



# Milwaukee's Lead Service Line Replacement Program Semi-Annual Report

**July 17, 2019**

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**Milwaukee**  
**Water Works**

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# Outline

- I. Brief lead introduction
- II. Review of LSLR program policy
- III. LSLR program updates
  - i. LSL inventory and financial
  - ii. Filter distribution
  - iii. Drinking water regulations
  - iv. Lead water testing
- IV. Summary
- V. Questions/Discussion



Source: US EPA Region 5

Milwaukee Lead Service Lines

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# Lead Basics

- Lead is a toxic substance
- Lead exposure is cumulative
- There is no safe exposure to lead
- Young children are particularly vulnerable
- Goal is to remove ALL sources from the community
  - ✓ Lead Service Line Replacement Program

**Lead-Safe Milwaukee**  
SAFE PAINT SAFE WATER SAFE KIDS

Learn About Lead   Lead-Safe Easy as 1-2-3

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There are several sources of lead you should know about. The most common way children are exposed to high levels of lead is through chipping, peeling or cracking lead-based paint in older homes. When lead is found in drinking water, it is usually because water can dissolve the lead in pipes and plumbing. What can you do to protect your family?

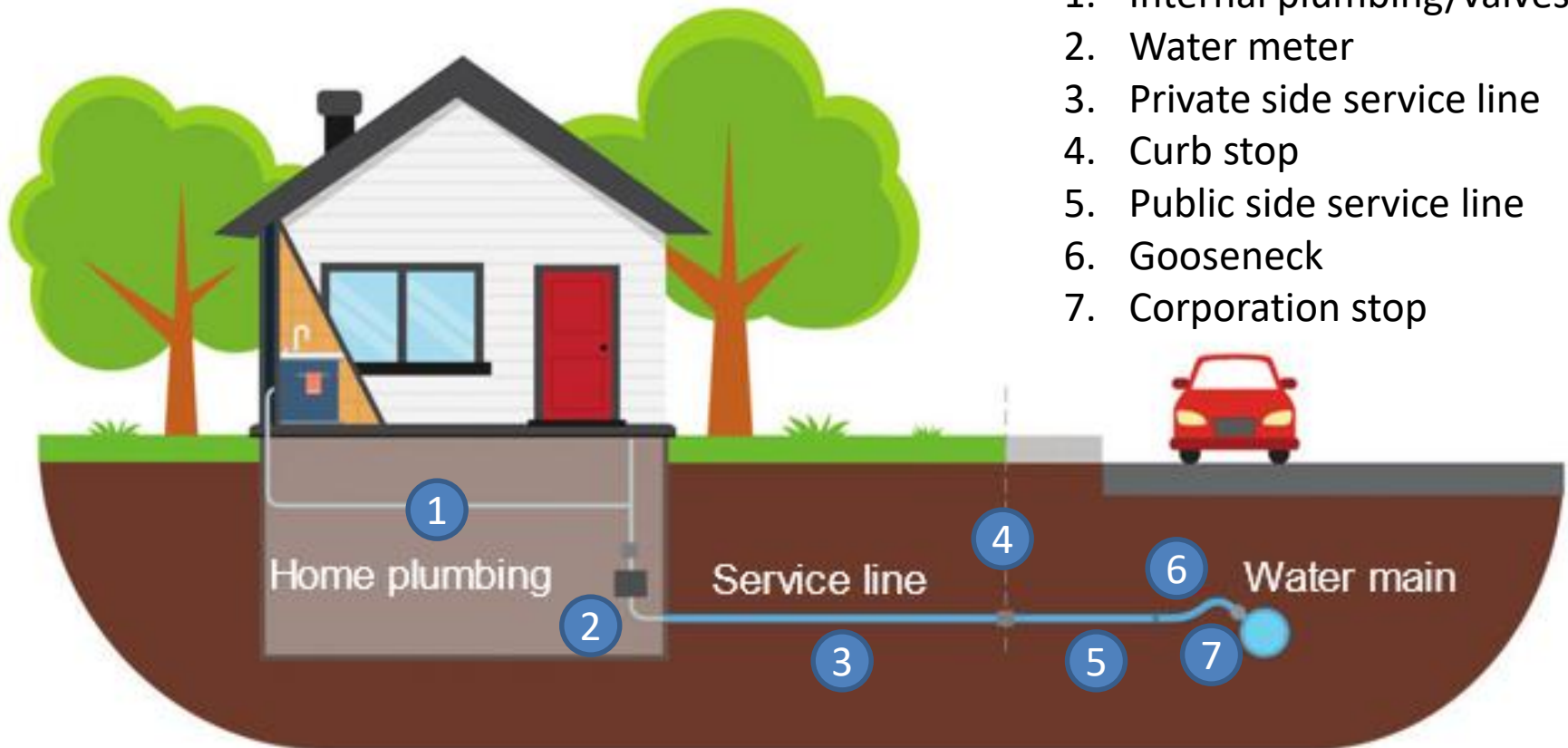
- 1**  
**Safe Paint:**
- 2**  
**Safe Water:**
- 3**  
**Safe Kids:**

