BAXTER & WOODMAN Consulting Engineers

APWA 2026 Illinois Chapter Conference

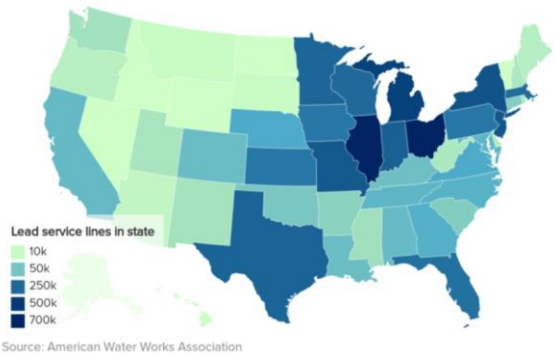
The Road to 2027: Preparing Your Community for LSL Replacements

November 5, 2026

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History of Lead

- Naturally occurring mineral
- Widely used in water distribution systems in the late 19th Century and early 20th century
  - Lead Pipes, Goosenecks, Lead Solder, Leaded Alloy
- 1986 –Congress Amends Safe Drinking Water Act, prohibiting lead pipe, flux, or solder.
  - There was a two-year implementation period
- 1991 - The Lead and Copper Rule first published
- 2014 / 2015 – Flint Water Crisis
- 2021 – Lead and Copper Rule Revisions
- 2024 – Lead and Copper Rule Improvements



Source: American Water Works Association

There is no safe exposure to lead.

Fetuses, newborns, children under 6 and pregnant or breast-feeding mothers are most vulnerable to the harmful effects of lead poisoning. Lead can cause lower IQ, learning problems, speech disorders, anemia, and trouble concentration/paying attention.

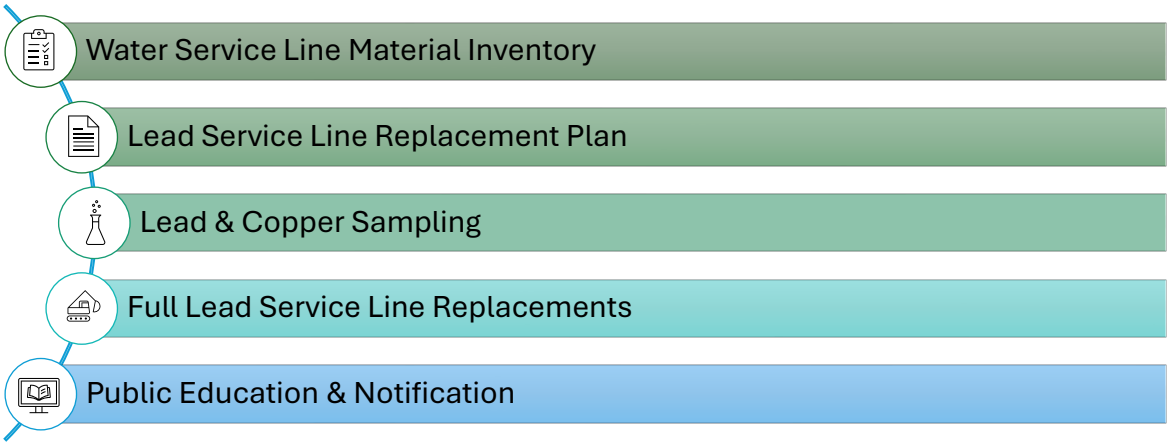
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Navigating Updated Regulations

