

Lead Service Line Replacement Programs - Getting the Lead Out Within Your Constraints

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**CDM
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Agenda

- Introductions
- Lead and Copper Rule Timeline
- Lead and Copper Rule Revisions
 - Materials Inventory
 - Lead Service Line Replacement
- Questions/Discussion



Lead and Copper Rule Timeline



Lead and Copper Rule Revisions (LCRR) Timeline

- Federal Register: January 15, 2021
- Presidential directive: January 20, 2021 requires review by EPA
- Effective date: ~~June 17, 2021~~ December 16, 2021
- Compliance date: ~~January 16, 2024~~ October 16, 2024
- Three potential outcomes from EPA review:
 1. ~~No change~~
 2. Handful of targeted revisions
 3. Wholesale revision (i.e., new Rule)

LCRR Overview

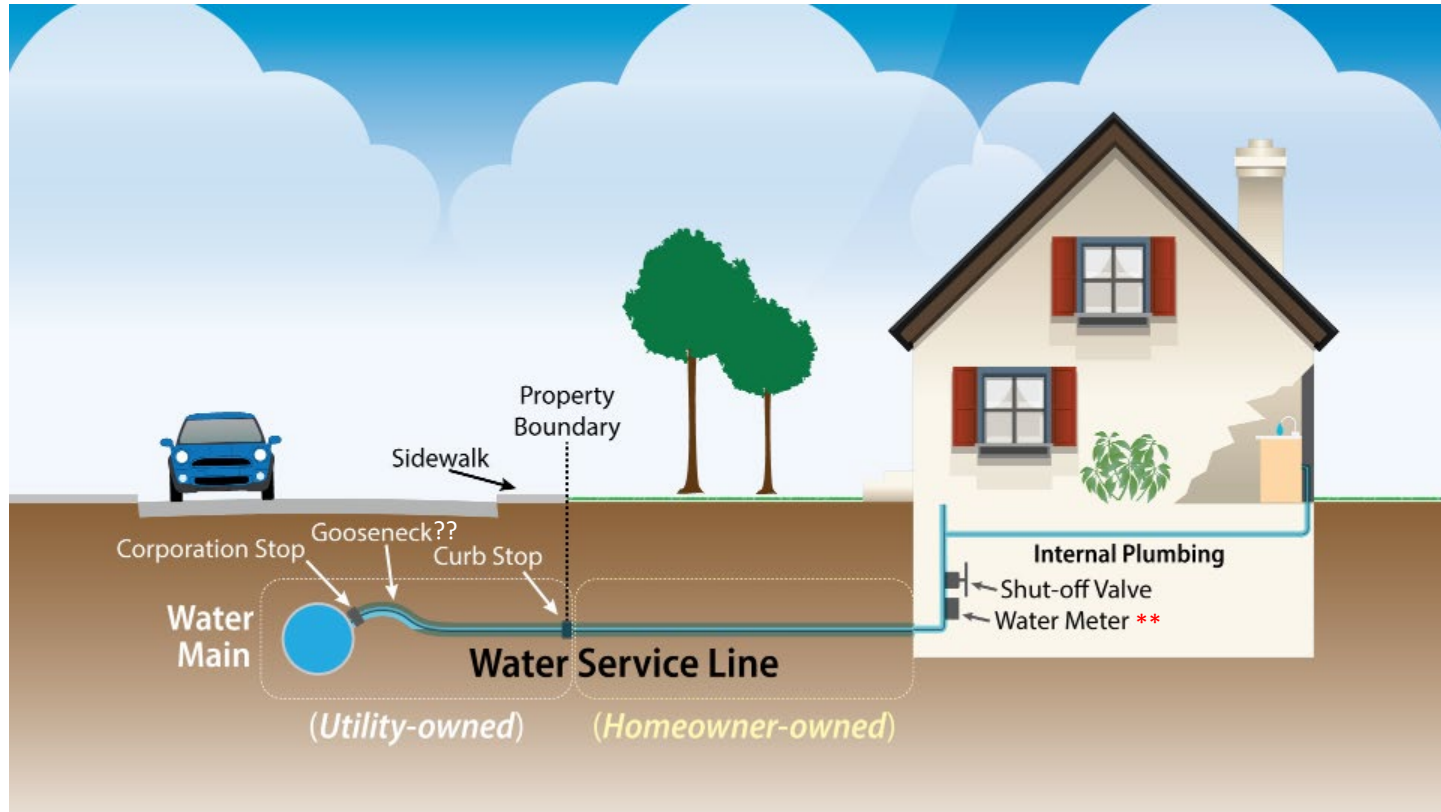
- Lead and Copper Rule Revisions
 - **Materials Inventory**
 - **Lead Service Line Replacement**
 - Compliance Sampling
 - School Sampling
 - Corrosion Control Treatment
 - Public Education and Outreach



