



Subject: *Cross Connection Control Retro-Fit Program*
To: Executive Committee
Date Prepared: August 2024
Related Motions: C24(170)
Prepared by: Jesse Hulsman, Director of Infrastructure & Operations
Approved by: Kim Ramsay, Chief Administrative Officer

Summary

This report is to provide the Executive Committee with options for expanding the Cross Connection Control (CCC) program to include premises built before June 1, 2016 under the categories of;

- Industrial, commercial and institutional buildings
- Apartment buildings with more than four units

Staff have identified 244 premises between the Shubenacadie and Regional Water Systems that would be applicable to this program. Most premises will only require one (1) backflow prevention (BFP) device, but may choose to have multiple (for by-pass purposes). While sprinkler services lines also fall under a category for CCC, due to pressure sensitivities they will be exempt from this proposed retro-fit program.

Staff considered 3 options where the Municipality could financially support a retro-fit program:

- 1) Purchase BFP devices
- 2) Provide a flat rebate to offset the costs for one (1) device and the initial test
- 3) Water Utility could pay a partial cost for the initial test only

All options are suggested to have a phased approach and financial incentives based on time.

Financial Impact Statement

Option 1 - Water Utility purchases BFP devices \$82,500 (estimate).

The purchased BFP devices would be provided to the property owner to install.

Option 2 (RECOMMENDED) - Flat rebate to offset costs for one (1) device and the initial test.

$\$73,200 + \$24,400$ (estimate) = $\$97,600$

Example: $\$300 \times 244$ devices = $\$73,200$, $\$100 \times 244$ tests = $\$24,400$

This is the preferred approach, with an option to set the value higher or lower.

The Water Utility would reimburse a flat amount to go towards the cost of one (1) device, as well as offset the cost of the initial BFP test.

NOTE - every device is required to be tested annually.

Option 3 - Water Utility pays a partial cost for the initial test only (\$24,400 estimate).

Recommendation

The CCC program, established in 2016 has not gone far enough to protect the drinking water system and the general public. Staff are recommending to expand the program to include retro-fits as well as providing some financial assistance to support the program's success.

Recommended Motion

Move that the Infrastructure & Operations Committee recommend that Council direct Staff to expand the Cross Connection Control Program by including a retro-fit program to launch April 1, 2025, that offers a retrofit rebate of \$400 per the combination of one (1) device and one (1) initial device test and with the overall budget being submitted for the 2025/26 Water Utility budget review.

Background

Cross Connection Control (CCC) programming is a requirement within the Approval to Operate conditions issued to the East Hants Water Utility by the Nova Scotia Department of Environment & Climate Change. The Approval to Operate lists minimum criteria for a CCC program, but does not specify the requirement to retro-fit preexisting buildings.

Launched June 1, 2016, the current CCC program only requires new developments of either industrial, commercial or institutional buildings, residential dwellings over 4 units and sprinkler service lines to have approved backflow devices installed to protect the public drinking water supply. The original program included the enforcement of retro-fits to preexisting buildings, however Council chose to proceed with the current adjusted program after receiving negative feedback from the business community, specifically in the Elmsdale Business Park.

Table 1. Mandatory BFP Devices tracked within the Regional Water Utility from June 2016 - June 2024.

Year	Number of Devices Installed (Mandatory)	Degree of Hazard		Type of Assembly	
		Severe	Moderate	RP	DCVA
2016	0	-	-	-	-
2017	3	1	2	2	1
2018	14	5	9	8	6
2019	10	1	9	3	7
2020	9	0	9	2	7
2021	7	1	6	1	6
2022	16	4	12	4	12
2023	12	3	9	3	9
2024	8	4	4	6	2
Total	79	19	60	29	50

Table 2. Volunteer BFP Devices tracked within the East Hants Water Utility from June 2016 - June 2024.

