

Selling a Cross Connection Control Program to Politicians


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Presentation Overview

- Program drivers
 - MOE & OWWA's joint effort
 - Global Picture
 - Obstacles
 - Best Practice Approach
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Equation for Disaster



1 Potable Water Supply
+ 1 Cross Connection
+ 1 Cause

Serious Potential for Disaster!!!

Where:

potable water supply = a municipal water supply;

cross connection = a connection between the potable water supply and a not potable source; and

cause = back siphonage or back pressure

Too Close for Comfort

- Reality hit hard for an Ontario Municipality
 - A cross connection between a car wash and the City's plumbing
- 19 people reported to hospital
- 30,000 residents affected
- Corrective actions - \$200,000
- Manager of car wash fined \$75,000

But it didn't stop there...

- Working group established
 - Evaluate and develop concepts and options to reduce the risk of incidents
 - Discussing the Issues - Jurisdiction, costs, available approaches etc.

Working Group

➤ Interested Stakeholders

- Ministry of the Environment
- Ministry of Municipal Affairs and Housing
- Ministry of Community Safety & Correctional Services
- Ontario Municipal Water Association
- Ontario Plumber Inspectors Association
- Ontario Water Works Association and its CCC Committee

Status of Cross Connection Control

- Understand the current status of backflow prevention / cross connection control programs in North America
- Develop options for backflow prevention initiatives for consideration by the Ontario government

Study Background

What do we want to know?

- Utility Information
 - Comparators
- Is there a program
- Program Details
 - Components
 - Development
 - Operation
 - Enforcement
 - Cost

Cross-Connection Control / Backflow Prevention Systems Study

Ontario Water Works Association
A Division of AWWA

Section 1 - Utility Information

A. Contact Information:

Date	Contact Name
Province/State	Contact Title
Country	Telephone
Owner	Email
Owner Type (City, Municipality, County, Region, Upper tier/Lower tier etc)	

B. Comparators - Please provide your most recent data for the following. If data is not provided in the units outlined, please specify the units in the "other units" column.

	Units	Other Units
1. Population Served		
2. Length Water of System	km	
3. Volume Delivered to Residential Customers	ML/d	
4. Volume Delivered to Industrial/Commercial/Institutional Customers (ICI)	ML/d	
5. Total # of Service Connections		
6. # of Residential Service Connections		
7. # of ICI Service Connections		

Notes, Comparators

C. Program Status:

1. Do you have a Cross Connection / Backflow Prevention Program? Yes/No

2. If yes, please provide details on how it was implemented.

3. What is the legal authority for the program? (or other mechanisms for enforcement)

4. Is the program a cross connection control/backflow prevention program?

5. Who is responsible for the program? (Agency etc.)

6. Please identify how the program requirements were communicated to the stakeholders.

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Interviewing North American Utilities

- Utilities across North America contacted
- 21 utilities participated in survey
- Varying sizes and demographics
- 19 utilities had some form of a backflow prevention program
- 2 utilities without a backflow prevention program

