



Lead Service Line Replacements – How to Develop a Program



Lead Service Line Replacements – How to Develop a Program

- ⋮ Robert L. McNutt, P.E.
- ⋮ Operator Training Committee of Ohio (OTCO)
- ⋮ Distribution Workshop
- ⋮ March 10, 2021
- ⋮ OEPA Course Number: OTCO-D_____ -OM



Introduction

1. History of Lead in Water
2. Developing a LSL replacement plan
3. Funding Assistance
4. Construction Activities



History of Lead in drinking water

1. Leaded joints to make up push on joints – early 1900s
2. Lead solder routinely used for sweating copper thru 1980s
3. Flint Michigan crisis 2014-2016



History of Lead in drinking water

1. 1986 – Federal lead in pipes and fixtures <8%
2. 1991 LCR first promulgated
3. 2000 LCR minor revisions
4. 2007 LCR short term revisions
5. 2014 Redefined “lead-free”



LSL Inventory in water systems

1. 2017 LSL Figures - update at 5 yrs
2. 2022 LSL Figure Update
3. January 2024 LSL Inventories Due
4. January 2024 LSL Replacement Plan due -



LSL Definitions

1. Public side – Lead or not lead
2. Private side – Lead = Lead
3. Private side – Public lead, Private galvanized = Private Lead



Developing LSL Replacement Plan

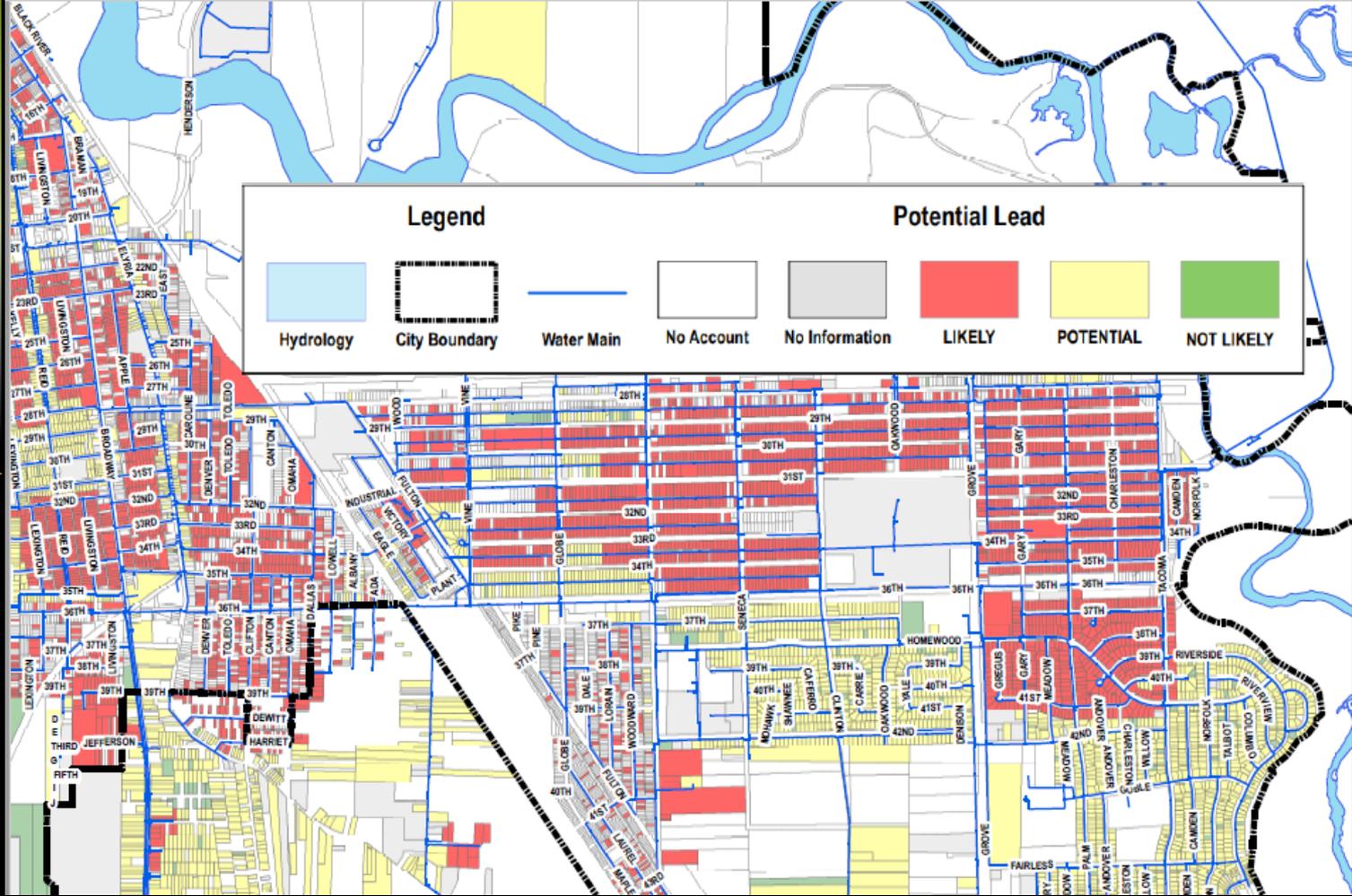
1. Regulatory environment
2. Determining LSL materials
3. Contracting to Replace



