

FUNDING PLAYBOOK FOR

Drinking water state revolving fund
lead service line replacement

OCTOBER 2026



INTRODUCTION

Lead poses a significant threat to human health, and lead service lines represent the largest contributing source of lead in drinking water when present.^{1,2,3} The Infrastructure Investment and Jobs Act (IIJA) (P.L. 117-58) appropriated funding to the Drinking Water State Revolving Fund (DWSRF) program to remove lead pipes and address this hazard. With IIJA and other funding, along with the efforts of states and individual water systems, the country is making concerted progress towards replacing lead service lines and reducing their associated health risks.

This Funding Playbook for DWSRF Lead Service Line Replacement (Playbook) complements existing guidance from EPA by highlighting how public water systems are utilizing funding, including DWSRF funding, to identify and replace lead service lines. The Playbook is divided into three sections:

1. detailed case studies covering specific service line inventories and replacement projects undertaken by water systems using funding, including DWSRF funding;
2. short spotlights summarizing the various ways that water systems are using funding, including DWSRF funding, to reduce lead in drinking water; and
3. an Appendix containing additional regulatory and historical context on lead service lines and funding for lead service line identification and replacement.

While these case studies and spotlights provide reference points for building a lead service line identification and replacement program, no two water systems are exactly the same. This document shows the wide variety of approaches to planning and implementation that states can use to leverage their DWSRF lead service line replacement (LSLR) funds into lasting public health improvements. The information and experiences included in this Playbook can provide valuable insights for states and water systems seeking to develop their own replacement programs and ultimately achieve lead service line-free systems. The case studies and spotlights are not intended to be a guide for compliance with any local, state, or federal requirements for lead service lines. See the Appendix for further information on these regulatory requirements.

¹ Review the [U.S. Department of Health and Human Services National Toxicology Program studies](#) regarding the health risks of lead even at low levels.

² Olufemi AC, Mji A, Mukhola MS. Potential Health Risks of Lead Exposure from Early Life through Later Life: Implications for Public Health Education. *Int J Environ Res Public Health*. 2022 Nov 30;19(23):16006. doi: 10.3390/ijerph192316006.

³ Sandvig, A., P. Kwan, G. Kirmeyer, B. Maynard, D. Mast, R.R. Trussell, S. Trussell, A. Cantor, and A. Prescott. (2008). Contribution of Service Line and Plumbing Fixtures to Lead and Copper Rule Compliance Issues. Denver, Colo.: AWWA Research Foundation.

DWSRF LEAD SERVICE LINE REPLACEMENT ELIGIBILITIES

Lead service line inventory and replacement projects and related activities are eligible DWSRF expenses. Inventory projects are eligible for funding from either the infrastructure fund or set-asides, regardless of whether lead service lines are found during the inventory.

Planning, design, and pre-project costs directly connected to LSLR are eligible for funding from both the DWSRF infrastructure fund and set-asides. The DWSRF set-asides (4% Administrative and Technical Assistance, 2% Small System Technical Assistance, 10% State Program Management and 15% Local Assistance) can be used to directly contract with technical assistance providers, engineering firms, and contractors to complete pre-project planning activities for inventory development work. These pre-project activities can be for one or multiple Public Water Systems (PWS) and may include developing replacement plans, community engagement planning, defining the project scope and technical specifications, and estimating construction costs. Tap sampling (provided it is non-routine and not for compliance purposes), POU devices, and pitcher filters are eligible for DWSRF funding from the IIJA LSLR, IIJA General Supplemental, and base program appropriations. DWSRF assistance recipients must comply with all applicable local, state, and federal requirements for customer notification and risk mitigation over the course of LSLR, including any regulations that are in effect at the time of the work. (See Appendix.)

There is no safe level of lead in drinking water. Partial LSLR may temporarily elevate lead levels in drinking water and do not reliably reduce lead levels in the long term.⁴ Therefore, full LSLR is required under the DWSRF program with limited exceptions pursuant to policies detailed in the May 2024 [Implementing Lead Service Line Replacement Projects Funded by the DWSRF](#) memorandum.⁵ The DWSRF program interprets full LSLR as replacement of the pipe and its fittings that connect the drinking water main to the building inlet.⁶

The November 2025 [Additional Eligibilities for State Implementation of the Infrastructure Investment and Jobs Act Drinking Water State Revolving Fund Lead Service Line Replacement Appropriation](#) memorandum discusses important eligibilities under the IIJA DWSRF LSLR appropriation including the use of funds for galvanized service lines downstream of lead, timing for replacement of the customer-owned and system-owned portions of lead service lines, and eligible circumstances for replacing integrated components directly connected to the identification, planning, design, and replacements of lead service lines.

