

# Lessons Learned:

## Two Years of Accelerating Lead Service Line Replacement in New Jersey Communities



Advancing Public Health

Smart Infrastructure. Lead-Free Communities.

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The Jersey Water Works Lead Service Line (LSL) Implementation Workgroup, whose mission is to identify best practices for LSL replacement, developed this publication. The Workgroup, composed of water utility officials, consultants, and public policy advocates, is chaired by Rich Calbi, Executive Director of Ridgewood Water, and Mike Furrey of PACE Analytical Services. The Workgroup reviewed this report, authored by Deandrah Cameron, Policy Manager at New Jersey Future. For more information, email [dcameron@njfuture.org](mailto:dcameron@njfuture.org).

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# About the Report

A high-speed photograph of water splashing, creating intricate ripples and droplets. The water is clear and bright, with some droplets frozen in time at the top right. The overall tone is clean and fresh.

The following report is based on qualitative research and insights gathered from the field and the knowledge and expertise of the LSL Implementation Workgroup. The information presented is informed by New Jersey's proactive approach to addressing lead contamination in drinking water, including the legislation enacted in July 2021, which mandates the replacement of lead service lines (LSLs) by 2031. Our understanding of LSLs, including New Jersey's expanded definition that considers galvanized service lines as LSLs, shapes our analysis. We recognize the complexities and challenges faced by drinking water systems, governments, and stakeholders in complying with the legislation, and our recommendations reflect the need for clear standards, sustainable financing models, property owner education, and comprehensive statewide policies. The report's findings and conclusions are grounded in the collective expertise of the workgroup and should be considered as guidance rather than definitive solutions.



## Service line

The service line is the pipe connecting the water main to the interior plumbing in a building. It may be owned wholly by the water system or the customer, or ownership may be split between the water system and the customer. Service lines are usually underground, except for the final connection with interior plumbing within a crawl space, first floor, or basement.

## Lead service line (LSL)

A lead service line is a water supply connection made of, or lined with, a material consisting of lead that connects a water main to a building inlet. A lead pigtail, lead gooseneck, or other lead fitting is considered to be a lead service line, regardless of the composition of the service line or other portions of piping to which such a piece is attached. New Jersey's definition of an LSL is more inclusive than the US Environmental Protection Agency's (EPA's) definition of an LSL as it includes lead and lead-lined pipes, galvanized downstream of lead - currently or previously galvanized pipes not downstream of lead, lead goosenecks, fittings, and pigtails.

## Lead service line replacement (LSLR)

Lead service line replacement (LSLR) is the elimination of lead pipe from a water main up to the home's interior plumbing. LSLR can be full or partial.

## Partial lead service line replacement (LSLR)

Partial LSLR means replacing any portion of a lead service line or galvanized service line that leaves any length of a lead service line or galvanized service line in service and requires replacement upon completion of the work.

## Full lead service line replacement (LSLR)

A full replacement is the replacement of all lead- or galvanized-containing portions of the service line along its entire length, regardless of service line ownership, with materials that meet the Safe Drinking Water Act (SDWA) Section 1417 definition of lead-free applicable at the time of the replacement.

## Galvanized service line

Iron or steel piping dipped in zinc to prevent corrosion and rusting. As noted above, New Jersey considers a galvanized service line a lead service line, even if it is never downstream from a lead connector.

## Gooseneck, pigtail, or connector

A short section of piping is used for connections between rigid service piping. In NJ, lead or galvanized goosenecks, pigtails, and connectors are not considered part of the lead service line but must be replaced as part of LSLR or other work where these portions are impacted. They also may be required to be replaced under PL 2021, c. 183 (A5343).

## Water main

A pipe that conveys drinking water to a connector or customer's service line. The water main is usually located under the street or sidewalk.

## Master meter

A master meter is a meter on a common pipeline that serves more than one building, unit, or service downstream of the meter. Master meters can be on water mains with privately owned mains and service lines downstream or on a service line that divides into multiple service lines downstream. They are typically found on campuses, shopping malls, apartment complexes, private communities, and more.

## Public Community Water Supply (PCWS) systems

The federal and New Jersey Safe Drinking Water Act defines public community water supply (PCWS) systems as "a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents."



# Background

New Jersey proactively addressed lead contamination in drinking water by enacting legislation in July 2021. New Jersey Public Community Water Supply (PCWS) systems must identify and conduct full lead service line replacements (LSLRs) within ten years (i.e., by 2031). In New Jersey, a “lead service line” (LSL) means a water supply connection made of lead and lead-lined pipes, galvanized pipes downstream of lead - currently, or previously, galvanized pipes not downstream of lead, lead goosenecks, fittings, and pigtails. Unique to New Jersey, a galvanized service line is considered an LSL and must be replaced in the same way as LSLs. The PCWS, a property owner, or both may own an LSL.

New Jersey’s proactive approach in its definition of an LSL introduced several challenges that water systems were largely unprepared for. Due to the lack of incentives, the replacement process is more challenging for LSLs partially or wholly located on private properties. Property owner engagement and education are crucial for both the successful identification of service line material and the implementation of replacement programs. NJ’s statute mandates that drinking water utilities replace at least 10% of identified LSLs annually and stipulates a potential five-year extension for systems that require additional time to meet the mandate. The statute also sets forth requirements for communication, LSLR planning, and progress reporting. The law provided an option for municipal water systems to recoup the cost of replacing privately owned LSLs through water rates; privately owned water systems already had this option. However, three years into the statute's implementation, it has become clear that this is a large and complex undertaking as new challenges surface.

