

PW19094
Item 9.1



Hamilton

Lead Service Replacements

November 18, 2019

Public Works Department
Hamilton Water Division

AGENDA

- History of Lead
- Outreach and Education
- Substandard Water Service Program
- Corrosion Control Program
- Health Risks of Replacement Programs

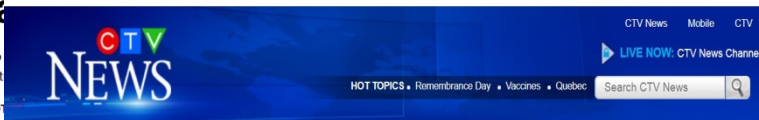
- Lead water services were standard construction practice pre 1955
- Lead can also be found in internal plumbing and fixtures
- City inventory – approximately 20,000 lead services
- Consumption of lead is harmful to health, especially in infants, young children and pregnant women
- Water quality framework
 - Health Canada 1992 – 10 ppb
 - Health Canada 2019 – 5 ppb
 - Provincial guidelines have not changed to reflect the 2019 Health Canada guidelines



Montreal to force property owners to replace

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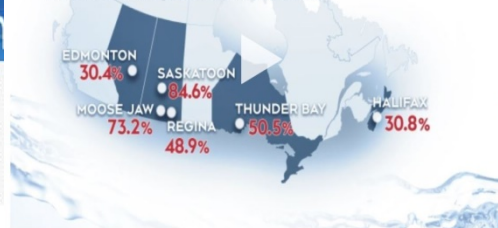
NEWS VIDEO LOCAL SHOWS CTV NEWS CHANNEL MYNEWS CONNECT ABOUT

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'This is not a joke': High levels of lead found in water at Canadian daycares, schools

LEAD EXCEEDANCE RATE

SOURCE: Institute for Investigative Journalism, Concordia University



CTV National News: Concerns about drinking water

LEAD EXCEEDANCE RATE

A sweeping investigation about lead levels in Canadian tap water has sparked fears about a simmering crisis. Genevieve Beauchemin reports.

High lead levels found in Prince Rupert water

Shocking research is raising concerns about lead in some drinking water, including one B.C. community where the levels exceed those in Flint.

Lead found in water at Canadian daycares, schools

A new study has found that some Canadian cities have higher levels of lead in their drinking water than Flint, Michigan.

1 2 3

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Drinking wa daycares ha

BY MEGAN ROBINSON AND MIKI MACLAREN WITH THE RYERSON

Posted November 5, 2019 5:00 PM
Updated November 5, 2019 1:00 PM



LOCAL CANADA POLITICS WORLD OPINION LIFE SPORTS ENTERTAINMENT BUSINESS STAR I



20,000 Hamilton homes have toxic lead pipes carrying water to taps. The city says it will take 40 years to fix the system

By Kelly Bennett Special to the Star
Mon., Nov. 4, 2019 | 6 min. read

pipes

This after a report has revealed a shocking number of Canadians are drinking water laced with lead

Nov 4, 2019 4:19 PM By: Meghan Groff



OUTREACH AND EDUCATION

- Lead Awareness
- Service Identification
- Corrosion Control

Corrosion Control
Home > Home, Property and Development > Water & Sewer > Corrosion Control

ourCity Survey

Your Thoughts. Our Action.

Have your say to help the City better understand the performance of municipal services and identify areas where the City is doing well and where there is room to improve. [Learn more about the survey and how you contribute.](#)

The Ontario Ministry of the Environment, Conservation and Parks (MECP) Drinking Water Systems Regulation (O.Reg. 170/03), 2007 requires all municipalities in Ontario to test for lead in their distribution system as well as the lead levels out of customers' faucets. Lead can be released when drinking water comes in contact with lead pipes, lead-based plumbing fixtures and lead solder.

There are an estimated 20,000 homes with lead water pipes in Hamilton. You cannot see lead in drinking water and it has no taste or smell. Lead can cause serious health problems. Infants, young children and pregnant women have the greatest risk of negative health effects from lead exposure.

