

**To:** Warden and Members of County Council

**From:** Director of Public Works

## 2022 Water Quality Management System Update

### RECOMMENDATIONS

---

1. That County Council endorse the administrative updates to the municipal water Quality Management System which institutes a consolidated Operational Plan that governs the oversight of Oxford's 17 municipal drinking water systems operated and maintained by County staff and its contracted service providers (Town of Tillsonburg, City of Woodstock) as detailed in Report No. PW 2023-26 entitled "2022 Water Quality Management System Update";
2. And further, that County Council authorize the Chief Administrative Officer and Director of Public Works to negotiate and execute updates to the County's current contracted service provider agreements by August 30, 2023 with the Town of Tillsonburg and City of Woodstock, to further delineate their specific roles and responsibilities under the consolidated Operational Plan.

### REPORT HIGHLIGHTS

---

- As required by provincial legislation, this report provides County Council, who as Owner is deemed to be responsible for all municipal drinking water systems in Oxford County, an annual summary outlining the main processes and work performed in 2022 to maintain and further support the water Quality Management Systems (QMS) currently in place.
- Of note, water QMS processes/programs chosen for internal auditing in 2022 included the review of sampling, monitoring and testing of the drinking water supply, documentation of procedures for installation of distribution water meters, and treatment facility site audits. Planned capital projects, operational adjustments and continuous improvement initiatives were confirmed to adequately manage any potential risks to the water systems during the QMS Risk Assessment. Emergency response plan testing was completed through refresher training and mock emergency incident simulations.
- Consolidation of the three Operational Plans into a single County-wide Operational Plan is proposed to streamline the unnecessary triplication and costly overlapping efforts currently required to maintain these Plans separately, including auditing of the same.
- The County's water QMS as documented in the consolidated Operational Plan will continue, as current practice, to direct the operational policy which governs how the county-wide drinking water systems are operated and maintained by County staff and its contracted service providers (Town of Tillsonburg, City of Woodstock) under the current "status quo" service delivery model.

## **Implementation Points**

Pending County Council approval, staff will submit the consolidated Operational Plan to the Ministry of the Environment, Conservation and Parks (MECP) through a Municipal Drinking Water License amendment application. At that time, the County and its contracted service providers (Town of Tillsonburg, City of Woodstock) will continue to follow the County directed water QMS policies and procedures (as consolidated in one Operational Plan), which are already in place, and meet the requirements of the Drinking Water Quality Management Standard (V2.0, February 2017) and comply with the requirements of subsection 16(2) of the *Safe Drinking Water Act, 2002*.

Upon receiving the license amendment application, the MECP will request an audit of the consolidated Operational Plan to be undertaken later this year as part of the planned water QMS surveillance audit by Oxford County's accreditation body (SAI Global). The intention of this review is to reaffirm coverage and oversight of the County's municipal drinking water systems under the consolidated Operational Plan. In addition, the County QMS representative and professionally trained internal auditors would perform a planned internal audit of the same later this year. Through these undertakings, the refinements to the consolidated Operational Plan will be assessed to ensure full conformity to the Drinking Water Quality Management Standard (DWQMS) prior to the full reaccreditation external audit which will occur in 2024.

If authorized by Council, the County will also re-engage in discussions with the Town of Tillsonburg and City of Woodstock to update the existing service contracts and further delineate their respective service provider roles and responsibilities to perform specific contracted operational and maintenance tasks on a portion of the County's water distribution systems within the urban boundaries. The County Chief Administrative Officer and Director of Public Works will strive to negotiate and execute such updates to the contract agreement with the service providers within four months (August, 2023) such that any associated budget implications can be reflected in 2024 water operational budgets which must also be developed over that same timeframe.

## **Financial Impact**

The total County water QMS 2022 operating budget included expenses of \$125,000 related to the development and ongoing maintenance of the water QMS for all municipal residential drinking water systems in the County, including the maintenance and updating of the three Operational Plans (County, Tillsonburg and Woodstock). This also includes staff time by professionally trained County water QMS internal audit staff to perform annual internal audits of the three different Operating Plans (County, Tillsonburg and Woodstock) as required.

The current setup of three Operational Plans requires substantive time by County staff (Management, QMS Coordinator, Compliance and Operational staff) to complete required annual performance tasks. In addition to maintaining its own Operational Plan, the County currently also performs the majority of the water QMS regulatory work required to maintain and uphold the two other Operational Plans for the linear portions of the County's water distribution systems in Tillsonburg and Woodstock. Many of the tasks related to the water QMS must be performed independently for each Operational Plan. This limits the County's ability to allocate additional time towards continuous improvement of the water QMS.

## Consolidated Water Operational Plan

As shown in Table 1, one of several cost saving examples that can be achieved through the proposed consolidated Operational Plan approach involves a reduction in the current costs for the regular auditing of the water QWS (as documented within the three Operational Plans). **Over a typical three-year water QMS audit cycle, about \$18,000 of direct costs can be saved along with indirect cost savings associated with the reduction of approximately 800 combined staff hours which are gained in streamlined efficiencies based on this one example.** It is further recognized that the associated time savings by the service providers noted in Table 1 can be reallocated to core operations as well as their involvement in the future consolidated Operational Plan undertakings for those select portions of the County’s water distribution system which they operate and maintain as per contract service agreements.