Public outreach and education are key components of service line replacement programs. Public communication projects are eligible for funding under both the DWSRF infrastructure fund and the set-asides. State DWSRF programs can utilize all available infrastructure fund and set-aside authorities to support upfront education and outreach to increase participation in LSLR initiatives and maximize the public health benefits of IIJA investments.

⁴Science Advisory Board (SAB) Evaluation of the Effectiveness of Partial Lead Service Line Replacements. September 2011. Science Advisory Board. EPA-SAB-11-015. <https://www.epa.gov/sdwa/science-advisory-board-evaluation-effectiveness-partial-lead-service-line-replacements>.

⁵For the Lead Service Line Replacement funding, since only 10% of the 15% Local Assistance Set-Aside can be used for any one activity, the maximum set-aside amount is 26% (rather than 31%). This is due to lead service line replacement related activities only falling under one category (capacity development) within the 15% Set-Aside eligible activities categories.

⁶The DWSRF program has previously interpreted “building inlet” as the point at which the service line connects to premise plumbing. The location of the building inlet may vary and may be located inside or at the building structure. When conducting lead service line replacement, state programs and PWSs should exercise their best professional judgment to determine the location of the building inlet. EPA strongly cautions against any replacement approach that could be considered or have the same results as a partial lead service line replacement (i.e., leaving in place a portion of lead service line pipe after replacement and/or implementing an approach that results in short-term elevated lead and potential long-term negligible reduction in lead levels in drinking water).

CASE STUDIES

Wisconsin - Coordinated Public and Private Lead Service Line Replacements
North Carolina - Service Line Inventory Project
New Hampshire - Front Street and South Street Water Main Improvements Project

SPOTLIGHTS

Maryland	City of Baltimore
Pennsylvania	Pittsburgh Water and Sewer Authority
EPA Region 9	Hoopla Valley Tribe
Colorado	City of Englewood Utilities
Indiana	City of Peru
Massachusetts	Attleboro Water Department
Massachusetts	City of Gloucester
New Jersey	Borough of Red Bank
North Dakota	City of Bismarck
Washington	City of Tacoma

APPENDIX

Background
Regulatory Requirements
Funding and Technical Assistance for Lead Service Line Projects

CASE STUDIES

The case studies included in this document highlight successful LSLR projects across the country in states that have applied for and used IJJA DWSRF LSLR funding. Developed with input from the state, the community, or community partners, these case studies cover private and public LSLR and lead service line identification efforts, highlight successful projects in small towns and large cities, and showcase ways to conduct public outreach and communication to advance lead service line projects.

VILLAGE OF OREGON

STATE: Wisconsin

PROJECT: Coordinated Public and Private Lead Service Line Replacements

SUMMARY: Prioritizing efforts by service line age and reducing homeowner costs



DESCRIPTION OF PROJECT

The Village of Oregon is a small historic suburb located in the Madison, Wisconsin, metropolitan area with a population of approximately 11,000 people. In 2022, the Oregon Water Utility (Oregon), which has around 4,424 connections, launched a broad effort to identify and replace all lead and galvanized service lines in its system. In February 2022, Oregon secured the services of a contractor to help manage construction efforts and assist the utility in complying with the Safe Drinking Water Act (SDWA). In the spring, Oregon began the first phase of the service line identification and replacement process. First, the utility sent letters to property owners served by the oldest water mains, instructing recipients on how to identify the material of privately owned service lines and report that information to the utility. By May, Oregon completed collecting service line data from the majority of property owners. In the fall of 2022, Oregon received **\$286,908** from the Wisconsin Department of Natural Resources (DNR), with funds obtained from their CWSRF under the Water Infrastructure Fund Transfer Act. Oregon used the funding, which was provided with 100 percent principal forgiveness, to replace privately-owned lead and galvanized pipes at no cost to the property owners. This was done in coordination with a parallel effort to replace publicly owned service lines. The project was completed in December of 2022.