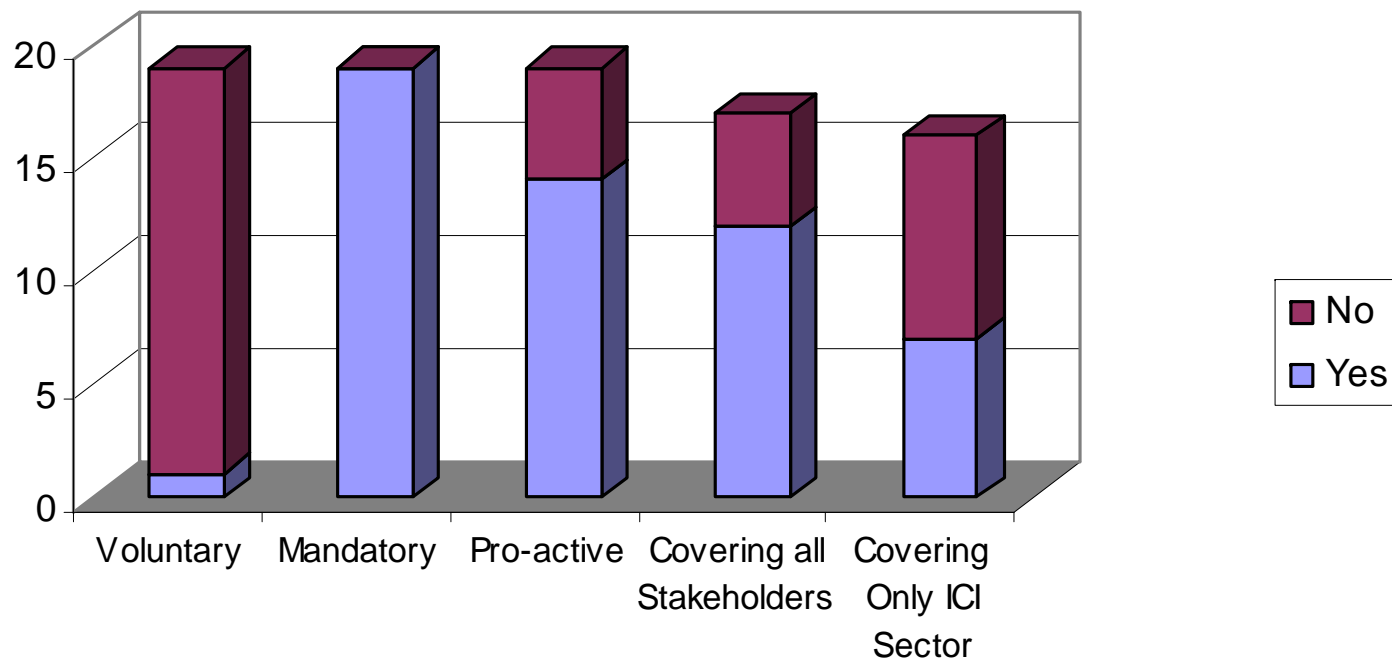


Components & Characteristics

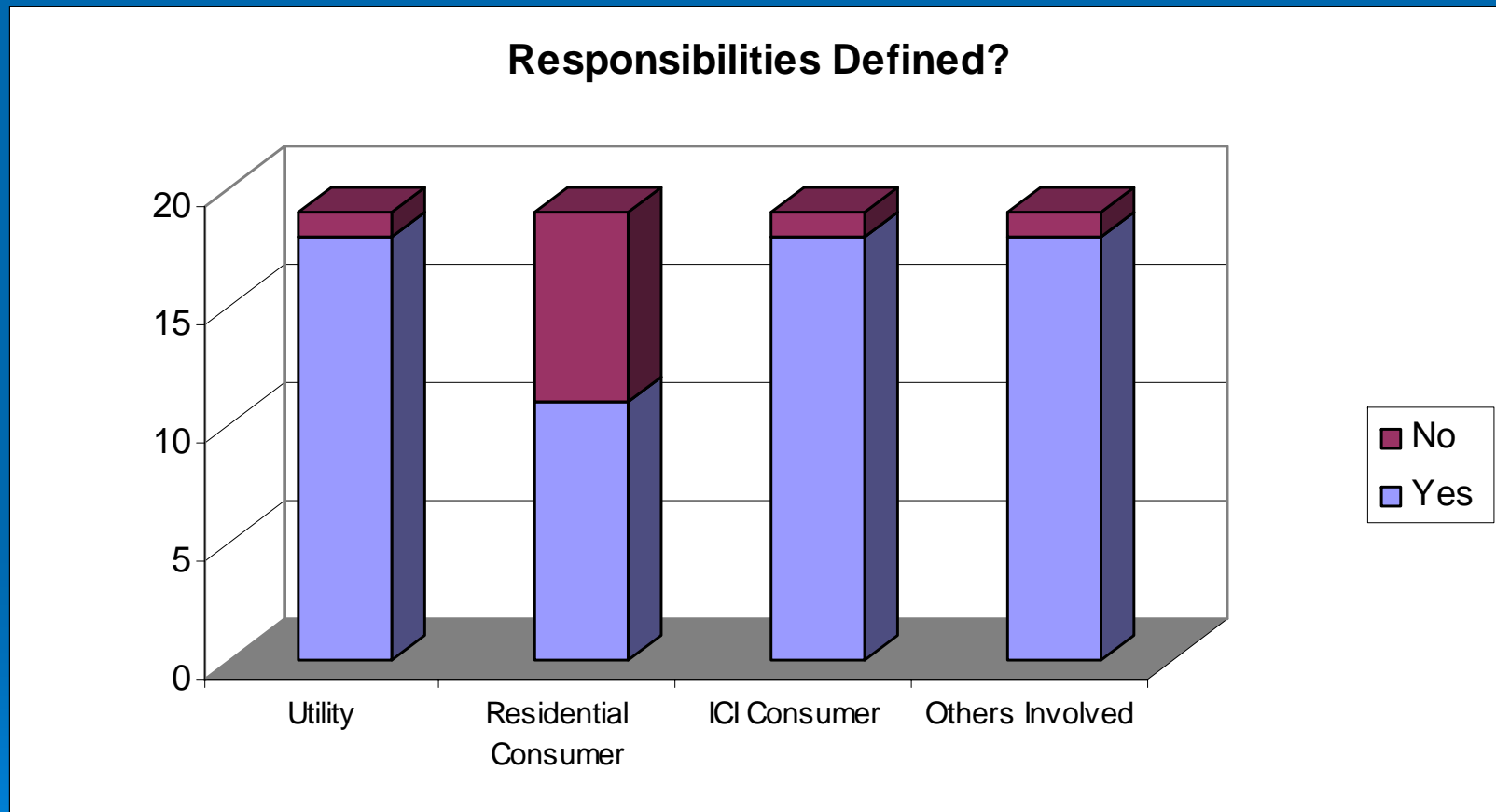
- Programs established for <1 year to >20 years, averaging 11 years
- Majority of CCC surveys were performed for ICI.
 - 15 ICI and 6 residential cross-connection surveys performed.

