Lead Service Line Inventories

Process Experiences & Resources

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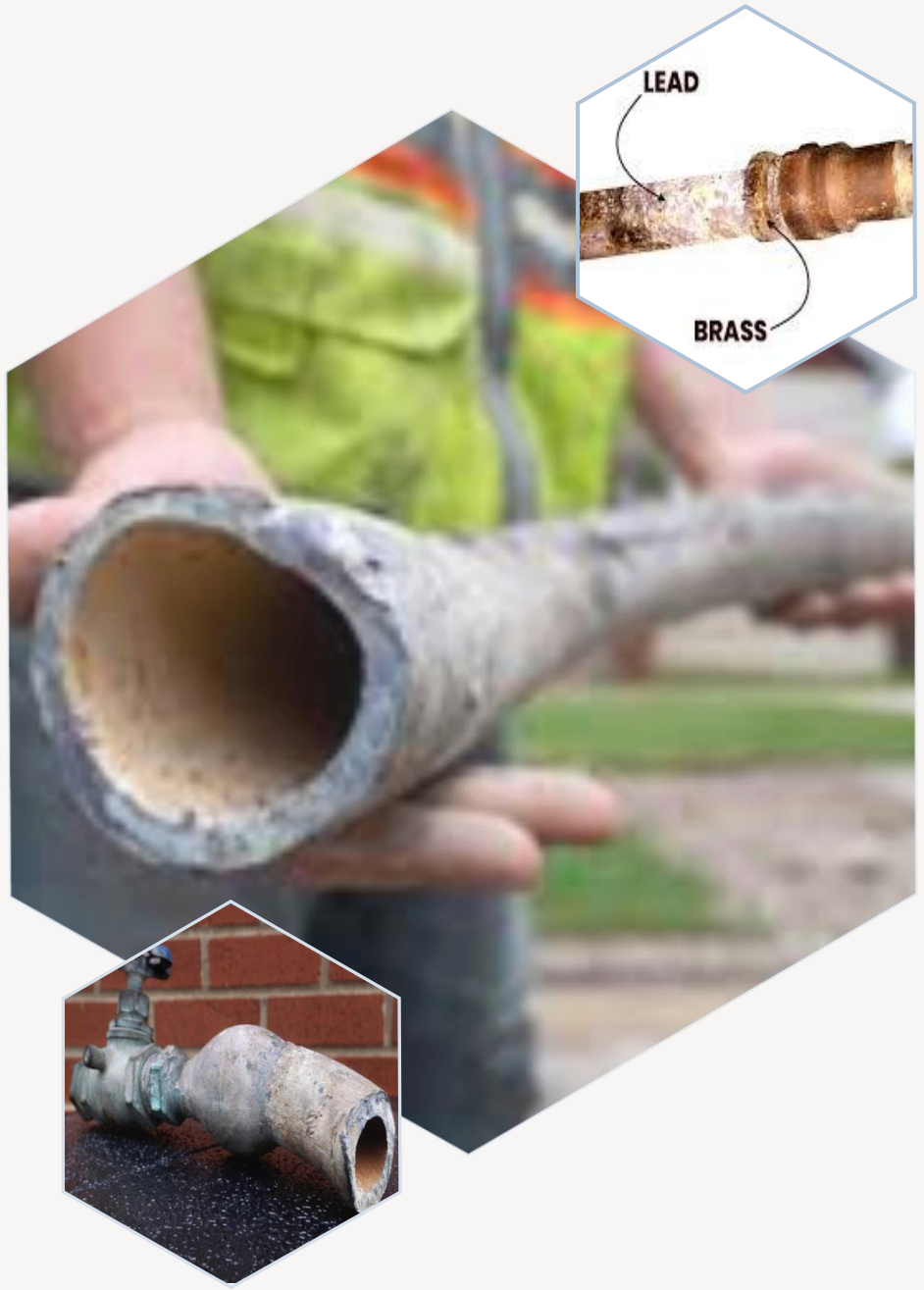
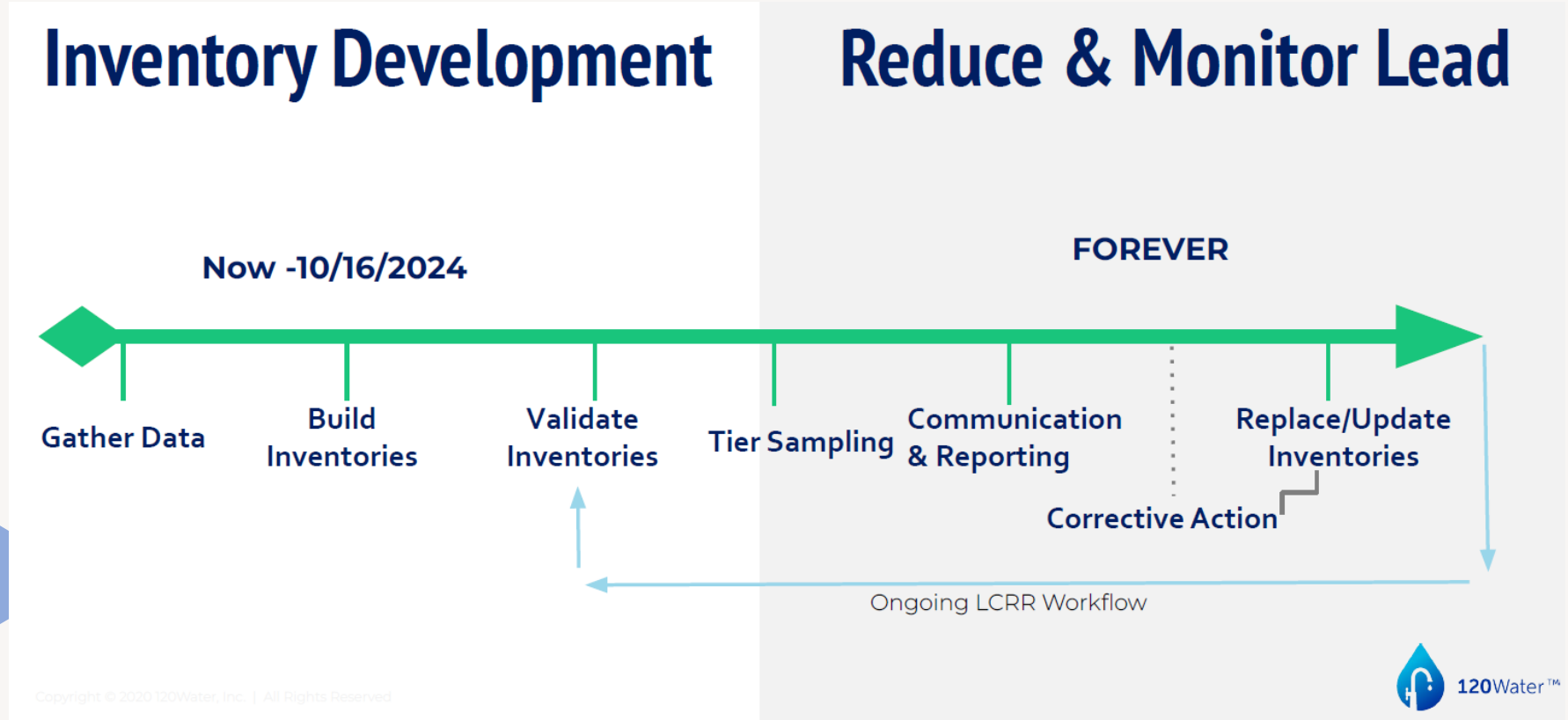
NC RWA TRAINING SUPPORT