Despite progress, drinking water systems, governments, and stakeholders face numerous obstacles in complying with the legislation. Overcoming these challenges requires clear standards and communication, sustainable financing models, and education and outreach to property owners about the benefits of LSLR. A comprehensive approach that includes more robust statewide guidance from the New Jersey Department of Environmental Protection (NJDEP) and improved customer billing transparency is necessary to ensure the timely and successful replacement of LSLs, protect public health, and minimize health risks associated with lead in drinking water.



# Summary of Recommendations

## ❖ State

### **Develop and Implement Uniform LSLR Policies**

The success of replacing LSLs requires uniform policies and statewide outreach with clear and consistent messaging to water systems and their customers.

### **Establish Proper Enforcement Guidelines for Water Systems**

Before 2031, implement enforcement guidelines for the water system to navigate repeated customer refusals and guidance for penalties associated with non-compliance with state statutes.

Municipal

## ❖ Municipal

### **Streamline Coordination of LSLR Plans with Paving Projects or Other Projects that Disturb the Roadway or Sidewalks**

Coordinating local permitting processes with paving projects associated with sewer maintenance plans, main replacements, and other utility projects across jurisdictions provides cost-saving solutions.

### **Waive Road Opening Moratoriums and Reduce Paving Costs**

Consider suspending moratorium statutes for the LSLR period 2021-2031.

### **Traffic Enforcement: Reduce the use of Traffic Police (this varies by municipality)**

Consider reducing the traffic police requirement for certain local and county roads by utilizing special tiers for construction work, using junior ranking officers, avoiding off-duty police overtime rates, and limiting police presence where cones can be used.

## ❖ Water System

### **Ensure Clear and Effective Public Health Education and Program Outreach**

Trust and cooperation depend on early, transparent communication and opportunities that increase customer participation.

### **Ensure Customers are Given Financing Options and No-Cost Incentives**

Financing options that eliminate or reduce the customer cost share is the most equitable, effective, and efficient way to accelerate LSLRs.





**New Jersey State Statute**

**Implementation Challenges**

# Statewide

## ❖ Statewide Outreach, Policy Consistency and Customer Perceptions

The State of New Jersey's LSLR program began in 2021 with the enactment of authorizing legislation ([P.L. 2021, c.183](#)). The statute has afforded NJ three years of LSL inventory data, which can be viewed on the updated [Potential Lead Exposure Mapping Tool](#) (PLEM), featuring a water provider service line inventory layer. Since 2021, the absence of a statewide communication and outreach strategy and robust enforcement policies for implementation have compounded the challenges faced by individual drinking water systems, not the least of which is how to finance the work within the mandated ten-year deadline.

Water systems need additional guidance on customer outreach and communication regarding approaches for water systems with similar profiles. While water systems have differing implementation strategies across municipalities, they share issues across systems of the same type and size. Targeted guidance across common issue areas can vastly increase the effectiveness of programs and protect public health as small communities struggle with inequity in accessing resources and technical assistance.

In many instances, a lack of multilingual resources and a diversity in communication channels are limiting factors that exacerbate health disparities. According to a study on "Factors Influencing Customer Participation in a Program to Replace Lead Pipes for Drinking Water," water systems designing programs to identify and replace LSLs, free, well-publicized, and easy-to-access programs are likely needed to garner voluntary participation in programs to replace lead service lines. Reducing and eliminating financial barriers alone are not sufficient to induce participation among low-income customers.

Limited public awareness also impacts public perceptions and affects participation trends. When there is no coordinated campaign to educate the public about lead in drinking water hazards and the benefits of LSLR programs, customers must be aware of the risks and cost benefits of allowing access to inspections and replacements. Thus, the absence of a statewide campaign results in variances in the perceived dangers of lead throughout communities, increasing the challenge of customer participation.



## ❖ Confusion about Partial Lead Service Line (LSL) Replacements

New Jersey drinking water systems face coordination challenges due to uncertainty over where and when partial LSLRs are permitted. There are no explicit penalties for noncompliance. The lack of enforcement results in Public Community Water Supply (PCWS) systems ignoring or misunderstanding the requirements, especially for routine activities. In many cases, such as during repairs and maintenance activities, opportunities for compliance with the statute are often not coordinated. Therefore, a lack of clarity and enforcement results in undetected cases of noncompliance.



## ❖ Unclear Guidance for Non-Compliance by Water Systems

Three years after the NJ legislation, PCWSs are at various levels of compliance in updating service line material inventories, notifying customers, discontinuing partial replacements, and completing full replacements. No penalties for noncompliance were included in the 2021 legislation, so the repercussions for noncompliance are unclear. While the NJDEP has been issuing letters to water systems notifying them of their lack of compliance, the NJDEP has no ability to enforce the legislation until they issue the New Jersey Lead and Copper Rule (NJLCR) with penalties or the federal Lead and Copper Rule Improvements (LCRI) go into effect in 2027.

The US Environmental Protection Agency's (EPA) final LCRI states that noncompliance with the LSL inventory and customer notification letters under the federal Lead and Copper Rule Revisions (LCRR) will require a Tier 3 Public Notice. However, this guidance only applies to the federal mandates, not additional NJ requirements. A Tier 3 Public Notice includes the violations for that year in the water system's Consumer Confidence Report (CCR), also known as the Water Quality Report. It is unclear if the NJDEP or the EPA will issue the violations and when and how the water systems will be informed. Some water systems consider the Tier 3 Public Notice as a lesser "penalty" than directly informing customers that they might have a lead service line when the material is unknown.

Under New Jersey’s LSL legislation (PL 2021, c. 183 (A5343)), decisions on whether to perform partial or complete replacements are not discretionary. Water systems should, at a minimum, follow state regulations for partial LSLRs to minimize legal risk. However, to ensure adequate public health protection, water systems should act in the public's best interest and make a good-faith effort to coordinate the full replacement in every case. Addressing lead in drinking water requires continuous cooperation between water systems, government partners, and the civic community.