Materials Inventory



Typical Service Line Configuration



Service Material Inventory – All Systems

- By 2024, inventory materials for both:
 - Utility-owned
 - Privately-owned
- Must include ALL service lines, without exclusions
- Update annually with replacements/new information
 - Triennially if on triannual monitoring
 - Updates not required if all non-LSL services
- Make publicly available
 - Large systems (over 50,000) – publish online
- Notify homes annually with LSL or “lead status unknown”

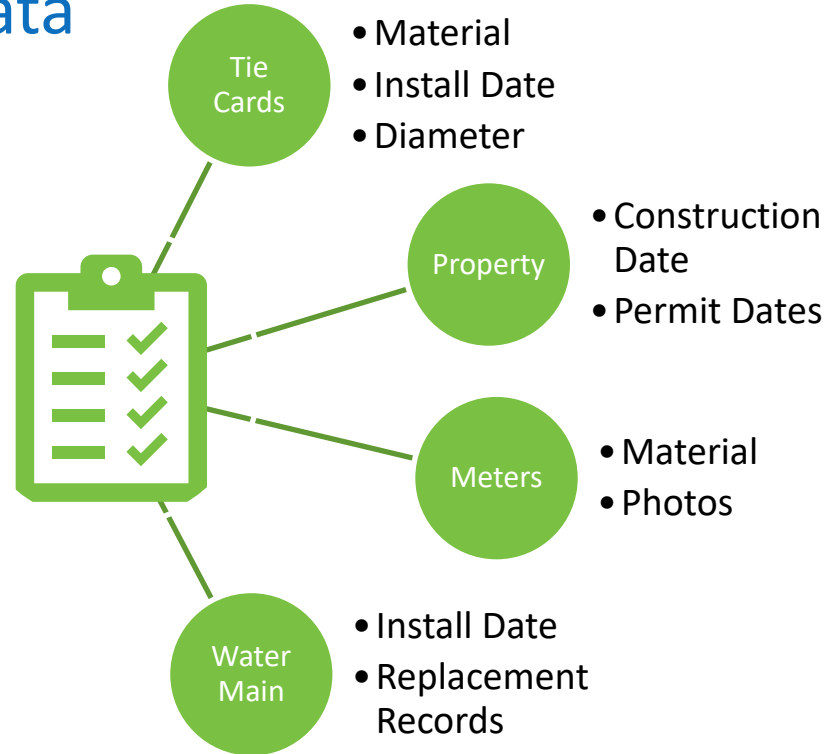
What counts as an LSL?

Location*	Count as LSL	Credit Toward LSL Replacement	Compliance Sampling Pool	Public Education if Disturbed
Lead pipe (anywhere)	✓	✓ if full replacement	Tier 1/2	✓
Unknown lead status (anywhere)	✓	✓ if found to be Pb and full replacement	x	✓
Galvanized pipe if lead upstream (now or <u>formerly</u>)	✓ if Pb pipe upstream	✓ if replaced along with upstream Pb pipe	Tier 3 (with Pb pipe OR gooseneck upstream)	✓
Gooseneck if no lead between gooseneck and interior plumbing	x	x	x	✓

*Between Water Main and Interior Plumbing

Information Sources for Developing Inventory and Data Management System

- GIS Database
- CMMS Database
- Paper Records
- Assessors Database
- Meter Replacement Programs
- Water Main Replacement Programs
- Interviews with Retired Operators/Institutional Knowledge



Verification Best Practices

- Interior
 - Door-to-door inspections by field staff
 - Homeowner surveys and photos
 - Meter inspections
 - Inspections during compliance sampling
 - Contractor inspections
- Exterior
 - Test pit
 - Utility records
- Needing further research
 - Cameras or CCTV
 - LiDAR scanning
 - Water quality
 - Sound or magnetic waves

Legend

Inactive

Replacement Completed or Verified No Lead

- ★ Completed Replacement
- ★ Test Pit completed found no lead
- ★ Verified non-lead on HO side, TWW non-lead, no test pit

HO Observed Lead or Galv.

