

# **HAMILTON WATER'S QUALITY MANAGEMENT SYSTEMS 2024 ANNUAL SUMMARY REPORT**

# DRINKING WATER QUALITY MANAGEMENT SYSTEM POLICY



*The City of Hamilton owns, maintains and operates various drinking water systems. The City is committed to:*

# S

*Safe, high quality, consistent supply of drinking water*

# A

*Always improving the Drinking Water Quality Management System*

# F

*Following and complying with applicable legislation*

# E

*Effective and open communication with the community concerning matters of drinking water quality*



Hamilton

# WASTEWATER QUALITY MANAGEMENT SYSTEM POLICY



*The City of Hamilton owns, maintains and operates various wastewater systems. The City is committed to:*

**C**

*Compliance with all legal and other requirements*

**L**

*Leaders in pollution prevention*

**E**

*Effective Communication with the community*

**A**

*Always improving the Wastewater Quality Management System*

**N**

*Noteworthy innovation*



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# 1 INTRODUCTION

## 1.1 PURPOSE

The Hamilton Water Division's Quality Management Systems Annual Summary Report is being submitted to the Owner, (i.e., Mayor and Council) on behalf of Top Management (i.e., General Manager, Public Works and Director, Hamilton Water) of the City's five drinking water systems, and four wastewater systems.

The City of Hamilton is the Owner of the following drinking water systems (DWS):

- Hamilton Drinking Water System (Woodward and Fifty Road Subsystems)
- Freelon Drinking Water System
- Greensville Drinking Water System
- Carlisle Drinking Water System
- Lynden Drinking Water System

The City of Hamilton is the Owner of the following wastewater systems (WWS):

- Woodward Wastewater Treatment Plant (WWTP)
- Dundas Wastewater Treatment Plant
- Sanitary Sewage Collection System
- Combined Sewage Collection System

The purpose of this Quality Management Summary Report is to keep the Owner of the City's drinking water systems and wastewater systems informed about the ongoing performance of the accredited Drinking Water Quality Management System (DWQMS) and Wastewater Quality Management System (WWQMS), including major milestones achieved in 2024. This report also assists the Owner in meeting their standard of care responsibilities under the Safe Drinking Water Act, 2002. This Quality Management Summary Report is a key communication tool from Top Management to the Owner as referenced in Element 12 Communications of both the DWQMS and WWQMS Standards.

## 1.2 SCOPE

The DWQMS Standard is regulated under the Safe Drinking Water Act, 2002. The DWQMS Standard requires that the Operating Authority (staff within Hamilton Water



responsible for the operation, maintenance and provision of support services to the City of Hamilton's drinking water system) report on certain aspects of the DWQMS to the Owner, specifically the outcomes of Element 14 Review and Provision of Infrastructure and Element 20 Management Review. This report fulfills the communication requirements of these elements and exceeds the Standard's requirements by providing information on external and internal DWQMS audits, risk assessment and other major milestones of the DWQMS in 2024.

The WWQMS Standard is a voluntary standard adopted by Council in January 2020. The WWQMS Standard requires that the Operating Authority (staff within Hamilton Water responsible for the operation, maintenance and provision of support services to the City of Hamilton's wastewater system) report on certain elements of the WWQMS to the Owner, specifically the outcomes of Evaluation of Compliance (Element 14), Review and Provision of Infrastructure (Element 15), and Management Review (Element 21). This report fulfills the communication requirements of these elements and exceeds the Standard's requirements by providing information on Environmental Aspects and Impacts (Element 7), Objectives and Targets (Element 8), Internal Audits (Element 20) and other major milestones of the WWQMS for 2024.

### **1.3 OVERVIEW OF KEY MILESTONES**

#### **1.3.1 DRINKING WATER QUALITY MANAGEMENT SYSTEM**

The following milestones have been achieved as part of the DWQMS:

- June 2022 – External Systems Audit (off-site document review);
- February 2023 – Standard of Care Training for Mayor and Council;
- May 2023 – External Systems Audit (off-site document review);
- April (off-site document review) and May (on-site audit) 2024 – re-accreditation of the DWQMS by external registrar, QMI-SAI Global; and
- May 2024 – Received renewed Municipal Drinking Water System Licences and Permits for each of the City's five drinking water systems.