Regulatory – LSL identification

1. 2017 LSL Figures - update at 5 yrs
2. 2022 LSL Figure Update
3. January 16, 2024 Final Ohio LCR Implementation LSL

Private LSL Figure





Regulatory - LSL Inventory

1. All CWSs & NTNCs to identify Service Line (SL) materials
 1. Lead vs. Non-lead
 2. Galvanized requiring replacement
 3. Lead status unknown
2. Update annually or triennially
3. If no LSLs no need to update



Regulatory - LSL Replacements

1. Goal is to meet Lead MCLs - CCT
2. If lead 90th percentile > 10 ug/l – plan on replacing LSLs – Goal Based Plan
3. Lead action level >15 ug/l – LSLR is mandatory



LSL Replacement Plan Key elements

1. Strategy to determine material for unknown SL
2. *Strategy to inform customers of their LS material*
3. Procedures to replace
4. Funding planning



Federal Register

C. Lead Service Line Inventory

1. PROPOSED REVISIONS

EPA proposed to improve the available information regarding LSL numbers and locations by requiring an inventory of service line materials to be prepared by CWSs and NTNCWSs. EPA proposed to require these systems to submit an initial inventory within three years of publication of the rule, and for the water systems to update the inventory annually as they gather more information through the course of their normal activities. EPA proposed requiring the inventory to identify not only LSLs but also galvanized service lines that are or were downstream of an LSL, service lines whose material composition is unknown, and service lines known not to be LSLs. The proposed rule required each LSL to



Determine LSL Materials

1. 2017 mapping: Best data available: tap cards, meter replacements, age of buildings, utility ordinances, GIS databases
2. LCR 2024 – either know or assume LSL
3. Will need to investigate, develop program to replace all



LSL Materials - Investigations

1. Get access to all customers e.g. meter change out programs
2. Customer education & nickel test – reliable?
3. Pot-holing all curb boxes & check both sides
4. Still can only verify what can be seen





Cincinnati LSLRP example

your leader in lead information
H2Oconnection

W A Service of The City of Cincinnati
GREATER CINCINNATI
WATER WORKS

FALL 2017

LEAD SERVICE LINE REPLACEMENT PROGRAM (LSLRP)

Greater Cincinnati Water Works has had a program

GET AHEAD **NO MORE LEAD**



LSL Data management

1. Excel tables
2. Data base
3. GIS detailed data by customer address, billing account, or similar information



LSL Inventories and LSLR Plans

DUE

January 16, 2024

*Pending Regulatory Review



Contracting to replace

1. Specifications – standard SL materials is client specific
2. Standards details
3. Drawings or GIS showing streets
4. Address table or schedule with known data
5. Schedule of Bid Items