**“Except during an emergency, such as a water main or service line break, or a water main replacement, a public community water system shall not partially replace a lead service line. In all instances, the public community water system shall make a good-faith effort to replace the entire lead service line and conduct a partial replacement only as a last resort.”**

(AN ACT concerning the replacement of lead service lines and supplementing Title 58 of the Revised Statutes. [https://pub.njleg.gov/bills/2020/PL21/183\\_.PD](https://pub.njleg.gov/bills/2020/PL21/183_.PD))

Under the EPA’s LCRI, in instances when property owner consent is required for a system to access the service line, systems must make a reasonable effort (at least four attempts) to engage property owners about full-service line replacement. Additionally, even where partials are permitted, systems must make a reasonable effort (at least four attempts) to engage property owners about full-service line replacements for infrastructure projects that impact service lines and offer to replace the remaining portion of the service line not under their control within 45 days if replaced in coordination with an emergency repair. Although compliance is not required until 2027, systems are encouraged to proceed with these guidelines.

According to the NJDEP guidance, partials are allowed during emergencies (e.g., water main breaks) or replacements, but water systems must prioritize full replacements. If customers refuse a replacement, water systems should document efforts, attempt annual follow-ups, and maintain public outreach programs educating property owners on lead risks and replacement opportunities. The Department requires good faith efforts to obtain customer cooperation and documentation of refusal instances.



## Customer Refusals (continued)

Repeated property owner refusals to replace their portion of an LSL increases the risk of exposure to lead hazards that impact communities. Vulnerable populations—primarily children, pregnant women, and low-income families—bear a proportionately higher burden in the absence of support measures like free replacements and mitigation to reduce obstacles to customer compliance. The statute requires water systems to make a good-faith effort and, if that fails, to simply document customer refusals. Except in the case of water main repairs and emergency work, there are instances where the property owner’s refusal prevents the PCWS from replacing the public side of the LSL.

Without a municipal ordinance covering this scenario, property owners and landlords are not required to replace their LSL or participate in the PCWS’s LSLR program. Some municipalities have passed ordinances mandating the removal of LSLs, while others have passed ordinances allowing tenants to sign Replacement Agreements instead of the property owner. Without such an ordinance, property owners can opt not to respond or can outright refuse PCWS’s requests to replace the LSL despite the potential health risks to the occupants of the property.

**Under N.J.S.A. 58:12A-40 et seq., New Jersey water systems must replace all lead service lines by July 2031, including portions that may exist on private property. By signing this form, the property owner acknowledges the delay in replacing the lead service line at the property listed above. Such a delay may contribute to increased lead levels in drinking water. Lead can cause serious health problems, such as damage to the brain and kidneys, and interfere with the production of red blood cells that carry oxygen to all body parts.**

Excerpt taken from NJDEP Property Owner Refusal Form

<https://www.nj.gov/dep/watersupply/doc/resident-refusal-form.docx>



## ❖ Customer Refusals (continued)

Customers may not participate in replacement programs without effective, clear communication, education, and logistical assistance. Lack of information results in poor decision-making and could drive up customer refusals. Simply documenting refusals is insufficient to address customers who repeatedly reject LSLR. Communication and outreach programs must be evaluated and improved. If refusals continue without intervention, there will be delays in removing toxic lead from the drinking water supply well beyond 2031. Residents of communities that do not resolve these logistical roadblocks, including access to private property, must bear the ill health effects of continued exposure.

As cost is one of the major drivers of refusals, one model for state-level intervention is the example of Indiana. The state allocated funds to cover the expense of LSLR on private property through the [Indiana Finance Authority's Drinking Water Program](#). Eligible water utilities can apply for zero-interest loans and grants to fund LSLR projects. Homeowners are not directly responsible for costs, as utilities pass savings to customers through reduced water rates or absorb costs through rate increases approved by the Indiana Utility Regulatory Commission.

As the LSLR deadline approaches in 2031, water systems that still need specific state guidance on the circumstances in which a time extension will be considered will risk falling out of compliance. To ensure progress and a continued good-faith effort to meet the 2031 deadline, NJDEP may consider granting extensions to systems with an 80% or more completion rate by 2031. Failure to complete inventories and replacements will lead to a domino effect of fines or potential legal action. With clear guidance, the water system could plan to satisfy the deadline or the requirement. Only complete service line material inventories will ensure accurate estimates of existing LSL numbers, thus improving efforts to prioritize replacements and protect public health. Conversely, regulatory uncertainty coupled with incomplete data and unfinished replacements would create a perfect storm that will compromise the integrity of water systems, undermining stakeholder confidence and customer trust.





# Municipal Level

## ❖ Lack of Coordination between LSLR Projects and Municipal Projects and Processes

Program plans vary across PCWS as many systems serve multiple municipalities, which may result in different paving jurisdictions. Across different localities, several routine projects present an opportunity for coordination. LSLR projects should be coordinated with other municipal projects, such as gas and electric utilities updates or road paving. Without these coordinated approaches to LSLRs, projects could prove unnecessarily costly. This has proven to be most difficult, especially when the town has a moratorium on digging up recently paved streets. Depending on the road paving schedule, customers may have to wait years for the LSLR, and water systems can only get ahead of paving projects if provided sufficient notice and if customer-side arrangements have been finalized.



## ❖ Master Meter Situations and Inventory Management

Water systems have difficulty managing the service line inventory process when master meters are incorporated into privately owned infrastructure (e.g., apartment complexes, college campuses, hospitals, mobile home communities, etc.). Master meters account for water usage across all usage downstream, rather than accounting for each unit, and do not allow easy identification of service line compositions. In such instances, water systems may undercount the LSLs within the system, adversely affecting LSLR prioritization and planning for that area.

