Lead Service Replacement Plan
Sycamore, IL0370550
April 1st, 2025

Section 1. The name and identification number of the community water supply

City of Sycamore – IL0370550
475 N Cross St, Sycamore, IL 60178

Section 2. The total number of service lines connected to the distribution system of the community water supply.

As of April 1st, 2025 the City of Sycamore has 7,553 water services connected to the community water supply.

Section 3. The total number of suspected lead service lines connected to the distribution system of the community water supply.

As of July 1st, 2024 the City of Sycamore has 0 unknown water services connected to the community water supply. Sycamore has successfully identified the service material for all water services connected to the community water supply.

Section 4. The total number of known lead service lines connected to the distribution system of the community water supply.

As of April 1st, 2025 the City of Sycamore has 5 known lead and 0 known galvanized requiring replacement water services connected to the community water supply.

Section 5. The total number of lead service lines connected to the distribution system of the community water supply that have been replaced each year beginning in 2020.

In order to assist residents with the replacement of privately owned lead services, in January of 2020, the City of Sycamore completed an application to the Illinois Environmental Protection Agency seeking financial assistance. The City of Sycamore completed Phase 1 of a Private Lead Service Replacement Program in 2022. $1,606,426.34 of funding and financial assistance was provided by the Illinois Environmental Protection Agency's Public Water Supply Loan Program (PWSLP).

Phase I – replaced 143 lead services in 2022.

The City of Sycamore then applied for and received additional funding to complete Phase II of the Private Lead Service Replacement Program. $4,111,200 of funding and financial assistance is being provided by the Illinois Environmental Protection Agency's Public Water Supply Loan Program (PWSLP) for Phase II. Phase II is currently in progress and will be completed in 2024.

Phase II – replaced 240 lead services in 2023.

Phase II (continued) – replaced 89 services in 2024.

There have been 472 lead services replaced through the City initiated Private Lead Service Replacement Programs since 2022. There were approximately 5 lead services replaced by owners prior to the Private Lead Service Replacement Programs being put in place.

Lead Service Lines Replaced since 2020: 477

Section 6. Proposed lead service line replacement schedule that includes one-year, 5-year, 10-year, 15-year, 20-year, 25-year, and 30-year goals.

The average cost to replace a lead water service from watermain to the meter inside the residence is $12,500. This is based on the average costs to replace a lead water service from Phase I and Phase II of the City's Private Lead Service Replacement Program. This cost is assumed to increase an average of 4% per year due to cost increases and inflation.

There are 5 lead services that need to be replaced. All of the 5 properties previously ***refused*** to participate in the no-cost private lead water service replacement program. Continued efforts will be made to encourage the residents to replace their private lead water services. Of the remaining lead services, 4 would need full replacement and 1 needs partial replacement, as the city-side of the service line is copper.

The cost projections below reflect the remaining 5 services. This is an estimate.

Total Cost to replace in 1 Year: $62,500 replacing all 5 in one year

Total Cost to replace in 5 years:

	Services	Cost Per		Total Cost of Replacement
Year 1	1	$ 12,500		$ 12,500
Year 2	1	$ 13,000.00		$ 13,000
Year 3	1	$ 13,520.00		$ 13,520
Year 4	1	$ 14,060.80		$ 14,061
Year 5	1	$ 14,623.23		$ 14,623
	5			$ 67,704

Total Cost to replace in 10 years:

	Services	Cost Per		Total Cost of Replacement
Year 1	0	$ 12,500		$ -
Year 2	1	$ 13,000.00		$ 13,000
Year 3	0	$ 13,520.00		$ -
Year 4	1	$ 14,060.80		$ 14,061
Year 5	0	$ 14,623.23		$ -
Year 6	1	$ 15,208.16		$ 15,208
Year 7	0	$ 15,816.49		$ -
Year 8	1	$ 16,449.15		$ 16,449
Year 9	0	$ 17,107.11		$ -
Year 10	1	$ 17,791.40		$ 17,791
	5			$ 76,510

Total Cost to replace in 15 years:

Based on identified number of Lead Water Services, the City anticipates replacement of the remaining services within 10 years.

10 Years - $76,510

Total Cost to replace in 20 years:

Based on identified number of Lead Water Services, the City anticipates replacement of the remaining services within 10 years.

10 Years - $76,510

Total Cost to replace in 25 years:

Based on identified number of Lead Water Services, the City anticipates replacement of the remaining services within 10 years.

10 years - $76,510

Total Cost to replace in 30 years:

Based on identified number of Lead Water Services, the City anticipates replacement of the remaining services within 10 years.

10 years - $76,510

It is the City's goal to have all the remaining lead services replaced within 10 years, or replace a minimum of 1 service every two years (no less than 7% of lead or galvanized services per year).

Replacement is dependent on resident/owner participation. Property owners must agree to allow access to inside the home for full-service replacement.

Section 7. Analysis of costs and financing options for replacing the lead service lines connected to the community water supply's distribution system, which shall include, but shall not be limited to:

(A) a detailed accounting of costs associated with replacing lead service lines and galvanized lines that are or were connected downstream to lead piping;

- Section 6. Includes costs associated with lead and galvanized service replacements.

(B) measures to address affordability and prevent service shut-offs for customers or ratepayers; and

(C) consideration of different scenarios for structuring payments between the utility and its customers over time

On Monday, October 2nd, 2023 City Council approved changes to the City's municipal code regarding water service line ownership. The City now owns and maintains the water service line from the watermain to the shut-off box in the right-of-way. The homeowner is responsible for the water service from the shut-off box to inside the residence. Previously, the entire water service (from main to inside the home) was the responsibility of the homeowner. This change was made to assist the maintenance of water services by reducing the burden on the homeowner. There is now a "shared" cost to replace a water service line between the City and the owner.

The IEPA funded NO-COST lead service replacement program was completed in June of 2024. On October 21st, 2024 Sycamore City Council passed Resolution 995: Resolution Establishing a Program to Complete the Replacement of All Lead Water Service Lines in the City of Sycamore (attached as Appendix 7).

Summary of the Resolution:

- **Public Side Replacements.** The City will replace or cover the costs to replace any known or unknown lead service lines found within the City from the existing watermain to the shut-off valve (the "Buffalo Box") at no cost to the residence served by said lines.
- **Residents Who Refused to Participate**. Certain residents who refused to participate in the 2022/2023/2024 No-Cost Lead Service Replacement Program will not be eligible for reimbursement for costs associated with a future private-side lead service replacement (from the Buffalo Box to the individual residences).
- **Incorrectly Marked Properties.** In the event water service was incorrectly marked as NON-Lead but later turns out to be lead, the City will provide 100% of the funds necessary to facilitate the private-side replacement.
- **Later discovered Lead lines**. The City will provide 50% reimbursements for private side replacements when lead is discovered "underground" which serves a residence in the future.

Currently all residents with lead service lines have been and will continue to be notified. Notices are mailed annually by April 15th. A copy of the notice is attached as Appendix 8.

Replacement costs are estimated in Section 6. Services replaced with watermain replacement will be covered in the cost of the project, and not count towards the budget amount. For any owner requested replacements, it is assumed that the cost to replace a lead or galvanized water service from watermain to water meter inside the home is $12,500 (in 2024) and will increase annually by 4%. *See Section 6 – 10 year replacement

Section 8. A plan for prioritizing high-risk facilities, such as preschools, day care centers, day care homes, group day care homes, parks, playgrounds, hospitals, and clinics, as well as high-risk areas identified by the community water supply;

The City has identified 43 high-risk facilities. None of the identified high-risk facilities have known lead or galvanized water service lines. Should the City become aware of a high-risk facility that has lead or galvanized water service line, they will be contacted immediately and given their options. City funding will prioritize high-risk facilities.

Section 9. A map of the areas where lead service lines are expected to be found and the sequence with which those areas will be inventoried and lead service lines replaced;

The City has included all lead or galvanized services in the two IEPA funded private lead water service replacement programs. The entire City was included in these programs. The City of Sycamore has NO unknown service lines.

See Attached – Maps:

Current Lead or Galvanized Services	– Appendix 1
Lead Services Replaced in 2022	– Appendix 1a
Lead Services Replaced in 2023	– Appendix 1b
Lead Services Replaced in 2024	– Appendix 1c
Lead Service Area and Sycamore Boundary	– Appendix 1d

Section 10. Measures for how the community water supply will inform the public of the plan and provide opportunity for public comment; and

On August 5th, 2024, at a regularly scheduled City Council meeting, Options for the Facilitation of Future Private Lead Service Replacements were discussed. Consideration 14A is attached as Appendix 9. Additionally, the minutes for the August 5th, 2024 meeting are also attached (Appendix 9a).

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- **Later discovered Lead lines**. The City will provide 50% reimbursements for private side replacements when lead is discovered "underground" which serves a residence in the future.

The current Lead Service Replacement Plan information can be found on the City's website. Options for replacement will be posted on the City's website as well. Additionally, the notice sent to residents/owners with identified lead or galvanized services will include replacement options.

Section 11. Measures to encourage diversity in hiring in the workforce required to implement the plan as identified under subsection (n).

The solicitation of bids for City's Phase I and Phase II Private Lead Service Replacement Programs included publication seeking qualified DBE/MBE/WBE businesses, an example is attached as Appendix 2.

The remaining lead or galvanized service replacements (after the PLWSRP is completed – 2024) that are City-owned will be funded with internal budgeted funds. The City will seek out companies that encourage diversity in hiring when obtaining quotes or bids to complete the work.

Section 12. Procedure for conducting full lead service line replacement.

The City contracted with Fehr-Graham and Associates to oversee, manage, and inspect both Phase I and II of the City's Private Lead Service Replacement Program. The City uses the AWWA C810-17 Standard as a guide (attached as Appendix 3).

The resident/owner will request the replacement. The resident/owner will be required to complete an application granting access to the property. The resident/owner will then schedule the replacement with the Water Division. The resident/owner will be given information on lead service replacements.

The entire lead portion of a service line will be replaced. A new connection to the water main, new b-box, and new connection to the water meter. Any portion of galvanized between the watermain and inside the property to the water meter will be replaced as well.

Section 13. Procedure for informing customers before a lead service line replacement and flushing directions to remove particulate lead from service lines and premise plumbing.

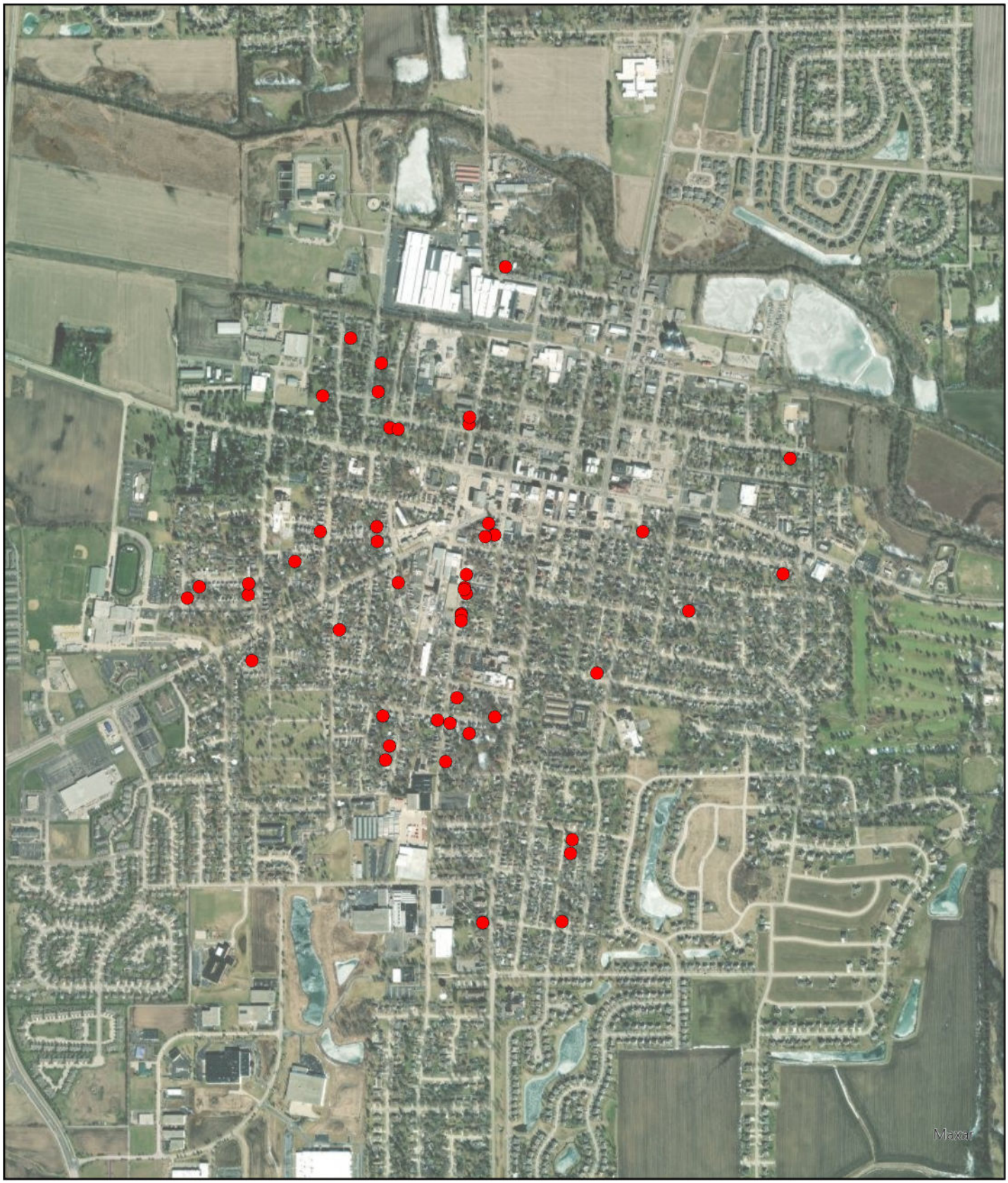
The City uses the AWWA C810-17 Standard (Appendix 3). Specifically, Section 4.3 Communication and Instructions to Customers. The City also refers to the AWWA Lead Service Line Communication Guide attached as Appendix 4. The Lead Informational Notices are sent to customers before planned water main work begins (attached as Appendix 5).

Residents have been given and will continue to receive the IEPA document "Customer Flushing After Lead Service Line Replacement" (attached as Appendix 6). Residents are encouraged to read the handout and ask any questions they might have. If residents choose to sample after the replacement has been completed, the Water Division will provide them with contact information for certified labs.

Appendices 1-1d

Current Lead or Galvanized Services	Appendix 1
Lead Services Replaced in 2022	Appendix 1a
Lead Services Replaced in 2023	Appendix 1b
Lead Services Replaced in 2024	Appendix 1c
Lead Service Area and Sycamore Boundary	Appendix 1d

Appendix 1



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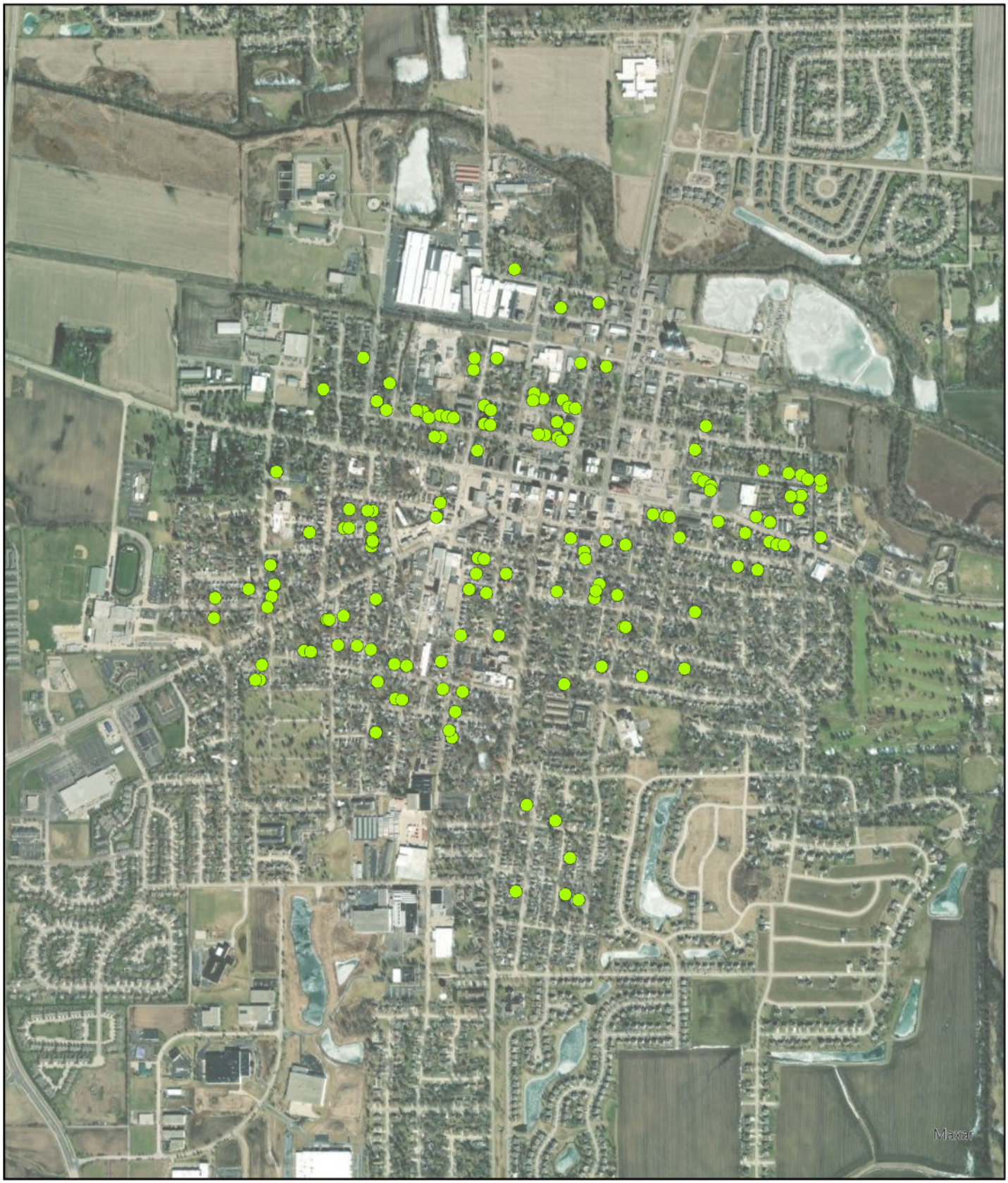
City of Sycamore

