



CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
Hamilton Water Division

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	March 18, 2019
SUBJECT/REPORT NO:	Proposed Amendments to City of Hamilton By-law No. 10-103 Respecting the Prevention of Backflow into the Water Distribution System of the City of Hamilton (PW19023) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Shane McCauley (905) 546 2424, Extension 1020
SUBMITTED BY:	Nick Winters Director, Water & Wastewater Operations Public Works
SIGNATURE:	

RECOMMENDATION

That a By-law to amend the City of Hamilton Backflow Prevention By-law No. 10-103, substantially in the form attached as Appendix B to Report PW19023, and as satisfactory to the City Solicitor, be enacted.

EXECUTIVE SUMMARY

The purpose of this report is to provide City Council with recommended amendments to the City of Hamilton By-law No. 10-103 Respecting the Prevention of Backflow into the Water Distribution System of the City of Hamilton (the "Backflow Prevention By-law"), an overview of the current state of the Backflow Prevention Program as well as an update on program initiatives. A full review of applicable legislation and standards was completed and a list of recommended amendments to the By-law has been assembled for Council consideration.

Alternatives for Consideration - See Page 9

FINANCIAL - STAFFING - LEGAL IMPLICATIONS

Financial: There are no financial impacts associated with the proposed recommendations.

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Staffing: No additional staffing is required as a result of the recommendations of Report PW19023.

Legal: The proposed amendments to subsections 3.5.3 and 9.1.6 of the Backflow Prevention By-law seek to align the requirements of the By-law with the requirements of the Building Code Act, 1992, and the Building Code O.Reg. 332/12.

HISTORICAL BACKGROUND

The Backflow Prevention By-law was approved and passed by City Council on May 12, 2010. The main purpose of this By-law is to prevent the flow of water, other liquids, chemicals or substances from Industrial, Commercial, Institutional and Multi-residential properties back into the drinking water system for which the City of Hamilton is responsible.

City of Hamilton (City) staff within the Customer Service and Community Outreach (CS&CO) Section of Hamilton Water worked diligently to create the Backflow Prevention Program which supports the requirements set in City's Backflow Prevention By-law. This Program includes a webpage dedicated to providing property owners with information on the By-law and their obligations under the By-law with links to electronic survey and device test report forms. Our proactive outreach program provides property owners with access to City Staff (Backflow Prevention Officers) to assist them with meeting compliance requirements. The Program also includes outreach material and reminder letters designed to educate and assist property owners in meeting program requirements.

CURRENT STATE OF THE PROGRAM

Since the inception of the Backflow By-law in May 2010, Hamilton Water has continued to manage and administer the City of Hamilton's Backflow Prevention Program which focuses on isolating private water systems from the City's water distribution system by requiring the appropriate backflow prevention device to be installed near the water meter (within 3 metres).

This program requires all Institutional, Commercial, and Industrial (ICI) and Multi-Unit Residential four stories or higher property owners to submit a survey to the City identifying all service connections and the hazard level of the property. Survey responses are evaluated against the requirements of the By-law to determine whether a Backflow Prevention Device is required.

A summary of the current state of this program is outlined in Appendix A to Report PW19023. In total, properties currently have a survey compliance rate of 79.5% and a device installation compliance rate of 60%.

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For device installations, the data is only representative of surveys received. Required device installation numbers fluctuate based on survey results and property hazard level. Given the amount of service connections in the City of Hamilton, the complexity of the By-law and the current resources allocated to the enforcement of this By-law, the scale of work outstanding continues to increase. The Continuous Improvement section of this report provides information on efforts that have and continue to be undertaken to increase program efficiency by leveraging online tools.

The City continues to work towards achieving full compliance with the By-law for City owned facilities and the current plan is to have all high hazards related to all City owned properties compliant with the Backflow Prevention By-law by the end of 2019; and all other hazards compliant by the end of 2020.