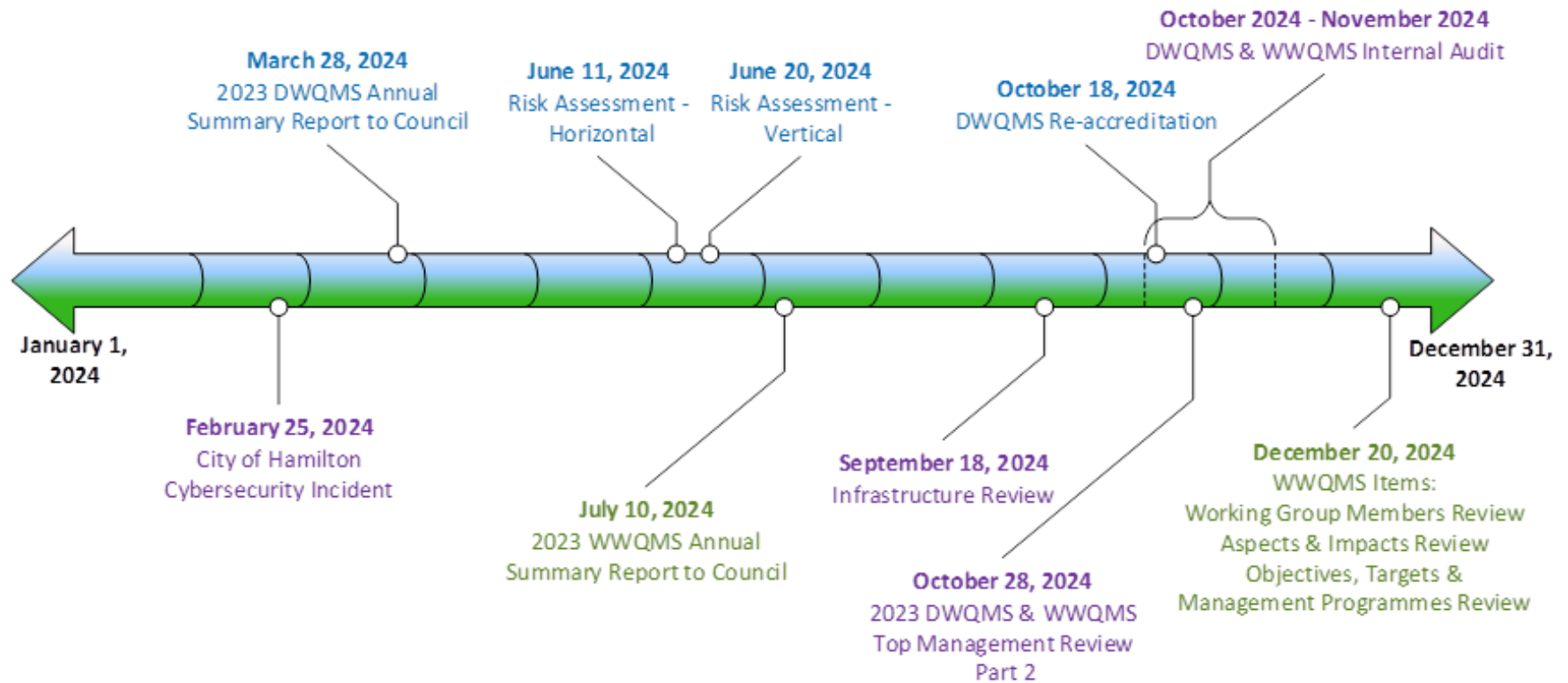
#### **1.3.2 WASTEWATER QUALITY MANAGEMENT SYSTEM**

The following milestones have been achieved as part of the WWQMS:

- March 2020 – Voluntary WWQMS Compliance Audit;
- December 2020 – WWQMS Operational Plan first endorsed by City Council; and
- March 2023 – Re-endorsement of WWQMS Operational Plan by City Council.

Figure 1 below illustrates the 2024 milestones for the Drinking Water (blue), Wastewater (green), and Integrated (purple) Quality Management Systems.

**FIGURE 1: 2024 DRINKING WATER QUALITY MANAGEMENT SYSTEM AND WASTEWATER QUALITY MANAGEMENT SYSTEM MILESTONES**





## 1.4 DRINKING WATER QUALITY MANAGEMENT SYSTEM AND WASTEWATER QUALITY MANAGEMENT SYSTEM ELEMENTS

Table 1 below identifies the Plan, Do, Check, and Act elements for the DWQMS and WWQMS.

The City of Hamilton's DWQMS contains 21 elements whereas the WWQMS contains 23 elements.

