

Staff Report



To	Committee of the Whole
Service Area	Infrastructure, Development and Enterprise Services
Date	Monday, March 2, 2020
Subject	2019 Water Services' Annual and Summary Report
Report Number	IDE-2020-24

Recommendation

1. That Guelph City Council approves the 2019 Water Services' Annual and Summary Report.
 2. That Guelph City Council endorse the updated Organizational Structure of the Operational Plan as defined in section o) of the 2019 Water Services' Annual and Summary Report and shown in Attachments 2 and 3.
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Executive Summary

Purpose of Report

The Water Services' Annual and Summary Report (the Report) is a compilation of information that demonstrates to the water system Owner (City Council) and all stakeholders the ongoing delivery of an adequate and safe supply of drinking water to customers serviced by the City of Guelph Drinking Water System (Guelph DWS) and the Gazer Mooney Subdivision Distribution System (Gazer Mooney SDS, located in the Township of Guelph/Eramosa).

This report satisfies the regulatory requirements of the Safe Drinking Water Act (SDWA) including the Drinking Water Quality Management Standard (DWQMS); Section 81 of the Clean Water Act (CWA); and regulatory reporting required under O. Reg. 170/03 – Section 11 and Schedule 22.

Through the report, system owners, senior leaders, and customers are informed of the performance of Water Services for the period of January 1 to December 31, 2019.

Key Findings

In 2019, Water Services maintained its commitment of providing consumers in the City of Guelph and the Gazer Mooney subdivision in Guelph/Eramosa Township with a safe, consistent supply of high quality drinking water while meeting or exceeding, and continually improving on legal, operational and quality management system requirements.

Financial Implications

All financial implications of the Report were included as part the Council approved 2019 Water Services Non-Tax Operating and Capital Budgets.

Report

In satisfying the requirements of Safe Drinking Water Act (2002), Water Services is pleased to present the 2019 Water Services Annual and Summary Report for review and approval by the system Owner (City Council). Significant highlights of the report are described below. For Council and public reference, the complete report is available for review at guelph.ca/living/environment/water/drinking-water/water-testing/ or by request at 29 Waterworks Place, Guelph.

Water Services works closely with the Ministry of the Environment, Conservation and Parks and Wellington Dufferin Guelph Public Health to improve the drinking water system and ensure safe drinking water

Inspection

The drinking water system is routinely inspected annually by the Ministry of the Environment, Conservation and Parks (MECP) and externally audited by an MECP approved third-party auditor. Staff also perform required annual internal audits. Through the annual MECP inspection, there were four non-compliances identified in the Guelph Drinking Water System (Guelph DWS) and no non-conformances identified in the Gazer Mooney Subdivision Distribution Subsystem (Gazer Mooney SDS). Please note that none of the issues of non-compliance put the drinking water system or public health at risk. Please refer for section a) Incidents of Regulatory Non-Compliance in the Report for more information.

Water Services has corrected all issues of non-compliance identified through the inspection to the satisfaction of the drinking water inspector. Through the root-cause analysis process, Water Services initiates continual improvement measures and implements new policies and procedures to prevent such issues of non-compliance from reoccurring.

In the 2018-2019 MECP Inspection, a score of 100% was achieved for the Gazer Mooney SDS and 89.42% for the Guelph DWS.

Audits

Through the 2019 Drinking Water Quality Management Standard Internal and Third-Party Audits, 41 process audits were completed to confirm that Water Services is meeting the requirements of the Standard. During the third-party audit, there were two minor non-conformances identified by the auditor. One was around Element 5 – Document and Records Control and one around Element 13 – Essential Supplies and Services.

In both minor non-conformances, a root-cause analysis was completed to identify corrective and preventative actions to ensure that the issues will not occur again. In both cases, corrective and preventative actions were presented and accepted by the auditor. Both non-conformances are closed and accreditation with the DWQMS Version 2.0 standard is maintained by Water Services.

Section e) Internal and Third-Party Audit Results of the report provides more detail on the internal and third-party audits completed in 2019.

Adverse Water Quality Incidents

In 2019, there were three Adverse Water Quality Incidents (AWQIs) in the Guelph DWS. More information can be found in section b) Adverse Water Quality Incidents

of the report. Resampling results were communicated to Wellington Dufferin Guelph Public Health (WDGPH) and the AWQIs are closed.