By focusing primarily on the oldest portions of the town, Oregon successfully identified and replaced 62 customer-owned lead or galvanized service lines and 53 system-owned lead service lines. Many service lines identified as part of the project were found to be made of copper, which do not require replacement. As of 2024, the material of approximately 500 service lines remained unknown; however, Oregon does not expect these to be lead or galvanized. The utility continues to survey properties during meter change-outs and other planned street and utility replacement projects to confirm service line materials.



DWSRF LSLR FUNDING

\$286,908

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For more information, visit the [Village of Oregon](https://www.villageoforegon.com) website.

AQUA NORTH CAROLINA, INC.

STATE: North Carolina

PROJECT: Service Line Inventory Project

SUMMARY: Improving organization by focusing on smaller geographic portions of a system



DESCRIPTION OF PROJECT

Aqua North Carolina, Inc. (Aqua) is a privately owned water utility that serves approximately 300,000 customers across many North Carolina counties. The utility received approximately **\$938,000** in North Carolina Department of Environmental Quality's IIJA DWSRF LSLR funding to identify lead service lines in 20 of the 51 counties it covers. It also received an additional \$800,000 in DWSRF funding to replace lines in Idlewood Acres in Catawba County. The IIJA DWSRF funding was used to implement Phase 4 of their service line inventory project. In previous phases, Aqua secured \$3 million in IIJA DWSRF funding through the North Carolina DWSRF program to identify service lines in other counties that Aqua North Carolina served. Each phase utilized an established process focused on a sub-set of counties. By dividing up the service area and focusing on small groups of neighboring counties, Aqua was able to efficiently organize and implement service line identification efforts. Each phase of the project focused on determining the construction materials of service lines listed as unknown in the county. A majority of the unknowns were in homes and buildings built prior to North Carolina's 1987 ban on lead service lines. Aqua first worked to identify the material of these unknowns using the utility's initial "desktop" service line inventory on a timeline that enabled each system to comply with the Lead and Copper Rule Revisions (LCRR) requirement for inventories due in October 2024. The desktop service line inventory entailed a review of existing records or other available information to help identify service line material, including documents regarding service line replacement or repair. Aqua then conducted field investigations to determine pipe material composition for lines whose material could not be determined through the desktop inventory. The field investigations used potholing, a technique in which small sections of pipe are excavated to allow visual identification. As of 2024, all service lines evaluated by Aqua North Carolina, Inc. were determined to be non-lead.



DWSRF LSLR FUNDING

\$938,000

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For more information, visit the [Aqua North Carolina](#) website.

ROLLINSFORD WATER AND SEWER DISTRICT

STATE: New Hampshire

PROJECT: Front Street and South Street Water Main Improvements Project

SUMMARY: Partnering for a smooth transition from inventory to replacement; incorporating street upgrades to reduce disruption



DESCRIPTION OF PROJECT

Rollinsford Water and Sewer District (Rollinsford) is a small public utility in Strafford, New Hampshire, serving 1,600 people across 600 service connections. Prior to receiving funding, Rollinsford worked with the Rural Community Assistance Partnership (RCAP), a technical assistance provider, to map the utility's distribution system, identify assets, and access records. When Rollinsford received **\$300,000** from the 2022 IJA DWSRF LSLR funding, the initial planning efforts with RCAP facilitated a smoother transition to starting up LSLR efforts. In the initial planning phase for this project, Rollinsford and RCAP conducted various service line inventory activities, including records reviews. Records reviews enable a system to identify lead service lines with minimal impact on their customers and lower costs compared to other lead service line identification options.

The project, using combined sources of funding, involved replacing water mains and associated appurtenances, including valves and hydrants, along multiple roads within the distribution system. LSLR funds were only used for the LSLR components of the project. Rollinsford completed the project in multiple stages, during which it posted regular status updates for each affected street and timelines regarding construction on their public website. During the construction stage, Rollinsford replaced lead service lines, lead gooseneck adapters, and galvanized lines that could cause lead contamination within the distribution system. During road closures for water system improvements, Rollinsford also completed drainage upgrades. These efforts enabled Rollinsford to reduce costs and prevent multiple disruptions while updating its aging drainage system and removing sources of lead contamination.



DWSRF LSLR FUNDING

\$300,000

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For more information, visit the [Rollinsford](#) or [RCAP Solutions](#) websites.