<https://city.milwaukee.gov/LeadSafeMKE>

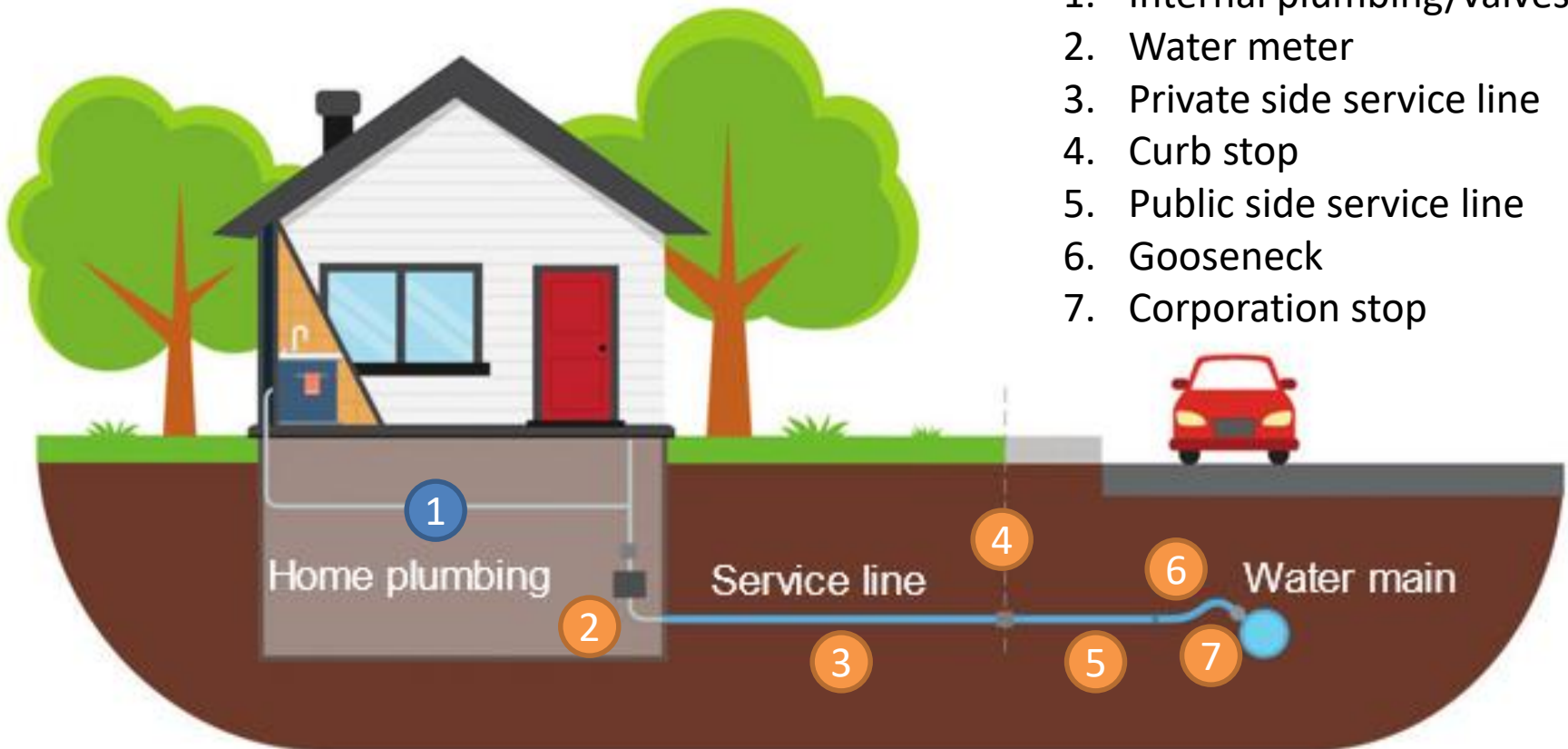
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# What is a service line?