Often for larger properties, the biggest constraint with achieving compliance is budget availability. In response to this, City Staff have worked with property owners to come up with ways to find the most cost-effective solutions to achieve compliance. Many successes have been achieved due to this collaborative approach. For example, Arcelor Mittal Dofasco has worked with Hamilton Water staff since the beginning of this Program and as of 2018 is in full compliance. This is no small undertaking given the considerable amount of time and resources needed for this large organization. Furthermore, McMaster University and Hamilton Health Sciences are also in full compliance with the By-law. These are only a few examples of the strong working partnerships that Hamilton Water Staff and ICI customers have established to protect our water distribution system.

CONTINUOUS IMPROVEMENT

The CS&CO Section is currently working on two continuous improvement initiatives for this program. The first project (consisting of two phases) is to provide “on-line” options for completing self-assessed surveys (Surveys) and submitting test reports.

Phase 1 was completed in July 2018 allowing customers to submit their Surveys electronically. Customers no longer have to mail or deliver their surveys to 330 Wentworth Street North but can complete them conveniently online. Between July 2018 and February 2019, 55 surveys were completed, and 24 were for properties that had not previously reported.

Phase 2 will allow customers to submit test reports electronically and is scheduled to be completed in October 2019. Property owners are required to submit annual test reports for each device. An administration fee of \$72.61 is included in the user fees for processing these test reports. Staff are currently required to review each report, identify any missing or incorrect information and follow up with the customer and their contractor. This process takes considerable time and resources. By creating an online process, the

system will be able to automatically identify any missing information and require it to be entered before submitting the test report. This will significantly reduce the effort required to review the test reports; thus, freeing staff up to address other aspects of the program. It will also allow test reports to be submitted anytime, not just during regular business hours. In addition to being more convenient we should be able to eliminate or reduce the administration fee for those submitting their test reports electronically.

The second continuous improvement initiative is a project related to providing customers with a pre-approved contractor list to assist with meeting the By-law requirements. This project is in the early stages with expected completion in Q3 or Q4 of 2019. Currently all contractors who perform work related to this by-law are required to be licensed and registered with the City. This requirement ensures that contractors possess the necessary licenses to do the work, however, does not address workmanship or value.

Staff intend to compile and maintain a list of up to five contractors that it has prequalified to perform work on behalf of property owners within the City of Hamilton. The intent of this prequalified list of contractors is to provide value added service to business owners by offering an easier and more cost-effective way for these owners to comply with the By-law requirements. This list will be created through the City's competitive bid process. Property owners will be able to take advantage of this list knowing that the prequalified contractors have gone through a competitive process and are being monitored by the City for quality of workmanship. Using this list will be optional for the customer and it will be the property owner who hires the contractor (similar to the Protective Plumbing Program). The City will have the right to remove contractors from the list based on poor performance which will be done with the assistance of the City of Hamilton Procurement Section.

Through these continuous improvement initiatives and by leveraging technology, we continue to find ways to optimize the resources that we have while providing improved customer service and options for our customers.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

The proposed amendments to subsections 3.5.3 and 9.1.6 of the Backflow Prevention By-law seek to align the requirements of the By-law with the requirements of the Building Code Act, 1992, and the Building Code O.Reg. 332/12.

RELEVANT CONSULTATION

In developing this report, the following consultation was undertaken.

The City Solicitor was consulted regarding the recommended amendments to the Backflow Prevention By-law and provided advice and direction in the preparation of this report;

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The City of Hamilton Procurement Manager was consulted and provided with a copy of this report. Procurement staff provided their approval and input on the continuous improvement project related to the list of pre-qualified contractors.

An information mail out was sent to all Industrial, Commercial, Institutional and Multi-Unit Residential four stories or higher property owners and all current approved Backflow contractors on January 8, 2019. The intent of this information mail out was to inform these customers of the upcoming Public Information Session and to provide them with details of the recommended By-law changes.