**TABLE 1: DRINKING WATER QUALITY MANAGEMENT SYSTEM AND WASTEWATER QUALITY MANAGEMENT SYSTEM ELEMENTS**

DWQMS Element Number	WWQMS Element Number	Element	Step in Continuous Improvement Cycle
1	1	Quality Management System (QMS)	Plan & Do
2	2	QMS Policy	
3	3	Commitment & Endorsement	
4	4	QMS Representative	
5	5	Document and Records Control	
6		Drinking Water System	
	6	Wastewater Systems Description	
7		Risk Assessment	
8		Risk Assessment Outcomes	
	7	Environmental Aspects & Impacts	
	8	Objectives & Targets	
9	9	Organizational Structure, Roles, Responsibilities & Authorities	
10	10	Competencies	
11	11	Personnel Coverage	
12	12	Communication	
	13	Operational Planning & Controls	

DWQMS Element Number	WWQMS Element Number	Element	Step in Continuous Improvement Cycle
13		Essential Supplies & Services	
	14	Evaluation of Compliance	
14	15	Review and Provision of Infrastructure	
15	16	Infrastructure Maintenance, Rehabilitation & Renewal	
16	17	Sampling, Testing & Monitoring	
17	18	Measurement & Recording Equipment Calibration & Maintenance	
18	19	Emergency Management	
19	20	Internal Audits	Check
20	21	Management Review	
	22	Non-conformance, Corrective & Preventative Action	Act
21	23	Continual Improvement	

## 1.5 LEGAL AND OTHER REQUIREMENTS

### 1.5.1 DRINKING WATER SYSTEM LICENCES, PERMITS AND APPROVALS

New Municipal Drinking Water Licences and Drinking Water Works Permits were issued by the Ministry of Environment, Conservation and Parks (MECP) on May 24, 2024. Table 1 included in [Appendix A1](#) identifies the drinking water system's name and associated drinking water system number, municipal drinking water system licence and drinking water permit numbers.

New requirements include:

- Prepare a Harmful Algal Bloom Plan for monitoring and notifications (only applicable to the Hamilton Drinking Water System, Woodward Subsystem).

- Prepare an 'Assessment of Fuel Storage and Handling requirements' for drinking water systems when located or part of the drinking water system is located in a source protection zone.
- Parts of the drinking water system in contact with drinking water that are added, modified, replaced, extended shall be disinfected in accordance with the MECP's "Watermain Disinfection Procedure", and any updated version of the procedure as well as American Water Works Association Standards:
  - C652 – Standard for Disinfection of Water–Storage Facilities;
  - C653 – Standard for Disinfection of Water Treatment Plants; and
  - C654 – Standard for Disinfection of Wells.

In addition, there were 11 approvals for extensions or replacements to the distribution system (i.e. Form 1), three minor modifications to the drinking water system (i.e. Form 2) and 1 Schedule C amendment for the future replacement of a well in the Lynden Drinking Water System.

### **1.5.2 ANNUAL REPORTS**

Annual Drinking Water System Quality and Summary Reports for the five Hamilton drinking water systems were submitted to Council and shared with the public for the 2024 year. Due to the cybersecurity incident, expenses associated with significant work on the drinking water systems, details required by Sections 11 (6) e. of O. Reg 170/03, were not included in the reports since the data was not available. Capital project names or other work on the drinking water systems were listed where applicable.

The Wastewater Facilities Annual Report for the Woodward Wastewater Treatment Plant (WWTP), Dundas WWTP, and Wastewater Collection Facilities were submitted to the Ministry of the Environment, Conservation and Parks and shared with the public for the 2024 year. Due to the cybersecurity incident, the ability to capture all customer complaints associated with these facilities was affected, as required by Section 11, Condition 4J of Woodward WWTP Amended Environmental Compliance Approval (ECA) #9410-B65QRT, Section 11, Condition 6J of Dundas WWTP Amended ECA #3101-89PNRC and corresponding conditions related to reporting on customer complaints in the City of Hamilton's respective Wastewater Collection System ECAs. A summary of any received complaints associated with these facilities and the related steps taken to address these complaints were tabulated in the report where applicable.

The Annual Drinking Water System Quality and Summary Report along with the Wastewater Facilities Annual Report has been posted on the City of Hamilton's website.

### **1.5.3 WASTEWATER SYSTEM ENVIRONMENTAL COMPLIANCE APPROVALS**

In 2024, two Hamilton Water Amended Environmental Compliance Approvals (ECAs) came into effect as substantial completion was finished.

The Woodward Wastewater Treatment Plant, Amended ECA #9410-B65QRT contract 3 related to the Tertiary Treatment Facility reached substantial performance in April 2024. Construction was completed October 2024, when the Tertiary Treatment Final Effluent Limits in the Amended ECA came into effect. This completed the third, and final, contract in Phase One of the Woodward Upgrades Program consisting of:

- construction of a new tertiary treatment facility;
- upgrades to the south plant secondary treatment process;
- construction of a new chlorine contact tank; and
- construction of a new outfall and modifications to Red Hill Creek to mitigate erosion potential associated with the increased daily discharge.

