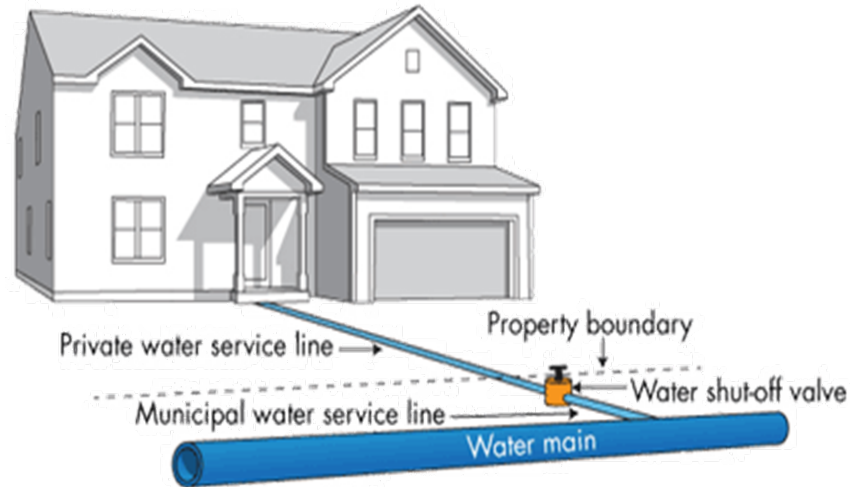


Lead Service Line Inventories



03/24/2022

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Lead in School Drinking Water

Rule Manager

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LSL Inventory Requirements (40 CFR 141.84)

- The Lead & Copper Rule Revisions published on December 16, 2021 include requirement that all community and non-transient non-community water systems must prepare lead service line inventories.
- LSL inventory provides critical information on the locations of potentially high drinking water lead exposure
- The following requirements are directly tied to the service line inventories:
 - New site sampling plans
 - LSL replacement plans
 - LSL replacements
 - Compliance Sampling methods

LSL Inventory Requirements

- Water systems must develop an initial inventory by October 16, 2024
 - Updated annually or tri-annually for systems on reduced monitoring.
- Must include all service lines connected to the public water distribution system regardless of ownership status.
- Where service line ownership is shared, the inventory would include both the portion of the service line owned by the water system and the customer-owned portion of the service line

LSL Inventory – Public Accessibility

- Must be publicly available
 - Online for systems serving more than 50,000 people
- Must include a location identifier associated with each lead service line and galvanized requiring replacement service line
 - a street address,
 - block,
 - intersection, or
 - landmark
- EPA suggests as a best practice, systems publish locations of all service lines for the greatest transparency and relevant information for its customers.