Legend

Current Lead or Galvanized Services

Appendix 1a



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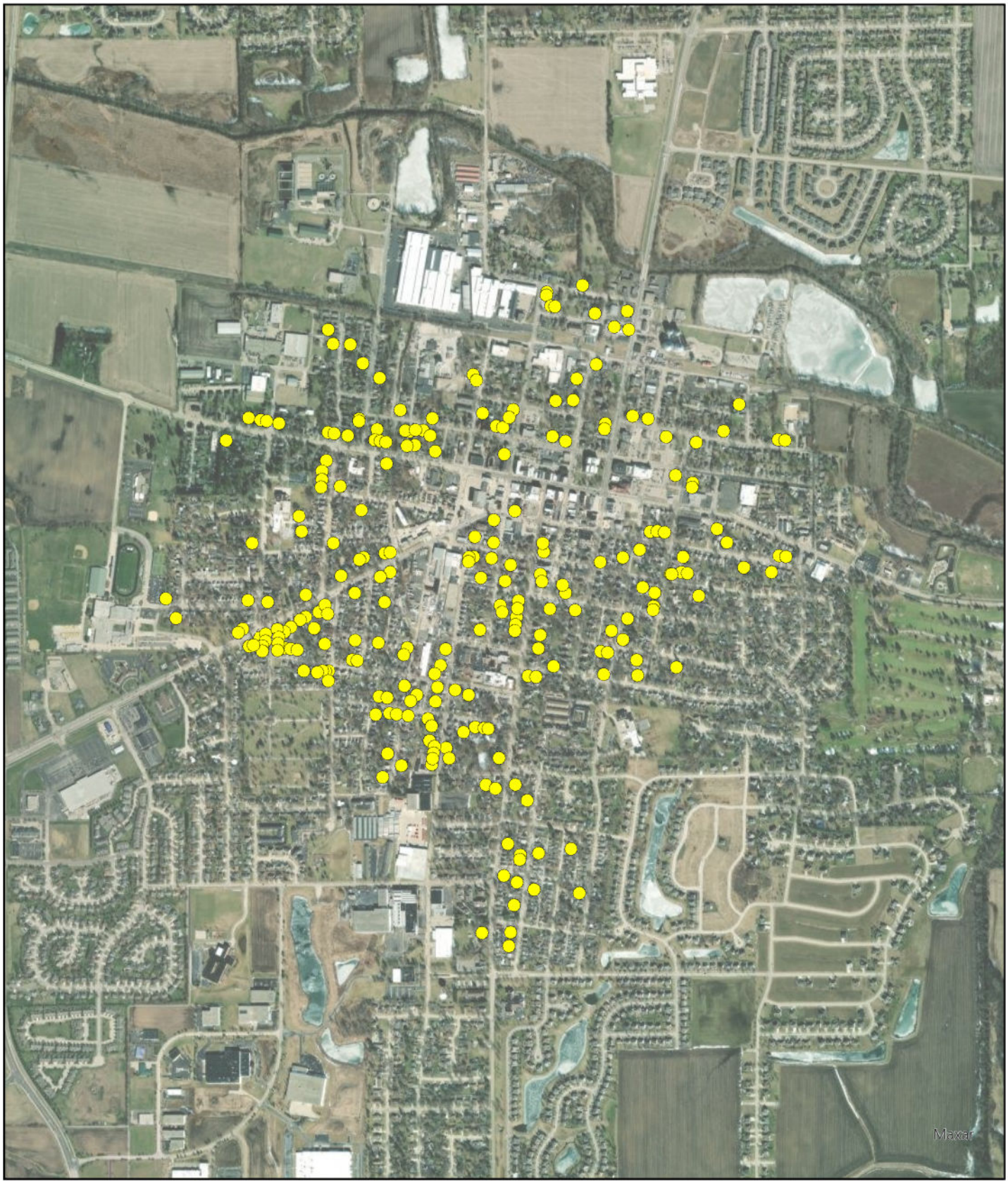
Lead Service Replaced in 2022

Appendix 1b



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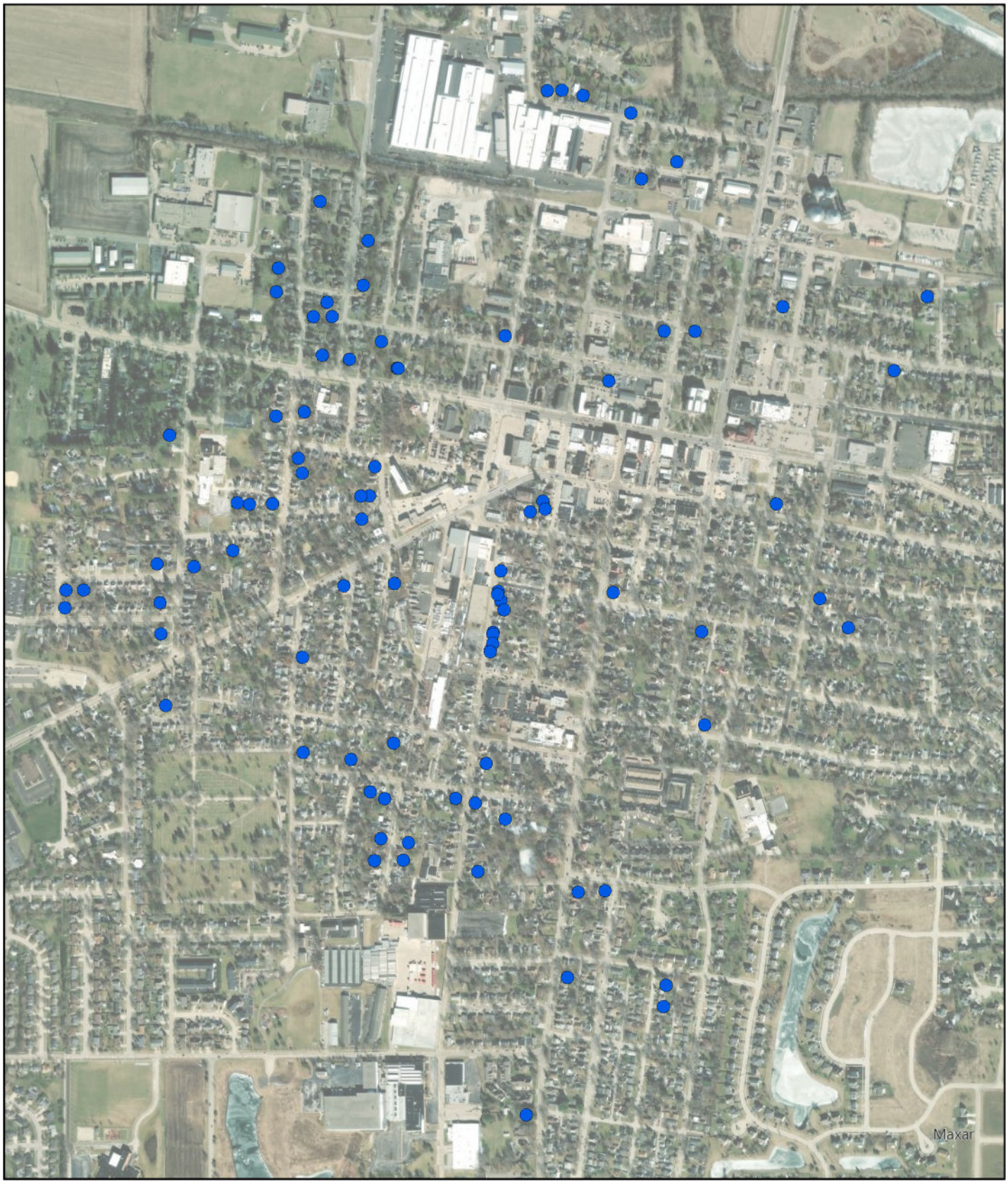
Legend

Lead Service Replaced in 2023

Appendix 1c



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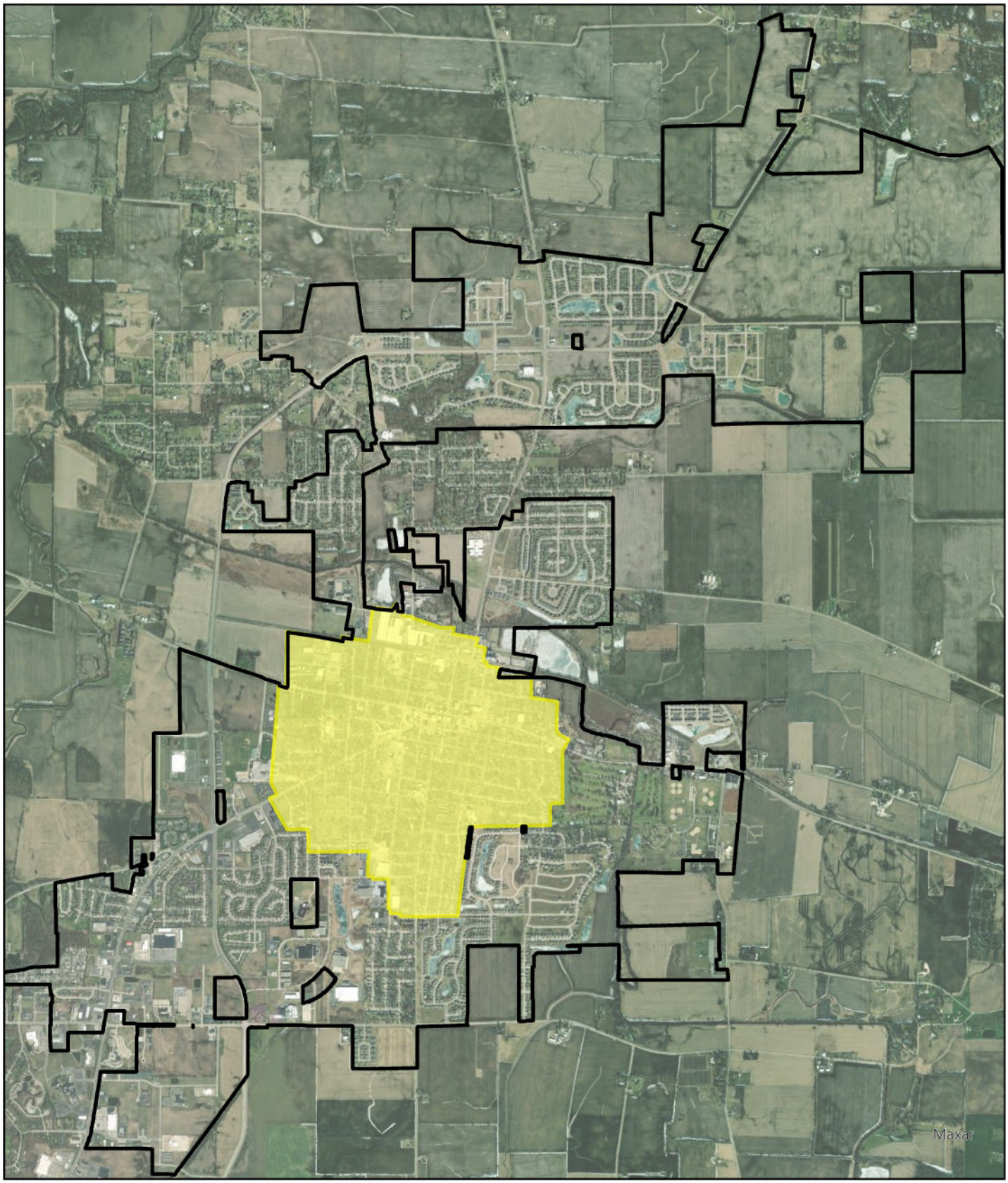
Legend

Lead Service Replaced in 2024

Appendix 1d



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City of Sycamore

Legend

Sycamore Boundary
Lead Sevice Area

Appendix 2

Certificate of Publication seeking qualified DBE/MBE/WBE Businesses

Certificate of the Publisher

Daily Chronicle

Description:DBE/MBE/WBE-SYCAMORE
2008641
CAROLLE DUNCAN

FEHR GRAHAM ENGINEERING & ENVIRONMENT
SUITE 208
200 PRAIRIE STREET
ROCKFORD IL 61107

Shaw Media certifies that it is the publisher of the Daily Chronicle. The Daily Chronicle is a secular newspaper, has been continuously published daily for more than fifty (50) weeks prior to the first publication of the attached notice, is published in the City of DeKalb, County of DeKalb, State of Illinois, is of general circulation throughout that county and surrounding area, and is a newspaper as defined by 715 ILCS 5/5.

A notice, a true copy of which is attached, was published 1 time(s) in the Daily Chronicle, namely one time per week for one successive week(s). Publication of the notice was made in the newspaper, dated and published on
08/17/2022

This notice was also placed on a statewide public notice website as required by 5 ILCS 5/2.1.
In witness, Shaw Media has signed this certificate by Laura Shaw, its publisher, at DeKalb, Illinois, on
17th day of August, A.D. 2022

Shaw Media By: Laura Shaw

Laura Shaw, Publisher

Account Number 10191918 Amount $53.94

PUBLIC NOTICE

Fehr Graham Engineering & Environmental is seeking qualified DBE/MBE/WBE businesses for the City of Sycamore's Lead Service Line Replacement - Phase 2 project. Subcontracting opportunities are available in the following areas: plumbing inspection. Subcontracts will be awarded based on price and ability to perform work. All disadvantaged businesses should contact, in writing, via Certified Letter, Return Receipt Requested - Fehr Graham Engineering & Environmental, 200 Prairie Street, Suite 208, Rockford, IL 61107 to discuss subcontracting opportunities. All negotiations must be completed prior to September 30, 2022.

(Published in the Daily Chronicle August 17, 2022)
2008641

Appendix 3

AWWA C810-17 Standard, Replacement and Flushing of Lead Service Lines

ANSI/AWWA C810-17
(First Edition)

American Water Works Association

Dedicated to the World's Most Important Resource®

AWWA Standard

Replacement and Flushing of Lead Service Lines

Effective date: Nov. 1, 2017.
First edition approved by AWWA Board of Directors June 11, 2017.
This edition approved by AWWA Board of Directors June 11, 2017.
Approved by American National Standards Institute Sept. 1, 2017.

AWWA Standard

This document is an American Water Works Association (AWWA) standard. It is not a specification. AWWA standards describe minimum requirements and do not contain all of the engineering and administrative information normally contained in specifications. The AWWA standards usually contain options that must be evaluated by the user of the standard. Until each optional feature is specified by the user, the product or service is not fully defined. AWWA publication of a standard does not constitute endorsement of any product or product type, nor does AWWA test, certify, or approve any product. The use of AWWA standards is entirely voluntary. This standard does not supersede or take precedence over or displace any applicable law, regulation, or code of any governmental authority. AWWA standards are intended to represent a consensus of the water industry that the product described will provide satisfactory service. When AWWA revises or withdraws this standard, an official notice of action will be placed on the first page of the Official Notice section of *Journal – American Water Works Association*. The action becomes effective on the first day of the month following the month of *Journal – American Water Works Association* publication of the official notice.

American National Standard

An American National Standard implies a consensus of those substantially concerned with its scope and provisions. An American National Standard is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an American National Standard does not in any respect preclude anyone, whether that person has approved the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standard. American National Standards are subject to periodic review, and users are cautioned to obtain the latest editions. Producers of goods made in conformity with an American National Standard are encouraged to state on their own responsibility in advertising and promotional materials or on tags or labels that the goods are produced in conformity with particular American National Standards.

CAUTION NOTICE: The American National Standards Institute (ANSI) approval date on the front cover of this standard indicates completion of the ANSI approval process. This American National Standard may be revised or withdrawn at any time. ANSI procedures require that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of publication. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036; 212.642.4900; or emailing info@ansi.org.

ISBN-13, print: 978-1-62576-269-6 eISBN-13, electronic: 978-1-61300-453-1

DOI:http://dx.doi.org/10.12999/AWWA.C810.17

Committee Personnel

The AWWA Standards Subcommittee on Lead Service Lines, which developed this standard, had the following personnel at the time of approval:

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J.A. Fleming,* Standards Council Liaison, Greater Cincinnati Water Works, Cincinnati, Ohio (AWWA)
T.C. Gilbert, Onondaga County Water Authority, Syracuse, N.Y. (AWWA)
S. Gould, Atkins, Austin, Texas (AWWA)
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K.C. Morgan, KCM Consulting Services LLC, Phoenix, Ariz. (AWWA)
K. Oberoi, Charleston Water System, Charleston, S.C. (AWWA)
P.J. Olson,* Staff Advisor, American Water Works Association, Denver, Colo. (AWWA)
S.D. Osborne, OSD LLC, Lexington, Mass. (AWWA)
R.W. Roost, Lansing Board of Water and Light, Lansing, Mich. (AWWA)
M.K. Schmelling, DC Water, Washington, D.C. (AWWA)
R. Slabaugh, Arcadis, Indianapolis, Ind. (AWWA)
F. Trinchini, City of Toronto–Toronto Water, Toronto, Ont., Canada (AWWA)
C. Van Der Kolk, Zeeland Board of Public Works, Zeeland, Mich. (AWWA)
S.H. Via, American Water Works Association, Washington, D.C. (AWWA)
A.J. Weiss, Onondaga County Water Authority, Syracuse, N.Y. (AWWA)

The AWWA Standards Committee on Distribution System Operations and Management, which reviewed and approved this standard, had the following personnel at the time of approval:

Kanwal Oberoi, *Chair*

General Interest Members

M.N. Agbodo, URS Corporation, Temecula, Calif. (AWWA)
M.L. Altland, Hatch Mott MacDonald, Iselin, N.J. (AWWA)
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S. Gould, Atkins, Austin, Texas (AWWA)

* Liaison, nonvoting

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S.R. Mason, Kimley-Horn and Associates Inc., Fort Worth, Texas (AWWA)
B. McDonald, HDR Engineering, Phoenix, Ariz. (AWWA)
K.C. Morgan, KCM Consulting Services LLC, Phoenix, Ariz. (AWWA)
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P. Rogers, Georgia Southern University, Statesboro, Ga. (AWWA)
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A.J. Weiss, GHD Inc., Cazenovia, N.Y. (AWWA)

Producer Members

D.A. Feuer, Woolpert Inc., Englewood, Colo. (AWWA)

User Members

J.S. Czarnecki, Greenville Water, Travelers Rest, S.C. (AWWA)
J.E. Dyksen, Suez Water, North Haledon, N.J. (AWWA)
W.C. Gedney, Golden State Water Company, Ontario, Calif. (AWWA)
M.E. Grahek, Los Angeles Department of Water, Los Angeles, Calif. (AWWA)
C. Morissette, Ville de Montreal, Montreal, Que., Canada (AWWA)
K. Oberoi, Charleston Water System, Charleston, S.C. (AWWA)
G. Ramon, Little Rock Wastewater, Little Rock, Ark. (AWWA)
D. Spencer, Powdersville Water District, Powdersville, S.C. (AWWA)
J.W. Swertfeger, Cincinnati Water Works, Cincinnati, Ohio (AWWA)

* Liaison, nonvoting

Contents

All AWWA standards follow the general format indicated subsequently. Some variations from this format may be found in a particular standard.

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Foreword

This foreword is for information only and is not a part of ANSI/AWWA C810.*

I. Introduction.

I.A. *Background.* Replacement of lead service lines and subsequent flushing are important processes for ensuring the delivery of safe drinking water. The AWWA Policy Statement on Lead Service Line Management supports protecting public health through the reduction of exposure to lead in drinking water and encourages communities to develop a lead reduction strategy that includes identifying and removing all lead service lines over time. This standard is intended to describe essential procedures for the replacement of lead service lines, including the following elements: appropriate tools and techniques; flushing a service line after replacement; factors to consider in optimizing flushing; instructions to inform customers affected by the replacement, including additional risk reduction measures; and verification of lead level management prior to return to service. Although partial replacements should be discouraged, this standard also describes procedures for partial replacement and repair situations where full service line replacement is not possible or practical.

This is the first edition of this standard and will likely result in valuable feedback from first users of the standard. As such, it is anticipated that a second edition with additional information and guidance will be necessary and issued well before AWWA's regular five-year revision schedule for standards.

I.B. *History.* Development of this standard was authorized by the AWWA Standards Council in 2015 and was assigned to the AWWA Standards Committee on Distribution Systems Operations and Management. A Subcommittee on Lead Service Lines was formed to draft the standard. This first edition of the standard was approved by the AWWA Board of Directors on June 11, 2017.

I.C. *Acceptance.* In May 1985, the US Environmental Protection Agency (USEPA) entered into a cooperative agreement with a consortium led by NSF International (NSF) to develop voluntary third-party consensus standards and a certification program for direct and indirect drinking water additives. Other members of the original consortium included the Water Research Foundation (formerly AwwaRF) and the Conference of State Health and Environmental Managers (COSHEM). The

* American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036.

American Water Works Association (AWWA) and the Association of State Drinking Water Administrators (ASDWA) joined later.

In the United States, authority to regulate products for use in, or in contact with, drinking water rests with individual states.* Local agencies may choose to impose requirements more stringent than those required by the state. To evaluate the health effects of products and drinking water additives from such products, state and local agencies may use various references, including

1. Specific policies of the state or local agency.

2. Two standards developed under the direction of NSF†: NSF/ANSI 60, Drinking Water Treatment Chemicals—Health Effects, and NSF/ANSI 61, Drinking Water System Components—Health Effects.

3. Other references, including AWWA standards, *Food Chemicals Codex*, *Water Chemicals Codex*,‡ and other standards considered appropriate by the state or local agency.

Various certification organizations may be involved in certifying products in accordance with NSF/ANSI 60 and 61. Individual states or local agencies have authority to accept or accredit certification organizations within their jurisdictions. Accreditation of certification organizations may vary from jurisdiction to jurisdiction.

Annex A, "Toxicology Review and Evaluation Procedures," to NSF/ANSI 60 and 61 do not stipulate a maximum allowable level (MAL) of a contaminant for substances not regulated by a USEPA final maximum contaminant level (MCL). The MALs of an unspecified list of "unregulated contaminants" are based on toxicity testing guidelines (noncarcinogens) and risk characterization methodology (carcinogens). Use of Annex A procedures may not always be identical, depending on the certifier.