During implementation of an enhanced Dead-End-Flushing Program to improve water quality to customers, an AWQI of a low chlorine residual in the distribution system was experienced at a hydrant, located at the end of an extension of watermain awaiting customers as part of future development. Results were communicated to WDGPH and the MECP. The watermain was flushed until a residual of 0.64mg/L was achieved. This hydrant is now part of the regular flushing program and has scheduled flushings to maintain acceptable secondary disinfection free chlorine residuals. The AWQI is closed.

There was one AWQI reported in the Gazer Mooney SDS. Resamples results were communicated to WDGPH and the AWQIs are closed.

We are ensuring accountability by following up on action items

Water Services conducts an annual Management Review, as required under the DWQMS. Management review meetings were conducted on January 25, 2019 and on January 29, 2020. Through the management review process, deficiencies are noted and reported to the Owner (Council). Water Services works diligently to ensure that any deficiencies are corrected and makes changes to policies and procedures to prevent further deficiencies. For more information, please see section i) of the report.

Collaborative Approach

A collaborative approach between Water Services and other City departments is important to deliver safe drinking water to the residents and businesses of Guelph and supports Building our Future and Sustaining our Future Strategic Priorities

- Water Services and Planning and Building Services monitor Critical Control Points (CCP) and Limits

If there are any deviations to CCPs, Water Services and Building Services undertake quick actions to resolve the issue. There was one deviation from the CCPs in 2019 and is discussed in section c) of the report.

- Water Services identifies and assesses risks to the drinking water system

An annual risk assessment is conducted by Water Services in order to mitigate or plan for hazards and hazardous events that may affect the drinking water system. Water Services presented the full results of the risk assessment to Council in March 2019. More information on the 2019 risk assessment process can be found in section d) of the report.

- Water Services prepares for emergencies

Through annual emergency response training and testing, Water Services maintains a reasonable readiness to deal with emergencies and abnormal events. All Water Services staff participate in an annual emergency test exercise along with participation from staff from the MECP, WDGPH, Corporate Communications and the Fire Department. Building relationships and defining roles and responsibilities with other government agencies prior to an emergency

is vital to ensuring an effective emergency response during actual emergency events.

Throughout 2019, Water Services responded to three actual emergencies, which are discussed further in section f) of the report.

- Water Services monitors water quality through a robust sampling program

Under the Safe Drinking Water Act, municipalities are required to monitor both the raw and treated quality of the source water supplied. This monitoring is performed for both regulatory compliance and due diligence and is expected to identify any changes within the treated water, as well as, in raw source waters.

In 2019, there were 2,658 raw (untreated) water bacteriological analyses (E. coli, Total Coliform and Background) done in the Guelph DWS. A total of 10,109 bacteriological sampling analyses (E.coli, Total Coliform, Background, HPC, and Free Chlorine Residual) were done on the treated water (both at the Point of Entry and in the Distribution system) in the Guelph DWS in 2019.

In the Gazer Mooney SDS, 573 distribution analyses (E. coli, Total Coliform, HPC, Background and Free Chlorine Residual) were completed in 2019. Of the total 13,250 analyses, 0 were outside of the Ontario Drinking Water Quality Standard criteria.

Section h) Raw and Treated Water Quality and Drinking Water Quality Trends provides further details regarding further sampling (quarterly, annual 3-year, 5-year) completed in 2019 for the Guelph DWS and the Gazer Mooney SDS.

- Customer service – ensuring consumer satisfaction

Water Services fielded 941 customer calls in 2019 that required follow up from Water Services staff. This was down from 1,027 calls received in 2018. A breakdown of the calls received can be found in section l) of the report.

By way of vote by its customers, Water Services received the Diamond Award for Best Water Delivery/Supply in the 2019 Guelph Mercury Tribune Readers' Choice.

- Listening to Water Services Staff and implementing their suggestions

Water Services values the contribution of its employees and works to implement suggestions for improvement. In 2019, Water Services staff contributed 55 suggestions to improve on programs, processes, the quality management system, or the drinking water system. Section p) and Appendix H of the report outlines the staff suggestions in more detail.

Improvements to the Drinking Water System

Improvements to the Drinking Water system show a responsible approach to maintaining water infrastructure.

Section g) of the report discusses System Maintenance and Updates made to the drinking water system in 2019. Some highlights of infrastructure maintenance completed include:

- Repair of 58 watermain breaks in 2019, which was 20% less than those experienced in 2018.