**Table 1 – Cost Savings Example Associated with Operational Plan Consolidation**

	<b>1 versus 3 QMS surveillance audits (years 1 &amp; 2)</b>	<b>1 versus 3 QMS reaccreditation audits (year 3)</b>	<b>1 versus 3 QMS internal audits (annually)</b>
<b>3rd Party Auditor (\$)</b> <i>- Contract Savings</i>	<b>\$8,000</b>	<b>\$10,000</b>	-
<b>Indirect Savings (hrs)</b> <i>- Reduction in staff hours due to efficiencies</i>	<b>Audit:</b> 60 combined staff hrs per year: <ul style="list-style-type: none"> <li>• Woodstock 18 hrs (3 staff x 6 hrs)</li> <li>• Tillsonburg 18 hrs (3 staff x 6 hrs)</li> <li>• County 24 hrs (2 staff x 12 hrs)</li> </ul> <b>County QMS Administration, Planning, Management and Reporting:</b> ~ 60 hrs per year  <b>TOTAL: ~ 240 hrs (over 2 years)</b>	<b>Audit:</b> 60 combined staff hrs per year: <ul style="list-style-type: none"> <li>• Woodstock 18 hrs (3 staff x 6 hrs)</li> <li>• Tillsonburg 18 hrs (3 staff x 6 hrs)</li> <li>• County 24 hrs (2-3 staff x 12 hrs)</li> </ul> <b>County QMS Administration, Planning, Management Support, Non-Conformances:</b> ~ 25 hrs per year  <b>TOTAL: ~ 85 hrs (over 1 year)</b>	<b>Audit:</b> 120 combined staff hrs per year: <ul style="list-style-type: none"> <li>• Woodstock 24 hrs * (2-3 staff x 12 hrs)</li> <li>• Tillsonburg 24 hrs * (2-3 staff x 12 hrs)</li> <li>• County 72 hrs (3 staff x 24 hrs)</li> </ul> <b>County QMS Administration, Planning, Management and Reporting:</b> ~ 40 hours per year  <b>TOTAL: ~ 480 hrs (over 3 years)</b>

\* Tillsonburg and Woodstock have no trained water QWS internal auditors (rely on County auditors)

Under the consolidated model, additional indirect savings (staff time efficiencies) can be similarly gained in many other aspects of the annual review process of the water QMS including, but not limited to Management Review, Risk Assessment, and Emergency response testing.

### Three Independent Water Operational Plans

Should the service providers seek sole responsibility for their individual Operational Plans, the service providers will be required to independently develop, maintain and update their respective Operational Plans which detail their associated (new) water QMS and its conformance to the DWQMS. The service providers would be required to conduct annual internal audits and successfully pass annual external third party audits of their new water QMS.

As both service providers have indicated that their staff is operating at full capacity, such associated undertakings would require them to acquire new staff or dedicate other additional internal staff resources (dedicated QMS coordinators, trained internal auditors, compliance staff, etc.) to independently fulfill all responsibilities to maintain their Operational Plan and demonstrate their water QMS conformance to the DWQMS. The potential service provider acquisition of such staff (i.e. ~ 2 FTEs combined) will constitute an additional rate funded cost burden of at least approximately \$160,000 to \$180,000 to the QMS oversight of the County's water systems, not including additional associated specialized QMS training costs (i.e. internal auditor ~ \$3,000 by 2-3 staff per service provider).

In this scenario, the service providers would also be independently responsible for full water distribution sampling, testing and compliance functions which are currently being performed by County operations and compliance staff. These responsibilities include, but are not limited to, weekly bacteriological sampling, annual pH and alkalinity sampling, quarterly disinfection by-product sampling, lead testing every three years, adverse result identification, notifications to Southwestern Public Health, all associated annual reporting requirements and MECP inspections (all tasks of which are currently being performed by Oxford County staff). The potential service provider acquisition of these independent responsibilities will constitute an additional rate funded cost burden of approximately \$80,000 to \$90,000 annually (~ 1 FTE combined) to the QMS oversight of the respective water systems.

### Communications

Reports No. PW 2023-26 and [PW 2023-07](#) (2022 Water System Performance), which was presented to County Council on February 22, 2023, serve to meet the DWQMS requirements of reporting the results of the water QMS Annual Management Review to the drinking water system Owner representatives (Oxford County Council and Chief Administrative Officer).

Council's review of the proposed Operational Plan contained in Report No. PW 2023-26 fulfills Oxford County's water QMS requirement to inform 2022-2026 Council members of any notable changes to the Operational Plan within six months of their recent inauguration (November 23, 2022).







Oxford County staff held several meetings in Q1, 2023 to discuss limitations of and potential changes to the Operational Plans with the MECP Permission Program Services Section / Client Services and Permissions Branch / Environmental Assessment and Permissions Division and the MECP's retained quality management external auditor (SAI GLOBAL) that has conducted the external audit of all portions of the County's drinking water systems since 2012.

During the 2022 Management Review meetings held on February 9, 2023 (Tillsonburg) and February 17, 2023 (Woodstock), the County first notified its service provider’s Public Works and Engineering staff (Tillsonburg, Woodstock) that alternatives to the Operational Plans were being reviewed and considered. Ongoing discussion continued during meetings held with Tillsonburg and Woodstock staff on March 20, 2023 and March 23, 2023, respectively, supplemented with dedicated briefing notes and a matrix of current water QMS roles and responsibilities.

It was noted by the County that the City of Woodstock and Town of Tillsonburg could bring questions and concerns forward to the County QMS coordinator given the County’s QMS coordinator formally represents and provides this specialized function to Woodstock and Tillsonburg. The County QMS coordinator was available to arrange and facilitate any service provider questions and concerns through to the MECF and its retained quality management external auditor. At this time, neither Town of Tillsonburg nor City of Woodstock staff have forwarded any correspondence to be brought forward through their County QMS representative.

Further discussion was subsequently offered by the County to Tillsonburg and Woodstock staff and they were also advised they could submit feedback and questions to the County for additional clarification. Subsequently, Oxford County Council received correspondence for information on April 26, 2023 from the Town of Tillsonburg and City of Woodstock (refer to Attachments 1 and 2 respectively).

**Strategic Plan (2020-2022)**

					
<b>WORKS WELL TOGETHER</b>	<b>WELL CONNECTED</b>	<b>SHAPES THE FUTURE</b>	<b>INFORMS &amp; ENGAGES</b>	<b>PERFORMS &amp; DELIVERS</b>	<b>POSITIVE IMPACT</b>
1.ii.			4.ii.	5.ii.	

**DISCUSSION**

---

**Background**

Under the *Municipal Act, 2001*, the County of Oxford holds exclusive municipal authority and responsibility for all water and wastewater services, including water distribution and wastewater collection as per *Section 11(11)*. Accordingly, Oxford County is the recognized municipal water authority which owns all municipal drinking water system assets, including water treatment and distribution system assets in all 17 municipal drinking water systems. Oxford County also operates and maintains all 17 municipal drinking water systems, with the exception of a limited portion of its linear water distribution systems in Tillsonburg and Woodstock.