ANSI/AWWA C810 does not address additives requirements. Thus, users of this standard should consult the appropriate state or local agency having jurisdiction in order to

1. Determine additives requirements, including applicable standards.

2. Determine the status of certifications by parties offering to certify products for contact with, or treatment of, drinking water.

3. Determine current information on product certification.

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* Persons outside the United States should contact the appropriate authority having jurisdiction.

† NSF International, 789 North Dixboro Road, Ann Arbor, MI 48105.

‡ Both publications available from National Academy of Sciences, 500 Fifth Street, NW, Washington, DC 20001.

II. Special Issues.

II.A. *Prioritizing Lead Service Line Replacement.* Suggested items to consider when prioritizing lead service line replacement follow (not in order of priority):

- Any lead service line that is physically disturbed by dig-ins, excavations, repairs, or similar activities.
- Existing partial lead service line replacements.
- Lead service lines supplying schools, day care centers, or other identified sensitive populations as defined by the USEPA.
- Lead service lines where sample results are more than 15 ppb or other established health levels.
- Lead service lines located in scheduled underground infrastructure work or street restoration work zones that could be replaced concurrently, minimizing any negative impact to customers.
- Multiple lead services within a compact area (cost containment).
- Length of lead pipe present in a particular service line.
- Consideration of presence of lead goosenecks and galvanized service lines.

II.B. *Optimizing Corrosion Control Treatment.* Corrosion of piping and solder can be a primary source of lead contamination in drinking water. Optimizing corrosion control treatment may help a utility to minimize this source of lead contamination. Utilities may consider appropriate corrosion control treatments that include pH adjustment, alkalinity adjustment, addition of corrosion inhibitors, and other corrosion control treatments. Additional guidance on applying corrosion control treatments can be found in the AWWA Manual of Water Supply Practice M58—*Internal Corrosion Control in Water Distribution Systems*, the AWWA "Optimized Corrosion Control Treatment Primer," and the 2015 *Journal - AWWA* article "Strategies for Assessing Optimized Corrosion Control Treatment of Lead and Copper" (these documents are available through the AWWA Lead Resource page: www.awwa.org/lead).

II.C. *Reuse or Replacement of Service Line Fittings, Valves, and Water Meters.* The scope of this standard covers replacement of lead service lines. Utilities may choose to reuse or replace the related fittings, valves (corporation stops and curb stops), and water meters, based on the site-specific age and condition of those components and based on the utility-specific replacement schedules and practices. The Reduction of Lead in Drinking Water Act requires that all newly installed pipes, fittings, and fixtures meet the current definition of "lead free." The reuse of existing fittings (that may or may not meet the current definition of "lead free") is allowed by the Reduction of Lead in Drinking Water Act if reused in their original locations.

II.D. *Utility Communication Planning for Lead in Drinking Water.* Water utilities are facing a new communications challenge related to lead in drinking water. Currently, utilities are required under the Safe Drinking Water Act to communicate lead risks when there is an exceedance of the lead action level as defined in the Lead and Copper Rule and annually as part of their consumer confidence reports. Utilities conducting mandatory lead service line replacements must meet specific outreach requirements targeting affected households. Beyond these requirements, many utilities also communicate lead exposure risks proactively in consumer confidence reports, on websites, and through other means.

Water utilities should be planning to communicate lead exposure risks in a proactive and targeted manner not only when lead service lines are repaired or replaced but also when routine maintenance work on water mains may disturb lead service lines. This change may dramatically alter the frequency of direct-to-customer lead communications and requires a new level of planning by utility managers and communicators.

Although the water utility and public health communities have made significant strides in reducing lead exposure, public health advocates and regulatory agencies are looking closely at the contribution of lead at the tap from lead service lines—particularly lead service lines that have been disturbed. Three typical scenarios raise concerns about elevated lead levels: lead service line replacement when required by the Lead and Copper Rule or proactively performed by the utility; infrastructure replacement when full or partial lead service line replacement occurs when other utility work is under way, such as during water main rehabilitation; and repairs to lead service lines.

Water providers should consider building on current communication plans to provide additional information to customers regarding lead and lead service line replacement. AWWA has assembled *Communicating About Lead Service Lines: A Guide for Water Systems Addressing Service Line Repair and Replacement* as a tool for preparing and expanding these communications (http://www.awwa.org/Portals/0/files/resources/publicaffairs/pdfs/FINALeadServiceLineCommGuide.pdf).

This guide is designed to help water utilities build on current communication strategies to address these new areas of concern and manage the increased frequency of communication with customers. It provides utilities with customizable messages and templates to communicate with customers in a variety of ways to better protect public health. For brevity, the content of the guide will not be repeated here.

Additional guidance on utility communications can be found on the Lead Service Line Replacement Collaborative website: http://www.lslr-collaborative.org/.

II.E. *Grounding of Electrical Circuits on Piping.* If the lead service line is replaced with a nonmetallic pipe or if a nonconductive plastic coupling (dielectric coupling) is used within a few feet of the home, the home owner may need to take additional measures to ensure the structure has sufficient grounding. Historically, connection to the home piping system was used for grounding the home's electrical system. By removing the underground metal piping, an alternative grounding strategy may be needed.

All metal water systems should be "bonded." Failure to adequately bond the potable water piping systems to the electrical system increases the potential for both fire and electrocution should the piping system become energized (see National Electric Code).

III. Use of This Standard. It is the responsibility of the user of an AWWA standard to determine that the products and/or processes described in that standard are suitable for use in the particular application being considered.

III.A. *Purchaser Options and Alternatives.* This standard is written as though the replacement and flushing work will be performed by the purchaser's (generally the utility's) personnel. Where the work is to be performed using a separate contract or as part of a contract for replacing service lines,* appropriate provisions should be included in the purchase documents to ensure the constructor is specifically instructed as to its responsibilities. The following information should be provided by the purchaser:

1. Standard used—that is, ANSI/AWWA C810, Replacement and Flushing of Lead Service Lines, of latest revision.
2. Whether compliance with NSF/ANSI 61, Drinking Water System Components—Health Effects, is required.
3. Details of other federal, state or provincial, and local requirements (Section 4).
4. Method of replacement to be used—open cut, trenchless on new route, or trenchless using existing route (Sec. 4.1).

III.B. *Modification to Standard.* Any modification of the provisions, definitions, or terminology in this standard must be provided by the purchaser.

IV. Major Revisions. This is the first edition of this standard.

V. Comments. If you have any comments or questions about this standard, please call the AWWA Engineering and Technical Services at 303.794.7711; write to the department at 6666 West Quincy Avenue, Denver, CO 80235-3098; or email at standards@awwa.org.

* Refer to other AWWA standards and manuals for design criteria for various service line materials.

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ANSI/AWWA C810-17
(First Edition)

American Water Works Association

Dedicated to the World's Most Important Resource®

AWWA Standard

Replacement and Flushing of Lead Service Lines

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes essential procedures for the replacement of lead water service lines and flushing following replacement. Essential procedures include the following: appropriate tools and techniques; flushing a service line after replacement; factors to consider in optimizing flushing; and instructions to provide customers affected by the replacement, including additional risk reduction measures. This standard also describes procedures for partial replacement and repair situations where complete lead service line replacement is not possible or practical.

Sec. 1.2 Purpose

The purpose of this standard is to define the minimum process requirements for the replacement of lead service lines and for flushing following replacement.

Sec. 1.3 Application

This standard can be referenced in the purchase documents for the replacement of lead service lines and can be used as a guide for the appropriate replacement tools and techniques, flushing practices and procedures, communications with customers, and verification of successful completion. The stipulations of this standard apply when this document has been referenced and only to the extent referenced.

SECTION 2: REFERENCES

This standard references the following documents. In their latest editions, they form a part of this standard to the extent specified within the standard. In any case of conflict, the requirements of this standard shall prevail.

AWWA—*Communicating About Lead Service Lines: A Guide for Water Systems Addressing Service Line Repair and Replacement*.

Safe Drinking Water Act (SDWA), 42 USC* 300.

USEPA†—Lead and Copper Rule (LCR), 40 CFR 141.

SECTION 3: DEFINITIONS

The following definitions shall apply in this standard:

1. *Constructor:* The party who provides the work and materials for placement or installation.

2. *Corporation stop:* A valve attached to the water main to which a service line is connected. It is used to interrupt flow during installation or maintenance of the service line (see Figure 1).

3. *Curb stop:* A valve installed in the service line, generally at the property line, and accessible for operation from the surface of the ground for routinely interrupting flow through the service line (see Figure 1).

4. *Customer:* The person, company, or organization receiving potable water service from the utility to a specific premise.

5. *Gooseneck:* A sweeping bend in a service line where it connects to the water main, resembling the shape of a goose's neck, that will allow soil movement without damaging the service line (see Figure 1).

6. *Manufacturer:* The party that manufactures, fabricates, or produces materials or products.

7. *Potable water:* Water that is safe and satisfactory for drinking and cooking.

8. *Purchaser:* The person, company, or organization that purchases any materials or work to be performed.

* United States Code, 732 North Capitol Street, NW, Washington, DC 20401-0001.

† US Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC 20460.

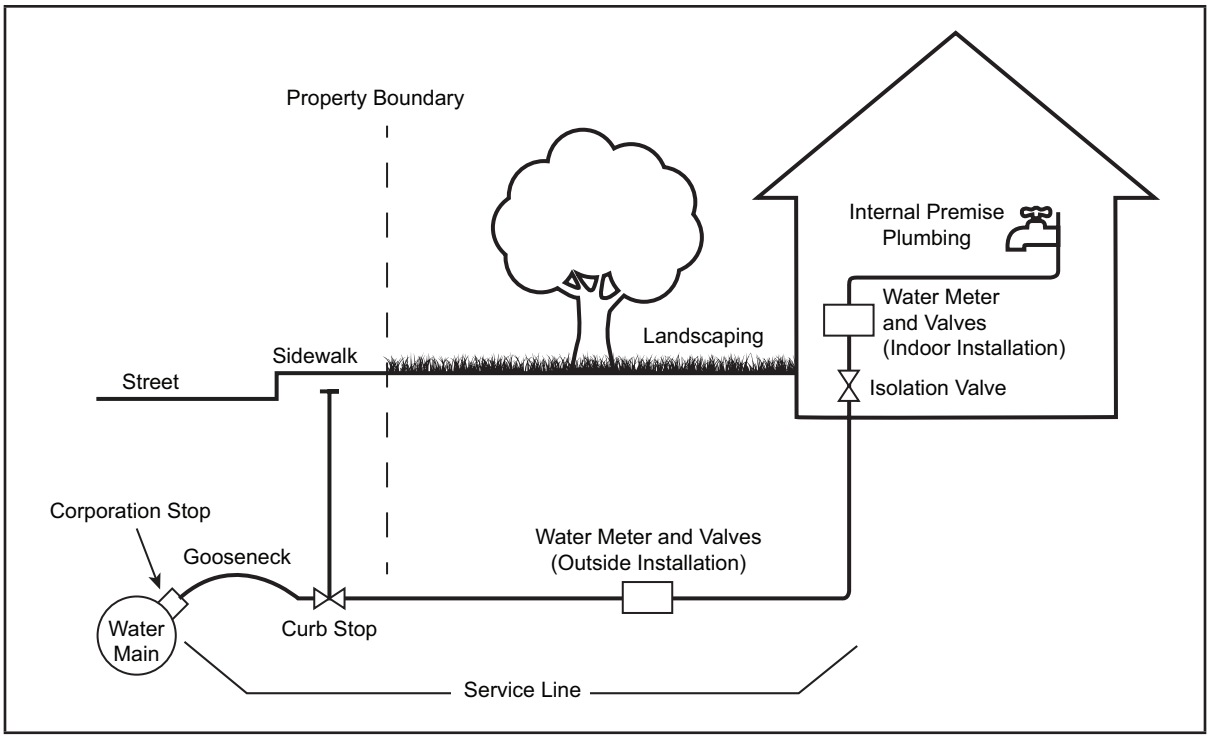

Figure 1 Typical water service line components

9. *Service line:* The pipe that runs between the utility's water main and the specific premises' plumbing, including both the portion owned by the utility, if any, and the private service line owned by the property owner (see Figure 1).

10. *Utility:* The organization or entity with the primary purpose of providing a designated area with potable water service.

11. *Water main:* The water pipe from which the domestic water supply is delivered by the utility to the service pipe leading to specific premises (see Figure 1).

12. *Water meter:* An instrument used for recording the quantity of water passing through the service line to specific premises. Water meters are typically installed with valves on inlet and outlet sides of the meter (see Figure 1).

SECTION 4: REQUIREMENTS

Materials shall comply with the requirements of the Safe Drinking Water Act and other federal regulations for potable water systems as applicable.

Water can be naturally corrosive and often dissolves lead as a result of water's contact with the service line as well as other plumbing components. A number of sampling and analytical techniques are available for customers to determine the

level of lead in their drinking water. Some of these tests are collected and/or analyzed by the local water provider. Other tests may be conducted by the customers themselves but should be in compliance with sampling and analytical techniques accepted by the local utility. The data captured from the various tests can be used to assist the utility in adjusting the water chemistry by modifying the application of corrosion control chemicals.

Utility personnel should consider that the level of dissolved and particulate lead within the homes and/or businesses of their customers may be greater than the levels within their system based on the potential leaching from service lines and internal premise plumbing components. Lead service lines potentially represent the largest mass of lead in regular contact with potable water, hence the interest in removing lead service lines in their entirety. Utilities should also consider that lead levels may vary based on chemical and physical conditions, level of disturbance to the piping, sampling technique, and other factors when determining the number of samples to be collected. A single sample may not be adequate in determining how much lead is being released.

For planned lead service line replacements, the utility shall establish replacement agreements to be reviewed with and accepted by the customer before any work being accomplished. These agreements should detail the responsibilities of the customer as well as those of the utility and should be intended to reduce any ambiguity about what is to be accomplished and by whom. Any financial requirements essential to the completion of the project should also be identified.

Sec. 4.1 Location and Replacement of Lead Service Lines

The replacement of lead service lines can be generally accomplished by one of the following ways:

- Open cut full replacement—traditional technology with excavation on the full length of service line to be replaced.
- Trenchless replacement on new routes—methods such as directional drilling or pneumatic or hydraulic ramming tools (boring tools) to pull in the new service line on a new route (cutting and leaving the existing lead service in place and replacing it using a new service line).
- Trenchless replacement on existing routes—methods such as pipe splitting and/or pulling the existing lead service that is being replaced with a new pipe using the existing service line route (pipe splitting leaves the existing lead service in the ground, pulling removes the existing lead service line).

4.1.1 *Locating lead service lines.* In order to replace the existing lead service line, the line must be appropriately identified and located. Some agencies have a database detailing the locations of their lead service lines. Such a record simplifies that portion of the replacement process. Other water providers do not have accurate records reflecting the locations of the lead assets. In this case, other means of identification shall be employed. It is highly recommended that utilities use more than one method of confirming the actual locations of the lead service lines. Utilities should record the service line material when observed during repairs, inspections, or other quality reports. Utilities should be aware that it is at times difficult to verify that a service line contains no portions made of lead, and that some degree of uncertainty may exist in a utility's inventory of lead service lines.

4.1.1.1 Identifying lead service lines at the meter, corporation stop, curb stop, or service box. Lead service lines can sometimes be identified at the main, curb stop, or meter box outside the house or adjacent to the meter inside the house. Typically, lead service lines have a distinctive "bulb-looking" section near the end at a brass, galvanized, compression, or other fitting that connects the service. The absence of the "bulb" section does not confirm the absence of lead. The observation of lead pipe in one location does not confirm the entire service line is lead. It is possible a portion of the lead service was previously replaced during repair or maintenance activity.

4.1.1.2 Using the scrape test to confirm the lead service line. Lead is a gray, nonmagnetic (a magnet will not stick to lead pipe), and relatively soft material compared with other pipe products. A coin scraped along the exterior of a lead pipe will create an indent and reveal a shiny-silver color. Care must be taken not to go too deep to avoid puncturing the pipe. Workers should use appropriate personal protective equipment, such as gloves and eye protection, to prevent exposure to lead. The scrape test identifies solid lead service lines. It will not identify lead-lined iron pipe.

4.1.1.3 Identifying lead service lines by water quality sampling. The concentration of lead found in the water sample can indicate if a lead service line is likely. A sample of the water from the service line should be taken to determine the level of lead. The line should be allowed to sit with no flow for at least 6 hours before sampling. Whether the water meter is inside the building, outside the building, or in an area that is unmetered, it is critical to flush a specific amount of water and then take a sample to be tested. The amount flushed prior to sampling should flush at least the volume of premise plumbing between the service line and the sampling tap. A single test may not be the most effective indicator of the existence of a lead service. The

minimum lead concentration will be system specific, and multiple samples may be required to ensure the lead is not from lead solder or other internal plumbing sources. A low or nondetect lead sample cannot be used to verify the absence of a lead service line. Utilities should use care in interpreting water samples collected at one point in time because of the variability of lead occurrence in samples.

4.1.1.4 Utilizing hydro-excavation to determine the presence of lead. The hydro-excavation process creates a small boring hole to expose the service line at a depth at the water main, the curb box, and/or the meter box, allowing visual observation to identify whether the service line (or a portion) is lead or not. Care should be taken to minimize any physical disturbances to the pipe.

4.1.1.5 Full test-pit excavation. Dig or excavate a large pit down to the service line to expose the pipe. This method could physically disturb the pipe.

4.1.1.6 Other lead service identification techniques. A number of other techniques are used or offered for consideration to locate the presence of lead service lines. When considering other techniques, the utility should make sure such techniques minimize any physical disturbances to the pipe.

4.1.2 *Preparation.* Before the replacement of the lead service line, a number of related preparatory activities shall take place.

4.1.2.1 Customer notification. The impacted customers shall be notified to identify the process established for replacement, whether full or partial. Most agencies have agreements to be signed by both parties reflecting the responsibilities relative to the replacement effort. The type of replacement, the schedule, and other pertinent items shall be covered appropriately with the customer before the replacement activity. The customer notification should include any postreplacement responsibilities, such as flushing or the use of filters, and should include directions to the customer to make the workspace ready and safe prior to the replacement activity. Customers should also be made aware of the risks of a partial replacement, where applicable (see Sec. 4.2).

4.1.2.2 Underground utility locates. The location of other underground utilities shall be done prior to the work to avoid utility strikes and is critical to the success of the lead service line replacement. Locates shall be scheduled in a timely manner without disruption to the established work plan.

4.1.2.3 Lead service replacement plan. A replacement plan shall be established for the work crews to reflect the schedule of the effort, the typical amount of time the customers will be impacted, and so on. This information shall be used to inform the customer of the coming replacement activity and communicated to the customer in a timely manner.

4.1.2.4 Water shutoff and service line isolation. Prior to beginning the replacement work, the water supply to the service line and the customer shall be shut off to avoid release of particulate lead into the customer's premises caused by vibration of the service during any excavation. The service line to be removed shall be isolated by shutting off appropriate valves at each end of the area to be removed.

4.1.3 *Open-cut full replacement of lead service lines.* The open-cut full replacement approach to lead service line removal involves the extraction of all the surface treatment and earth material above the level of the pipe. Care must be taken because other underground utilities, including the water main, may have not been properly located.

4.1.3.1 Proper equipment and material usage for open-cut full replacement. The excavation equipment used for the open-cut full replacement approach shall be sized to accommodate the full depth of the hole. Safety precautions shall be taken in consideration of the customer's property as well as any local pedestrian and/or vehicular traffic.

4.1.3.2 Use of adequate trench safety. Based on the depth of the excavation, an adequate level of trench safety shall be used to guarantee compliance with applicable requirements.

4.1.3.3 Lead service line removal. Once properly exposed and identified, the existing lead service line shall be disconnected from the main as well as the customer's side of the connection. When a utility elects to remove the lead pipe from the ground, the discarded lead line shall be carefully cut or bent into manageable sections and taken for processing for ultimate disposal. The amount of lead removed and the location of the removal along with any other pertinent information shall be documented. If the existing lead pipe is left in the ground, the impacted customer(s) should be made aware of the abandoned pipe.