- 5 below grade well inspections, 3 well rehabilitations and 5 contact chamber/reservoir inspections were completed in 2019.
- 342 km of metallic watermain were proactively surveyed for the presence of distribution system leaks. 33 possible leaks were identified through this survey, with 28 confirmed leaks repaired by Water Services staff.
- Inspection of all distribution system hydrants with maintenance completed on 301 hydrants resulting from inspections performed to maintain these important assets in a fit state of repair.
- The valve exercising program identifies required repairs and replacements of valves. Maintenance was completed on 54 valves in 2019 and 20 valves were replaced.
- 8,597 infrastructure locate requests were completed in 2019 to protect water infrastructure during local construction activities.
- Infrastructure planning, design and construction oversight of the extension of Drinking Water System linear assets and customer servicing requests by Engineering and Transportation Services, including the installation of 600m of new City owned watermain in 2019.

Water Services works with home owners to “Get the Lead Out” of the drinking water system and has replaced 703 lead services lines to date. A grant program is available to encourage replacement of privately owned lead service lines by reducing the financial burden to property owners. In 2019, 9 privately owned lead service lines were replaced through the grant program.

More information can be found in section g) Operational Performance and Statistics of the report.

Planning for the Future

Water Services is planning for the future – maintaining the drinking water system and the quality management system

Identifying resources needed to maintain the drinking water system and the quality management system shows a proactive approach to water utility planning and is discussed in section m) of the report. Operational challenges Water Services is experiencing continue to drive the need for additional resources, such as:

- a changing staff profile, with experienced staff that have retired or are due for retirement in the next few years;
- aging city infrastructure requiring increased budget considerations;
- increased demands of future growth leading to a potential source water supply shortfall requiring increased capital project and budget considerations;
- distribution system issues, such as dead-ends, frozen city infrastructure, larger infrastructure failures, aging water meters and watermains, and watermains located on easements; and
- private property issues, such as substandard water services.

Working with Engineering and Transportation Services, asset management plans completed by Corporate Asset Management and Water Services staff work to ensure that the drinking water system is maintained in a fit state of repair. Please refer to Section n) of the report for further information.

In conjunction with Engineering and Transportation Services, Water Services establishes a list of priority projects that need to be completed in the distribution

system. This is based on infrastructure conditions, inventory age, the capital asset prioritization system and system criticality.

The Water Supply Master Plan and Water and Wastewater Linear Servicing Master Plan define preferred water supply servicing alternatives in meeting the needs of existing customers and future community growth.

A 10-year capital forecast for Facility and Water Plant Upgrades was endorsed by Council as part of the 2020 Capital Budget to address a backlog in infrastructure investment required to sustain operation of the City's critical water supply facilities and processes in a fit state of repair.

In 2019, nine key capital projects have been initiated or completed. Section n) describes these capital projects in further detail.

Applicable Legislation and Changes

Water Services stays current on applicable legislation as well as changes that could affect the drinking water system or quality management system.

Appendix E of the report includes a summary of legislative and regulatory updates from January 1, 2019 to December 31, 2019.

The Municipal Drinking Water License was renewed in 2019, which includes a council approved Financial Plan and Operational Plan. There were two Permits to Take Water (PTTW) that were renewed in 2019 and one PTTW is scheduled for renewal in 2020.

A total of 33 employees at Water Services are certified to operate the drinking water system, including 17 Water Distribution Operators and 11 Water Treatment Operators.

Water Services continues to implement a proactive approach to the DWQMS by maintaining accreditation, identifying ways to improve the drinking water system, involving staff in the quality management system, ensuring any deficiencies are responded to and corrected quickly, collaborating with other municipalities in system improvements and continuing advancements to emergency prevention and preparedness plans.

Section k) of the report provides further details on how Water Services stays current with legislation and changes to the drinking water system and quality management system.

On an ongoing basis, the Quality Management Specialist with the help of additional Water Services Staff updates the Operational Plan. The Operational Plan was presented to Council on January 14, 2019 for endorsement. Updates to the Operational Plan were communicated to Water Services management and staff via email on September 10, 2019.