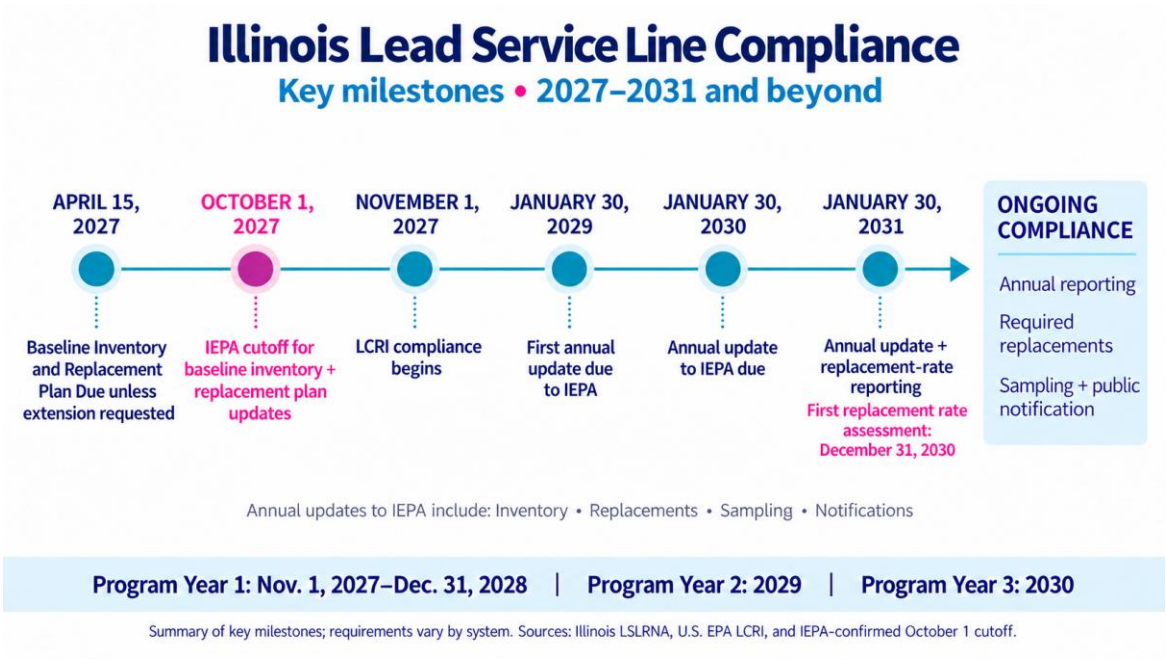


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Key Components of State & Federal Regulations



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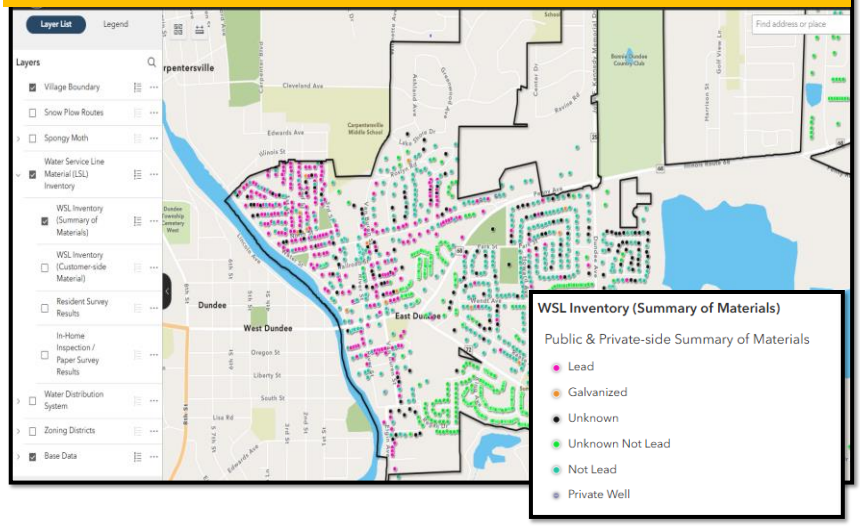


Inventory & Replacement Plan

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Water Service Line Material Inventory

Lead, GRR, and Unknown lines are included in the initial replacement pool.



Baseline Inventory

- All Water Service Lines and Ownership
  - Private & Public Side
  - **Connectors**
- New LSLs Identified and LSLs Replaced
- All systems must make publicly accessible

Connectors

- Piece of pipe (3' or less) connecting from the watermain to the service line
  - Must identify connector material where present, or
  - Note "No Connector Present"

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Validating Your Water Service Line Material Inventory

Validation of services identified as Non-Lead

- **Complete by December 31, 2034**
  - *Or by 3 years prior to end of CWS replacement program*
- **Report on January 30, 2035**

Validations require:

- Locations to be randomly selected by the CWS
  - Provide a statement to IEPA on how sites were selected
- Two-point visual inspection (private & public) of service line exterior
  - Ex: potholing each side of the b-box

Tiered validation pool based on non-lead quantity

Validation Pool excludes:

- Non-Lead service lines identified by age (installed after 1986), or
- Previously replaced LSL/GRR, or
- Previous two-point visualization

If Lead or GRR is identified:

- Newly identified LSL/GRR gets included with replacement pool
- IEPA will work with the CWS on recommending next steps