4.1.3.4 Connecting the new service line. The new pipe shall be measured and placed with enough material to properly connect to the main as well as to the customer's side. The new pipe material shall comply with the requirements of the Safe Drinking Water Act and other federal regulations for potable water systems as applicable. When dissimilar metals are to be connected, a dielectric fitting shall be used to prevent galvanic corrosion (see Sec. II.E regarding grounding of electrical circuits on piping).

4.1.3.5 Backfill and surface restoration. Select bedding and/or a specified fill material, in conjunction with the identified surface treatment, shall be placed in a manner consistent with all applicable requirements to reduce or eliminate the possibility of settling beyond the allowable amount along the course of the excavation.

4.1.4 *Trenchless replacement on new routes.* The directional drilling or pneumatic/hydraulic installation methods of replacing lead service lines make use of a pilot hole that is created by drilling or pneumatically or hydraulically pushing a rod into the soil from an open access pit at the main to an access pit at the meter box or at an area adjacent to the wall where the new service will be connected on the customer's side. In a number of these installation scenarios, the existing lead pipe is disconnected on either end and left in place. When the existing lead pipe is left in the ground, the impacted customer(s) should be made aware of the abandoned pipe.

4.1.4.1 Required access pits. Based on the length of the service to be replaced, access pits shall be excavated down to the depth of the main on one side and to the depth of the service connection on the customer's side. As with any excavation, utility locates shall be requested and received prior to the work being performed, and all applicable trench safety devices shall be used. If the distance between the access pits is great or other underground utilities that are a cause for concern exist, an intermediate access pit may be required.

4.1.4.2 Proper use of boring tools. The boring tool shall be placed in the launching access pit level and pointed in the direction of the receiving pit. The horizontal and vertical directions of the tool shall be monitored until it reaches the receiving pit. Proper service line installation depth is critical and must be maintained in accordance with local requirements.

4.1.4.3 Connecting the new service line. Once the boring tool reaches the receiving pit, the new service line shall be connected to the boring tool and pulled through the bore hole with enough length of the new service pipe material to add fittings to connect to the main as well as on the customer's side. When dissimilar metals are to be connected, a dielectric fitting shall be used to prevent galvanic corrosion (see Sec. II.E regarding grounding of electrical circuits on piping).

4.1.4.4 Backfill and surface restoration. Select bedding and/or a specified fill material, in conjunction with the identified surface treatment, shall be placed in the access pits in a manner consistent with all applicable requirements to reduce or eliminate the possibility of settling beyond the allowable amount along the extent of the excavation.

4.1.5 *Trenchless replacement on existing routes.* The pipe-splitting method employs the use of a tool pulled through the existing lead service line that splits the pipe. The existing lead service line remains in the ground and a new service line is pulled into place. Another related method is to disconnect the lead service on each end and to connect a fitting to one side with an extraction device and to connect

the new pipe material on the other end in order to pull the new service into place, while removing the existing lead service line.

4.1.5.1 Required pipe- splitting and -pulling access pits. As in the directional drilling and pneumatic/hydraulic installation approaches, access pits shall be excavated to the depth of the main on one side and to the depth of the service connection on the customer's side. Other underground utility locates shall be obtained prior to the work, and all applicable trench safety devices shall be used.

4.1.5.2 Use of the splitting tool. Care must be taken to disconnect the existing lead service line and to cut it in a manner that facilitates pushing a cable through it with the splitting tool attached. The splitting tool is then used to displace the existing lead pipe and draws the new pipe material through it to the other end of the project. When the existing lead pipe is left in the ground, the impacted customer(s) should be made aware of the abandoned pipe.

4.1.5.3 Connecting the new service line. Once the splitting tool reaches the receiving access pit, the new service line shall be pulled through to allow enough material to adequately connect to both sides. When dissimilar metals are to be connected, a dielectric fitting shall be used to prevent galvanic corrosion (see Sec. II.E regarding grounding of electrical circuits on piping).

4.1.5.4 Backfill and surface restoration. Select bedding and/or a specified fill material, in conjunction with the identified surface treatment, shall be placed in the access pits in a manner consistent with all applicable requirements to reduce or eliminate the possibility of settling beyond the allowable amount along the extent of the excavation.

Sec. 4.2 Partial Replacements

4.2.1 *General.* It may not always be practical or possible to replace all of a lead service line at the same time. Coordination among the utility, the property owner, and constructor could result in situations in which partial replacement may be unavoidable. Although every effort shall be made to avoid partial replacements, it may be necessary to accommodate partial replacement situations as an interim measure. Partial replacement is not desirable because of the potential for increased release of lead into the water. This section describes additional requirements and recommendations for partial lead service line replacements.

4.2.2 *Existing conditions.* For services where partial replacements have previously occurred and a portion of the service still contains lead pipe, it is recommended that these locations be identified and re-evaluated for removal of the remaining material. For example, some utilities, property owners, or constructors,

through the course of routine maintenance and repairs, may have replaced portions of lead services with alternative materials without having replaced the remainder of the service either to the main or into the property.

4.2.3 *Delayed replacement.* Situations will occur in which a lead service line might not be fully replaced and a portion is left for later replacement. Coordination among all stakeholders during a lead service line replacement is critical. When it is necessary to complete a total lead service line replacement where both the utility and the property owner are responsible for portions of the work (i.e., up to the property line and beyond the property line), all parties should perform the work in close succession to minimize the potential for utilization of the service before completion of the total replacement. However, there may be instances in which one party completes its portion of the work in advance of the other party being available or willing. The scope of replacement may be large for some communities, and thus the time required to complete all the work may be long. In either of the delay cases presented below, the utility shall record that all portions of the service have successfully been replaced after notification of successful completion of full replacement. Communications regarding the effect of partial service line replacement should occur as covered in Sec. 4.3.

4.2.3.1 Property owner delay. On completion of the utility-owned portion of a lead service line replacement, the property owner should complete replacement of their portion as well. However, given the logistics of this work and the likely need for the property owner to hire an independent contractor, there may be a period during which the old and new portions of the service will be connected to allow for the continued supply of water but the lead replacement is only partially complete. During the interim period, the property owner shall be provided clear guidance regarding the increased risk of lead entering the water associated with the partial-replacement condition. Refer to Sec. 4.3 with respect to communication during this period.

4.2.3.2 Utility delay. If a property owner replaces a portion or all of the service line from the home to the property line, the utility should make every effort to obtain documentation of the replacement for its inventory. In most cases the utility will learn of the work after it is completed. If the property owner notifies the utility in advance, the utility should try to schedule a mutually convenient time to perform its portion. When this is not achievable, the property owner shall be provided with clear guidance regarding the increased risk of lead entering the water associated with the partial-replacement condition. Refer to Sec. 4.3 with respect to communication during this period.

4.2.4 *Partial replacement.* It is possible that a portion of the service may contain lead, be out of the utility's responsibility, and subsequently not be replaced. This circumstance may exist for a variety of reasons including cost, miscommunication, misunderstanding of the issues, ambivalence, or social defiance.

4.2.4.1 Property owner refusal. Given the potentially high cost associated with service line replacement and the challenges that may arise with performing the work, it is conceivable to anticipate that some property owners may elect to do nothing. When this condition occurs, the utility shall follow the recommendations presented herein for dielectric connection of dissimilar metals, flushing, and testing. Documentation of the refusal, or at a minimum documentation that a portion of lead material remains (including its location and quantity), will be important for the utility to maintain complete records of the lead service line replacement progress/program. The customer should receive all necessary information regarding future risk.

4.2.4.2 Incentive program verification. If financing or incentive programs are available to property owners, utilities will need to be cautious about validating that property owner portions of lead services have been replaced, in their entirety or at all. A method for verifying work performed and recording completed work will be necessary.

4.2.4.3 Cutting of lead service lines. After customer notifications and utility locates have been accomplished, the specific location of the lead pipe to be cut shall be identified. The proper cutting tools shall be identified to reduce the amount of lead displaced from the cut. A cutting tool such as a pipe cutter or pipe shearing device that reduces lead particles and disturbance is preferred to other tools that use a sawing or other abrasive action. The necessary safety equipment shall be used, including safety glasses and/or goggles and safety gloves. Care shall be taken while cutting the lead pipe to reduce the amount of lead shards from traveling and/or accumulating in the remaining service line sections. The lead service line sections remaining shall be connected and secured to reduce or eliminate the possibility of water leakage. When dissimilar metals are to be connected, a dielectric fitting shall be used to prevent galvanic corrosion. The discarded lead service line shall be carefully cut or bent into manageable sections for processing for ultimate disposal. The replacement section should be a pipe material in compliance with all federal, state, and local requirements. The amount removed as well as specific locations of the remaining sections should be documented. The replaced service line shall be turned on and checked for leaks

in a manner that does not expose the customer's side to potential lead fragments. Flushing shall be accomplished in a manner consistent with Sec. 4.4.

Sec. 4.3 Communications and Instructions to Customers

4.3.1 *General.* It is important to inform all customers that may be affected by lead service line activities. The utility shall provide communication to customers regarding the following items:

1. Advanced notice of planned lead service line replacement projects (45 days prior is recommended).
2. Informational point-of-contact for the project.
3. Additional notice prior to actual planned work affecting service line (day prior).
4. On-site utility point-of-contact during construction.
5. Postconstruction instructions regarding customer flushing, use of a point-of-use (POU) filter or bottled water, water sampling, and testing to be completed.
6. Clear guidance regarding the increased risk of lead entering the water associated with a partial lead service line replacement condition (if a full-service line replacement was not completed). Customers with partial replacements should avoid consuming their water unless they are using a filter certified for lead removal or they should consume bottled water until sample results show that their lead levels are less than the regulatory guideline.

In addition to water shutoff and service-line-isolation actions (Sec. 4.1.2.4), customers should be advised not to use water during excavation and construction activities.

Additional guidance to utilities for completing these customer communications is available in the foreword of this standard and in the AWWA document *Communicating About Lead Service Lines: A Guide for Water Systems Addressing Service Line Repair and Replacement*.

Sec. 4.4 Flushing Service Lines After Full or Partial Replacement

4.4.1 *Flushing by the utility immediately after lead service replacement.* After all connections have been completed, flush the water from an outside connection (such as hose-bib or hose leading from the house side of the meter installation) to remove any particles in the service line and near point-of-entry. The flushing is best done, if possible and practical, before the meter is connected in the service using a "jumper" or straight pipe in place of the meter. The straight pipe will allow for a higher velocity flush and protects the meter from potential damage from lead pipe and other construction-related fragments. Flush at full velocity for at least

10 minutes. If the meter was replaced with a "jumper," it may be reconnected in the service after utility flushing. Following completion of flushing by the utility, the customer shall flush the interior premise plumbing as described in Sec. 4.4.2.

In situations where flushing by the utility is not performed, the customer should be notified with instructions to flush before using any water.

4.4.2 *Flushing by the customer after lead service replacement.* The customer should flush all interior premise plumbing the same day or before next water use following the replacement. Subsequent flushing by the customer should be done once every two weeks for three months or at other intervals based on monitoring results if available. Utilities may want to encourage best times to flush based on water demand and operations (for example, when neighbors' water usage is low, e.g., midmorning to dinner time or late at night). Customers shall be advised to not use hot water in the premise plumbing until initial flushing is completed to prevent sedimentation of lead particles in premise hot water tanks.

4.4.2.1 Suggested instructions for customers.

1. Find all the faucets that will drain, including the basement and all floors in your house.
2. Remove aerators and screens whenever possible, including the shower heads, from all faucets you plan to flush.
3. Include the laundry tubs, hose-bibs, bathtubs, and showers as flushing points.
4. After all the aerators are off, open the faucets in the basement or lowest floor in the house. Leave all faucets running at highest rate possible, using cold water.
5. After the faucets are all open in lowest floor, open the faucets on next highest floor of the house. Continue until faucets are open on all floors.
6. After all faucets are opened, leave the water running for at least 30 minutes.
7. After 30 minutes, turn off the first faucet you opened and continue to turn off other faucets in the same order you turned them on.
8. Clean aerators/screens at each faucet. You may need to replace screens/aerators if too old or worn.

Utilities and customers may consider an optional approach by coordinating a targeted flush of a few faucets at a time before opening all the faucets for the whole house flush. The targeted flush would start with a pattern of opening all faucets in a single area or single floor and then moving to the next to increase the flow velocities, followed by the whole house flush described above, with all faucets open.

4.4.2.2 Additional daily miniflush. As a precaution, the customer should do a miniflush of premise plumbing by running tap water each morning or when the water sits in the pipe for at least 6 hours. Flush for 5 minutes to displace water that has been sitting in the pipes inside the house and in the service line. This could include taking a shower, running the dishwasher, flushing a toilet, collecting water for plants/garden, or running the faucet. The customer should do this before using any water for drinking, cooking, infant formula, and so on. Daily miniflushes should continue for six months or until lead sample results show the lead level is below the regulatory guideline. The customer should clean debris from aerators and screens once a month for six months. After six months, clean debris twice a year.

4.4.2.3 Sampling. Water sampling and testing, following replacement and flushing, shall be conducted per Sec. 5.2.

SECTION 5: VERIFICATION

Sec. 5.1 Documentation of Construction Activities

Documentation of construction activities for each service line work activity may support verification that the lead service line has been fully or partially replaced. The following information shall be documented and recorded:

- Picture of home with house number
- Picture of test pits and meter pit showing new pipe or pipe ends and old lead pipe if in same location
- Length and material type of new pipe installed
- Type of pipe material the new pipe is connected to inside home
- Method of installation (trenchless, hand-excavation, etc.)
- Length and location of any abandoned lead service line pipe left in the ground

Flushing time and location(s) (for example, an outside hose-bib) shall be recorded. Some homes may not have an outside hose-bib turned on or other situations may arise that do not allow for postflushing by the utility. These situations shall be documented in field reports along with any communication attempted with the customer.

Sec. 5.2 Water Testing Following Replacement

Testing the water following the replacement shall be done to determine if appreciable lead is still present in the drinking water. Lead may still exist inside

home plumbing (lead solder, redeposited lead in scale of plumbing, and brass components) and could be disturbed during service line work. Therefore, lead present in the water following a full replacement does not mean the lead service has not been replaced. This condition should be explained to the customer. Flushing recommendations described in Sec. 4.4 can help remove released particles.

5.2.1 *Testing initiation.* Testing the water shall commence at least one month after the replacement to allow for sufficient in-house flushing and a period of normal use of water to occur. Utilities may consider initiating testing within the one-month period if supported by performance data. When only a partial replacement is completed and the lead service line replacement was mandatory as part of compliance with the Lead and Copper Rule (LCR), testing shall be conducted within 72 hours after the completion of the partial replacement of the service line per the requirements of the LCR.

5.2.2 *Test samples.* Testing shall include first-draw and second-draw samples. First-draw sample shall be the initial draw from the tap when it is turned on. Second-draw sample shall be collected with the objective of collecting water that stagnated in the service line, generally the fourth to seventh liter depending on site-specific conditions. Utilities may be able to omit the second draw sample if supported by documentation that the construction activities completely removed the lead service line and by acceptable first-draw lead data. Samples shall be collected from a frequently used tap inside the home, preferably the kitchen tap as the residents' consumption would likely be from the kitchen tap. Samples shall also be collected with the aerator on. Samples should be collected at the maximum flow rate of the tap and should be collected in wide-mouth bottles.

5.2.3 *Profile sampling.* Lead levels higher than expected from full lead replacements may occur and the utility or homeowner could investigate further with profile sampling. A profile is a series of bottles filled continuously following the stagnation period. The trend of lead concentrations coupled with measurements of the inside plumbing and service line will show which portion of plumbing or service contributes the highest lead by the liter number.

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Dedicated to the world's most important resource, AWWA sets the standard for water knowledge, management, and informed public policy. AWWA members provide solutions to improve public health, protect the environment, strengthen the economy, and enhance our quality of life.

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Appendix 4

AWWA Lead Service Line Communication Guide

Communicating About Lead Service Lines: A Guide for Water Systems Addressing Service Line Repair and Replacement

American Water Works Association

Dedicated to the World's Most Important Resource™

Table of Contents

Abbreviations

ANSI – American National Standards Institute

CDC – Centers for Disease Control and Prevention

EPA – Environmental Protection Agency

LCR – Lead and Copper Rule

NSF – National Science Foundation

PE – Public Education

PPB – Parts per billion

POU – Point of Use

SAB – Science Advisory Board

SDWA – Safe Drinking Water Act

Communicating About Lead Service Lines: A Guide for Water Systems Addressing Service Line Repair and Replacement

Executive Summary

Water utilities are facing a new communications challenge related to lead in drinking water. A growing body of research suggests that water customers may face increased risks of lead at the tap if lead service lines are disturbed during the course of utility operations. In the near future, utilities may be encouraged and even required to increase their communications efforts to better protect their customers from lead exposure at the tap.

Currently, utilities are required under the Safe Drinking Water Act to communicate lead risks when there is an exceedance of the Lead Action Level as defined in the Lead and Copper Rule, and annually as part of their consumer confidence reports. Utilities conducting mandatory lead service line replacements must meet specific outreach requirements targeting affected households. Beyond these requirements, many utilities also communicate lead exposure risks proactively in consumer confidence reports, on websites, and through other means.

However, the developing scientific and regulatory landscape suggests that water utilities should communicate lead exposure risks in a proactive and targeted manner not only when lead service lines are repaired or replaced, but also when routine maintenance work on water mains may disturb lead service lines. This change may dramatically alter the frequency of direct-to-customer lead communications and requires a new level of planning by utility managers and communicators.

This guide is designed to help water utilities build on their current communications strategies to address these new areas of concern. It provides utilities with customizable messages and templates to communicate with customers in a variety of ways to better protect public health.

Communicating About Lead Service Lines: A Guide for Water Systems Addressing Service Line Repair and Replacement

Introduction

Since the early 1970s, national and community-level public health intervention has successfully reduced exposure to lead for all ages and ethnic groups in the United States. Measures taken to manage lead exposure through drinking water include amendments to the Safe Drinking Water Act; establishment of the 1988 Lead Contamination Control Act; state plumbing codes and waterworks standards compliant with NSF/ANSI Standard 61; and, implementation of the Lead and Copper Rule by water systems throughout the United States. However, science continues to raise concerns about lead exposure at even very low levels. In fact, in 2012, the Lead Poisoning Prevention Control program at the Centers for Disease Control and Prevention (CDC) set a new blood lead level benchmark for community intervention programs at 5 micrograms per deciliter, which is half the previous benchmark.

Definitions:

Lead service line means a service line made of lead that connects the water main to the building inlet.

Partial lead service line replacement is the practice of replacing only the portion of a lead service line necessary to make a repair / reconnection to a service line or more often replacement of just the portion of a lead service line owned by a water system.

Full lead service line replacement involves replacing both the portion of the lead service line owned by the customer as well as that owned by the water system.

While the water utility and public health communities have made significant strides in reducing lead exposure, public health advocates and regulatory agencies are looking closely at the contribution of lead at the tap from lead service lines—particularly lead service lines that have been disturbed. There are three typical scenarios that raise concerns about elevated lead levels:

- Mandatory lead service line replacement when required by the Lead and Copper Rule
- Infrastructure replacement when full or partial lead service line replacement occurs when other utility work is underway, such as during water main rehabilitation
- Repairs to lead service lines

In September of 2011, the EPA's Science Advisory Board (SAB) found that the available data indicate that partial lead service line replacement "may pose a risk to the population, due

to the short-term elevations in drinking water lead concentrations." Both CDC's Advisory Committee on Childhood Lead Poisoning Prevention and EPA's Children's Health Protection Advisory committees have subsequently expressed similar concerns about elevated lead concentrations in drinking water from partial lead service line replacements. EPA's National Drinking Water Advisory Council indicated that elevated lead levels were a concern from both full and partial lead service line replacement.

With this new information in hand, water providers should consider building on current communication plans to provide additional information to customers regarding lead and lead service line replacement.

Getting Organized

In light of the developing scientific and regulatory landscape, water utilities may re-evaluate their repair and replacement plans and their communication plans to better protect their customers from lead exposure at the tap. The following is a brief checklist a utility can use to prepare operations and communications around lead service lines and their replacement.