SPOTLIGHTS

The following spotlights provide brief summaries of lead service line inventory and replacement activities from systems across the country, drawn from publicly available information online. While less detailed than the case studies, these summaries offer valuable insights across a broader range of systems.

SPOTLIGHTS

STATE: Maryland

RECIPIENT: City of Baltimore

PROJECT: Baltimore City LCRR Compliance Program Inventory

SUMMARY: Utilizing community engagement to identify service line material

DESCRIPTION OF PROJECT

Baltimore City, Maryland's water system serves about 1.6 million residents across the city and suburbs and has a significant number of lead service lines. EPA's Lead and Copper Rule Revisions (LCRR) require complete inventories and prompt replacement to reduce exposure. Baltimore City submitted its interim inventory as required by the LCRR and continues review of historical records, field investigations, inventory programming, and predictive modeling. Completing the inventory is a critical first step that will enable the city to target replacement and deliver major public health benefits.

The city secured a **\$6.95 million** DWSRF loan with \$3.68 million in principal forgiveness using 2022 Infrastructure Investment and Jobs Act (IIJA) Lead Service Line Replacement funding, along with contributing \$9.59 million locally to accelerate the inventory. As of September 2025, more than 9,600 service lines have been identified for replacement. More than 58,000 are made of unknown material. About 10% of Baltimore City public schools have reported lead exceedances in drinking water. Baltimore City will target inventory efforts where risk is highest, focusing on unknown material service lines and schools with exceedances to reduce exposure quickly.

Community engagement is central to this effort. The city effectively boosted participation and response rates by combining door-to-door canvassing, online guidance for at-home testing, in-person assistance, flyers and notices, public events, and information booths. This was complemented by minimally invasive pipe material readings. In some neighborhoods, response rates increased nearly tenfold following outreach, according to Johns Hopkins University. This comprehensive, community responsive strategy builds trust, secures permissions, reduces the need for disruptive inspections, and accelerates inventory completion.

STATE: Pennsylvania

RECIPIENT: Pittsburgh Water and Sewer Authority

PROJECT: Lead Service Line Replacement

SUMMARY: Analyzing financial and sociodemographic indicators to increase cost savings for lead service line replacements in large cities

DESCRIPTION OF PROJECT

The Pittsburgh Water and Sewer Authority (PWSA) had water samples with lead concentrations that exceeded the Lead and Copper Rule's regulatory action level. PWSA determined that system-owned and customer-owned lead service lines needed to be replaced for the water system to return to compliance, so the Pennsylvania DWSRF provided PWSA with approximately **\$50 million** to replace public and private lead service lines. PWSA completed the original project scope ahead of schedule and used cost savings to complete additional lead service line replacement. Upon project completion, PWSA replaced 4,500 public lead service lines and 3,400 private lead service lines and returned to compliance with the Lead and Copper Rule.

The customers served by this project have a low median household income, and customer fee increases were kept low through a partial loan principal forgiveness and extended loan term financing from the Pennsylvania DWSRF. Typically, larger drinking water systems do not qualify for the loan principal forgiveness available from the Pennsylvania DWSRF program, but the State conducted an analysis on the financial and sociodemographic indicators of the specific neighborhoods affected by this lead service line project instead of looking at PWSA's entire customer base to demonstrate that this project should qualify. This innovative use of the DWSRF loan principal forgiveness provided approximately 8,500 residents with safe, reliable drinking water.



SPOTLIGHTS

TRIBAL SET-ASIDES: EPA Region 9

RECIPIENT: Hoopa Valley Tribe

PROJECT: Lead Service Line Inventory Project

SUMMARY: Using records to reduce identification costs

DESCRIPTION OF PROJECT

The Hoopa Valley Tribe (Hoopa Valley) in Humboldt County, California, is a federally recognized tribe that received **\$293,548** from the Drinking Water Infrastructure Grant Tribal Set-Aside funding to complete a service line inventory as part of their planning and pre-replacement activities. Service line identification is a key component of the LSLR process that enables a utility to develop a plan to replace any identified lead service lines.

Hoopa Valley used records reviews as a first step to try to identify service line material, in order to reduce the number of lines that would require more expensive identification methods. The records reviews included: careful assessment of drawings; comparison of construction dates to 1985, when the latest state ban on lead in building material was put in place; and review of Hoopa Valley's capital improvement plans and master plans to identify replacements and materials related to lead. When the service line material could not be determined by a records review, Hoopa Valley used potholing, a process in which the service line is visually identified through multiple holes to reveal part of the service line.