For the County’s water systems located in Woodstock and Tillsonburg, Oxford operates and maintains all water treatment system assets (raw water supply wells, water treatment plants, high lift pumping stations) and part of the water distribution system assets (water transmission mains, water booster pumping stations, water re-chlorination facilities/analyzers, water towers, water reservoirs). The remaining portion of the water distribution system linear assets (distribution watermains, valves, fire hydrants, water meters) are operated and maintained by Tillsonburg and Woodstock, respectively, on behalf of Oxford County, under service contract agreements (as permitted under the *Municipal Act, 2001*) that were established in approximately 1999 and have been historically renewed over time.

As noted in PW Report No. 2023-07, Oxford County Council and CAO, as the municipal Owners of the 17 drinking water systems, are ultimately responsible for the Statutory Standard of Care under *Section 19* of the *Safe Drinking Water Act, 2002* (SDWA), including responsibility for specific operational and maintenance services performed by contracted service providers on the linear portion of the County’s water distribution systems within Tillsonburg and Woodstock.

### Water Quality Management Systems (QMS)

The water QMS contains elements of both the ISO 9001 standard with respect to management systems and the hazard analysis and critical control points (HACCP) standard with respect to product safety. The water QMS also incorporates the HACCP approach to risk assessment and reflects the multi-barrier approach for municipal drinking water system safety.

The water QMS must be fully documented in an Operational Plan that satisfies the requirements of the 21 best practice elements which are comprehensively prescribed in the MECP’s DWQMS. The Operational Plans are intended to reflect fully implemented water QMS with a focus on continual improvement. An MECP accepted Operational Plan is just one part of the regulatory components that must be satisfied by the County, as the responsible owner, to maintain each of its 17 Municipal Drinking Water Licenses as shown in Figure 1.



Figure 1 – Municipal Drinking Water License Regulatory Components

Currently, a system-wide water QMS is maintained by the County for all three Operational Plans (County, Tillsonburg, Woodstock). This water QMS governs the operations and maintenance performed by the County and its contracted service providers on the various drinking water systems. A comparative summary of the specific roles and responsibilities performed by Oxford County and its contracted service providers to meet the respective 21 water QMS elements of the MECP's DWQMS are detailed in Attachment 3.

Annual maintenance and continuous improvement of the water QMS is facilitated by County staff (Management, QMS Coordinator, Compliance and Operational staff) for each of the three Operational Plans (County, Woodstock, and Tillsonburg). As shown in Figure 2, each stage of the annual water QMS review process (as documented in each Operational Plan) is undertaken to ultimately identify opportunities for improvement (OFIs) and improvement and corrective action records (ICARs) on the municipal drinking water system. Following the review process, the County's QMS coordinator subsequently incorporates and updates any new water QMS policies and procedures within each respective Operational Plan.



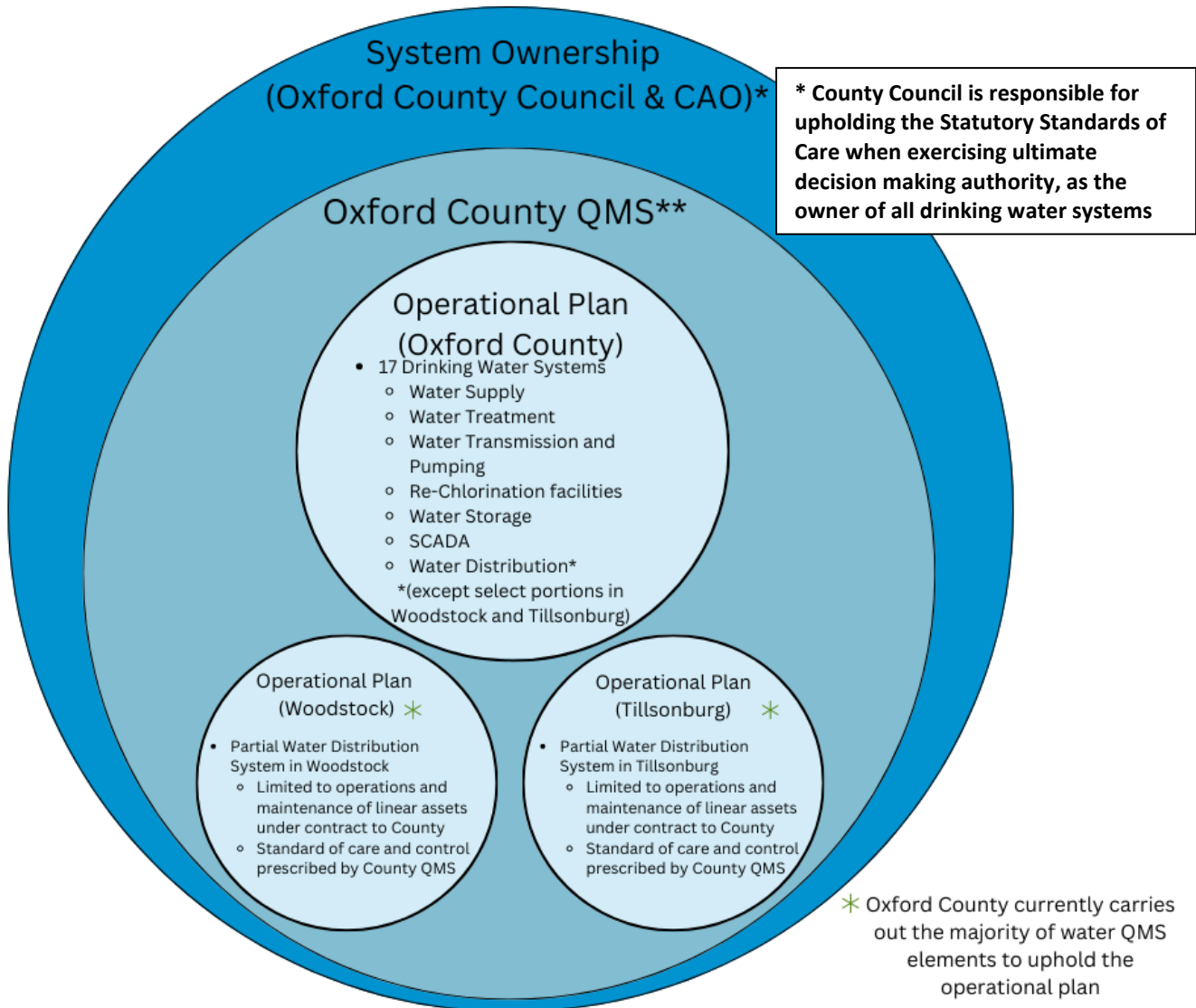
Figure 2 – Water QMS Continuous Improvement Process and Outcomes