Construction of the works for Phase 2 of the Hamilton Real Time Control project, for Amended ECA #5543-CJ7JMB, reached completion in October 2024 for the following sites:

- HCG09 Main-Ewen Regulator Chamber;
- HCG26 Glen Road Regulator and Glen-Tope Overflow Chamber; and
- HCG27 Sterling Weir Chamber.

The City of Hamilton participated in several in-person and virtual meetings with the Ministry of the Environment, Conservation and Parks (MECP) to discuss Hamilton-specific conditions of the Sewage Consolidated Linear Infrastructure ECA in 2024. The City of Hamilton and the MECP continue to work towards a finalized Consolidated Linear Infrastructure ECA.

## 2 RISK ASSESSMENT

### 2.1 OVERVIEW

The DWQMS Standard requires that a risk assessment be conducted in its entirety every three years and reviewed on an annual basis to verify the accuracy. There was a full review of the risk assessment in July 2023 followed by an interim review in June 2024 in accordance with the Standard. The next full review of the risk assessment will be in 2026.

Staff from across Hamilton Water and select staff from Engineering Services collaborated on updating the existing information considering the following key questions:

- Are identified control measures still valid and if so, are they still in place?
- Have additional controls been implemented?

- How has equipment condition, raw water quality, operational controls, etc. changed?
- Are any modified “risk factors” now considered to be critical control risks?

There were no significant risks identified through the 2024 risk assessment process, which were not already captured through an existing Hamilton Water initiative or project.

## 2.2 KEY UPDATES

As part of the DWQMS Risk Assessment, process changes, including capital upgrades in the drinking water systems, are considered and the associated risk scores (i.e., likelihood of occurrence) are updated as needed. The following is a list of materials that were considered in the 2024 DWQMS Risk Assessment:

- Capital Delivery – water projects recently completed and upcoming;
- 2023 DWQMS Infrastructure Review outcomes;
- outcomes updated from previous DWQMS Risk Assessment;
- review of adverse water quality incident notifications;
- BCOS Database Quality Non-conformance Module (audits and inspections);
- items from recent DWQMS Top Management Review Meeting;
- drinking water system inspections;
- incidents including Self-Declared Non-Compliances; and
- audit findings.

Hamilton Water staff continue to work to integrate the DWQMS Risk Assessment with the City’s Asset Management risk assessment in accordance with Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure that came into effect on January 1, 2018. The DWQMS Risk Assessment and infrastructure review will continue to be updated to incorporate any new related processes or requirements.

## 3 ENVIRONMENTAL ASPECTS AND IMPACTS

### 3.1 OVERVIEW

The WWQMS Standard requires that an Environmental Aspects and Impacts Assessment be conducted in its entirety every three years and reviewed on an annual basis to verify the information is current and valid. In December 2024, an interim review of the Environmental Aspects and Impacts Assessment was conducted.

Impacted by the cybersecurity incident, the Environmental Aspects and Impacts Assessment was not reviewed in its conventional platform through the WWQMS working group meetings. Alternatively, email requests and one-on-one virtual meetings were held with key stakeholders to seek comments and updates on the Environmental Aspects and Impacts Assessment. Staff from across Hamilton Water provided inputs to the Compliance Support Group to update the existing information considering the following key questions:

- Have there been any major process changes that affected existing environmental aspects or created new aspects?
- Were there any changes to aspects identified as “significant”?
- How did the cybersecurity incident impact existing environmental aspects?

### 3.2 KEY UPDATES

As part of the Environmental Aspects and Impacts Assessment, process changes, including capital upgrades in the wastewater system are considered and the associated ratings (i.e. the likelihood of occurrence, severity of impacts and their detectability) are updated as needed. The following is a list of information that was considered in the 2024 Assessment:

- upgrades and maintenance in the Woodward Avenue Wastewater Treatment Plant;
- bypasses and overflows at the Woodward and Dundas Wastewater Treatment Plants;
- overflows of sanitary and combined sewage; and
- challenges arising from the City of Hamilton cybersecurity incident.

In 2025, an interim review of the Environmental Aspects and Impacts Assessment process and outcomes will be completed in accordance with the WWQMS Standard. The WWQMS Environmental Aspects and Impacts Assessment continues to be updated to incorporate any changes related to the collection and treatment of wastewater affected by new activities, products, and services.

## 4 OBJECTIVES AND TARGETS

### 4.1 OVERVIEW

The WWQMS Standard requires that objectives and targets be established to avoid or minimize environmental impacts from the City’s wastewater system. The objectives and



targets were set based on evaluation criteria identified in the WWQMS Standard. The following is the list of evaluation criteria:

- significant aspects;
- WWQMS Policy;
- compliance obligations;
- technological options;
- financial, operational and business requirements;
- views of interested parties;
- preventative measures; and
- audit results.