-

HO Observed Not Lead

-

TWW Home Material Survey Status

- Inspection Completed
- Needs Verification (Blue Conduit)
- No Inspection - Need to return
- No Answer - Need to return
- No Inspection - Abandoned/Vacant
- No Inspection - Denied Access
- No Activity

Trenton Water Works
Lead Service Line Replacement Program

YES You have successfully signed up for the program.

YOUR NEXT STEP: To determine if your water service line is LEAD (or GALVANIZED STEEL which can contain lead)

Scratch the pipe located between your water meter and where it enters your house

Snap a photograph of the pipe with the scratch mark and **email** the photo with your property address to: twleadprogram@trentonnj.org

For more guidance: www.twleadprogram.com/check-your-line/

TWW employees are currently going door-to-door in your neighborhood if you need assistance identifying your material.

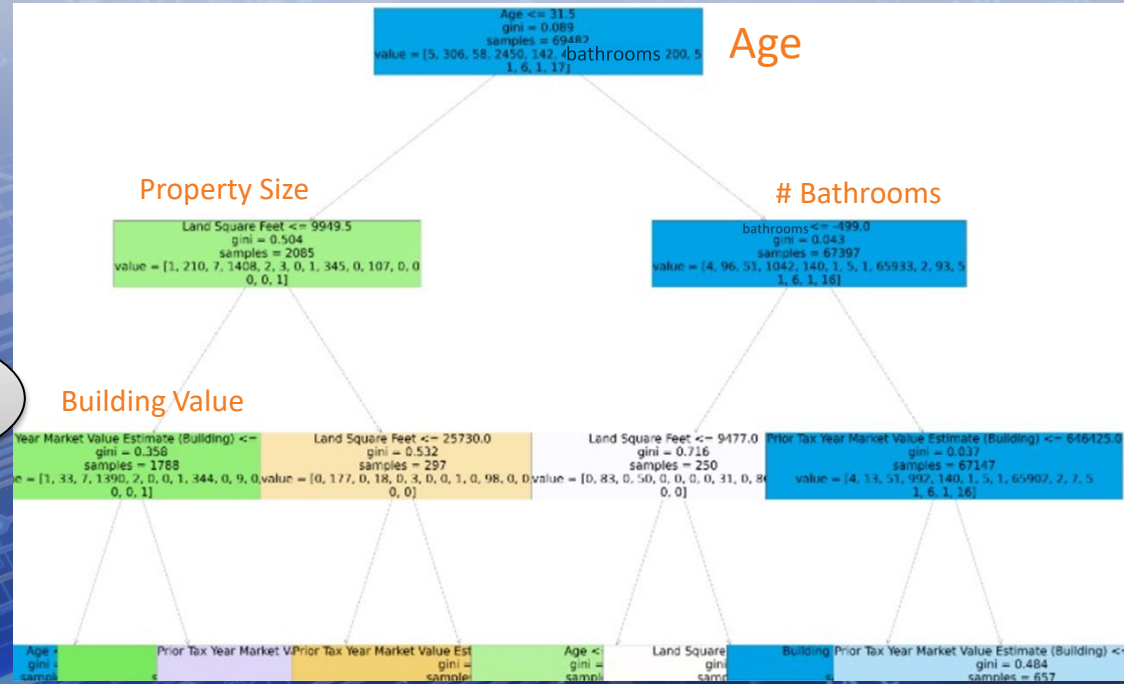
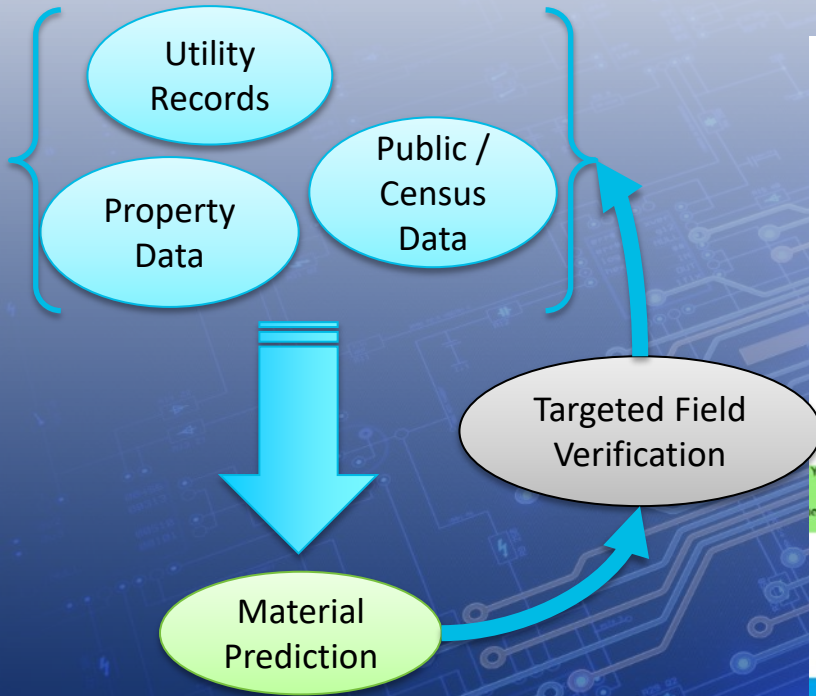
Note: Program duration is 3 years. Replacements are scheduled based on posting project schedules and density of replacements in your area. By registering for the program, you are signed up to have your lead line replaced during that 3 year window.