# What is a service line?



# Lead reduction efforts

1970

Clean Air Act

1971

42 USC Ch 63

1978

Consumer Protection Safety Commission

1986

Safe Drinking Water Act (and amendments)

1988

MWW conducts proactive lead reduction study

1991

Lead and Copper Rule (and revisions)

1996

MWW initiates corrosion control treatment (CCT)

2002

MWW CCT optimized by WDNR standard

2016

MWW CCT optimized by revised EPA standard

2017

MWW enacts lead service line replacement program

2019

MWW reevaluation of CCT optimization

# Lead service line replacement mandate

As of January 1, 2017, full lead service line mandated to be replaced with copper when:

- A leak or failure has been discovered on either the privately- or utility- owned portion
- The utility-owned portion is replaced on either a planned or emergency basis
- The property is a child care facility (licensed or certified)

REPAIR or RECONNECTION to Lead Service Line PROHIBITED

- Property owner may initiate replacement of privately-owned portion and MWW will replace

# Lead service line inventory

Numbers as of June 30 <sup>th</sup> , 2019	<i>n</i> =	%*
Total service connections*	168,973	100
Total lead service lines*	76,298	45.2
Total lead service lines, City of Milwaukee	75,403	44.6
Residential	70,410	41.7
Residential – ON	67,566	
Residential – OFF	2,844	
Commercial, Industrial, Public Authority	4,993	3.0