The Hoopa Valley Public Utility was also able to address leaks and repair other pipelines during service line identification efforts. Throughout this process, Hoopa Valley used social media to inform the public about ongoing pothole repair projects and provide updates when road closures were necessary.

STATE: Colorado

RECIPIENT: City of Englewood Utilities

PROJECT: Lead Reduction Program

SUMMARY: Providing filters to protect health and reduce service interruption

DESCRIPTION OF PROJECT

The City of Englewood Utilities (Englewood) in Arapahoe County, Colorado, developed their Lead Reduction Program using funds from the Water Infrastructure Financing and Innovation Act (WIFIA) and DWSRF IJA general supplemental funds. To keep the public informed, Englewood created a section on its website dedicated to providing information about the program, including: program goals; replacement plans; detailed information about what costs Englewood will cover for LSLR; and how to reduce lead exposure before, during, and after replacements.

As part of its replacement efforts, Englewood provides a water filter pitcher to all residents with homes built prior to 1960 that are having their lead service lines replaced. Lead can be dislodged during replacement and can remain in a home's pipes for a period of time even after the service line has been replaced. By providing filters, Englewood ensures that customers can safely use their drinking water before and after replacement. In addition to reducing the health risk and financial burden to customers, filters ensure that Englewood can continue to receive drinking water revenue from uninterrupted customer use.

For more information, visit the [Englewood Utilities website](#).



SPOTLIGHTS

STATE: Indiana

RECIPIENT: City of Peru

PROJECT: Treatment Improvements and Lead Service Line Replacements

SUMMARY: Improving administrative efficiency by combining projects

DESCRIPTION OF PROJECT

Peru Utilities (Peru) in Miami County, Indiana, received DWSRF funding of approximately **\$29 million** for a series of projects that included both treatment improvements and LSLRs. Under any funding source, individual funding agreements require similar paperwork to be submitted with each funding agreement, even if the funding is from the same source and the projects are happening simultaneously. By combining projects when applying for DWSRF funding and packaging the project as a single large agreement, Peru reduced the time and costs associated with having multiple agreements.

For the project's LSLR component, Peru will split the work into phases and focus its lead and galvanized service line replacement efforts on locations with high lead concentrations in the water. By splitting the replacement efforts into multiple phases, Peru can focus on areas where negative health impacts are greatest. Additionally, replacement efforts will include pavement restoration and seeding as needed to restore the sites and reduce the impact on customers.

For more information, visit the [Indiana DWSRF Program](#) website.

STATE: : Massachusetts

RECIPIENT: Attleboro Water Department

PROJECT: Service Line Inventory and Lead Service Line Replacement Plan Project

SUMMARY: Lead monitoring and community education

DESCRIPTION OF PROJECT

The City of Attleboro Water Department (Attleboro) in Bristol County, Massachusetts, received **\$80,000** from the 2022 DWSRF LSLR funding to conduct a service line inventory. The work included identifying the locations and materials of both system- and customer-owned service lines. The project enabled Attleboro to update its service line database with information about the material of 3,100 service lines that were previously of unknown status. Another component of this project was the development of a monitoring plan to track lead levels in water throughout Attleboro's distribution system, particularly in areas where the service line material was unknown. Attleboro conducted public education and outreach to support the implementation of a monitoring plan for 15,500 service lines. Public education activities included developing outreach materials to communicate and inform customers of their lead service line status, required replacement activities, and opportunities to replace customer-owned lead service lines.

For more information, visit the [City of Attleboro](#) website.



SPOTLIGHTS

STATE: Massachusetts

RECIPIENT: City of Gloucester

PROJECT: Lead Service Line Inventory and Replacement Plan Project

SUMMARY: Using geographic information systems to map lead service lines

DESCRIPTION OF PROJECT

The City of Gloucester (Gloucester) in Essex County, Massachusetts received **\$242,400** from the 2022 IIJA DWSRF LSLR funding to conduct planning and pre-replacement activities. The project is ongoing and is intended to help determine which areas have lead service lines. Work includes preliminary record screenings, such as reviews of record drawings, capital improvement plans, and master plans, which may indicate the materials of service lines without requiring the actual lines to be dug up or potholed. From these preliminary reviews, Gloucester is coordinating with their geographic information system (GIS) provider and asset management providers to create and format a GIS map of service line materials. The GIS map will be publicly available and posted to Gloucester's website. The planning process also included the development of public outreach and education materials to inform residents of their service line status, as well as a technical memorandum of the findings being developed. Gloucester will also develop LSLR contract documents, including specifications, construction cost estimates, and plans for permitting, based on their service line inventory.

