan or as significant changes (e.g., changes in regulatory requirements, corporate policies or operational processes and/or equipment, etc.) occur. QEMS documents and records are reviewed for evidence of control during each internal system audit as per OP-19 Internal QEMS Audits.

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-05 Rev Date: 2026-01-31 Rev No: 0 Pages: 5 of 5
DOCUMENT AND RECORDS CONTROL		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

4. Related Documents

OP-05A Document and Records Control Locations
 OP-19 Internal QEMS Audits
 OP-20 Management Review Minutes

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued - Previous OP versions were separate for each drinking water system

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Doc: OP-05A Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 3
DOCUMENT AND RECORDS CONTROL LOCATIONS		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

Designated locations for documents and records required by OCWA's QEMS

Type of Document/Record	Designated Document Control Location (HC = Hardcopy, E = Electronic)
Internal QEMS Documents	
Operational Plan (OP-01 to OP-21 and appendices, including Schedule "C" – Subject System Description Form)	E - Local Server (EAPWSS) SharePoint HC - At the EMPS in Control Room and at the EAPWSS facility in Control Room
QEMS Policy	E - OCWA Corporate SharePoint site HC - Posted at the EMPS and at the EAPWSS facility
Facility Emergency Plans	E - Local Server (EAPWSS) SharePoint HC - At the EMPS in Control Room and at the EAPWSS facility in Control Room
Corporate Emergency Response Plan (CERP)	E - OCWA Corporate SharePoint site HC - At the EMPS in Control Room and at the EAPWSS facility in Control Room
Standard Operating Procedures (referenced in Operational Plan and QEMS Procedures)	E - Local Server (EAPWSS) SharePoint
Laboratory Manual	HC - at the EAPWSS facility in the lab
Essential Supplies & Services List	E - RWS SharePoint HC - At the EMPS in Control Room and at the EAPWSS facility in Control Room
Shift/Vacation Schedule	E - Local Server (EAPWSS) SharePoint
On-call Schedule	E - Local Server (EAPWSS) SharePoint
Round Sheet Form	E - Local Server (EAPWSS) SharePoint
Complaint Form	E - EF-ADMIN-1000 Complaint Form.docx
Sampling Schedule/Plan/Calendar	E - Local Server (EAPWSS) SharePoint & RWS SharePoint
Chain of Custody Forms	E - Local Server (EAPWSS) SharePoint
External QEMS Documents	
Maintenance/equipment manuals	HC - At the EMPS and at the EAPWSS facility
Engineering schematics/plans/drawings	HC - At the EMPS and at the EAPWSS facility
Municipal Drinking Water Licence	E - Local Server (EAPWSS) SharePoint
Drinking Water Works Permit	E - Local Server (EAPWSS) SharePoint
Operator certificates	E - Local Server (EAPWSS) SharePoint HC - At the EMPS and at the EAPWSS facility
AWWA Standards	E - \\ocwfilecorp\Everyone\PCTAWWA Standards
Ontario's Watermain Disinfection Procedure	E - https://www.ontario.ca
DWQMS Standard	E - https://www.ontario.ca/page/ontarios-drinking-water-quality-management-standard-pocket-guide
ANSI/NSF product registration documentation for Chemicals/Materials Used	E - Local Server (EAPWSS) SharePoint
Applicable federal and provincial legislation and municipal by-laws	Provincial Online at www.e-laws.gov.on.ca

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Doc: OP-05A Rev Date: 2026-01-31 Rev No: 0 Pages: 2 of 3
DOCUMENT AND RECORDS CONTROL LOCATIONS		
Reviewed by: SPC Manager		Approved by: Senior Operations Manager
	Federal online at www.laws.justice.gc.ca	
Source Water Protection Plan	E - Source Water Protection	
QEMS Records		
Facility Operations Logbook(s)	E - eRIS website - https://ocwa.eriscloud.com HC – At the EAPWSS facility (back up)	
Visitor's Log	HC – At the EMPS	
Operator training records	HC – At the EAPWSS facility E – maintained in OCWA's Training Summary database	
Maintenance records	E – maintained in WMS	
Maintenance Reports (Third Party)	E - Local Server (EAPWSS) SharePoint	
Internal Calibration records	E - Local Server (EAPWSS) SharePoint	
External Calibration records	E - Local Server (EAPWSS) SharePoint	
Chain Custodies	E - Local Server (EAPWSS) SharePoint	
Laboratory analyses	E - Local Server (EAPWSS) SharePoint	
Additional Sampling records	E - Local Server (EAPWSS) SharePoint	
In-house lab results	E - Local Server (EAPWSS) SharePoint	
SCADA Records (Plant SCADA, Client Owned)	E - Local Server (EAPWSS) SharePoint	
Internal QEMS audit reports	E - Local Server (EAPWSS) SharePoint	
External audit	E - Local Server (EAPWSS) SharePoint	
Ministry Inspection Reports	E - Local Server (EAPWSS) SharePoint	
Management Review documentation	E - Local Server (EAPWSS) SharePoint	
Action Plan records (Preventive/Corrective) /Action Plan Summary Spreadsheet (Preventive/Corrective records	E - Local Server (EAPWSS) SharePoint	
Internal QEMS Communications	E - Local Server (EAPWSS) SharePoint	
External QEMS Communications (including essential suppliers and service providers)	E - Local Server (EAPWSS) SharePoint	
Annual Reports	E – Local Server (EAPWSS) SharePoint	
Summary Reports for Municipalities	E – Local Server (EAPWSS) SharePoint	
AWQI Reports	E – Local Server (EAPWSS) SharePoint	
Infrastructure review (capital/maintenance works recommendations)	E – Local Server (EAPWSS) SharePoint	
Community complaint Records	E – Local Server (EAPWSS) SharePoint	
Call Back Reports	E – maintained in WMS	
Results of emergency test exercises/emergency response debriefs	E – Local Server (EAPWSS) SharePoint	
Ministry forms referenced in the Drinking Water Works Permit, including Form 1, Form 2, Form 3 and Director Notifications (applies to forms that have been completed by OCWA as the authorized by the owner)	E – Local Server (EAPWSS) SharePoint	

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Doc: OP-05A Rev Date: 2026-01-31 Rev No: 0 Pages: 3 of 3
DOCUMENT AND RECORDS CONTROL LOCATIONS		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Appendix issued - Previous OP versions were separate for each drinking water system. Added Maintenance Reports (Third Party) to documents and record control.

	OPERATIONAL PLAN EMPS-London Portion	QEMS Proc.: OP-06A Rev Date: 2026-01-31 Rev No: 6 Pages: 1 of 5
DRINKING WATER SYSTEM		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To document the following for the EMPS-London Portion:

- The name of the Owner and Operating Authority; and
- Provide a description of the system, including all applicable water sources, treatment system processes and distribution system components.

2. Definitions

Distribution System - means the part of a drinking water system that is used in the distribution, storage or supply of water and that is not part of a treatment system.

Primary Disinfection - means a process or series of processes intended to remove or inactivate human pathogens such as viruses, bacteria and protozoa in water.

Secondary Disinfection - means a process or series of processes intended to provide and maintain a disinfectant residual in a drinking water system's distribution system, and in plumbing connected to the distribution system, for the purposes of:

- (a) protecting water from microbiological re-contamination;
- (b) reducing bacterial regrowth;
- (c) controlling biofilm formation;
- (d) serving as an indicator of distribution system integrity; and

includes the use of disinfectant residuals from primary disinfection to provide and maintain a disinfectant residual in a drinking water system's distribution system for the purposes described in clauses (a) to (d).

Treatment System - means any part of a drinking water system that is used in relation to the treatment of water and includes,

- (a) any thing that conveys or stores water and is part of a treatment process, including any treatment equipment installed in plumbing,
- (b) any thing related to the management of residue from the treatment process or the management of the discharge of a substance into the natural environment from the system, and
- (c) a well or intake that serves as the source or entry point of raw water supply for the system;

3. Procedure

3.1 Drinking Water System Overview

The Elgin Middlesex Pumping Station (EMPS) is located at 490 South Edgeware Road, northeast of the City of St. Thomas in the Municipality of Central Elgin. The EMPS relies upon the Elgin Area Primary Water Supply System (EAPWSS) to ensure the provision of safe drinking water through the terminal reservoir located at 490 South Edgeware Road.. The EAPWSS is owned by the EAPWSS Joint Board of Management. The reservoir supplies water directly to three drinking water systems: the Aylmer Area Secondary Water

	OPERATIONAL PLAN EMPS-London Portion	QEMS Proc.: OP-06A Rev Date: 2026-01-31 Rev No: 6 Pages: 2 of 5
DRINKING WATER SYSTEM		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

Supply System (AASWSS), the City of London Distribution System, and the St. Thomas Area Secondary Water Supply System (STASWSS).

Owners and Operating Authorities for associated systems:

Distribution System	Owner	Operating Authority
Elgin Area Primary Water Supply System	Elgin Area Primary Water Supply System Joint Board of Management	OCWA-Huron Elgin Region
Aylmer Area Secondary Water Supply System	Aylmer Area Secondary Water Supply System Joint Board of Management	OCWA-Southwest Region
City of London Water System	City of London	City of London
St. Thomas Area Secondary Water Supply System	St. Thomas Area Secondary Water Supply System Joint Board of Management	City of St. Thomas

The EMPS is operated and monitored by the EAPWSS Operating Authority (OCWA) at the Water Treatment Plant.

Operational Challenges

SCADA Communications from the EMPS to the remote system sites are prone to dropping out during extreme weather events. During such communication failures, the system automatically switches to operate on system pressure rather than tower levels. During extended communication failures, Operations staff follows the SCADA Communications Failure SOP (EMPS-SOP-4).

3.2 Source Water

The water feeding into the EMPS London Portion originates from Lake Erie and is treated and pumped to the Elgin-Middlesex Pumping Station from the EAPWSS Water Treatment Plant, which provides safe potable water that meets all regulatory requirements. The EAPWSS Water Treatment Plant is situated near Port Stanley on the north shore of Lake Erie. It is a surface water conventional treatment facility with a treatment capacity of 91 million litres per day.

Lake Erie raw water is consistently positive for microbiological content. However, the water is treated effectively using conventional processes to produce water meeting Ontario Drinking-Water Quality Standards.

Great Lakes water is considered to pose lower risk for the formation of disinfection by-products (DBP's). The EAPWSS water treatment plant analyzes the treated water directed to the EMPS, in accordance with applicable legislation and includes Dissolved Organic Carbon, an indicator for DBPs and distribution water for Trihalomethanes (THM) and Haloacetic Acids (HAA), the most common DBP's.

	OPERATIONAL PLAN EMPS-London Portion	QEMS Proc.: OP-06A Rev Date: 2026-01-31 Rev No: 6 Pages: 3 of 5
DRINKING WATER SYSTEM		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

Emerging algal toxins are a potential operational challenge. Standard operating procedures have been developed to assist operations in dealing with operational challenges.

The EAPWSS supplies water to the EMPS-London portion that is both primary and secondary disinfected. The EMPS-London Portion relies on the EAPWSS to provide the necessary critical upstream treatment process, sampling and monitoring to ensure safe drinking water is supplied to the system. There are no critical downstream process processes relied upon to provide safe drinking water from the EMPS-London Portion. The targeted chlorine residual leaving the water treatment plant is 1.20mg/L during the warmer summer months and 1.00mg/L during the colder winter months. The operator at the EAPWSS monitors the chlorine residual entering valve house at the terminal reservoir. The residual is also monitored as the water leaves the EMPS-London portion to the City of London Distribution System.

3.3 Description of the Distribution System Components

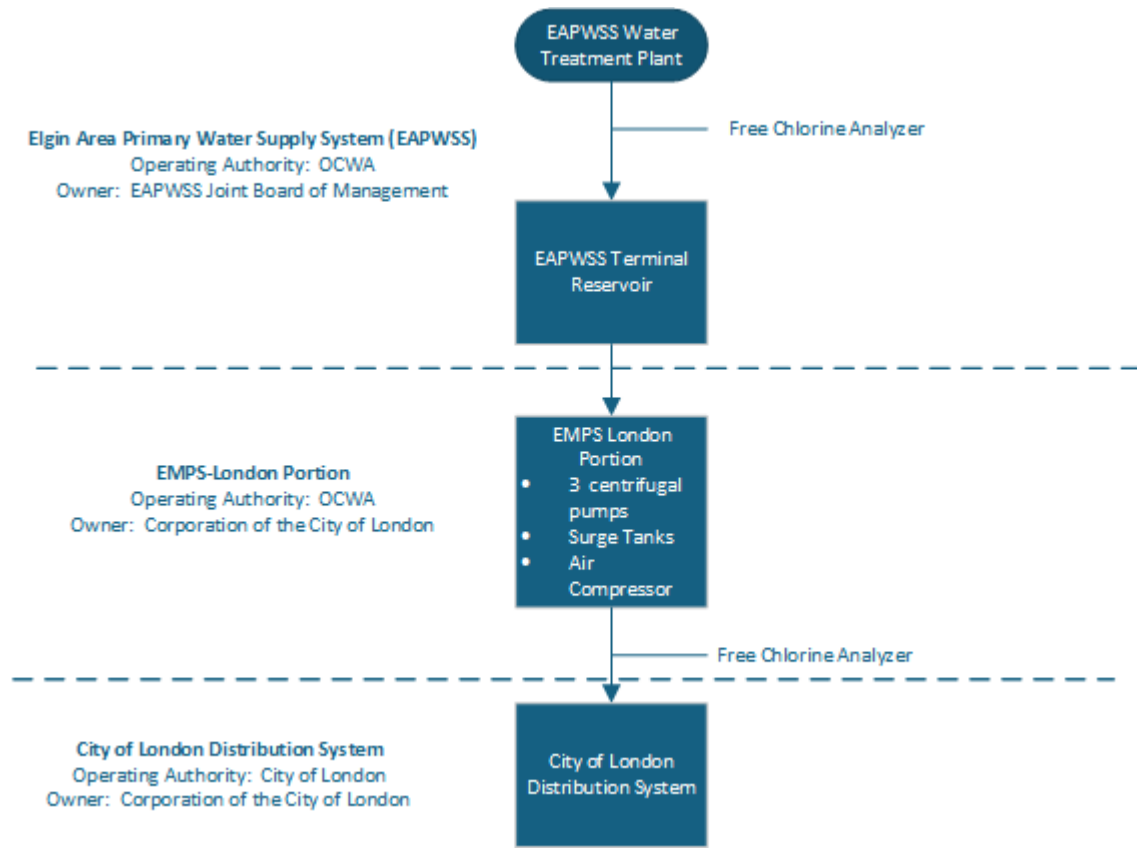
The portion of the EMPS owned by the Corporation of the City of London consists of the following:

- Piping specific to the London pump trains downstream of the pump isolation valve
- Three (3) centrifugal pumps
- One (1) hydro pneumatic surge tank with two (2) air compressors
- One (1) chlorine analyzer
- Piping, electrical, mechanical, instrumentation and SCADA controls

The chlorine analyzer monitors the secondary disinfection residual that is being provided to the City of London Distribution System. Should there be any issues with maintaining secondary disinfection corrective action is taken following EMPS-SOP-03.

3.4 System Components Flow Chart

	OPERATIONAL PLAN EMPS-London Portion	QEMS Proc.: OP-06A Rev Date: 2026-01-31 Rev No: 6 Pages: 4 of 5
DRINKING WATER SYSTEM		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	



4. Related Documents

EMPS-SOP-03: Secondary Disinfection
 EMPS-SOP-04: SCADA Communication Failure

5. Revision History

Date	Revision #	Reason for Revision
2018-07-12	0	Procedure issued – Information within OP-06 was originally set out in the Main body of OCWA's Operational Plan (last revision #6 dated 2016-06-25).
2018-11-22	1	Updated section 3.1 and 3.2 to include information specific to the EMPS London and City of London distribution system.
2019-12-10	2	Added section 3.3 Description of the Distribution System Components. Process for maintaining disinfection residuals
2021-09-09	3	Updated raw water characteristics table with 2020 data in section 3.2
2025-05-02	4	Updated raw water characteristics table with 2024 data in section 3.2.
2025-07-30	5	Clarify where primary and secondary disinfection is met.

 Ontario Clean Water Agency	OPERATIONAL PLAN EMPS-London Portion	QEMS Proc.: OP-06A Rev Date: 2026-01-31 Rev No: 6 Pages: 5 of 5
DRINKING WATER SYSTEM		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

2026-01-31	6	Revise to identify new procedure number with combine OP. Remove raw water characteristics. Update flow chart with analyzer locations.
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	OPERATIONAL PLAN EMPS-St. Thomas Portion	QEMS Proc.: OP-06B Rev Date: 2026-01-31 Rev No: 5 Pages: 1 of 4
DRINKING WATER SYSTEM		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To document the following for the EMPS-St. Thomas Portion:

- The name of the Owner and Operating Authority; and
- Provide a description of the system, including all applicable water sources, treatment system processes and distribution system components.

2. Definitions

Distribution System - means the part of a drinking water system that is used in the distribution, storage or supply of water and that is not part of a treatment system.

Primary Disinfection - means a process or series of processes intended to remove or inactivate human pathogens such as viruses, bacteria and protozoa in water.

Secondary Disinfection - means a process or series of processes intended to provide and maintain a disinfectant residual in a drinking water system's distribution system, and in plumbing connected to the distribution system, for the purposes of:

- (a) protecting water from microbiological re-contamination;
- (b) reducing bacterial regrowth;
- (c) controlling biofilm formation;
- (d) serving as an indicator of distribution system integrity; and

includes the use of disinfectant residuals from primary disinfection to provide and maintain a disinfectant residual in a drinking water system's distribution system for the purposes described in clauses (a) to (d).

Treatment System - means any part of a drinking water system that is used in relation to the treatment of water and includes,

- (a) any thing that conveys or stores water and is part of a treatment process, including any treatment equipment installed in plumbing,
- (b) any thing related to the management of residue from the treatment process or the management of the discharge of a substance into the natural environment from the system, and
- (c) a well or intake that serves as the source or entry point of raw water supply for the system;

3. Procedure

3.1 Drinking Water System Overview

The Elgin Middlesex Pumping Station (EMPS) is located at 490 South Edgeware Road, northeast of the City of St. Thomas in the Municipality of Central Elgin. The EMPS relies upon the Elgin Area Primary Water Supply System (EAPWSS) to ensure the provision of safe drinking water through the terminal reservoir located at 490 South Edgeware Road.. The EAPWSS is owned by the EAPWSS Joint Board of Management. The reservoir supplies water directly to three drinking water systems: the Aylmer Area Secondary Water

	OPERATIONAL PLAN EMPS-St. Thomas Portion	QEMS Proc.: OP-06B Rev Date: 2026-01-31 Rev No: 5 Pages: 2 of 4
DRINKING WATER SYSTEM		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

Supply System (AASWSS), the City of London Distribution System, and the St. Thomas Area Secondary Water Supply System (STASWSS).

Owners and Operating Authorities for associated systems:

Distribution System	Owner	Operating Authority
Elgin Area Primary Water Supply System	Elgin Area Primary Water Supply System Joint Board of Management	OCWA-Huron Elgin Region
Aylmer Area Secondary Water Supply System	Aylmer Area Secondary Water Supply System Joint Board of Management	OCWA-Southwest Region
City of London Water System	City of London	City of London
St. Thomas Secondary Water Supply System	St. Thomas Area Secondary Water Supply System Joint Board of Management	City of St. Thomas

The EMPS is operated and monitored by the EAPWSS Operating Authority (OCWA) at the Water Treatment Plant.

Operational Challenges

SCADA Communications from the EMPS to the remote system sites are prone to dropping out during extreme weather events. During such communication failures, the system automatically switches to operate on system pressure rather than tower levels. During extended communication failures, Operations staff follows the SCADA Communications Failure SOP (EMPS-SOP-4).

3.2 Source Water

The water feeding into the EMPS St. Thomas Portion originates from Lake Erie and is treated and pumped to the Elgin-Middlesex Pumping Station from the EAPWSS Water Treatment Plant, which provides safe potable water that meets all regulatory requirements. The EAPWSS Water Treatment Plant is situated near Port Stanley on the north shore of Lake Erie. It is a surface water conventional treatment facility with a treatment capacity of 91 million litres per day.