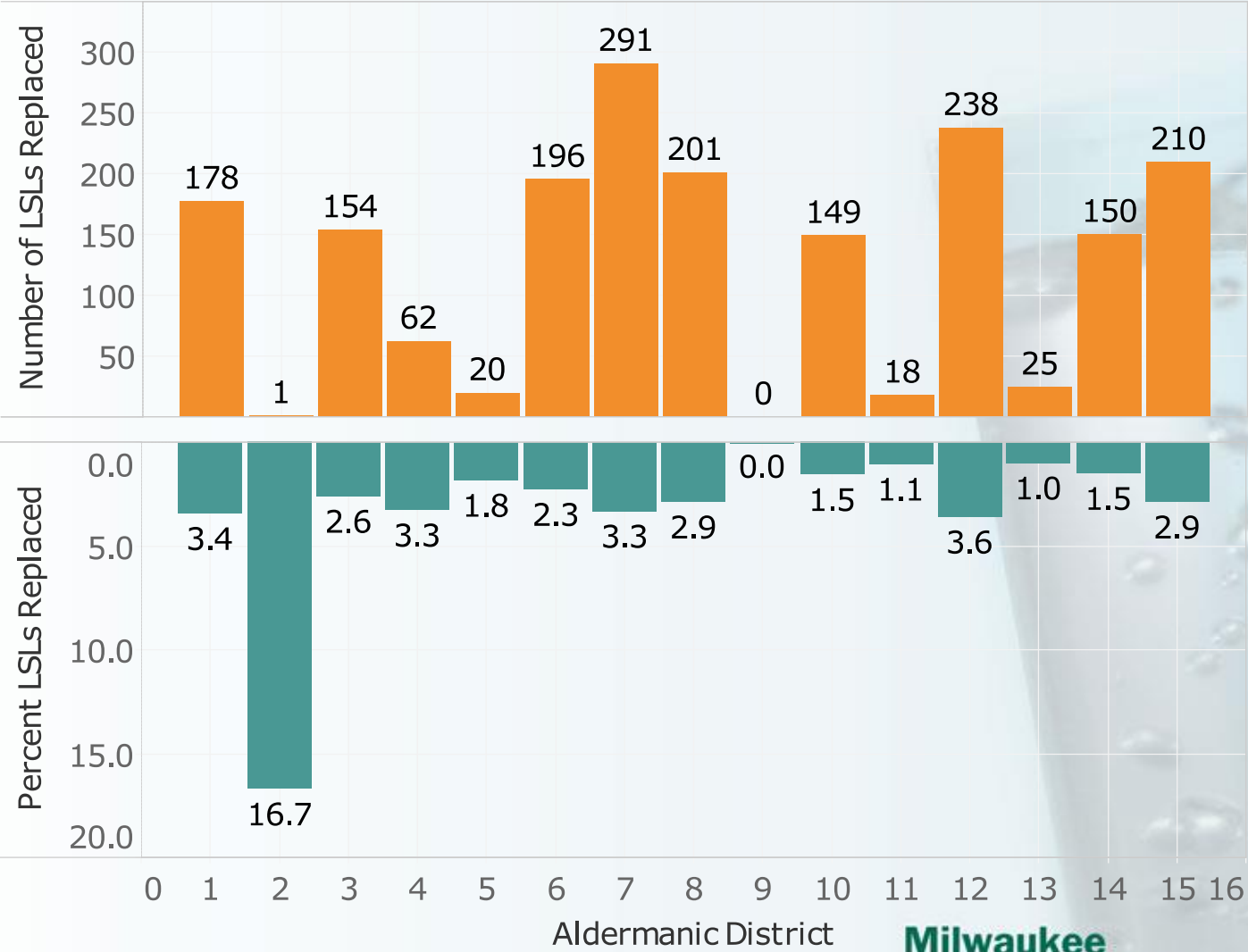
\*Includes the City of Milwaukee and retail customers: Greenfield, Hales Corners, St. Francis, a portion of Franklin, and West Milwaukee (maintains its own distribution)



# Lead service lines replaced to-date

Reason for LSL Replacement	2017	2018	2019	Total (%)
Leak or failure	438	542	268	1248 (66)
Child cares and schools	149	204	55	408 (22)
Water main relay project	18	124	25	167 (9)
Owner initiated	10	40	13	63 (3)
Other utility work	6	0	1	7 (<1)
<b>Total LSL Replacements</b>	<b>621</b>	<b>910</b>	<b>362</b>	<b>1893 (100)</b>