For more information, visit the [City of Gloucester](#) website.

STATE: New Jersey

RECIPIENT: Borough of Red Bank

PROJECT: Lead Service Line Test Pit and Service Replacement Project

SUMMARY: Understanding service line composition and providing regular updates

DESCRIPTION OF PROJECT

Red Bank Water Department (Red Bank) is a public water utility that serves Monmouth County, New Jersey. Red Bank received **\$3,209,551** from the 2022 IIJA DWSRF LSLR funding. Of the funding received, \$1,604,776 was provided as principal forgiveness. In Phase 1 of the project, Red Bank excavated 1,000 potholes to determine the material composition of the service lines that connect the water mains to the buildings in the area. The project also includes the replacement of approximately 150 lead service lines. This documentation of service line material type helped determine next steps and replacement activities. The results of the service line inventory are posted on the Red Bank Water Department's website. The website also provides guidance for customers on how to reduce their potential exposure to lead. Red Bank's service line identification efforts continue in the second phase of this project and are ongoing. Regular updates on Phase 1 and Phase 2 of the project are provided on the Red Bank website.

For more information, visit the [Borough of Red Bank](#) website.



SPOTLIGHTS

STATE: North Dakota

RECIPIENT: City of Bismarck

PROJECT: Lead Service Line Replacement

SUMMARY: Focusing efforts on homes built prior to lead material bans and encouraging customer replacements

DESCRIPTION OF PROJECT

The City of Bismarck (Bismarck) in Burleigh County, North Dakota, received approximately **\$7 million** in DWSRF funding to replace water mains and lead service lines in their service area. This project is Phase 1 of a five-year plan to replace lead service lines and improve public health protection. Before Phase 1, Bismarck performed a records review. They found that after 1940, lead was banned and copper was the required building material for service lines and premise plumbing, meaning only homes built prior to 1940 potentially contain lead piping. By focusing on houses built before 1940, the overall costs associated with the replacement process could be minimized. The combined water main and lead service line replacements benefitted approximately 1,000 residents, two major regional hospitals, healthcare clinics, government offices, daycare centers and one high school. In conjunction with these inventory and replacement efforts, Bismarck posted their policy regarding lead service lines on their website, noting that all service pipes, curb boxes, shut off boxes and any other fixtures off of the water main are the property of the owner and must be kept in repair at the owner's expense. Due to health and safety issues related to lead water service lines, the City of Bismarck may allow the property owner to special assess costs. External funding designated for lead replacement may be utilized to reduce the property owner's cost. The website also provides information on identifying lead service lines, including an option for homeowners to schedule a field service representative to visit and determine whether their homes are served by lead service lines. These resources were part of a significant community engagement campaign to encourage customers to agree to and participate in LSLR programs.

For more information, visit the [City of Bismarck](#) website.

STATE: Washington

RECIPIENT: City of Tacoma

PROJECT: Lead Gooseneck Replacement

SUMMARY: Partnering with other public works projects to reduce costs

DESCRIPTION OF PROJECT

The City of Tacoma (Tacoma) in Dallas County, Washington, launched their lead gooseneck replacement project in 2016. Lead goosenecks are a type of connector -- short pieces of lead pipe that were sometimes used to connect a water main to customer service lines. Tacoma previously replaced 30,000 lead goosenecks while replacing old service connections. Tacoma sought to address the remaining 1,200 gooseneck connections and estimated this would cost approximately \$10 million. The project was completed \$4 million under budget. Approximately \$2 million in savings were achieved through coordinating with other public works efforts in Tacoma, particularly partnerships with existing road paving contracts. This reduced the cost to the water utility as both the pavement removal and repaving efforts required for replacing service lines were already underway. Since both the water utility and the roads are controlled by the City, there is great flexibility in the kinds of contracts and collaboration possible. Non-municipally owned utilities may require additional efforts, such as negotiating with municipalities, to replicate these cost-saving methods. Utilities can also use this strategy for other project contracts where combining efforts can reduce overall costs. An additional \$2 million was saved from the original estimated project cost due to 418 goosenecks not requiring replacement and another 428 service lines that were no longer needed and so were removed from service.