Lake Erie raw water is consistently positive for microbiological content. However, the water is treated effectively using conventional processes to produce water meeting Ontario Drinking-Water Quality Standards.

Great Lakes water is considered to pose lower risk for the formation of disinfection by-products (DBP's). The EAPWSS water treatment plant analyzes the treated water directed to the EMPS, in accordance with applicable legislation and includes Dissolved Organic Carbon, an indicator for DBPs and distribution water for Trihalomethanes (THM) and Haloacetic Acids (HAA), the most common DBP's.

	OPERATIONAL PLAN EMPS-St. Thomas Portion	QEMS Proc.: OP-06B Rev Date: 2026-01-31 Rev No: 5 Pages: 3 of 4
DRINKING WATER SYSTEM		
Reviewed by: SPC Manager		Approved by: Senior Operations Manager

Emerging algal toxins are a potential operational challenge. Standard operating procedures have been developed to assist operations in dealing with operational challenges.

The EAPWSS supplies water to the EMPS-St. Thomas portion that is both primary and secondary disinfected. The EMPS-St. Thomas Portion relies on the EAPWSS to provide the necessary critical upstream treatment process, sampling and monitoring to ensure safe drinking water is supplied to the system. There are no critical downstream process processes relied upon to provide safe drinking water from the EMPS-St. Thomas Portion. The targeted chlorine residual leaving the water treatment plant is 1.20mg/L during the warmer summer months and 1.00mg/L during the colder winter months. The operator at the EAPWSS monitors the chlorine residual entering valve house at the terminal reservoir. The residual is also monitored as the water leaves the EMPS-St. Thomas portion to the STASWSS.

3.3 Description of the Distribution System Components

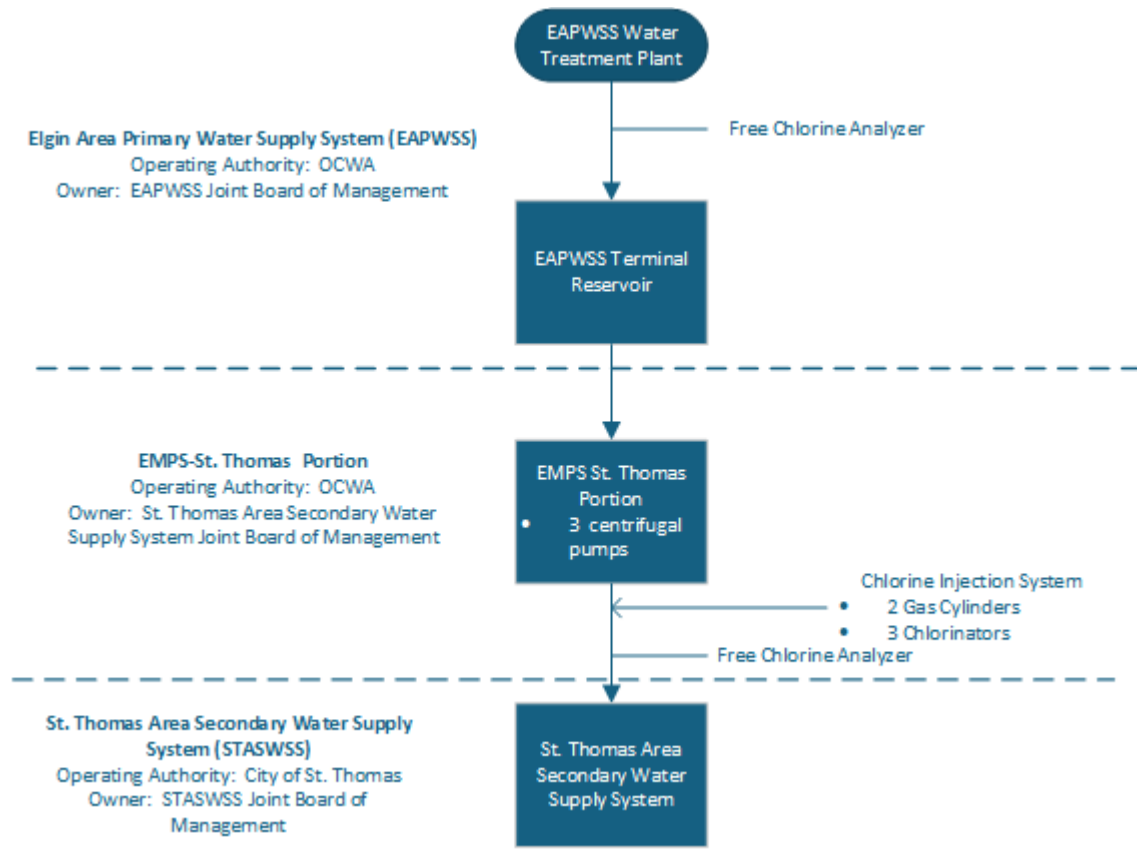
The portion of the EMPS owned by the STASWSS Joint Board of Management consists of the following:

- Piping specific to the St. Thomas pumps is from the suction inlet valve to the East Chamber.
- Three (3) variable speed centrifugal pumps
- One 600 kW emergency diesel generator (shared with Aylmer Area Secondary Water Supply System)
- Rechlorination system using chlorine gas (shared with Aylmer Area Secondary Water Supply System)
- One (1) Chlorine Analyzer
- Piping, electrical, mechanical, instrumentation, and SCADA/PLC controls

The chlorine analyzer monitors the secondary disinfection residual that is being provided to the STASWSS. Should there be any issues with maintaining secondary disinfection corrective action is taken following EMPS-SOP-03.

3.4 System Components Flow Chart

 Ontario Clean Water Agency	OPERATIONAL PLAN EMPS-St. Thomas Portion	QEMS Proc.: OP-06B Rev Date: 2026-01-31 Rev No: 5 Pages: 4 of 4
DRINKING WATER SYSTEM		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	



4. \Related Documents

EMPS-SOP-03: Secondary Disinfection
 EMPS-SOP-04: SCADA Communication Failure

5. Revision History

Date	Revision #	Reason for Revision
2018-07-11	0	Procedure issued – Information within OP-06 was originally set out in the Main body of OCWA's Operational Plan (last revision #6 dated 2016-06-25).
2018-11-22	1	Updated section 3.1 and 3.2 to include information specific to the EMPS St. Thomas and STASWSS.
2021-09-09	2	Updated raw water characteristics table with 2020 data in section 3.2
2025-05-02	3	Updated raw water characteristics table with 2024 data in section 3.2.
2025-07-25	4	Clarify where primary and secondary disinfection is met.
2026-01-31	5	Revise to identify new procedure number with combine OP. Remove raw water characteristics. Update flow chart with analyzer locations.

	OPERATIONAL PLAN EMPS-Aylmer Portion	QEMS Proc.: OP-06C Rev Date: 2026-01-31 Rev No: 4 Pages: 1 of 4
DRINKING WATER SYSTEM		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To document the following for the EMPS-Aylmer Portion:

- The name of the Owner and Operating Authority; and
- Provide a description of the system, including all applicable water sources, treatment system processes and distribution system components.

2. Definitions

Distribution System - means the part of a drinking water system that is used in the distribution, storage or supply of water and that is not part of a treatment system.

Primary Disinfection - means a process or series of processes intended to remove or inactivate human pathogens such as viruses, bacteria and protozoa in water.

Secondary Disinfection - means a process or series of processes intended to provide and maintain a disinfectant residual in a drinking water system's distribution system, and in plumbing connected to the distribution system, for the purposes of:

- (a) protecting water from microbiological re-contamination;
- (b) reducing bacterial regrowth;
- (c) controlling biofilm formation;
- (d) serving as an indicator of distribution system integrity; and

includes the use of disinfectant residuals from primary disinfection to provide and maintain a disinfectant residual in a drinking water system's distribution system for the purposes described in clauses (a) to (d).

Treatment System - means any part of a drinking water system that is used in relation to the treatment of water and includes,

- (a) any thing that conveys or stores water and is part of a treatment process, including any treatment equipment installed in plumbing,
- (b) any thing related to the management of residue from the treatment process or the management of the discharge of a substance into the natural environment from the system, and
- (c) a well or intake that serves as the source or entry point of raw water supply for the system;

3. Procedure

3.1 Drinking Water System Overview

The Elgin Middlesex Pumping Station (EMPS) is located at 490 South Edgeware Road, northeast of the City of St. Thomas in the Municipality of Central Elgin. The EMPS relies upon the Elgin Area Primary Water Supply System (EAPWSS) to ensure the provision of safe drinking water through the terminal reservoir located at 490 South Edgeware Road.. The EAPWSS is owned by the EAPWSS Joint Board of Management. The reservoir supplies water directly to three drinking water systems: the Aylmer Area Secondary Water

	OPERATIONAL PLAN EMPS-Aylmer Portion	QEMS Proc.: OP-06C Rev Date: 2026-01-31 Rev No: 4 Pages: 2 of 4
DRINKING WATER SYSTEM		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

Supply System (AASWSS), the City of London Distribution System, and the St. Thomas Area Secondary Water Supply System (STASWSS).

Owners and Operating Authorities for associated systems:

Distribution System	Owner	Operating Authority
Elgin Area Primary Water Supply System	Elgin Area Primary Water Supply System Joint Board of Management	OCWA-Huron Elgin Region
Aylmer Area Secondary Water Supply System	Aylmer Area Secondary Water Supply System Joint Board of Management	OCWA-Southwest Region
City of London Water System	City of London	City of London
St. Thomas Area Secondary Water Supply System	St. Thomas Area Secondary Water Supply System Joint Board of Management	City of St. Thomas

The EMPS is operated and monitored by the EAPWSS Operating Authority (OCWA) at the Water Treatment Plant.

Operational Challenges

SCADA Communications from the EMPS to the remote system sites are prone to dropping out during extreme weather events. During such communication failures, the system automatically switches to operate on system pressure rather than tower levels. During extended communication failures, Operations staff follows the SCADA Communications Failure SOP (EMPS-SOP-4).

3.2 Source Water

The water feeding into the EMPS Aylmer Portion originates from Lake Erie and is treated and pumped to the Elgin-Middlesex Pumping Station from the EAPWSS Water Treatment Plant, which provides safe potable water that meets all regulatory requirements. The EAPWSS Water Treatment Plant is situated near Port Stanley on the north shore of Lake Erie. It is a surface water conventional treatment facility with a treatment capacity of 91 million litres per day.

Lake Erie raw water is consistently positive for microbiological content. However, the water is treated effectively using conventional processes to produce water meeting Ontario Drinking-Water Quality Standards.

Great Lakes water is considered to pose lower risk for the formation of disinfection by-products (DBP's). The EAPWSS water treatment plant analyzes the treated water directed to the EMPS, in accordance with applicable legislation and includes Dissolved Organic Carbon, an indicator for DBPs and distribution water for Trihalomethanes (THM) and Haloacetic Acids (HAA), the most common DBP's.

	OPERATIONAL PLAN EMPS-Aylmer Portion	QEMS Proc.: OP-06C Rev Date: 2026-01-31 Rev No: 4 Pages: 3 of 4
DRINKING WATER SYSTEM		
Reviewed by: SPC Manager		Approved by: Senior Operations Manager

Emerging algal toxins are a potential operational challenge. Standard operating procedures have been developed to assist operations in dealing with operational challenges.

The EAPWSS supplies water to the EMPS-Aylmer portion that is both primary and secondary disinfected. The EMPS-Aylmer Portion relies on the EAPWSS to provide the necessary critical upstream treatment process, sampling and monitoring to ensure safe drinking water is supplied to the system. There are no critical downstream process processes relied upon to provide safe drinking water from the EMPS-Aylmer Portion. The targeted chlorine residual leaving the water treatment plant is 1.20mg/L during the warmer summer months and 1.00mg/L during the colder winter months. The operator at the EAPWSS monitors the chlorine residual entering valve house at the terminal reservoir. The residual is also monitored as the water leaves the EMPS-Aylmer portion to the AASWSS.

3.3 Description of the Distribution System Components

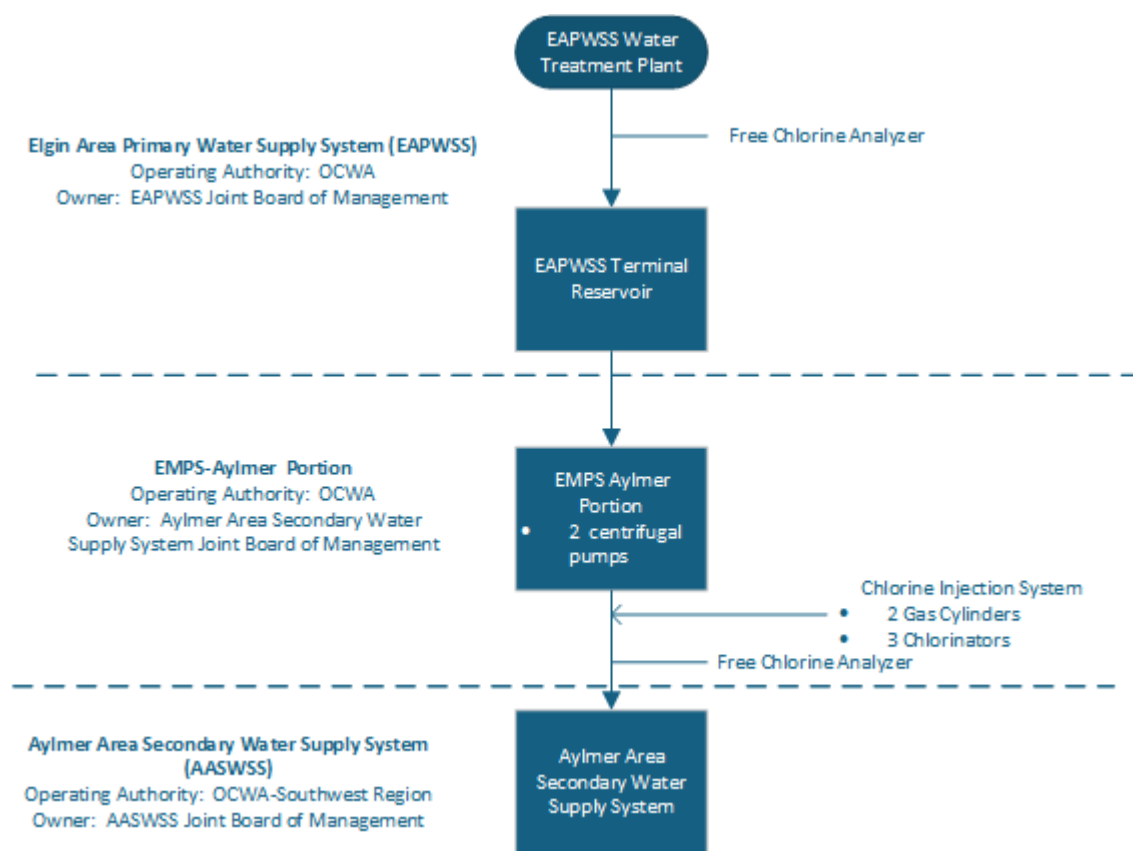
The portion of the EMPS owned by the AASWSS Joint Board of Management consists of the following:

- Piping specific to the Aylmer pump trains downstream of the pump isolation valve.
- Two (2) variable speed centrifugal pumps
- One 600 kW emergency diesel generator (shared with St. Thomas Area Secondary Water Supply System)
- Rechlorination system using chlorine gas (shared with St. Thomas Area Secondary Water Supply System)
- One (1) Chlorine Analyzer
- Piping, electrical, mechanical, instrumentation, and SCADA/PLC controls

The chlorine analyzer monitors the secondary disinfection residual that is being provided to the AASWSS. Should there be any issues with maintaining secondary disinfection corrective action is taken following EMPS-SOP-03.

3.4 System Components Flow Chart

 Ontario Clean Water Agency	OPERATIONAL PLAN EMPS-Aylmer Portion	QEMS Proc.: OP-06C Rev Date: 2026-01-31 Rev No: 4 Pages: 4 of 4
DRINKING WATER SYSTEM		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	



4. Related Documents

EMPS-SOP-03: Secondary Disinfection
 EMPS-SOP-04: SCADA Communication Failure

5. Revision History

Date	Revision #	Reason for Revision
2018-07-09	0	Procedure issued – Information within OP-06 was originally set out in the Main body of OCWA's Operational Plan (last revision #6 dated 2016-06-25).
2021-09-09	1	Updated raw water characteristics table with 2020 data in section 3.2
2025-05-02	2	Updated raw water characteristics table with 2024 data in section 3.2.
2025-07-25	3	Clarify where primary and secondary disinfection is met.
2026-01-31	4	Revise to identify new procedure number with combine OP. Remove raw water characteristics. Update flow chart with analyzer locations.

	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-07 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 4
RISK ASSESSMENT		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To document the process for conducting a risk assessment to identify and assess potential hazardous events and associated hazards that could affect drinking water safety.

2. Definitions

Consequence – the potential impact to public health and/or operation of the drinking water system if a hazard/hazardous event is not controlled

Control Measure – includes any processes, physical steps or other practices that have been put in place at a drinking water system to prevent or reduce a hazard before it occurs

Critical Control Point (CCP) – An essential step or point in the subject system at which control can be applied by the Operating Authority to prevent or eliminate a drinking water health hazard or reduce it to an acceptable level

Drinking Water Health Hazard – means, in respect of a drinking water system,

- a) a condition of the system or a condition associated with the system's waters, including any thing found in the waters,
 - i. that adversely affects, or is likely to adversely affect, the health of the users of the system,
 - ii. that deters or hinders, or is likely to deter or hinder, the prevention or suppression of disease, or
 - iii. that endangers or is likely to endanger public health,
- b) a prescribed condition of the drinking water system, or
- c) a prescribed condition associated with the system's waters or the presence of a prescribed thing in the waters

Hazardous Event – an incident or situation that can lead to the presence of a hazard

Hazard – a biological, chemical, physical or radiological agent that has the potential to cause harm

Likelihood – the probability of a hazard or hazardous event occurring

3. Procedure

- 3.1 Operations Management ensures that operations personnel are assigned to conduct a risk assessment at least once every thirty-six months. At a minimum, the Risk Assessment Team must include the QEMS Representative, at least one Operator for the system and at least one member of Operations Management.
- 3.2 The QEMS Representative is responsible for coordinating the risk assessment and ensuring that documents and records related to the risk assessment activities are maintained.

	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-07 Rev Date: 2026-01-31 Rev No: 0 Pages: 2 of 4
RISK ASSESSMENT		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

3.3 The Risk Assessment Team performs the risk assessment as follows:

- 3.3.1 OP-07 Risk Assessment and OP-08 Risk Assessment Outcomes are reviewed.
- 3.3.2 For each of the system's activities/process steps, potential hazardous events and associated hazards (possible outcomes) that could impact the system's ability to deliver safe drinking water are identified. At a minimum, potential hazardous events and associated hazard as identified in the most current version of the Ministry document titled "Potential Hazardous Events for Municipal Residential Drinking Water Systems" (as applicable to the system type) must be considered.
- 3.3.3 For each of the hazardous events, control measures currently in place at the system to eliminate the hazard or prevent it from becoming a threat to public health are specified. Control measures may include alarms, monitoring procedures, SOPs/contingency plans, preventive maintenance activities, backup equipment, engineering controls, etc.
- 3.3.4 To ensure that potential drinking water health hazards are addressed and minimum treatment requirements as regulated by SDWA O. Reg. 170/03 and the Ministry's "Procedure for Disinfection of Drinking Water in Ontario" (as amended) are met, OCWA has established mandatory Critical Control Points (CCPs).