# Water Systems

## ❖ Lack of Financial Incentives for Customers

Charging a cost share to customers for replacement of the privately owned portion of the LSL discourages participation, particularly in low-income communities. A customer cost share may seriously deter property owners, including landlords of rental properties that comprise a high proportion of housing in urban areas where LSLs are prevalent. In low-income and overburdened communities, cost shares are often seen as an unjustifiable expense when raised, with the residents facing no immediate health risks from lead in drinking water. Negotiating customer-side replacements presents unique challenges for water systems and their customers. Low-income families and Black and Brown Communities, where the incidence of LSLs is often highest, simply cannot afford the burden of the additional expense. Mandating that low-income customers pay that cost requires them to sacrifice an essential need within their limited budgets and represents a civil rights violation. For example, in the case brought against Providence Water, the water utility's lead service line (LSL) replacement practices put Black, Latinx, and Native American residents at a disproportionately higher risk of lead exposure, in violation of Title VI of the Civil Rights Act of 1964.

In addition, discussing cost recovery through increased rates has proved difficult, as customers distrust water systems, and the need for more transparency in billing complicates the effectiveness of the messaging. States are encouraged to consider the adoption and funding of low-income household water assistance programs to provide water service and water bill payment assistance to certain low-income households. The places in NJ and across the nation with the highest concentrations of LSLs tend to be lower-income communities and communities of color dominated by rental housing. As such, many residents must rely on absentee property owners to consent to make their properties available for work and to coordinate LSLRs. Finally, whether the locality is a disadvantaged city, an urban area with an abundance of absentee landowners, or a more affluent neighborhood, investor—and government-owned water utilities encounter a high percentage of property owners who simply refuse to participate if required to pay a cost share. Consequently, water utilities waste time on outreach, and the replacement process lacks coordination and becomes inefficient, resulting in the replacement of far fewer pipes at a significantly higher cost.



## ❖ Billing Processes and Customer Satisfaction

**Notwithstanding the provisions of R.S.40:56-1 to the contrary, any costs incurred by a government-owned public community water system to assess or replace a lead service line under this act, excluding any portion funded by grants or other subsidies, may be borne by all of the customers of the government-owned public water system or may be assessed to a property of a property owner in the same manner as provided for the assessment of local improvements, under R.S.40:56-1 et seq., upon notice to the Director of the Division of Local Government Services in the Department of Community Affairs.**  
AN ACT concerning the replacement of lead service lines and supplementing Title 58 of the Revised Statutes.[https://pub.njleg.gov/bills/2020/PL21/183\\_.PDF](https://pub.njleg.gov/bills/2020/PL21/183_.PDF)

The billing process presents significant challenges. Unclear communication about costs and benefits, unexpected expenses, and the absence of financial incentives all contribute to customer frustration and distrust. LSLR programs typically offer customers the following pricing options: free LSLR, cost share, cost recovery through rates, or partial reimbursements. In communities served by multiple water systems, the LSL program serving one neighborhood could look completely different from another.

## ❖ Payment Strategies for Customer-Side Replacement

Replacing the customer's portion of the LSL poses the challenge of a substantial initial cost and the difficulty of financing over time without adversely impacting water rates. Turned off by the high costs and a general lack of understanding of the health risks involved, many homeowners simply refuse the utilities' LSLR offer. In addition, government-owned water systems in NJ may only use uniform rate structures across their entire service areas. The limited flexibility of rate structures presents another challenge to acceptance and financial feasibility. If water systems do not gain customer acceptance, developing new financing mechanisms to change rates without impacting low-income customers is unfeasible.



**Recommendations**

**Opportunities to Improve Efficiency**



# State level

## Develop and Implement Robust Guidance

*The success of replacing LSLs depends on uniform policies and statewide outreach with clear and consistent messaging.*

Water systems need consistent LSLR policies supported by state guidance. If multiple water systems have replacement policies that significantly differ from one another, customers may find the process unfair or unreasonable, propagating confusion and a lack of trust.