Lead and Copper Rule Revisions

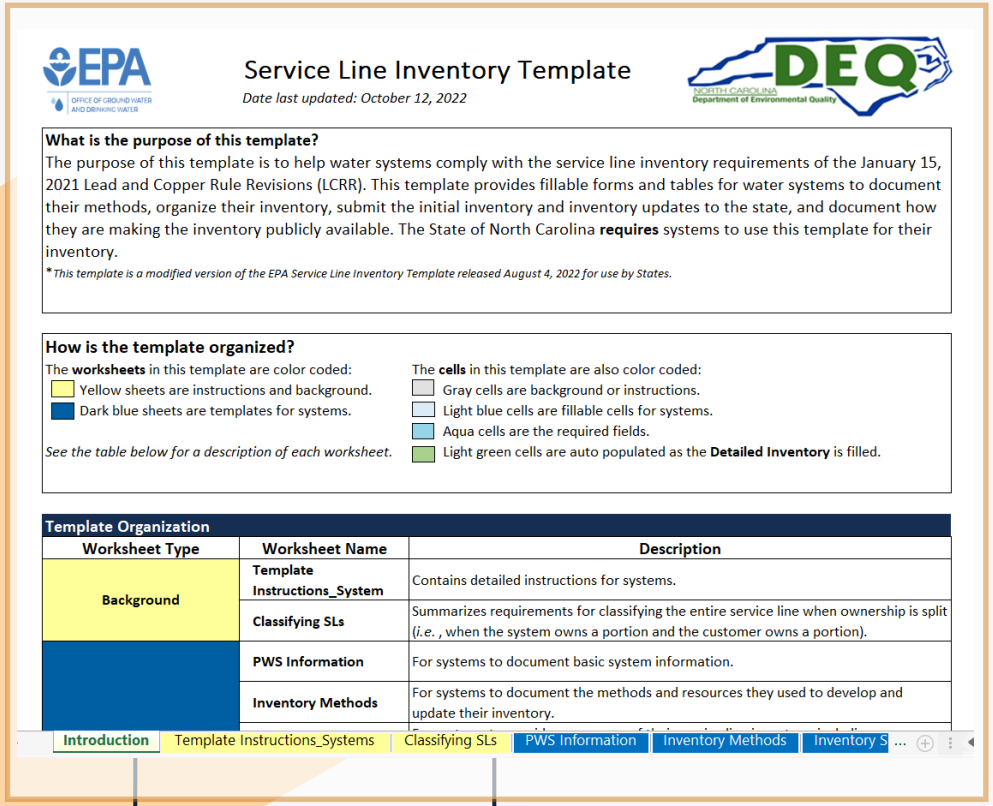
Implementation Timeline



Lead Service Line Inventory

How Do I Record and Report the Data?

State Provided Spreadsheet Template



EPA — Office of Ground Water and Drinking Water

Service Line Inventory Template

Date last updated: October 12, 2022

DEQ — North Carolina Department of Environmental Quality

What is the purpose of this template?