As a minimum, the following must be included as CCPs (as applicable):

- Equipment or processes required to achieve primary disinfection (e.g., chemical and/or UV disinfection system, coagulant dosing system, filters, etc.)
 - Equipment or processes necessary for maintaining secondary disinfection in the distribution system
 - Fluoridation system
- 3.3.5 Additional CCPs for the system are determined by evaluating and ranking the hazardous events for the remaining activities/process steps (i.e., those not included as OCWA's minimum CCPs).
- 3.3.6 Taking into consideration existing control measures (including the reliability and redundancy of equipment), each hazardous event is assigned a value for the likelihood and a value for the consequence of that event occurring based on the following criteria:

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Value	Likelihood of Hazardous Event Occurring
1	Rare – Estimated to occur every 50 years or more (usually no documented occurrence at site)
2	Unlikely – Estimated to occur in the range of 10 – 49 years
3	Possible – Estimated to occur in the range of 1 – 9 years
4	Likely – Occurs monthly to annually
5	Certain – Occurs monthly or more frequently

Value	Consequence of Hazardous Event Occurring
1	Insignificant – Little or no disruption to normal operations, no impact on public health
2	Minor – Significant modification to normal operations but manageable, no impact on public health
3	Moderate – Potentially reportable, corrective action required, potential public health impact, disruption to operations is manageable
4	Major – Reportable, system significantly compromised and abnormal operations if at all, high level of monitoring and corrective action required, threat to public health
5	Catastrophic – Complete failure of system, water unsuitable for consumption

The likelihood and consequence values are multiplied to determine the risk value (ranking) of each hazardous event. Hazardous events with a ranking of 12 or greater are considered high risk.

3.3.7 Hazardous events and rankings are reviewed and any activity/process step is identified as an additional CCP if all of the following criteria are met:

- ✓ The associated hazardous event has a ranking of 12 or greater;
- ✓ The associated hazardous event can be controlled through control measure(s);
- ✓ Operation of the control measures can be monitored and corrective actions can be applied in a timely fashion;
- ✓ Specific control limits can be established for the control measure(s); and
- ✓ Failure of the control measures would lead to immediate notification of Medical Officer of Health (MOH) or Ministry or both.

3.4 The outcomes of the risk assessment are documented as per OP-08 Risk Assessment Outcomes.

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3.5 At least once every calendar year, the QEMS Representative facilitates the verification of the currency of the information and the validity of the assumptions used in the risk assessment in preparation for the Management Review (OP-20). When performing this review, the following may be considered:

- Process/equipment changes
- Reliability and redundancy of equipment
- Emergency situations/service interruptions
- CCP deviations
- Audit/inspection results
- Changes to the Ministry document “Potential Hazardous Events for Municipal Residential Drinking Water Systems” (as amended)

4. Related Documents

OP-08 Risk Assessment Outcomes

OP-20 Management Review

Ministry’s “Potential Hazardous Events for Municipal Residential Drinking Water Systems” (as amended)

Ministry’s “Procedure for Disinfection of Drinking Water in Ontario” (as amended)

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued - Previous OP versions were separate for each drinking water system

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1. Purpose

To document the outcomes of the risk assessment conducted as per OP-07 Risk Assessment.

2. Definitions

Critical Control Point (CCP) – An essential step or point in the subject system at which control can be applied by the Operating Authority to prevent or eliminate a drinking water health hazard or reduce it to an acceptable level

Critical Control Limit (CCL) – The point at which a Critical Control Point response procedure is initiated

3. Procedure

3.1 The QEMS Representative is responsible for updating the information in OP-08A Summary of Risk Assessment Outcomes as required.

3.2 The results of the risk assessment conducted as per OP-07 are documented in Table 1 of OP-08A. This includes:

- Identified potential hazardous events and associated hazards (possible outcomes) for each of the system's activities/process steps;
Note: Hazards listed in the Ministry's "Potential Hazardous Events for Municipal Residential Drinking Water Systems" (as amended) are indicated in the appropriate column using the reference numbers in Table 4 of OP-08A.
- Identified control measures to address the potential hazards and hazardous events; and
- Assigned rankings for the hazardous events (likelihood x consequence = risk value) and whether the hazardous event is a Critical Control Point (CCP) (mandatory or additional).
Note: If the hazardous event is ranked as 12 or higher and it is not being identified as a CCP, provide rationale as to why it does not meet the criteria set out in section 3.3.7 of OP-07).

3.3 Operations Management is responsible for ensuring that for each CCP:

- Critical Control Limits (CCLs) are set;
- Procedures and processes to monitor the CCLs are established; and
- Procedures to respond to, report and record deviations from the CCLs are implemented.

The identified CCPs, their respective CCLs and associated procedures are documented in Table 2 of OP-08A.

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3.4 A summary of the results of the annual review/36-month risk assessment is recorded in Table 3 of OP-08A.

3.5 Operations Management considers the risk assessment outcomes during the review of the adequacy of the infrastructure (Refer to OP-14 Review and Provision of Infrastructure).

4. Related Documents

OP-07 Risk Assessment

OP-08A Summary of Risk Assessment Outcomes

OP-14 Review and Provision of Infrastructure

Ministry's "Potential Hazardous Events for Municipal Residential Drinking Water Systems" (as amended)

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued - Previous OP versions were separate for each drinking water system

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Table 1: Risk Assessment Table

Note: Processes referred to in section 3.3.4 of OP-07 Risk Assessment must be identified as mandatory Critical Control Points (CCPs) as applicable. Mandatory CCPs are not required to be ranked.

Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
Supply of Water	2,7 & 8	Loss of water supply (Sustained Pressure Loss)	Lower distribution system pressure increases potential for intrusion of chemical and microbiological contaminants (Backflow) Construction activities resulting in damage to water distribution system	Back-up pump(3) SCADA Monitoring Alarms Operator Checks Chlorine analyzer Operator Training Preventative Maintenance EMPS-SOP-02 – Pipeline Break Increase production at the Lake Huron WTP Pressure and flow transmitters alarmed and monitored via SCADA CP – 04 EMPS Loss of Service Backflow preventer - Annual testing Locates before you dig	1	3	3	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	3	Flooding in operations building (Extreme Weather)	Short Circuiting of power to equipment which can lead to one or both of the first two Hazardous events listed above	SCADA Monitoring Alarms, flood Operator Checks Operator Training Preventative Maintenance Increase production from Lake Huron WTP	1	3	3	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
				Back up sump pumps				
General Operations	3 & 4	Fire (Extreme Weather or Extreme temperatures)	Short Circuiting of power to equipment which can lead to one or both first two Hazardous events listed above	SCADA Monitoring Alarms, smoke and heat detectors Operator Checks Operator Training Preventative Maintenance EMPS-SOP-05 – Fire at the EMPS Increase production at the Lake Huron WTP	1	3	3	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	6	Unauthorized Access (Security)	Accidental or deliberate sabotage of equipment which can lead to the first two Hazardous events listed above • Vandalism • Terrorism • Contaminated Water • Equipment damage	Security Monitoring and Fencing Alarms, doors and motion sensors Operator Checks Secured Access Points (Locks) SCADA Monitoring EMPS-SOP-01 – Unauthorized Entry or vandalism CP – 06 EMPS Security Breach	3	3	9	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	NA	Adverse Water	Threat to the health of consumers Boil Water Advisory	SCADA Monitoring Operator Review of continuous Chlorine readings every 24 hours Alarms Operator Checks Operator Training Preventative Maintenance	2	4	8	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
				EMPS - Reporting of Adverse Water Quality Incidents (AWQI) Weekly Bacteriological sample CP – 05 EMPS Unsafe Water				
General Operation	NA	Communications Failure between facility and the EAPWSS main plant	Loss of controlling signals to equipment which can lead to either or both of the first two Hazardous events listed on the first page of this table. Construction activities resulting in damage to communications	EMPS-SOP-04 – SCADA Communication Failure SCADA Monitoring/Alarms Operator Checks Operator Training Preventative Maintenance On-call person dispatched to site for control monitoring Service provider SD memory cards to record analyzer data Call before you dig	4	2	8	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	NA	Pandemic, strike (loss of staff)	Staff shortage Potential Loss of water supply Potential water quality issues Loss of operations and maintenance of the EMPS Potential inability to meet regulatory requirements	Facility Emergency Plan Back-up staff from other OCWA locations Strike Management Negotiations establishing essential staff positions Regional contingency plans Pandemic specific protocols – Health Canada and Health Units Emergency Preparedness training CP – 03 EMPS Critical Shortage of Staff	2	3	6	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
General Operations	1 & 3	Severe Storm – Tornado, Ice storm, Deep freeze (Extreme Weather Events)	Loss of access to EMPS (AC). Could potentially lead to either or both of the first two Hazardous events listed on the first page of this table.	SCADA Monitoring Alarms Can operate remotely from EAPWSS plant Operator Training	3	2	6	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	NA	Operator Error	Error could potentially lead to either or both of the first two Hazardous events listed on the first page of this table.	SCADA Monitoring Alarms Operator Training SOP's O&M Manual	1	3	3	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	5	Chemical Spill	Environmental Impact Contamination of source water	CP – 01 EMPS Spill Response CP – 04 Loss of Service CP – 05 Unsafe Water The City of London has the ability to supply water from South East Reservoir Pumping Station (SERPS) EMPS Provision of an Alternate Water Source SOP	2	2	4	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	NA	Use of chemicals or water contacting materials that do not meet ANSI NSF 60 or 61 respectively	Potential for low level contamination of drinking water	Corporate Purchasing Control QEMS Procedure EMPS (OP)-13 Essential Supplies and Services Operator Training	1	2	2	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
General Operations	NA	Chlorine Residual Analyzer Failure	Loss of chlorine residual information and potential for non-compliance with regulatory requirements	SCADA Monitoring/Alarms Operator Training Operator Checks including manual grab sample chlorine residuals Preventative Maintenance Chlorine Residual from EAPWSS plant CP – 05 EMPS Unsafe Water	3	2	6	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	NA	Loss of SCADA	Loss of control of the EMP3S from Elgin WTP	- Loss of SCADA SOP - Manual run the EMPS from EMPS	2	2	4	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	13	Cybersecurity - SCADA	Disruption of SCADA preventing plant operation. Potential points of breach include remote access, links to other SCADA systems, wireless network, contractor laptops, and USB flash drives.	- Physical barriers: hardware in locked panels, conducted security awareness training; Logical barriers (software barriers): DMZ (demilitarized zone) is used to control dataflow to and from layers 0-3 (ISA/IEC-62443), firewalls limit access based on least privilege, IDS (intrusion detection system) enabled on	2	2	4	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No



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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
				firewalls to alert on malicious activity, Antivirus software is installed on all endpoints and servers, WAN communications are in encrypted tunnels, remote access requires multi-factor authentication, data is backed-up and replicated off-site daily. Software patches are applied regularly				
General Operations	13	Cybersecurity – IT Business Systems	Disruption of business operations due to compromise of business network, devices, or Office 365 system. Disruption to physical security operations at the plant. Potential reputational impact due to compromise of website or social media.	- OCWA has a robust security program to protect our business network and devices. Devices are centrally managed and patched. Devices are protected by a firewall and access barriers. Office 365 includes phishing and malware protection, file and email recovery, and multi-factor authentication for all users. Website is regularly updated and backed up by the hosting provider. Access to social media accounts is limited.	2	1	2	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
				Security awareness training is provided to staff.				

Table 2: Identified Critical Control Points (CCPs)

CCP	Critical Control Limits	Monitoring Procedures	Response, Reporting and Recording Procedures
No CCP's Identified	NONE – Secondary disinfection is maintained by regulatory and contractual requirements		

Note: Standard Operating Procedures (SOPs) referenced in Tables 1 and 2 are controlled as per OP-05 Document and Records Control.

Table 3: Record of Annual Review/36-Month Risk Assessment

The Drinking Water Quality Management Standard (DWQMS) requires that the currency of the information and the validity of the assumptions used in the risk assessment be verified at least once every calendar year. In addition, the risk assessment must be conducted at least once every thirty-six months.

Date of Activity	Type of Activity	Participants	Summary of Results
Oct 31/12	Risk Assessment conducted	R. Turnbull / C. Grimstead	Reconsidered all identified Hazards and incorporated results into OCWA corporate format style table. Removed detectability column and based risk ranking on the multiplication of the likelihood and consequence factors. Only one critical control point identified.

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Oct 31/13	Review conducted	C. Grimstead	No regulatory or process changes
Oct 3/14	Review conducted	Denny Rodrigues	No regulatory or process changes
Oct 2/15	36 Month Assessment conducted	D.Rodrigues, B.Tully and S.Flanagan	Risk assessment conducted.
Oct 7/16	Review conducted	Denny Rodrigues, Simon Flanagan and Jim Laur	No regulatory or process changes
Oct 31/17	Review Conducted	Denny Rodrigues	Added Potential Hazardous Events for Municipal Residential Drinking Water Systems
July 11, 2018	36 Month Assessment conducted	Denny Rodrigues (SPC Manager), Simon Flanagan (Senior Operations Manager), Glenn McEown (OCTL) and Jim Laur (Maintenance TL)	All Activities/Process Steps were re-assessed and new hazardous events and hazards identified (including those in the MOECC's "Potential Hazardous Events for Municipal Residential Drinking Water Systems") and ranked according to OP-07 (revision 0). Results captured in Revision 4 of this Summary of Risk Assessment Outcomes
Nov. 5, 2018	Review and update conducted	Denny Rodrigues	Updated based on external audit finding. Reviewed and updated table 1 and table 4 to reflect each other. Removed Diesel Fuel spill and loss of power, both not applicable
Nov. 15, 2018	Reviewed and update conducted	Denny Rodrigues	Added backflow to Supply of Water in Table 1 and updated Table 4 to indicate that backflow does apply to the DWS.
Nov. 21, 2018	Update conducted	Denny Rodrigues	Added chemical spill impacting source water to table 1 and updated table 4 to reflect the change. Updated table 1 & 4 – Treatment Systems and Distribution Systems providing secondary disinfection to N/A
Sept. 26, 2019	Review Conducted	Denny Rodrigues	No regulatory or process changes. Reviewed and updated SOP titles and # to reflect current SOP's
August 12, 2020	Review Conducted	Denny Rodrigues	No regulatory or process changes. Reviewed and updated Pandemic, Strike (Loss of staff) on page 3.
August 31, 2021	36 Month Assessment conducted	Denny Rodrigues (SPC Manager), Simon Flanagan (Senior Operations Manager), and Glenn McEown (OCTL)	Risk assessment conducted. Reviewed capital upgrades and major maintenance activities over the past 3 years.

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			Replaced SCADA server and installed emergency power supply to surge building. Added Loss of SCADA to Table 1
August 3, 2022	Review Conducted	Denny Rodrigues (Senior Operations Manager), Allison McCann (SPC Manager), Greg Henderson (Senior Operations Manager), and Glenn McEown (OCTL)	Added Cybersecurity – IT Business Systems & Cybersecurity – SCADA Added SD memory card to Communications Failure between facility and the EAPWSS main plant Added CP-01 EMPS Spill Response
November 15 2023	Review Conducted	Allison McCann	No regulatory or process changes.
August 21 2024	36 Month Risk Assessment Conducted	Jackie Muller (RHM), Greg Henderson (SOM), Glenn McEown (OCTL), Vas Nanu (MDTL)	Risk assessment conducted. Reviewed Capital Upgrades and major maintenance from past 3 years. Added construction activities to loss of water supply and communication. Updated scoring to multiple risks based on O&M and Capital Activities over past 3 years.
August 26, 2025	Annual Review	Cindy Sigurdson (SPC Manager)	Revise to address CAF#164 (include cyber security in table 4), add 13 to cyber security threat in column2 of table 2 and general formatting

Table 4: Potential Hazardous Event/Hazard Reference Numbers (based on latest Ministry’s “Potential Hazardous Events for Municipal Residential Drinking Water Systems”).

If the hazardous event/hazard is not applicable to this drinking water system (DWS), it will be noted in the first column of this table.

System Type (indicate all that apply to this DWS)		Reference Number	Description of Hazardous Event/Hazard
X	All Systems	1	Long Term Impacts of Climate Change
X	All Systems	2	Water supply shortfall
X	All Systems	3	Extreme weather events (e.g., tornado, ice storm)
X	All Systems	4	Sustained extreme temperatures (e.g., heat wave, deep freeze)
X	All Systems	5	Chemical spill impacting source water
X	All Systems	6	Terrorist and vandalism actions
X	Distribution Systems	7	Sustained pressure loss
X	Distribution Systems	8	Backflow
N/A	Treatment Systems	9	Sudden changes to raw water characteristics (e.g., turbidity, pH)

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N/A	Treatment Systems	10	Failure of equipment or process associated with primary disinfection (e.g., coagulant dosing system, filters, UV system, chlorination system)
N/A	Treatment Systems and Distribution Systems providing secondary disinfection	11	Failure of equipment or process associated with secondary disinfection (e.g., chlorination equipment, chloramination equipment)
N/A	Treatment Systems using Surface Water	12	Algal blooms
X	All Systems	13	Cybersecurity Threats

Revision History

Date	Revision #	Reason for Revision
2012-10-31	0	Adoption to Policies of New Operating Authority
2013-07-31	1	Updated reference to shared SOP's
2013-10-31	2	Table 1 & 3 updated
2015-10-02	3	Risk assessment conducted
2015-11-06	4	Added OCWA's Contingency Plans under Existing Control and Measures.
2017-10-31	5	Added Potential Hazardous Events for Municipal Residential Drinking Water Systems
2018-07-11	6	Reviewed and updated to reflect new format. Using new form OP-08A
2018-11-05	7	Updated based on external audit finding. Reviewed and updated table 1 and table 4 to reflect each other.
2018-11-15	8	Updated table 1 and 4 to include backflow.
2018-11-21	9	Updated table 1 and 4 to include chemical spill.
2019-09-26	9	Reviewed and updated SOP titles and # to reflect current SOP's
2020-08-12	10	Reviewed and updated Pandemic, Strike (Loss of staff) event possible outcomes and existing controls
2021-08-31	11	36-month risk assessment conducted
2022-08-03	12	Risk assessment conducted

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2022-08-15	13	Updated from internal audit finding – Removed referencing “current copy 2017” edition of MECP potential hazardous events now changed to based on latest MECP potential hazardous events.
2023-11-15	14	Risk assessment conducted.
2024-08-21	15	36 Month Risk Assessment Conducted
2025-08-26	16	Revise for CAF #164

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Table 1: Risk Assessment Table

Note: Processes referred to in section 3.3.4 of OP-07 Risk Assessment must be identified as mandatory Critical Control Points (CCPs) as applicable. Mandatory CCPs are not required to be ranked.

Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
Secondary Chlorination (Rechlorination)	11	Loss of Chlorine Residual	Loss of protection to intrusion of microbial organisms Non Compliance for free chlorine residuals in the distribution system	Back-up Chlorinator Chlorine Residual from EAPWSS plant Monitoring chlorine residual at the Valve house for incoming water and London chlorine residual for reservoir cl2 level SCADA Monitoring Alarms Chlorine analyzer Chlorine cylinder scales Operator Checks Operator Training Preventative Maintenance Monitoring of chemical inventories EMPS-SOP-03 – Secondary Chlorination Cl2 residuals > 0.50mg/L CP – 05 EMPS Unsafe Water	1	4	4	☒ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☐ No
Supply of Water	2, 7 & 8	Loss of water supply (Sustained Pressure Loss)	Lower distribution system pressure increases potential for intrusion of chemical and	Back-up pump (3) SCADA Monitoring Alarms Pressure and flow transmitters alarmed	1	3	3	☐ Yes – Mandatory CCP ☐ Yes – Additional

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
			microbiological contaminants (backflow) Construction activities resulting in damage to water distribution system	Operator Checks Operator Training Preventative Maintenance EMPS-SOP=02 – Pipeline Break Back feed from London or bypass reservoir CP – 04 EMPS Loss of Service Backflow preventers - Annual testing Call before you dig				CCP identified for facility ☒ No
General Operations	3	Flooding in operations building (Extreme Weather)	Short Circuiting of power to equipment which can lead to one or both of the first two Hazardous events listed above	SCADA Monitoring Flood alarms Operator Checks Operator Training Preventative Maintenance Back feed from London or bypass reservoir Ability to feed St.Thomas direct from the plant bypassing the booster station Back up sump pumps	1	3	3	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	3 & 4	Fire (Extreme Weather or Extreme temperatures)	Short Circuiting of power to equipment which can lead to one or both of the first two Hazardous events listed above	SCADA Monitoring Alarms, smoke and heat detectors Operator Checks Operator Training Preventative Maintenance EMPS-SOP-05 – Fire at the EMPS	1	3	3	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
				Back feed from London or bypass reservoir				
General Operations	6	Unauthorized Access (Security)	Accidental or deliberate sabotage of equipment which can lead to the first two Hazardous events listed above • Vandalism • Terrorism • Contaminated Water • Equipment damage	Security Monitoring and Fencing Alarms, doors and motion sensors Operator Checks Secured Access Points (Locks) SCADA Monitoring EMPS-SOP-001 Unauthorized Entry or vandalism Ability to feed St. Thomas direct from the plant bypassing the booster station Back feed from London/bypass reservoir CP – 06 EMPS Security Breach	3	3	9	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	NA	Adverse Water	Threat to the health of consumers Boil Water Advisory	SCADA Monitoring Operator Review of continuous Chlorine readings every 24 hours Alarms Operator Checks Operator Training Preventative Maintenance EMPS-SOP - Reporting of Adverse Water Quality Incidents (AWQI) Scheduled bacti sample CP – 05 EMPS Unsafe Water	2	4	8	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
General Operations	2 & 11	Loss of power supply	Loss of power to equipment which can lead to the first two Hazardous events listed on the first page of this table. The second event is the more likely of the two. Construction activities resulting in damage to incoming power supply	Back-up Diesel Generator SCADA Monitoring Alarms Operator Checks Operator Training Preventative Maintenance Monitoring of Diesel Fuel Inventory Monthly generator testing Back feed from London bypass reservoir EMPS-SOP-06 –Power Failure at the EMPS Call before you dig	3	2	6	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operation	NA	Communications Failure between facility and the EAPWSS main plant	Loss of controlling signals to equipment which can lead to either or both of the first two Hazardous events listed on the first page of this table. Construction activities resulting in damage to incoming power supply or communication	EMPS-SOP-04 – SCADA Communication Failure SCADA Monitoring/Alarms Operator Checks Operator Training Preventative Maintenance On-call person dispatched to site for control monitoring Service provider SD memory cards to record analyzer data Call before you dig	4	2	8	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	NA	Pandemic, strike (loss of staff)	Staff shortage Potential Loss of water supply	Facility Emergency Plan Back-up staff from other OCWA locations	3	2	6	☐ Yes – Mandatory CCP

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
			Potential water quality issues Loss of operations and maintenance of the EMPS Potential inability to meet regulatory requirements	Strike Management Negotiations establishing essential staff positions Regional contingency plans Pandemic specific protocols – Health Canada and Health Units Emergency Preparedness training CP – 03 EMPS Critical Shortage of Staff				☐ Yes – Additional CCP identified for facility ☒ No
General Operations	1 & 3	Severe Storm – Tornado, Ice storm, Deep freeze (Extreme Weather Events)	Loss of access to EMPS (STP). Could potentially lead to either or both of the first two Hazardous events listed on the first page of this table.	SCADA Monitoring Alarms Can operate remotely from EAPWSS plant Operator Training Backup generator	3	2	6	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	NA	Operator Error	Error could potentially lead to either or both of the first two Hazardous events listed on the first page of this table.	SCADA Monitoring Alarms Operator Training SOP O&M Manual	1	3	3	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	5 & 11	Chlorine Gas Leak	Possible loss of access to EMPS. Could potentially lead to either or both of the first two Hazardous events	SCADA Monitoring Alarms, cl2 detector Operator Checks Operator Training	3	2	6	☐ Yes – Mandatory CCP ☐ Yes – Additional



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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
			listed on the first page of this table.	PPE and repair kit for chlorine gas leaks Preventative Maintenance Chlorine Residual from EAPWSS plant CP – 01 EMPS Spill Response				CCP identified for facility ☒ No
General Operations	5	Diesel Fuel Spill	Environmental Impact	Diesel Fuel Inventory Monitoring Proper containment Operator Checks Operator Training Operator Supervision of Delivery TSSA compliant system SCADA fuel level monitoring CP – 01 EMPS Spill Response	1	2	2	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	11	Chlorine Overfeed	Taste and Odour Complaints Pet Fish Impact Coloured water	SCADA Monitoring Alarms, chlorine analyzer Operator Checks Operator Training Chlorine Gas Inventory Monitoring Chlorine scales	1	2	2	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	NA	Use of chemicals or water contacting materials that do not meet ANSI NSF 60 or 61 respectively	Potential for low level contamination of drinking water	Corporate Purchasing Control QEMS Procedure EMPS (OP)-13 Essential Supplies and Services Operator Training	1	2	2	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
General Operations	11	Chlorine Residual Analyzer Failure	Loss of chlorine residual information and potential for non-compliance with regulatory requirements	SCADA Monitoring/Alarms Operator Training Operator Checks including manual grab sample chlorine residuals Preventative Maintenance Chlorine Residual from EAPWSS plant CP – 05 EMPS Unsafe Water	3	2	6	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	NA	Loss of SCADA	Loss of control of the EMPS from Elgin WTP	Loss of SCADA SOP Manual run the EMPS from EMPS Consider backfeeding from London Secondary Servers	2	2	4	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	13	Cybersecurity - SCADA	Disruption of SCADA preventing plant operation. Potential points of breach include remote access, links to other SCADA systems, wireless network, contractor laptops, and USB flash drives.	Physical barriers: hardware in locked panels, conducted security awareness training; Logical barriers (software barriers): DMZ (demilitarized zone) is used to control dataflow to and from layers 0-3 (ISA/IEC-62443), firewalls limit access based on least privilege, IDS (intrusion detection system) enabled on firewalls to alert on malicious activity, Antivirus software is installed on all endpoints and servers, WAN communications are in encrypted tunnels, remote access requires	2	2	4	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
				multi-factor authentication, data is backed-up and replicated off-site daily. Software patches are applied regularly				
General Operations	13	Cybersecurity – IT Business Systems	Disruption of business operations due to compromise of business network, devices, or Office 365 system. Disruption to physical security operations at the plant. Potential reputational impact due to compromise of website or social media.	OCWA has a robust security program to protect our business network and devices. Devices are centrally managed and patched. Devices are protected by a firewall and access barriers. Office 365 includes phishing and malware protection, file and email recovery, and multi-factor authentication for all users. Website is regularly updated and backed up by the hosting provider. Access to social media accounts is limited. Security awareness training is provided to staff.	2	1	2	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No

Table 2: Identified Critical Control Points (CCPs)

CCP	Critical Control Limits	Monitoring Procedures	Response, Reporting and Recording Procedures
Secondary Chlorination (Rechlorination)	Free Cl Residual – Minimum 0.50 mg/L - Maximum 2.5 mg/L	SCADA Monitoring Alarms Operator Checks Continuous Chlorine Residual Monitoring CP – 05 EMPS Unsafe Water	Values outside of critical control limits are noted in the facility log book SOP # EMPS-SOP-03 – Secondary Chlorination Control is activated

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Note: Standard Operating Procedures (SOPs) referenced in Tables 1 and 2 are controlled as per OP-05 Document and Records Control.

Table 3: Record of Annual Review/36-Month Risk Assessment

The Drinking Water Quality Management Standard (DWQMS) requires that the currency of the information and the validity of the assumptions used in the risk assessment be verified at least once every calendar year. In addition, the risk assessment must be conducted at least once every thirty-six months.

Date of Activity	Type of Activity	Participants	Summary of Results
Oct 31/12	Risk Assessment conducted	R. Turnbull / C. Grimstead	Reconsidered all identified Hazards and incorporated results into OCWA corporate format style table. Removed detectability column and based risk ranking on the multiplication of the likelihood and consequence factors. Only one critical control point identified.
Oct 31/13	Review Conducted	C. Grimstead	No regulatory or process changes
Oct 3/14	Review Conducted	Denny Rodrigues	No regulatory or process changes
Oct 2/15	36 Month Assessment conducted.	D.Rodrigues, B.Tully and S.Flanagan	Risk assessment conducted.
Oct. 7/16	Review Conducted	Denny Rodrigues, Simon Flanagan and Jim Laur	No regulatory or process changes
Oct 23/17	Review Conducted	Denny Rodrigues	Added Potential Hazardous Events for Municipal Residential Drinking Water Systems
July 11, 2018	36 Month Assessment conducted	Denny Rodrigues (SPC Manager), Simon Flanagan (Senior Operations Manager), Glenn McEown (OCTL) and Jim Laur (Maintenance TL)	All Activities/Process Steps were re-assessed and new hazardous events and hazards identified (including those in the MOECC's "Potential Hazardous Events for Municipal Residential Drinking Water Systems") and ranked according to OP-07 (revision 0). Results captured in Revision 4 of this Summary of Risk Assessment Outcomes
Nov. 5, 2018	Review and update conducted	Denny Rodrigues	Updated based on external audit finding. Reviewed and updated table 1 and table 4 to reflect each other.
Nov. 15, 2018	Reviewed and update conducted	Denny Rodrigues	Added backflow to Supply of Water in Table 1 and updated Table 4 to indicate that backflow does apply to the DWS.

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Sept. 26, 2019	Review Conducted	Denny Rodrigues	No regulatory or process changes. Reviewed and updated SOP titles and # to reflect current SOP's
August 12, 2020	Review Conducted	Denny Rodrigues	No regulatory or process changes. Reviewed and updated Pandemic, Strike (Loss of staff) on page 4.
August 31, 2021	36 Month Assessment conducted	Denny Rodrigues (SPC Manager), Simon Flanagan (Senior Operations Manager), and Glenn McEown (OCTL)	Risk assessment conducted. Reviewed capital upgrades and major maintenance activities over the past 3 years. Replaced the chlorinator system, generator starter and SCADA server. Added Loss of SCADA to Table 1
August 3, 2022	Review Conducted	Denny Rodrigues (Senior Operations Manager), Allison McCann (SPC Manager), Greg Henderson (Senior Operations Manager), and Glenn McEown (OCTL)	Added Cybersecurity – IT Business Systems & Cybersecurity – SCADA Added SD memory card to Communications Failure between facility and the EAPWSS main plant
November 15, 2023	Review Conducted	Allison McCann	No regulatory or process changes
August 21, 2024	36 Month Assessment Conducted	Jackie Muller (RHM), Greg Henderson (SOM), Glenn McEown (OCTL), Vasile Nanu (MDTL)	Risk assessment conducted. Reviewed capital upgrades and major maintenance activities over the past 3 years. Added construction activities to Loss of Water Supply, Power and Communication. Updated scoring to multiple risks based on O&M and Capital activities over last 3 years
August 26, 2025	Annual Review	Cindy Sigurdson	Revise to address CAF#164 (include cyber security in table 4), add 13 to cyber security threat in column2 of table 2 and general formatting

Table 4: Potential Hazardous Event/Hazard Reference Numbers (based on latest Ministry's "Potential Hazardous Events for Municipal Residential Drinking Water Systems").

If the hazardous event/hazard is not applicable to this drinking water system (DWS), it will be noted in the first column of this table.

System Type (indicate all that apply to this DWS)	Reference Number	Description of Hazardous Event/Hazard
X All Systems	1	Long Term Impacts of Climate Change

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X	All Systems	2	Water supply shortfall
X	All Systems	3	Extreme weather events (e.g., tornado, ice storm)
X	All Systems	4	Sustained extreme temperatures (e.g., heat wave, deep freeze)
X	All Systems	5	Chemical spill impacting source water
X	All Systems	6	Terrorist and vandalism actions
X	Distribution Systems	7	Sustained pressure loss
X	Distribution Systems	8	Backflow
N/A	Treatment Systems	9	Sudden changes to raw water characteristics (e.g., turbidity, pH)
N/A	Treatment Systems	10	Failure of equipment or process associated with primary disinfection (e.g., coagulant dosing system, filters, UV system, chlorination system)
X	Treatment Systems and Distribution Systems providing secondary disinfection	11	Failure of equipment or process associated with secondary disinfection (e.g., chlorination equipment, chloramination equipment)
N/A	Treatment Systems using Surface Water	12	Algal blooms
X	All Systems	13	Cybersecurity Threats

Revision History

Date	Revision #	Reason for Revision
2012-10-31	0	Adoption to Policies of New Operating Authority
2013-07-31	1	Converted ECP's to EMPS-SOP's
2013-11-29	2	Table 1 & 3 updated
2015-10-02	3	Risk assessment conducted
2015-11-06	4	Added OCWA's Contingency Plans under Existing Control and Measures.
2017-10-23	5	Added Potential Hazardous Events for Municipal Residential Drinking Water Systems
2018-07-11	6	Reviewed and updated to reflect new format. Using new form OP-08A
2018-11-05	7	Updated based on external audit finding. Reviewed and updated table 1 and table 4 to reflect each other
2018-11-15	8	Updated table 1 and 4 to include backflow.
2019-09-26	9	Reviewed and updated SOP titles and # to reflect current SOP's

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2019-11-12	10	Reviewed and updated Loss of Power Supply risk value. Changed from 6 to 4.
2020-08-12	11	Reviewed and updated Pandemic, Strike (Loss of staff) event possible outcomes and existing controls
2021-08-31	12	36-month risk assessment conducted.
2022-08-03	13	Risk assessment conducted.
2022-08-15	14	Updated from internal audit finding – Removed referencing “2017” edition of MECP potential hazardous events now changed to based on latest MECP potential hazardous events.
2023-11-15	15	Risk assessment conducted.
2024-08-21	16	36 Month Risk Assessment Conducted
2025-08-26	17	Revise for CAF #164
2026-01-31	18	Revise to update procedure number to OP-08B for the combined Operational Plan

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Table 1: Risk Assessment Table

Note: Processes referred to in section 3.3.4 of OP-07 Risk Assessment must be identified as mandatory Critical Control Points (CCPs) as applicable. Mandatory CCPs are not required to be ranked.

Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
Secondary Chlorination (Re-chlorination)	11	Loss of Chlorine Residual	Loss of protection to intrusion of microbial organisms Non Compliance for free chlorine residuals in the distribution system	Back-up Chlorinator Chlorine Residual from EAPWSS plant Monitoring chlorine residual at the Valve house for incoming water and London chlorine residual for reservoir cl2 level SCADA Monitoring Alarms Chlorine analyzer Chlorine cylinder scales Operator Checks Operator Training Preventative Maintenance Monitoring of chemical inventories EMPS SOP-03 – Secondary Chlorination Control Cl2 residuals > 0.50 mg/L CP – 05 EMPS Unsafe Water	1	4	4	☒ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☐ No



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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
Supply of Water	2, 7 & 8	Loss of water supply (Sustained Pressure Loss)	Lower distribution system pressure increases potential for intrusion of chemical and microbiological contaminants (backflow) Construction activities resulting in damage to water distribution system	Back-up pump (1) SCADA Monitoring Alarms Pressure and flow transmitters alarmed London/Aylmer interconnect valve Operator Checks Operator Training Preventative Maintenance EMPS SOP-02 – Pipeline Break Back feed from London or bypass reservoir CP – 04 EMPS Loss of Service Backflow preventers - Annual testing Locates before you dig	1	3	3	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	3	Flooding in operations building (Extreme Weather)	Short Circuiting of power to equipment which can lead to one or both of the first two Hazardous events listed above	SCADA Monitoring Alarms, flood Operator Checks Operator Training Preventative	1	3	3	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No



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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
				Maintenance Back feed from London or bypass reservoir Back up sump pumps Back-up Generator				
General Operations	3 & 4	Fire (Extreme Weather or Extreme temperatures)	Loss of power to equipment which can lead to one or both of the first two Hazardous events listed above	SCADA Monitoring Alarms, smoked detector Operator Checks Operator Training Preventative Maintenance EMPS SOP-06 – Fire at the EMPS Back feed from London or bypass reservoir	1	3	3	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	6	Unauthorized Access (Security)	Deliberate sabotage of equipment which can lead to the first two Hazardous events listed above • Vandalism • Terrorism • Contaminated Water Equipment damage	Security Monitoring and Fencing Alarms, doors and motion Operator Checks Secured Access Points (Locks) SCADA Monitoring EMPS SOP-01 – Unauthorized Entry/vandalism Back feed from London or bypass	3	3	9	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
				reservoir CP – 06 EMPS Security Breach				
General Operations	NA	Adverse Water	Threat to the health of consumers Boil Water Advisory	SCADA Monitoring Operator Review of continuous Chlorine readings every 24 hours Alarms Operator Checks Operator Training Preventative Maintenance EMPS SOP - Reporting Adverse Water Quality (AWQI) Weekly Bacteriological sample CP – 05 EMPS Unsafe Water	2	4	8	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	2 & 11	Loss of power supply	Loss of power to equipment which can lead to the first two Hazardous events listed on the first page of this table. The second event is the more likely of the two. Construction activities resulting in damage to incoming power supply	Operator Training Preventative Maintenance Monitoring of Diesel Fuel Inventory Monthly generator testing Back feed from London bypass reservoir EMPS SOP-06 –Power Failure at the EMPS Electrical Vendor of Records for Emergency response	3	2	6	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
General Operation	NA	Communications Failure between facility and the EAPWSS main plant	Loss of controlling signals to equipment which can lead to either or both of the first two Hazardous events listed on the first page of this table. Construction activities resulting in damage to incoming power supply or communication	Locates before you dig EMPS SOP-04 – SCADA Communication Failure SCADA Monitoring/Alarms Operator Checks Operator Training Preventative Maintenance On-call person dispatched to site for control monitoring Service provider SD memory cards to record analyzer data Locates before you dig	4	2	8	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	NA	Pandemic, strike (loss of staff)	Staff shortage Potential Loss of water supply Potential water quality issues Loss of operations and maintenance of the EMPS Potential inability to meet regulatory requirements	Facility Emergency Plan Back-up staff from other OCWA locations Strike Management Negotiations establishing essential staff positions Regional contingency plans Pandemic specific protocols – Health Canada and Health Units Emergency Preparedness training	3	2	6	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No



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				CP – 03 EMPS Critical Shortage of Staff				
General Operations	1 & 3	Severe Storm – Tornado, Ice storm, Deep freeze (Extreme Weather Events)	Loss of access to EMPS (AC). Could potentially lead to either or both of the first two Hazardous events listed on the first page of this table.	SCADA Monitoring Alarms Can operate remotely from EAPWSS plant Operator Training Back-up generator	3	2	6	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	NA	Operator Error	Error could potentially lead to either or both of the first two Hazardous events listed on the first page of this table.	SCADA Monitoring Alarms Operator Training SOP O&M Manual	1	3	3	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	5 & 11	Chlorine Gas Leak	Possible loss of access to EMPS. Could potentially lead to either or both of the first two Hazardous events listed on the first page of this table.	SCADA Monitoring Alarms, Cl2 detector Operator Checks Operator Training PPE and repair kit for chlorine gas leaks	3	2	6	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
				Preventative Maintenance Chlorine Residual from EAPWSS plant CP – 01 EMPS Spill Response				
General Operations	5	Diesel Fuel Spill	Environmental Impact	Diesel Fuel Inventory Monitoring Proper containment Operator Checks Operator Training Operator Supervision of Delivery TSSA compliant system SCADA fuel level monitoring CP – 01 EMPS Spill Response	1	2	2	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	11	Chlorine Overfeed	Taste and Odour Complaints Coloured water	SCADA Monitoring Alarms, chlorine analyzer Operator Checks Operator Training Chlorine Gas Inventory Monitoring Chlorine scales	1	2	2	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
General Operations	NA	Use of chemicals or water contacting materials that do not meet ANSI NSF 60 or 61 respectively	Potential for low level contamination of drinking water	Corporate Purchasing Control QEMS Procedure EMPS (OP)-13 Essential Supplies and Services Operator Training	1	2	2	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	11	Chlorine Residual Analyzer Failure	Loss of chlorine residual information and potential for non-compliance with regulatory requirements	SCADA Monitoring/Alarms Operator Training Operator Checks including manual grab sample chlorine residuals Preventative Maintenance Chlorine Residual from EAPWSS plant CP – 05 EMPS Unsafe Water	3	2	6	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	NA	Loss of SCADA	Loss of control of the EMPS from Elgin WTP	- Loss of SCADA SOP - Manual run the EMPS from Elgin - Consider back-feeding from London Secondary Servers	2	2	4	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility ☒ No
General Operations	13	Cybersecurity - SCADA	Disruption of SCADA preventing plant operation. Potential points of breach	- Physical barriers: hardware in locked panels, conducted security awareness	2	2	4	☐ Yes – Mandatory CCP



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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
			include remote access, links to other SCADA systems, wireless network, contractor laptops, and USB flash drives.	training; Logical barriers (software barriers): DMZ (demilitarized zone) is used to control dataflow to and from layers 0-3 (ISA/IEC-62443), firewalls limit access based on least privilege, IDS (intrusion detection system) enabled on firewalls to alert on malicious activity, Antivirus software is installed on all endpoints and servers, WAN communications are in encrypted tunnels, remote access requires multi-factor authentication, data is backed-up and replicated off-site daily. Software patches are applied regularly				☐ Yes – Additional CCP identified for facility ☒ No
General Operations	13	Cybersecurity – IT Business Systems	Disruption of business operations due to compromise of business network, devices, or Office 365 system. Disruption to physical security operations at the plant. Potential reputational impact due to	- OCWA has a robust security program to protect our business network and devices. Devices are centrally managed and patched. Devices are protected by a	2	1	2	☐ Yes – Mandatory CCP ☐ Yes – Additional CCP identified for facility

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Activity/ Process Step	Ministry's Potential Hazardous Event/Hazard Reference # (see Table 4)	Description of Hazardous Event	Possible Outcome (Hazards)	Existing Control Measures	Likelihood	Consequence	Risk Value	CCP?
			compromise of website or social media.	firewall and access barriers. Office 365 includes phishing and malware protection, file and email recovery, and multi-factor authentication for all users. Website is regularly updated and backed up by the hosting provider. Access to social media accounts is limited. Security awareness training is provided to staff.				☒ No

Table 2: Identified Critical Control Points (CCPs)

CCP	Critical Control Limits	Monitoring Procedures	Response, Reporting and Recording Procedures
Secondary Chlorination (Re-chlorination)	Free Cl Residual – Minimum 0.50 mg/L - Maximum 2.5 mg/L	SCADA Monitoring Alarms Operator Checks Continuous Chlorine Residual Monitoring CP – 05 EMPS Unsafe Water	Values outside of critical control limits are noted in the facility log book SOP # EMPS-SOP-03 – Secondary Chlorination Control is activated

Note: Standard Operating Procedures (SOPs) referenced in Tables 1 and 2 are controlled as per OP-05 Document and Records Control.