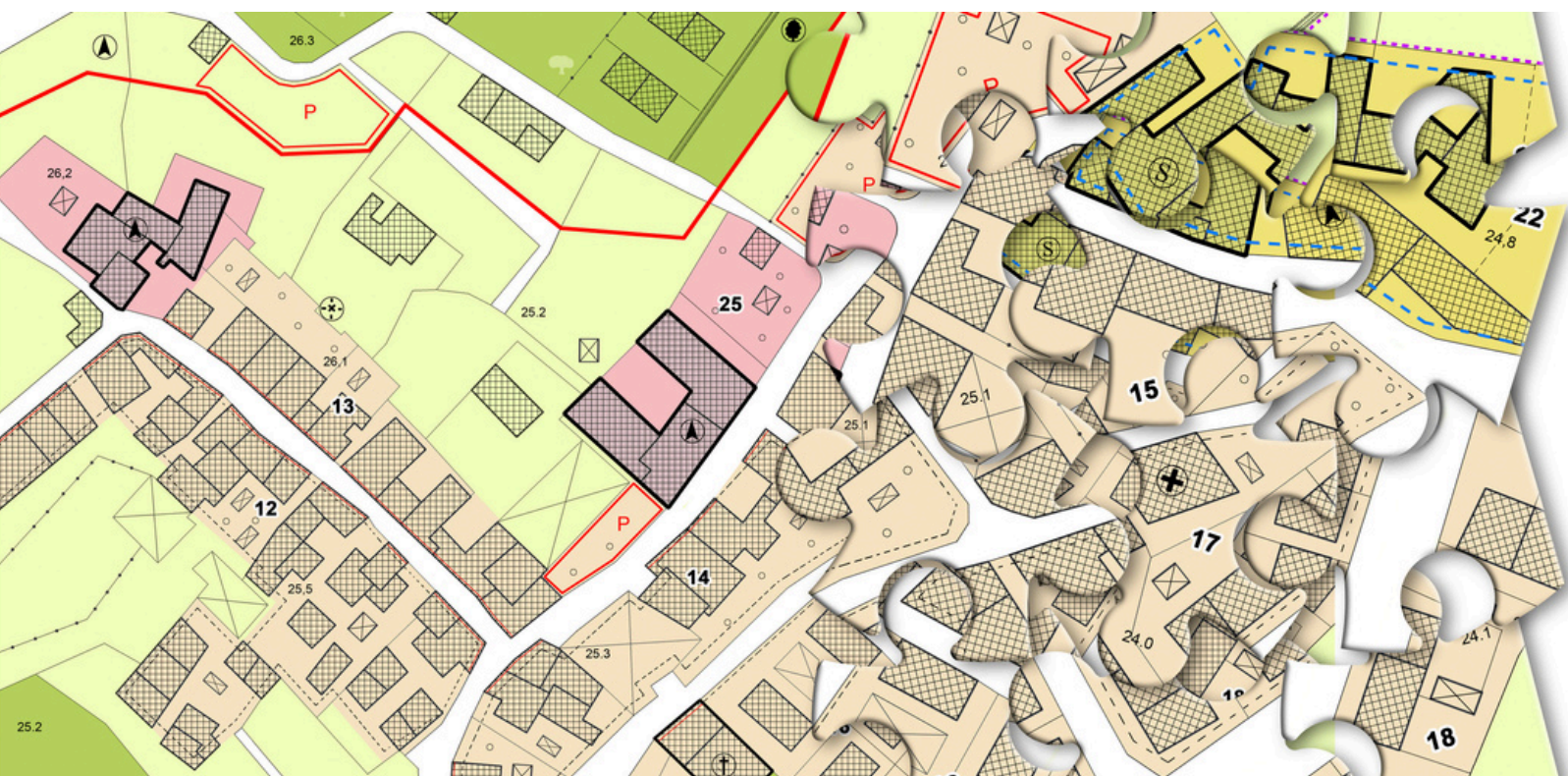
Developing robust guidance at a statewide level through a comprehensive outreach plan is essential. Standardizing regulatory reporting and educational campaigns will result in a unified approach to customer confusion and dissatisfaction with LSLR across all municipalities. Furthermore, statewide campaigns that engage community leaders as important stakeholders will facilitate acceptance, increase awareness, and ultimately improve participation, allowing access for inspections and replacements to assure equal access. Engaging statewide campaigns would also increase the efficiency and effectiveness of replacement programs overall.

Clearly defined communication and outreach standards via consistent messaging that outlines program expectations of partial replacements and delineates the roles of all parties provide a more significant potential to minimize confusion and result in tremendous success in protecting public health. Additionally, transparent communication by water systems to customers of the features, benefits, and limitations of full replacements equips property owners to make decisions that reflect the best interests of both them and their property. Clarity and consistency associated with billing and existing policies should improve the relationship between the water system and its customers and allow the ultimate task of communicating the value of protecting the public's health.



## Establish Proper Enforcement Guidelines for Water Systems and Customers

Before 2031, implement enforcement guidelines for the water system to navigate repeated customer refusals and guidance for penalties associated with non-compliance with state statutes.



States should incentivize progress in LSLR by encouraging transparency and considering visual aids to communicate progress or lack thereof for public accountability. For example, the Potential Lead Exposure Mapping Tool or PLEM can be used as a progress tracker to promote and incentivize progress. State guidance should also clarify penalties associated with not meeting LSL replacement rates that fit the violation and can deter noncompliance. Policies ought to outline significant consequences designed to prevent violators from re-offending. The penalties should also compel proactive incentive programs to encourage LSLRs. Moreover, the State must update LSLR policies periodically to address new risks and challenges related to lead hazards. Compliance can only be assured if states require a comprehensive lead and compliance documentation policy.



# Municipal level



## Streamline Coordination of LSLR Plans with Paving Projects or Other Projects that Disturb the Roadway or Sidewalks

*Coordinating local permitting processes with paving projects associated with sewer maintenance plans, main replacements, and other utility projects across jurisdictions provides cost-saving solutions.*

Examine innovative and cost-effective strategies for LSLR, such as bulk purchasing of materials, leveraging economies of scale through collaboration with neighboring towns, and optimizing construction and installation processes by coordinating with paving or utility projects.

Municipalities can play a crucial role in assisting water systems in implementing cost-saving approaches and minimizing roadway disruption during LSLR. Municipalities are encouraged to explore innovative strategies and best practices to help navigate the high administrative costs of paving, policing, and permitting. These challenges effectively alleviate the burdens placed on water system customers as they work toward compliance with this vital mandate. Replacing LSLs proactively rather than reactively can significantly reduce costs. Strategic replacement approaches, such as bundling with other infrastructure projects, prioritizing high-risk areas, and leveraging economies of scale, can lower costs by 30-50%. Additionally, proactive replacement can avoid estimated annual costs of \$1.2 billion to \$1.5 billion associated with lead exposure, including healthcare expenses, lost productivity, and environmental impacts.

## ❖ Waive Road Opening Moratoriums and Reduce Paving Costs

*Consider suspending road opening moratorium statutes for the lead service line replacement period 2021-2031.*

Newly constructed, reconstructed, or paved surfaces are typically placed under a moratorium for a set time, restricting the issuance of road opening permits, which can potentially delay LSL projects up to five years in some cases. Municipalities can significantly facilitate water systems' compliance with LSLR mandates by streamlining processes and minimizing disruptions. To mitigate high administrative costs associated with paving, policing, and permitting, municipalities are urged to explore innovative solutions and best practices. By doing so, they can alleviate the financial burdens on water system customers and support the successful implementation of this critical public health initiative.