Develop a “Living Inventory” of LSLs

- List of Affected Customers
- GIS Data Layer of Service Lines
- Integrated GIS Database



Machine Learning for Developing Inventory



Applications for Machine Learning

Inventory Development

- Known sources and efficient methods for mining data
- Identify where the lead is
- Justifiable assumptions for where the lead is not
- Continuous improvement of model confidence

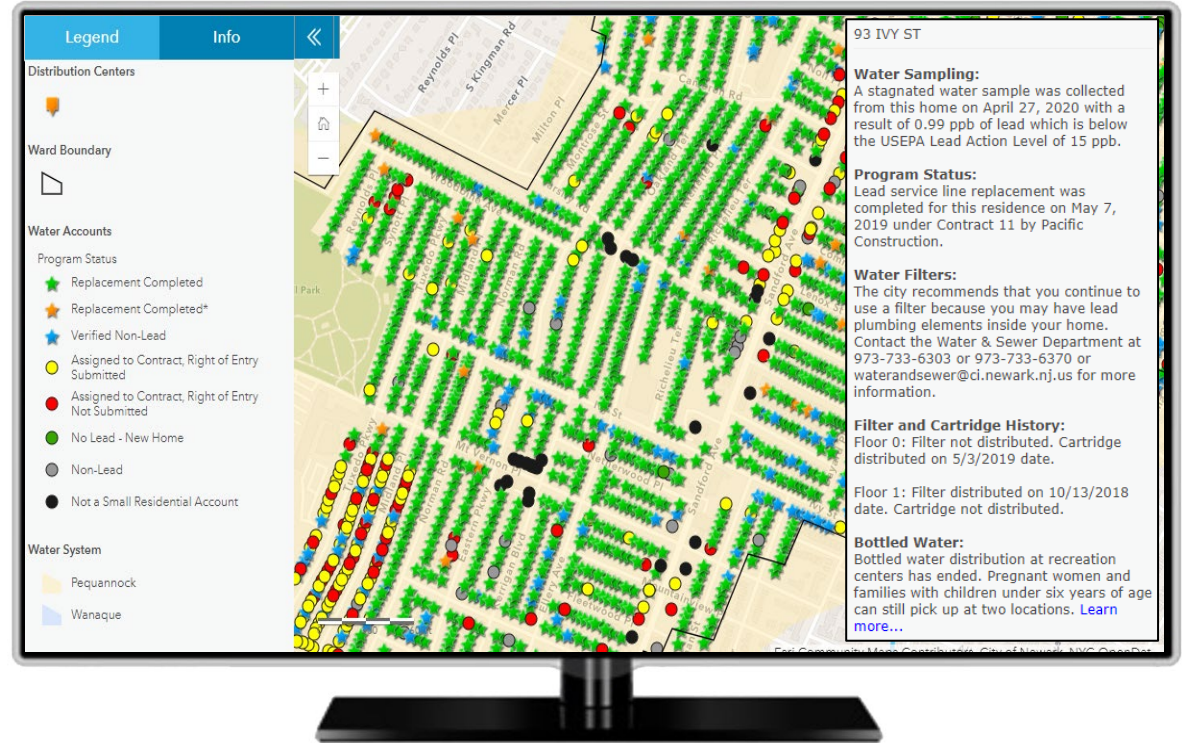
LSL Replacements

- Prioritization of replacements – send contractors to areas with greatest probability of lead
- Dig where the lead is – reduces uncertainty and saves money