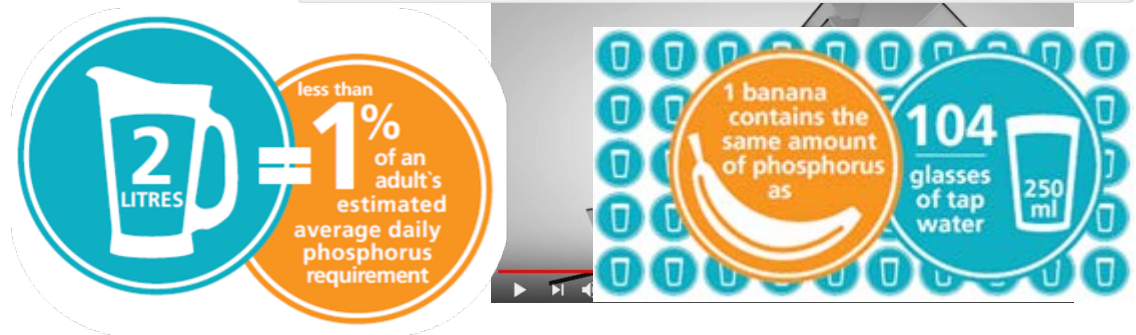
The City's [Lead Sampling Program](#) (PDF, 414 KB) confirmed that more than 10 percent of lead samples taken from residential plumbing systems with lead water pipes exceeded 10 micrograms of lead per litre (µg/L). As a result, the MECP required the City of Hamilton to develop a Corrosion Control Plan. There are 20 communities in Ontario required by the MECP to develop and implement a Corrosion Control Program to reduce the amount of lead in tap water.

☒ Corrosion Control Program

☐ Your health

☐ Your home

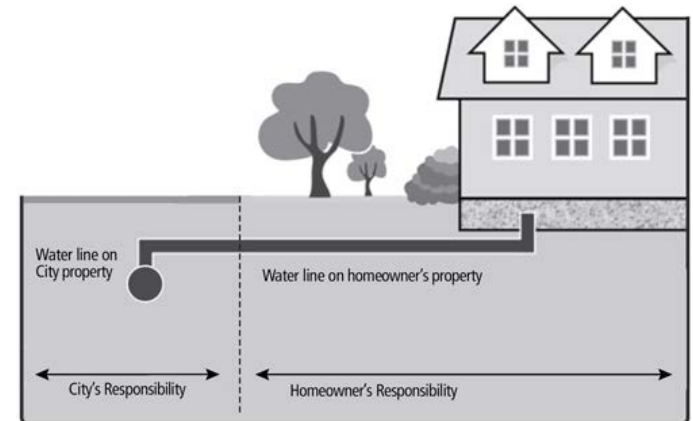
☐ Business processes



SUBSTANDARD WATER SERVICE PROGRAM

- Water service replacement is initiated by property owner
- Private portion of water service is replaced before the public portion
- City of Hamilton loan program – since 2007 over 2,000 loans issued for a total value of \$3.2M

Lead Services Replaced			
2016	2017	2018	2019
682	867	749	594



CORROSION CONTROL PROGRAM

2007 Health Canada's proposed corrosion control guideline released

May 2007 MOE issues sampling order to 35 municipalities in Ontario

July 2007 MOE releases Schedule 15.1 of O. Reg. 170/03

2008-2009 Lead exceedances in Hamilton triggers Corrosion Control Plan

December 2009 MOE releases Guidance Document for
Preparing Corrosion Control Plans for Drinking Water Systems

Nov 16 2015 - Council Approves Corrosion
Control Plan (Orthophosphate addition)

Nov 2018 Program launched

2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019

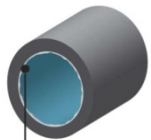
2009-2010 Hamilton's Corrosion Control Plan

2011-2014 Pipe loop testing

2016-2018 Baseline monitoring program

2015-2017 Studies in support of corrosion
control implementation:

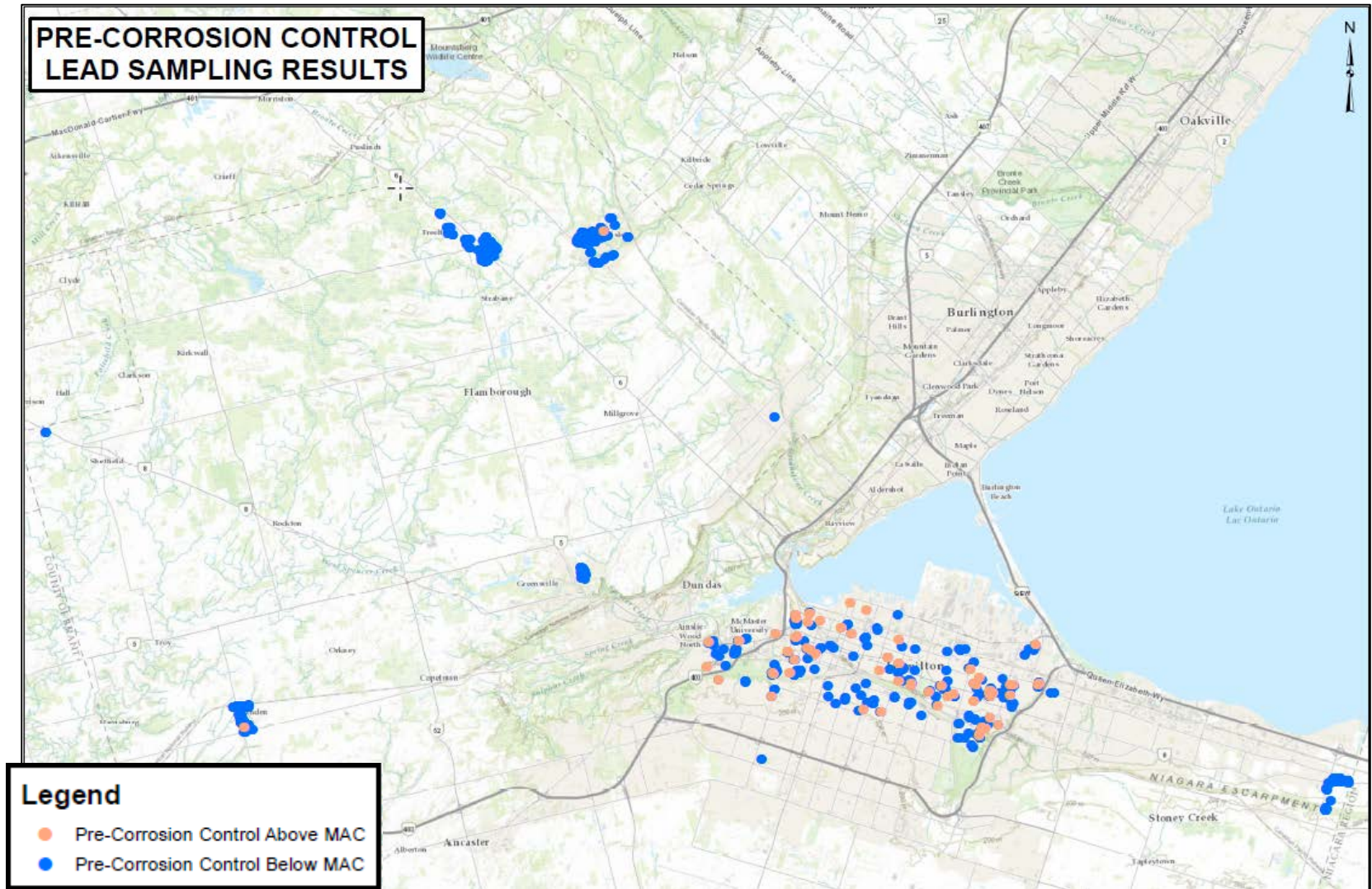
- Pipe loop peer review
- Leap profile testing
- Monitoring plan
- Communications plan
- Coagulation optimization study
- Distribution system best practices study
- Unidirectional flushing pilot study