For more information, visit the [City of Tacoma](#) website.



CONCLUSION

States and water systems have made progress toward identifying and removing lead service lines and reducing the public health risks associated with lead pipes in drinking water distribution systems. State DWSRF programs provide substantial funding for water systems to identify and replace lead service lines. DWSRF funding, especially IJJA funding dedicated to this purpose, supports water systems' compliance with local, state, and federal requirements and advancement towards the complete replacement of lead service lines.

Whether incentivizing systems through funding, developing service line inventories, or establishing a productive rapport with the public to facilitate replacements and build trust, there is no single best practice for states and water systems to accomplish full replacement of lead service lines. What works for one state or water system may not work for another, given each water system's unique circumstances. However, by sharing information and experiences, states and water systems can learn from each other about a variety of approaches to achieving lead service line-free water systems. This allows states to use funds in a more efficient and timely manner, decreases the time water systems spend on projects, supports state collaboration, and facilitates state and water system efforts to protect public health.

APPENDIX:
LEAD SERVICE LINE REGULATORY AND
FUNDING HISTORY

BACKGROUND

Since 1986, the Safe Drinking Water Act (SDWA) has prohibited the use of lead pipes and service lines, among other things, for providing water for human consumption. However, millions of U.S. homes and businesses are still connected to water mains through legacy lead pipes. Based on over 30 years of implementing the 1991 Lead and Copper Rule (LCR), the EPA determined that requiring lead service line replacement based on tap sampling and 90th percentile lead levels alone is insufficient to protect public health. Lead and Galvanized Requiring Replacement (GRR) service lines are sources of lead exposure in drinking water even when systems have optimized corrosion control treatment. In light of this lingering public health threat, and consistent with Section 1412(b)(7)(A) of the Safe Drinking Water Act, the EPA identified mandatory lead and GRR service line replacement as a treatment technique that “prevents known or anticipated adverse health effects” and required water systems to fully replace those lines under their control through the Lead and Copper Rule Improvements (LCRI).

Communities nationwide face challenges with conducting service line inventory and replacement projects. Identifying the material of a service line may be challenging for water systems and property owners because service lines may be located on both public and private property. A lead service line may be controlled by the water system, by the property owner, or by both the water system and property owner. Public water systems may use multiple sources to identify service line materials to increase water system and public confidence in the accuracy of service line inventories. These sources can include, but are not limited to, historical records review, visual inspection of service line material, water quality sampling, excavation, or predictive modeling.⁷ Some of these sources require state approval before use for service line identification.

State DWSRF programs and water systems are strongly encouraged to work with communities as early as possible during lead service line project development efforts. Early coordination with communities can reduce challenges associated with service line inventory and replacement projects; minimize threats to public health before, during, and after replacement; and build public trust. Water systems should provide information to residents on the dangers posed by lead, replacement plans, and risk mitigation measures early on, and not wait until service line inventories are completed.

⁷ Review [EPA's Guidance for Developing and Maintaining a Service Line Inventory](#) for more information on service line inventory methods.

REGULATORY REQUIREMENTS

In 1991, the Lead and Copper Rule (LCR) aimed to reduce lead and copper levels at consumer taps, encouraged public education, and established action level exceedances for lead and copper. Under the LCR, if more than ten percent of the tap sample results collected during any monitoring period exceeded the action level after performing corrosion control treatment, public water systems were to replace lead service lines.

Since the initial rule, the LCR has undergone various updates. Major updates occurred in the 2021 Lead and Copper Rule Revisions (LCRR) and the 2024 LCRI. These changes to the LCR reduce the public health threat posed by lead exposure from drinking water by better protecting children at schools and childcare facilities, closing loopholes in LSLR requirements, identifying lead service lines, and empowering communities with information on lead in drinking water and notifications if they are served by lead service lines. Under these new requirements, all community water systems and non-transient non-community water systems were required to complete initial service line inventories by October 16, 2024. The EPA encouraged water systems to begin service line inventory and replacement efforts as soon as possible and to complete the initial inventories before this compliance date.

