

Committee of the Whole (1) Report

DATE: Tuesday, November 03, 2020

WARD(S): ALL

TITLE: BACKFLOW PREVENTION BY-LAW AMENDMENT

FROM:

Zoran Postic, Deputy City Manager, Public Works

ACTION: DECISION

Purpose

To request Council approval to amend the Backflow Prevention By-law (By-law No. 004-2018). These amendments will improve protection of the City's drinking water system.

Report Highlights

- Council, as the water system owners are responsible to protect its water system from contamination to ensure that safe drinking water is provided to the City's citizens and businesses.
- The proposed amendments introduce property classifications and associated requirements based on risk and make administrative adjustments to assist in ensuring compliance.

Recommendations

1. That Council approve an amendment to the Backflow Prevention By-law (By-law No. 004-2018), with the proposed modifications as substantially summarized in Attachment 2.

Background

Ontario's Ministry of the Environment, Conservation and Parks regulates the City's drinking water

Drinking water and drinking water systems are regulated by the Province through the Ministry of Environment, Conservation and Parks (MECP). The *Safe Drinking Water Act, 2002*, mandates that owners and operating authorities of the municipal drinking water systems follow specific requirements with regards to operation and maintenance of drinking water systems including activities such as: management; sampling; testing; certification of operators; water quantity and, of the utmost importance, water quality and safety.

In Chapter 7 of the MECP Report of the Walkerton Inquiry, A Strategy for Safe Drinking Water, it notes water providers should have programs to detect and deter risks of backflow. In addition, a recent MECP drinking water inspection report recommends the development of a program, policy or by-law related to backflow prevention as a measure to increase protection of the City's drinking water system.

Backflow prevention devices are mechanical valves that can prevent water from unauthorized sources from entering the City's water system

Under normal conditions, water flows from the City's pressurized distribution system into the property owner's plumbing system and normal water pressures prevent water from flowing back into the water distribution system. In rare circumstances, the flow of water can reverse, such as the following:

- When there is a demand for water resulting from an abnormal activity such as a firefighting event or a large watermain break. The lower pressure in the watermain can draw water back into the watermain from private plumbing systems.
- When the water pressure in private plumbing is greater than the municipal water supply pressure. Private water systems incorporating booster pumps, thermal expansion in boilers, elevated piping systems, etc. can cause water to reverse flow and enter the City's watermain as system pressures fluctuate.

The installation of backflow prevention devices can provide an added level of protection, mitigating risks associated with unauthorized sources of water entering the City's system. An example of how a backflow prevention device is installed on a private plumbing system can be seen in Attachment 1. Promotional materials released to the public as part of the education campaign, explaining the benefits/purpose of backflow prevention devices can be viewed [here](#).

Controlling sources of water entering the drinking water system is one of the ways the City ensures safe, clean drinking water

Staff developed a Backflow Prevention By-law (“the by-law”), enacted by Council in 2017. The by-law is focused on properties that pose the greatest risk to the system, including existing and new construction of industrial, commercial and institutional properties as well as mixed-use and multi-residential properties. Preventing water from flowing into the drinking water system from these sources, help to ensure, safe drinking water.

The by-law addresses the type, installation and field testing of backflow prevention devices which align with current Canadian Standards Association (CSA-B64) and American Water Works Association (AWWA) Standards.

Implementation of the Backflow Prevention Program is moving from an education phase to requiring affected property owners to take action

Working closely with the Corporate and Strategic Communications, the initial phase of the Backflow Prevention Program, informing businesses, as well as industrial, commercial and institutional (ICI) property owners about the by-law, was completed. Various communication tools such as fact sheets, videos, introductory letters, an enhanced website and presentations were completed to engage key stakeholders.

The next phase of the program involves property owners working with qualified companies to assess the need for backflow devices based on the risk of a potential backflow event. Environmental Services staff will review the assessment and notify the property owner on the backflow device to be installed and requirements for annual testing.

Staff have identified opportunities for improvement to the by-law as it has been implemented over the last two years

Through the development of the program, staff identified potential opportunities for improvement to clarify program requirements and ensure the program is administered fairly and consistently. The proposed amendments clarify requirements for property owners, enforcement and provide flexibility to ensure the level of protection required corresponds appropriately with the level of risk that a property poses to the drinking water system.

To address the identified opportunities for improvement, staff propose integrating 15 amendments into the by-law, which are considered to have minor and moderate impacts. Each of the proposed changes are summarized in Attachment 2. Some of the most significant proposed changes are noted in the following paragraphs.