The objectives and corresponding targets are:

- to minimize discharges to the environment
  - meet the Ministry of the Environment, Conservation and Parks' F-5-5 Requirements for the determination of treatment requirements for municipal and private combined
- to regulate the quality of wastewater received from industrial, commercial and institutional properties
  - Notice of Violations are sent within three weeks of posted in the Laboratory Information Management System
  - zero existing construction dewatering permits will be allowed to expire without a new permit already in place (if required)
  - complete 300 property assessments and confirmation of the sample locations per year
- to meet all Environmental Compliance Approvals and Hamilton Harbour Remedial Action Plan requirements for final effluent quality for the Dundas and Woodward Avenue Wastewater Treatment Plants (WWTPs)
  - Meet Woodward WWTP compliance limits for Environmental Compliance Approval (ECA) 9410-B65QRT (limits prior to and upon completion of tertiary treatment)
  - Meet Dundas WWTP compliance limits for ECA 3101-89PNRC
  - Meet Dundas WWTP Remedial Action Plan limits

The objectives and targets are reviewed and updated annually.

Management programs have been established to meet the objectives and targets. Updates to the management programs are made throughout the year to add any new projects or reflect changes in project status.

## 4.2 KEY UPDATES

Impacted by the cybersecurity incident, the Environmental Objectives and Targets Assessment was not reviewed in its conventional platform, the WWQMS working group meetings, but in the form of email requests and one-on-one virtual meetings. The wastewater system objectives were reviewed on December 20, 2024 to ensure that they were still appropriate based on evaluation criteria outlined in the Wastewater Quality Management Standard. No changes were made to the three objectives for the City's wastewater system.

In 2024, the City's performance targets were reviewed at the Top Management Meeting on October 28, 2024 to review 2023 performance. The following are the outcomes of the review of targets:

- Wet weather flow capture rate was 84.70 per cent in 2023 for the Ministry of the Environment, Conservation and Parks Combined Sewer Overflow reporting for April 15 to November 14. Thus, the F-5-5 requirement to capture 90 per cent of wet weather flow was not met. It is important to note that the full-year rainfall volume for 2023 was 48 per cent higher than observed in 2022 at seven rain gauges across the city, with less rainfall events, indicating significantly more intense rainfall.
- The Monitoring and Enforcement Program was updated to improve the process for the review and approval of Sewer Use By-Law 14-090 permits. This update prioritizes and increases sampling for areas of concern/high risk of contamination with increased site visits by Environmental Enforcement Officers.
- The Environmental Compliance Approvals (ECA) and Remedial Action Plan targets did not change in 2023. However, it was noted that the Phase One completion of the Woodward Wastewater Treatment Plant, anticipated in 2024, would initiate the stricter ECA limits associated with the tertiary treatment.

The management programs were updated at the end of the year to reflect changes in project status.

## 5 EVALUATION OF COMPLIANCE

### 5.1 DRINKING WATER QUALITY MANAGEMENT SYSTEM COMPLIANCE AUDIT

The DWQMS accreditation process requires both third party accreditation audits and annual internal audits by the Operating Authority. The cycle of external audits includes

an on-site verification audit every three years and an off-site documentation review annually.

Hamilton Water utilizes the services of QMI-SAI Global as the accreditation body for the DWQMS. In 2024, QMI-SAI Global conducted an off-site documentation review and an on-site audit. There were no non-conformances and one opportunity for improvement (OFI) related to expired standards found in Standard/Chemical cabinet for handheld analyzer.

#### **5.1.1 STATUS OF FINDINGS – DRINKING WATER QUALITY MANAGEMENT SYSTEM**

As no non-conformances were identified in the most recent DWQMS Compliance Audit, no update to the Status of Findings is required.

### **5.2 WASTEWATER QUALITY MANAGEMENT SYSTEM COMPLIANCE AUDIT**

The Operating Authority voluntarily retained the services of Wood PLC in March 2020 to evaluate the compliance of the wastewater system with legal and other requirements. Due to the COVID-19 pandemic, the audit was conducted off-site virtually. There were 10 non-compliances, nine recommendations and four best practices identified.

#### **5.2.1 STATUS OF FINDINGS – WASTEWATER QUALITY MANAGEMENT SYSTEM**

Of the 10 non-compliances from the 2020 audit, three were closed in 2020, two were closed in 2022, and one was closed in 2024. Four remain open at the end of 2024. The four open non-compliances are tied to maintenance projects and corrective actions are ongoing, with two awaiting the verification of effectiveness. The recommendations and best practices were considered for future action as required.