# Lead service lines replaced by district



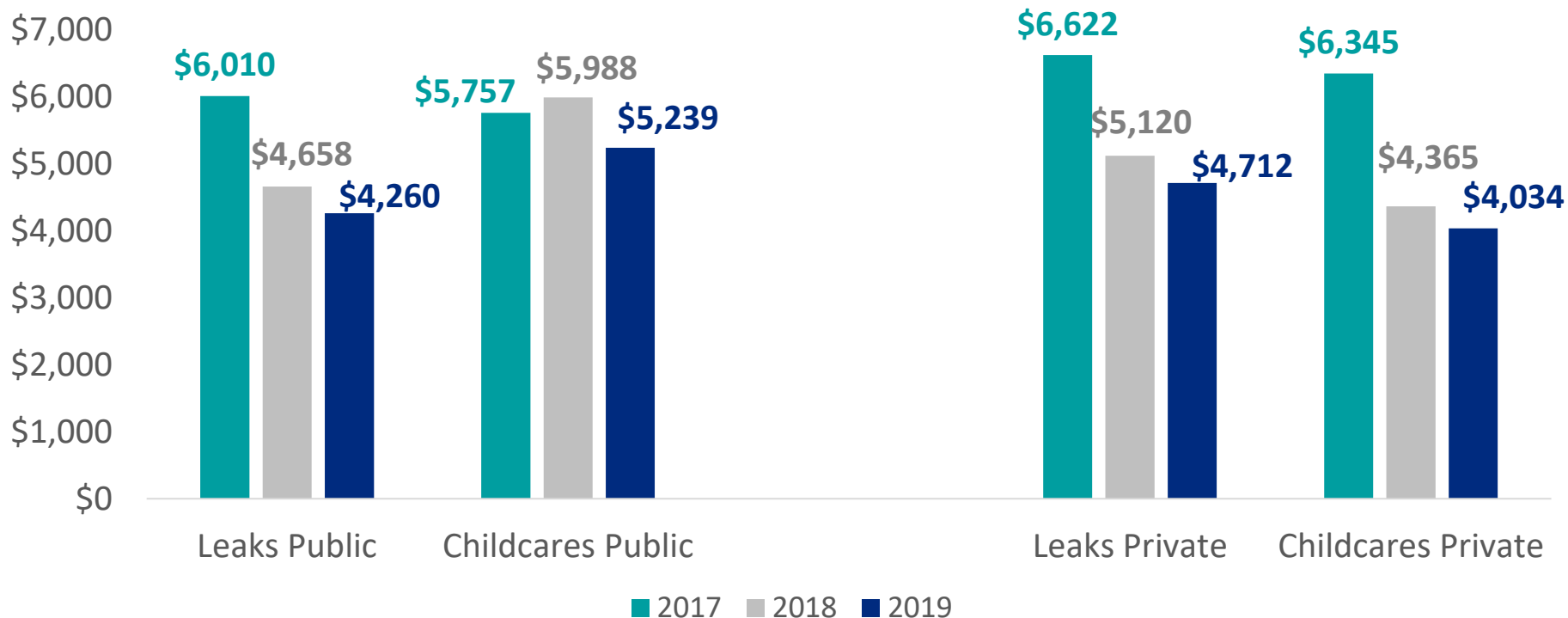
# Lead service line financial impact

- \$12.4M budgeted in 2019 (1000 LSLs goal)
- Average full replacement cost for residential properties as of June 30<sup>th</sup>, 2019: \$10,683
  - Private Side: \$5,587 (previously \$6,026)
  - Public Side: \$5,096 (previously \$5,465)



# Lead service line financial impact

## Av. LSL Costs by Property Type (Public vs. Private)



# MWW Filter Distribution

Filter distribution plan presented April 25, 2019 (CCFN 181726)

- NSF 53 certified water pitchers provided by MWW when LSL is mandated to be replaced
- Voucher for NSF 53 water pitcher provided by MWW when infrastructure project is adjacent to LSL
- Recommended use is 30 days following project completion
- Replacement cartridges available
- 3,128 pitchers provided to-date

# Safe drinking water regulations

- Lead and Copper Rule (LCR) established 1991
  - Action Level of 15 ppb for lead (parts per billion = micrograms per liter)
  - Actions required: corrosion control treatment (CCT), public notice, outreach and education, additional monitoring
- MWW added CCT in 1996, which was considered optimized CCT (OCCT) in 2002 by the DNR
  - Requires daily monitoring of plant effluent pH and orthophosphate
  - 50 DNR approved Tier 1 sites monitored triennially for lead and copper
- OCCT assessment established in 2016 by EPA
  - Self assessment and DNR required monitoring of 11 new water quality parameters (e.g. things that affect corrosivity)
- Reevaluating optimization with demonstrative study to be completed by end of 2021