Checklist for Lead Service Line Replacement and Communication Efforts

- ☐ Determine if there are likely to be lead service lines remaining in your service area (owned by utility or customers).
    - Do these customers have direct relationship with utility (i.e. are they bill paying, or non-bill paying)?
    - If non-bill paying, adjust messaging and channels to reach property managers and apartment dwellers.
- ☐ Gauge extent of lead service line presence in community and which portions of service area are likely to still have lead service lines.
- ☐ Evaluate current communication materials on lead. Are lead service lines already addressed?
- ☐ Obtain organizational support for program and communications about lead service lines.
- ☐ Engage your local public health and/or primacy agency.
- ☐ Create implementation plan and set schedule.
- ☐ Review / develop organization policy and procedures regarding:
    - Roles and responsibilities for managing lead service lines.
    - Ownership of service lines.
    - Financial assistance available to homeowners for lead service line replacements.
    - Flushing practices after lead service line replacement.
    - Providing home treatment devices, information about home treatment devices, or bottled water to customers after lead service line replacement.
    - Information on licensed plumbers that can properly remove lead service lines.
- ☐ Prepare communication materials, such as

- Messages
- Website content
- Door hangers
- Fact sheets

☐ Test communication materials

- Host focus groups with customers or internally to test effectiveness of messaging, as well as design and imagery.

Once communication materials are in use, it is important to periodically re-assess their effectiveness and applicability to current circumstances.

Guidelines for Effective Risk Communications

Communicating about lead in drinking water and the risks surrounding lead service lines can be a challenge from many perspectives. Before engaging with customers on these issues, a utility may benefit from reviewing basic risk communications principles. There are at least 10 guidelines for effective risk communication that should be considered:

1. Take the initiative in providing information to your community.
2. Plan your efforts in advance, test them before any "crisis" exists, and evaluate them upon completion.
3. Listen to your community members and acknowledge their concerns.
4. Be a reliable source of information.
5. Provide honest, accurate, and comprehensive information.
6. Partner with trusted sources in your community.
7. Provide timely and accurate information to the media.
8. Provide consistent messages.
9. Select representatives designated to speak to customers, officials and media very carefully and train them well.
10. Ensure your materials are easy to read and understandable for people with differing educational levels, and available in other languages if applicable.

> **Tip:** Take steps to ensure that non-English speakers will have access to information. In particular, translate key messages and direct non-English speakers to sources of assistance.

Messaging on Lead Service Lines

This section of the guide provides utilities with the key messages about lead and lead service lines for incorporation into outreach materials. These key messages are provided as bullet points, each with supporting facts. Many will need to be customized to fit the unique circumstances of each utility. Opportunities for customization appear in blue type.

Concerns about Lead Service Lines

***Message One*:** In our community, some of the pipes that connect older homes {e.g., before 1940} to the utility water main are made from lead.

- The pipe that connects your household plumbing to the water main in the street is called a service line.
- Neighborhoods in our community where lead service lines were commonly installed are: {xxxxxx, xxxxx, ...}. See map. {Utility Name} maintains records of initial service line construction materials, but these records may not reflect repairs or replacements made after the original service lines were installed.
- To determine if your home has a lead service line, hire a licensed plumber to inspect the service line.
- If your home has a lead service line, it is likely that other sources of lead exist in the home as well. Community health departments may offer free or low-cost lead assessments of the home to help homeowners identify and mitigate all sources of lead.

Message Two: Lead service lines are a health concern because they can be a source of lead in tap water.[1]

- Lead can be harmful. It can impact normal physical and mental development in babies and young children, cause deficits in the attention span, hearing, and learning abilities of children, and increase blood pressure in adults.
- If you have a lead service line, the lead from your pipe may leach into water you drink. EPA estimates that 10 to 20 percent of lead exposure in young children may come from drinking water, and infants raised on mixed formula can receive 40 to 60 percent of their exposure from drinking water.
- There are steps you can take to help protect you and your family from exposure to lead in tap water.[2]

[1] USEPA, http://epa.gov/region5/water/chicagoserviceline/

[2] See more specific messages on flushing and filters on page 9.

Message Three: When lead service lines are disturbed, either by the utility or the homeowner, lead can be released and may end up in tap water.

- Studies have shown that when lead service lines are disturbed, they can release lead for weeks or months after the disturbance.[3]
- If {Utility Name} is doing work that may disturb lead service lines, we will notify our customers and advise them on how to minimize their risk of exposure at the tap.
- If you are replacing a lead service line, it is best to replace the entire service line rather than part of it. Ownership of the lead service line {may be shared between} homeowners and the {Utility Name} and therefore requires a cooperative effort.
- There are steps you can take to help protect you and your family from exposure to lead in tap water.[4]

Replacing Lead Service Lines

Message One: To determine whether your home has a lead service line, hire a licensed plumber to inspect the service line.

- Lead service lines are generally a dull gray color and are very soft. They can be identified easily by carefully scratching them with a key or coin. If the pipe is made of lead, the area you've scratched will turn a bright silver color. Do not use a knife or other sharp instrument and take care not to puncture a hole in the pipe.
- Lead service lines can be connected to the residential plumbing using solder. They have a characteristic solder "bulb" at the end or a compression fitting or other connector made of galvanized iron or brass/bronze.
- If your service line cannot be accessed to determine whether it contains lead, you may have your water tested by a certified laboratory {insert website for laboratories in your area}.

Resources:

Schematic of a Lead Service Line, Page A-2.

Where to Look for a Lead Service Line, Page A-3.

Scenarios Where Lead Service Lines May Exist, Page A-4.

What Do Lead Service Lines Look Like? Page A-5.

Message Two: Broken service lines and routine water main work present ideal moments to

[3] One recent publication on this topic by Del Toral et al. is titled Detection and Evaluation of Elevated Lead Release from Service Lines: A Field Study. It was published in *Environmental Science & Technology* in July 2013.

[4] See more specific messages on flushing and filters on pages 7 and 9.

replace lead service lines.

- Ownership of the lead service line {may be shared between} homeowners and the {Utility Name} and therefore may require a cooperative effort.
- The actual cost of service line replacement depends on a number of factors including the length of the service line, where the service line is located, and the technique used to install the new service line.
- Please contact {Utility Contact} to learn more about options for lead service line replacement {and any payment assistance available}.

Message Three: When replacing lead service lines, it is best to replace the entire lead service line.

- The surest way to remove concerns about lead from lead service lines is to remove all the lead by removing the entire service line.
- Research has shown that at least in the short-term, partial lead service line replacements are not as effective as previously thought.[5]
- Even after a full service line replacement, flushing of the service line is required, and may create lead deposits that could persist for weeks or months. Therefore, it is also highly recommended the resident also flush internal plumbing following replacement.
- Please contact {Utility Contact} to learn more about options for lead service line replacement {and information on opportunities for financial assistance}.

Message Four: Homeowners and contractors should flush internal plumbing to reduce the amount of lead-containing particles and sediment entering the home immediately following work on lead service lines.

- Do not consume tap water, open hot water faucets, or use icemaker or filtered water dispenser until after flushing is complete.
- Immediately after a lead service line replacement, flush the service line by running water from an available outside tap or from the inside cold water tap closest to where the service line enters the home. Flush the line at full flow for 30 minutes. If the cold water tap has an aerator (or screen), then remove it prior to flushing, and rinse it free of debris prior to replacing it.
- After an initial flush of the replaced service line is complete:

[5] 2011. USEPA Science Advisory Board, "SAB Evaluation of the Effectiveness of Partial Lead Service Line Replacements."

1. Remove faucet aerators from all cold water taps in the home
2. Beginning in the lowest level of the home, fully open the cold water taps throughout the home
3. Let the water run for at least 30 minutes at the last tap you opened (top floor)
4. Turn off each tap starting with the taps in the highest level of the home. Be sure to run water in bathtubs and showers as well as faucets.

Utility Disturbance of Lead Service Lines

Message One: {Utility Name} cares about your health and the health of your family.

- {Utility Name}'s first commitment is to public health.
- Lead in drinking water can be harmful. It can impact normal physical and mental development in babies and young children, cause deficits in the attention span, hearing, and learning abilities of children, and increase blood pressure in adults.
- {Utility Name} will take steps to protect you and your family if it expects to disturb lead service lines during the course of utility repair or maintenance.

Message Two: If {Utility Name} is doing work that may disturb lead service lines, we will notify our customers to minimize any increased risk of exposure to lead at the tap.

- When construction will affect a large group of customers, we will notify the impacted customers by {insert method of communications}.
- If emergency repair work impacts your lead service line, we will {insert how you will provide links to relevant information, e.g., hang a door hanger, etc.}.
- When planned construction directly involves your service line, our crews and contractors will first contact you to try and coordinate a full service line replacement. Then we will replace the utility owned portion of the lead service line and minimize disturbance of your portion as much as possible. Once water service is reconnected, the home's plumbing will be flushed using the closest available outside faucet where possible.
- After a service line has been replaced, a door hanger will be placed on your front door with flushing instructions and additional steps you can take to reduce lead in your drinking water.

Steps Homeowners Can Take

Message One: There are steps you can take to protect yourself and your family from lead in tap water, regardless of whether you have a lead service line.

- Running cold water from the faucets you use for drinking can improve water quality by drawing fresh water into the home, particularly after long periods of time when water has not been used**.**
- When purchasing replacement plumbing products, make sure the products have been tested and certified to "lead-free" standards.
- If you use a home treatment device to reduce your exposure to lead, make sure it is independently certified for that purpose and properly maintain it.

Message Two: You can reduce the risk of lead in tap water by flushing your home plumbing before consuming water.

- The longer water has been sitting in your home's pipes, the more lead it may contain.
- Even if you do not have a lead service line, plumbing fixtures like faucets, valves and solder can contain small amounts of lead, so flushing can still help reduce lead exposure.
- The amount of time you should run the cold water to flush your internal plumbing depends on whether you have a lead service line, the length of the lead service line, and the amount of plumbing in your home.
- The most important time to flush is after long periods of no use, such as first thing in the morning, after work, or upon returning from vacation.
- To conserve water, other household water usage activities such as showering, washing clothes, flushing the toilet and running the dishwasher, are effective methods for flushing pipes and allowing water from the distribution system to enter household pipes.

Resources:

NSF Home Drinking Water-Quality and Treatment

AWWA's *Facts and Filters* (To request a copy of the *Facts and Filters* CD, please contact publicaffairs@awwa.org.)

Message Three: You can purchase a home treatment device to reduce your exposure to lead, but you should make sure it is independently certified for that purpose and properly maintained.

- Home treatment devices use various types of filter materials.
- The effectiveness of these devices in reducing lead can vary greatly, so it is important that the model you select is certified to reduce lead according to NSF/ANSI-53.

- Make sure to maintain the device as specified by the manufacturer. Failure to do so may result in exposure to higher lead levels.

Message Four: Make sure plumbing products contain the lowest possible levels of lead by purchasing replacement plumbing products that have been tested and certified to "lead-free" standards.

- Look for plumbing products that are NSF-certified and meet Standard NSF/ANSI 61 and/or 372. These products have been certified to meet the new lead-free requirement.[6]
- Products that have not been certified may still meet the new lead-free requirement. If consumers are unable to determine if a product is lead-free, they should contact the manufacturer to confirm the lead content.
- When repairing or installing new plumbing in old homes, use a licensed plumber and instruct him or her, in writing, to use only lead-free materials. When building a new home, be sure lead-free materials are used.

Resources:

Search for compliance with NSF lead–free certification. For certified "lead-free" products, consult NSF International (800-NSF-8010) or Water Quality Association (630-505-0160).

Message Five: Have water samples from your home analyzed for lead.

- Always use a certified laboratory to analyze water quality samples. A list of certified laboratories is available at {insert state laboratory certification website or http://nelac-institute.org/abdb.php}.
- {Utility Name} will analyze water samples from your home upon request. Contact {Contact Name} at {phone, email} for instructions.
- Plan to continue to have your water analyzed for lead {insert how often} after your service lines and/or plumbing are replaced.

[6] The EPA provides illustrations/examples of packaging and material with certifiers' marks for the new requirement and the certification bodies' approved certification marks and required identifier text, as well as any additional remarks that indicate a product meets the new lead-free requirement, in the document "How to Identify Lead-Free Certification Marks for Drinking Water System & Plumbing Materials" http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100GRDZ.txt.

Flushing Guidance

Message One: The amount of time you should run the cold water to flush internal plumbing depends on many factors.

- Flushing times can vary based on the length of your lead service line and the plumbing configuration in your home. If your home is set back far from the street, a longer flushing time may be needed to lower lead levels.
- *If you have a lead service line*, run the water at the kitchen tap for three to five minutes (or longer if instructed to do so by your water provider) to clear most of the lead from the water.
- To conserve water, other household water usage activities such as washing clothes, showering, flushing the toilet and running the dishwasher are effective methods for flushing pipes and allowing water from the distribution system to enter household pipes.

Issues to Consider

Key Questions

Water utilities that integrate lead service line risk and replacement communications into their outreach activities may face several challenging questions from consumers and other stakeholders and therefore must be prepared to answer them. Some of those difficult questions may be:

1. What is the lead concentration in my water?
2. How do I know if there is lead in my plumbing or my service line?
3. What level of lead is safe?
4. Who should be concerned about lead service lines?
5. Who owns the service line?
6. What is the cost of service line replacement?
7. Who is responsible for paying for replacing the service line?
8. How much water should I flush to reduce lead levels?
9. Should I use pitcher filters or point-of-use devices after lead service lines are disturbed by construction and for how long?
10. Why didn't the previous owner of the home replace the lead service line? (from new homeowner)
11. Have I been at risk all this time? What should I do?
12. I am a renter. How can I know if the plumbing or lines serving my building have lead? What rights do I have as a renter?
13. My water was tested and the lead level was above the 15 ug/L action level. What should I do?

Issues of Concern for Customers

To effectively communicate the messages provided in this document, a utility should have an understanding of the issues of concern for customers. Customers must understand historical uses of lead service lines, who owns which portions of the lines, the cost of service line replacement, options for paying for replacement, and perhaps most importantly, options for protecting themselves.

Customers for Whom Lead Service Lines May Be a Concern. It is important to help customers understand general trends in the occurrence of lead service lines within a

utility's service area. Utilities are likely to find homeowners more amenable to addressing lead service line issues if the utility can explain:

- Periods of development in the community when lead service lines were likely to have been installed
- Which portions of the community were already built before lead service lines were being installed
- Clear time points after which it is certain that lead service lines were not installed
- Who to contact within the water utility who can query system installation records
- Who to contact outside the utility concerning the risks of lead (i.e., local health department)

Resource:

Strategies to Obtain Customer Acceptance of Complete Lead Service Line Replacement, AWWA, 2005

Each utility customer has his or her own perspective on risk. However, the lead service line issue is often a particular concern for:

- Expecting parents and parents of small children, as lead has been shown to impair physical and mental development in young children, and
- Individuals concerned that exposure over many years may lead to kidney problems or high blood pressure.

Ownership of Service Lines. Being clear, consistent, and accurate when describing ownership of service lines is very important. Actual practice varies by utility, but in most communities, the utility's ownership ends at the property line, curb stop, or water meter. The property owner owns the balance of the service line. There are communities where ownership of the entire service line is held by the water utility and in others by the property owner. Where systems serve multiple communities, additional care may be necessary to ensure that ownership is accurately characterized.

Cost of Service Line Replacement. The cost of service line replacement is very site-specific. Actual cost of replacement reflects a number of factors including the length of the service line, the technique used to install the new service line, and the built environment where the service line is located.

Typical Service Line Replacement Costs

Survey Effort	Utility Portion			Customer Portion		
	Average	Range	Unit Cost	Average	Range	Unit Cost
WaterRF (2006)	$1,261	$250-3,000	$52/Lin. Ft.	$2,300	$600-4,000	$46/Lin. Ft.
AWWA (2005)	$1,756	$800-3,200	--	$2,144	$450-10,000	--
AWWA (1990) <10,000 Pop. Served			$48.64/Lin. Ft.			$25.95/Lin. Ft.
>10,000 Pop. Served			$61.85/Lin. Ft.			$32.99/Lin. Ft.

The variables associated with a customer's property (e.g., trees, walls, driveways, etc.) can quickly affect the cost of replacement. Also, full lead service line replacement can involve breaking through the customer's basement wall at a new location, adding associated costs inside the home. In urban environments, the costs illustrated above can be even higher.

It should be noted that while there is not a direct correlation between the presence of lead service lines and impoverished or disenfranchised communities, in some communities, older housing is more affordable than newer homes. Consequently, customers with lead service lines within these older communities may face significant financial challenges if they must replace the portion of the service line they own.

How Much Water to Flush. There are two different scenarios when flushing is applicable to customers and a third flushing scenario applicable to the water utility.

Flushing instructions to customers with lead service lines concerned about elevated levels of lead: The current Lead and Copper Rule requirements and typical practice is to encourage customers with elevated lead levels to run the tap to remove stagnant water that might contain elevated levels of lead. Often, the instructions say "flush for 1 – 2 minutes" or "flush until water changes temperature." Unfortunately, these instructions are geared toward flushing the water faucet and water in the home. The lead portion of a service line may be 20 – 70 feet in length and require drawing more water into the structure.

In the 2007 revisions to the Lead and Copper Rule, the EPA recognized that setting flushing volumes appropriate to a given community can improve communication with customers. There is clearly a balance between setting a duration that is protective and setting a value customers believe is wasteful. To encourage customer adherence to flushing recommendations, it is important to suggest alternative uses for first-flush water (e.g., toilet flushing, showering, laundry, plant watering, etc.).

Flushing instructions to customers who undertake a lead service line replacement: Available data illustrate that lead levels are often elevated for some period of time following lead service line replacement. Complete lead service line replacements tend to release less lead and to release lead for a shorter period of time. In instances when there is a partial lead service line replacement, customers should be provided with advice on flushing after periods when the water has been stagnant in the service line. The utility should consider collecting water samples one to two months after replacement in order to inform subsequent flushing guidance.

Flushing instructions to utility crews and independent plumbers: When undertaking either a partial or full lead service line replacement, the service line should be flushed once the line is reconnected to the main and prior to use by the customer. Utility crews and contractors—who generally lack access to the interior plumbing—should obtain permission from the homeowner to flush the line using the outside hose bib closest to the lead service line. Plumbers working for the customer should be instructed to flush the water inside the home, closest to where the service line enters the structure, immediately following a lead service line replacement. In either case, the cold water should be run for at least 30 minutes at full flow after removing the faucet aerator. The purpose of this flush is to remove any debris resulting from the replacement process that might contain lead. Customers or their plumbers should also flush the interior plumbing after a lead service line replacement. Beginning in the lowest level of the home, they should remove faucet aerators and fully open the cold water taps throughout the home, letting the water run for at least 30 minutes at the last tap. Then they should turn off each tap starting with the taps in the highest level of the home.

Pitcher Filters or Point-of-Use Devices. Individual customers may feel more comfortable applying additional treatment to remove lead from the water they drink or use for cooking. There is ongoing research into the effectiveness of available point-of-use (POU) technologies for removing both lead that is present in particles as well as lead that is dissolved in tap water.

Utilities can provide information about such devices to customers in preparation for a lead service line replacement or, when prudent, provide the device itself after a lead service line is replaced. In either instance, proper maintenance should be stressed to ensure filters are

changed according to the manufacturers' instructions. Customers should be instructed to choose devices, including pitcher filters, which have been certified to NSF/ANSI 53 standards.

Appendix A – Sample Materials

The following information and messaging is intended for use in fliers, websites, brochures or other materials.

Information to Include

1. It is critical that a utility include its designated point(s)-of-contact and how to reach the appropriate point-of-contact.