The purpose of this template is to help water systems comply with the service line inventory requirements of the January 15, 2021 Lead and Copper Rule Revisions (LCRR). This template provides fillable forms and tables for water systems to document their methods, organize their inventory, submit the initial inventory and inventory updates to the state, and document how they are making the inventory publicly available. The State of North Carolina **requires** systems to use this template for their inventory.

* *This template is a modified version of the EPA Service Line Inventory Template released August 4, 2022 for use by States.*

How is the template organized?

The **worksheets** in this template are color coded:
- Yellow sheets are instructions and background.
- Dark blue sheets are templates for systems.

The **cells** in this template are also color coded:
- Gray cells are background or instructions.
- Light blue cells are fillable cells for systems.
- Aqua cells are the required fields.
- Light green cells are auto populated as the **Detailed Inventory** is filled.

See the table below for a description of each worksheet.

Template Organization

Worksheet Type	Worksheet Name	Description
Background	Template Instructions_System	Contains detailed instructions for systems.
	Classifying SLs	Summarizes requirements for classifying the entire service line when ownership is split (*i.e.* , when the system owns a portion and the customer owns a portion).
	PWS Information	For systems to document basic system information.
	Inventory Methods	For systems to document the methods and resources they used to develop and update their inventory.

Introduction | Template Instructions_Systems | Classifying SLs | PWS Information | Inventory Methods | Inventory S ...

- Required to be reported on one of three templates based on system size.
  - 500 or fewer connections
  - >500 but no more than 50,000 connections
  - >50,000 connections
- Five fillable tabs with instructions
  - PWS Information
  - Inventory Methods
  - Inventory Summary
  - Detailed Inventory
    - One row per service, if ownership is not split must use same info for each section
      - Column C: Location Identifier-Street Address
      - Column G: System-Owned Portion Service Line Material Classification
      - Column P: Customer-Owned Portion Service Line Material Classification
      - Column X: Entire Service Line Material Classification. This column will automatically update based on the data entered in columns G and P.
  - Public Availability Documentation
- PWS's are strongly encouraged to fill out all columns in the Detailed Inventory tab. Required Fields are Aqua Colored.
- PWS has not yet finalized submission process for the Spreadsheet.

Lead Service Line Inventory

Where Do I Start?

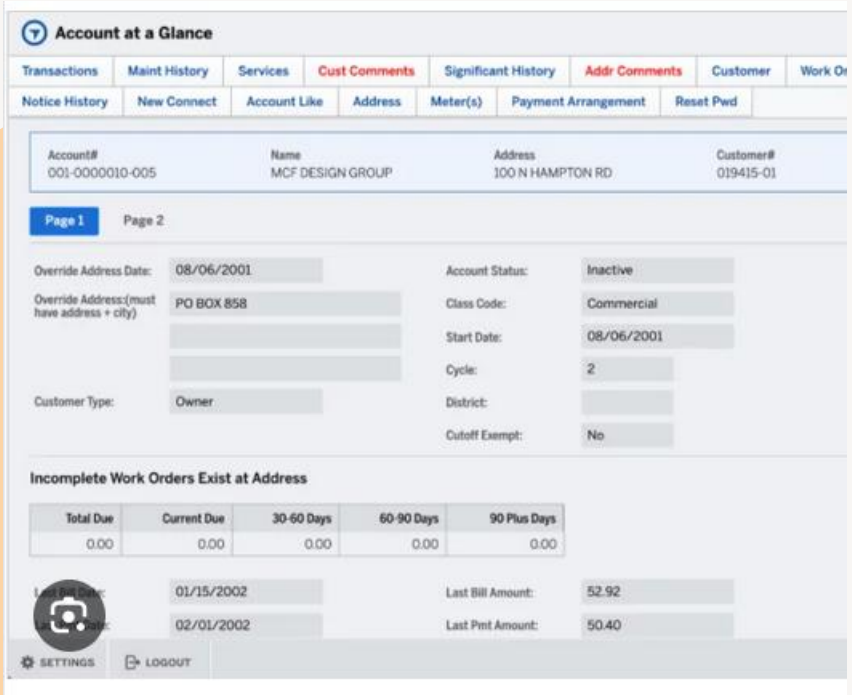
Gather Your Inventory Team

- Public Works Director/Water Superintendent/Distribution System ORC
- Maintenance Staff
- Administrative Staff/Utility Billing Software Contacts
    - Utility Billing Clerk/Staff
- Intern
- Building Inspections Department
- Engineers
- Local Plumbing Companies

Lead Service Line Inventory

Where Do I Start?

In the Office with a Paperwork Exercise



- Start Simple – Know Your Locations
  - Export your billed service locations to a spreadsheet.
  - Location data must include street address or other location identifier.
  - Include active and non-active accounts.

Lead Service Line Inventory

Where Do I Start?