Validating Non-Lead Service Lines	
Validation Pool	**Validations Required**
< 1,500	20% of validation pool
1,500 to 2,000	322
2,001 to 3,000	341
3,001 to 4,000	351
4,001 to 6,000	361
6,001 to 10,000	371
10,001 to 50,000	381
> 50,000	384

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Lead Service Line Replacement Plan

- **Plan for 10% Replacement Per Year**
  - Deferred replacements for high LSL burden communities (confirmed lead & GRR > 39%)
  - Replacement pool calculations will be provided in a SEP to all systems
- **Strategy for identifying remaining unknowns**
- **Private property access requirements and barriers**
  - Public Act 104-0572 grants CWS that are paying 100% of replacement cost access to private property to complete replacements
- **Full replacement procedures**
  - Regulatory procedures
  - Internal procedures and workflows
- **Funding strategy**
- **Resident notification and communication strategy**
- **Flushing and risk-mitigation procedures**

Every CWS with at least one lead, GRR, or unknown service line must submit a replacement plan to IEPA by April 15, 2027.



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Lessons Learned So Far

- **Material Classifications**
  - Work to confirm remaining unknowns in system, especially connectors
    - Empower daily operations to collect information
    - Coordinate with local permitting to require unknown materials be identified
    - Predicative Modeling / Statistical Analysis can be used
  - Investigate any locations identified as Galvanized
    - Galvanized requires replacement if a CWS cannot demonstration it was never downstream of lead.
    - IEPA requirements for "proof" – Documentation (as-builts, plans, ordinances/codes) or a signed letter by CWS operator sharing historical knowledge.
    - IEPA is happy to setup a meeting to discuss individual systems
- **Plan for LSL Replacements Now**
  - Coordinate replacements with upcoming capital projects:
    - Watermain / Underground work (complete LSLR with project)
    - Roadway & Sidewalk (complete LSLR 1 – 2 years prior to project)
  - Financial Impact & Funding Sources



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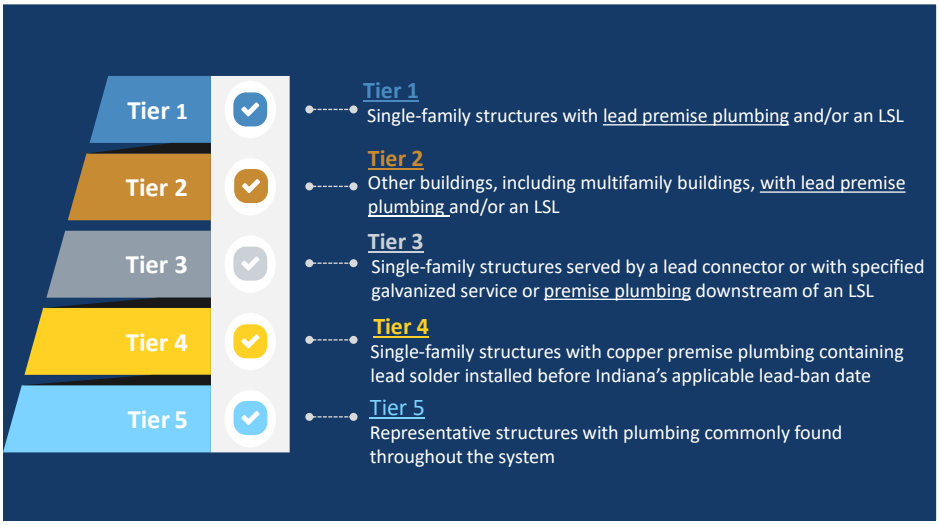
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Section 2

Lead & Copper Sampling

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Sample Site Tiering & Selection

