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Report 2023-135

Report Title: **Backflow Prevention: A New Program and By-law to Protect Northumberland Drinking Water**

Committee Name: Economic Development, Tourism and Planning

Committee Meeting Date: November 29, 2023

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Council Meeting Date: December 13, 2023

Strategic Plan Priorities: ☒ Innovate for Service Excellence
☒ Ignite Economic Opportunity
☐ Foster a Thriving Community
☒ Propel Sustainable Growth
☐ Champion a Vibrant Future

Recommendation

“That the Economic Development, Tourism and Land Use Planning Committee, having considered Report 2023-135 ‘Backflow Prevention: A New Program and By-law to Protect Northumberland Drinking Water’, recommend that County Council enact a by-law at the December 13, 2023 County Council meeting to establish procedures for County Inspection

Services to enforce backflow prevention devices in all industrial, commercial, institutional and certain multi-residential buildings in Northumberland; and

Further That the Committee recommend that County Council direct staff to send a copy of this resolution and the associated by-law to Northumberland County's 7 Member Municipalities for informational purposes."

Purpose

The purpose of this report is to present the final recommendation for a Backflow Prevention Program and By-law to be administered by County Inspection Services. The report provides information for protection of cross-connections on existing industrial, commercial, institutional, and multi-residential (apartment) buildings over three stories in height. Backflow prevention devices are not required for detached, semi-detached, or townhouse units.

Background

In 2019, County Inspection Services renewed a long-standing agreement with Member Municipalities to provide enforcement of the *Building Code Act* and *Ontario Building Code* with respect to plumbing systems for all buildings in Northumberland.

The *Building Code* requires all new buildings to have backflow prevention devices installed and tested. These devices provide protection for the domestic potable water supply within a building and the municipal water supplies. Backflow prevention devices are to be installed on all domestic, municipal water services and fire mains. The devices are also installed at all connections made to potential sources of contamination.

Cross connections are connections to water systems that could contaminate drinking water. These connections range from low hazard, which could be a contaminant that discolors the drinking water where there is no adverse effect to a person using it; to a medium hazard which could be a contaminant that may make a person sick; to a high hazard which could make a person seriously sick and possibly cause death.

Backflow prevention devices are designed to be installed where cross connections are made to drinking water systems to prevent back siphonage or back pressure (i.e., a reversal of the water flow direction which could draw a contaminant into the drinking water system).

Existing buildings have been subjected to lesser *Building Code* requirements in the past. These buildings may have been constructed with unprotected cross connections. Alterations to the plumbing systems over the years that were installed without permits, and devices which were installed may not have been retested to ensure it is still operational since installation. Devices may also have been removed.

New buildings which have had the cross connections protected under current Building Code requirements are only in compliance on the day in which the inspection occurred, leaving devices unchecked and new connections possibly unchecked.

There is no mechanism in the *Building Code* to have existing devices tested leaving these devices to possibly fail over time.

It is a requirement under the Canadian Standard Association (CSA) to have devices tested annually. A by-law is required to enforce the CSA requirement.

Consultations

In 2018, County Inspection Services brought together local municipal Building Staff and Lakefront Utility Services Incorporated to discuss backflow and how to prevent it. A task force was created to review how backflow prevention is addressed in other municipalities and to prepare a program to protect potable (drinking) water from contamination due to a reversal of water flow. A list of Ontario municipalities that currently enforce backflow prevention programs is attached (refer to attachment 1). County Inspection Services drafted backflow prevention procedures for consideration by the task force.

In May 2020, a draft Backflow Prevention Program was presented to County Council. Council authorized staff to prepare a by-law to enforce the new program. The finalization of the Backflow Prevention By-law was put on hold during the COVID-19 pandemic.

In August 2022, County Inspection Services hosted two open house sessions for members of the public, local businesses, and industry stakeholders to discuss backflow, cross connections, and drinking water supply. The draft Backflow Prevention Program was presented and discussed. Industry experts including: plumbers, testers, and backflow prevention device manufacturers were in attendance to hear about the program, ask questions, and provide feedback.

Following the open house, County Inspection Services staff met with local municipal staff for further detailed discussion on how the program would be administered. A summary of the discussion from the public, stakeholder, and municipal consultations are attached (refer to attachment 2). Where applicable, the Backflow Prevention Program and By-law have been revised to address the questions and concerns that were raised through the consultations.

Legislative Authority / Risk Considerations

The Canadian Standard Association B.64.10 requires backflow prevention devices to be tested annually. The proposed Backflow Prevention Program will provide the process to ensure County Inspection Services can enforce the CSA requirement.

The proposed backflow prevention program will also improve public health and safety by ensuring drinking water supplies avoid contaminated cross connections. The liability lies with the owners and operators of water systems, member municipalities, the County, and building owners to protect public drinking water. The Backflow Prevention By-law will establish a process requiring buildings to be assessed for cross connections and ensure the necessary backflow prevention devices are installed and tested annually.