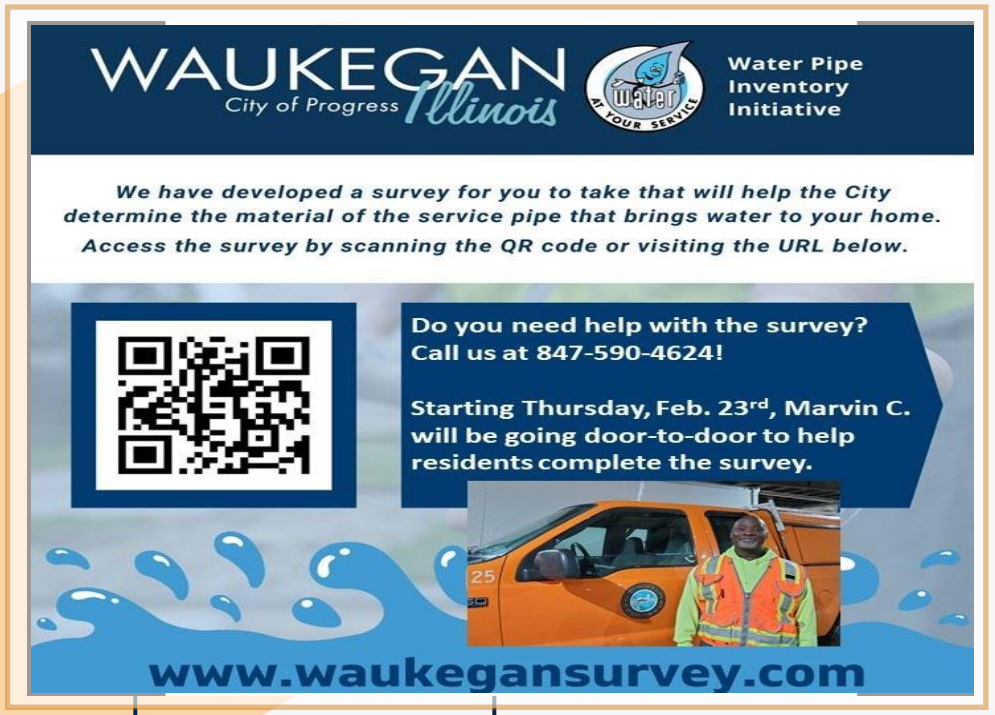
In the Office with a Paperwork Exercise

- Gather service line information from your records.
  - As-Built Plans and Drawings
  - Project or Utility Approved Specifications – Time Sensitive, When were they initiated or modified?
  - Work Orders / Maintenance Records SOPs / Construction Pictures (if they can be correlated to location.)
  - Tap Cards
  - GIS (geographic information systems) – See if service data was collected.
  - Previous LSL Construction Materials Report submitted to PWS
  - Master Plans / Capital Improvement Records
  - Have you completed a meter replacement program? Did the contractor / vendor collect information on the service materials?

- Was the service installed after the State Lead Ban – March1987 / Federal – June 19,1986

Where Do I Start?

Lead Service Line Inventory



In the Office with a Paperwork Exercise

- Gather service line materials information from outside sources for customer owned portion.
  - Reference State and Local Plumbing Codes – Time Sensitive
    - https://codes.iccsafe.org/codes/north-carolina
  - Contact County, City or Town Inspection Department for Inspection Records / Permits
  - County GIS Tax Data
  - Poll the Customer / Homeowner- And Educate!!!
    - Postcard / Mailer included with bill
    - Virtual Form on your website or use a Google Form
      - www.waukegansurvey.com
  - Consult with local plumbing companies – May have records of services installed, repaired or replaced.
  - Consult with area builders

How Do I Record and Report the Data in the Field?

Pen & Paper

Cell Phone

GPS Collector & Tablet

Laptop

Lead Service Line Inventory

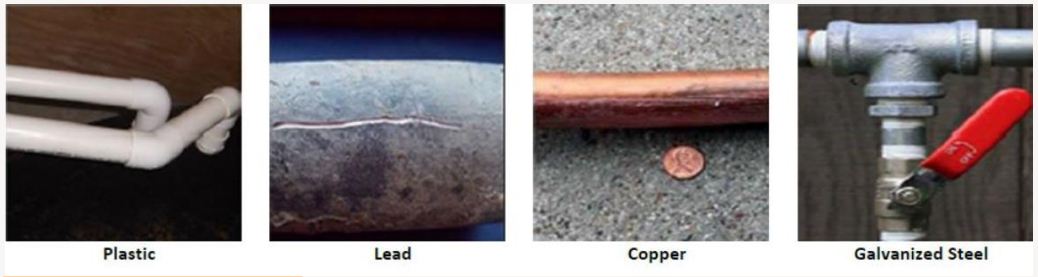
Where Do I Start?

In the Distribution System (On-site)

- Begin gathering service line information from your regular maintenance and operational activities. Recommend that you **document** and take **pictures** for verification / proof.
  - Water Main / Water Service Repairs
  - Meter Repairs / Replacement
  - Utilize Meter Reading staff to excavate at meters when not reading meters
  - During service line exposures
    - Storm Drain installation repair
    - Installation of other underground utilities
  - During meter replacement programs
    - Good time to gather data on both portions of the service
- Document any Lead Goose Necks, Pigtails and other connectors
  - These must be replaced when encountered during repairs.
  - Systems must follow the risk mitigation procedures just like replacement / disturbance of a lead service line. - 40 CFR 141.85(f)(2))