LSL Inventory Categories

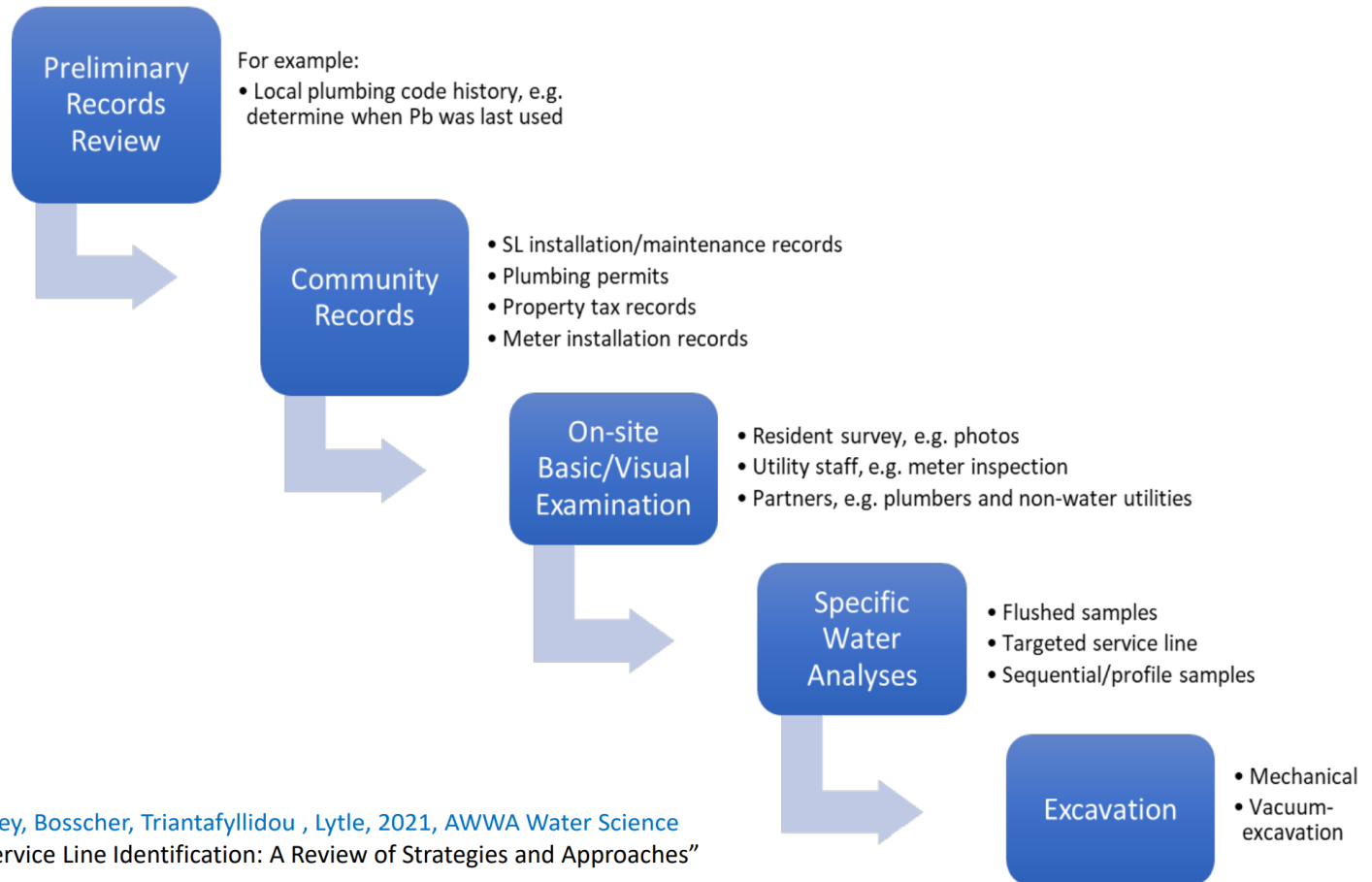
- Each service line, or portion of the service line where ownership is split, must be categorized

SL Category	Description
Lead	SL made of Lead
Galvanized Requiring Replacement	Is or was at any time downstream of LSL or if no record of Not being downstream of LSL
Non-Lead	Evidence-based record, method, or technique – May classify as actual material (ie copper, plastic,..) as an alternative to classifying as “non-lead”
Lead Status Unknown***	SL material is not known

- EPA recommends including lead connectors (i.e., goosenecks, pigtails) where records exist. DEQ highly recommends inventorying lead connectors.
- EPA recommends site investigations for unknown lines but it is not required

LSL Identification Process

Suggested stepwise SL identification approach



LSL Preliminary Office and Community Review

- Tap Cards or tickets from initial service installation.
- Plans from water main installation, rehabilitation, and replacement.
- Historic water utility records.
- Tax records/Cadastral indicating when buildings were constructed.
- Plumbing permits.
- City/Town Ordinances
- Interview former employees
- Consult with other neighboring water systems to share experiences.