Regulatory acceptance of probability of lead (or probability of not lead) remains uncertain

Provide LSL Information to the Public

- ArcGIS Web & Mobile Applications
- Easy-to-Use Search Tools
- General Program Information



LSL Replacement Programs



LSL Replacement Plan – All Systems

- Prepare a lead service line replacement plan to include:
 - Strategy for determining “unknowns”
 - Procedures to conduct full replacements
 - Funding strategies including ways to accommodate customers that are unable to pay
 - Communication strategies
 - LSL replacement goal rate if the 10 ppb trigger level is exceeded (systems over 10,000)
 - Flushing and filter procedures

Lead Service Line Replacement Program Planning

Ordinances/
Legislation

Funding

Develop
Inventory

Verifications &
Prioritization
Plan

Outreach

Design &
Bidding

Right of Entry
Agreements

Program &
Data Tracking

Replacements

Filters &
Flushing

Restoration &
Paving

Post-
Replacement
Sampling



LSL Replacement Requirements

Type of Replacement	Notification	Education Materials	POU Filter + 6 Months of Cartridges	Lead Sampling
Planned Replacement	45 days prior & offer to replace	Before returning to service	Before returning to service	3-6 months after
Emergency Replacement	N/A	Before returning to service	Before returning to service	3-6 months after
Customer-Initiated Replacement	45 days to replace utility's line	Within 24 hours of being notified of customer replacement	Within 24 hours of being notified of customer replacement	3-6 months after

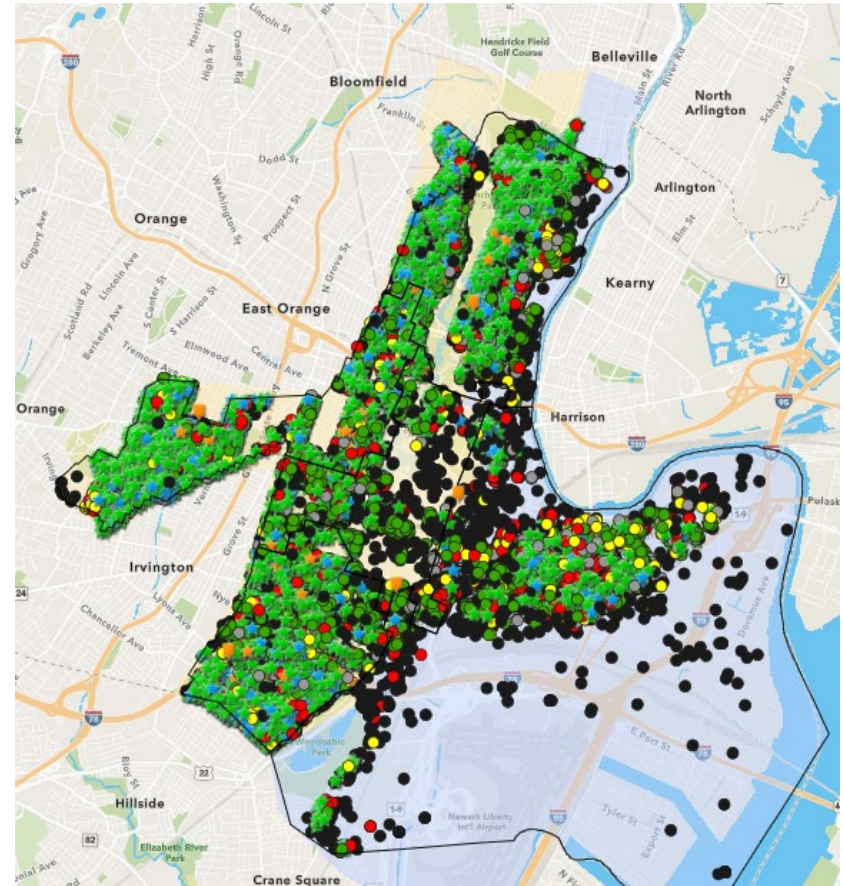
Disturbance Requirements – LSLs, Galvanized, Unknown

Type of Disturbance	Education Materials	POU Filter + 6 Months of Cartridges	Lead Sampling
Test pit, water temporarily shut off, service valve operated	Before returning to service	Not required	Not required
LSLR (partial or full), meter replacement, gooseneck replacement	Before returning to service	Before returning to service	3-6 months after