Bid Items

3	(203) EXPLORATORY EXCAVATION, AS PER PLAN	300.00	EACH
4	(SPC) TYPE "A" PAVEMENT REPLACEMENT (CONCRETE), ROADWAY, AS PER PLAN	100.00	SY
5	(SPC) TYPE "A" PAVEMENT REPLACEMENT (CONCRETE), DRIVEWAY, APRON, OR PARKING LOT, AS PER PLAN	100.00	SY
6	(SPC) TYPE "A" PAVEMENT REPLACEMENT (CONCRETE), DRIVE APRON, COMMERCIAL, AS PER PLAN	50.00	SY
7	(SPC) TYPE "C" PAVEMENT REPLACEMENT (ASPHALT), ROADWAY, AS PER PLAN	100.00	SY
8	(SPC) TYPE "C" PAVEMENT REPLACEMENT (ASPHALT), DRIVEWAY, APRON, OR PARKING LOT	1,000.00	SY
9	(608) 4 INCH CONCRETE WALK, AS PER PLAN	3,000.00	SF
10	(608) 6 INCH CONCRETE WALK, AS PER PLAN	1,000.00	SF



Bid Items

14	(638) 1 INCH COPPER SERVICE BRANCH (LONG), AS PER PLAN	114.00	EACH
15	(638) 1 INCH COPPER SERVICE BRANCH (SHORT), AS PER PLAN	113.00	EACH
16	(638) 1-1/2 INCH COPPER SERVICE BRANCH (LONG), AS PER PLAN	1.00	EACH
17	(638) 1-1/2 INCH COPPER SERVICE BRANCH (SHORT), AS PER PLAN	1.00	EACH
18	(638) 2 INCH COPPER SERVICE BRANCH (LONG), AS PER PLAN	1.00	EACH
19	(638) 2 INCH COPPER SERVICE BRANCH (SHORT), AS PER PLAN	1.00	EACH
20	(638) PRIVATE LEAD SERVICE (OR GALVANIZED FOLLOWING OWNER'S LSL) LINE REPLACEMENT (50' OR LESS), 1 INCH DIAMETER	139.00	EACH
21	(638) PRIVATE LEAD SERVICE (OR GALVANIZED FOLLOWING OWNER'S LSL) LINE REPLACEMENT (50' OR LESS), 1-1/2 INCH DIAMETER	2.00	EACH