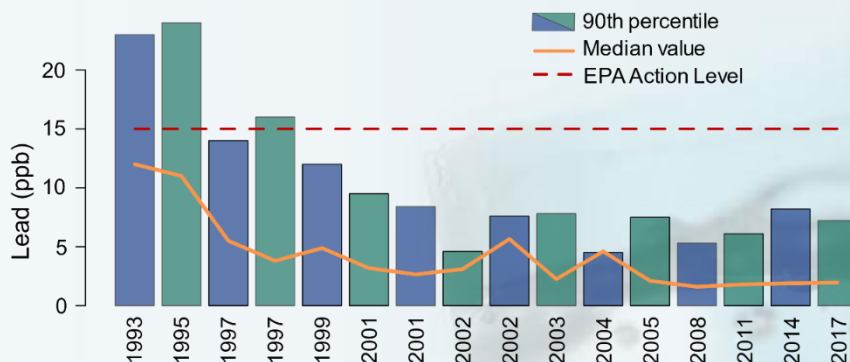
# Corrosion Control Demonstrative Study

## CCT initiated in 1996

- Reduced lead by > 60%
- Assessed in 2002 and 2016

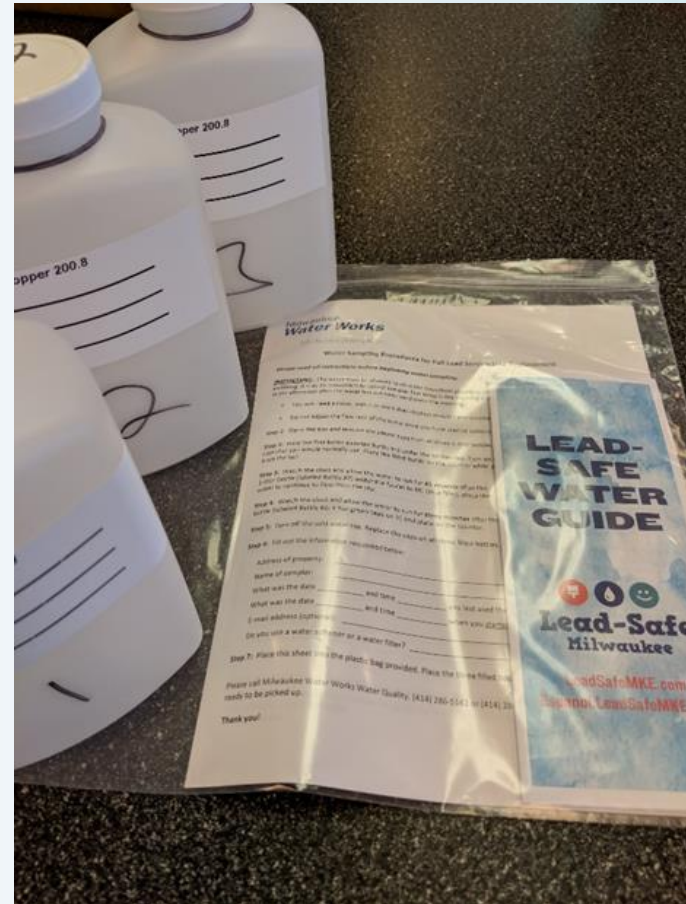
## 2019 Evaluation

- Evaluation of corrosion control treatments
- Evaluation of current data and water quality parameters
- Identification of all chemical and physical constraints
- Impact on all other treatment processes
- Recommended implementation of process that minimizes lead at consumer's taps
- If different than current process, proposed treatment chemicals and doses to be used, including changes to any other treatment processes
- Schedule for full implementation



# Lead and water testing

- Offered to all residents in LSLR program (~10% participation)
- Use a 3-bottle kit
- Cost covered by WQ section
  - \$40/sample
  - \$132/kit with shipping
  - Does not include personnel or overhead costs
- Samples processed within 2-3 weeks on average
- Results sent to property owners
- WQ follows up and provides additional resources if necessary