A few suggestions include:

- Bulk material procurement to reduce costs
- Inter-municipal collaboration to leverage economies of scale
- Coordinating construction and installation with existing infrastructure projects





## Traffic Enforcement: Reduce the use of Traffic Police (this varies by municipality)

*Consider reducing the traffic police requirement for certain local and county roads by utilizing special tiers for construction work, using junior ranking officers, avoiding off-duty police overtime rates, and limiting police presence where cones can be utilized.*

Local authorities typically decide whether to deploy police for traffic management during water main or service line projects. Usually, the local police department's traffic division supervisor assesses the required number of officers. Traffic enforcement services are commonly used on primary roads with heavy traffic and sometimes on secondary roads or cul-de-sacs with lighter traffic. Factors influencing traffic management decisions include road ownership (state, county, or local), as governing rules and costs vary. Notably, state and county rules tend to be stricter and more expensive. Traffic control costs can significantly impact project expenses, increasing them by 10-15% or up to 30% in extreme cases. Limiting police oversight to critical areas can substantially reduce costs as local police typically perform this as overtime.

The following considerations may reduce costs:

- For off-duty police performing traffic control, add a third tier (beyond existing tiers for construction and nonprofit organizations) specifically for LSLR projects and limit eligible charges to the existing rate for nonprofits.
- Most localities currently employ “special police,” typically retired officers looking for part-time work. They are usually paid roughly \$30/hour. Require towns to maximize their use for LSL projects.
- Substitute-certified traffic control agents paid up to \$30/hour (plus signage and other controls).
- Where traffic control agents are required, consider limiting it to regular officers and excluding senior police officers, as this may drive up costs.



# Water System



## Ensure Clear and Effective Public Health Education and Program Outreach

*Trust and cooperation depend on early, transparent communication and opportunities that increase customer participation.*

Drinking water systems must completely replace LSLs to reduce exposure to lead through drinking water. PCWS employees should create proactive policies to identify and replace service lines, including privately owned ones. In addition, when communicating service line replacement programs, water systems must educate property owners regarding potential health risks and benefits. The NJ State statute mandates that customers have access to online inventories and program information, which can increase transparency and communicate risk. However, to adequately reduce the public health risks associated with lead in drinking water, public water systems must closely engage the homeowner and the broader community of renters and other transient populations by considering interactive online mapping tools. For example, [Trenton Water Works](#) and [Jersey City Municipal Utility Authority](#) use maps to increase transparency and communication.

Water systems should make multiple efforts to locate LSLs accurately, such as reviewing historical records, enhancing mapping, investigating service line composition during other work, engaging customers to assist with identification, and conducting dedicated field inspection programs (e.g., potholing, door-to-door canvassing, etc.). LSLRs should begin in higher-risk areas, such as schools and daycare facilities, where children are most vulnerable to lead poisoning. To promote accountability for action replacing LSLs, developing key performance indicators to evaluate actions taken and tracking progress will allow water systems to maintain a focus on outcomes. These resources are designed to promote equitable policy change and increase efficiency and effectiveness, lower costs, increase progress, and improve equitable outcomes across all types of communities.

## ◆ Ensure Clear and Effective Public Health Education and Program Outreach

The LCRI states a “reasonable effort” must include at least four attempts to engage the property owner using at least two different methods of communication.

- In-person conversation
- Phone call
- Text message
- Email
- Written letter
- Postcard
- Door-to-door canvassing

Consider the following guidelines to improve customer communication efforts and community outreach:

- Communication in multiple languages
- Social media announcements (i.e., many people do not have a computer, but most have a cell phone)
- Videos (reusable, inexpensive, targetable to specific audiences)
- Attending already-established meetings: "Be where people are gathering"
- Advertisements and public service announcements





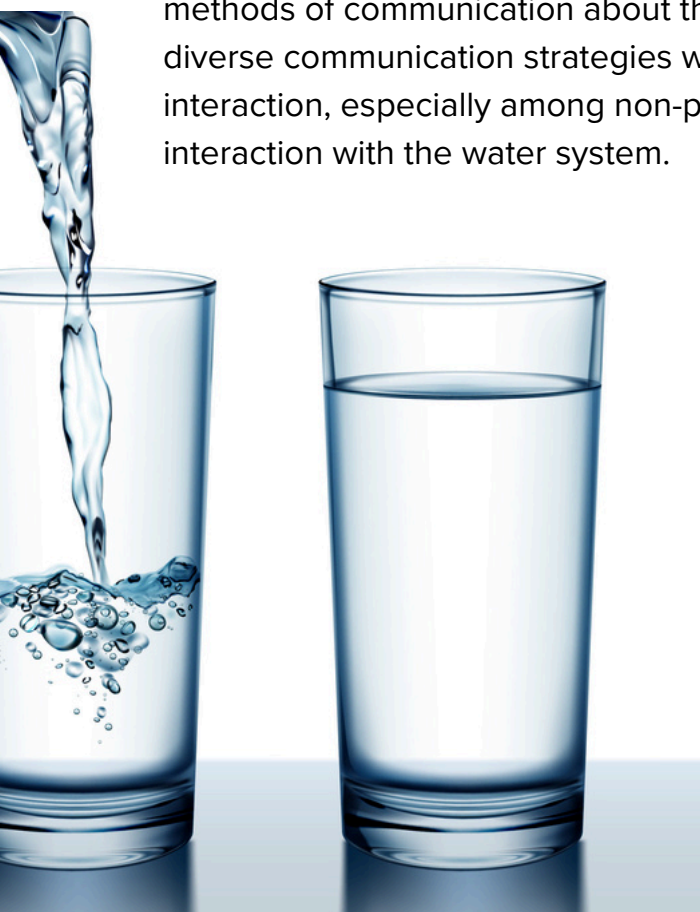


## Ensure Customers are Given Financing Options and No-Cost Incentives

*The availability of financing options that eliminate or reduce customer cost share is the most equitable, effective, and efficient way to accelerate LSLRs.*

Providing precise and accessible information about the replacement process and associated charges improves customer satisfaction. These strategies improve the success of replacement programs and strengthen trust and collaboration between water systems and their communities.