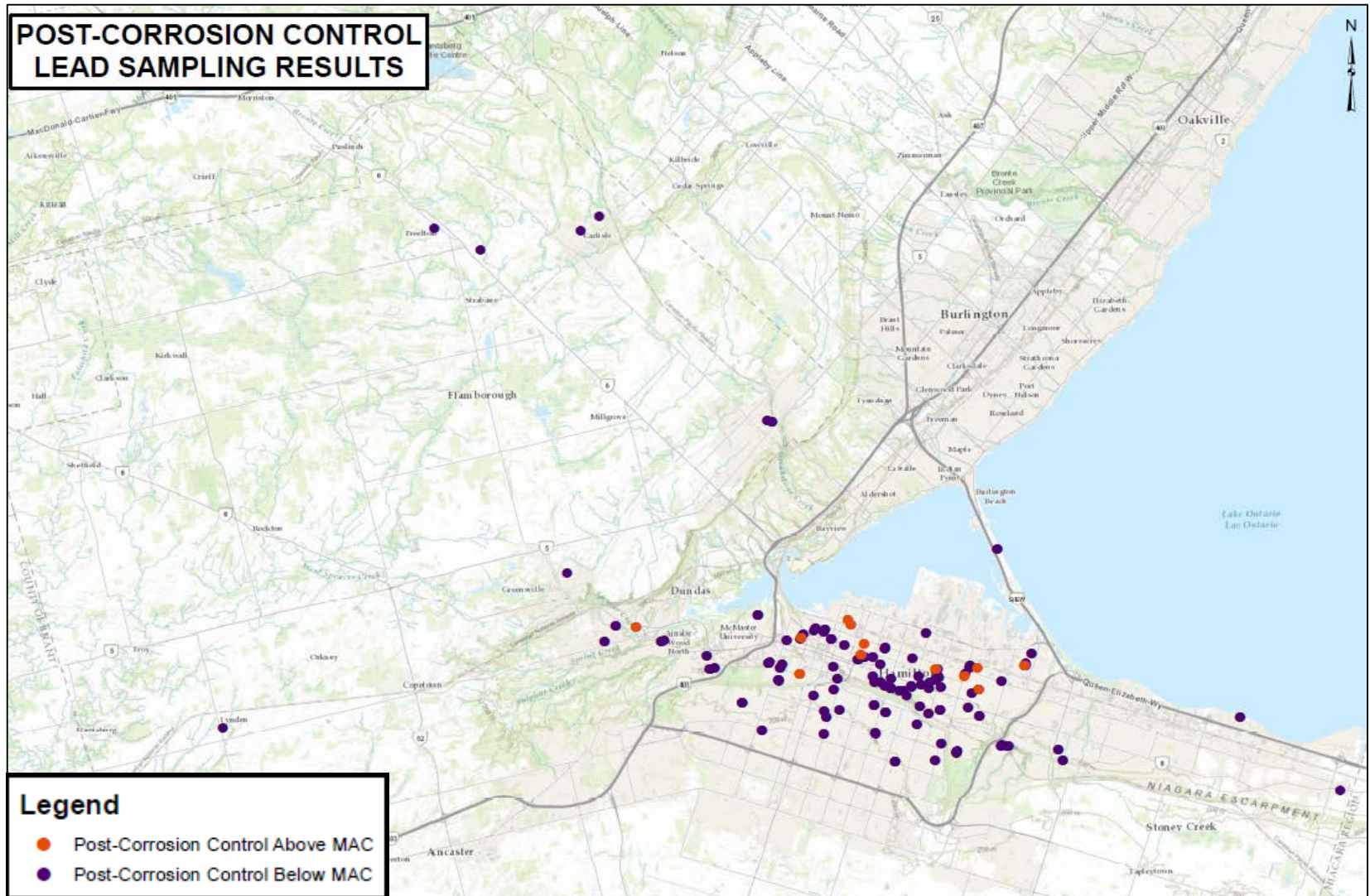
A protective layer of
Orthophosphate forms
to prevent pipe
corrosion.

Photo Credit - Pittsburgh Water and Sewer Authority

CORROSION CONTROL PROGRAM



CORROSION CONTROL PROGRAM



HEALTH RISK OF PARTIAL REPLACEMENTS

- Partial service replacements can increase lead levels in drinking water
 - ❖ Dislodges lead material during construction
 - ❖ Dissimilar metals interact to release lead

**Public Lead
Service Removal
Before Private
Lead Service**

**Private Lead
Service Removal
Before Public Lead
Service**

DECREASING RISK LEVEL





QUESTIONS?