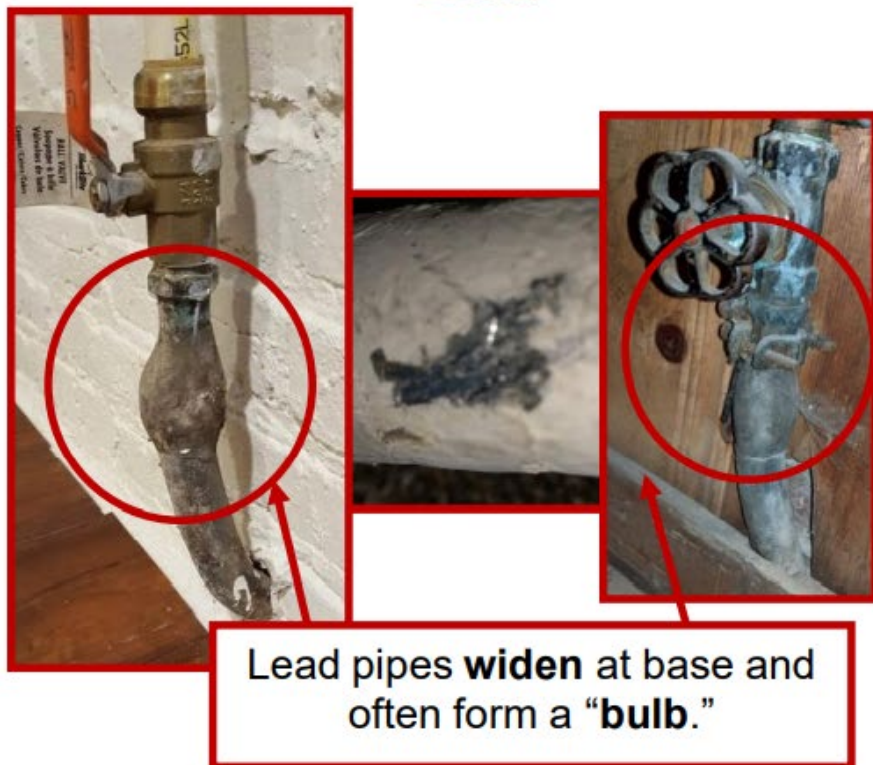
LSL Onsite Basic/Visual Inspection

- Resident Survey – Sending out survey to customers asking to visually inspect where service line enters structure. (photos, scratch test)
- Utility Staff can perform meter inspections
- Document all SLs and connectors during water main maintenance/repair activities.
- Reach out to local plumbers to see if they have encountered LSLs

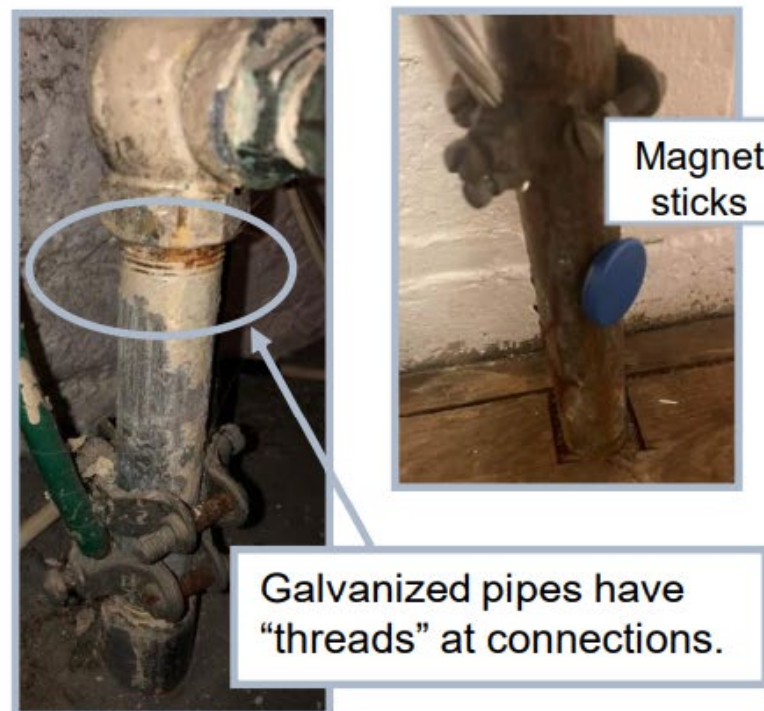


How to Identify an LSLs

Lead



Galvanized Iron



Photos from Washington DC Water Material Identification guide

<https://www.dewater.com/sites/default/files/IdentifyingHouseholdPlumbing.pdf>

- Check for Lead Service Lines (condition)



Scratch and Swab Test



Amazon's Choice



3M LeadCheck Swabs, 8-Pack

by 3M

\$22⁰⁰ [Subscribe & Save](#)

Save more with monthly Subscribe & Save deliveries.