A Public Information Session was held on January 29, 2019 to inform customers of the recommended changes to the By-law and to let them know how these changes could impact them. This session was organized in a format to give our customers the opportunity to ask questions and voice any suggestions and concerns with the recommended changes. The session was successful with approximately 30 customers in attendance. The suggestions received have been reviewed and considered in the creation of the recommendations and this report.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

Urban Environmental Management Inc. (UEM) was retained by Hamilton Water to conduct a review of the City of Hamilton's Backflow Prevention Program, the Backflow Prevention By-Law, which included a review of applicable Legislation/Guidance Documents (CSA B64.10-11 Standard, Ontario Building Code Regulation 332/12, the Municipal Act, 2001, the EPA Cross Connection Control Manual, the AWWA Canadian Cross Connection Control Manual, the MOECC Guide for Drinking Water System Owners Seeking to undertake a Backflow Prevention Program), and the programs in other municipalities. This review was undertaken primarily because of changes to the Ontario Building Code since City of Hamilton By-law No. 10-103 was approved in May 2010.

The recommended By-law amendments seek to ensure that the City Program aligns with the Building Code changes and provide improvements to increase property owner's compliance with the By-law while continuing to protect the City's water distribution system.

The rationale for each recommended amendment is outlined below:

- (1) That section 1 definition of "Building Code" is amended by replacing the words "O. Reg. 350/06" with "O. Reg. 332/12".

O. Reg. 350/06 currently referred to in the Backflow Prevention By-law was repealed and replaced with O. Reg. 332/12 on January 1, 2014.

- (2) That the definition "MOE" be removed from By-law No. 10-103.

This change is recommended as the acronym "MOE" is not used within the body of the Backflow Prevention By-law.

- (3) That the term "Self-Assessed Cross Connection Survey Form" be changed to "Self-Assessed Survey" throughout City of Hamilton By-law No. 10-103 (6 instances).

This change is recommended to provide a better distinction between both types of surveys referenced in the By-law, making it easier for property owners and contractors to distinguish.

This is based on feedback from Customers. There have been instances where customers have submitted the wrong type of survey because of confusion around terminology.

- (4) That Section 3.4 of City of Hamilton By-law No. 10-103 be amended to read as:

Where there is a Fire Protection System within a Building or Structure, the Owner of the Property shall ensure that such Building or Structure is protected against Backflow in accordance with the CSA Standard, and in doing so the Backflow Prevention Device shall be either a double check valve assembly or a reduced pressure principle device.

This recommendation eliminates the requirement for a detector check assembly (a meter that would measure consumption should water be used) from Fire Protection Systems. The recommendation is being made because:

- Detector check assemblies do not provide any additional protection to the City's water distribution system from a Backflow event;
- Detector check assemblies are not a requirement of the CSA Standard, the Ontario Building Code or the National Fire Protection Association;
- Costs associated with the installation of a detector check assembly for properties with a Fire Protection System impose an unnecessary financial burden to the property owner, negatively affecting compliance (cost for retro fit approx. \$1,500);
- The detector check assembly meter is currently not billable and is not City owned (consumption, if any, is not being read);
- The City of Hamilton is the only known municipality that currently has this requirement in their By-law; and

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- The inclusion of this requirement was discretionary at the time the By-law was passed (to deter use of fire systems for domestic use). Staff have since been able to determine that the risk of theft from these fire systems is minimal.

- (5) That Section 3.5.3 of City of Hamilton By-law No. 10-103 be amended to read as:

The degree of hazard on the Property is not a High or Severe and the Property is not one which requires Premise Isolation under the Building Code.

This change is recommended due to changes in the Ontario Building Code that came into force on January 1, 2014 which require the installation of a moderate hazard device on all new Industrial, Commercial, and Institutional Properties regardless of water service pipe size.

This amendment would require all properties that have existing backflow prevention devices on water service pipes sized less than 50mm, regardless of hazard level, to submit annual test reports to the City.