The current triplication of effort to complete the annual QMS cycle for each Operational Plan limits County staff's ability to more fully assist in addressing outstanding legacy corrective actions and best management practices dating back to 2018 that have been previously identified but not yet completed. A single Operational Plan would allow County staff to review and consider OFIs and ICARs for all 17 drinking water systems in a single review stage.

### Operational Plans

As shown below in Figure 3, Oxford County regularly maintains and updates its individual (County) Operational Plan and the associated water QMS for all of its 17 water systems, including its water systems within Tillsonburg and Woodstock. Tillsonburg and Woodstock are already considered under the County's Operational Plan as County staff presently operate and maintain groundwater well supplies, water treatment facilities, water transmission feeder mains, water distribution storage facilities, and water distribution booster pumping stations. The County is responsible for ensuring the water QMS documented in the County Operational Plan sufficiently meets the 21 DWQMS compliance requirements.

Utilizing the same County water QMS, two additional Operational Plans are maintained and updated by Oxford County for the linear portions of the County’s water distribution systems (distribution watermains, system water valves, water hydrants, water meters) within Tillsonburg and Woodstock which are operated and maintained by the service providers under contract to the County (refer to Figure 3).



\* County Council is responsible for upholding the Statutory Standards of Care when exercising ultimate decision making authority, as the owner of all drinking water systems

\* Oxford County currently carries out the majority of water QMS elements to uphold the operational plan

**\*\* Oxford County holds responsibility for directing all water QMS policies and procedures which govern how drinking water systems are operated and maintained by County staff and its contracted service providers (Tillsonburg and Woodstock).**

**\*\* Tillsonburg and Woodstock provide a level of input and review within the County QMS process and participate in various elements of the system-wide water QMS (review and provision of infrastructure; infrastructure maintenance, rehabilitation and renewal; emergency response; continual improvement, etc.) that are applicable to the County’s linear water distribution systems that are operated and maintained by these service providers**

Figure 3 – Current Quality Management System and Operational Plans Model



In addition to maintaining the County Operational Plan, the County's water QMS coordinator, compliance/operations staff and senior management also perform the majority of the water QMS regulatory work required to maintain and uphold two other Operational Plans for the linear portions of the County's water distribution systems in Tillsonburg and Woodstock. This work performed by the County, along with some support and participation from its contracted service providers on select elements of the QMS, serves to ensure the water QMS documented in the Tillsonburg and Woodstock Operational Plans sufficiently meets the 21 DWQMS compliance requirements.

This supplementary County work includes, but is not limited to, the following:

- Implementing, maintaining and updating the Tillsonburg and Woodstock Operational Plans,
- Oversight and coordination of annual external audits of the water QMS and MECF drinking water system inspections,
- Performing annual internal water QMS audits,
- Oversight of water distribution sampling, testing and compliance (over 1,360 samples annually) within the linear portions of the water distribution systems (i.e. weekly bacteriological sampling, annual pH and alkalinity sampling, quarterly disinfection by-product sampling, and lead testing every three years, adverse result identification, notifications to Southwestern Public Health),
- Documenting and tracking corrective actions and opportunities for improvement, and
- Performing annual Management Reviews, Risk Assessments and annual reporting requirements to Top Management and Water System Owners (CAO and Oxford County Council).

## **Comments**

### **DWQMS Management Review**

Under legislation, the DWQMS requires that a Management Review meeting be held annually by Oxford County and its contracted service providers to review the performance of the water QMS (as documented in three Operational Plans) against the DWQMS and identify necessary actions to ensure continual improvement and compliance with the regulations. Three annual Management Reviews were conducted in February 2023 for each of the respective Operational Plans (County, Tillsonburg, Woodstock).

The annual Management Review process ensures that all levels of the organization (Owner, Top Management, Operations) are kept informed and aware of the performance of the water QMS (as documented in three Operational Plans) which governs the operations and maintenance performed by the County and its contracted service providers on the various drinking water systems. As an outcome of the annual Management Review, Top Management provide recommendations for continuous improvement of the respective Operational Plans and the associated water QMS.

The DWQMS lists 16 specific information items that must be part of the annual Management Review including, but not limited to, incidents of regulatory non-compliance, incidents of adverse drinking water tests, raw water supply and drinking water quality trends, operational

performance and results of the infrastructure review. These items formed part of the overall performance review of the County's 17 drinking water systems (Report No. PW 2023-07). Additionally, the following water QMS items were examined during the annual Management Review:

- Discussion and follow up on action items from previous management reviews as well as any new items identified since the last review;
- Operational considerations and challenges as part of operational performance;
- Effectiveness of the risk assessment process and deviations from critical control points and responses;
- Results of MECP drinking water system inspections;
- Results of internal and external audits;
- Results of emergency response testing and training;
- Changes that could affect the water QMS;
- Resources needed to maintain the water QMS;
- Customer feedback; and,
- Suggestions brought forward by Operations and Compliance staff.