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Table 3: Record of Annual Review/36-Month Risk Assessment

The Drinking Water Quality Management Standard (DWQMS) requires that the currency of the information and the validity of the assumptions used in the risk assessment be verified at least once every calendar year. In addition, the risk assessment must be conducted at least once every thirty-six months.

Date of Activity	Type of Activity	Participants	Summary of Results
Oct 31/12	Risk Assessment conducted	R. Turnbull / C. Grimstead	Reconsidered all identified Hazards and incorporated results into OCWA corporate format style table. Removed detectability column and based risk ranking on the multiplication of the likelihood and consequence factors. Only one critical control point identified.
Nov 29/13	Review conducted	C. Grimstead	No regulatory or process changes
Oct 3/14	Review conducted	Denny Rodrigues	No regulatory or process changes
Oct 2/15	36 Month Assessment conducted	D.Rodrigues, B.Tully and S.Flanagan	Risk assessment conducted.
Oct 7/16	Review conducted	Denny Rodrigues, Simon Flanagan and Jim Laur	No regulatory or process changes
Oct 31/17	Review Conducted	Denny Rodrigues	Added Potential Hazardous Events for Municipal Residential Drinking Water Systems
July 9, 2018	36 Month Assessment conducted	Denny Rodrigues (SPC Manager), Simon Flanagan (Senior Operations Manager), Glenn McEown (OCTL) and Jim Laur (Maintenance TL)	All Activities/Process Steps were re-assessed and new hazardous events and hazards identified (including those in the MOECC's "Potential Hazardous Events for Municipal Residential Drinking Water Systems") and ranked according to OP-07 (revision 0). Results captured in Revision 4 of this Summary of Risk Assessment Outcomes
Nov. 5, 2018	Review and update conducted	Denny Rodrigues	Updated based on external audit finding. Reviewed and updated table 1 and table 4 to reflect each other.
Nov. 15, 2018	Reviewed and update conducted	Denny Rodrigues	Added backflow to Supply of Water in Table 1 and updated Table 4 to indicate that backflow does apply to the DWS.
Sept. 25, 2019	Review Conducted	Denny Rodrigues	No regulatory or process changes.

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August 12, 2020	Review Conducted	Denny Rodrigues	No regulatory or process changes. Reviewed and updated Pandemic (Loss of staff) on page 4.
August 31, 2021	36 Month Assessment conducted	Denny Rodrigues (SPC Manager), Simon Flanagan (Senior Operations Manager), and Glenn McEown (OCTL)	Risk assessment conducted. Reviewed capital upgrades and major maintenance activities over the past 3 years. Replaced the chlorinator system, generator starter and SCADA server. Added Loss of SCADA to Table 1
August 3, 2022	Review Conducted	Denny Rodrigues (Senior Operations Manager), Allison McCann (SPC Manager), Greg Henderson (Senior Operations Manager), and Glenn McEown (OCTL)	Added Cybersecurity – IT Business Systems & Cybersecurity – SCADA Added SD memory card to Communications Failure between facility and the EAPWSS main plant
November 15, 2023	Review Conducted	Allison McCann (SPC)	No regulatory or process change
August 21, 2024	36 Month Assessment Conducted	Jackie Muller (RHM), Greg Henderson (SOM), Glenn McEown (OCTL), Vasile Nanu (MDTL)	Risk assessment conducted. Reviewed capital upgrades and major maintenance activities over the past 3 years. Added construction activities to Loss of Water Supply, Power and Communication. Updated scoring to multiple risks based on O&M and Capital activities over last 3 years
August 26, 2025	Annual Review	Cindy Sigurdson (SPC Manager)	Revise to address CAF#164 (include cyber security in table 4), add 13 to cyber security threat in column2 of table 2 and general formatting

Table 4: Potential Hazardous Event/Hazard Reference Numbers (based on the Ministry’s “Potential Hazardous Events for Municipal Residential Drinking Water Systems” dated April 2022)

If the hazardous event/hazard is not applicable to this drinking water system (DWS), it will be noted in the first column of this table.

System Type (indicate all that apply to this DWS)		Reference Number	Description of Hazardous Event/Hazard
X	All Systems	1	Long Term Impacts of Climate Change
X	All Systems	2	Water supply shortfall
X	All Systems	3	Extreme weather events (e.g., tornado, ice storm)
X	All Systems	4	Sustained extreme temperatures (e.g., heat wave, deep freeze)
X	All Systems	5	Chemical spill impacting source water
X	All Systems	6	Terrorist and vandalism actions

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X	Distribution Systems	7	Sustained pressure loss
X	Distribution Systems	8	Backflow
N/A	Treatment Systems	9	Sudden changes to raw water characteristics (e.g., turbidity, pH)
N/A	Treatment Systems	10	Failure of equipment or process associated with primary disinfection (e.g., coagulant dosing system, filters, UV system, chlorination system)
X	Treatment Systems and Distribution Systems providing secondary disinfection	11	Failure of equipment or process associated with secondary disinfection (e.g., chlorination equipment, chloramination equipment)
N/A	Treatment Systems using Surface Water	12	Algal blooms
X	All Systems	13	Cybersecurity threats

Revision History

Date	Revision #	Reason for Revision
2013-07-31	1	Updated reference to shared SOP's
2013-11-29	2	Table 1 & 3 updated
2015-10-02	3	Risk assessment conducted
2015-11-06	4	Added OCWA's Contingency Plans under Existing Control and Measures.
2017-10-31	5	Added Potential Hazardous Events for Municipal Residential Drinking Water Systems
2018-07-09	6	Reviewed and updated to reflect new format. Using new form OP-08A
2018-11-05	7	Updated based on external audit finding. Reviewed and updated table 1 and table 4 to reflect each other.
2018-11-15	8	Updated table 1 and 4 to include backflow.
2019-09-25	9	Reviewed and updated SOP titles and # to reflect current SOP's
2019-11-12	10	Reviewed and updated Loss of Power Supply risk value. Changed from 6 to 4.
2020-08-12	11	Reviewed and updated Pandemic, Strike (Loss of staff) event possible outcomes and existing controls.
2021-08-31	12	36-month risk assessment conducted.
2022-08-03	13	Risk assessment conducted.

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2022-08-15	14	Updated from internal audit finding – Removed referencing “2017” edition of MECP potential hazardous events now changed to based on latest MECP potential hazardous events.
2023-11-15	15	Review conducted
2024-08-22	16	36 Month Risk Assessment update
2025-08-26	17	Revise for CAF#164
2026-01-31	18	Revise to change procedure number to OP-08C for the combined Operational Plan

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ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To document the following for the Elgin Middlesex Pumping Station:

- Owner;
- Organizational structure of the Operating Authority;
- QEMS roles, responsibilities and authorities of staff, Top Management and individuals/groups that provide corporate oversight; and
- Responsibilities for conducting the Management Review

2. Definitions

Operations Management – refers to the General Manager, Senior Operations Manager and/or Operations Manager that directly oversees a facility's operations

Senior Leadership Team (SLT) – members include President and CEO, Executive Vice President and General Counsel, Vice Presidents of OCWA's business units and Regional Hub Managers

Top Management – a person, persons or a group of people at the highest management level within an operating authority that makes decisions respecting the QMS and recommendations to the owner respecting the subject system or subject systems

Operations Personnel – Employees of the drinking water system who perform various activities related to the compliance, operations and maintenance of the drinking water system that may directly affect drinking water quality

3. Procedure

3.1 Organizational Structure

The Elgin Middlesex Pumping Station (EMPS) is owned by the City of London, St. Thomas Area Secondary Water Supply System Joint Board of Management and Aylmer Area Secondary Water Supply System Joint Board of Management and is represented by associated Owner representative(s) for each system.

The organizational structure of OCWA, the Operating Authority, is outlined in appendix OP-09A: Organizational Structure.

3.2 Top Management

Top Management for the EMPS consists of:

- Operations Management – Elgin Cluster
- Regional Hub Manager – Huron Elgin Region
- Safety, Process & Compliance Manager – Huron Elgin Region

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Irrespective of other duties (see Table 9-2 below), Top Management's responsibilities and authorities include:

- Endorsing the Operational Plan as per the Commitment and Endorsement procedure (OP-03);
- Ensuring that the QEMS meets the requirements of the DWQMS;
- Ensuring staff are aware of the applicable legislative and regulatory requirements;
- Communicating the QEMS according to the Communications procedure (OP-12);
- Providing resources needed to maintain and continually improve the QEMS;
- Appointing and authorizing a QEMS Representative (OP-04); and
- Undertaking Management Reviews as per the Management Review procedure (OP-20).

Note: Specific responsibilities of the individual members of Top Management are identified in the referenced procedures.

3.3 Corporate Oversight

Roles, responsibilities and authorities for individuals/groups providing corporate oversight of OCWA's QEMS are summarized in Table 9-1 below.

Table 9-1: Corporate QEMS Roles, Responsibilities and Authorities

Role	Responsibilities and Authorities
Board of Directors	• Set the Agency's strategic direction, monitor overall performance and ensure appropriate systems and controls are in place in accordance with the Agency's governing documents • Review and approve the QEMS Policy
Senior Leadership Team (SLT)	• Establish the Agency's organizational structure and governing documents and ensure resources are in place to support strategic initiatives • Monitor and report on OCWA's operational and business performance to the Board of Directors • Review the QEMS Policy and recommend its approval to the Board • Approve corporate QEMS programs and procedures
Corporate Compliance	• Manage the QEMS Policy and corporate QEMS programs and procedures • Provide support for the local implementation of the QEMS • Monitor and report on QEMS performance and any need for improvement to SLT • Consult with the Ministry and other regulators and provide compliance support/guidance on applicable legislative, regulatory and policy requirements • Manage contract with OCWA's DWQMS accreditation body

3.4 Regional Hub Roles, Responsibilities and Authorities

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QEMS roles, responsibilities and authorities of Regional Hub personnel are summarized in Table 9-2 below. This information is kept current as per the Document and Records Control procedure (OP-05) and is communicated to staff as per the Communications procedure (OP-12).

Additional duties of employees are detailed in their job specifications and in the various QEMS programs and procedures that form, or are referenced in, this Operational Plan.

Table 9-2: QEMS Roles, Responsibilities and Authorities for the Huron Elgin Region

Role/Position	Responsibilities and Authorities
All Operations Personnel	• Perform duties in compliance with applicable legislative and regulatory requirements • Be familiar with the QEMS Policy and work in accordance with QEMS programs and procedures • Maintain operator certification (as required) • Attend/participate in training relevant to their duties under the QEMS • Document all operational activities • Identify potential hazards at their facility that could affect the environmental and/or public health and report to Operations Management • Report and act on all operational incidents • Recommend changes to improve the QEMS
Regional Hub Manager (Top Management)	• Oversee the administration and delivery of contractual water/wastewater services on a Regional Hub level • Fulfill role of Top Management • Ensure corporate QEMS programs and procedures are implemented consistently throughout the Regional Hub • Manage the planning of training programs for Regional Hub • Report to VP of Operations/SLT on the regional performance of the QEMS and any need for Agency-wide improvement
Operations Management (Top Management)	• Manage the day-to-day operations and maintenance of their assigned facilities and supervise facility staff • Fulfill role of Top Management • Ensure corporate and site-specific QEMS programs and procedures are implemented at their assigned facilities • Determine necessary action and assign resources in response to operational issues • Report to the Regional Hub Manager on facility operational performance

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Role/Position	Responsibilities and Authorities
	• Ensure operational training is provided for the cluster (in consultation with the SPC Manager as required) • Act as Overall Responsible Operator (ORO) when required (based on certification).
Safety, Process & Compliance (SPC) Manager (Top Management; QEMS Representative)	• Supervise facility compliance staff and provide technical and program support to the Regional Hub related to process control and compliant operations • Fulfill role of Top Management • Ensure corporate/regional QEMS programs and procedures are implemented consistently throughout the Regional Hub • Assist in the development of site-specific operational procedures as required • Ensure training on applicable legislative and regulatory requirements and the QEMS is provided for the Regional Hub (in consultation with Operations Management as required) • Monitor and report to the Regional Hub Manager and Operations Management on the compliance status and QEMS performance within their Regional Hub and any need for improvement • Act as QEMS Representative • May act as Operator-in-Charge (OIC) and/or ORO when required (based on certification).
Operations & Compliance (O&C) Team Lead	• Support corporate programs relating to environmental compliance and support management by evaluating and implementing process control systems at their assigned facilities • Monitor, evaluate and report on compliance/quality status of their assigned facilities • Implement facility-specific QEMS programs and procedures consistently at their assigned facilities • May participate in audits and inspections and assist in developing, implementing and monitoring action items to respond to findings • Report to the SPC Manager on QEMS implementation and identify the need for additional/improved processes and procedures at the Regional Hub/cluster/facility level (in consultation with the Operations Management as required) • Communicates to Operations Management on facility compliance and DWQMS accreditation as directed • Deliver/participate in/coordinate training including applicable legislative and regulatory requirements and the QEMS

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Role/Position	Responsibilities and Authorities
	May act as Operator-in-Charge (OIC) and/or Overall Responsible Operator (ORO) when required.
Process & Compliance Technician (PCT) (Alternate QEMS Representative)	- Implement, monitor and support corporate programs relating to environmental compliance and support management by evaluating and implementing process control systems at their assigned facilities - Monitor, evaluate and report on compliance/quality status of their assigned facilities - Implement facility-specific QEMS programs and procedures consistently at their assigned facilities - Participate in audits and inspections and assist in developing, implementing and monitoring action items to respond to findings - Report to the SPC Manager on QEMS implementation and identify the need for additional/improved processes and procedures at the Regional Hub/cluster/facility level (in consultation with the Operations Management as required) - May communicate to Owners on facility compliance and DWQMS accreditation as directed - Deliver/participate in/coordinate training including applicable legislative and regulatory requirements and the QEMS - Act as alternate QEMS Representative (when required) - May act as Operator-in-Charge (OIC) and/or Overall Responsible Operator (ORO) when required.
Certified Operator May include the following positions: - Operations Supervisor Water & Wastewater - Water & Wastewater Lead - Senior Water & Wastewater Operator - Water & Wastewater Operator - Water & Wastewater Operator-In-Training (OIT)]	- Perform duties outlined under Operations Personnel - Monitor, maintain and operate facilities in accordance with applicable regulations, approvals and established operating procedures - Collect samples and perform laboratory tests and equipment calibrations as required - Regularly inspect operating equipment, perform routine preventive maintenance and repairs and prepare and complete work orders as assigned - Ensure records of adjustments made to the process under their responsibility, equipment operating status during their shifts and any departures from normal operations observed and actions taken are maintained within facility logs/record keeping mechanisms (as per O. Reg. 128) - Participate in facility inspections and audits - May act as OIC and/or ORO when required (based on certification).

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Role/Position	Responsibilities and Authorities
Maintenance Personnel May include the following positions: • Mechanic/Operator • Maintenance Technician	• Schedule and perform maintenance on equipment and processes in accordance with established procedures and record the maintenance data • Regularly inspect operating equipment, perform routine preventive maintenance and repairs • May fulfill role of Certified Operator when required (based on certification).
Instrumentation Technician May include the following positions: • Utility Plant Instrument Technician (UPIT)	• Provide advice and technical expertise on the services required for process control and automation systems • Discuss and advise on detailed system and programming requirements, modify existing and new software in response to plant requests, analyze and resolve problems/error conditions, document changes/modifications and configure, install and support related software, hardware and network for such systems • Conduct inspections of the process control and automation systems to validate that all is operating within established parameters as requested • Install and commission new electrical/electronic equipment and automation systems • May fulfill role of Certified Operator as required (based on certification).
Electrical Maintenance Personnel May include the following positions: • Utility Plant Electrician Operator • Maintenance Electrician	• Perform repairs, inspections, preventive maintenance and/or scheduled maintenance on electrical systems, equipment, components and devices in accordance with established procedures and record the maintenance data • Examine, trouble shoot and carry out systematic diagnostic testing of faults/failures, identification, assessment, repairs/service to equipment, fixtures and other electrical component • May fulfill role of Certified Operator as required (based on certification)
Administrative Assistant	• Support the administrative functions of the Regional Hub/cluster/facility

4. Related Documents

OP-03 Commitment and Endorsement
 OP-04 QEMS Representative
 OP-05 Document and Records Control
 OP-09A Organizational Structure

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OP-12 Communications
 OP-20 Management Review
 OCWA Position Descriptions/Job Specifications

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued - Previous OP versions were separate for each drinking water system



OPERATIONAL PLAN

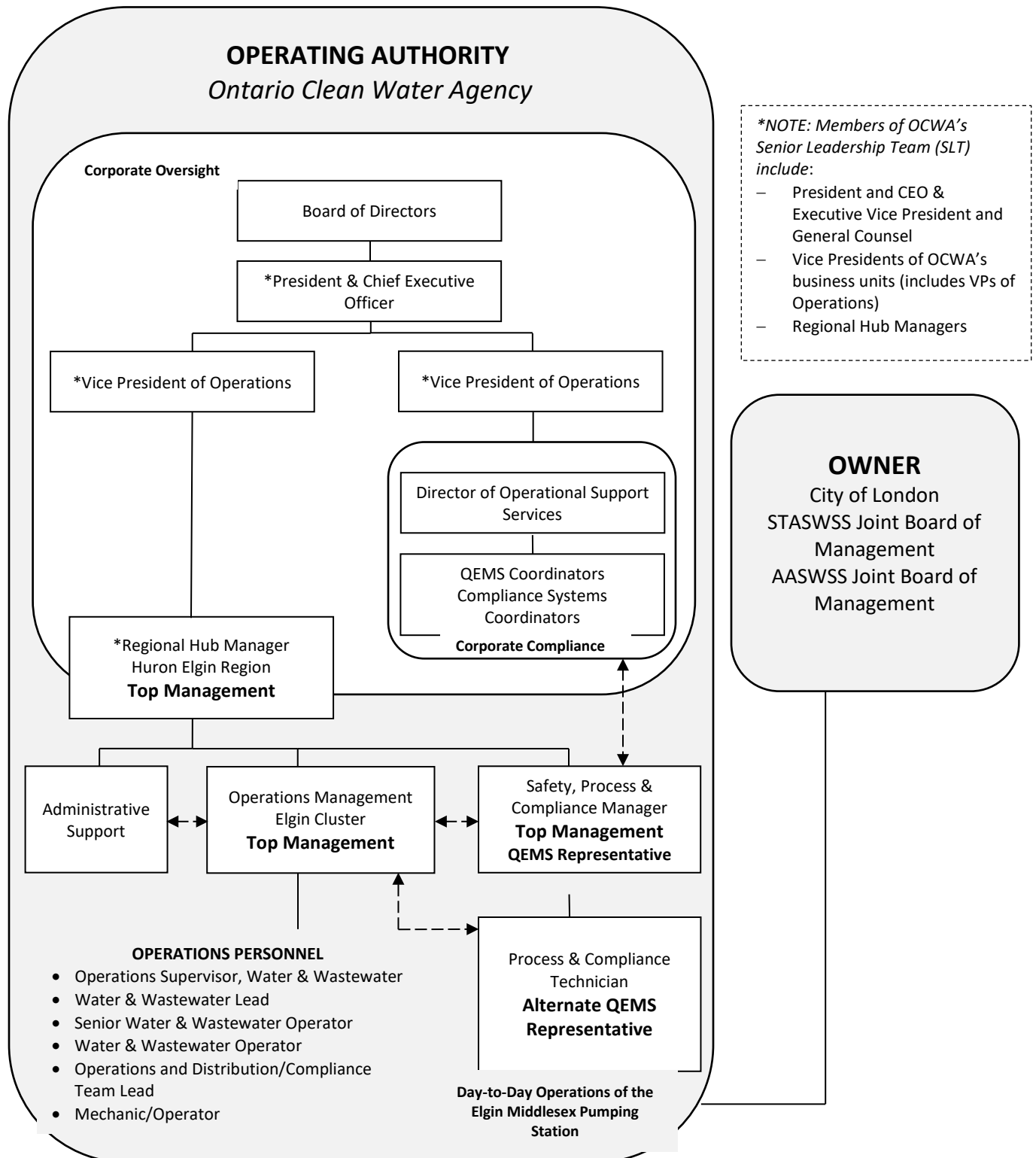
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Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Appendix issued – combined operational plan

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COMPETENCIES		
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1. Purpose

To document a procedure that describes:

- the competencies required for personnel performing duties directly affecting drinking water quality;
- the activities to develop and/or maintain those competencies; and
- the activities to ensure personnel are aware of the relevance of their duties and how they affect safe drinking water.