To mitigate the immediate financial impact of cost shares, consider financing replacement costs through government subsidies, water bonds, or special funds. Additionally, discounts should be regarded as based on certain factors, including homeowner or tenant recipients of government assistance programs such as the Supplemental Nutrition Assistance Program (SNAP) for Women, Infants and Children (WIC), veterans benefits, or low-income assistance on their water bill, and other reasons. Water systems need sustainable long-term financing models to address these financial challenges, especially when water systems provide services across several municipalities. Drinking water systems should also invest in more transparent methods of communication about the cost and benefits of LSLR. Lastly, investing in diverse communication strategies will advance efficiencies and improve customer interaction, especially among non-paying customers with less autonomy and interaction with the water system.



# Resources

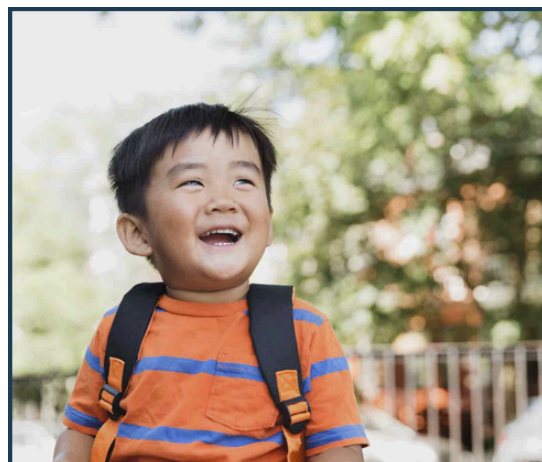
The following resources were developed by Jersey Water Works' Lead in Drinking Water TaskForce, LSL Implementation Workgroup, composed of water utility officials, community advocates, and other water experts. These resources are designed to promote equitable policy change and increase the efficiency/effectiveness of LSLR.

## Reports - Policy Change (Click Image for More)



### Lead in Drinking Water: A Permanent Solution for New Jersey

Report of the Jersey Water Works Lead in Drinking Water Task Force



### Lead in Drinking Water in Child Care Facilities: Ensuring the Future for New Jersey's Children

Report of the Jersey Water Works Lead in Drinking Water Task Force



Nov. 2021





# Tools and Resources- LSLR (Click Image for More)

**LEADFREE NJ** **JERSEY WATER WORKS**  
Smart Infrastructure. Lead-Free Communities.

**PRIMER for Mayors**  
"Let's Get the Lead Out of Our Drinking Water"  
What New Jersey Local Officials Need to Know  
Lead Service Line Efficiency Measures

**Procurement Toolkit Draft for Request for Qualifications (RFQ)**  
#Lead in Drinking Water Task Force, #Lead, #Reports & Recommendations

**Procurement Toolkit**

This document provides a draft scope for an RFQ that would identify consultants who have the requisite expertise to administer either individual aspects or the entirety of the federal and state Lead and Copper Rule Revisions (LCRR), including a lead service line (LSL) replacement program, on behalf of participating water utilities in New Jersey.

**Alternative Procurement Options for Lead Service Line Replacement**  
#Lead in Drinking Water Task Force, #Lead, #Reports & Recommendations

**Alternative Procurement**

State legislation enacted in July 2021 requires water utilities in New Jersey to replace lead service lines (LSL) within 10 years (i.e., by 2031). Under the best of circumstances, state and federal aid will likely fall far short of the estimated statewide cost of \$2.3 billion and, as water utilities seek to perform the work within the deadline, supply and demand for contractor services could increase prices. This paper addresses the question: What alternative contracting techniques could help ensure the best price and accelerate project schedules to protect public health and comply with legislation?

**Model Ordinance: Access to Private Property**  
#Lead in Drinking Water Task Force, #Lead, #Reports & Recommendations

**MODEL ORDINANCE Public Access LSL Replacement**

This model ordinance authorizing public access to private property for the sole purpose of replacing a lead service line (LSL) was drafted from several sources, including the existing law enacted by the City of Newark, NJ. It is meant to convey some of the key elements that should be considered for such an ordinance, which is integral to the efficiency of any LSL replacement program.

**Fifth Liter Sampling: EPA's Newly-Mandated Technique for Sampling Lead in Drinking Water**  
#Lead in Drinking Water Task Force, #Lead, #Reports & Recommendations

**Fifth Liter Sampling: EPA's Newly-Mandated Technique for**

In 2022, New Jersey's Department of Environmental Protection will release its own LCRR proposal which is likely to address how fifth liter sampling will be implemented in New Jersey. This report explains the differences between the most common methods of water sampling and clarifies some of the questions clean water advocates may have about implementation of the new fifth liter sampling method.

**JERSEY WATER WORKS**  
Lead Service Line Replacement Implementation Workshop Recap and Resources

**Lead Service Line Replacement (LSLR) Resources**

The Lead Service Line Replacement (LSLR) Implementation Workshop of Jersey Water Works' Lead in Drinking Water Task Force partnered with the New Jersey Water Association on Tuesday, June 22, 2022, to offer guidance to NJ Water Systems Operators on the implementation of the New Jersey Statute (P.L. 2021, c.10) enacted on July 22, 2022. Over 100 participants joined the session on June 22, which also offered Training Contact Hours (TCH) Credits.