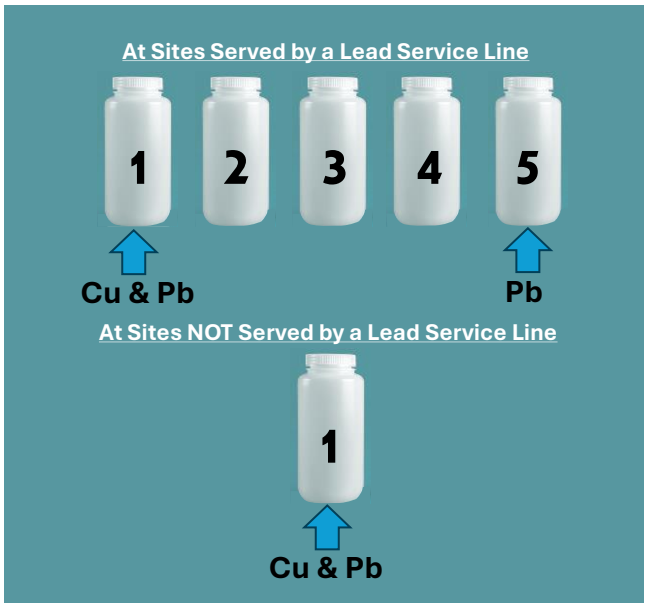


- **Must exhaust sites in highest Tier before looking to subsequent Tier.**
- **A site becomes unavailable after:**
  - Refusal, or
  - Two unsuccessful outreach attempts
- **Submit documentation of refusals and non-responses to IEPA by following January 30th**

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Sampling Procedures

- **Action Level reduced to 10 ppb**
  - Trigger level goes away
- **First liter is analyzed for copper and lead; Fifth liter is analyzed for lead**
  - Higher lead results are used for that site
  - A single 1-liter sample will be tested for lead and copper at sites not served by a lead service line
- **A CWS may remain on reduced monitoring if:**
  - Using updated sample site tiers
  - Analyzing lead in 1st & 5th liter (where applicable)
  - 90th Percentile does not exceed Trigger Level (10 ppb)
- **Sampling at schools and daycares is still ongoing.**



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Sampling Results & Required Action

	Action Level: 10 ppb
All Sample Sites	• **Within 3 Business Days**: Notify the customer of sampling results, regardless of result

Exceedance at Individual Sample Site	• **Within 3 Business Days**: Notify the customer of results
	• Conduct a Distribution System and Site Assessment
	  • **Within 5 Days:** Systems with corrosion control treatment must collect WQP (pH, alkalinity, ortho/silica) within ½ mile, in same pressure zone and on same size main of elevated site
	  • **Within 30 Days:** Resample site for Lead and Copper
	  • **Within 30 Days:** Evaluate potential causes and corrective actions and submit findings to IEPA

Exceedance of 90th Percentile	• **Within 24 Hours:**
	  • Consult with IEPA
	  • Issue Tier 1 public notice in a manner that reaches customers served (broadcast media, posting at conspicuous locations throughout service area, hand delivery)
	  • Send copy of notice to IEPA and U.S. EPA
	• **Within 60 Days:** Conduct public education
	• Return to standard monitoring
	• Complete other IEPA-required actions (install or re-optimize corrosion control)

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Section 3

Lead Service Line Replacements

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Full Lead Service Line Replacements

Rate of Replacements

- LCRI – 10% per year unless given differed rate
- 3-Year Rolling Average, beginning with 2030
- IEPA using cumulative average replacement rate to assess program compliance

Capital Improvement Projects or Emergency Repairs

- Property Owner can deny access and CWS may continue with replacement of "public" side
- Property Owner should sign the IDPH Waiver
- If Property Owner does or does not sign the waiver, CWS should fill out the partial replacement form on IDPH's website.

Standalone / Independent LSL Replacement Projects

- Property Owner can deny access - CWS should not continue with replacement of "public" side

Lead and GRR Service Lines not replaced

- Remain in replacement pool
- Require annual notifications
- Must be offered replacement within 6-months of property sale
- May impact sampling requirements

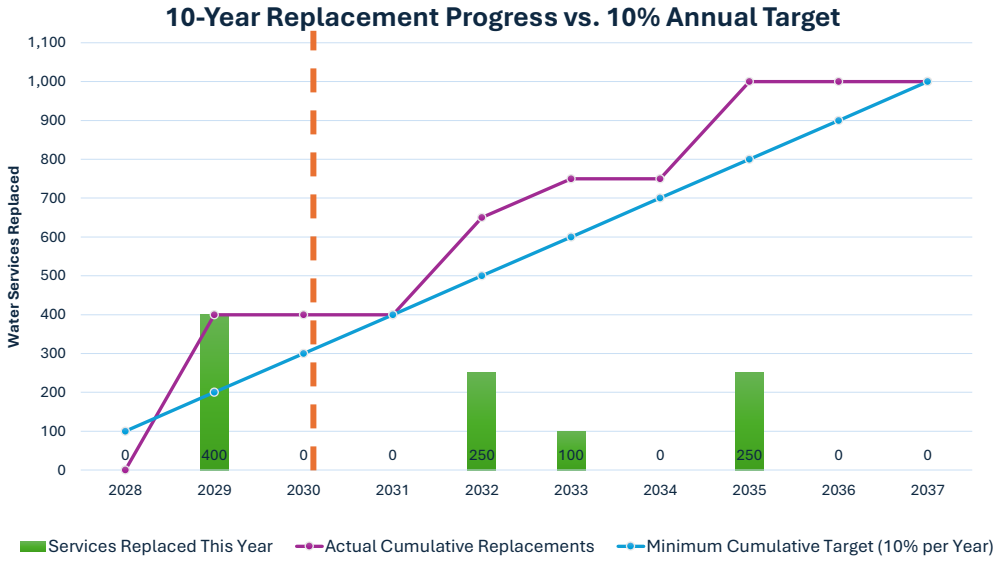
Lead Connectors (3' or Less)