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Get it by **Thu, Oct 18**

FREE Shipping on eligible orders



Lead Check By 3M, 32 Swab, Lead Tes Purchase From LeadPaintEPAsupplies

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How to Identify an LSLs

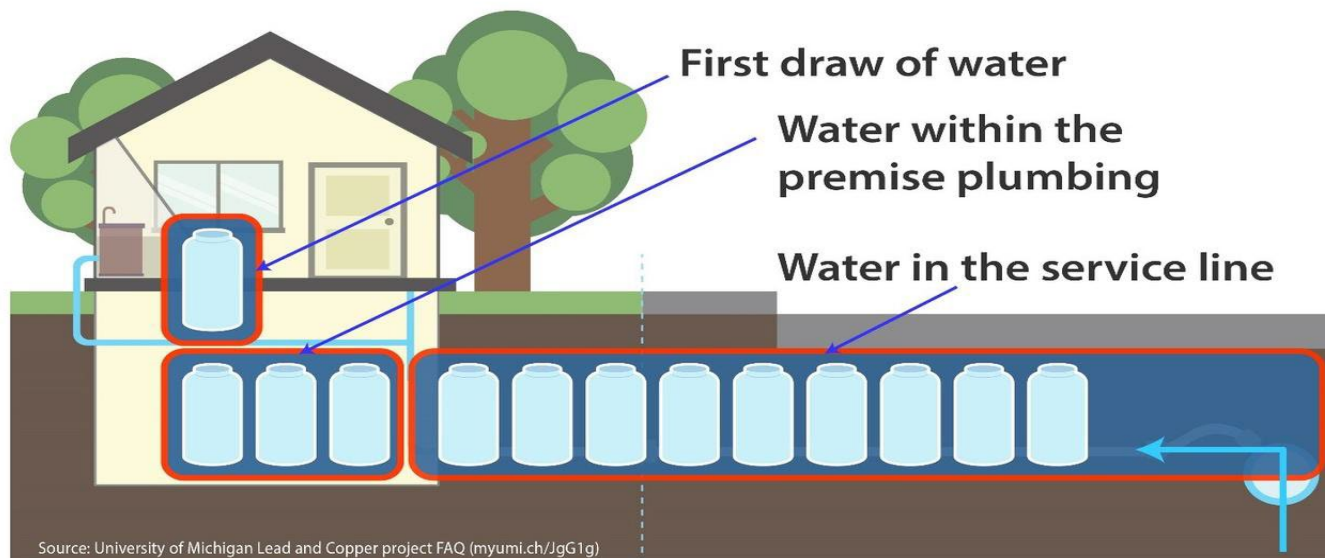
	Lead	Galvanized Iron	Copper	Brass
Outer Appearance	Dull gray, bendable; Often curves between wall/floor and valve	Dark gray or black; Straight rigid pipe	Brown; Can have green corrosion spots	Brown; Can have green corrosion spots
Threads at connections	None	Yes	None	Yes
Scratch Test (coin or key)	Shiny silver	Hard to scratch, remains gray	Copper, like a penny	Gold color
Magnet Test	Does not stick	Magnet WILL stick	Does not stick	Does not stick

Table from Washington DC Water Material Identification guide

<https://www.dewater.com/sites/default/files/IdentifyingHouseholdPlumbing.pdf>

LSL – Water Analysis

- Water sampling can be used to help determine the presence of LSLs.
- Water sitting in the service line can be sampled and the results can indicate if the lines are lead or lead bearing
- Sample Methods
 - Flush Draw Samples – Length of flush depends on structure
 - Sequential Sampling - # of samples depends on structure
 - 1st and 5th Sampling