Property owners are required to take immediate corrective action to ensure backflow prevention devices function properly

The corrective actions that the property owner is required to complete when a backflow preventer is not in proper working order have been modified. To protect the City's drinking water, the property owner is required to stop all activities that may result in backflow and the backflow preventer must be repaired immediately.

When the backflow device can not be immediately repaired, where feasible, staff will collaborate with the property owner to ensure that temporary measures (or process modifications) are in place to ensure that the City's water system is protected while avoiding long-term water outages for the property owner. This includes the ability for the property owner to replace the device immediately with one that meets or exceeds the by-law, with the administrative submissions and reviews, taking place afterward.

A risk-based approach for the selection of backflow preventing devices ensures that the level of protection matches the severity of the hazard

The selection of the backflow preventer should be made based on the hazards posed by the plumbing system within a property. To assist in assessing the hazard level, staff have evaluated typical property uses and prepared a reference table, identifying the level of risk associated with a generalized property use. This table (Attachment 3) will form an appendix to the by-law and guide its application.

If a property type is not listed within the above referenced appendix, staff will evaluate risks, based on property use and plumbing system design, and make a final determination on the type of backflow preventer required for the water service.

Financial penalties for non-compliance with the requirements of the by-law can help protect the drinking water system

Proposed financial penalties will be included to encourage compliance with the requirements of the by-law and assist in enforcement, if required.

Where a property owner is not in compliance with the relevant standards and regulations, they will be assessed a penalty based on the type, severity and frequency of the contravention.

Examples of non-compliance that could result in penalties are as follows:

- Improperly installed backflow device
- Lack of backflow device testing
- Improperly operating backflow preventer
- Failure to obtain a permit
- Connection of an auxiliary water source to the drinking water system without backflow protection and authorization from the City

Connections between private fire protection systems and the City's water system without backflow protection can create risks to drinking water quality

Fire systems will be included under a dedicated section which will give the City the ability to protect the drinking water system from this specific hazard.

Staff are creating an inventory of the type of fire protection systems installed within existing properties. This data, along with the addition of fire systems in the bylaw, will provide Staff with mechanisms to monitor and enforce the future installation of backflow prevention devices on fire service lines.

Previous Reports/Authority

[Implementation of Backflow Prevention By-law, Dec.11, 2017](#)

Analysis and Options

Many Ontario municipalities are developing or have implemented a Backflow Prevention By-law

As part of the review of the current by-law, the backflow prevention by-laws from the following municipalities were used as a comparison and in some cases as guidance, in the development of the proposed backflow prevention by-law:

- City of Barrie
- City of Markham
- Peel Region
- City of Toronto
- City of Guelph
- City of Orillia
- Halton Region
- City of Ottawa
- City of Hamilton

Development and consulting industries have been consulted regarding the proposed amendments and appear to have no concerns

On May 7, 2020, local developers and consultants were invited to a presentation on the Backflow Prevention Program. The presentation and discussion covered the potential revisions and additions covered in this report. To date, Environmental Services has received no concern on the proposed amendment.

Internal stakeholders were consulted to ensure Backflow Prevention program improvements aligned with existing systems and processes

Staff from By-Law and Compliance, Licensing and Permit Services, Legal Services, Development Engineering and Infrastructure Planning along with Building Standards have been consulted on the on the proposed revisions.

Stakeholders will be informed of amendments to the by-law through various means, such as the following:

- Updating the City website, forms and documents with relevant information
- Notifying property owners of the revisions, additions and any new expected requirements

Financial Impact

The administrative component of the Backflow Prevention Program has been integrated into the AMANDA software platform. By leveraging an existing corporate software solution, used to manage building permits, inspections, and municipal licensing, opportunities to generate automated processes have been created.

There will be minimal financial impact from incorporating the proposed amendments to the Backflow Prevention Program and can be accommodated within the existing staff compliment.

Broader Regional Impacts/Considerations

There are no Regional implications as a result of the proposed amendment to the by-law.

Conclusion

The proposed amendment to the Backflow Prevention By-law will enhance the protection of the City's drinking water, reducing risks to public health.

For more information, please contact: James Steele, Director of Environmental Services, x6116

Attachments

Attachment 1 – Backflow Prevention Devices

Attachment 2 – Summary of Proposed By-law Revisions

Attachment 3 – Table of Property/Risk Classifications

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