- Must be replaced when encountered during planned or unplanned work



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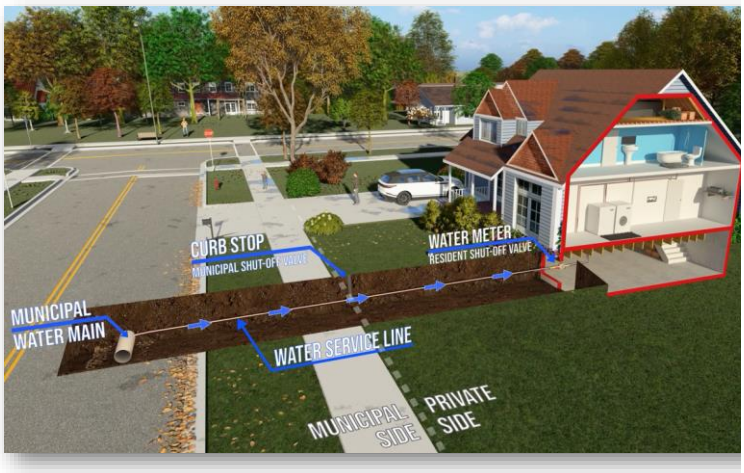
Full Lead Service Line Replacements



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Full Lead Service Line Replacements

- **Lead [Public Side], Lead [Private Side]**
  - Replace both the private and public sides
- **Copper [Public Side], Lead [Private Side]**
  - Replace existing lead service, private side only.
  - If no leaded-brass fittings/valves or lead solder is present/suspected, Copper service on the public side shall remain.
- **Lead [Public Side], Copper [Private Side]**
  - Replace existing lead service, public side only.
  - If no leaded-brass fittings/valves or lead solder is present/suspected, copper service on the private side shall remain.
- **Copper [Public Side], Copper [Private Side]**
  - Existing service shall remain



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Disturbing a Lead Service Line: CWS Responsibility

Disturbance "Level 1" Water Shut-Off

- CWS must provide notice to a property with a lead, GRR, or unknown water service line that lead levels may temporarily increase and measures to reduce lead exposure

Disturbance "Level 2" Water Meter Replacements / Repairs

- CWS must provide a water filter with 6-months filtration and notice to a property with a lead, GRR, or unknown water service line that lead levels may temporarily increase and measures to reduce lead exposure

Disturbance "Level 3" Water Service Line Repair/Replacement

- CWS must facilitate the FULL replacement of a Lead or GRR water service line within 30/120 days
- CWS must provide a water filter with 6-months filtration and notice to a property with a lead or GRR water service line that lead levels may temporarily increase and measures to reduce lead exposure

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Lessons Learned So Far

Bidding documents

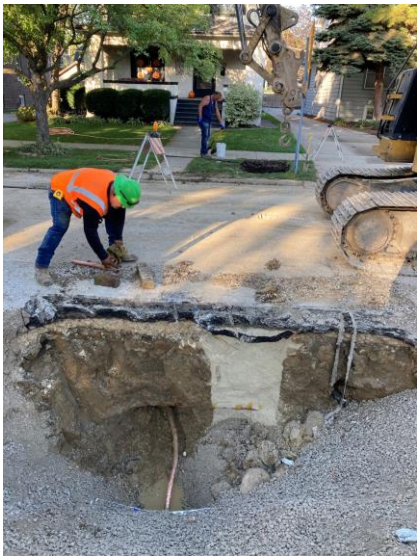
- Full replacements vs Partial Replacements (Pay items!)
- Restoration efforts (Exterior vs Interior)
- Trenchless methods vs Open Cut
- Existing service abandonment (Sleeving, Encasing, Turning off and moving on?)
- Access Agreement / Hold Harmless Agreement