Funding Assistance



1. Study loans, 5 years
2. Homeowner Assistance
3. Construction loans



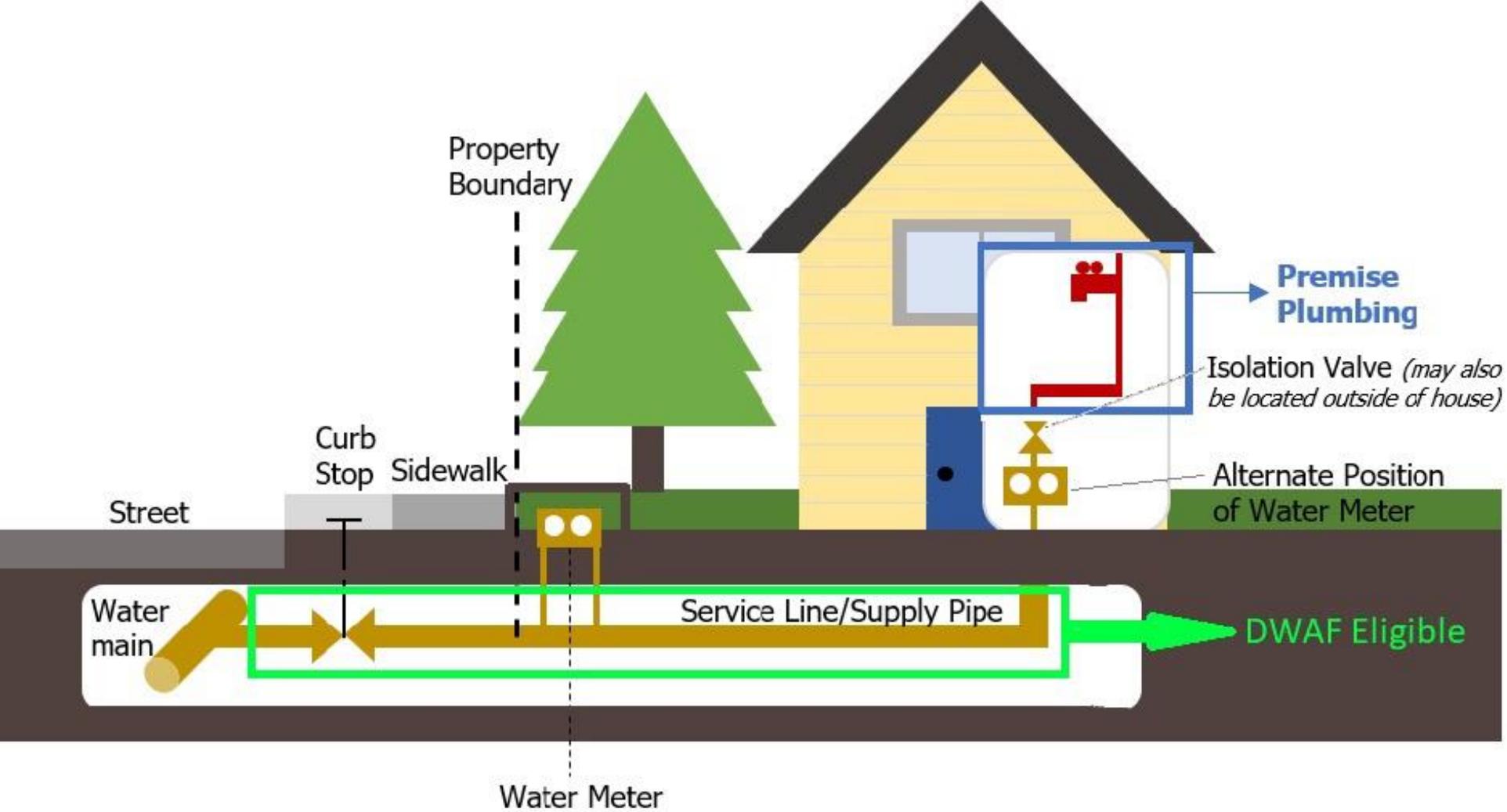
Funding types

1. Homeowner payment or Utility Fund \$\$
2. Study Loans
3. CDBG funds
4. CHIP grants in some areas
5. WSRLA/OWDA + Principal Forgiveness?



DWAF – LSL Replacement Funding

1. How much principle forgiveness (PI) is available? \$1M each, \$20M in Ohio
2. Who is eligible?
3. What project activities are eligible?





DWAF – LSL Replacement Funding

1. How will funding be awarded?
2. When will funding be available?
3. What essential documentation is required?
4. Other Considerations?



Essential documentation required

- PWS has an updated and acceptable LSL inventory and distribution map identifying areas needing replacement
- PWS has documented authority to access private property for replacement work (access contract, ordinance, easement, declaration of nuisance, legal opinion, etc.).
- PWS has documented authority (legal opinion) to spend public funds on private property.
- PWS has an outreach plan for educating customers about lead.



Essential documentation required

- PWS has an acceptable asset management program which includes a plan to replace public and private LSL, including costs the system will incur. This information may be prepared as the project develops, then included in the asset management program (for example, updated lead maps post-construction, estimated project costs, operation and maintenance).
- PWS will conduct or oversee the work and have a description of how this work will be done in conjunction with distribution infrastructure projects.