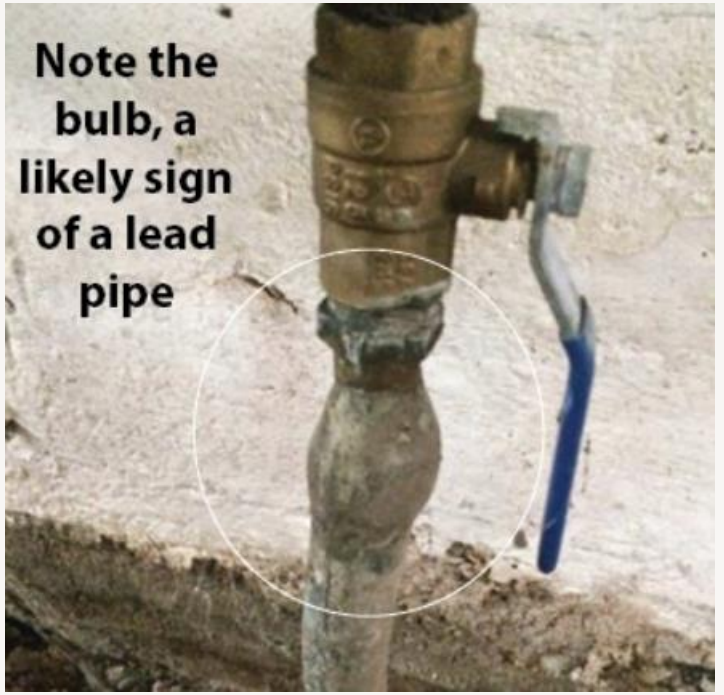
Lead Service Line Inventory

Where Do I Start?



In the Distribution System (On-site)

- Lead piping & fittings may be verified by several methods:
  - Chemical Testing
  - Scratch Test
  - By Magnet



Where Do I Start?

In the Distribution System (On-site)

- Lead piping & fittings may be verified by several methods:
- Excavation
  - Pothole
  - Hydro Vacuum

Simple Tools for Consideration

- It is important to start early and measure how quickly your resources can capture data.
- Give yourself a buffer for error correction and completing the additional details of the detailed inventory
- Use outside resources if possible to meet goals. There are many available.
- County GIS can be a great resource to cross reference existing customer address data with year built.

Field Identification Cont.

If service lines are not able to be identified in the meter box small pot-holes are the best method for material identification. Save grass plugs to cover holes when work is complete to minimize customer complaints.

Physical Identification Tools

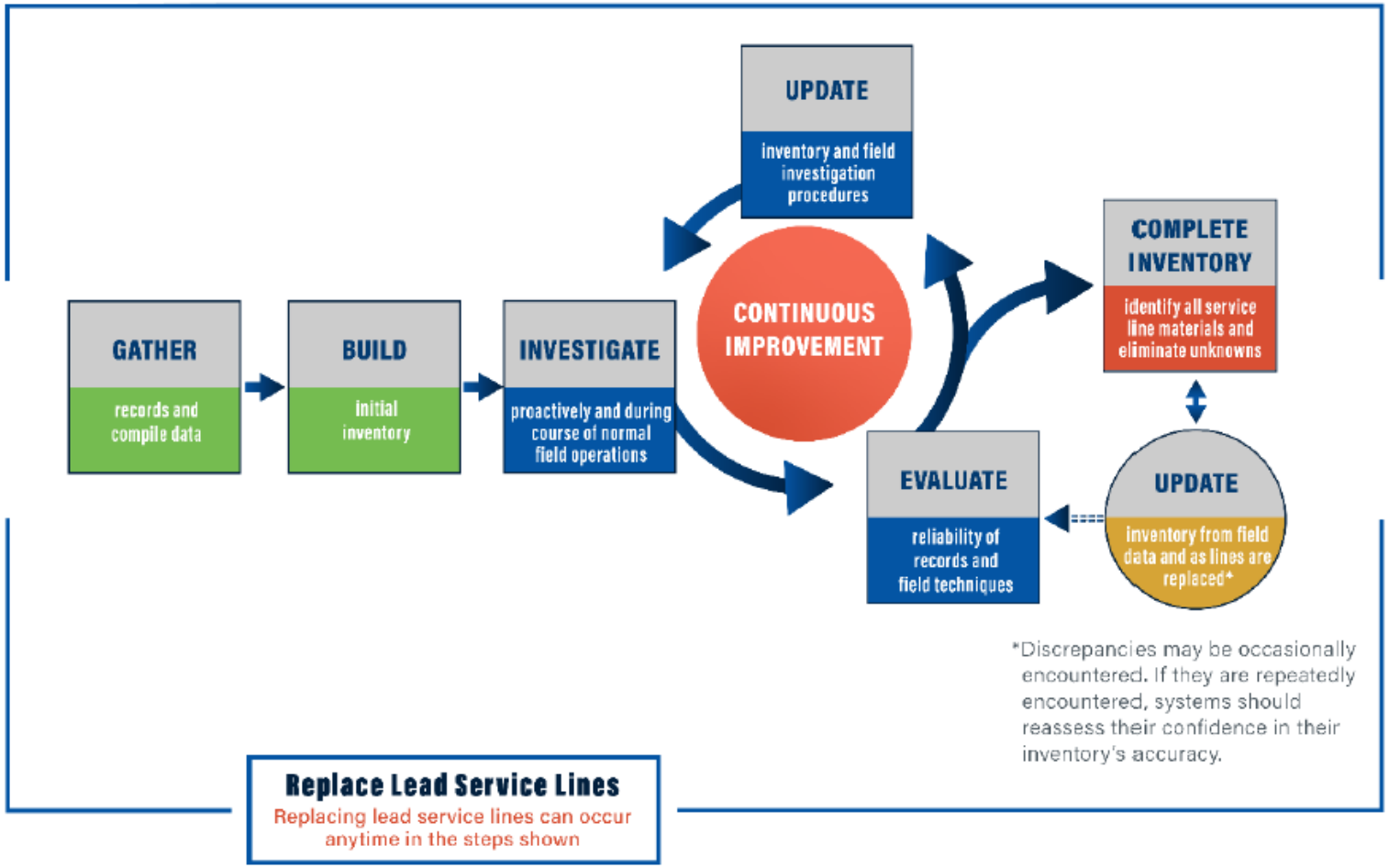
Helpful field tools include:

- Shovel
- Magnetic Locator
- Pliers
- Battery Powered Wet/Dry Vac
- Magnet
- Wire Brush
- Flashlight
- Water Bottle Spritzer
- Trowels (Metal/Plastic/Composite)

Lead Service Line Inventory

Lead Service Line Inventory

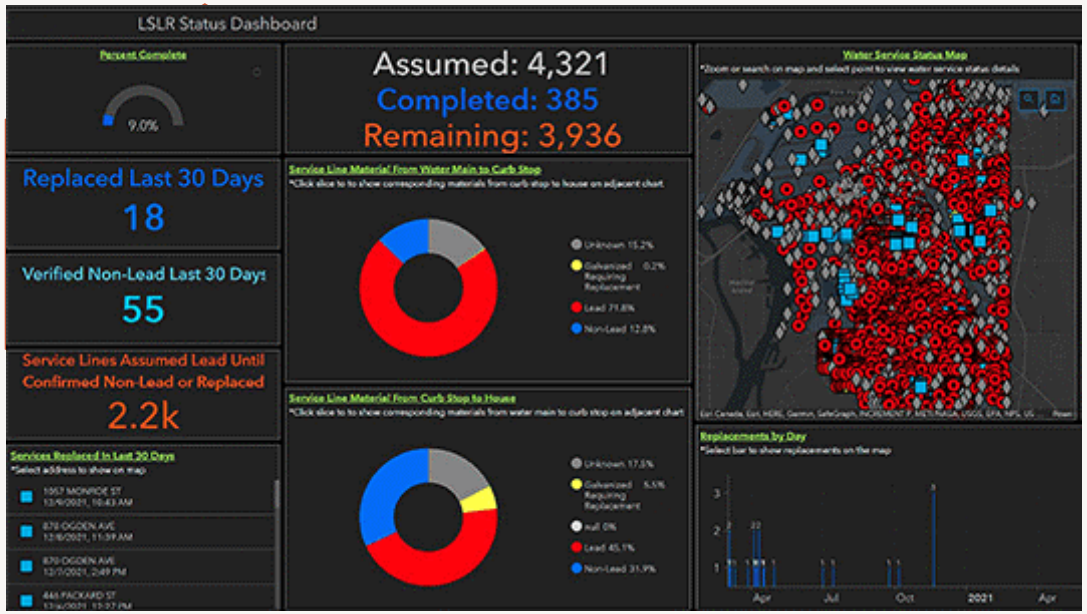
Inventory Cycle

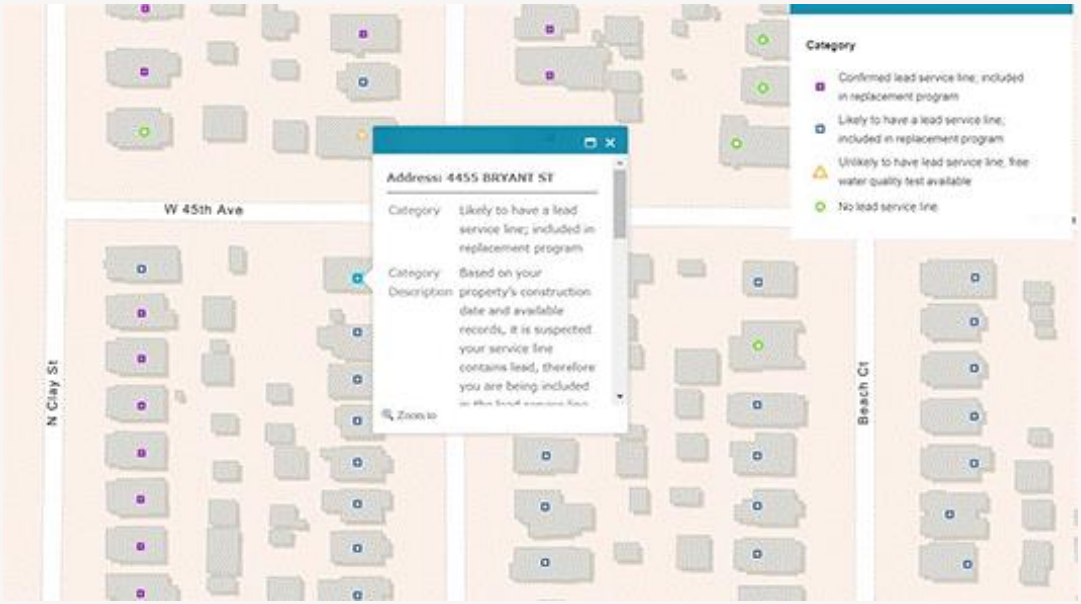


Water systems should treat the inventory as a living dataset that is continuously improved over time as the inventory is updated. The number of unknowns in the inventory should decrease as systems gather new information through normal operation and any proactive material identification activities in which the water system is engaged. The water system should also gain confidence over time in the accuracy of the inventory as records or material identification methods are assessed.