Mike Furrey and Richard Calbi, the LSLR Workshop co-chairs, moderated the event. Workshop members Matt Sisk, Karen Adams, Sandra Kutzing, and Kristin Epstein presented on the following topics respectively: Comparing an Inventory, LSLR Program Planning, Political Will and Model Ordinances, and LSLR Best Practices. The workshop also featured presentations from New Jersey Department of Environmental Protection Representative Abina Ungarini and Executive Director at NJ Infrastructure Bank, David Zimmes.

The workshop video recording can be found [here](#), and the presentation slide can be viewed [here](#).

The Task Force also worked together to provide the following new resources:

**NEW JERSEY FUTURE** Working for Smart Growth: More Livable Places and Open Spaces

**NEW JERSEY FUTURE BLOG**

**Municipal Leaders Claim Public Engagement is Largest Asset to Lead Replacement Efforts**  
June 24th, 2024 by *New Jersey Future staff*

By Andrea Jovie Sapal and Deandrah Cameron

"We collectively work towards a future where every resident in New Jersey has access to clean, safe, and lead-free drinking water by fostering collaboration and sharing knowledge through innovation," declared Richard Calbi, Director of Ridgewood Water, as he opened the lead service line replacement session at the 2024 Planning and Redevelopment Conference. This session focused on a critical environmental justice issue that demands our urgent attention—the presence of lead in drinking water in New Jersey.

Lead service lines (LSLs) account for 75% of all lead in drinking water exposure and are particularly harmful to formula-fed infants and children under six. New Jersey leads the way in LSL replacement with one of the strongest mandates across the country. In 2023 NJ was designated by the Biden Administration as one of four states participating in the US Environmental Protection Agency's LSL Replacement Accelerator program, in part for NJ's aggressive approach to service line replacement and emphasis on planning and municipal coordination. Last month, the EPA announced that NJ will receive \$123 million in federal funding from the Bipartisan Infrastructure Law through the Drinking Water State Revolving Fund. The cost estimate for LSL replacement in NJ is roughly \$3 billion.

**JERSEY WATER WORKS CONFERENCE 2022**  
DECEMBER 2, 2022 THE WAR MEMORIAL, TRENTON

**Financing Lead Service Lines Replacement: Learning from Peers**

**MODERATORS**

MIKE FURREY, President, Agra Environmental and Laboratory Services  
RICHARD CALBI JR. P.E., P.P., Director, Ridgewood Water

**PRESENTERS**

KAREEM ADEEM, Director, Department of Water & Sewer Utilities, City of Newark  
JAN CHWIEDOSLAK, P.E., Director of Operations, Middlesex Water Company  
KRISTIN EPSTEIN, Project Manager, Northwestern U.S. LCR Compliance Coordinator, CDM Smith  
AMY GOLDSMITH, State Director, Clean Water Action  
SANDRA KUTZING, Vice President/Lead and Copper Strategy Leader, CDM Smith  
STEPHEN D. MARKS, Town Administrator, Town of Keamy

#NJWATER22

# Conclusion

LSLR is a significant step toward safe drinking water and consumer health protection. Yet, the replacement process introduces numerous challenges, such as policy inconsistencies, low public awareness, and implementation issues. The resolution of these challenges will require the uniform development of policies, standardization of regulatory and educational campaigns, and engagement of community leaders. Transparency, clear communication, and incentives foster trust and collaboration between water systems and their customers. Developing financing options and penalty structures for noncompliance can also facilitate proactive replacement programs. Ultimately, LSLR is complex and requires a multi-pronged strategy that keeps the core of the matter related to public health, equity, and sustainability.

With these recommendations, water systems can minimize lead exposure, garner the trust of their customers, and ensure a safer drinking water supply for generations to come.

New Jersey's legislation has prepared utilities for the federal Lead and Copper Rule Revisions (LCRR) and Lead and Copper Rule Improvements (LCRI) by defining LSLs, setting inventory and replacement plan deadlines, and allowing for cost recovery through rate increases. However, additional requirements and changes will be necessary to comply with the federal LCRR and LCRI, including updates to materials inventory, replacements, additional public education, compliance sampling, and corrosion control treatment. As drinking water systems navigate these challenges, it is essential to acknowledge the scope and complexity of the task.



# About the Collaboratives

## About Jersey Water Works

Jersey Water Works is working to transform New Jersey's inadequate water infrastructure through sustainable, cost-effective solutions that provide communities with clean water and waterways, healthier, safer neighborhoods, local jobs, flood and climate resilience, and economic growth. To keep tabs on all water-related issues in New Jersey, consider joining Jersey Water Works, a statewide collaborative of over 600 members whose goal is to strengthen the state's water infrastructure.

Membership is free. See <https://www.jerseywaterworks.org/>

For more information, please email [info@jerseywaterworks.org](mailto:info@jerseywaterworks.org) or call 609-393-0008 ext. 1022.

## About Lead-Free NJ

Lead-Free NJ is an inclusive collaborative created to ensure that New Jersey's children are free from lead poisoning and that our environment is lead-safe by advocating for state and local policy changes. The collaborative's work is driven by the voices and needs of community members living in lead-impacted areas. The collaborative seeks to eliminate racial and economic inequities by focusing on legacy lead hazards in low-income communities and/or communities of color while also creating the conditions for children to be free from lead poisoning statewide.

Please email [info@leadfreenj.org](mailto:info@leadfreenj.org) or call 609-393-0008 ext. 1016

## Legal Disclaimer

The information provided herein is not intended to constitute legal advice. All content in this document is for general information purposes only. Readers and users should contact their attorneys for advice on any particular legal matter. All liability regarding actions taken or not taken related to this document are expressly disclaimed.





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