Construction Activities

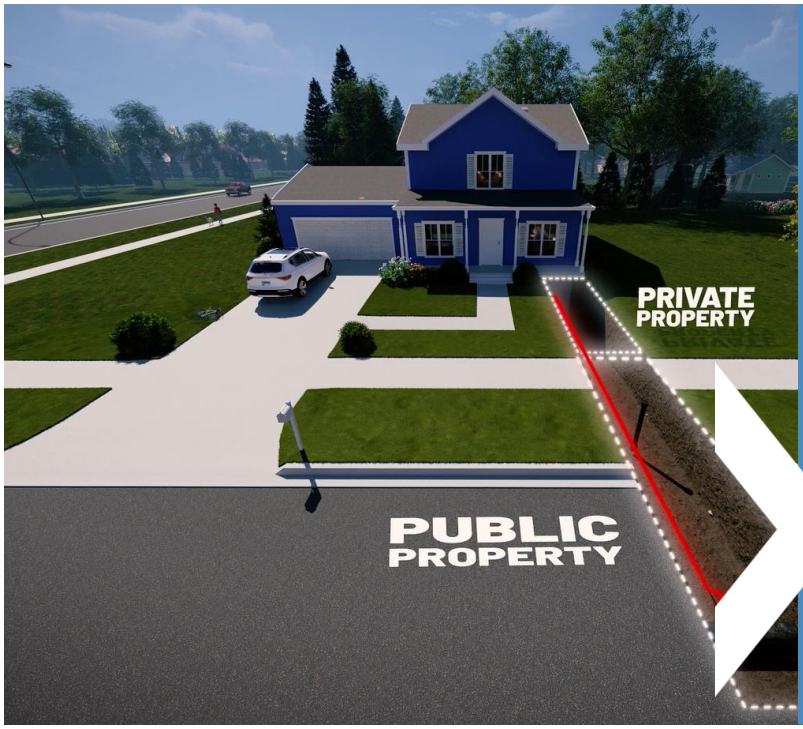
- Replacement mobilization
- Street parking
- Sewer services – Are you locating and televising prior to replacements?
- Restoration – Its not over until its over

Construction Scheduling & Notification

- Who is responsible for coordination and scheduling?
- Who is responsible for securing HHAs and providing notices?



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Section 3

Public Education and Notification

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Required Resident Notification Requirements

Inventory

- **Newly Identified** - Notice of newly identified Lead or GRR
- **Annual Notification -** Notice to Lead, GRR and Unknowns annually until replaced or identified

Tap Monitoring

- **Sampling Results** - Notice of results within 3 days of receiving results
- **AL Exceedance** – Tier 1 Public Notice **within 24 Hours** & public education to all customers within 60 days of sampling period end

Replacement & Disturbance

- **45-Day Notice** – Notice 45 days prior to construction beginning
- **14-Day Notice** – Scheduling notice with property owner of agreed upon replacement date
- **Completed Replacement** – Notice of replaced LSL or GRR
- **Disturbed LSL or GRR**– Notice of increased temporary lead risk



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Lessons Learned So Far



- **Educate everyone who answers the phone**
  - Prior to new notices going out
  - Who they need to send calls too / where information is
  - What response we want from the resident
- **Templates! Review! Repeat!**
  - Get buy-in from ALL decision makers
  - Be readily available (both printed and electronic)
- **Not every media type is for everyone**
  - Utilize existing infrastructure: website, social media, town meetings
- **You still won't reach everyone**
  - Sometimes you just have to resort to a yard sign

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Final Thoughts & Takeaways

Inform All Impacted Staff

Water Department/Public Works, Administrative Staff, Council/Board

Develop Educational Materials

Frequently Asked Questions, How to determine a service line material, Water Treatment Information, Sampling Process, Replacement Programs, Reasons to Replace a LSL



Update Inventory & Plan

Continue to identify unknowns, investigate galvanized locations, consider funding opportunities, prepare for 10% replacement rate.

Prepare for Sampling Changes

Finalize sample site plan, coordinate with your lab, anticipate response if there is an exceedance

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Questions? Let's turn compliance into action.

CONTINUE THE CONVERSATION



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GET THE LEAD OUT
BAXTER & WOODMAN

FROM REGULATION TO FIELD EXECUTION

Inventory gives you the map.
Full replacement removes the source.
Clear communication builds trust.

INVENTORY • SAMPLING • FUNDING • DESIGN + CONSTRUCTION • PUBLIC EDUCATION

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