Mapping Tools:

- Esri has developed a solution for mapping and analytics for Lead and Copper Rule Compliance.
- Build a Lead Service Line Inventory
  - Multiple data sources
  - Analyze to make predictions of likely locations of LSL
  - Verify Data in the field and share with mobile & web apps.
- Monitor Lead Service Line Replacement
  - Track what has been replaced and what is yet to be replaced
- Inform the Public
  - Real time location data shared with public in easy-to-understand maps
- Data collected exports only to the EPA template and must be copied into state specific templates.

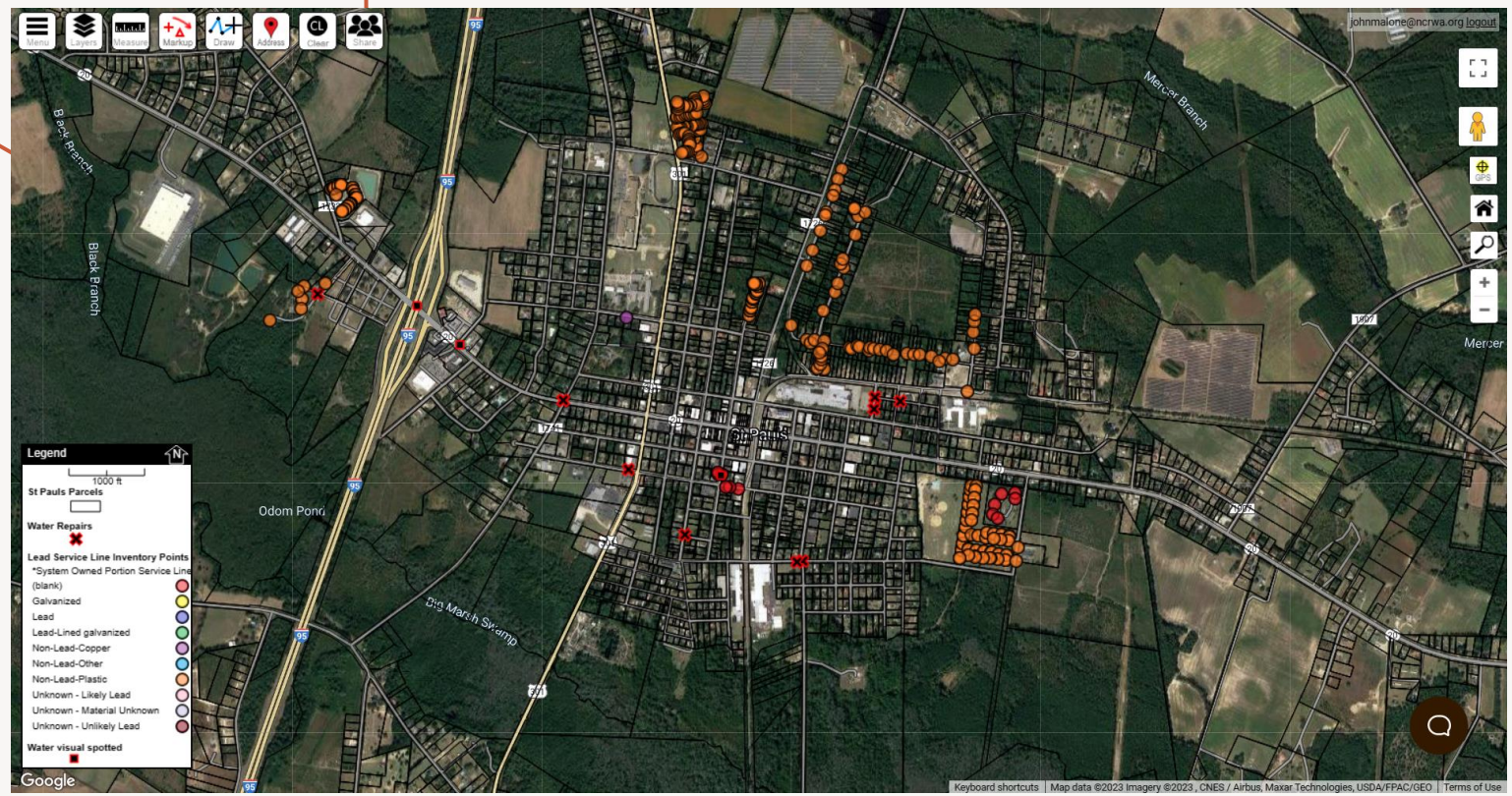




Mapping Tools:

DiamondMaps.com

- Diamond Maps has developed a layer that specifically addresses the needs for collection of data required in your inventories. Click here for video.
- Data can be exported directly from the program into the EPA or State specific spreadsheet.
- Maps can be exported for use as a visual representation of your inventory for customer review.