2. Definitions

Competence – the combination of observable and measurable knowledge, skills, and abilities which are required for a person to carry out assigned responsibilities

Operations Management – refers to the General Manager, Senior Operations Manager and/or Operations Manager that directly oversees a facility's operations

Operations Personnel – employees of the drinking water system who perform various activities related to the compliance, operations and maintenance of the drinking water system that may directly affect drinking water quality

Top Management – a person, persons or a group of people at the highest management level within an operating authority that makes decisions respecting the QMS and recommendations to the Owner respecting the subject system or subject systems

3. Procedure

3.1 The following table presents the minimum competencies required by operations personnel.

Role/Position	Required Minimum Competencies
Operations Management (Top Management)	• Valid operator certification; if required to act as Overall Responsible Operator (ORO), certification must be at the level of the facility or higher • Experience and/or training in managing/supervising drinking water system operations, maintenance, financial planning and administration • Training and/or experience related to drinking water system processes, principles and technologies • Training on OCWA's QEMS and the DWQMS • Training on relevant legislation, regulations, codes, policies, guidelines and procedures • Experience using computers and operational computerized systems

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Role/Position	Required Minimum Competencies
Safety, Process & Compliance (SPC) Manager (Top Management) (QEMS Representative)	- Valid operator certification required to fulfil certified operator duties (if assigned). - Experience in providing technical support and leading/managing programs related to process control and compliant operations - Experience and/or training in conducting compliance audits, and management system audits - Experience and/or training in preparing and presenting informational and training material - Training on OCWA's QEMS and the DWQMS - Training on relevant legislation, regulations, codes, policies, guidelines and procedures - Experience using computers and operational computerized systems
Process & Compliance Technician, (Alternate QEMS Representative)	- Valid operator certification required to fulfil certified operator duties (if assigned) - Experience and/or training in resolving/addressing compliance issues for drinking water systems - Experience and/or training in monitoring, assessing and reporting on facility performance against legal requirements and corporate goals - Experience and/or training in preparing and presenting informational and training material - Experience in conducting management system audits or internal auditor education/training - Training on OCWA's QEMS and the DWQMS - Training on relevant legislation, regulations, codes, policies, guidelines and procedures - Experience using computers and operational computerized systems
Operations and Compliance Team Lead	- Valid operator certification required to fulfil certified operator duties (if assigned) - Experience and/or training in resolving/addressing compliance issues for drinking water systems - Experience and/or training in monitoring, assessing and reporting on facility performance against legal requirements and corporate goals - Experience and/or training in preparing and presenting informational and training material - Experience in conducting management system audits or internal auditor education/training - Training on OCWA's QEMS and the DWQMS - Training on relevant legislation, regulations, codes, policies, guidelines and procedures - Experience using computers and operational computerized systems

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Role/Position	Required Minimum Competencies
Certified Operator May include the following: • Operations Supervisor Water & Wastewater • Water & Wastewater Lead • Senior Water & Wastewater Operator • Water & Wastewater Operator • Water & Wastewater Operator-in-Training	• Valid operator certification • If required to act as ORO, certification must be at the level of the facility or higher • If required to act as Operator-in-Charge (OIC), certification must be level 1 or higher • Training and/or experience in inspecting and monitoring drinking water system processes and performing/planning maintenance activities • Training on OCWA's QEMS and the DWQMS • Training on relevant legislation, regulations, codes, policies, guidelines and procedures • Experience using computers and operational computerized systems
Maintenance Personnel May include the following: • Mechanic/Operator • Maintenance Technician	• Valid operator certification required to fulfil certified operator duties (if assigned) • Millwright and/or other trades certificates • Experience in maintaining and repairing equipment and structures and in planning and scheduling maintenance and repair tasks • Training and/or experience related to drinking water system processes • Training on OCWA's QEMS and the DWQMS • Training on relevant legislation, regulations, codes, policies, guidelines and procedures • Experience using computers and operational computerized systems
Instrumentation Technician May include the following: • Utility Plant Instrument Technician • Instrumentation Technician	• Valid operator certification required to fulfil certified operator duties (if assigned) • Experience and/or training in monitoring, programming, installing and troubleshooting network, hardware, software and instrumentation • Experience and/or training in drinking water system processes, design, instrumentation, process control and automation systems • Training on OCWA's QEMS and the DWQMS • Training on relevant legislation, regulations, codes, policies, guidelines and procedures • Experience using computers and operational computerized systems

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Role/Position	Required Minimum Competencies
Electrical Maintenance Personnel May include the following: • Utility Plant Electrician Operator • Maintenance Electrician	• Valid operator certification required to fulfil certified operator duties (if assigned) • Completion of any electrical or electronic training program certified by the Ministry of Advanced Education and Skills Development (formerly the Ministry of Training, Colleges and Universities) • Experience in performing maintenance and repair of electrical and electronic equipment • Training on OCWA's QEMS and the DWQMS • Training on relevant legislation, regulations, codes, policies, guidelines and procedures • Experience using computers and operational computerized systems

- 3.2 The following table presents the minimum competencies required by staff that provide administrative support to operations personnel.

Role and/or Position	Required Minimum Competencies
Administrative Staff	• Experience and/or training related to procurement and business administration practices • Training on OCWA's QEMS and the DWQMS • Training on relevant legislation, regulations, codes, policies, guidelines and procedures • Experience using computers

- 3.3 OCWA's recruiting and hiring practices follow those of the Ontario Public Service (OPS). As part of the OPS, minimum competencies, which include education, skills, knowledge and experience requirements, are established when designing the job description for a particular position. As part of the recruitment process, competencies are then evaluated against the job description. Based on this evaluation, the hiring manager selects and assigns personnel for specific duties.
- 3.4 OCWA's Operational Training Program aims to:
- Develop the skills and increase the knowledge of staff and management;
 - Provide staff with information and access to resources that can assist them in performing their duties; and
 - Assist OCWA certified operators in meeting the legislative and regulatory requirements with respect to training.
- 3.5 The Program consists of Director Approved, continuing education and on-the-job training and is delivered using a combination of methods (e.g., traditional classroom courses, e-learning/webinars and custom/program-based courses/sessions). A formal

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evaluation process is in place for all sessions under the Operational Training Program and is a critical part of the Program's continual improvement.

- 3.6 Awareness of OCWA's QEMS is promoted during the orientation of new staff, at facility/cluster/regional hub level training sessions and meetings and through OCWA's Environmental Compliance 101 (EC 101) course. All new staff are required to complete the EC 101 course within their first year of joining OCWA. The purpose of the EC 101 course is to ensure staff are aware of applicable legislative and regulatory requirements, to promote awareness of OCWA's QEMS and to reinforce their roles and responsibilities under OCWA's QEMS.
- 3.7 Staff are also required to complete the training listed in OCWA's Mandatory Training Requirements procedure, based on their position and/or the duties they perform. This list includes mandatory environmental and health and safety compliance training, as well as the training deemed mandatory by OCWA corporate and Ontario Public Service (OPS) policies and is available on OCWA's intranet (sharepoint site).
- 3.8 Operations personnel also receive site-specific training/instruction on relevant operational and emergency response procedures to ensure effective operational control of processes and equipment which may impact the safety and quality of drinking water.
- 3.9 As part of OCWA's annual Performance Planning and Review (PPR) process, employee performance is evaluated against their job expectations. Professional development opportunities and training needs (which could include formalized courses as well as site-specific on-the-job training or job shadowing/mentoring) are identified as part of this process (and on an ongoing basis). In addition to this process, OCWA employees may at any time request training from either internal or external providers by obtaining approval from their Manager.
- 3.10 Certified drinking water operators are responsible for completing the required number of training hours in order to renew their certificates based on the highest class of drinking water subsystem they operate. They are also responsible for completing mandatory courses required by *Safe Drinking Water Act* (SDWA) O. Reg. 128/04 Certification of Drinking Water System Operators and Water Quality Analysts. The Operations Management takes reasonable steps to ensure that every operator has the opportunity to attend training to meet the requirements.
- 3.11 It is the responsibility of operations personnel to ensure Operations Management are aware of any change to the status/classification of their drinking water operator certificate(s), the validity of their driver's licence (required to hold at a minimum a Class G license which is initially verified upon hire) and/or the validity of any other required certificates/qualifications.
- 3.12 Individual OCWA employee training records are maintained and tracked using a computerized system, the Training Summary database, which is administrated by

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OCWA's Learning and Development Department. Training records maintained at the facility are controlled as per OP-05 Document and Records Control.

4. Related Documents

OCWA's Learning and Development Resources (OCWA Intranet/sharepoint)
 [Orientation checklists/documentation]
 OCWA's Mandatory Training Requirements (OCWA intranet/sharepoint)
 Performance Planning and Review Database
 OP-5 Document and Records Control
 OCWA Training Summary Database

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued – Previous OP versions were separate for each drinking water system

	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-11 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 2
PERSONNEL COVERAGE		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To describe the procedure for ensuring that sufficient and competent personnel are available for duties that directly affect drinking water quality at the Elgin Middlesex Pumping Station (EMPS).

2. Definitions

Competency – an integrated set of requisite skills and knowledge that enables an individual to effectively perform the activities of a given occupation *

Essential Services – services that are necessary to enable the employer to prevent,

- (a) danger to life, health or safety,
- (b) the destruction or serious deterioration of machinery, equipment or premises,
- (c) serious environmental damage, or
- (d) disruption of the administration of the courts or of legislative drafting.

(Crown Employees Collective Bargaining Act, 1993)

3. Procedure

3.1 Operations Management ensures that personnel meeting the competencies identified in OP-10 Competencies are available for duties that directly affect drinking water quality.

3.2 The EMPS is staffed remotely by OCWA personnel at the Elgin Area Primary Water Supply System as follows:

Staffed 24/7 with 12 hour shifts beginning from 05:00.

3.3 Operations personnel are assigned to act as and fulfill the duties of Overall Responsible Operator (ORO) and Operator-in-Charge (OIC) in accordance with SDWA O. Reg. 128/04.

The designated OIC and ORO for each shift is recorded in the facility logbook.

3.4 Operations Management assigns an on-call operator for onsite response when required. The on-call shift change is at 07:00 on Tuesdays. The on-call schedule is maintained by Operations Management and is located as identified in OP-05A.

3.5 The operator conducts a physical inspection of the facility at least twice per week. Details of the inspection are recorded in the facility logbook.

* Based on the 2005 National Occupational Guidelines for Canadian Water and Wastewater Operators and International Board of Standards for Training, Performance and Instruction

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- 3.6 The SCADA system will alert the OIC at the EAPWSS should an alarm condition be activated. The OIC will determine the appropriate response. If the nature of the alarm requires additional staff, the on-call operator will provide assistance. The OIC or on-call operator records details of the call-in in the facility logbook and in the Call Back report in WMS.
- 3.7 Each manager (e.g. Operations Management/SPC Manager) is responsible for approving vacation time for their staff in a manner which ensures sufficient personnel are available for the performance of normal operating duties.
- 3.8 OCWA's operations personnel are represented by the Ontario Public Service Employees Union (OPSEU) and AMAPCEO. In the event of a labour disruption, Operations Management, together with the union, identifies operations personnel to provide "essential services" required to operate the facility so that the quality of drinking water is not compromised in any way.
- 3.9 A contingency plan for Critical Shortage of Staff is included in the Facility Emergency Plan. This plan provides direction in the event that there is a severe shortage of operations personnel due to sickness (e.g., pandemic flu) or other unusual situations.

4. Related Documents

OP-10 Competencies
 Facility Logbook
 Daily Round Sheets
 On-Call Schedule
 Call-Back Reports
 Shift/Vacation Schedule
 Critical Shortage of Staff Contingency Plan (Facility Emergency Plan)

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued – Previous OP versions were separate for each drinking water system

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-12 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 3
COMMUNICATIONS		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To describe the procedure for facility level internal and external QEMS-related communications between Top Management and:

- OCWA staff;
- the Owner;
- essential suppliers and service providers (as identified in OP-13); and
- the public.

2. Definitions

Operations Management – refers to the General Manager, Senior Operations Manager and/or Operations Manager that directly oversees a facility's operations

Operations Personnel – employees of the drinking water system who perform various activities related to the compliance, operations and maintenance of the drinking water system that may directly affect drinking water quality.

3. Procedure

3.1 Operations Management and the QEMS Representative are responsible for identifying and coordinating any site-specific communications in relation to the status/development of the facility's QEMS.

3.2 Internal and external communication responsibilities and reporting requirements for emergency situations are set out under OCWA's Emergency Management Program (i.e., Facility Emergency Plan and OCWA's Corporate Emergency Response Plan). Refer to OP-18 Emergency Management for more information.

3.3 Communication with OCWA staff:

3.3.1 Within the first year of hire, all staff are required to complete the Environmental Compliance 101 (EC 101) course upon availability and scheduling. The objective of the EC 101 course is to ensure that staff are aware of applicable legislative and regulatory requirements and of OCWA's QEMS and to reinforce their roles and responsibilities under OCWA's QEMS.

3.3.2 Operations Management are responsible for ensuring operations personnel receive site-specific training on the Operational Plan, the organizational structure for the facility including the roles and responsibilities and authorities (outlined in OP-09 Organizational Structure, Roles, Responsibilities and Authorities), QEMS Procedures and other related operating instructions and procedures as part of the orientation process and on an on-going basis as required.

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COMMUNICATIONS		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

3.3.3 The SPC Manager is responsible for ensuring training is provided for the Regional Hub (in consultation with Operations Management as required) on applicable legislative and regulatory requirements and the QEMS.

3.3.4 The QEMS Representative assists Operations Management and/or the SPC Manager in the coordination/delivery of training as required.

3.3.5 Revisions to the QEMS and associated documentation are communicated as per OP-05 Document and Records Control.

3.3.6 The QEMS Policy is available to all OCWA personnel through OCWA's intranet and as outlined in 3.6.2 of this procedure.

3.3.7 Operations personnel are responsible for identifying potential hazards at the facility that could affect the environmental and/or public health, and communicating these to Operations Management. They may also recommend changes be made to improve the facility's QEMS by making a request to the QEMS Representative (as per OP-05).

3.3.8 The PCT/OCTL is responsible for ensuring that the Operations Management and the Safety, Process and Compliance Manager are informed regarding the compliance/quality status of the facility and QEMS implementation and any need for improved processes/procedures at the cluster level.

3.3.9 The SPC Manager reports to the Regional Hub Manager on the compliance status, the QEMS performance and effectiveness, any need for improvement and on issues that may have Agency-wide significance. Operations Management reports to the Regional Hub Manager on facility operational performance.

3.4 Communication with the Owner:

3.4.1 The SPC Manager ensures that the Owner is provided with QEMS updates and that they are kept informed of the status of the facility's operational and compliance performance during regularly scheduled meetings and/or through electronic and/or verbal communications. The PCT assists in the coordination of these meetings and with communicating the updates as directed.

3.4.2 The continuing suitability, adequacy and effectiveness of OCWA's QEMS are communicated to the Owner as part of the Management Review process (refer to OP-20 Management Review).

3.5 Communications with Essential Suppliers and Service Providers:

3.5.1 Communication requirements to ensure essential suppliers and service providers understand the relevant OCWA QEMS policies, procedures and expectations are described in OP-13 Essential Supplies and Services.

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Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

3.6 Communication with the Public:

- 3.6.1 Media enquiries must be directed to the facility's designated media spokesperson as identified in the Facility Emergency Plan. The media spokesperson coordinates with local and corporate personnel (as appropriate) and the Owner in responding to media inquiries.
- 3.6.2 OCWA's QEMS and QEMS Policy are communicated to the public through OCWA's public website (www.ocwa.com). The QEMS Policy is also available as identified in OP-05A.
- 3.6.3 Facility tours for interested parties must be approved in advance by the Operations Management.
- 3.6.4 All complaints, whether received from the consumer, the community or other interested parties, are documented on the Complaint Form. As appropriate, the Operations Management ensures that the Owner is informed of the complaint and/or an action is developed to address the issue in a timely manner. The QEMS Representative ensures that consumer feedback is included for discussion at the Management Review.

4. Related Documents

OP-05 Document and Records Control
 OP-09 Organizational Structure, Roles, Responsibilities and Authorities
 OP-13 Essential Supplies and Services
 OP-18 Emergency Management
 OP-20 Management Review
 Facility Emergency Plan
 Corporate Emergency Response Plan
 Complaint Form

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued – Previous OP versions were separate for each drinking water system

	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-13 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 2
ESSENTIAL SUPPLIES AND SERVICES		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To describe OCWA's procedures for procurement and for ensuring the quality of essential supplies and services.

2. Definitions

Essential Supplies and Services – supplies and services deemed to be critical to the delivery of safe drinking water

3. Procedure

3.1 Essential supplies and services for the Elgin Middlesex Pumping Station are contained in ECP-2 Emergency Contact and Essential Supplies and Services List. The list is reviewed and updated at least once every calendar year by the QEMS Representative.

3.2 Purchasing is conducted in accordance with OCWA's Corporate Procurement and Administration policies, procedures and guidelines, which are adopted from those of the Ontario Public Service.

Purchases of capital equipment are subject to formal approval by the facility's owner.

3.3 As part of the corporate procurement process, potential suppliers/service providers are informed of relevant aspects of OCWA's QEMS through the tendering process and through specific terms and conditions set out in our agreements and purchase orders. Essential suppliers and service providers (including those contracted locally) are sent a letter that provides an overview of the relevant aspects of the QEMS.

3.4 Contractors are selected based on their qualifications and ability to meet the facility's needs without compromising operational performance and compliance with applicable legislation and regulations.

Contracted personnel including suppliers may be requested or required to participate in additional relevant training/orientation activities to ensure conformance with facility procedures and to become familiar with OCWA workplaces.

If necessary, appropriate control measures are implemented while contracted work is being carried out and communicated to all relevant parties to minimize the risk to the integrity of the drinking water system and the environment.