Program Requirements

Type of Cross-Connection Control / Backflow Prevention Programs

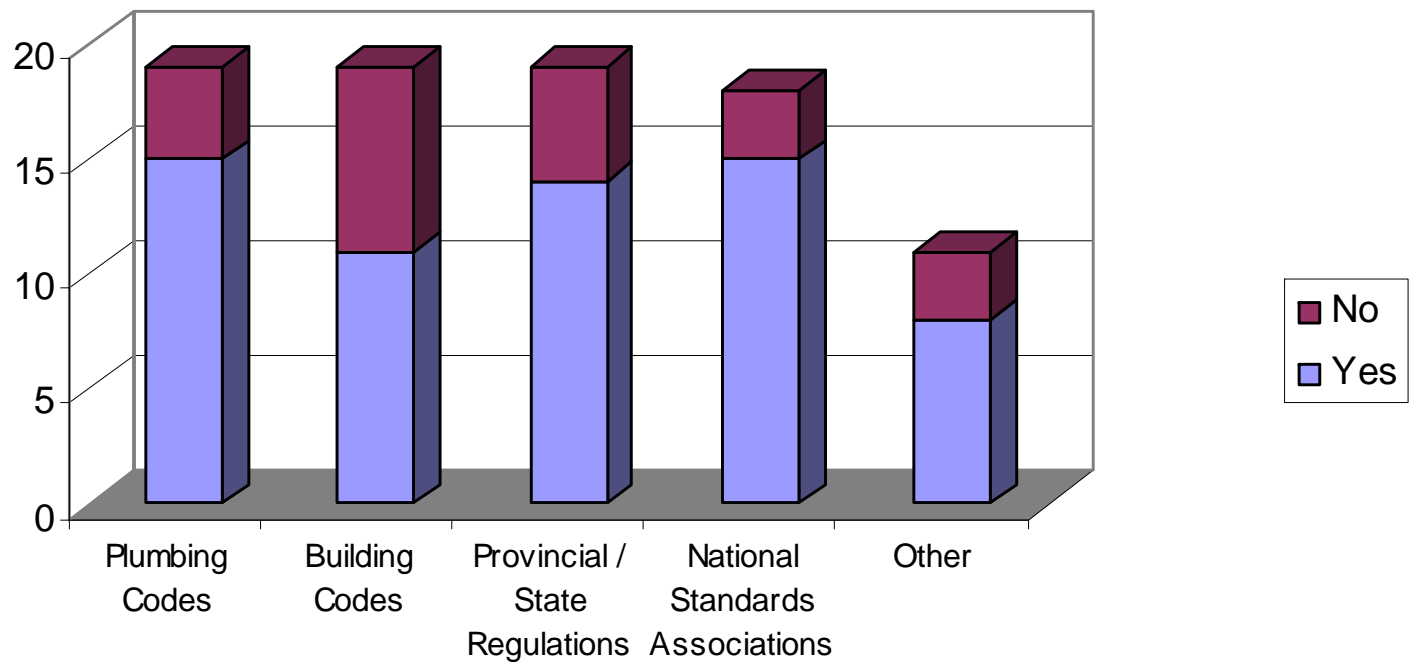


Responsibilities and Cooperation



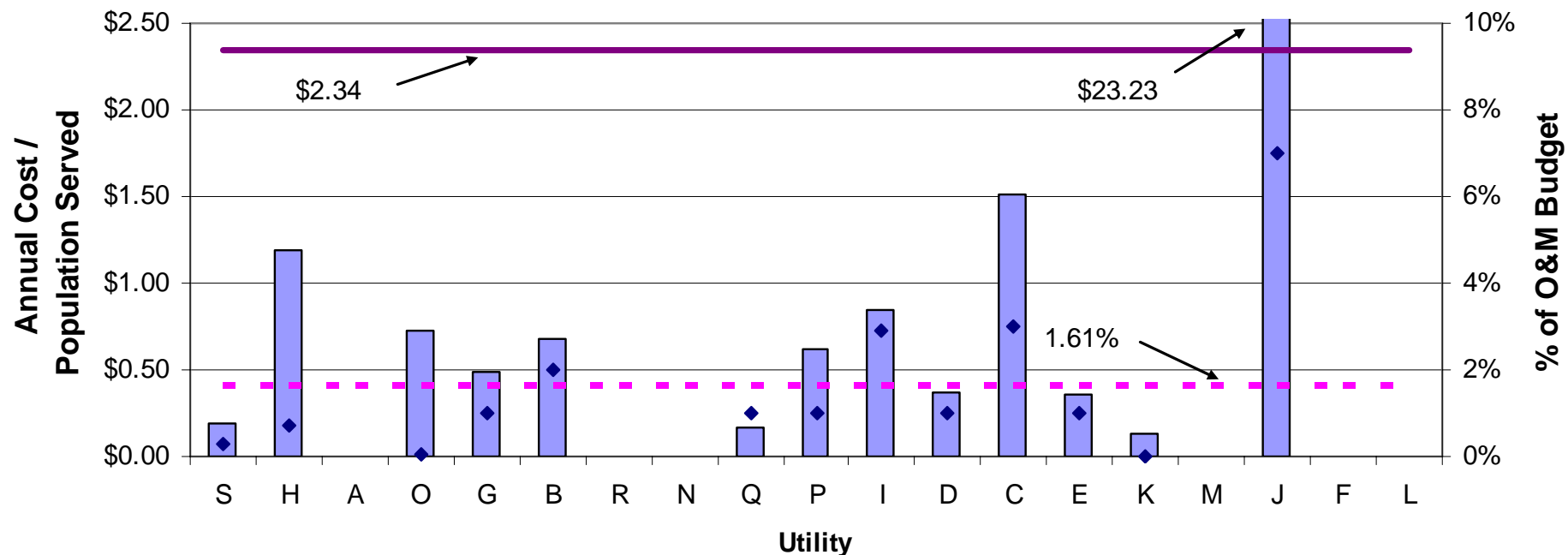
Operation and Enforcement

Standards for Selection, Installation, and Maintenance of Backflow Prevention Assemblies



Program Costs

Annual Program Costs for Each City / Population Served
(In Order of Decreasing System Length)




Program Costs

- Maximum percentage of O&M budget = 3%
- Minimum percentage of O&M budget = <1%
- Average percentage of O&M budget = 1.17%

- Maximum cost / person = \$1.51
- Minimum cost / person = \$0.13
- Average cost / person = \$0.60

What Can We Conclude?

- Cross connection control is still relatively new territory for many
 - There are no simple or straight forward solutions
 - This is an issue that spans many jurisdictions
 - Issues include both public and private infrastructure
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Obstacles

- Obtaining support and funding from Council or other parties
- Coordination between two tier systems
- Authority ends at the property line and does not speak to cross connections directly
- Getting policy passed through Council that might result in rate increases
- Financial hardship (on part of property owner and/or operating agency)

So What Now?

- One thing is for sure – Cross connection control is an issue that still requires serious attention



Program Implementation Support

- Since 1975 the number of backflow incidents have increased, yet the average number of incidents per utility has not changed significantly
- The Federal Advisory Committee in the United States has now recognized that backflow due to cross-connections in distribution systems represent a significant risk to public health.