At the time of the 2022 Management Review, 11 new OFIs were discussed during the 2022 Management Review sessions including opportunities to streamline and support the County water QMS. More importantly, approximately 52 ICARs resulting from other previously identified OFIs since 2018 remain outstanding by the County and its service providers (Woodstock: 17 ICARS across 1 partial system, Tillsonburg: 12 ICARs across 1 partial system, Oxford: 26 ICARs across 17 systems). Notable corrective actions (ICARs) which remain unaddressed from past Management Reviews and audits are as follows:

- Woodstock will continue to investigate means to integrate the Woodstock Geographic Information System (GIS) within the Oxford County GIS (host) to efficiently provide updates to water infrastructure.
- Woodstock to develop a service continuity plan.
- Service provider (Tillsonburg, Woodstock) preventative maintenance information integration with Oxford's work order management system (Cartegraph).
- Woodstock to investigate a solution for the electronic entry of customer complaints data in order to evaluate and trend any concerning patterns within the water system.
- County QMS Coordinator will research potential QMS software solutions to provide more automated tracking of policy and procedure versions, action items status and assignment.
- Oxford County to consider best management practices submitted during MECP inspections for potential by-laws and policy/procedural updates.
- Tillsonburg to consider improvement opportunities in the recording of Essential Supplier communication for quality expectations.
- Tillsonburg to document a procedure for data integration within the GIS system and associated data quality assurance.

Following the 2022 Management Review, 11 additional OFIs were identified from the 2022 MECP inspections recently completed in April 2023. From these, 6 corrective actions (ICARs) were immediately implemented while 5 OFIs related to industry best management practices were identified for future consideration. These OFIs and ICARs will be further reviewed as part of the 2023 Management Review.

## Operational Considerations and Challenges

The water QMS is continually improving and integration with regular operational practices is routine. Operational considerations and challenges were reviewed with the following action items to be addressed:

- The importance of consistent compliance with, and application of, the County Fees and Charges By-Law No. 4889-2007 has been repeatedly discussed with Woodstock and Tillsonburg Operating Authorities. Full compliance in this regard has still not been achieved with by either of the service providers.
- The County continues to request that Tillsonburg and Woodstock service providers appropriately integrate all maintenance work orders and asset information with the County Asset Management Plan (AMP), Citywide asset management system, and the County's digital asset work order management system (Cartegraph) and asset registry (GIS). Town and City access to the County's Cartegraph system has been offered.
- Formally document workflows that ensure GIS data is appropriately and timely integrated into the County's GIS (as required for the compliance of the County's Municipal Drinking Water Licenses). The County is currently hosting the Town's GIS data and discussions continue with the City for the County to host Woodstock's water and wastewater GIS data to gain efficiencies.
- Oxford County will continue looking for ways to relieve redundancies and alleviate staff time under the current Operational Plan (triplicate) configuration in an effort to shift availability toward continuous improvement initiatives.

## Water QMS Risk Assessment

The water QMS Risk Assessment Process ensures all potential hazards, associated hazards or hazardous events associated with drinking water quality are properly identified, ranked and assessed. Assessment results provide Oxford County and its contracted service providers with guidance to identify critical events, control measures, critical control points and procedures to adequately manage risk while safeguarding the municipal drinking water quality and performance.

The Risk Assessment Process is required every 36 months for each of the County's drinking water systems (completed in 2020), with complementary risk assessment reviews to be completed at 12 (completed in 2021) and 24 months (completed in 2022) between the assessments to verify the currency of the information and the validity of the assumptions used in the risk assessment.

During the 2022 review, the following water QMS Risk Assessment updates were noted:

- Revision to the likelihood and detectability rating for potential aquifer contamination threats to Tillsonburg wells 4, 5, and 7a;
- New hazard identification for the Woodstock Sutherland Water Treatment Facility (potential contamination threat) and implementation of associated sampling and monitoring; and
- New hazard identification for Tillsonburg drinking water system (nitrate exceedance) and associated control measures put in place following adverse water quality incidents in 2022.

During the 2022 Risk Assessment review, Oxford County and Tillsonburg confirmed that any previously identified high-scoring risks will continue to be adequately managed through planned capital projects, operational adjustments or through continuous improvement initiatives. Unfortunately, City of Woodstock staff did not participate in or provide comment on the 2022 Risk Assessment review. No new budget considerations were raised as a result of this 2022 Risk Assessment review other than what had been previously carried forward as part of the 2023 Business Plan and Budget.

### Internal Audit Findings

As required by the MECP's DWQMS, Oxford County and its contracted service providers undergo internal auditing of the water QMS documented in the three Operational Plans against the MECP's DWQMS at least once every calendar year. The audits are conducted by the County's professionally trained internal auditors to assess the conformance of the individual Operational Plans (3) and associated QMS processes/procedures against the DWQMS (V2, Feb. 2017), under the *Safe Drinking Water Act, 2002*.

Each year, internal audits are performed as complete system audits, broken out into process audits or audits of specific individual DWQMS elements. Each of the 21 DWQMS elements must be audited once per audit cycle (completed on a rotational basis once every 36 months).

The processes/programs chosen for auditing in 2022 included the review of sampling procedures, processes for sampling, monitoring and testing of the drinking water supply, documenting the procedures for installation of distribution water meters, and water treatment site audits. Site audits were conducted in eight different drinking water systems in 2022. The internal audit findings for each of the three respective water QMS (County, Tillsonburg, Woodstock) were minor in nature as listed below:

- There were no non-conformance findings.
- An OFI was noted to document an operations procedure for meter installation, replacement, and repair for Woodstock water QMS.
- An OFI was noted to document the procedure for external parties installing water meters to ensure all records are being received for the Oxford County water QMS.
- No ICARs were issued during this audit cycle.

The audit findings are being addressed through the water QMS Continual Improvement Process. However, it is recognized that there are a growing number of OFIs identified each year that remain unassigned and not acted upon.

### 2022 Emergency Response Plan Testing

Annual testing of the Emergency Response Plan can take the form of training sessions, mock incidents or debriefing the response to an actual emergency. In the last case, an incident debrief is recommended to point out opportunities for improvement.

An Emergency Response Plan refresher training session was conducted with Oxford County distribution staff in December 2022. An emergency response mock incident was conducted by the Town of Tillsonburg Distribution staff in June 2022. An emergency response mock incident was conducted by the City of Woodstock Distribution staff in June 2022. No OFIs were recommended as a result of these tests.

## Customer Feedback

The County and Town of Tillsonburg Operational staff responded to 88 and 21 customer water complaints respectively. Based on the review of the complaints that were documented in the work order management systems, there were no concerning patterns in the customer complaints for these water systems. Methods to separate customer requests for information from reported concerns (requiring work order intervention) will be evaluated to further delineate customer feedback patterns.