In maintaining an up-to-date Operational Plan, Water Services is seeking Council's endorsement of the revised Organizational Structure, with the current and new proposed structures included as attachment 2 and 3 to this report, respectively. Update to the Organization Structure includes formal identification of the Owner Representative, the General Manager of Environmental Services, to identify the person who is ultimately responsible and accountable for informing the Owner (Council) of items related to the drinking water system. Corresponding revisions to

QMS 09 Organizational Structure, Roles, Responsibilities & Authorities are made as well, including specifying that Council alone is the Owner.

Notable updates to the Operational Plan are presented in section o) of the report.

Water Services pumped 17.2 billion liters of water in 2019

Water Services processed 17,160,654 cubic metres (17.2 billion litres) of water to the distribution system in 2019, equivalent to 6,864 Olympic-sized swimming pools.

The average daily water demand was 47,015 cubic meters (47.0 million litres) per day.

The maximum day production of water in 2019 was 58,411 cubic metres (58.4 million litres) per day and occurred on November 30, 2019 due to a large watermain break, which contributed to the high amount of water pumped that day.

The minimum day production of water in the same time period was 32,477 cubic metres (32.5 million litres) per day and occurred on December 26, 2019. Please see section g) and Appendix C of the report for more information.

Water Services is a leader in water conservation and efficiency

As one of Canada's largest communities reliant on a finite groundwater supply for our drinking water needs, our ability to reclaim water and wastewater servicing capacity through conservation initiatives offers numerous benefits to our community and local ecosystem.

The 2016 Water Efficiency Strategy identified a 10-year savings goal of 6,265 cubic metres per day between 2017 and 2026. The total water savings achieved for 2019 was 658.5 cubic metres per day, which surpassed the 2019 target set in the Water Efficiency Strategy.

In 2019, 984 rebate applications and audits were completed and 38 incentives for municipal and business upgrades were processed.

The various education and outreach programming completed in 2019 provided information about Guelph's water supply, water conservation and efficiency to over 12,000 participants.

The Guelph Water Wagon, now in its seventh year of providing tap water to attendees of large, outdoor community events, provided 22,332 litres of water to event goers. Further, it provides Water Services an excellent opportunity to engage the public on:

- the value of Guelph's water;
- the need for water conservation and source protection;
- answer questions from the public around municipal tap water or Water Services programs and studies; and
- promote tap water consumption over other beverages.

More information around Water Services' Water Conservation and Efficiency Program can be found in Appendix I.

Source Water Protection protects your drinking water from contamination

Source Protection staff at Water Services continue to identify and mitigate current and future threats to drinking water sources, as required by the Clean Water Act,

2006. The 2010 Assessment Report identified a total of 942 threats to the drinking water source within the City of Guelph. Threat verification has been completed for 409 of the sites, which has resulted in 12 Risk Management Plans and an additional 4 currently in progress.

The Clean Water Act requires a section 59 Notice for development within a Wellhead Protection Area. Source Protection staff reviewed 361 applications and issued 167 Section 59 Notices in 2019.

The City of Guelph is responsible for implementing Source Protection Policies under the Grand River Source Protection Plan. There are 48 identified policies that are the responsibility of the City of Guelph to implement. Of these 48, 28 have been fully implemented with another 18 that the City has made progress on.

In 2019, the City of Guelph' Source Water Protection program was awarded the American Water Works Association Exemplary Source Water Protection Award.

The full Risk Management Official Update can be found in Appendix K of the report.

Financial Implications

All financial implications of the Report were included as part the Council approved 2019 Water Services Non-Tax Operating and Capital Budgets.

Consultations

Departmental consultation completed in support of the 2019 Water Services Annual and Summary Report, include:

- Engineering and Transportation Services;
- Planning and Building Services;
- Legal, Realty and Court Services; and
- Finance Services – Teisha Colley-Balgrove

Strategic Plan Alignment

This report is aligned with the Strategic Plan Priorities of Sustaining our Future by providing water in a sustainable way, Building our Future by maintaining and replacing water assets and Working Together For Our Future through our collaborative approach to the delivery of water services.

Attachments

Attachment-1 Annual & Summary Water Services Report – 2019

The full report is available on the City's website at:

guelph.ca/living/environment/water/drinking-water/water-testing/

Attachment-2 QMS 09-01 Organizational Structure – 2019-08-19 (old)

Attachement-3 QMS 09-01 Organizational Structure – 2020-01-20 (new)

Departmental Approval

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