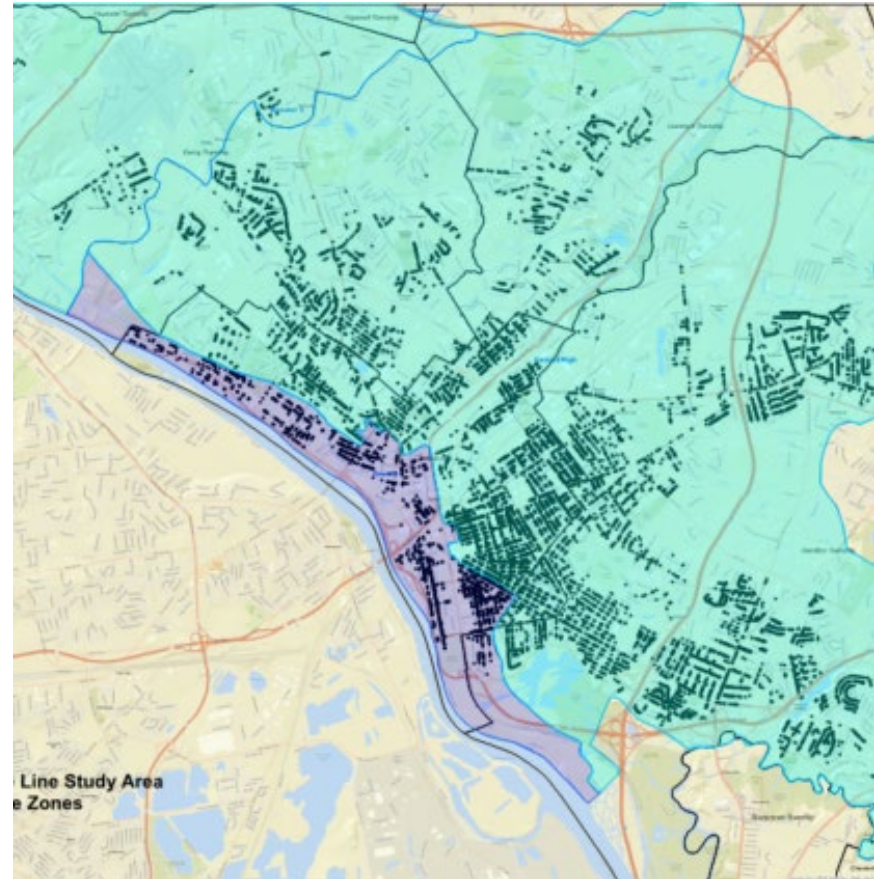
City of Newark, NJ

- 300,000 customers
- Approx. 23,000 LSLs with >20,500 replaced in 27 months
- Success factors
 - Free & mandatory
 - Funding sources
 - Mayor and Council strong advocates
 - Job training program for residents
 - Local PR firm to promote the program as a source of City price
 - Visibility & transparency



City of Trenton, NJ

- 225,000 customers (62,000 metered accounts)
- City of Trenton, Ewing, Hamilton, Lawrence, Hopewell
- Approximately 32,000 LSLs (galvanized)
- TWW owns main to curb; customer owns curb to meter
- 6+ year program
- Full replacements only
- \$1,000 Homeowner Cost



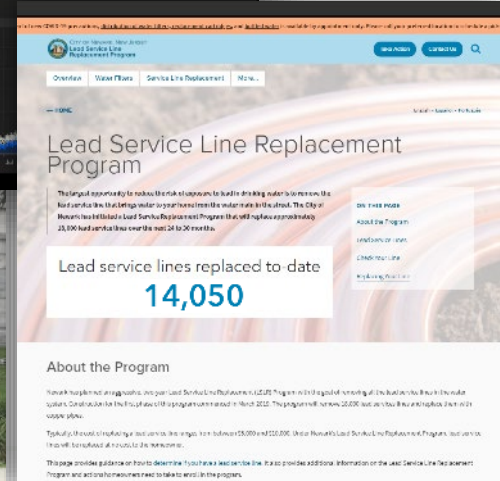
LSLR Program Summary (3 slides)