LSL – Direct Methods

Uncover public and private side

- Excavation
- Potholing/vacuum excavation



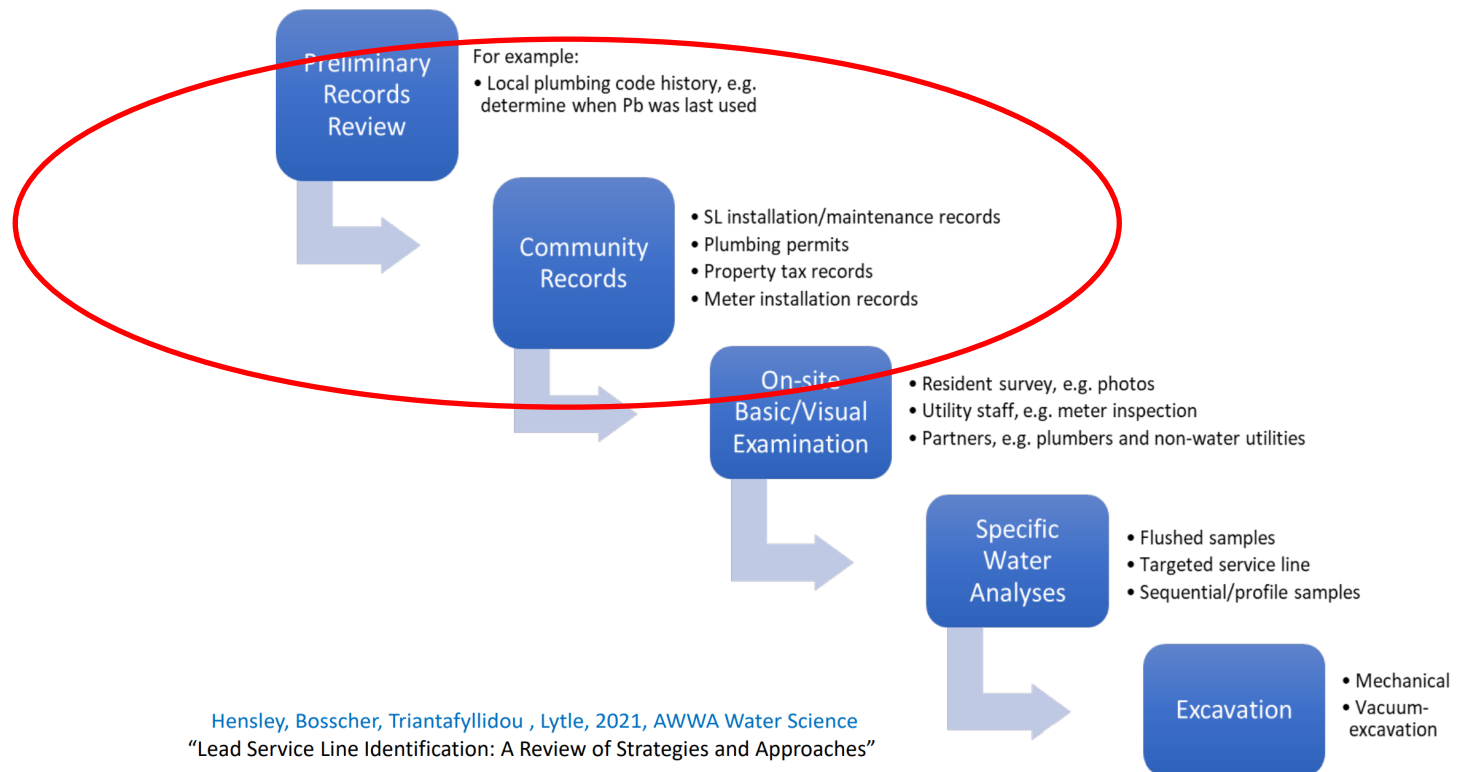
LSL Technologies being Evaluated

- New techniques and technologies for identifying LSLs
 - EPA and others are researching new ways to find/locate LSLs
 - Metal Detectors
 - Magnetometers and Gradiometers
 - Ground Penetrating Radar
 - Stress Wave Propagation
 - Acoustic
 - Electrical Conductivity Object Locators
 - Portable X-ray Fluorescence Spectrometry
 - Computer modeling
 - Statistical analysis

How to start with your LSL Inventory

- Step 1 - DEQ recommends systems start reviewing their available documents for information regarding lead service lines (LSLs.)