Discussion / Options

The Backflow Prevention Program and By-law would include requirements for building owners to hire a licensed surveyor to assess buildings for backflow prevention devices and cross connections. The results from the assessment will be submitted to County Inspection Services for review. Any cross connections not protected would require the building owner to obtain a plumbing permit to install a backflow prevention device. Any existing devices will need to be tested annually. Testing can only be performed by a licensed backflow device tester. The results of the test will be submitted to County Inspection Services for review. County Inspection

Services staff will provide a compliance report once all the requirements of the by-law have been met. Following the initial assessment and testing, building owners would be required to submit annual test reports to County Inspection Services as well as undertake an assessment of the building every 5 years.

The Program and By-law includes requirements for backflow prevention on all cross connections at the premise, zone and source device to protect drinking water inside and outside of the building. For example, a high school would be required to have a backflow prevention device for the building (premise), as well as backflow prevention for a science lab classroom (zone) and on any boilers (source) to ensure protection for both the public drinking water supply from the watermain in the street as well as the students and faculty's internal water supply within the school.

The By-law includes applications, templates, forms, notifications, and details on inspection requirements to ensure consistency across the County. It is anticipated that notification and assessment requirements will initially go to County and local municipal owned buildings, and the owners of high-risk buildings (e.g., hospital, dental offices, chemical manufacturers). Once backflow compliance is in place for County facilities and the highest-risk buildings in the community, County Inspection Services will send notification to the medium-risk (e.g., business parks, commercial plazas, schools) and low-risk (e.g. retail store, apartment buildings).

Following approval of the By-law, County Inspection Services intends to make an application to establish penalty fines in accordance with the *Provincial Offences Act*. A ticket with a set fine (maximum \$1000) may be charged to the owner of a business or building that contravenes the Backflow Prevention By-law. In accordance with the By-law, other penalties may include an order to comply for an unsafe building under the *Ontario Building Code*, and/or shutting off the main drinking water service or fire service.

Financial Impact

The Backflow Prevention program relies on building owners to retain industry professionals to assess, install, and test backflow prevention devices. The cost to assess a building for backflow prevention is dependent on the complexity of the plumbing system in the building. A building with a small system would be around \$250, whereas a large, complex system may be \$5000 or more if having to retain an engineer.

The cost to purchase a new backflow prevention device is dependent upon the pipe diameter that it will be installed on; costs range from \$130 for a 0.5-inch medium hazard device to \$45,000 for a 10-inch high hazard device. Similarly, installation costs are dependent on the location and size of the device to be installed; on average, a small device without plumbing alterations would be around \$80 and for a large device, approximately \$800.

The average cost for a certified backflow tester to test an existing backflow prevention device would be approximately \$175.

The permit to install a device (County Inspection Services charge) is \$125 per device or, if part of a building plumbing permit, \$15 per device.

Current County Inspection Services staff will initiate the Backflow Prevention Program for high-risk buildings. As County Inspection Services is self-financed exclusively from permit and application fees (i.e., no levy funding) the cost to administer the Program will be financed from

plumbing permit fees for the installation of new backflow prevention devices and collection of fines (once implemented). As the Backflow Prevention Program expands to include medium-risk facilities, County Inspection Services staff will evaluate if additional staff resources to maintain the program are needed. It is intended that the Program will operate without levy funding. In future, it may be necessary to introduce a requirement and charge a fee for tags to be purchased and installed on backflow prevention devices. Any future change to staff resources or fees/changes will be subject to Council approval.

Member Municipality Impacts

The Backflow Prevention By-law is intended to:

- protect the potable drinking water within specific buildings and the people within and outside the building;
- protect member municipal drinking water systems from contamination;
- enhance the requirements of the plumbing services agreements with the member municipalities;
- establish fine structure and monetary penalties under the *Provincial Offences Act*, and
- provide clarity for the enforcement of the *Building Code Act* and *Building Code* in accordance with the service agreements.

The recommendations of the Economic Development, Tourism and Planning Committee are scheduled to be considered by County Council on December 13, 2023. Once County Council has approved the Backflow Prevention By-law (refer to attachment 3), the By-law will come into effect and County Inspection Services will be able to implement the new program in the member municipalities.

Conclusion / Outcomes

In accordance with County Inspection Services enforcement of the *Ontario Building Code* for plumbing on behalf of the member municipalities, and in a coordinated effort to protect drinking water supplies and public health, a task force of municipal and agency representatives was formed to support the creation of a Backflow Prevention Program and By-law. The Program details procedures to install and regularly test backflow prevention devices in industrial, commercial, institutional, and certain multi-residential buildings within Northumberland. It is recommended that County Council approve the attached Backflow Prevention By-law, to be administered by County Inspection Services, to protect drinking water systems and ensure a safe and reliable drinking water supply for current residents and future generations.

Attachments

1. List of Ontario Municipalities with Backflow Prevention Programs
2. Summary of public and stakeholder feedback and staff response
3. Backflow Prevention By-law