Year	Number of Devices Installed (Volunteer)	Degree of Hazard		Type of Assembly	
		Severe	Moderate	RP	DCVA
2016	10	5	5	6	4
2017	1	-	1	-	1
2018	19	3	16	11	8
2019	4	-	4	2	2
2020	0	--	-	-	-
2021	0	-	-	-	-
2022	7	-	7	7	-
2023	0				
2024	1	-	1	1	-
Total	42	8	34	27	15

Program Definitions

The source of pollution or contamination may create a minor, moderate, or severe hazard depending on the type of substance that could potentially backflow into the municipal water system. These hazard levels are defined in CAN/CSA B64.10-01 (CSA, 2003) as:

- a) Minor hazard - any cross connection or potential cross connection that constitutes only a nuisance, with no possibility of any health hazard;
- b) Moderate hazard - any minor hazard as defined in (a) that has a low probability of becoming a severe hazard; and
- c) High or severe hazard - any cross connection or potential cross connection involving any substance that could be a danger to health.

Discussion

Implementation Options

Option 1 - Water Utility purchases BFP devices (estimated \$82,500)

The Water Utility would purchase devices to distribute to property owners to install themselves during the retro-fit project lifespan.

This option would require a one-time purchase however, it will also require sourcing, device storage, pickup/drop off coordination, and potential stock related risks.

Option 2 (RECOMMENDED) - Flat rebate to offset costs for one (1) device and the initial test (estimated \$97,600)

Once the premise is within compliance, the property owner would receive a flat rebate towards the cost of installing a BFP device and the first test. Staff are recommending \$300 for device, \$100 for an initial test.

Option 3- Water Utility pays a partial cost for the initial test only (estimated \$24,400)

Thoughts on Additional Loans

The Water Utility could offer a loan program for additional expenses to further support all premises becoming compliant with the cross connection control program in a timely manner. This could include potential structural work on site such as moving a wall, or cutting in a new drain.

The loan would require defining criteria to be eligible and a maximum financial contribution. Such loans add complexity that is challenging to manage and standardize, and is not recommended.

Phased Approach

Staff suggest that all retro-fit options begin with the severe degree of hazard to eliminate the highest risk first. It is also suggested to learn from the initial roll-out, reassess and revise the program before launching the next phase. The program can be launched in 2 phases (Severe and Moderate Risk) or 3 phases (Severe, Moderate 1, Moderate 2).

Time Incentive

It is suggested that there be an incentive to be within compliance in a timely manner for all retro-fit options. Premises impacted by the program will receive abundant notice to budget or prepare for changes. Essentially, any financial rebate would have a time limit for completion.

Enforcement

In the Water Utilities current Rules and Regulations, Section 21 talks to the requirement for devices as per the opinion of the Water Utility. It also lists a requirement to submit testing results of the devices. In the case of a non compliant site, the Water Utility would document, seek a resolution and if required stop water services to a property until work was completed to the satisfaction of the Water Utility.

Table 3. Top 10 severe degree of hazard for East Hants Water Utility.

Premise	BFP Status		
	Compliance	Volunteer	Retro-Fit
Medical Clinic			X
Blood Collection		X	
Dental Office	X		X
Veterinarian Clinic	X		X
Wastewater Treatment Plants	X		
Bulk Water Station	X		
Lumber Yard	X		
Masonry Industrial		X	
Funeral Home			X
Auto Repair Shop	X		X

Table 4. Estimated retro-fit premises and their respective degree of hazard.

Water System	Community	Degree of Hazard		Total
		Severe	Moderate	
Regional	Enfield	2	56	58
	Elmsdale	38	80	118
	Lantz	1	24	25
Shubenacadie		7	36	43
Total		48	196	244

Exceptions

Sprinkles are exempt from the retro-fit program due to water pressure sensitives. The majority of sprinkler systems are considered to be a moderate risk.

Alternatives

Option 1 - Water Utility purchases BFP devices \$82,500 (estimate)

Option 3 - Water Utility pays a partial cost for initial test only (\$24,400 estimate)

Loan program for additional expenses (structural)

Do not offer any financial incentive

Implement the retro-fit cross connection control program without offering any financial incentive for water utility customers.