Suggested stepwise SL identification approach



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How to start with your LSL Inventory

- What information is required for the inventory

CWS - This template is intended for CWS with traditional distribution systems.

PWS Name and PWSID:

Ownership of Service Lines: public (PWS), private (customer), or combination

If combination, where does the ownership split: meter or valve pit/curb stop

Date of Current Inventory:

CWS Contact Person and Contact Information:

SITE ID	LOCATIONAL IDENTIFIER	LEAD CONNECTOR CURRENTLY PRESENT? (E.G., GOOSENECK, PIGTAIL, OTHER)	CURRENT PUBLIC SERVICE LINE MATERIAL	WAS PUBLIC SERVICE LINE MATERIAL EVER PREVIOUSLY LEAD?	PUBLIC SERVICE LINE INSTALL DATE	CURRENT PRIVATE SERVICE LINE MATERIAL	PRIVATE SERVICE LINE INSTALL DATE	VERIFICATION SOURCE	PUBLIC SERVICE LINE SIZE	PRIVATE SERVICE LINE SIZE	COMMENTS
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Address

or other

unique

identifier

Geo locational information

Y = Yes
N = No
U = Unknown

L = Lead
G = Galvanized Iron/Steel
C = Copper
P = Plastic
O = Other
UL = Unknown but could contain lead
UN = Unknown but installed after state lead ban date (1986-
UX = Unknown

Y = Yes
N = No

L = Lead
G = Galvanized Iron/Steel
C = Copper
P = Plastic
O = Other
UL = Unknown but could contain lead
UN = Unknown but installed after state lead ban date (1986-88)
UX = Unknown

R = Records Only
F = Field Inspection Only
V = Records Validation
I = Records Invalidation
A = Statistical Analysis

How to start with your LSL Inventory

- LSL inventory will be used to generate the systems new site sampling plan

COMMENTS	BUILDING TYPE	POINT-OF-ENTRY OR POINT-OF-USE TREATMENT PRESENT?	BUILDING PLUMBING MATERIAL	BUILDING PLUMBING MATERIAL INSTALL DATE	LCR SMP SITE?	LCRR SMP TIER
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SFR (Single Family Residence)

MFR (Multiple Family Residence)

School or Child care center

Child care (In-home)

Business

Y = Yes

N = No

L = Lead

G = Galvanized Iron/Steel

C = Copper

P = Plastic

O = Other

1 = <1960

2 = 1960 - 1988

3 = 1989 - 2014

4 = >2014

5 - Unknown

Y = Yes

N = No

1

2

3

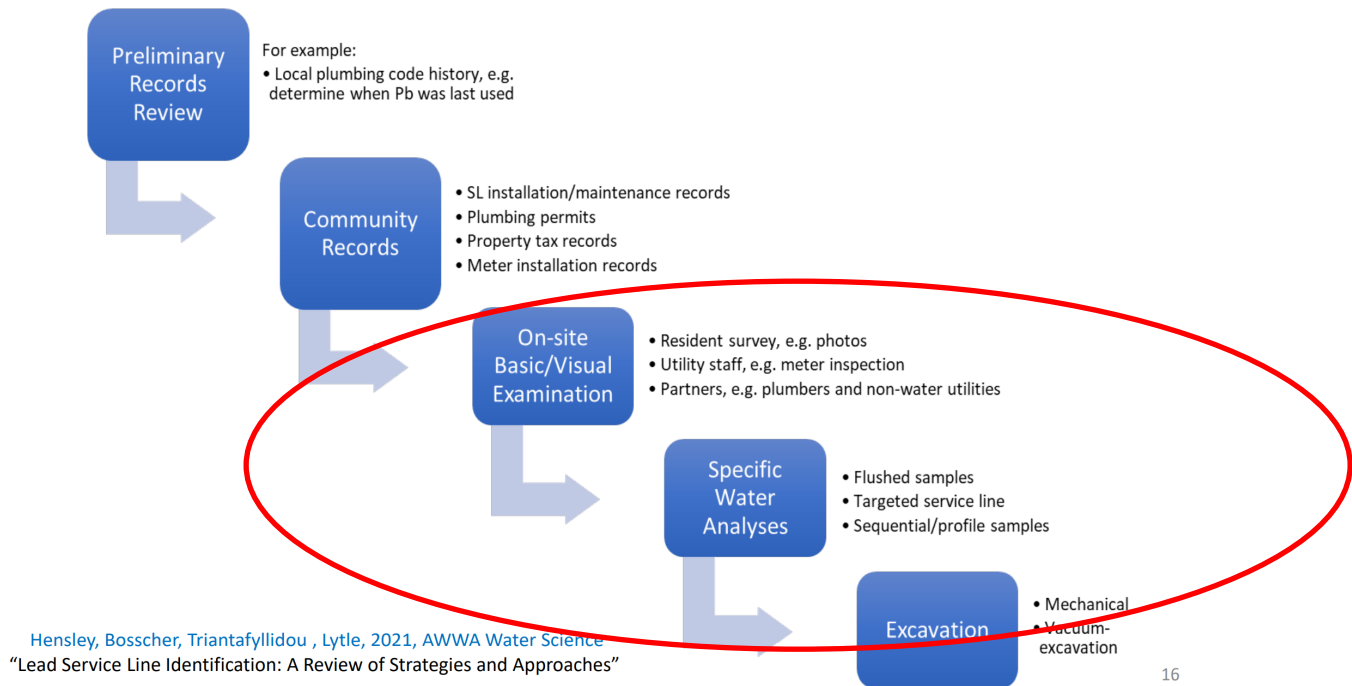
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How to start with your LSL Inventory