## **6 REVIEW AND PROVISION OF INFRASTRUCTURE**

### **6.1 PURPOSE**

The Operating Authority must ensure and verify, on an annual basis, the adequacy of water and wastewater infrastructure. In order to satisfy the requirements of the DWQMS and WWQMS Standards, the Operating Authority conducted a formal review of its vertical (water and wastewater treatment, storage and pumping) and horizontal (watermains, wastewater collection pipes, regulators, etc.) infrastructure. The scope of the review also considered the operation, maintenance and replacement of existing infrastructure assets as well as new infrastructure planned for the immediate and long-term future. An infrastructure review (combined) meeting was held with the Management Team of Hamilton Water to discuss the outcomes of both the horizontal and vertical infrastructure reviews. This DWQMS and WWQMS Annual Summary Report includes a brief summary of the results of the DWQMS and WWQMS infrastructure review.

## 6.2 PROCESS

Teams were assembled from across relevant sections of Hamilton Water, Engineering Services, and Planning and Economic Development on September 18, 2024 to conduct a coordinated review of Horizontal & Vertical Infrastructure Review for the drinking water systems and wastewater systems.

The teams collected and examined input data related to various asset management, maintenance and capital programs. A summary of the type of indicator data examined is provided in Table 2 included in [Appendix A1](#).

## 6.3 OVERVIEW OF RESULTS

The outcomes and recommendations from the Infrastructure Review Meeting were documented in an outcome table for the 2024 review. Attendees at the meeting consider the outcomes from the meeting as input to capital planning and budget preparation. The 2024 Infrastructure Review will be discussed at the Top Management Review Meeting in 2025.

The 2024 infrastructure review process concluded that our vertical and horizontal infrastructure is generally found to be adequate and available when needed. The review identified that assets remain in operation beyond their intended life cycle adding to the demand on maintenance staff and resources. It also identified the barriers presented with the cybersecurity incident and the resulting loss of computerized maintenance management systems.

# 7 INTERNAL AUDITS

## 7.1 INTERNAL DRINKING WATER QUALITY MANAGEMENT SYSTEM AND WASTEWATER QUALITY MANAGEMENT SYSTEM AUDITS

The Operating Authority must conduct internal audits to evaluate the conformity of the DWQMS and the WWQMS with the requirements of the DWQMS and WWQMS Standards and associated procedures, at least annually.

The internal audit conducted in 2024 covered all the required elements of DWQMS and WWQMS and included audits of elements listed in [Table 1](#). Five identified non-conformances were related to: (2) Document and Records Control, (1) Environmental Aspects and Impacts, (1) Measurement and Recording Equipment Calibration and Maintenance, and (1) Internal Audits.

The results of the 2024 DWQMS and WWQMS internal audits demonstrated that the City of Hamilton's DWQMS and WWQMS contains the required procedures and records to illustrate the establishment and continual improvement of both management systems.

## 7.2 2025 AUDIT PLAN

The Compliance Support Group of the Compliance and Regulations Section will be developing an Audit Plan for the 2025 DWQMS and WWQMS internal audits. The audit is to take place in October 2025. The audit plan will include a number of process and element audits. The Audit Plan will be reviewed by the Hamilton Water Senior Management Team and approved by the Systems Management Representative prior to implementation.

## 8 MANAGEMENT REVIEW

The “Plan” component of Management Review, Element 20 of the DWQMS Standard and Element 21 of the WWQMS Standard, requires a documented procedure to describe how the Operating Authority reviews the suitability, adequacy and effectiveness of the DWQMS and WWQMS, respectively. The “Check” component of each element requires that Top Management participate in a management review at least once per year to review the DWQMS and WWQMS and consider recommendations for continual improvement. Required outputs of the meeting are:

- consideration of the results of the management review and identifying deficiencies and action items to address deficiencies;
- provide a record of decisions and actions items including responsibilities and timelines; and
- report the results of the management review to the Owner.

In 2024, the combined DWQMS and WWQMS Top Management Review was held on October 28, 2024. Attendees included Top Management (General Manager of Public Works and Director, Hamilton Water), Directors, Section Managers, Overall Responsible Operators (OROs), the System Management Representative (i.e., Manager of Compliance and Regulations), and staff from the Compliance Support Group.

Overall, Top Management, Directors and Section Managers concluded that the DWQMS and the WWQMS are suitable, adequate, and effective.

Action items are assigned to enable operational improvements, improved communication and better coordination between Hamilton Water and other City departments. The 2024 DWQMS and WWQMS Top Management Review had one action item related to pushing the timing of 2024 Annual Drinking Water Summary Report to later in the year, which was implemented in 2025.