- (6) That Section 6.3 of City of Hamilton By-law No. 10-103 be amended to read as follows:

The General Manager is authorized to delegate the responsibility for the administration of this By-law to any employee or agent of the Hamilton Water Division of the Public Works Department of the City;

Due to corporate reorganization, tasks previously handled by the Environment and Sustainable Infrastructure Division of the Public Works Department in connection to this By-law are now undertaken by the Hamilton Water Division of the Public Works Department.

- (7) That a new Section 6.26 be added and state the following:

Every person who contravenes any provision of this By-law shall be deemed to be committing a continuing offence for each day or part of a day that the contravention remains uncorrected.

This additional section is recommended in order to clarify any ambiguities as to whether the offence creating provisions under the Backflow Prevention By-law create single or continuing offences.

- (8) That Subsection 9.1 of City of Hamilton By-law No. 10-103 be amended to add subsections 9.1.6.1 and 9.1.6.2 to read as:

9.1.6.1 Despite subsection 9.1.6, for all hazards other than a High or Severe Hazard, a Property Owner may apply to the to have such device installed where the water service enters the Building or Structure, and the General Manager may approve the installation of the device in a location acceptable to the General Manager, provided the following conditions are met:

- (a) A property inspection by the General Manager, which includes a water shut off, confirms no Cross Connection between the property line and premise Backflow Prevention Device;
- (b) The Owner pays all fees and charges associated with the application, inspection and water shut off; and
- (c) The Owner signs an agreement with terms and conditions acceptable to the General Manager on an annual basis.

9.1.6.2 In the event of failure or refusal to comply with any of the conditions set out in subsection 9.1.6.1 or the terms and conditions in the agreement signed pursuant to section 9.1.6.1(c), the Owner shall comply with requirements set out in section 9.1.6.

Originally, the need for all Backflow devices to be installed no more than 3 meters downstream of the meter was to eliminate the likelihood of a cross connection between the water meter and the backflow device.

- By limiting this requirement only to high or severe properties, unnecessary financial burdens will be eliminated to all other hazard properties. It is hoped that this change will improve compliance with the By-law without adding additional risk to the water distribution system.
- The City of Hamilton's requirement for premise isolation is currently more stringent than both the CSA Standard and the Ontario Building Code. Since Hamilton has a significant number of properties that have extensive private water networks before entering a building, the by-law requires that the backflow prevention device be installed just downstream (within 3 meters) of the water meter for premise isolation. Staff feel this requirement remains justified for high or severe hazard properties; however, with a thorough investigation, other properties could benefit from this change.
- The current by-law allows for the General Manager of Public Works or designate to permit exceptions to provisions of this By-law provided that such exceptions do not create an unreasonable risk of backflow. Staff have allowed 39 exceptions to the bylaw related to the distance between the meter and moderate backflow

device. For each exception a thorough investigation was completed to ensure that no other connections existed.

- (9) That Schedule A of City of Hamilton By-law No. 10-103 (Authorized Functions List) is amended to add the following statement “all test kits used for testing Backflow Prevention Devices require valid calibration certificate to be submitted to the City of Hamilton annually.”

This is a current requirement of the program that is not specified in the Backflow Prevention By-law. The annual calibration of the testing equipment is a requirement under the CSA Standard.

ALTERNATIVES FOR CONSIDERATION

Alternatives may include approval of some or none of the recommendations provided in this report which is not recommended, as the amendments support the City’s efforts to work with property owners to meet their obligations under the Backflow Prevention By-law and continue to protect our water distribution system.

ALIGNMENT TO THE 2016 - 2025 STRATEGIC PLAN

Built Environment and Infrastructure

Hamilton is supported by state of the art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

Our People & Performance

Hamiltonians have a high level of trust and confidence in their City Government.

APPENDICES AND SCHEDULES ATTACHED

Appendix “A” - City Wide (private and City owned properties) Compliance for Surveys and Device Installations

Appendix “B” - Draft By-law to Amend the By-law Respecting the Prevention of Backflow into the Water Distribution System of the City of Hamilton