3.5 All third-party drinking water testing services are provided by accredited and licensed laboratories. The Ministry has agreement with The Canadian Association for Laboratory Accreditation (CALA) for accreditation of laboratories testing drinking water. The QEMS Representative is responsible for notifying the Ministry of any change to the drinking water testing services being utilized.

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ESSENTIAL SUPPLIES AND SERVICES		
Reviewed by: SPC Manager		Approved by: Senior Operations Manager

- 3.6 Internal verification and calibration activities (e.g. chlorine analyzer, turbidimeter, etc.) are conducted by operations personnel in accordance with equipment manuals and/or procedures (Refer to OP-17 Measurement Recording Equipment Calibration and Maintenance).
- 3.7 External calibration activities (e.g. flow meters) are conducted by qualified third-party providers. Qualifications of the service provider are verified during the procurement process. The service provider is responsible for providing a record/certificate of all calibrations conducted.
- 3.8 Chemicals purchased for use in the drinking water treatment process must meet AWWA Standards and be ANSI/NSF certified as per the Municipal Drinking Water Licence (MDWL).
- 3.9 The facility orders and receives ongoing deliveries of chemicals to satisfy current short-term needs based on processing volumes and storage capacities. Incoming chemical orders are verified by reviewing the manifest or invoice in order to confirm that the product received is the product ordered.
- 3.10 Process components/equipment provided by the supplier must meet applicable regulatory requirements and industry standards for use in drinking water systems prior to their installation.

4. Related Documents

ECP-2 Emergency Contact/Essential Supplies and Services List
OP-17 Measurement Recording Equipment Calibration and Maintenance
ANSI/NSF Documentation
AWWA Standards
MDWL
Calibration Certificates/Records

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued – Previous OP versions were separate for each drinking water system

	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-14 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 2
REVIEW AND PROVISION OF INFRASTRUCTURE		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To describe OCWA's procedure for reviewing the adequacy of infrastructure necessary to operate and maintain the Elgin Middlesex Pumping Station.

2. Definitions

Infrastructure – the set of interconnected structural elements that provide the framework for supporting the operation of the drinking water system, including buildings, workspace, process equipment, hardware, software and supporting services, such as transport or communication

3. Procedure

3.1 At least once every calendar year, Operations Management in conjunction with operations personnel (Operations and Distribution/Compliance Team Leads) conducts a review of the drinking water system's infrastructure to assess its adequacy for the operation and maintenance of the system. Operations personnel assist with identifying the need for infrastructure repairs, replacements or alterations and with prioritizing each identified item. Documents and records that are reviewed may include:

- Maintenance records
- Call-back reports
- Adverse Water Quality Incidents (AWQIs) or other incidents
- Health & Safety Inspections
- Ministry Inspection Reports

3.2 The outcomes of the risk assessment documented as per OP-08 are considered as part of this review.

3.3 The output of the review is a 6 year rolling Capital and Major Maintenance Recommendations Report to assist the Owner and OCWA with planning infrastructure needs for the short and long-term. This report is submitted, at least once every calendar year by Operations Management, to the Owner for review and approval. Together with the Owner, Operations Management determines and documents timelines and responsibilities for implementation of priority items.

3.4 The final approved Capital and Major Maintenance Recommendations Report] forms the long term forecast for any major infrastructure maintenance, rehabilitation and renewal activities as per OP-15.

3.5 Operations Management ensures that results of this review are considered during the Management Review process (OP-20).

4. Related Documents

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REVIEW AND PROVISION OF INFRASTRUCTURE		
Reviewed by: SPC Manager		Approved by: Senior Operations Manager

Capital and Major Maintenance Recommendations Report
OP-08 Risk Assessment Outcomes
OP-15 Infrastructure Maintenance, Rehabilitation and Renewal
OP-20 Management Review
Management Review Minutes

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued – Previous OP versions were separate for each drinking water system

	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-15 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 3
INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To describe OCWA's infrastructure maintenance, rehabilitation and renewal program for the EMPS.

2. Definitions

Infrastructure – the set of interconnected structural elements that provide the framework for supporting the operation of the drinking water system, including buildings, workspace, process equipment, hardware, software and supporting services, such as transport or communication

Rehabilitation – the process of repairing or refurbishing an infrastructure element.

Renewal – the process of replacing the infrastructure elements with new elements.

3. Procedure

3.1 OCWA, under contract with the Owner, maintains a computerized Work Management System (WMS) to manage maintenance, rehabilitation and renewal of infrastructure for which it is operationally responsible. The major components of the WMS consist of planned maintenance, unplanned maintenance, rehabilitation, renewal and program monitoring and reporting.

3.1.1 Planned Maintenance

Routine planned maintenance activities include: pump inspections, analyzer calibrations, flow meter calibrations, valve inspections, surge tank inspection, chlorine feed inspections, generator inspections and weekly inspections of the facility.

Planned maintenance activities are scheduled in the WMS that allows the user to:

- Enter detailed asset information;
- Generate and process work orders;
- Access maintenance and inspection procedures;
- Plan preventive maintenance and inspection work;
- Plan, schedule and document all asset related tasks and activities; and
- Access maintenance records and asset histories.

Planned maintenance activities are communicated to the person responsible for completing the task through the issuance of WMS work orders. Work orders are automatically generated on a daily, weekly, monthly, quarterly and annual schedule as determined based on manufacturer's recommendations and site specific operational and maintenance needs and are assigned directly to the appropriate operations personnel. This schedule is set up by Asset Maintenance

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INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

Specialist through input from the Senior Operations Manager, Maintenance and Distribution Team Lead and Operations and Compliance Team Lead. Work orders are completed and electronically entered into WMS by the person responsible for completing the task. Records of these activities are maintained as per OP-05 Document and Records Control.

The Asset Maintenance Specialist or designate maintains the inventory of equipment in WMS and ensures that appropriate maintenance plans are in place. Maintenance plans are developed according to the manufacturer's instructions, regulatory requirements, industry standards, and/or client service requirements. Equipment Operation and Maintenance (O&M) manuals are accessible to operations personnel at the locations specified in OP-05 Document and Records Control.

3.1.2 Unplanned Maintenance

Unplanned maintenance is conducted as required. All unplanned maintenance activities are authorized by the Senior Operations Manager. Unplanned maintenance activities are recorded on corrective work orders and are entered into WMS by the person responsible for completing the unplanned maintenance activity.

3.1.3 Rehabilitation and Renewal

Rehabilitation and renewal activities including capital upgrades (major infrastructure maintenance) are determined at least once every calendar year in consultation with Operations Management and the Owner's Representative. A list of required replacement or desired new equipment is compiled and prioritized by Operations Management in conjunction with operations personnel and is presented to the Owner for review and comment. All major expenditures require the approval of the Owner. In addition to the short-term facility needs (i.e. current year), the Capital and Major Maintenance Recommendations Report also provides a long-term 6-year list of major maintenance recommendations. (Refer to OP-14 Review and Provision of Infrastructure).

3.1.4 Program Monitoring and Reporting

Maintenance needs for the facility are determined through review of manufacturer's instructions, regulatory requirements, industry standards, and/or client service requirements and are communicated by means of work orders. Additionally, Operations Management and operations personnel conduct a review of the drinking water system's infrastructure to assess its adequacy for the operation and maintenance of the system. (Refer to OP-14 Review and Provision of Infrastructure).

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INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL		
Reviewed by: SPC Manager		Approved by: Senior Operations Manager

To assist in monitoring the effectiveness of the program monthly reports are provided by the Asset Maintenance Specialist to Operations Management and Regional Hub Manager.

3.2 OCWA's infrastructure maintenance, rehabilitation and renewal program is initially communicated to the Owner through the operating agreement. OCWA's program is communicated to the Owner Representative on a monthly basis in the Operations Reports, during quarterly meetings and at a minimum of at least once every calendar year through submission of the Capital and Major Maintenance Recommendations Report and through the results of the Management Review.

4. Related Documents

Minutes of Management Review
Capital and Major Maintenance Recommendations Report
OP-05 Document and Records Control
OP-14 Review and Provision of Infrastructure

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued – Previous OP versions were separate for each drinking water system

	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-16 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 3
SAMPLING, TESTING AND MONITORING		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To describe the procedure for sampling, testing and monitoring for process control and finished drinking water quality.

2. Definitions

Challenging Conditions – any existing characteristic of the water source or event-driven fluctuations that impact the operational process as identified and listed under OP-06 Drinking Water System

3. Procedure

- 3.1 All sampling, monitoring and testing is conducted at a minimum in accordance with SDWA O. Reg. 170/03, the facility's Municipal Drinking Water Licenses (MDWLs) as well as sampling/testing and monitoring requirements listed within the operating agreement with the owner.
- 3.2 Sampling requirements for the facility are defined in the facility's sampling schedule identified in EF-ADMIN-2051 and EF-ADMIN-2052, which is available to operations personnel, at the location(s) noted in OP-05 Document and Records Control. The sampling schedule is maintained by the OCTL and is updated as required.
- 3.3 Samples that are required to be tested by an accredited and licensed laboratory, are collected, handled and submitted according to the directions provided by the licensed laboratory(ies) that conducts the analysis. The laboratory(ies) used for this facility are listed in the Essential Supplies and Services List (within the Facility Emergency Plan (FEP)).

Electronic and/or hardcopy reports received from the laboratory are maintained as per OP-05 Document and Records Control. Analytical results from laboratory reports are uploaded into WaterTrax by the lab.

- 3.4 Continuous monitoring equipment is used to sample and test for free chlorine residuals. Test results from continuous monitoring equipment are captured by the SCADA system and are reviewed by a certified operator in accordance with the requirements of SDWA O. Reg. 170/03.

The SCADA system also collects and records information on the following parameters related to process control and finished drinking water quality:

- Free Chlorine Residuals;
- Flows;
- System pressures.

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SAMPLING, TESTING AND MONITORING		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

- 3.5 Adverse water quality incidents are responded to and reported as per SOP for Reporting Adverse Water Quality (Under SDWA O. Reg. 170/03) located as identified in OP-05 Document and Records Control.
- 3.6 In-house process control activities are conducted on a regular basis by the certified operator(s) on duty and at a minimum are conducted as follows:

Operational Parameter	Location	Minimum Frequency
Turbidity	Aylmer Pipeline London Pipeline St. Thomas Pipeline	Grab weekly
Free Chlorine Residual	Aylmer Pipeline London Pipeline St. Thomas Pipeline	Grab Weekly

In-house samples are analyzed following approved laboratory procedures. The sampling results are recorded on the form EF-ADMIN-2054 and are maintained as identified in OP-05 Document and Records Control. Any required operational process adjustments are recorded in the facility log book.

- 3.7 The sampling program has been set up so that sampling occurs under all conditions including any that may be considered challenging. Additional sampling can take place if circumstances warrant (e.g. adverse sampling follow-up).
- 3.8 OCWA operates the EMPS and the EAPWSS that supplies the water to this facility. Consequently, operating staff are aware of any water quality issues that will impact the secondary disinfection residuals at the EMPS. Monitoring at the EAPWSS (upstream of EMPS) is based on instructions and locations specified within Procedure EA-ADMIN-2050 Sampling and Lab Analysis; in the weekly and monthly sampling schedules identified in step 3.2 above; and in the daily sampling schedule EF-ADMIN-2050. The monitoring complies with regulatory requirements and addresses the needs of the owner of the EAPWSS. Summaries of the data from the analysis of samples collected upstream of EMPS are provided to the owners of the EMPS as per regulatory requirements.
- 3.9 Sampling, testing and monitoring results are readily accessible to the Owners upon request or through the Operations Reports.

At a minimum, Owners are provided with an annual summary of sampling, testing and monitoring results through the SDWA O. Reg. 170/03 Section 11 Annual Report, the Schedule 22 Municipal Summary Report and through the Management Review process outlined in OP-20 Management Review.

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SAMPLING, TESTING AND MONITORING		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

In addition, updates regarding sampling, testing and monitoring activities are provided as per the operating agreement and during regular client meetings.

4. Related Documents

Facility Logbook
 OP-05 Document and Records Control
 OP-06 Drinking Water System
 OP-20 Management Review
 Laboratory Analysis Reports
 Laboratory Chain of Custody Forms
 Annual Report (O. Reg. 170 Section 11)
 Municipal Summary Report (O. Reg. 170 Schedule 22)
 WaterTrax Records
 Emergency Contact List and Essential Supplies & Services List
 Operating Agreement
 Weekly Sampling Schedule EF-ADMIN-2051
 Monthly Sampling Schedule EF-ADMIN-2052
 Weekly Distribution Sheet EF-ADMIN-2054
 Sampling and Lab Analysis Procedure EA-ADMIN-2050
 SOP - Reporting and Responding to Adverse Results
 SCADA Records
 WMS Records

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued – Previous OP versions were separate for each drinking water system

	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-17 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 2
MEASUREMENT AND RECORDING EQUIPMENT CALIBRATION AND MAINTENANCE		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To describe the procedure for the calibration and/or verification and maintenance of measurement and recording equipment at the EMPS.

2. Definitions

None

3. Procedure

- 3.1 All measurement and recording equipment calibration and maintenance activities must be performed by appropriately trained and qualified personnel or by a qualified third-party calibration service provider (refer to OP-13 Essential Supplies and Services).
- 3.2 The Asset Maintenance Specialist establishes and maintains a list of measurement and recording devices and associated calibration and/or verification schedules using the automated Work Management System (WMS). When a new device is installed, it is added to the WMS system by Asset Maintenance Specialist. The new device is tagged with a unique identification number and the maintenance schedule is set up. Work orders are then automatically generated as per the schedule (refer to OP-15 Infrastructure Maintenance, Rehabilitation and Renewal).
- 3.3 Details regarding the results of the calibration and/or verification are recorded within each individual work order generated by the WMS. Internal calibration/verifications can also be recorded on a calibration certificate designated EF-ADMIN-2200, these are maintained as identified in OP-05A. Third party calibration reports are provided and stored as identified in OP-05A.
- 3.4 Calibration and maintenance activities are carried out in accordance with procedures specified in the manufacturer's manual and instructions specified in WMS.
- 3.5 Standards, reagents and/or chemicals that may be utilized during calibration and/or verification and/or maintenance activities are verified before use to ensure they are not expired. Any expired standards, reagents and/or chemicals are appropriately disposed of and are replaced with new standards, reagents and/or chemicals as applicable.
- 3.6 Any measurement device which does not meet its specified performance requirements during calibration and/or verification must be removed from service (if practical) until repaired, replaced or successfully calibrated. The failure must be reported to the Operator in Charge (OIC), Operations Management and ORO as soon as possible so that immediate measures can be taken to ensure that drinking water quality has not been compromised by the malfunctioning device. For failures of continuous monitoring equipment used for distribution residuals, adequate steps must be taken to ensure regulatory minimum testing and recording frequencies are met and documented. Any

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MEASUREMENT AND RECORDING EQUIPMENT CALIBRATION AND MAINTENANCE		
Reviewed by: SPC Manager		Approved by: Senior Operations Manager

actions taken as a result of the failure are recorded in the facility logbook. The SPC Manager ensures that any notifications required by applicable legislation are completed and documented within the specified time period.

- 3.7 Calibration and maintenance records and maintenance/equipment manuals are maintained as per OP-05 Document and Records Control.

4. Related Documents

Facility Logbook
 WMS Records
 Calibration/Maintenance Records
 Maintenance/Equipment Manuals
 OP-05 Document and Records Control
 OP-13 Essential Supplies and Services
 OP-15 Infrastructure Maintenance, Rehabilitation and Renewal
 Municipal Drinking Water Licence (MDWL)
 EF-ADMIN-2200 Calibration Certificate

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued – Previous OP versions were separate for each drinking water system

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-18 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 4
EMERGENCY MANAGEMENT		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To describe the procedure for maintaining a state of emergency preparedness at the facility level under OCWA's Emergency Management Program.

2. Definitions

Corporate Emergency Response Plan (CERP) – a corporate-level emergency preparedness plan for responding to and supporting serious (Level 3) operations emergencies

Facility Emergency Plan (FEP) – a facility-level emergency preparedness plan for responding to and recovering from operations emergencies

Operations Management – refers to the General Manager, Senior Operations Manager and/or Operations Manager that directly oversees a facility's operations

3. Procedure

3.1 The Facility Emergency Plan (FEP) is the corporate standard for emergency management at OCWA-operated facilities. The FEP supports the facility-level response to and recovery from Level 1, 2 and 3 events related to water and wastewater operations and directly links to the Corporate Emergency Response Plan (CERP) for management of Level 3 events that require corporate support. Operations Management is responsible for establishing a site-specific FEP that meets the corporate standard for this drinking water system.

3.2 OCWA recognizes three levels of events:

Level 1 is an event that can be handled entirely by plant staff and regular contractors. The event and the actions taken to resolve it (and to prevent a reoccurrence, if possible) are then included in regular reporting (both internally and externally). Examples may include response to an operational alarm, first aid incident, small on-site spill, or a process upset that can be easily brought under control.

Level 2 is an event that is more serious and requires immediate notification of others (regulator, owner). Examples may include minor basement flooding, injury to staff that requires medical attention, or a spill that causes or is likely to cause localized, off-site adverse effects. If the event reaches this level, the instructions indicate the need to contact the Safety, Process and Compliance Manager/Regional Hub Manager.

Level 3 is an actual or potential situation that will likely require significant additional resources and/or threatens continued operations. It may require corporate-level support including activation of the OCWA Action Group and opening of an Emergency Operations Centre (EOC) as described in the CERP. Level 3 events usually involve

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EMERGENCY MANAGEMENT		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

intervention from outside organizations (client, emergency responders, Ministry, media, etc.). Examples may include:

- Disruption of service/inability to meet demand;
- Critical injury including loss of life;
- Breach of security that is a threat to public health;
- Intense media attention;
- Community emergency affecting water supply/treatment;
- Declared pandemic; or
- Catastrophic failure that could impact public health or the environment or cause significant property damage.

3.3 Potential emergency situations or service interruptions identified for the EMPS include:

- Unsafe Water
- Spill Response
- Critical Injury
- Critical Shortage of Staff
- Loss of Service
- Security Breach

3.4 The processes for responding to and recovering from each potential emergency /service disruption are documented within a site-specific contingency plan (CP). The CPs and related standard operating procedures (SOPs) are contained within the FEP.

3.5 OCWA's training requirements related to the FEP are as follows:

Training Topic	Training Provider	Type of Training	Frequency	Required For
Establishing and maintaining a FEP that meets the corporate standard	Safety, Process and Compliance Manager and/or Corporate Compliance (as required)	On-the-Job Practical	Upon hire and when changes are made to the corporate standard*	PCTs (or others identified by the Operations Management)
Contents of the site-specific FEP	Facility Level (coordinated by QEMS Representative)	On-the-Job Practical	Upon hire and when changes to the FEP are made*	All operations personnel with responsibilities for responding to an emergency

*Note: Changes to the corporate standard or site-specific FEP may only require the change to be communicated to Operations for implementation. Therefore, not all changes will require training.

3.6 At least one CP must be tested each calendar year and each CP must be reviewed at least once in a five-calendar year period. The reviews and tests are recorded on the FEP-01 Contingency Plan Review/Test Summary Form and in WMS as appropriate. This record includes the outcomes of the review/test, and identifies any opportunities for improvement and actions taken. A scheduled test of a CP may be regarded as a review of that particular CP as long as the outcomes are evaluated using the FEP-01 form. A CP-related response to an actual event may also be considered a review or a

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EMERGENCY MANAGEMENT		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

test. A review of the incident including lessons learned should be recorded on FEP-01 following the resolution of the actual event, along with any opportunities for improvement/actions identified.

- 3.7 Revisions to the CPs, SOPs and other FEP documents are made (as necessary) following a review, test, actual event or other significant change (e.g., changes in regulatory requirements, corporate policy or operational processes and/or equipment, etc.). Results of the emergency response testing and any opportunities for improvement/actions identified are considered during the Management Review (OP-20).
- 3.8 Roles and responsibilities for emergency management at OCWA-operated facilities are set out in the FEP. Specific roles and responsibilities related to a particular emergency or service interruption (including those of the Owner where applicable) are set out in the relevant site-specific CP. A general description of the respective responsibilities of the Owner and the operating authority in the event an emergency occurs is included in the service agreement with the Owner (as required by the *Safe Drinking Water Act*).
- 3.9 Where they exist, any relevant sections of the Municipal Emergency Response Plan (MERP) are included or referenced in the appendices section of the FEP. Measures specified in the MERP are incorporated into CPs where appropriate.
- 3.10 An emergency contact list in conjunction with the essential supplies and services list is contained within the FEP and is reviewed/updated at least once per calendar year. An emergency communications protocol is contained within the FEP. Specific notification requirements during emergency situations or service interruptions are set out in the individual CPs and in the CERP.