2. Provide background information on your system's general water quality and service information. This information can be obtained from the system's most recent Consumer Confidence Report. Example text:

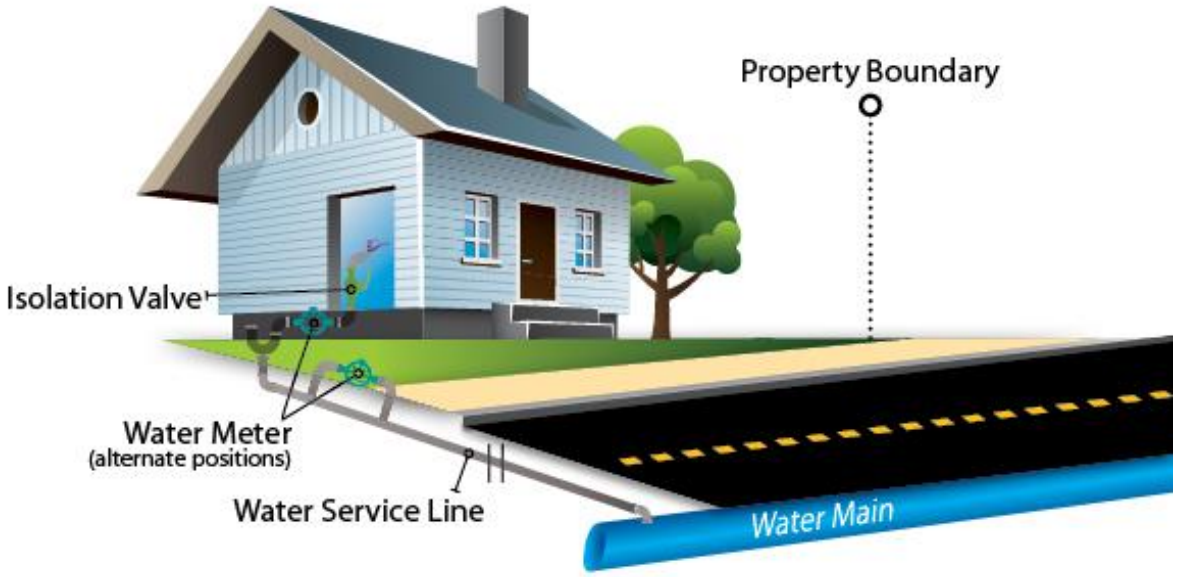
   > Learn more about your water quality and the importance of protecting our precious water sources in our annual water quality report {hyperlink if possible} or by calling {Utility Name} at {xxx-xxx-xxxx}.

3. It is also important for customers to understand how to reach the regulators who oversee the utility. Example text:

   > Our {Department of Health/Environment} is also a valuable source of information and can be reached at {State Primacy Agency Consumer Assistance Number}. For more information on drinking water in general, call the USEPA's Safe Drinking Water Hotline: (800) 426-4791.

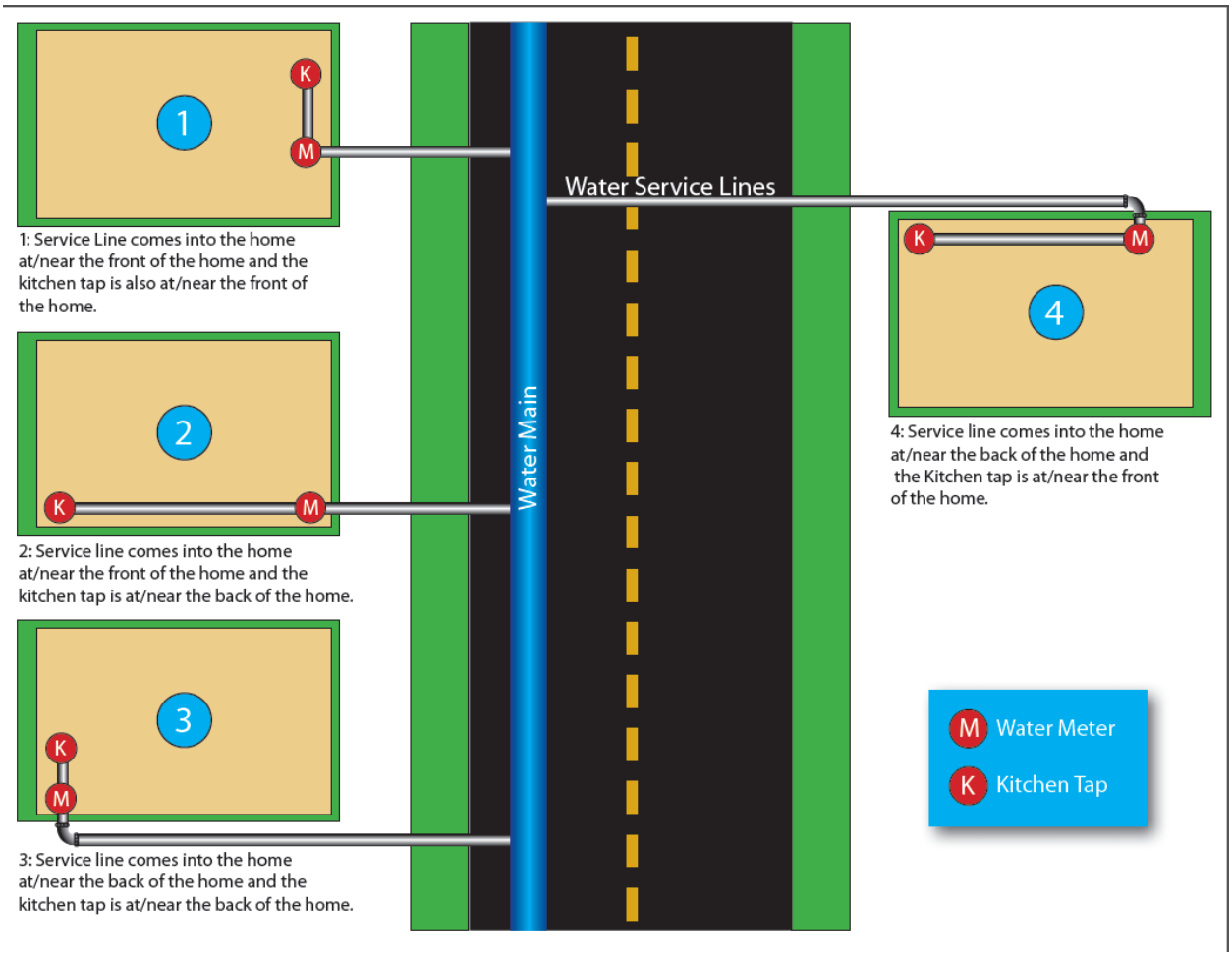
Sample Schematic: Residential Water Service Line

Your water service line is the pipe that connects the water main in the street to your household plumbing. The material of water service pipes can vary and some households still have lead service pipes.



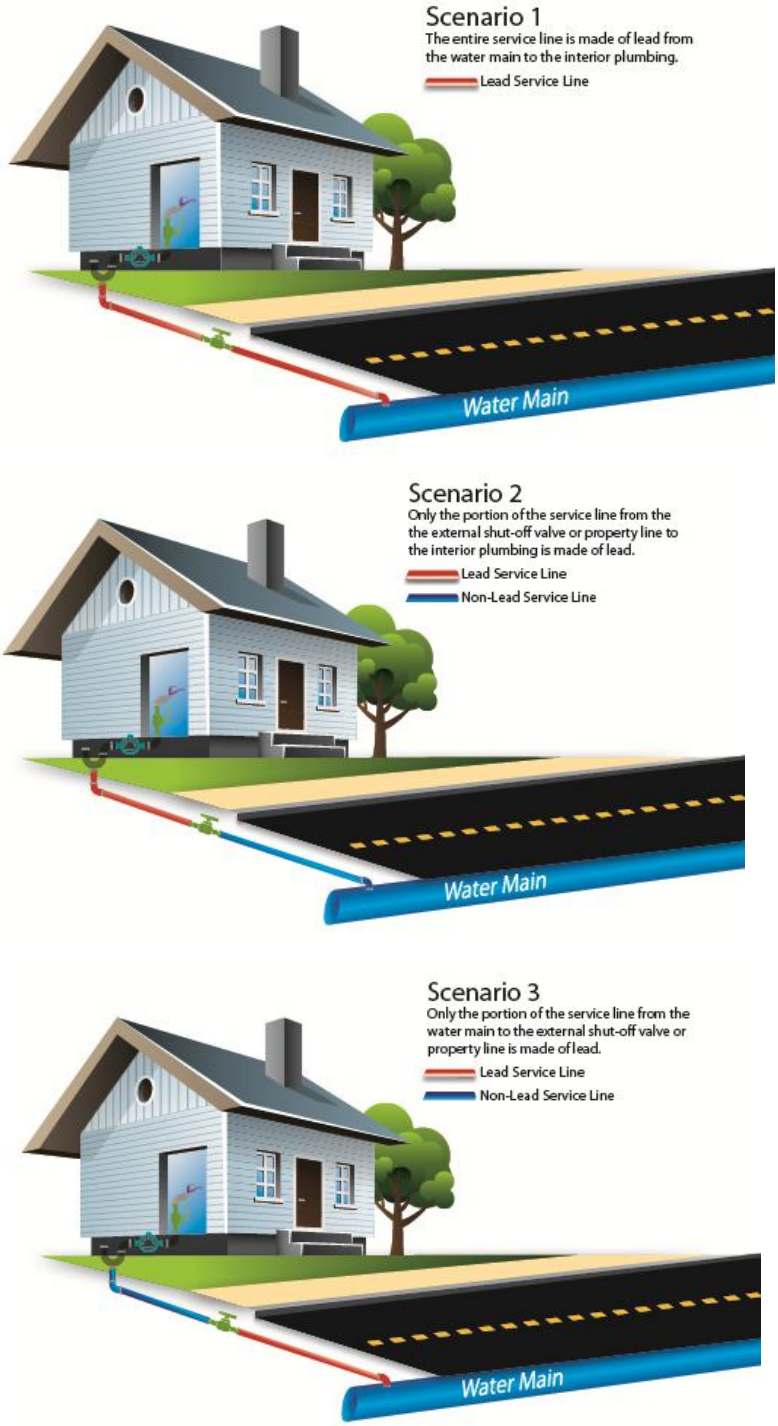
Where to Look for the Service Line[7]

Service lines typically enter a home in the basement or crawlspace. The following figure illustrates some common configurations.



[7] Graphic modeled after figures prepared by USEPA (2013), http://epa.gov/region5/water/chicagoserviceline/

Scenarios Where Lead Service Lines May Exist[8]



[8] Graphic modeled after figures prepared by USEPA (2013), http://epa.gov/region5/water/chicagoserviceline/

What Do Lead Service Lines Look Like?[9]

Lead service lines are generally a dull gray color and are very soft. You can identify them easily by carefully scratching with a key. If the pipe is made of lead, the area you've scratched will turn a bright silver color.

Do not use a knife or other sharp instrument and take care not to puncture a hole in the pipe.

Note: Galvanized piping can also be dull gray in color. A strong magnet will typically cling to galvanized pipes, but will not cling to lead pipes.

Lead service lines can be connected to the residential plumbing using solder and have a characteristic solder "bulb" at the end, a compression fitting, or other connector made of galvanized iron or brass/bronze.

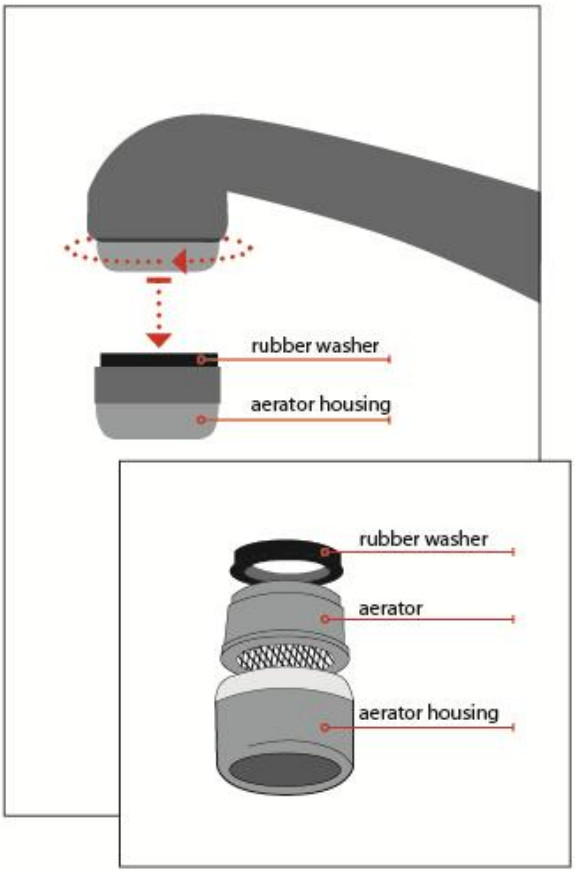
[9] USEPA (2013), http://epa.gov/region5/water/chicagoserviceline/

Faucet Aerators (also called screens)[10]

Routinely clean faucet screens. Sediment and metals can collect in the faucet screen located at the tip of your faucets. Replace screens that are in poor condition. New screens are available at local hardware stores.

To clear the faucet screen of debris:

1. Unscrew the screen.
2. Separate the individual parts.
3. Remove any sediment (mineral or rust build up) on the screen and other parts. If necessary, soak the parts in white vinegar for a few minutes and scrub with a brush.
4. Reassemble the screen parts and re-attach to faucet.



[10] Modified from DC Water, http://www.dcwater.com/waterquality/household_water_quality.pdf

Sample Homeowner Checklist for Lead Service Line Replacement

If you are concerned about lead levels in your home and you want to replace a lead service line, **replace the entire service line**. In doing so, consider the following list of actions:

- ☐ Determine if your service line is made of lead. For guidance, see {available fact sheet} or contact {Utility Name} at {xxx-xxx-xxxx}.
- ☐ Identify opportunities to incorporate lead service line replacement into larger projects (e.g., ongoing water main replacement program, home renovations, preparation of a home for re-sale).
- ☐ Contact {Utility Name} for information on permit requirements, specifications for service lines in your community, and assistance. Replacing the entire lead service line may require a collaborative effort with {Utility Name}.
- ☐ Obtain multiple written quotes from licensed plumbers for the replacement.
- ☐ Make sure all required permits are in hand prior to beginning work.
- ☐ Schedule lead service line replacement and make sure your plumber coordinates with {Utility Name}.
- ☐ Make arrangements for your plumber to access your interior plumbing when needed.
- ☐ Set aside or purchase enough water for anticipated uses during construction. You will not have water service in your home once your existing lead service line is disconnected and you will need three gallons per person per day.
- ☐ The field crew replacing your service line and your plumber will flush the service connection after the replacement. If your entire lead service line is replaced, your plumber should flush the service line using the faucet closest to where your service line enters your home. Your plumber should remove the faucet screen and open the cold water tap completely, letting the water flow for 30 minutes.
- ☐ Prior to using water inside the home for normal use, flush the service line as described above.
- ☐ You may consider purchasing a certified filter for water to be used for drinking and cooking, particularly if you are pregnant or have children under age six. {More info.}.

TIP: Hire a licensed plumber. It is always a good idea to get a quote in advance of hiring a professional plumber to do work in your home. Your water utility cannot recommend plumbers. Seek plumbers who are reputable and

Sample Letter: To Customers Affected by Main Rehabilitation or Replacement

Distribute information about an upcoming project and information about removing lead service lines and reducing lead in drinking water.

{Date}

{Address}

{Appropriate Salutation}

{Utility Name} is preparing to {replace} the water main that serves your home. We expect to begin work in the {xxxx} block of {street} in approximately 45 days. We anticipate that this project will proceed smoothly and will we make every effort to minimize any inconvenience to you during construction.

Our records indicate that the pipe from your home to the water main may be made of lead. Lead service lines can increase your risk of exposure to lead through drinking water and should be replaced if possible.

As part of this water main replacement, our contractor will replace with a {copper} service line the portion of the service line that we own, from the water main to your {water meter}. {Utility Name} strongly encourages you to replace the portion that you own, between {the meter} and your household plumbing at this time as well. If only one portion of the lead service line is replaced, your risk of lead exposure at the tap may temporarily increase. {Utility Name} has information available to help protect yourself and your family from this risk.

Information about lead service lines, as well as important information about the harmful effects of lead and steps you can take to protect against lead exposure, is available on our website at {website}. This information is particularly important if you are pregnant or have children under age six in your home.

If you have any questions about this project please visit our project website, {Project website}, or contact:

General Project Contact: {Point of Contact}
{Phone number, (available between xx:xx a.m. and xx:xx p.m.)}
{E-mail address}

Lead Service Line Replacement Contact: {Point of Contact}
{Phone number, (available between xx:xx a.m. and xx:xx p.m.)}
{E-mail address}

Sincerely,
{Appropriate Manager}
{Title}
{Utility Name}

Sample Door Hanger: Before Lead Service Line Replacement

The following is model text for a door hanger that can be distributed just prior to utility main replacement or rehabilitation.

{Utility Logo}

48-Hour Notice

{Utility Name} is replacing the water main on your block. This work may affect your property on_____[INSERT DATE].

- ☐ This work will temporarily affect your water service starting at _____ am/pm for approximately _____hours.
- ☐ We will be working in public space, but depending on the location of the property line, we may need to dig in your yard.
- ☐ We will be replacing or reconnecting the pipe on the public space. We will then need to flush your water service pipes. Please open the valve to your outside faucet and make sure the outside faucet is available to us.
- ☐ Other_____

For more information, please contact:

{Utility Name}'s Contractor: _____

{Utility Name} Project Manager: {Project manager's name}

24-Hour Customer Service Line: {Utility customer service line number}

{Utility Website}

Sample Door Hanger: After Replacement

The following is model text for a door hanger that can be placed at homes where main replacement, main rehabilitation, or other maintenance has disturbed a lead service line.

{Utility Logo}

IMPORTANT HEALTH NOTICE

{Utility Name} replaced a portion of the water service line to your home with copper pipe. Because the original pipe was made of lead, some lead may have been released into the water during construction. Please take the following steps to minimize your exposure to any lead that may have been released.

Flush all your faucets using these steps:

1. Remove faucet aerators from all cold water taps in the home.
2. Beginning in the lowest level of the home, fully open the cold water taps throughout the home.
3. Let the water run for at least 30 minutes at the last tap you opened (top floor).
4. Turn off each tap starting with the taps in the highest level of the home. Be sure to run water in bathtubs and showers as well as faucets.
5. Do not consume tap water, open hot water faucets, or use icemaker or filtered water dispenser until after flushing is complete.

You may also wish to use a home filter for water to be used for drinking and cooking, particularly if you are pregnant or have children under age six. More information about filters can be found under the header {Utility website header} at our website.

For more information, please contact:

{Utility Name} Project Manager: {Project manager's name}

24-Hour Customer Service Line: {Utility customer service line number}

More information about lead in service lines can be found under the header {Utility website header} at our website.

{Utility website}

Sample Briefing Paper for Elected Officials or Business Leaders

Example talking points in a meeting or briefing memorandum might include:

- {Utility Name} has an {xxx}-year history of providing reliable, cost-effective water services that meet all federal standards for public health, including compliance with the Lead and Copper Rule.

- We view protection of public health as a core part of our mission.

- Lead can cause a variety of adverse health effects when people are exposed to it. These effects may include delays in physical and mental development in babies and young children; deficits in the attention span, hearing, and learning abilities of children; and, increases in the blood pressure of some adults.

- Available research indicates that when lead service lines are disturbed, the amount of lead found in customers' drinking water may increase for weeks to months.

- During recent main rehabilitation/replacement, we have encountered lead service lines {frequently} in {describe portions of service area}.

- Based on our records and understanding of historic construction practice, we believe there are roughly {xxx} lead service lines in use in our service area and expect that {xxx} homeowners will receive notices regarding lead service lines in the course of capital projects planned for the coming year.

- Beginning {insert date}, we plan to identify and contact customers with lead service lines who will be affected by main rehabilitation / replacement construction:
    - encouraging these customers to work with us to undertake a full lead service line replacement in conjunction with our projects, and
    - providing information on lead service lines and the possible health risks of elevated exposure due to disturbance of lead service lines.

- It is beyond our authority to replace pipes on a homeowner's property. Consequently, service line replacement can cost individual homeowners {$1,500 to $7,000}. To assist homeowners we are:

    - {INSERT UTILITY-SPECIFIC CONTENT, e.g., (Directing customers needing financial aid to contact the appropriate organization for funding assistance; ...)}

- We are recommending that customers with lead service lines affected by construction activity who do not complete lead service line replacement:
    - run water from the tap they are going to use for {xx} minutes when drawing water for drinking or cooking, or
    - purchase and use a certified water filter.
- We have set up a special webpage with information about lead in service lines at {Insert website}. Also, we have a dedicated point-of-contact for customers, {Name, contact information}.
- We ask for your support in our efforts to inform and educate our community's citizens about lead service lines. We also ask for your assistance and creative ideas for how to make this investment more affordable for them.

Additional Messages: Lead Basics

Lead as a Potential Health Risk[11]

Message One: Lead can be harmful to humans when ingested or inhaled.