Woodstock Operational staff responded to 374 customer water complaints but does not maintain electronic documentation of the same in order to assess whether any concerning patterns in customer complaints exist.

## Operational Plan Water QMS Changes/Resources

Oxford County regularly performs all water QMS regulatory work required to maintain and update the County Operational Plan for its 17 water systems, including its water systems within Tillsonburg and Woodstock where County staff operate and maintain groundwater well supplies, water treatment facilities, water transmission feeder mains, water distribution storage facilities, re-chlorination facilities and water distribution booster pumping stations.

As previously noted, County staff (Management, QMS Coordinator, Compliance and Operational staff) also perform the majority of the water QMS regulatory work required to maintain and uphold two other Operational Plans for the select linear portions (distribution water mains, system water valves, water hydrants, water meters) of the County's water distribution systems in Tillsonburg and Woodstock. This supplemental work performed by the County, along with some support from its contracted service providers on select elements of the QMS, serves to ensure the water QMS documented in the Tillsonburg and Woodstock Operational Plans sufficiently meets the 21 DWQMS compliance requirements.

Both the MECP and its retained quality management external auditor (SAI GLOBAL) recognized that this water QMS approach currently undertaken is unique, where County staff perform the majority of the work required to prepare and maintain the Operational Plans of its service providers. Typically where another organization is given responsibility for the operation and maintenance of a portion of the Owner's water system, that organization would be independently responsible for preparing, maintaining and updating their own Operational Plans in order to gain accreditation as an Operating Authority. The MECP and SAI GLOBAL jointly recognized that the ongoing management of three Operational Plans has resulted in overlapping efforts of the associated water QMS and Operating Authority accreditations.

Further, as identified in the 2022 Water Distribution and Wastewater Collection Service Delivery Review (Reports PW 2022-19), the maintenance and updating of the different Operational Plans and their associated water QMS policy procedures are being carried out in triplicate in a manner which is more costly and inefficient.

With the current approach (refer to Figure 3), County staff are unable to expand their efforts pursuing additional water QMS opportunities for improvement while sustaining the regulatory water QMS work required to maintain and update the Tillsonburg and Woodstock Operational Plans, including facilitating service providers closure of a growing backlog of ICARs and OFIs.

Alternative Water QMS Considerations:

In order to seek further options for efficiencies, County water QMS staff, in consultation with its service providers, the MECP and the MECP’s retained quality management external auditor (SAI Global), have reviewed and considered the two alternative water QMS and Operational Plan approaches:

- **Three Independent Operational Plans (Tillsonburg, Woodstock, Oxford):**

As shown in Figure 4, County and each of its contracted service providers are independently and fully responsible for the maintenance and updating of all water QMS elements in their respective Operational Plans and the internal/external auditing of the same to demonstrate conformance to the Ministry’s DWQMS. Under this model, water system ownership would still remain with County Council and the CAO.