### 8.1 HAMILTON WATER FINANCIAL PLAN

The need to prepare a Water Infrastructure Financial Plan is, in part, a regulatory compliance issue specific to the water licensing requirements defined within the DWQMS and more specifically detailed under Regulation 453/07–Financial Plans made

under the Safe Drinking Water Act, 2002. The required financial plan for water systems must address a minimum six-year timeframe and be approved by Council prior to submission to the Ministry of Municipal Affairs and Housing. The resulting plans must also be made freely available to the general public. Water Infrastructure Financial Plans for Hamilton have typically been developed to cover a ten-year period of time in order to reflect consistency with the current Water, Wastewater and Stormwater Rate Budget process.

The first financial plan was created in 2010 and revised in 2014 and 2018. The latest revision was approved by Council on September 8, 2023. This most current plan was sent to the Ministry of Municipal Affairs and Housing on October 20, 2023.

## 9 CONCLUSIONS

The outcomes from the internal DWQMS and WWQMS audits and the Management Reviews concluded that the DWQMS and WWQMS are adequate, suitable and effective and conforms to the requirements of the DWQMS and WWQMS Standards, respectively. Corrective action plans from the audit and action items from the Management Review will be implemented to ensure continual improvement of both the DWQMS and the WWQMS.

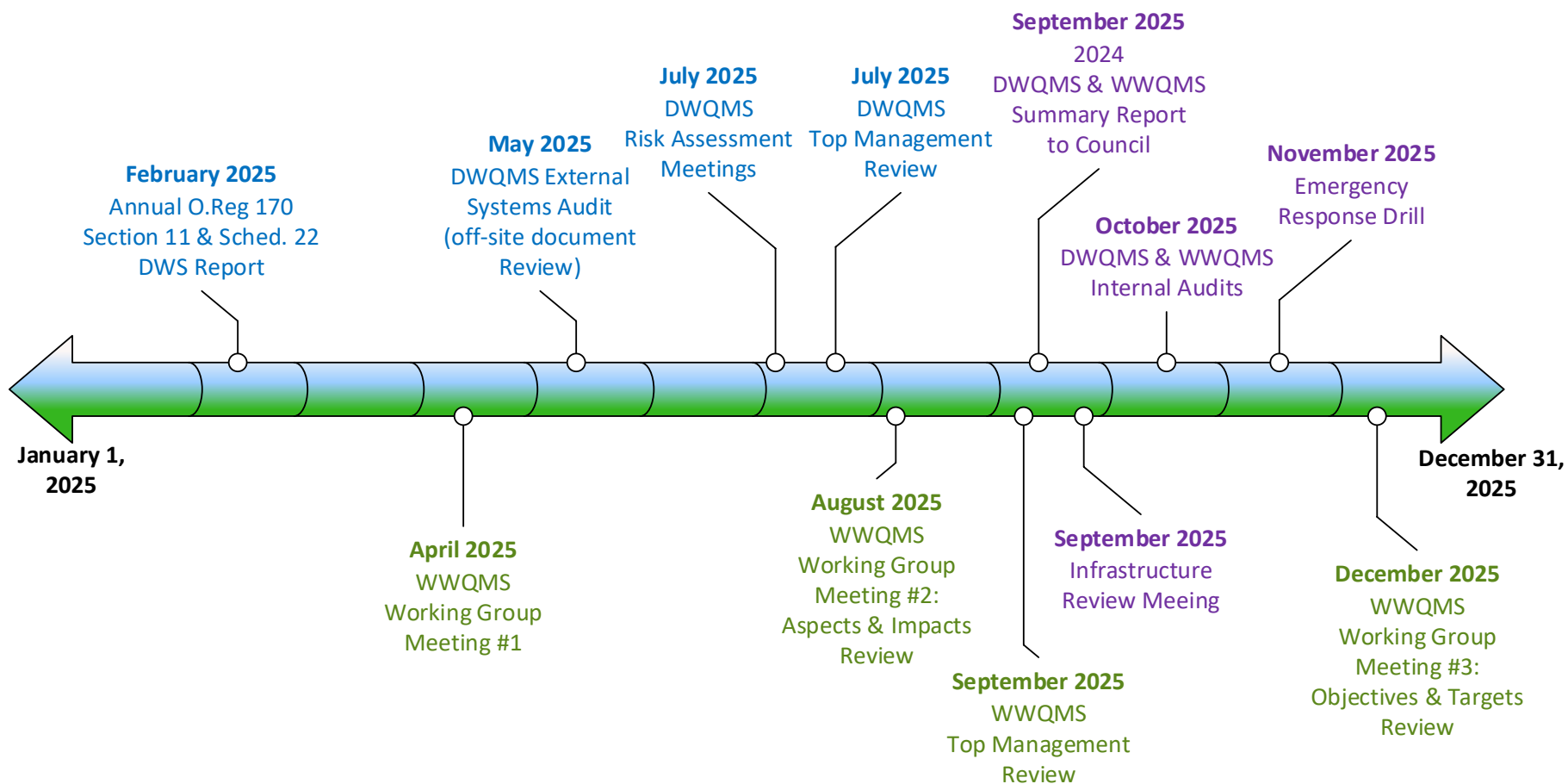
## 10 NEXT STEPS – TIMELINE

The management system requires ongoing commitment by staff and management. Maintenance and improvement of the system continues to be a high priority of the Operating Authority. The Hamilton Ontario Water Employees Association labour disruption presented a major challenge in 2025 which resulted in rescheduling the DWQMS and WWQMS Top Management Reviews. Major next steps related to the maintenance of the DWQMS & WWQMS in 2025 are detailed in [Figure 2](#).

[Figure 2](#) illustrates the 2025 proposed milestones for the Drinking Water (blue), Wastewater (green), and Integrated (purple) Quality Management Systems.



**FIGURE 2: 2025 DRINKING WATER QUALITY MANAGEMENT SYSTEM AND WASTEWATER QUALITY MANAGEMENT SYSTEM  
PROPOSED MILESTONES**



# APPENDIX A1

**TABLE 1: CITY OF HAMILTON'S DRINKING WATER SYSTEMS**

Drinking Water System (DWS)	Drinking Water System Number	Municipal Drinking Water Licence	Drinking Water Works Permit
Hamilton DWS, Woodward Subsystem	220003118	005-101 Issue #11	005-201 Issue #6
Hamilton DWS, Fifty Road Subsystem	260069173	005-101 Issue #11	005-201 Issue #6
Freelton DWS	220004117	005-102 Issue #7	005-202 Issue #8