- Step 2 – Based on your initial review, determine if and to what extent field inspection, sampling or excavation will be needed.
- Funding/resources may be available to assist with more resource intensive investigations

Suggested stepwise SL identification approach



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Galvanized downstream of LSL

- Galvanized service line downstream of lead service line is essentially considered a lead line.
 - Galvanized pipes can absorb lead from an upstream source and later release that lead back into the water.
- Examples
 - The public side of a service line is lead and the private side is galvanized
 - The service line would be considered a lead line
 - The public side of a service line was lead but was replaced with copper and the private side is galvanized.
 - The service line would be considered galvanized requiring replacement

Unknown Service lines

- Nearly all systems will have unidentified SL materials
- What's the problem with having unknowns?
 - If you have an exceedance, system will have to do mandatory LSL replacement (Remove a certain % each year).
 - Since unknowns are treated as LSLs, you'll have more pipes to dig up and identify
 - If an unknown SL turns out to **not** be lead, that SL doesn't "count" towards required replacement rate
- **Summary:** More unknowns = Higher risk of unnecessary excavation (costly, disruptive)

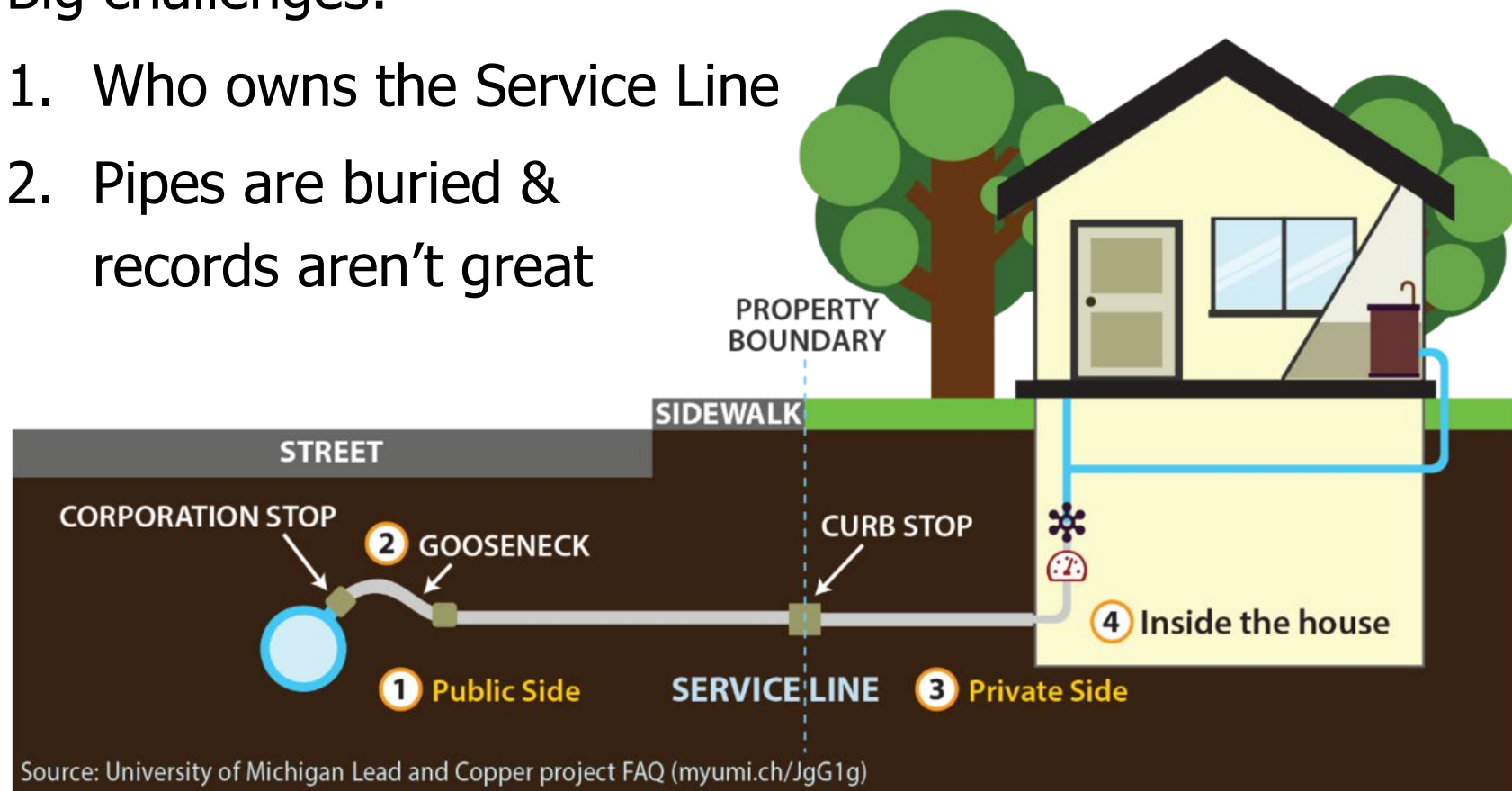
Encountering LSL during Maintenance Activities

- If LSLs, lead pigtails and/or lead goosenecks are encountered during maintenance activities (water main work), it is highly recommended that they are removed when encountered.