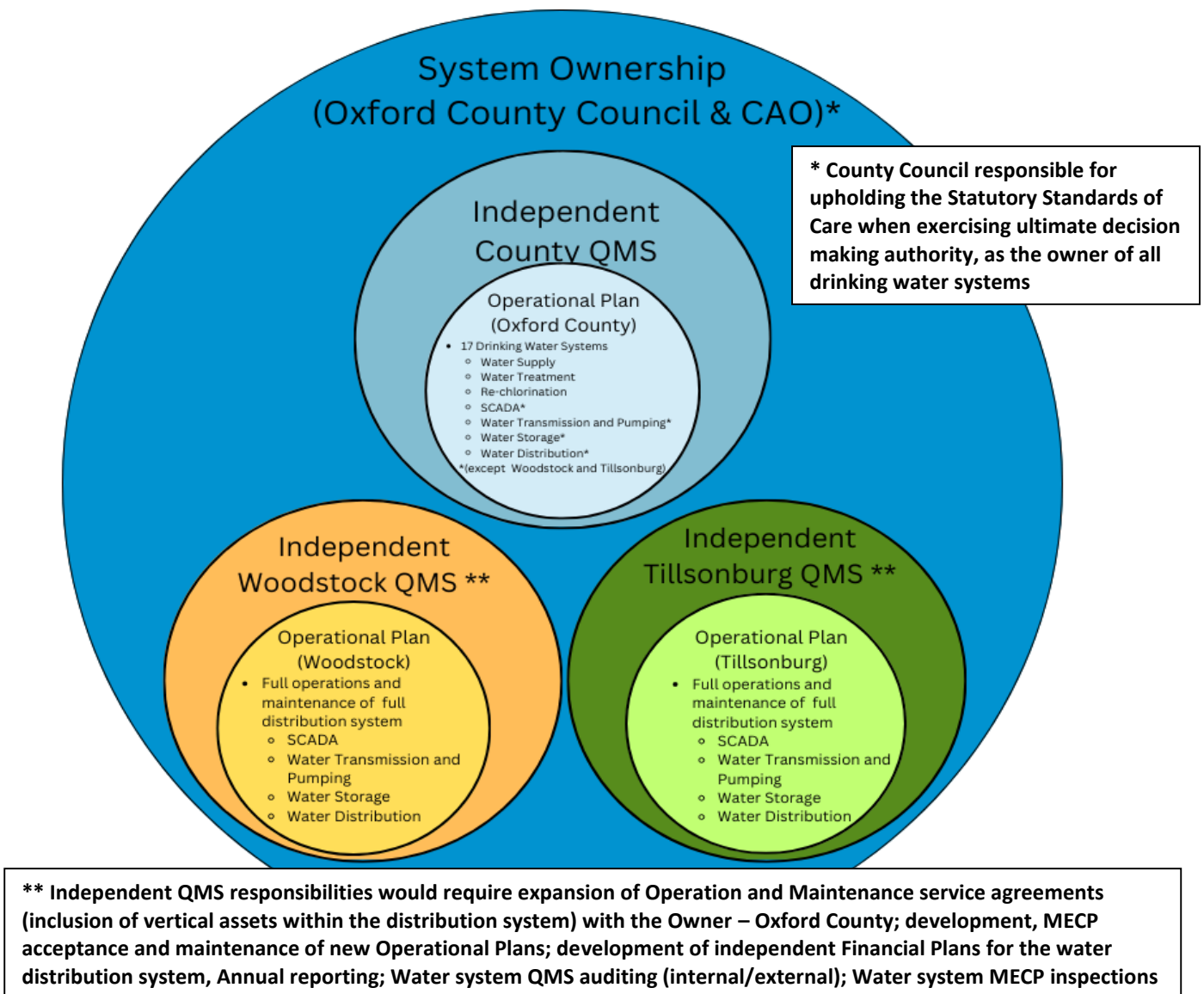
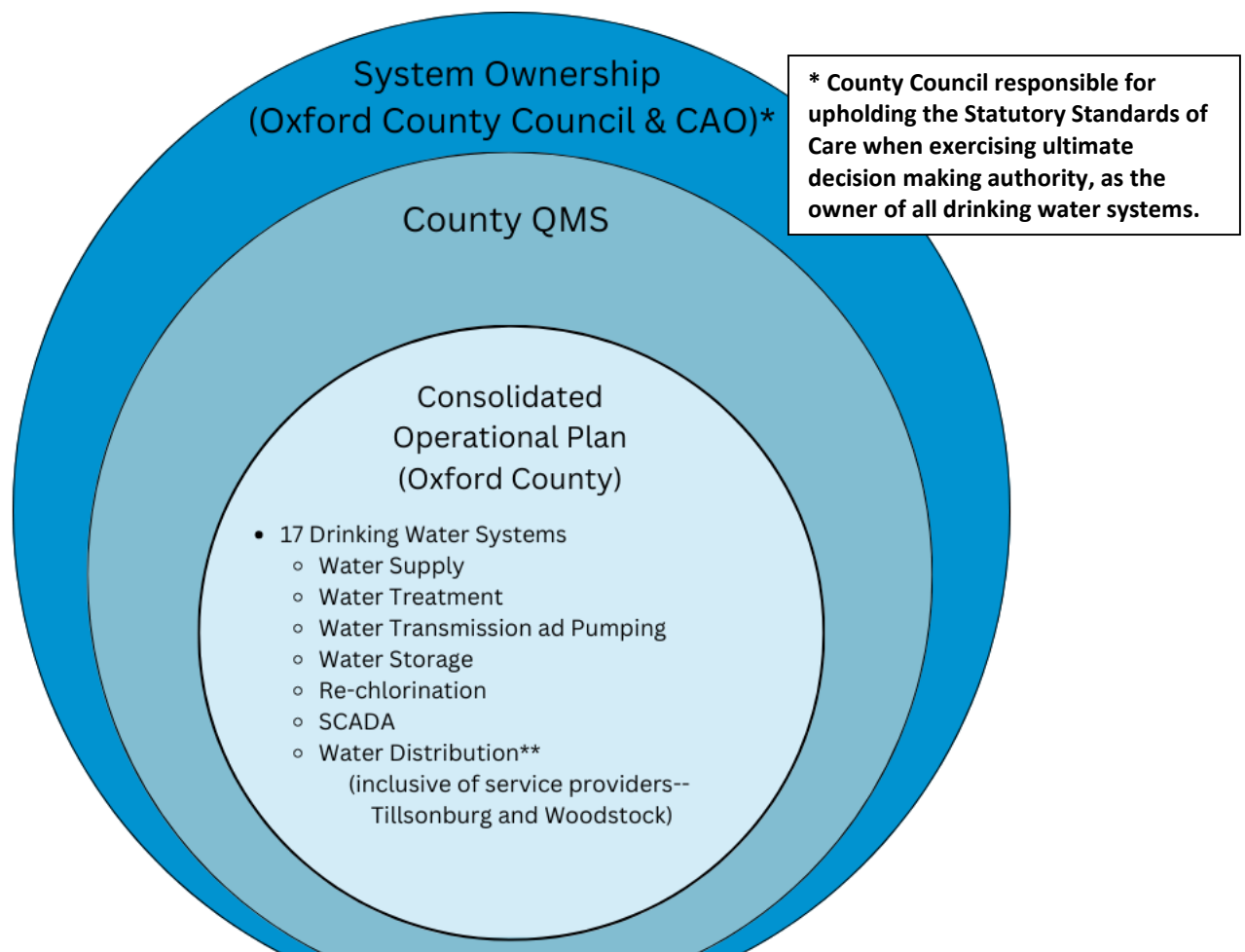


Figure 4 – Overview of Three Independent Operational Plans Model

- **Consolidated Operational Plan (County-wide):**

Oxford County continues to direct all water QMS policy and procedures which governs the Operational Plan (consistent with current practice) with consideration of input from its contracted service providers which operate and maintain a portion of the County’s water distribution systems in Woodstock and Tillsonburg.

As shown in Figure 5, the County is responsible for maintenance and updating of the water QMS elements in a single Operational Plan which covers its 17 municipal drinking water systems, including linear portions of the County’s water distribution systems in Woodstock and Tillsonburg. In this case, Oxford County staff would conduct administrative updates to reflect that current practices, policies and procedures are carried out under a single operational plan.



**\*\*Tillsonburg and Woodstock input and review would continue to be considered and included within the County QMS process (consistent with current practice) with continued participation in various elements of the system-wide water QMS (review & provision of infrastructure; infrastructure maintenance, rehabilitation & renewal; emergency response; continual improvement, etc.) that are applicable to the County’s linear water distribution systems that are operated and maintained by these service providers**

Figure 5 – Overview of Consolidated Operational Plans Model

## Operational Plan Recommendation

Staff have reviewed the comparison of the Operational Plan configurations and recommend optimizing current water QMS practices within a single consolidated Operational Plan as detailed in Attachment 4. The proposed consolidation would allow the County's staff (Management, QMS Coordinator, Compliance and Operational staff) to harmoniously undertake the following quality management tasks for all 17 drinking water systems in a singular (versus triplicate) fashion as all tasks could be covered under the same Operational Plan:

- Implementation, maintenance and updating of the Operational Plan itself;
- Single preparation, facilitation, and reporting, of annual water QMS tasks (internal audits, external audits, Management Review, Risk Assessment, etc.);
- Annual system-wide water QMS reviews from source to tap (holistic approach);
- Standardization use of water QMS policy documentation and procedures (i.e. Forms, Work Instructions, Standard Operating Procedures, etc.); and
- Standardized tracking and implementation of corrective actions within one single Operational Plan.