- Lead has been shown to cause delays in physical and mental development.
- Pregnant women are at particular risk for lead exposure.
- Children six years old and younger are very susceptible to the effects of lead.
- Long-term exposure to lead can affect blood pressure and kidney function.

Routes of Exposure

Message One: Everyone is exposed to "background levels" of lead, given its widespread distribution.

- The most common route of lead exposure is from soil, paint chips or dust.

Message Two: One way humans are exposed to lead is through drinking water.

- Infants who consume mostly mixed formula can receive 40 to 60 percent of their exposure to lead from drinking water.

Sources of Lead in Drinking Water[12]

Lead levels in your drinking water are likely to be highest if:

- your home has **faucets or fittings of brass** which contains some lead, or
- your home or water system has **lead pipes**, or
- your home has **copper pipes with lead solder**, and
  - you have naturally soft water, or
  - water often sits in the pipes for several hours.

Lead in Drinking Water

Message One: The amount of lead in drinking water is typically very low.

- Water in streams and lakes is essentially lead-free and drinking water treatment and distribution do not typically add lead to drinking water.

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[11] USEPA, *Learn About Lead*, http://www2.epa.gov/lead/learn-about-lead#effects

[12] USEPA, *Actions You Can Take to Reduce Lead in Drinking Water,* http://water.epa.gov/drink/info/lead/lead1.cfm

- Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in lead service lines and household plumbing.
- These materials include lead-based solder used to join copper pipe, brass and chrome-plated brass faucets, and in some cases, pipes made of lead that connect your house to the water main (service lines).

Message Two: {Water Utility} therefore has taken proactive steps to prevent corrosion from occurring.[13]

- We have been treating your water to minimize its corrosiveness for XX years.
- The corrosion control treatment is safe for human health and helps build a protective coating around pipes.
- Drinking water also contains dissolved minerals that, over time, form a mineral scale or coating on the inside of pipes and fixtures.
- Once this coating forms, there is a protective barrier between any metal in the plumbing and the water.

Message Three: Regulatory measures taken during the last two decades have greatly reduced human exposure to lead in drinking water.

- In 1974, Congress passed the Safe Drinking Water Act. This law requires the EPA to determine the level of contaminants in drinking water at which no adverse health effects are likely to occur with an adequate margin of safety.
- In 1991, the EPA published a regulation to control lead and copper in drinking water. This regulation is known as the Lead and Copper Rule (also referred to as the LCR or 1991 Rule). The EPA revised the regulation in 2000 and 2007.
- Congress has also set limits on the amount of lead that can be used in plumbing products. These requirements were first enacted in 1986 and then reduced to even lower levels in 2011.

Message Four: We regularly monitor the drinking water in the distribution system for lead.

- The EPA sets an action level for lead at 15 micrograms per liter. At least 90 percent of samples taken must be less than 15 micrograms per liter.
- Your water has {INSERT SYSTEM-SPECIFIC INFORMATION (e.g., "never exceeded", "not exceeded in last x years," etc.} this action level.

[13] USEPA, Factsheet on Lead in Drinking Water, http://water.epa.gov/lawsregs/rulesregs/sdwa/lcr/fs_consumer.cfm

Sample Frequently Asked Questions and Answers

What is lead?
Lead is a naturally occurring metal that is harmful if inhaled or swallowed. Lead can be found in air, soil, dust, food, and water.

How can I be exposed to lead?
The most common source of lead exposure is from paint in homes and buildings built before 1978. Lead-based paint and lead-contaminated dust are the main sources of exposure for lead in U.S. children. Lead-based paints were banned for use in housing in 1978.

Although the main sources of exposure to lead are ingesting paint chips and inhaling dust, lead also can be found in some household plumbing materials and some water service lines. The Environmental Protection Agency estimates that 10 to 20 percent of human exposure to lead may come from lead in drinking water. Infants who consume mostly mixed formula can receive 40 to 60 percent of their exposure to lead from drinking water.

What are the risks of lead exposure?
Lead can cause a variety of adverse health effects when people are exposed to it. These effects may include increases in the blood pressure of some adults; delays in normal physical and mental development in babies and young children; and, deficits in the attention span, hearing, and learning abilities of children.

How does lead get into my drinking water?
Lead is rarely found naturally in our source water or in the treated water flowing through the distribution system. More commonly, lead leaches into water over time through corrosion—a dissolving or wearing away of metal caused by a chemical reaction between water and your plumbing. Lead can leach into water from pipes, solder, fixtures, faucets (brass) and fittings. The amount of lead in your water depends on the types and amounts of minerals in the water, how long the water stays in the pipes, the water's corrosivity, and water temperature.

How will I know if my drinking water has lead in it?
{Utility Name} regularly tests the water at a selected number of high-risk homes. If more than {insert number} samples show lead at above 15 micrograms per liter, we notify all of our customers and provide instructions on what to do to limit lead exposure as required by {insert state primacy agency name}.

You can also have your water tested for lead. Since you cannot see, taste, or smell lead dissolved in water, testing is the only sure way of telling whether there are harmful

quantities of lead in your drinking water. A list of certified laboratories is available from your state or local drinking water authority (contact labs directly for information on cost and sampling bottles).

Is my home at risk for lead plumbing?
The EPA defines high-risk homes as follows:

- Homes with a lead service line that connects the water main (located under the street) to your home's internal plumbing.
- Homes with copper pipe and lead solder built after 1982 and before 1988.
- Homes with lead pipes.

In 1986, Congress enacted the "lead ban," which stated that not only public water systems, but also anyone else who intends to install or repair drinking water plumbing connected to a public water system, must use "lead free materials." As a result, homes built in or after 1988 are far less likely to have lead solder.

I'm concerned my home may have lead plumbing. How can I find out?
If you're concerned your home plumbing may contain lead pipes (lead is a dull gray metal that is soft enough to be easily scratched with a house key) or if you see signs of corrosion (frequent leaks, rust-colored water), you may want to have your water tested by a state-certified laboratory. Testing is the only way to confirm if lead is present or absent. For more information on testing your water, you can call {insert utility name, local health agency contact and / or state primacy agency contact as well as appropriate phone numbers}.

Will my water utility replace my lead service line?
Lead services lines on a customer's property are not part of the public water system and are the responsibility of the property owner. Lead service lines are owned and installed at the expense of the property owner {insert available assistance if applicable}. {Utility Name} strongly advises that you contact a licensed plumber for work on your service line. {Include actions utility is undertaking to replace the portion of lead service lines that it owns.}

How can I reduce my exposure to lead in my drinking water?
There are many steps you can take to reduce your exposure to lead in drinking water, but if you have lead service lines, the best step you can take is to have them replaced in conjunction with {Utility Name}'s lead service line replacement plan. In addition:

- **Run your water to flush out lead.** If it hasn't been used for several hours, run the water for three to five minutes {or longer if appropriate given construction practices in the communities served} to clear most of the lead from the water. (To conserve

water, remember to catch the flushed tap water for plants or some other household use such as cleaning.)

- **Always use cold water for drinking, cooking, and preparing baby formula.** Never cook with or drink water from the hot water tap. Never use water from the hot water tap to make formula.

- **Do not boil water to remove lead.** Boiling water will not reduce lead.

- **Periodically remove and clean the faucet screen/aerator.** While removed, run the water to eliminate debris.

- **You may consider investing in a home water treatment device or alternative water source.** When purchasing a water treatment device, make sure it is certified under NSF/ANSI 53 to remove lead. Search for certified products at NSF International (800-NSF-8010) or Water Quality Association (630-505-0160).

- **Identify and replace plumbing fixtures containing lead.** Brass faucets, fittings and valves may leach lead into drinking water. Products sold after Jan. 4, 2014, must by law contain very low levels of lead.

- **Have a licensed electrician check your wiring.** Your home electrical system may be attached to your service line or elsewhere in your plumbing. If this connection is electrified, it can accelerate corrosion. Check with a licensed electrician to correct ground faults and evaluate your local electric code to determine if your wiring can be grounded elsewhere. DO NOT attempt to change the wiring yourself because improper bonding or grounding can cause electrical shock and fire hazards.

PDF and Translations

"Is there lead in my drinking water?"

Office of Water (4606 M)
EPA 816-F-05-001
February 2005

English PDF File (2 pp, 1.2 M)
En Español (PDF 2 pp, 301 K)

Should I test my children for exposure to lead?

Children at risk of exposure to lead should be tested. Your doctor or local health center can perform a simple blood test to determine your child's blood-lead level.

Additional information

Read {Utility Name}'s annual consumer confidence report (CCR) {hyperlink or date of

publication} to find out how we are working to reduce levels of lead in drinking water and other information about your drinking water. Call {xxx-xxx-xxxx} if you have any questions.

You can also contact {public health department} or talk to your doctor about reducing your family's exposure to lead.

Hotlines

{Insert local public health agency contact information.}

{Insert state primacy agency contact information.}

National Lead Information Center: 1-800-424-LEAD (or visit: www.epa.gov/lead)

Appendix B – Lead Messages When in Exceedance of Action Level

Available regulatory guidance for drinking water systems focuses on when a drinking water utility experiences an exceedance of the Lead Action Level of 15 ppb in more than 10 percent of its LCR compliance monitoring samples. When this occurs, the utility must undertake a Public Education (PE) program to inform customers about lead in drinking water. The following guidance is from the EPA and provides an outline of the information a utility is required to include in its messaging during a PE program.

Sources of lead

- What is lead?
- Where does the lead in drinking water come from?
- Include information on home/building plumbing materials and service lines that may contain lead.
- What are other important sources of lead in addition to drinking water? (e.g., paint)

What happened? What is being done?

- Why are there high levels of lead in the drinking water (if known)?
- What is the water system doing to reduce the lead levels in homes in this area?
- Does your system have lead service lines?
- How can customers find out if their homes have lead service lines?
- Is there a program to replace lead service lines? Are there any special incentives offered?
- Your system may also want to provide information on the history of lead levels in tap samples:
    - Have they declined substantially over time?
    - Have they been low and risen recently?
    - Is there a known reason for any change?

TIP: Any utility found in exceedance of the EPA Action Level for lead must comply with the EPA's requirement for Public Education, as part of the LCR.

For complete guidance on required messaging and delivery methods if an exceedance occurs, please refer to the EPA's "Implementing the Public Education Provision of the Lead and Copper Rule."

Source: USEPA, http://water.epa.gov/lawsregs/rulesregs/sdwa/lcr/

Guidance utilities must provide customers on steps they can take to reduce their exposure to lead in your water

- Encourage running water to flush out the lead.
- Explain concerns with using hot water and specifically caution against the use of hot water for baby formula (because lead dissolves more easily in hot water).
- Tell customers that boiling water does not reduce lead levels.
- Discuss other options customers can take to reduce exposure to lead in drinking water, such as alternative sources or treatment of water.
- Suggest that parents have their child's blood tested for lead.
- Tell customers how to get their water tested.
- Discuss lead in plumbing components and the difference between low lead and lead free.

Appendix C - Planning Effective Public Communication

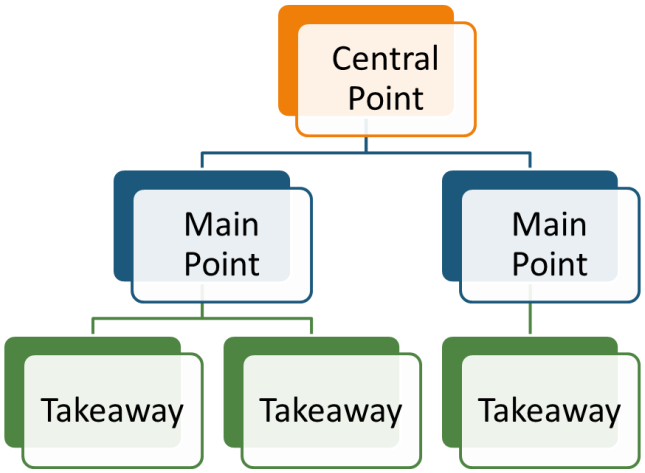
Adequate planning is critical for effective communication. Planning efforts should both align new communication initiatives with an organization's strategic communications objectives and help it answer basic implementation questions. Plans must identify the internal and external target audiences of communications efforts, the information to be communicated, communications channels and timelines. AWWA offers many resources at its website for building and executing a strategic communications plan.

Resources:

Public Communications Toolkit

Message Mapping as a Tool for Risk Communications

Message maps are used for a variety of purposes in communications and are an ideal way to refine and localize your lead-in-drinking-water messaging program. A message map is a guide for displaying detailed, deliberately organized responses to anticipated questions or concerns. Message maps are particularly well-suited for crisis communications because they offer an effective visual aid that provides an "at-a-glance" view of your messages for high concern or controversial issues, making it easy for a multitude of staff to learn and use the messages consistently and without fail.



Developing and using message maps achieves several important risk communication goals. They help:

- Organize your thought process so messages are prepared in response to anticipated questions and concerns.
- Develop key memorable messages and supporting information within a clear, concise, transparent, and accessible framework.
- Provide easy-to-follow guidance for spokespersons.
- Ensure there is one central location for consistent messages.

- Ensure an organization speaks with one voice.

Messages that convey risk or define an issue affecting public health must be crafted and delivered carefully. It is imperative that your messages:

- Are clear and concise;
- Compel or encourage simple actions;
- Communicate the risks from all sources of lead with a particular emphasis on drinking water as an increasingly significant source; explain simply and thoroughly how to take action and reduce risk; and
- Meet the communication needs of your entire community.

External Communications Considerations

Special Audiences

Below are some of the audience segments that will be of concern in lead communications. Note that in the event of an LCR exceedance, there are specific requirements for reaching out to certain groups.

General Public – This includes everyone in your service area who may be affected by lead in water or an action level exceedance.

High-Risk Groups – Those particularly vulnerable to exposure to lead in drinking water include children 6 years of age and younger, infants, and pregnant women. Your public education (PE) program should target agencies and organizations that serve high-risk groups (e.g., child care facilities, WIC programs), deliver materials and messages that make the risks clear, and provide actionable recommendations for how to protect oneself and one's children from the risks of lead in drinking water.

Different Language Communities – If significant portions of the population in your community speak languages other than English, the PE materials must contain information in the appropriate language(s) regarding the importance of the notice or contact information where persons can obtain a translation or assistance. Don't overlook any non-English media outlets for message dissemination.

Low-Literacy Audiences – Some individuals in your community may possess limited reading skills. To reach these individuals, print materials must be written as simply and concisely as possible and should contain graphical representations of key messages and actions. Low-literacy groups are more likely to rely on non-print forms of communication, such as TV or radio Public Service Announcements (PSAs), to receive information about critical health topics.

Non-bill Paying Customers – Some people who drink your system's water may not receive a water bill (e.g., commuters working within the water system area, but living outside of it; residents in multi-unit dwellings who may not pay for water; restaurant owners who use the water).

The Power of Partnerships

Collaborating with other organizations and individuals is often a smart communications strategy for water utilities. In times of crisis, community partners with established, trusted relationships with the audiences you need to reach will play a critical role in efficient message dissemination. They can also mitigate or extinguish any negative biases a particular audience has against water providers. These partners may include:

- city, county, and state government officials including representatives of the city, county, or municipal council
- the mayor's, city administrator's, or county commissioner's office
- city or county government agencies including the public affairs, health, and environmental protection departments, and local agencies responsible for lead screening programs
- representatives of local school systems
- representatives of hospitals and/or clinics
- representatives of community organizations that the LCR requires water systems to reach in the event of an exceedance
- members of civic groups such as the Chamber of Commerce, neighborhood associations (HOAs), local chapters of community service organizations, and environmental and health advocacy groups
- private sector leaders such as child care centers and health care providers

Working with the Public Health Community

Collaborating with public health officials is crucial to developing an effective lead outreach effort in normal times and during a crisis. Different parts of the health department, including maternal and child health, community health, and environmental health, can assist in developing your materials and conducting effective outreach.

Local public health agencies often know how to reach specific segments of your target audience, because they may have had to previously conduct a similarly targeted outreach campaign. Connecting your lead communications effort to the health department's lead poisoning prevention, water quality, and broader environmental programs, can seed the kind of holistic lead education program that communities require.

Recognize that the public health community is a much larger group than just the local government agencies. Local universities, community-based organizations, health care providers and insurers, nurse practitioners, and many others create the network of care that surrounds your community. You should try to access as many of these organizations as you can to determine the most effective communication channels and outreach tactics for your lead communications. The more allies you have, the better.

Chances are that public health officials who regularly work on lead issues already have contact lists for health care providers, schools, child care organizations, and social service providers with close ties to women, infants, and children in your community. Learn from what they already know. In addition, explain your role in monitoring for and communicating about lead and educate health officials and others about how lead enters drinking water, how the water system monitors for it, and steps one can take to minimize lead exposure.

Develop a relationship and response plan with your local health department so that you have an agreed upon process for sharing information about lead in drinking water risks and communicating with the public. Consumers may call the health department for information about the health risks described in your materials; if you coordinate in advance, you can ensure that, regardless of who they call, your public hears consistent messages that will help them understand the risks and how to manage them.

The LCR requires that water systems must have direct contact with public health officials in the event of an exceedance. Establishing and maintaining relationships with these individuals as you plan your program will make it easier to communicate with them if your utility experiences an exceedance.

Internal Communications Considerations

Obtain Utility Leadership Support

The senior leadership of a utility may include the General Manager or President, Deputy General Manager or Vice President, Director of Operations, Director of Finance, Director of Engineering, Director of Laboratory and others. These leaders should be fully prepared and trained to speak about lead service lines and potential risks of lead in water. As leaders of the organization, both customers and employees expect them to set the tone and model the behavior for all staff. Also, some members of leadership may be contacted by their counterparts in local government, or by business leaders, regulatory officials, or even customers, who will all expect them to be knowledgeable on the topic.

To frame the issue of lead in drinking water with the appropriate level of priority and importance, the utility leadership must be fully on board. As appropriate, leadership team

members should understand and be prepared to communicate to utility staff, board members, and other stakeholders:

- the nature of the lead concerns and the actions the utility plans to take
- distinct roles each department has in the success of the program, so that all employees understand their stake and the expectation
- implementation plan and timeline for communications and operations
- how success will be evaluated, on a department level and individual level.

A cross-functional steering committee should clearly identify department and individual roles and expectations. The committee must ensure that everyone has the information and resources necessary to be successful.

Along with the steering committee, a utility's communications staff (e.g., public affairs, communications and public relations, or community relations) will likely lead the strategy and execution of a utility's lead communications program. That said, all employees of a utility, whether or not they are directly involved in the task of communicating with the public, will have a role when the time comes to talk about lead service lines and potential risks of lead in water. For a utility without dedicated communicators on staff, it will be even more critical for all employees to be able to communicate to customers regarding the task at hand. A utility should consider the following groups of employees and the influence they may have on messaging, response, and customer service or perceptions.

Call Center Employees

Call center employees, or customer service representatives, have a key role in lead communications, as they are likely the primary way in which customers interact with the organization. It is imperative that these staff members are trained on lead messaging and understand fully the sensitivity of the issue. Some utilities may find it most effective to train just one or two call center employees on lead communications, and direct all calls on the subject matter to them. The advantage of this approach is a utility can select the staff most capable and best suited to be communicating about the topic and conserve time and resources. The disadvantage of this approach is the risk of counting on one or two people to always be available when the call comes in. It could be challenging for a utility if one or both are absent in any given day.

Field Service Representatives

Field service representatives, or those members of your staff who spend the bulk of their time in your customers' neighborhoods, are also key employees to consider for lead communications. Customers will see a uniformed representative of your company and

expect them to be able to answer questions. To make sure your field service representatives are ready:

- Utilities should train all field service representatives on selected key messages.
- Utilities should provide each field service representative with a business card (either paper, laminated, or even magnetized) containing general information should a customer have questions. The business card should include the direct line of one or more individuals trained to answer the questions with hours of availability, a direct website link for after hours, and, possibly, links and phone numbers to other important local resources.