Item	City of Newark	Trenton Water Works
Program Basis	Mandatory; no direct cost to homeowners (homeowner or tenant still signs ROE); both public and private side replacements	Voluntary; \$1,000 over 5 years for homeowner side; both public and private side replacements
Program Schedule	2.5-3 years (23,000 LSLs)	6 years+ (32,000 LSLs)
Replacements to Date (July 23, 2021)	20,654	5,050
Replacement Rate	1,500+/month at peak; 500/month as it gets more challenging to find the LSLs; 150-200/month when cost to homeowner was \$1,000	250-400/month
Cost to Customer	No direct cost; mandatory	\$1,000 (interest free, over 5 years); voluntary
Service Line Ownership	Entire line owned by customer	Split ownership – many more lead/galvanized on utility-side

Item	City of Newark	Trenton Water Works
Funding	\$38M in State grants \$120M from Port Authority settlement Remainder in County & State grants	\$21.5M in State grants Remainder from State loans
Cost/Service Line (full replacement – both sides)	~\$6,000-\$7,000 (after became free); includes restoration	~\$7,000-8,000; includes restoration
Program Management Services	Included inventory, planning, design, permitting, funding assistance, construction management, data management, website with live GIS map, public outreach inspection services	Included inventory, planning, design, permitting, funding assistance, construction management, data management, website, public outreach, inspection services
No. Staggered Contracts	18 contracts (typically 3-5 at a time); 500 to 5,000 LSLs/ contract	6 contracts to date; 1,200-1,500 LSLs/contract
Legislation/ Ordinances	NJ Legislation: Private side can be removed with public funding (June 2018); City Ordinance: Mandatory & no direct cost, resident can provide access (Sept 2019)	NJ Legislation: Private side can be removed with public funding (June 2018); City Ordinance: Special tax assessment for customer contribution (Oct 2019)

Item	City of Newark	Trenton Water Works (TWW)
Point-of-Use (POU) Filters	Before and after replacement	Post-replacement filters starting with Phase 2
Inventory	Combined existing data sources (water accounts, tax info, C&M records, etc.) and scanned thousands of service cards. Pulled into existing ESRI ArcGIS Online database. Inventory information can be updated directly in the field with mobile apps.	Combined existing data sources (water accounts, tax info, C&M records, etc.). TWW staff reviewing cards to compare with inventory in GIS. All data in new ESRI ArcGIS Online database. Inventory information can be updated directly in the field with mobile apps. Contractor has access to update specific fields directly.
Verifications	Test pits at each location unless home is new construction (post 1990)	TWW field staff door-to-door to inspect interior; postcard campaign – homeowner provided info and photos; contractor inspections during LSLR. Tracking inspections with a GIS data dashboard.
Website	Online inventory with targeted information to residents about the LSLR program, filter distribution and lead results from most recent sample; Submit a right-of-entry online; information about the program and lead in drinking water; live progress metrics tied to GIS.	Register for the program online; submit a right-of-entry online; submit a material survey online; information about the program and lead in drinking water; live progress metrics tied to GIS.

Tracking LSL Program Progress via Technology





Take Action

Contact Us



Overview Water Filters Service Line Replacement More...

English - [Español](#) - [Português](#)

City of Newark's Lead Service Line Replacement Program

The City of Newark is committed to provide clean, safe and reliable drinking water to all Newark residents. To support this mission, the city has developed the Information About Lead Program. The program consists of a series of actions that Newark is undertaking to reduce or eliminate lead in drinking water at the customer's tap. The program also aims to educate the public on actions they can take to reduce their exposure to lead in drinking water.

Take Action



Newark's actions surpass the latest EPA guidelines

Jan 12, 2021

Newark's actions to eradicate lead from drinking water go beyond EPA's latest guidelines.

[Read More](#) →



New Study Findings About Water Filter Effectiveness

Nov 22, 2019

87% of the filters, when properly installed and maintained, reduced lead to 10 parts-per-billion (ppb) or below within the first year when the test was repeated for 7 months prior to filtering. 95.4% of the filters reduced lead to 10 ppb or below.

[Read More](#) →

Take Action

Check Your Address

Look up your property to find out what information the city has on file and what you can do next

Submit Your Right of Entry Form

Complete the form online

Register for the Program

Submit your registration online or download a printable copy

Send Us a Message

Request an application, ask a question, get assistance with the program, or volunteer to help

Get Water Filters

See if you are eligible and learn how to get your free water filter and replacement cartridges

Learn About the Program

Read what the City is doing to remove lead service lines

TWW LSLRP Website

The Lead Service Line Replacement Program has started. Our contractors are going door to door in Trenton, Ewing, Hamilton and Lawrence with a Right-of-Entry form that must be signed in order to inspect your service line material and, if lead, replace your service line. The contractors have photo IDs with the project logo. If you have any questions, please contact us at 609-989-3600 or email twwleadprogram@trentonnj.org.