- According to the AwwaRF survey, “there are many utilities which either do not have a program or do not have a sufficient program to provide reasonable protection from cross-connections. Part of this is due to a lack of uniform regulations.”

History Serves as a Reminder

➤ Homes

- Backsiphonage of “blue water” from a residential toilet

➤ Schools

- Antifreeze from a school’s heating system backpressured into the school water system. Nine students treated

➤ Industry

- Propylene glycol from a paint factory backflowed due to a valve malfunction
- A cross-connection at a manufacturing plant allowed backpressure of hexavalent chromium into the potable water system



Proactive Utilities

- Understanding safe operating practices
- Public Education
- Seeking support and collaboration from neighboring municipalities
- Identifying high risk users

Tips

- The local Medical Officer of Health has the authority to go beyond the property line
- Cost share (incentive programs for private installation, subsidies)
- Make Senior Management and Council aware this is a water quality issue
- Communications programs
- Pull stakeholders together, bring subject back to corporate citizenship and promotion of environmental considerations
- Pass a By-law

Best Practices

➤ AWWA

- Cross-connection Control Manual (M14)
- Western Canada AWWA Cross Connection Specialist Course & Manual
- Pacific Northwest Section Cross-Connection Control Manual
- BCWWA BMP for Cross-Connection Control
- BCWWA “8 steps to managing a program” BCCWA CCC committee

➤ CSA

- Standards B64-10 and B6410-01

➤ FCCCHR

- Manual for Cross-Connection Control

➤ InfraGuide

- “Methodology for Setting a Cross Connection Control Program”