Landscape Orientation

{Utility Logo}

For questions pertaining to lead in your water, or any water quality question, here are some resources:

{Utility Website}, and click on {Website Header}

Call {Direct Line of Designated Personnel}

Call {24-Hour Customer Service Line}

National Lead Information Center: 800-424-LEAD

EPA Safe Drinking Water Hotline: 800-426-4791

Portrait Orientation

{Utility Logo}

For questions pertaining to lead in your water, or any water quality question, here are some resources:

{Utility Website}, and click on {Website Header}

Call {Direct Line of Designated Personnel}

Call {24-Hour Customer Service Line}

National Lead Information Center: 800-424-LEAD

EPA Safe Drinking Water Hotline: 800-426-4791

Operations Staff

The operations staff is also likely to be approached by customers, as they are often working on service lines and may also be involved with a lead line replacement project. For that reason, it is important that these employees be trained and fully briefed on the risks of working with lead service lines and appropriate safety measures. In addition, they need to have some training and resources made available to them for communicating about lead to customers in case they are approached. It may make sense for a utility to designate one or two employees as the points of contact for lead issues for operations staff and to provide informational cards to operations personnel.

Board of Directors/Elected Officials

Examples of water and wastewater system governing bodies include local water boards, commissions, city councils, and regional water authorities. Within these governing bodies are local decision-makers who need to be involved early and frequently in the process. If governing boards are involved late in the process or if their input is not sought, a decision made by water system staff is more likely to be rejected or re-evaluated. In some cases, this disconnect may result in confused or contrary messaging to the community. A key aspect of early involvement is to obtain direction from the water system's governing board on the utility's goals and performance objectives for the outreach program and operational decisions. Because governing bodies must be responsive to other governmental agencies, early engagement of influential agencies is important. Examples include:

- State primacy agency
- City or county manager
- Local elected officials
- Public utility commission
- Building code officials
- Local emergency coordinator

These stakeholders are knowledgeable about the water system and its mission and should not be surprised by the utility's lead mitigation efforts. Informed officials and governing body leaders can support the water system in its risk communication plan by identifying considerations that warrant evaluation and disclosure and by communicating accurate messages to their constituencies. Their input and involvement in the communications process provides additional credibility to the utility's approach.

All Other Employees

With call center, field and operations staff, as well as senior leadership trained on messaging, a utility is prepared to answer the calls and proactively communicate about lead in drinking water. This does not, however, mean that the rest of the staff should be uninformed. All employees, regardless of their role, are ambassadors and spokespersons for the organization. They may be soccer coaches, church volunteers, or school leaders in their spare time and may also be approached by community members about the issue. Therefore, it is important that all staff is briefed about the sensitivity of lead communications and trained on the appropriate messaging. These briefings can occur as part of monthly or weekly staff meetings or through a series of special meetings.

Each group above has an opportunity through its discrete function to impact the success of this outreach; that is why it is so important for a utility to take a holistic approach and be as inclusive as possible when planning internal training on lead service lines.

Build on Current Communication Practices

This guide is intended to help water systems address emerging communication challenges associated with lead service lines, building upon existing communication practice. As you employ this guide, be sure to integrate the selected practices and messages into your broader communications efforts.

Currently, lead communications typically focus on lead concentrations in drinking water, the health risks associated with lead, what the utility is doing to control lead levels in drinking water, and what customers can do themselves to reduce lead exposure. There is already extensive guidance and supporting materials for communication activities on these aspects of communicating about lead in drinking water. The gap in current lead communications is when service lines are disrupted and/or replaced and the need for specific guidance to customers about flushing their lines following that type of work.

Construction Activities

Drinking water utilities have established processes for engaging customers in the process of capital improvement projects. Utilities engage customers through:

1. Media outreach associated with major capital improvement planning activities,
2. Notification of upcoming main rehabilitation and replacement affecting their neighborhood,
3. Providing information about possible water quality or aesthetic issues associated from construction activity,
4. Direct contact with individual customers affected by construction activities, and
5. Providing customers points of contact either to specific staff or through a customer service center.

Mandatory Lead Service Line Replacement

Mandatory lead service line replacement may be required of some water systems under the current Lead and Copper Rule. The Lead and Copper Rule lead service line replacement requirements include specific provisions for customer notification. While these provisions are not required during routine infrastructure replacements, they provide a framework for

notification of individual customers about such replacements. In general, these provisions require utilities to:

- Provide notice by mail to resident(s) of affected buildings at least 45 days prior to commencing with the partial replacement of a lead service line. The notice must:
    - explain that residents may experience a temporary increase of lead levels in their drinking water,
    - provide guidance on measures consumers can take to minimize their exposure to lead, and
    - inform the resident(s) served by the line that the utility will, at its own expense, collect a sample from each partially-replaced lead service line that is representative of the water in the service line for analysis of lead content within 72 hours after the completion of the partial replacement of the service line.
- Report the results of the analysis to the owner and the resident(s) served by the line within three business days of receiving the results.
- Use other distribution methods (for instance in multi-family dwellings, post the information at a conspicuous location).

Financial Assistance

In many communities, financial aid programs are available for low-income and/or fixed-income households to pay for utilities and make basic plumbing improvements. Where such financial aid programs are available, water systems make this information available through customer call centers, fact sheets, bill stuffers, website content, newsletters, and awareness building through partner organizations.

Routine Work Channels

Drinking water utilities interact with customers, plumbers, other utilities, and contractors on a daily basis. Thus, most utilities have standard practices and specific points of contact, and/or protocols for routine activities. You may find it helpful to use these established channels to provide basic information about lead service line activities as well as the roles and responsibilities of the utility, the customer, property owners, and other entities.

Appendix D - Resources for Further Exploration

American Water Works Association
http://www.awwa.org

CDC's Healthy Homes and Lead Poisoning Prevention Program
http://www.cdc.gov/nceh/lead/about/program.htm

CDC's Childhood Lead Poisoning Data, Statistics, and Surveillance
http://www.cdc.gov/nceh/lead/surv/surv.htm

U.S. Environmental Protection Agency
http://www.epa.gov/safewater/lead/index.html

Implementation of the Lead and Copper Rule -
http://www.epa.gov/safewater/lcrmr/implement.html

Product Standards
http://www.nsf.org

Hotlines:

National Lead Information Center: 800-424-LEAD

EPA Safe Drinking Water Hotline: 800-426-4791

Appendix 5

Lead Informational Notice

Lead Informational Notice

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Dear Water Customer: Today's Date:_____

This notice contains important information about your water service and may affect your rights. We encourage you to have this notice translated in full into a language you understand and before you make any decisions that may be required under this notice.

Diese Mitteilung beinhaltet wichtige Informationen über Ihre Wasserversorgung und könnte Ihre Rechte beeinflussen. Wir bitten Sie, dass Sie diese Mitteilung vollständig in eine Sprache übersetzen lassen, die Sie verstehen, bevor Sie eventuelle Entscheidungen treffen, welche im Zusammenhang mit dieser Benachrichtigung erforderlich sind.

Ang abisong ito ay naglalaman ng mahalagang impormasyon tungkol sa iyong serbisyo sa tubig at maaaring makaapekto sa iyong mga karapatan. Hinihikayat namin kayo na isalin nang buo ang abisong ito sa wikang naiintindihan ninyo at bago kayo gumawa ng anumang mga desisyon na maaaring kailanganin sa abisong ito.

આ સૂચનામાં તમારી પાણીની સેવા વિશે મહત્વપૂર્ણ માહિતી શામેલ છે અને તમારા અધિકારોને અસર કરી શકે છે. અમે તમને પ્રોત્સાહિત કરીએ છીએ કે તમે આ સૂચના હેઠળ જરૂરી હોય તેવા કોઈપણ નિર્ણયો લો તે પહેલાં તમે આ સૂચનાને તમે સમજો છો તે ભાષામાં સંપૂર્ણ ભાષાંતર કરો.

Niniejsze zawiadomienie zawiera ważne informacje na temat Państwa przyłącza wodociągowego i może mieć wpływ na Państwa prawa. Przed podjęciem jakichkolwiek decyzji, które mogą być wymagane na mocy niniejszego zawiadomienia, zachęcamy Państwa do przetłumaczenia całości niniejszego zawiadomienia na język, który będzie dla Państwa zrozumiały.

يحتوي هذا الإشعار على معلومات مهمة حول خدمة المياه لديك، وقد يؤثر على حقوقك. قبل اتخاذ أي قرارات قد تكون مطلوبة بموجب هذا الإشعار فإننا نشجعك على ترجمته بالكامل إلى لغة تفهمها.

اس نوٹس میں آپ کی پانی کی سروسز سے متعلق اہم ترین معلومات موجود ہیں اور یہ آپ کے حقوق کو متاثر کر سکتا ہے۔ ہم آپ کو ترغیب دیں گے کہ آپ اس نوٹس کا مکمل طور پر اس زبان میں ترجمہ کروائیں جو آپ سمجھتے ہوں اور ممکن ہے کہ آپ کے کوئی فیصلہ لینے سے قبل اس نوٹس کے تحت یہ درکار بھی ہو۔

Este aviso contiene información importante sobre su servicio de agua y puede afectar sus derechos. Lo animamos a que traduzca este aviso a un idioma que comprenda antes de tomar cualquier decisión que pueda ser necesaria en virtud del mismo.

이 통지서에는 귀하의 권리에 영향을 미칠 수 있는 수도 서비스에 관한 중요한 정보가 제시되어 있습니다. 이 통지서에서 요구하는 결정을 내리기 전에 이 통지서를 귀하가 이해할 수 있는 언어로 번역하시기 바랍니다.

本通知包含有关您的供水服务的重要信息，可能会影响到您的权利。在您做出本通知所要求的任何决定之前，我们鼓励您将本通知完整地翻译成您可理解的语言。

Lead Informational Notice

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Our water system will soon begin a water line maintenance and/or construction project that may affect the lead concentrations in your drinking water. Lead, a metal found in natural deposits, is harmful to human health, especially young children, and pregnant women. It can cause damage to the brain and kidneys and can interfere with the production of red blood cells that can carry oxygen to all parts of your body. The most common exposure to lead is swallowing or breathing in lead paint chips and dust. However, lead in drinking water can also be a source of lead exposure. In the past, lead was used in some water service lines and household plumbing materials. Lead in water usually occurs through corrosion of plumbing products containing lead; however, disruption (construction or maintenance) of lead service lines may also temporarily increase lead levels in the water supply. This disruption may be sometimes caused by water main maintenance/replacement.

The purpose of this notice is for informational purposes only. While it's not known for certain whether this construction project will adversely affect the lead (if present) plumbing in and outside your home, below describes some information about the project and some preventative measures you can take to help reduce the amount of lead in drinking water.

Project Start Date:_____ Project expected to be completed by:_____

Project location and description:_____

_____

_____

What you can do to reduce lead exposure in drinking water during this construction project:

- *Run your water to flush out lead.* If the plumbing in your home is accessible; you may be able to inspect your own plumbing to determine whether you have a lead service line or lead solder. Otherwise, you will most likely have to hire a plumber.
  - If you do not have a lead service line, running the water for 1 – 2 minutes at the kitchen tap should clear the lead from your household plumbing to the kitchen tap. Once you have done this, fill a container with water and store it in the refrigerator for drinking, cooking, and preparing baby formula throughout the day.
  - If you do have a lead service line, flushing times can vary based on the length of your lead service line and the plumbing configuration in your home. The length of lead service lines varies considerably. Flushing for at least 3 – 5 minutes is recommended.
- *Use cold water for drinking, cooking, and preparing baby formula.* Do not cook with or drink water from the hot water tap; lead dissolves more easily into hot water. Do not use water from the hot water tap to make baby formula.
- *Look for alternative sources or treatment of water.* You may want to consider purchasing bottled water or a water filter that is certified to remove "total lead".
- *Clean and remove any debris from faucet aerators on a regular basis.*
- *Do not boil water to remove lead. Boiling water will not reduce lead.*
- *Purchase lead-free faucets and plumbing components.*
- *Remove the entire lead service line.*
- *Test your water for lead.* Call us at: 815-895-3545 to find out how to get your water tested for lead. While we do not do the testing, we can provide a list of laboratories certified to do the testing. Laboratories will send you the bottles for sample collection. Please note that we are not affiliated with any laboratory, and they will charge you a fee.
  - If test results indicate a lead level above 15 ug/L, bottled water should be used by pregnant women, breast-feeding women, young children, and formula-fed infants.

Appendix 6

Customer Flushing After Lead Service Replacement

Appendix D

Customer Flushing After Lead Service Line Replacement

(Appendix D)

Customer Flushing After Lead Service Line Replacement

The replacement of lead service lines may temporarily increase lead concentrations in drinking water due to the release of metal from scale on pipes in the home that have not been replaced. The lead concentration should decrease after time. The contractor has flushed the new service line to your home. It is strongly recommended that the interior plumbing also be flushed now that that the new service line is installed. See the flushing procedure below that is recommended by the American Water Works Association.

Instructions for Customer Flushing of Interior Plumbing

1. Find all the faucets that will drain, including the basement and all floors in your house.

2. Remove aerators and screens whenever possible, including the shower heads, from all faucets you plan to flush.

3. Include the laundry tubs, hose-bibs, bathtubs, and showers as flushing points.

4. After all the aerators are off, open the faucets in the basement or lowest floor in the house. Leave all faucets running at highest rate possible, using cold water.

5. After the faucets are all open in lowest floor, open the faucets on next highest floor of the house. Continue until faucets are open on all floors.

6. After all faucets are opened, leave the water running for at least 30 minutes.

7. After 30 minutes, turn off the first faucet you opened and continue to turn off other faucets in the same order you turned them on.

8. Clean aerators/screens at each faucet. You may need to replace screens/aerators if too old or worn.

Water Testing Following Replacement

Approximately one month after service line replacement, collection of a sample for lead testing is recommended. The sample should be a first-draw sample after water has not been used for at least 6 hours. The sample must be collected from a tap used frequently inside the home, preferably from the kitchen. Collect the sample with the aerator on, at maximum flow, and in a wide-mouth sample bottle.

As a precaution, until the sample is collected and analyzed, the customer should do a mini-flush of premise plumbing by running tap water each morning or when the water sits in the pipe for at least 6 hours. Flush for 5 minutes to displace water that has been sitting in the pipes inside the house and in the service line. This could include taking a shower, running the dishwasher, flushing a toilet, collecting water for plants/garden, or running the faucet. The customer should do this before using any water for drinking, cooking, infant formula, and so on. Daily mini-flushes should continue for six months or until lead sample results show the lead level is below the regulatory guideline. The customer should clean debris from aerators and screens once a month for six months. After six months, clean debris twice a year.

Appendix 7

Resolution 995: A Resolution Establishing a Program to Complete the Replacement of All Lead Water Service Lines in the City of Sycamore

(10/21/2024)

RESOLUTION NO. 995

A RESOLUTION ESTABLISHING A PROGRAM TO COMPLETE THE REPLACEMENT OF ALL LEAD WATER SERVICE LINES IN THE CITY OF SYCAMORE.

WHEREAS the City of Sycamore ("the City") is a municipality in accordance with the Constitution of the State of Illinois of 1970; and,

WHEREAS, the City has been in the process of replacing lead service lines for residences in the City for several years and is down to the last few known lines; and,

WHEREAS, the City, with the assistance of a State of Illinois Grant, established a program known as the 2022/2023/2024 No-Cost Lead Service Replacement Program under the terms of which the City offered to replace lead service lines for all residents free of charge to the residents, however, some refused to participate in that program for one reason or another; and,

WHEREAS, the City understands and believes that, in addition to the known lead service lines which remain in the City, there are or may be other lines that will subsequently be determined to be or contain lead; and,

WHEREAS, the City of Sycamore is desirous of establishing a program to replace lead service lines and offer financial assistance to residents when appropriate.

NOW, THEREFORE, consistent with the general goals and objectives of the City and the general wellness of citizens, be it resolved by the City Council of the City of Sycamore:

1) **Public Side Replacements**. The City will replace or cover costs to replace any known or unknown lead service lines found within the City from the existing watermains to and including the shut-off valve (the "Buffalo Box") at no cost to the residence served by said lines.

2) **Residents Who Refused To Participate**. Certain residents who refused to participate in the 2022/2023/2024 No-Cost Lead Service Replacement Program will <u>not</u> be eligible for reimbursement for costs associated with a future private-side lead service replacement (from the Buffalo Box to the individual residences). The following properties fall into this category:

- (on Wild Street)
  - Owner Refused replacement and refused to sign IDPH waiver.
- (on Chauncey Street)
  - Owner refused to respond. Originally gave permission, then refused. Would not respond to multiple attempts for approval.
- (on Elm Street)
  - Service was replaced from main to Buffalo Box; however, owner refused to sign IDPH waiver and did not allow entry for full-service replacement.
- (on Sacramento Street)
  - Basement is inaccessible/unsafe for entry. Multiple attempts were made with the owner to have the basement cleaned up – thus, it was impossible to replace.

3) **The City will assist replacement with**:

- (on Exchange Street)
  - Owner signed a waiver, but a medical condition prevented entry of personnel for the purpose of replacing the line. In this case, the City will provide 100% reimbursement to the owner when the private side lead service line is replaced.

4) **Incorrectly Marked Properties**. In the event water service was incorrectly marked as NON-Lead but later turns out to be lead, the City will provide 100% of the funds necessary to facilitate the private-side replacement.

5) **Later discovered Lead Lines**. The City will provide 50% reimbursements for private side replacements when lead is discovered "underground" which serves a residence in the future.

DATED: October 21, 2024

APPROVED: _____
MAYOR – Steve Braser

ATTEST: _____
CITY CLERK – Mary Kalk

Appendix 8

Lead Service Notification Letter

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Dear Water Customer: Today's Date:_____

This notice contains important information about your water service and may affect your rights. The water system has identified that you have a lead service line. We encourage you to have this notice translated in full into a language you understand and before you make any decisions that may be required under this notice.

Diese Mitteilung beinhaltet wichtige Informationen über Ihre Wasserversorgung und könnte Ihre Rechte beeinflussen. Wir bitten Sie, dass Sie diese Mitteilung vollständig in eine Sprache übersetzen lassen, die Sie verstehen, bevor Sie eventuelle Entscheidungen treffen, welche im Zusammenhang mit dieser Benachrichtigung erforderlich sind.

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本通知包含有关您的供水服务的重要信息，可能会影响到您的权利。在您做出本通知所要求的任何决定之前，我们鼓励您将本通知完整地翻译成您可理解的语言。

YOU ARE SERVED BY A LEAD SERVICE LINE

Health Effects of Lead

Exposure to lead in drinking water can cause serious health effects in all age groups. Infants and children can have decreases in IQ and attention span. Lead exposure can lead to new learning and behavior problems or exacerbate existing learning and behavior problems. The children of women who are exposed to lead before or during pregnancy can have increased risk of these adverse health effects. Adults can have increased risks of heart disease, high blood pressure, kidney, or nervous system problems. The most common exposure to lead is swallowing or breathing in lead paint chips and dust. However, lead in drinking water can also be a source of lead exposure. In the past, lead was used in some water service lines and household plumbing materials. Lead in water usually occurs through corrosion of plumbing products containing lead; however, disruption (construction or maintenance) of lead service lines may also temporarily increase lead levels in the water supply. This disruption may be sometimes caused by water main or service line maintenance/replacement.

Work on a lead service line may result in sediment, possibly contains lead from the service line in the building's water.

Below describes some information about some preventative measures you can take to help reduce the amount of lead in drinking water.

What you can do to reduce lead exposure in drinking water:

- *Run your water to flush out lead.*
  - flushing times can vary based on the length of your lead service line and the plumbing configuration in your home. The length of lead service lines varies considerably. Flushing for at least 5 minutes is recommended.
- *Use cold water for drinking, cooking, and preparing baby formula.* Do not cook with or drink water from the hot water tap, lead dissolves more easily into hot water. Do not use water from the hot water tap to make baby formula.
- *Look for alternative sources or treatment of water.* You may want to consider purchasing bottled water or a water filter that is certified to remove "total lead".
- *Clean and remove any debris from faucet aerators on a regular basis.*
- *Do not boil water to remove lead. Boiling water will not reduce lead.*
- *Purchase lead-free faucets and plumbing components.*
- *Remove the entire lead service line.*
- **Please Call : 815-895-3545 for information on our lead service line replacement program. Including any programs available that may provide financing solutions to assist property owners to replace the customer-owned portion of a lead service line.**
- The supplier must replace the supplier-owned portion of a lead service line when the property owner notifies the supplier that the owner will replace the customer-owned portion of the lead service line.

- *Test your water for lead. Verify your service line.* Please call us to find out how to get your water tested for lead.
  - If test results indicate a lead level above 15 ug/L, bottled water should be used by pregnant women, breast-feeding women, young children, and formula-fed infants.