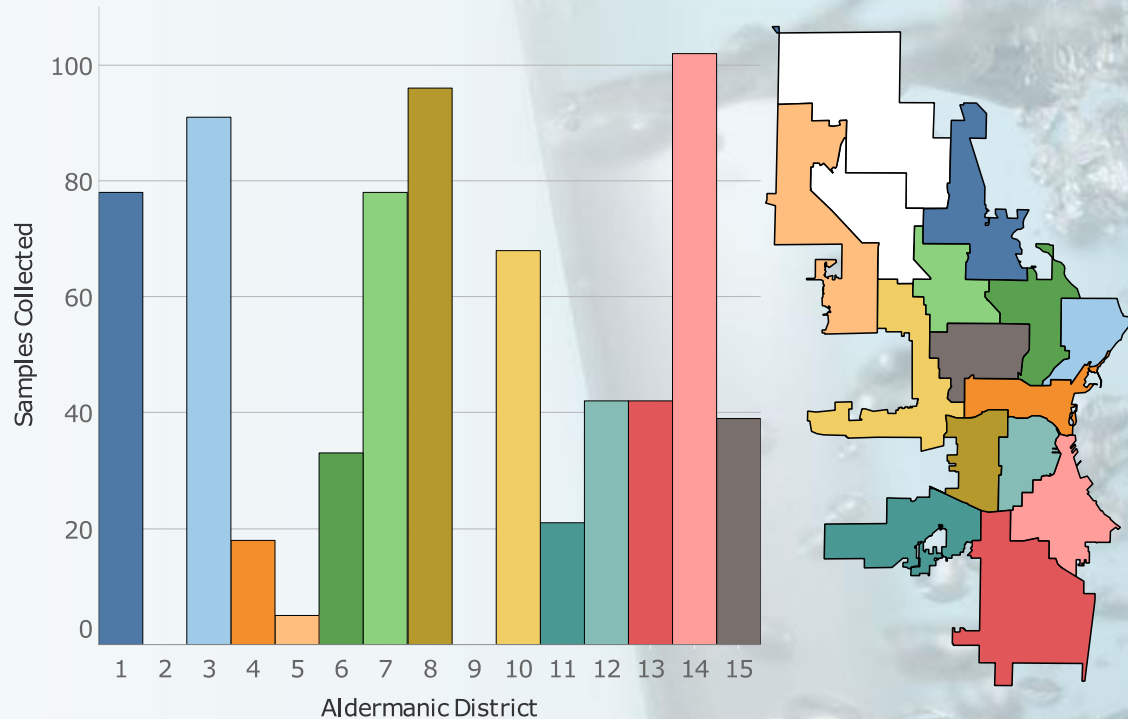
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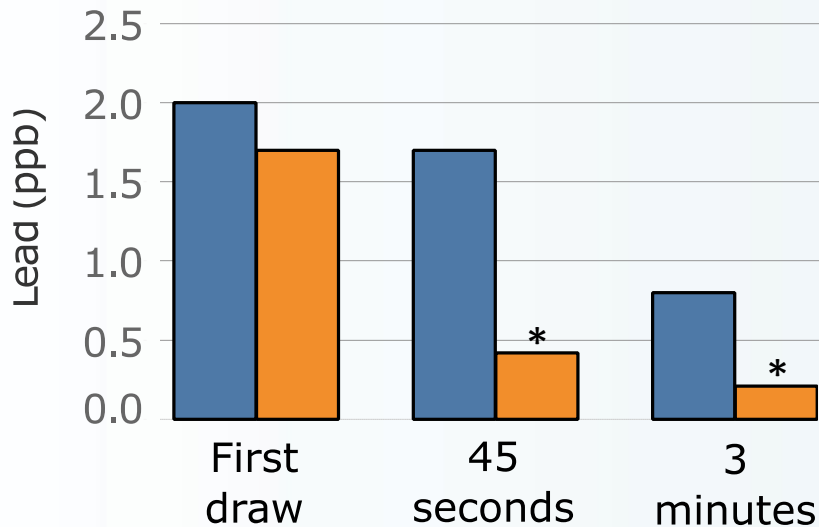
# Participation in LSLR testing

- 1893 LSLRs to-date
- 161 pre-LSLR kits
- 71 post-LSLR kits
- 713 total samples run