Construction Activities

1. Customer coordination
2. Work at customer building
3. Work at water main
4. Other contractors



Customer coordination

Notify customer

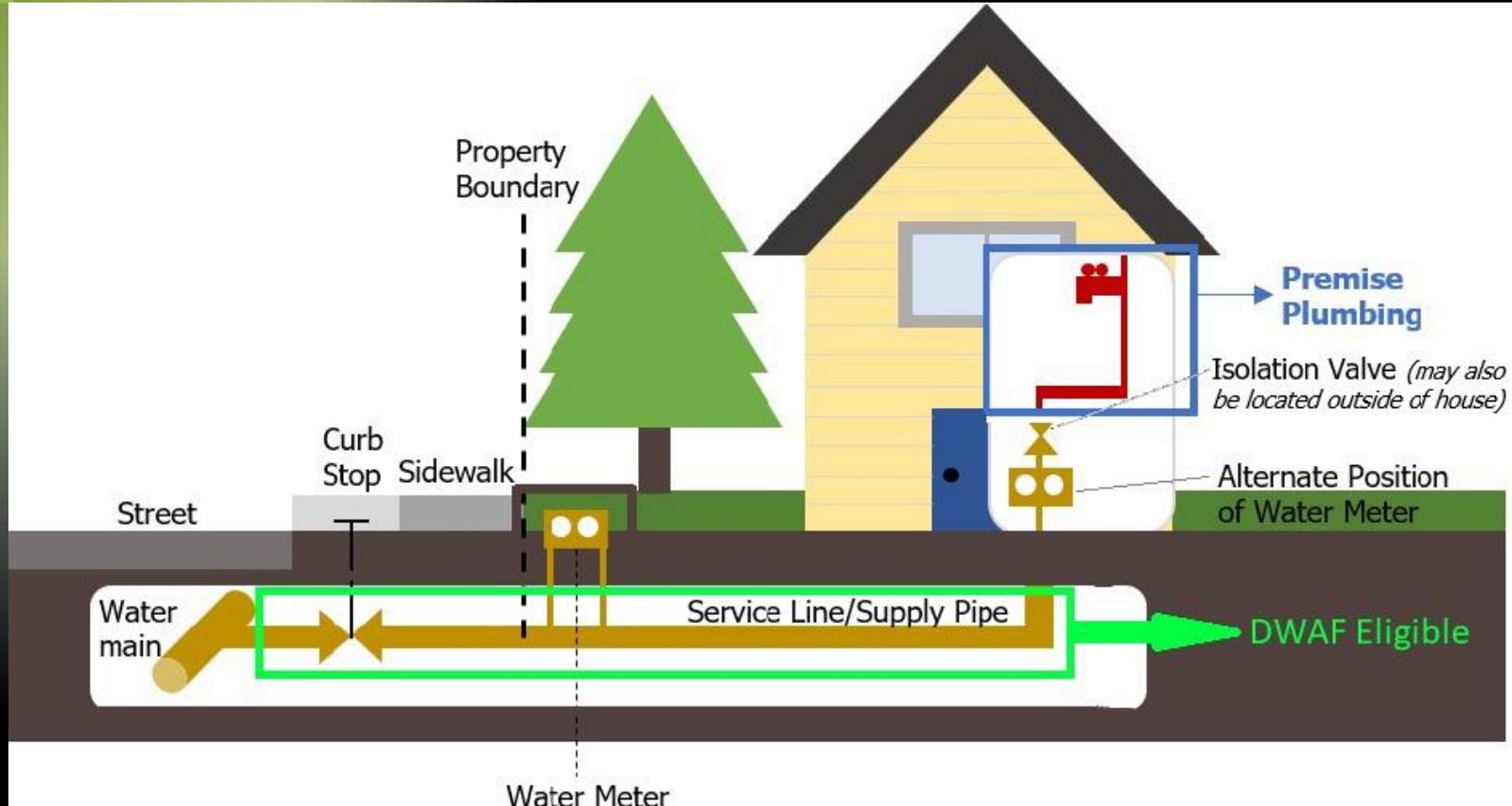
Customer refusal? Notify
PWS decision makers

Pitchers & filters 3 vs 6
months?

Customer costs



Construction at the House





Construction issues at the house



1. Meter in pit or in house
2. Homeowner shut off valves
3. Cut into basement or crawl space
4. Trenchless preferred
5. What if we have to dig
6. Galvanized vs. lead

*Trenchless
cable tool
for service
lines*





*Trenchless
cable tool
for service
lines*





Extraction of LSL





Construction issues at the main



1. Pot-holing investigations
2. Tapping into old pipe with new corp?
3. Abandon old corp?
4. Public LSL
5. Private LSL – galvanized vs. lead

Pre tap photo



Post tap photo





Other contractors: gas, electric, sewers

1. If they hit LSL – no regulation by OEPA
2. Filters not required in this case
3. Community should require replacement if possible for service
4. OEPA can help pay even if done on other projects' work



Other Resources

1. OEPA LSL Fact Sheet
2. Please see [OAC 3745-81-84](#) for information about lead service line replacement requirements.
3. Additional information in Section 6 of the guidance [PWS-06-001](#).
4. DWAF contract checklist at epa.ohio.gov/defa/ofa#1696510030-wsrla.
5. Many other state & federal EPA presentations

**Federal Lead and Copper Rule Revisions(LCRR) and Ohio EPA Funding
for Lead Service Line Replacement**

ACEC
March 1, 2021

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