4. Related Documents

Facility Emergency Plan
 Corporate Emergency Response Plan
 FEP-01 Contingency Plan Review/Test Summary Form
 WMS
 Municipal Emergency Response Plan (as applicable)
 Emergency Contact List/Essential Supplies & Services List (Contacts section of FEP)
 OP-20 Management Review

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued for combined OP

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EMERGENCY MANAGEMENT		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-19 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 5
INTERNAL QEMS AUDITS		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To describe the procedure for conducting internal audits at the facility level that evaluate the conformance of OCWA's Quality & Environmental Management System (QEMS) to the requirements of the Drinking Water Quality Management Standard (DWQMS).

This procedure applies to Internal QEMS Audits conducted at the EMPS for the purpose of meeting the DWQMS requirements for internal audits.

Note: This procedure does not apply to internal compliance audits conducted in accordance with OCWA's Internal Audit Program.

2. Definitions

Audit Team – one or more Internal Auditors conducting an audit

Internal Auditor – an individual selected to conduct an Internal QEMS Audit

Internal QEMS Audit – a systematic and documented internal verification process that involves objectively obtaining and evaluating documents and processes to determine whether a quality management system conforms to the requirements of the DWQMS

Lead Auditor – Internal Auditor responsible for leading an Audit Team

Non-conformance – non-fulfillment of a DWQMS requirement

Objective Evidence – verifiable information, records or statements of facts. Audit evidence is typically based on interviews, examination of documents, observations of activities and conditions, reviewing results of measurements and tests or other means. Information gathered through interviews should be verified by acquiring supporting information from independent sources

Opportunity for Improvement (OFI) – an observation about the QEMS that may, in the opinion of the Internal Auditor, offer an opportunity to improve the effectiveness of the system or prevent future problems; implementation of an OFI is optional

3. Procedure Audit Objectives, Scope and Criteria

3.1.1 In general, the objectives of an internal QEMS audit are:

- To evaluate conformance of the implemented QEMS to the requirements of the DWQMS;
- To identify non-conformances with the documented QEMS; and
- To assess the effectiveness of the QEMS and assist in its continual improvement.

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INTERNAL QEMS AUDITS		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

3.1.2 The scope of an internal QEMS audit includes activities and processes related to the QEMS as documented in the Operational Plan.

3.1.3 The criteria covered by an internal QEMS audit include:

- Drinking Water Quality Management Standard (DWQMS)
- Current Operational Plan
- QEMS-related documents and records

3.1.4 The audit scope and criteria may be customized as necessary to focus on a particular process/critical control point and/or any elements of the DWQMS which may warrant specific attention. The results of previous internal and external audits should also be considered.

3.2 Audit Frequency

3.2.1 Internal QEMS audits may be scheduled and conducted once every calendar year or may be separated into smaller audit sessions scheduled at various intervals throughout the calendar year. However, all elements of the DWQMS must be audited at least once every calendar year.

3.2.2 The QEMS Representative is responsible for maintaining the internal QEMS audit schedule. The audit schedule may be modified based on previous audit results.

3.3 Internal Auditor Qualifications

3.3.1 Internal QEMS audits shall only be conducted by persons approved by the QEMS Representative and having the following minimum qualifications:

- Internal auditor training or experience in conducting management system audits; and
- Familiarity with the DWQMS requirements.

3.3.2 Internal Auditors that do not meet the qualifications in s.3.3.1 may form part of the Audit Team for training purposes, but cannot act as Lead Auditor.

3.3.3 Internal Auditors must remain objective and, where practical, be independent of the areas/activities being audited. It may not be possible for internal auditors to be fully independent of the activity being audited, but every effort should be made to remove bias and encourage objectivity. Auditors should maintain objectivity throughout the audit process to ensure that the audit findings and conclusions are based only on the audit evidence. Objectivity can be demonstrated by obtaining sufficient appropriate evidence to provide a reasonable basis for the audit findings.

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INTERNAL QEMS AUDITS		
Reviewed by: SPC Manager		Approved by: Senior Operations Manager

3.4 Audit Preparation

3.4.1 Together, the QEMS Representative and the Lead Auditor:

- Establish the audit objectives, scope [for multi-facility Operational Plans where not all systems will be audited each calendar year add: (including the identification and rationale for choosing which system(s) will be audited)] and criteria;
- Confirm the audit logistics (locations, dates, expected time and duration of audit activities, any health and safety considerations, availability of key personnel, audit team assignments, etc.).

3.4.2 Each Internal Auditor is responsible for:

- Reviewing documentation to prepare for their audit assignments including:
 - the Operational Plan and related procedures;
 - results of previous internal and external QEMS audits;
 - the status and effectiveness of corrective and preventive actions implemented;
 - the results of the management review;
 - the status/consideration of OFIs identified in previous audits; and
 - other relevant documentation.
- Preparing work documents (e.g., checklists, forms, etc.) for reference purposes and for recording objective evidence collected during the audit

3.5 Conducting the Audit

3.5.1 Opening and closing meetings are not required, but may be conducted at the discretion of the QEMS Representative and the Lead Auditor taking into account expectations of Top Management.

3.5.2 The Audit Team gathers and records objective evidence by engaging in activities that may include conducting interviews with Operations Management and staff (in person, over the phone and/or through e-mail), observing operational activities and reviewing documents and records.

3.5.3 The Audit Team generates the audit findings by evaluating the objective evidence against the audit criteria (s. 3.1.3). In addition to indicating conformance or non-conformance, the audit findings may also lead to the identification of opportunities for improvement (OFIs). The Lead Auditor is responsible for resolving any differences of opinion among Audit Team members with respect to the audit findings and conclusions.

3.6 Reporting the Results

3.6.1 The Lead Auditor reviews the audit findings and conclusions with the QEMS Representative and Top Management. Other audit participants may also take

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INTERNAL QEMS AUDITS		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

part in this review as appropriate. This review may take place in person (e.g., during a closing meeting) or through other means (phone call, email, etc.). Any diverging opinions regarding the audit findings and conclusions should be discussed and, if possible, resolved. If not resolved, this should be noted by the Lead Auditor.

3.6.2 The Lead Auditor submits a written report and/or completed work documents to the QEMS Representative. The submitted documentation must identify (at a minimum):

- Audit objectives, scope and criteria;
- Audit Team member(s) and audit participants;
- Date(s) and location(s) where audit activities were conducted;
- Audit findings including:
 - Related objective evidence for each element;
 - Any non-conformance identified referencing the requirement that was not met; and
 - OFIs or other observations.
- Audit conclusions.

3.6.3 The QEMS Representative distributes the audit results to Top Management and others as appropriate.

3.6.4 The QEMS Representative ensures that results of internal QEMS audits are included as inputs to the Management Review as per OP-20 Management Review.

3.7 Corrective Actions and Opportunities for Improvement (OFIs)

3.7.1 Corrective actions are initiated when non-conformances are identified through internal QEMS audits and are documented and monitored as per OP-21 Continual Improvement.

3.7.2 OFIs are considered, and preventive actions initiated, documented and monitored as per OP-21 Continual Improvement.

3.8 Record-Keeping

3.8.1 Internal QEMS audit records are filed by the QEMS Representative and retained as per OP-05 Document and Records Control.

4. Related Documents

Internal Audit Records (checklists, forms, reports, etc.)

OP-05 Document and Records Control

OP-20 Management Review

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INTERNAL QEMS AUDITS		
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OP-21 Continual Improvement
 EMPS CAF tracking spreadsheet

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued – Previous OP versions were separate for each drinking water system

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-20 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 3
MANAGEMENT REVIEW		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To describe the procedure for conducting a Management Review of the Quality & Environmental Management System (QEMS) at the facility level.

2. Definitions

Management Review – a formal (documented) meeting conducted at least once every calendar year by Top Management to evaluate the continuing suitability, adequacy and effectiveness of OCWA's Quality & Environmental Management System (QEMS)

Operations Management – refers to the General Manager, Senior Operations Manager and/or Operations Manager that directly oversees a facility's operations

Top Management – a person, persons or group of people at the highest management level within an operating authority that makes decisions respecting the QMS and recommendations to the owner respecting the subject system or subject systems. OCWA has defined Top Management for the EMPS as:

- Operations Management – Elgin Cluster]
- Regional Hub Manager – Huron Elgin Region
- Safety, Process & Compliance (SPC) Manager – Huron Elgin Region

3. Procedure

- 3.1 Top Management ensures that a Management Review is conducted at least once every calendar year.

Management Reviews for more than one drinking water system may be conducted at the same meeting provided the considerations listed in section 3.4 below are taken into account for each individual system and documented in the Management Review meeting minutes.

- 3.2 At a minimum, the QEMS Representative and at least one member of Top Management must attend the Management Review meeting. Team Leads, the Process and Compliance Technician and other members of Top Management may participate though their attendance is optional.
- 3.3 Other staff may be invited to attend the Management Review meeting or to assist with presenting information or in reviewing the information presented, where they offer additional expertise regarding the subject matter.
- 3.4 The standing agenda for Management Review meetings is as follows:
- a) Incidents of regulatory non-compliance;
 - b) Incidents of adverse drinking water tests;
 - c) Deviations from critical control limits and response actions;
 - d) The effectiveness of the risk assessment process;

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MANAGEMENT REVIEW		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

- e) Internal and third-party audit results (including any preventive actions implemented to address Opportunities for Improvement (OFI) or rationale as to why OFIs were not implemented);
- f) Results of emergency response testing (including any OFIs identified);
- g) Operational performance;
- h) Raw water supply and drinking water quality trends;
- i) Follow-up on action items from previous Management Reviews;
- j) The status of management action items identified between reviews;
- k) Changes that could affect the QEMS;
- l) Consumer feedback;
- m) The resources needed to maintain the QEMS;
- n) The results of the infrastructure review;
- o) Operational Plan currency, content and updates;
- p) Staff suggestions; and
- q) Consideration of applicable Best Management Practices (BMPs).

3.5 In relation to standing agenda item q), applicable BMPs, if any, to address drinking water system risks discussed during other agenda items, are identified and documented in the Management Review minutes. Review and possible adoption of applicable BMPs are revisited during subsequent Management Reviews and are incorporated into preventive and/or corrective actions as per OP-21 as appropriate.

3.6 The QEMS Representative coordinates the Management Review and distributes the agenda with identified responsibilities to participants in advance of the Management Review meeting along with any related reference materials.

3.7 The Management Review participants review the data presented and make recommendations and/or initiate action to address identified deficiencies as appropriate as per OP-21.

3.8 The QEMS Representative ensures that minutes of and actions resulting from the Management Review meeting are prepared and distributed to the appropriate OCWA Top Management, personnel and the [insert position of Owner/municipal representative(s)].

3.9 The QEMS Representative monitors the progress and documents the completion of actions resulting from the Management Review.

4. Related Documents

Management Review Reference Materials
Minutes and actions resulting from the Management Review
OP-21 Continual Improvement

5. Revision History

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-20 Rev Date: 2026-01-31 Rev No: 0 Pages: 3 of 3
MANAGEMENT REVIEW		
Reviewed by: SPC Manager		Approved by: Senior Operations Manager

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued – Previous OP versions were separate for each drinking water system

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-21 Rev Date: 2026-01-31 Rev No: 0 Pages: 1 of 3
CONTINUAL IMPROVEMENT		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

1. Purpose

To describe the procedure for tracking and measuring continual improvement of the Quality & Environmental Management System (QEMS) for the Elgin Middlesex Pumping Station.

2. Definitions

Continual Improvement - recurring activity to enhance performance (ISO 14001:2014)

Corrective Action – action to eliminate the cause of detected nonconformity of the QMS with the requirements of the DWQMS or other undesirable situation

Non-conformance – the non-fulfilment of a DWQMS requirement

Preventive Action – action to prevent the occurrence of nonconformity of the QMS with the requirements of the DWQMS or other undesirable situation

- 3. Procedure** OCWA strives to continually improve the effectiveness of its QEMS for this drinking water system(s) through the identification and implementation of corrective/preventive actions and, as appropriate, through review and consideration of applicable Best Management Practices (BMPs). Corrective Actions Non-conformances may be identified through an internal or external QEMS audit(s) conducted for this drinking water system. They may also be identified as a result of other events such as: an incident/emergency;

- community/Owner complaint;
- other reviews; and
- operational checks, inspections or audits.

3.2.2 The QEMS Representative (in consultation with Operations Management and/or the SPC Manager) investigates the need for a corrective action to eliminate the root cause(s) so as to prevent the non-conformance from recurring. The investigation may also include input from the operators and other stakeholders and the consideration of BMPs as appropriate.

3.2.3 The QEMS Representative determines the corrective action needed based on this consultation. The Operations Management (or designate) assigns responsibility and a target date for resolution.

3.2.4 The QEMS Representative ensures corrective actions are documented using [insert specific database/spreadsheet/document being used to track action items e.g., OPEX database, "Implementation Action Plan", "Action Summary", etc.]. The QEMS Representative monitors the progress of corrective action(s) and provides status updates to Top Management.

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CONTINUAL IMPROVEMENT		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

3.2.5 The implementation and effectiveness of corrective actions are verified during subsequent internal QEMS audits and are considered during the Management Review. If there is evidence that the action taken was not effective, the Operations Management (or designate) initiates further corrective action and assigns resources as appropriate until the non-conformance is fully resolved.

3.3 Preventive Actions

3.3.1 Potential preventive actions may be identified through an internal or external QEMS audit as Opportunities For Improvement (OFIs), during the Management Review or through other means such as:

- staff/Owner suggestions;
- regulator observations;
- evaluation of incidents/emergency response/tests;
- the analysis of facility/Regional Hub or OCWA-wide data/trends;
- non-conformances identified at other drinking water systems; or
- a result of considering a BMP.

3.3.2 The QEMS Representative (in consultation with Operations Management and/or the SPC Manager) considers whether a preventive action is necessary. The review may also include input from the operators and other stakeholders and the consideration of BMPs as appropriate.

3.3.3 If it is decided that a preventive action is necessary, the QEMS Representative determines the action to be taken based on this consultation and the Operations Management (or designate) assigns responsibility and a target date for implementation.

3.3.4 The implementation of preventive actions are tracked by the QEMS Representative using the [insert specific database/spreadsheet/document being used to track action items e.g., OPEX database, "Implementation Action Plan, "Action Summary", etc.].

3.3.5 The implementation and effectiveness of preventive actions are verified during subsequent internal QEMS audits and are considered during the Management Review. If there is evidence that the action taken was not effective, the Operations Management (or designate) may consider further preventive actions and assigns resources as appropriate.

3.4 The QEMS Rep. and Operations Management monitor corrective/preventive actions on an ongoing basis and review the status and effectiveness of the actions during subsequent Management Review meetings.

3.5 Best Management Practices (BMPs)

 Ontario Clean Water Agency	OPERATIONAL PLAN Elgin Middlesex Pumping Station	QEMS Proc.: OP-21 Rev Date: 2026-01-31 Rev No: 0 Pages: 3 of 3
CONTINUAL IMPROVEMENT		
Reviewed by: SPC Manager	Approved by: Senior Operations Manager	

3.5.1 The QEMS Representative and/or Operations Management in consultation with the SPC Manager will review and consider applicable internal and/or external BMPs identified by internal and/or external sources as part of the Management Review (OP-20) and in the corrective and preventive action processes described above.

3.5.2 BMPs may include, but are not limited to:

- Facility/Regional Hub practices developed and adopted as a result of changes to legislative or regulatory requirements, trends from audit findings or drinking water system performance trends;
- OCWA-wide BMPs/guidance or recommended actions;
- Drinking water industry based standards/BMPs or recommendations; or
- Those published by the Ministry.

3.5.3 At a minimum, applicable BMPs must be reviewed and considered once every 36 months.

4. Related Documents

OP-05 Document and Records Control
 OP-20 Management Review
 Internal Audit Records
 EMPS Corrective Action spreadsheet (EMPS CAF)

5. Revision History

Date	Revision #	Reason for Revision
2026-01-31	0	Procedure issued – Previous OP versions were separate for each drinking water system

 Ontario Clean Water Agency	OPERATIONAL PLAN EMPS-St. Thomas Portion	QEMS Doc: OP-03B Rev Date: 2026-06-02 Rev No: 0 Pages: 1 of 1
SIGNED COMMITMENT AND ENDORSEMENT		

This Operational Plan sets out the framework for OCWA's Quality & Environmental Management System (QEMS) that is specific and relevant to your drinking water system and supports the overall goal of OCWA and the St. Thomas Area Secondary Water Supply System (STASWSS) Joint Board of Management (Owner) to provide safe, cost-effective drinking water through sustained cooperation. OCWA will be responsible for developing, implementing, maintaining and continually improving its QEMS with respect to the operation and maintenance of the Elgin Middlesex Pumping Station-St. Thomas Portion and will do so in a manner that ensures compliance with applicable legislative and regulatory requirements.

Through the endorsement of this Operational Plan, the Owner commits to work with OCWA to facilitate this goal.

OCWA Top Management Endorsement

Mark MacKenzie
 Senior Operations Manager,
 Elgin Cluster

Cindy Sigurdson
 Safety, Process and Compliance Manager,
 Huron Elgin Region

Owner Endorsement

Justin Pennings
 Chair, STASWSS Board of Management
 (Deputy Mayor, Twp. Of Southwold)

Kevin De Leebeeck
 City Engineer, City of St. Thomas-Administering
 Municipality for the STASWSS Board of Management

The endorsement above is based on the Operational Plan that was current as of the revision date of this document (OP-03B).

To the Members of the Water Supply System Board of Management,

I am writing as a resident of Water Tower Line and as a member of a community experiencing significant change. I understand the Board recently considered and dismissed the opportunity to brand the new water tower associated with the Water Reclamation Facility investment. While I respect that decision, I believe this is an opportunity worth reconsidering.

Branding the water tower is not mutually exclusive to the broader infrastructure investment itself. We see it as a meaningful opportunity to demonstrate good faith, thoughtful community engagement, and a positive vision for the future of our region.

Across our communities, residents are navigating considerable change. Farmers are losing agricultural land, families are concerned about the impact of infrastructure on property values, and many people feel uncertain about what the future will look like. In times like these, public infrastructure can become more than a functional asset.

Now is not the time to become caught up in questions of ownership, jurisdiction, or the reasons why a decision cannot be made. Instead, I encourage the Board to make a decision that is inclusive, forward looking, and celebratory of the evolution occurring across our county – so many healthy neighboring communities in Southern Ontario have put effort into similar branding.

If it is not appropriate to brand the tower as St. Thomas, Central Elgin etc, then I would encourage you to look at the bigger picture. Consider branding it as something that reflects the collective future of the region vs the boundaries of any one municipality. Consider launching a community naming or design contest involving local schools, residents, and community organizations. The cost would be minimal, but the goodwill generated could last for generations.

There is an opportunity here to be creative, involve the community and invite ideas. Inspire pride in the future we are building together. A thoughtfully branded water tower could become a recognizable symbol of growth, investment, and collaboration. Leaving the tower blank also sends a message, whether intended or not. To some residents, it may suggest that local identity is being lost, that public input is not valued, or that decisions are made behind closed doors without meaningful community participation.

While the Board is not responsible for the political debates and misinformation that often accompany major infrastructure projects, it does have an opportunity to contribute something positive to the conversation. As a resident of Water Tower Line, I would much rather tell visitors, "I live near the new 'growing with purpose' or 'where opportunity accelerates' water tower," than point to another piece of infrastructure that feels disconnected from the people and communities it serves.

Community well-being is not only about providing clean water and reliable infrastructure. It is also about fostering a sense of belonging, identity, and pride in the places we call home. I respectfully encourage the Board to revisit this decision and consider the broader community impact that thoughtful branding could create.

Thank you for your time and consideration.

Sincerely,

Jay & Jill Atcheson

Water Tower Line Residents

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