Mapping Tools:

Boundary Sync

Goal to map water utility boundaries

- Local Water Supply Plans

Collaboration devised a tool for LSLI

- System adds boundary
- By allowing boundary to be publicly available
- Lead Service Line Inventory Tool is available

Mapping Tools: Boundary Sync

Lead Service Line Inventory Tool

About | Building Info

Utility Selection

WASHINGTON, CITY OF

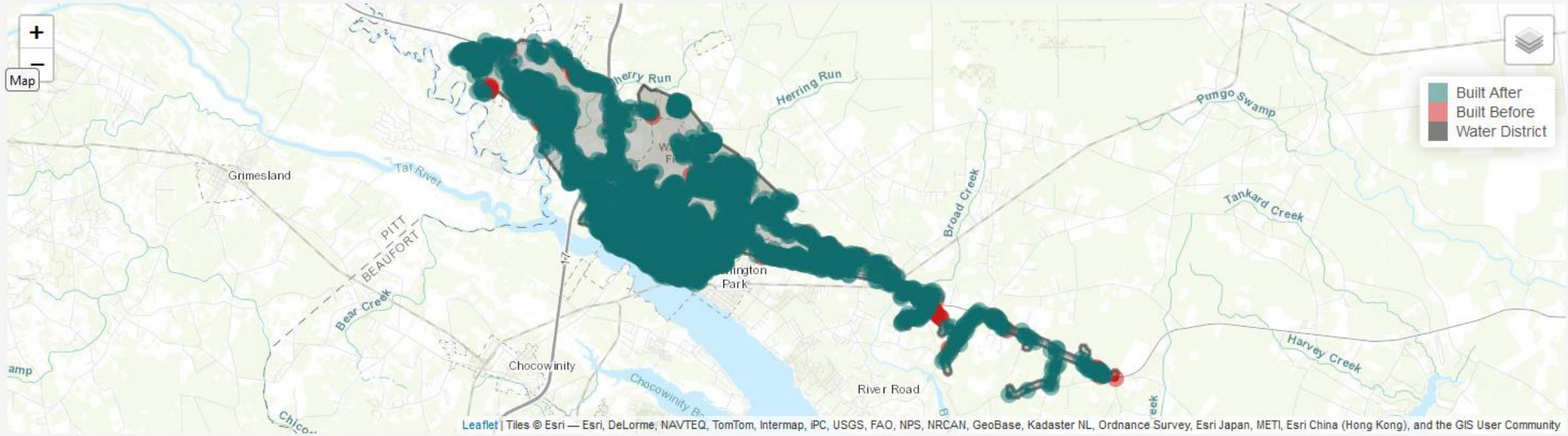
Highlight Year

1988

Justice 40 Boundaries (Set Occupency)

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1

Building Information (click on map marker)



Percent of structures built before 1988: 4 %

Generate Report for Water Utility

Source Data:

Utility Boundaries (Updated Dec 21, 2022)
NC Building Footprints (Updated Jan 5, 2021)
NC Addresses (Updated: Mar 2, 2023)
Justice 40 (Updated: Dec 15, 2022)

This tool can be used to determine construction year to aid in the customer owned portion of the lead service line inventory.

Lead Service Line Inventory

This is Big, but You can do it!

- Systems do not have to perform these inventories in-house; they can contract out all or portions of the technical and physical investigative work to:
  - Engineering Firms
  - Utility Contractors
  - Plumbing Companies
  - Vendors geared specifically toward LCRR compliance

- Systems can choose to perform full or partial inventories in house by:
  - Reassigning existing office and/or field staff
  - Prioritizing data collection and verification over other non-essential work
  - Hiring temporary staff
  - Utilize Interns (Great Opportunity for recruiting future employees)

- The Key is to **make a plan** and get started!

Where Do I Start?

Lead Service Line Inventory (LSLI)

Review: Inventory Requirements

- Water systems must update and submit to PWS the inventory, annually or every three years, based on their lead and copper sampling schedule. Systems with only “Non-Lead” service lines are not required to update PWS or the public.
- Water systems shall identify and track service line materials during normal operations in order to revise the inventory as service line materials are identified.
- The LSLI must be made publicly accessible. The public inventory must include a location identifier associated with each LSL and GRR line. Water systems serving >50,000 people must make the inventory available online.
- Systems must include instructions to access the public inventory in the CCR.

Lead Service Line Inventory

Where to Find more Information!

- NC DEQ Lead Service Line Inventory Web Page
  - Contains links to the NC Templates, Instructions and the NC Construction Materials Report with previous L& C submitted distribution materials.
  - Also contains links to US EPA Lead Service Line Inventory Guide and the Rules
  - https://deq.nc.gov/about/divisions/water-resources/drinking-water/lead-service-line-inventory

- US EPA Revised Lead and Copper Rule Web Page
  - Guidance Document for Development and Maintaining a Service Line Inventory
  - EPA Inventory Template (DO NOT USE FOR NC)
  - Other Supporting Materials
  - https://www.epa.gov/ground-water-and-drinking-water/revised-lead-and-copper-rule

Lead Service Line Inventory

Where to Find more Information!

- NCDEQ Division of Water Infrastructure
  - Provides information on funding for Lead Service Line Inventories and Lead Service Line Replacement.
  - LSLR funding application process is open year-round, with four funding opportunities per year.

Visit: https://www.deq.nc.gov/about/divisions/water-infrastructure/lead-service-line-replacement-funding

- North Carolina Rural Water Association
  - Provides links to information regarding the Lead and Copper Revised Rule
  - Provides information on Technical Services and Training provided by NCRWA.
  - Provides links to past presentations and webinars on completing a LSLI.

Visit: https://www.ncrwa.org/leadandcopperrules.html

Thank you

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