 - Will be cheaper to remove now then have to come back and re-excavate to remove later.

LSL Inventories - Challenges

Big challenges:

1. Who owns the Service Line
2. Pipes are buried & records aren't great



Source: University of Michigan Lead and Copper project FAQ (myumi.ch/JgG1g)

LSL Inventories - Challenges

- Many systems have limited/poor records
- Communicating w/ customers & gaining access to private-side requires a lot of effort
- Some lines are challenging to access or locate on the interior of buildings
- SLs can be different materials; what you can see might not be the entire story

Available Resources

- DEQ adding additional staffing to the LCR
- Developing guidance to walk systems through the inventory process (EPA and DEQ).
- Created new LCR webpage (<https://deq.mt.gov/water/programs/dw-leadandcopper>)
 - Rule information
 - Guidances
 - Templates
 - Link to dashboard
 - Useful links
 - Funding information
 - Contact information
- GIS based database to store and manage inventories
 - Available through app and web-based
 - Can be used to meet the public availability requirement
- Provide funding for planning, inventories, and replacement of LSLs
 - DEQ and DNRC can provide assistance with funding options
- Frequent trainings and webinars

LSL Funding

- Identifying & removing LSLs is expensive
- The Bipartisan Infrastructure Law allocated \$15B for LSL efforts
 - MT to receive ~\$140M: \$28M/year over 5 years
 - Guidance from EPA coming in March/April
- Money will be dispersed through State Revolving Fund Process – more info to come on this
-

Any Questions?

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