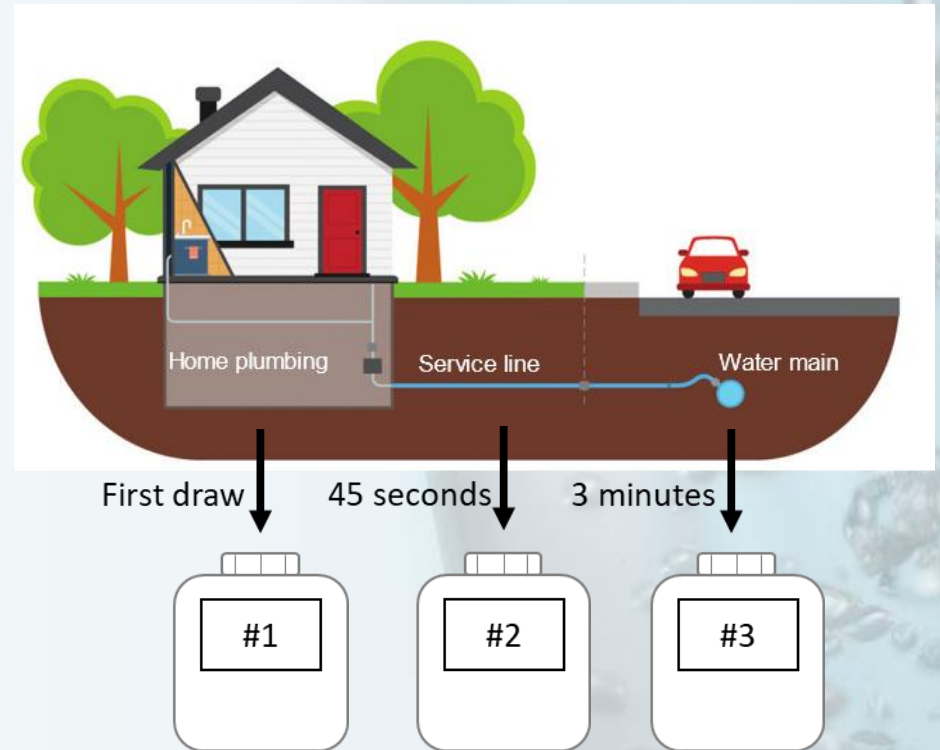


# Lead service line replacement results

Median Lead (ppb)	Lead Line	Copper Line
Bottle 1	2.00	1.70
Bottle 2*	1.70	0.42
Bottle 3*	0.80	0.21



\*Significant reduction ( $p < 0.05$ )



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# Summary of LSLRs and water testing

- Following a LSLR, proper flushing is important to reduce the risk of high lead levels
  - Residents are given filter pitchers certified to remove lead during and after construction and are provided additional cartridges as needed (e.g. awaiting lab results)
- Overall, lead in water has decreased with the exception of first draw samples
  - Replace aged metal pipes, especially those with lead solder and older valves (e.g. brass)
  - Replace old faucets and fixtures
  - Flush properly when water hasn't been used for several hours
  - Remove aerators while flushing and clean the screens occasionally
  - Depending on water flow, flushing for a few minutes is all that is needed (the water will feel significantly colder)
  - Have your water tested



# 2019 Outreach

- Lead-Safe Water insert in Municipal Services Bills sent July-September (per CC Res. 171523)
- Annual letter with lead-in-water information to occupants at properties with LSLs to be sent August (per CC Res. 171523)
- Consumer Confidence Report 2<sup>nd</sup> quarter bill insert refers customers to online Lead-Safe Mke information
- Presentations at nine community meetings, most with City of Milwaukee Health Department representative
- Lead-safe Water information shared when water filter pitchers are distributed

# 2019 Outreach

- Quarterly updates of data for online search for properties with city-owned section of LSL
- Information provided during 11,894 customer visits to MWW Customer Service Center, during phone inquiries, email and in-field contacts
- Milwaukee.gov/water-“Lead and Water” had 5,970 page views January-June, comparable to 2018
- *LeadSafeMKE.com* had 1,772 page views January-June, compared to 3,262 in 2018 and 3,849 in 2017
- Lead-Safe Water info distributed at health centers, MPL branches, City Hall complex buildings

Thank you.



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