As well, the time efficiencies gained will allow the County staff to reallocate time previously needed to perform water QMS tasks in triplicate across three separate Operational Plans towards:

- pursuing modernization of the County QMS through technology enhancements;
- facilitating resolution of the backlog of outstanding water QMS corrective actions (55 ICARs) dating back to 2018 which remain from the former County, Tillsonburg and Woodstock Operational Plans;
- consideration of additional best management practices to the water QMS;
- incorporating new future regulation requirements into the existing QMS; and
- developing and implementing a similar QMS across the County's wastewater systems.

Under the consolidated Operational Plan, both service providers (Tillsonburg, Woodstock) would continue to:

- Provide specific operations and maintenance services on a limited portion of the County's water system within their urban boundaries (as per the current service delivery model and consistent with the contract service agreements with the County);
- Apply water QMS operational policies and procedures as determined by the County (consistent with the County's responsibility for Operational Policy in the current contract service agreements);
- Participate in internal/external audits for the select portion of the County's water distribution system within Woodstock or Tillsonburg where they provide services under contract to the County;
- Participate and provide input to inform certain water QMS elements within the consolidated Operational Plan (i.e. review and provision of infrastructure, infrastructure maintenance, rehabilitation and renewal, emergency response, continuous improvement); and
- Provide feedback and propose improvements to the water QMS operational policies and procedures (as per current practice).



It is further recognized under the proposed consolidated Operational Plan approach, regular audits of the select (contracted) portions of the water distribution system will still occur at the same frequency and be assumed in the audits of the County's water systems which already included components of the Tillsonburg and Woodstock water systems. Each of the 21 DWQMS elements would continue to be audited on a rotational basis at least once every 36 months consistent with municipal best practices.

The MECP and SAI GLOBAL regulatory agencies confirmed that the consolidated Operational Plan is readily achievable and could be enacted through administrative changes that more accurately detail current care and responsibility over the system. It was further recognized that the singular Operational Plan model is readily employed by municipalities across the province which own the water infrastructure but who may choose to contract out a portion of the operation and maintenance tasks to another service provider. In this situation, there are no cases where any contracted service providers (municipal or private sector) maintain a separate Operational Plan distinct from that of the water system owner's Operational Plan.

The MECP indicated that the proposed change to consolidate the Operational Plans would be deemed a significant change to the current Operational Plans and one which must be approved by the municipal drinking water system owner (Oxford County Council and CAO) as it falls outside of the Ministry's mandate. As previously noted, County staff are responsible to bring forward the Operational Plan within six months of a Council's new inauguration (November 23, 2022) or to annually inform Council members of any notable changes to the Operational Plan.

By consolidating the Operational Plans, only one accredited Operating Authority would be required for all 17 municipal drinking water systems. In this case, Oxford County would become the single accredited Operating Authority and, therefore, responsible for meeting all of the County-wide DWQMS compliance requirements and ensuring that its service providers remain qualified and aware of their delegated operational responsibilities, operator licensing requirements, watermain and adverse condition reporting procedure to the County ORO, standards of maintenance and repair, etc. as is currently stipulated in the contract service agreements.

Under the consolidated Operational Plan approach, the County's overarching water QMS will continue to direct the operational policy which governs how the County's drinking water systems are operated and maintained by the County staff, and by its contracted service providers (Tillsonburg, Woodstock). This approach remains consistent with current practice under the existing "status quo" service delivery model where specific operations and maintenance services are performed by the service providers on a portion of the County's water distribution system linear assets (distribution watermains, valves, fire hydrants, water meters) located in Tillsonburg and Woodstock.

However, it is recognized that the specific roles and responsibilities of the County and its contracted service providers will need to be more clearly delineated in revised service agreements to reflect the consolidated Operational Plan as previously noted. Accordingly, the existing contract service agreements between the County and each of its service providers will need to be updated ahead of the upcoming water QMS third party surveillance audit in fall, 2023.

## **Conclusions**

The results of the annual Management Reviews led by the County on the three Operational Plans (County, Tillsonburg, Woodstock) and the associated water QMS demonstrate continued compliance with drinking water regulations and the County's ongoing commitment to continual improvement in the provision of safe, reliable and sustainable supply of municipal drinking water for its residents and businesses.

A notable opportunity exists to streamline the three Operational Plans into one consolidated Operational Plan. Through the proposed consolidation, the County's water QMS would continue to direct the operational policy, as current practice, which governs how the County's drinking water systems are operated and maintained by the County staff, and by its contracted service providers (Town of Tillsonburg, City of Woodstock), under the current "status quo" service delivery model.

Oxford County's existing Operational Plan already ensures holistic coverage in care and control over all of its 17 municipal drinking water systems, with the exception of the linear portions of its water distribution system in Tillsonburg and Woodstock. The proposed consolidation of the Operational Plans for the other two portions of the County's water distribution system (linear assets) in Tillsonburg and Woodstock into the existing County Operational Plan is an administrative change that will reflect and ensure that that same approach for care and control is consistently applied across all 17 County owned systems from source to tap.

## SIGNATURES

---

### Report Author:

Original signed by

---

Mackenzie Schultz  
Supervisor of Water and Wastewater Technical Services

### Departmental Approval:

Original signed by

---

David Simpson, P.Eng., PMP  
Director of Public Works

### Approved for submission:

Original signed by

---

Benjamin R. Addley  
Chief Administrative Officer

## ATTACHMENTS

---

- Attachment 1: Tillsonburg Council Decision Letter (April 24, 2023)
- Attachment 2: Woodstock Council Decision Letter (April 12, 2023)
- Attachment 3: Current Overview of Operational Plan QMS Roles and Responsibilities
- Attachment 4: Consolidated Operational Plan (May, 2023)