Greenville DWS	220004126	005-103 Issue #5	005-203 Issue #5
Carlisle DWS	220004108	005-104 Issue #5	005-204 Issue #5
Lynden DWS	250001830	005-105 Issue #7	005-205 Issue #6

**TABLE 2: INFRASTRUCTURE REVIEW DATA**

Infrastructure Type	DWQMS Input Data	WWQMS Input Data
Horizontal Infrastructure – Maintenance	<ul style="list-style-type: none"> <li>• Water main repairs</li> <li>• Hydrant and valve inspections</li> <li>• Valve and meter replacement</li> <li>• Substandard service replacement</li> <li>• Preventative maintenance</li> <li>• Emergency repairs</li> <li>• Customer complaints</li> </ul>	<ul style="list-style-type: none"> <li>• Linear sewer inspections and condition assessments including sewer age</li> <li>• Wastewater Collection Maintenance Program</li> <li>• Sewer Maintenance, Repair and Replacement Program</li> <li>• Inspection programs – Closed-Circuit Television, Maintenance Hole, Sewer Boom, Combined Sewer Regulators, Air Valve, Combined Sewer Outfall, Sewer Lateral Backup</li> <li>• Sewer Lateral Management Program</li> <li>• Mainline sewer blockages</li> <li>• Maintenance access structures containing sewer regulators</li> </ul>
Horizontal Infrastructure – Large Capital	<ul style="list-style-type: none"> <li>• Replaced, rehabilitated and new water mains</li> <li>• Condition assessments</li> <li>• Capital upgrades</li> <li>• Master Plan schedule</li> <li>• Corrosion Control Program</li> <li>• Asset management – critical watermain age profiles and inspections</li> </ul>	<ul style="list-style-type: none"> <li>• Capital maintenance projects</li> <li>• Mainline sewer rehabilitation projects</li> <li>• Asset management plan updates</li> <li>• Flooding and drainage improvement framework</li> <li>• Master Plan updates</li> </ul>

Infrastructure Type	DWQMS Input Data	WWQMS Input Data
Vertical Infrastructure – Maintenance	<ul style="list-style-type: none"> <li>• Preventative Maintenance Program status</li> <li>• Breakdowns and emergency repairs</li> <li>• Capital upgrades - coordination and scheduling</li> <li>• Life cycle best practices</li> <li>• Critical projects</li> </ul>	<ul style="list-style-type: none"> <li>• Preventative Maintenance Program</li> <li>• Inspection Programs by Enhanced City of Hamilton Outstations Team</li> </ul>
Vertical Infrastructure – Large Capital	<ul style="list-style-type: none"> <li>• Condition assessments</li> <li>• Master Plan update</li> <li>• Source water protection projects, well studies and investigations</li> <li>• Water capital projects lists</li> </ul>	<ul style="list-style-type: none"> <li>• Large capital projects</li> <li>• Condition assessments</li> <li>• Asset Management Plan updates</li> <li>• Master Plan updates</li> </ul>