TWW Lead Service Line Replacement Program

[CHECK YOUR LINE](#) [LEARN MORE](#) [FAQ](#) [CONTACT US](#) [REGISTER](#)

Trenton Water Works

Lead Service Line Replacement Program

[English](#) - [Español](#)

Program Goal

Reduce exposure to lead in drinking



Trenton Water Works

COVID-19
IMPORTANT INFORMATION

We're Taking Precautions During COVID-19



Trenton Water Works (TWW) is taking precautions to protect homeowners and our subcontractor representatives while moving forward on the Lead Service Line Replacement Program.

What you can expect from our contractors:



Communications: The site team begins each day with a discussion of best practices to ensure the health and safety of themselves and our customers.



Health check: At the beginning of each work day our field crews are checked for symptoms and asked a series of questions regarding their health and exposure risks.



PPE: Masks and gloves will be worn at all times while inside your home.



Minimize interaction: Physical distancing of 6 feet will be maintained. Touching anything on your property or in your home will be limited as much as possible. Every effort will be made to complete discussions and questions regarding the work to be done before entering your home.

What we ask of you:



Minimize interaction: Maintain physical distancing of 6 feet from contractors.

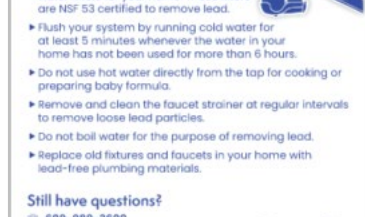
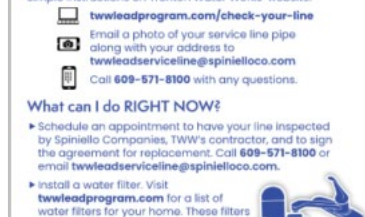
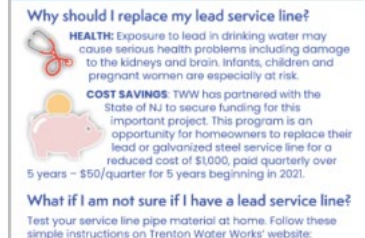
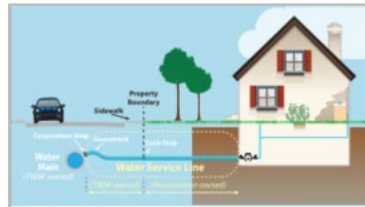
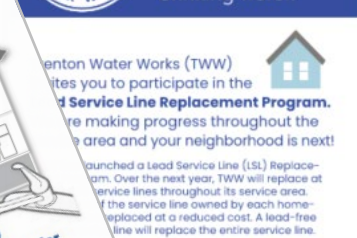
Please wear a mask.



Scheduling: If you or anyone in your home is unwell or has been directly exposed to COVID-19 or exposed through a family member or other contact in the last 14 days, please call 609-571-8100 or email twtleadservice@spiniello.com to re-schedule your appointment.

Partnership is key for everyone's safety.

Thank you, TWW and Spiniello Companies



Construction Lessons Learned

- Markouts
- Construction methods
- Corp stop replacement
- Lead downstream of meter
- Access for flushing
- Restoration/ Customer satisfaction
- Leaks when homeowner is not signed up
- Illegal activity inside homes
- LSL unit price with “add-ons”
- Bid items for when customers change mind, miss appointments or pipe not lead





Preparing for LCRR

Dept. Impacted by LCRR	Inventory	Tap Sampling	Schools	CCT	LSLR	Public Education
Water quality		X	X	X	X	
Laboratory	X	X	X	X	X	
Engineering	X			X	X	X
Field operations	X	X			X	X
Metering	X				X	X
Capital planning	X			X	X	
Water treatment		X		X		
Corporate communications	X	X	X		X	X
Customer service	X	X	X		X	X
GIS	X	X	X		X	X
Gov't & public relations			X		X	

8 Things to do Before October 2024



1. Develop inventory for all service lines and prepare website to host
2. Verify lead status unknown service lines
3. Develop a LSLR Plan and new SOPs for disturbances
4. Update sampling pool with new tiers
5. Revise sampling protocols for 5th liter
6. Prepare sampling plan for schools & daycare centers
7. Review CCT and start performing 5th liter sampling
8. Prepare new public notifications



Q&A/Discussion