On October 30, 2024, the EPA promulgated the LCRI, building upon the 2021 rulemaking. The key provisions of the combined revisions are:

1. Requires continued efforts to locate more existing lead and GRR service lines and plan for their replacement, building upon initial inventories required by the LCRR;
2. Requires water systems⁸ to conduct full replacements of lead service lines and lines that are galvanized requiring replacement⁹ if the lines are under the control of the system, regardless of tap sampling results;
3. Strengthens tap sampling requirements for Public Water Systems (PWSs)¹⁰;
4. Lowers the threshold for taking certain actions and eliminates the trigger level;
5. Requires water systems with multiple exceedances of the lead action level to take action to reduce lead exposure to customers and conduct more community outreach;
6. Requires more frequent and proactive communication with the public about lead service lines, the health threats of lead and plans for LSLR; and
7. Prohibits partial lead or GRR service line replacements, with limited exceptions, and establishes notification and mitigation requirements for partial replacements that are not prohibited.

⁸Systems that must replace more than 39 per 1,000 service connections per year to meet the ten percent threshold of known lead and galvanized pipe replacements within ten years may qualify for a 'deferred deadline.' Calculations for the deferred deadline can be found in the [Technical Fact Sheet: Deferred Deadlines for Service Line Replacement](#).

⁹A galvanized service line is iron or steel piping that has been dipped in zinc to prevent corrosion and rusting. A Galvanized Requiring Replacement (GRR) service line is a galvanized service line that: 1) is currently or ever was downstream of a lead service line; 2) is currently downstream of a lead status unknown service line; or 3) the water system is unable to demonstrate was never downstream of a lead service line. "Downstream" means in the direction of flow through the service line.

¹⁰Community water systems and non-transient non-community water systems are subject to the tap sampling requirement changes in the tap sampling requirements. Further guidance can be found in the [Technical Fact Sheet: Tap Monitoring Requirements](#).

FUNDING AND TECHNICAL ASSISTANCE FOR LEAD SERVICE LINE PROJECTS

The DWSRF is the nation's premier source of public financing for lead service line identification and replacement. The EPA collaborates with state DWSRF programs to ensure that LSLR funding is effectively distributed to meet all applicable statutory and regulatory requirements and maximize public health protection. The EPA is committed to ensuring that federal funding is used effectively and efficiently to address public health and water quality challenges facing local communities. The agency is proactively working with state DWSRF programs to ensure they are expeditiously spending this funding by making awards to water systems for critical projects that protect public health and water quality.

The IIJA appropriated \$30.7 billion in supplemental DWSRF funding and reemphasized the importance of LSLR by including \$15 billion specifically for “lead service line replacement projects and associated activities directly connected to the identification, planning, design, and replacement of lead service lines.” The dedicated IIJA LSLR appropriation, the IIJA General Supplemental appropriation, and base DWSRF appropriation can pay for LSLR and related activities. The IIJA funding is provided to all 50 states and Puerto Rico from 2022 until 2026. Forty-nine percent of the IIJA LSLR and General Supplemental capitalization grants must be provided as additional subsidization in the form of grants and/or forgivable loans to disadvantaged communities as described in SDWA section 1452(d)(3).¹¹

The EPA's [website](#) includes information on the distribution of DWSRF IIJA LSLR capitalization grants for each state and territory and the portion of those grants required as additional subsidization. For Fiscal Year [2025](#) and [2026](#), the EPA updated its approach to use LCRR inventory information, which is now the best-available national and state-level information on lead service lines. More information on EPA's 7th Drinking Water Infrastructure Needs Survey and Assessment (DWINSA) is available [here](#).

The EPA offers free technical assistance (RealWaterTA) to support drinking water and wastewater systems using proven, best-practice approaches that most effectively address local needs while partnering with states and Tribes. Examples of RealWaterTA initiatives that can help with preparing a community to access LSLR funding are Get the Lead Out (GLO) and Engineering Support. For more information about the technical assistance EPA has to offer and to request assistance, visit <https://www.epa.gov/water-infrastructure/real-water-technical-assistance-realwaterta>.

EPA funding sources for lead service line inventory and replacement projects:

- Drinking Water State Revolving Fund (DWSRF)
- Drinking Water Infrastructure Grants and Tribal Set-Aside (DWIG-TSA) Program
- Small, Underserved and Disadvantaged Communities Grant Program
- Section 2105 of the WIIN Act: Reducing Lead in Drinking Water Grants
- Water Infrastructure Finance and Innovation Act (WIFIA)

¹¹ Section 1452(d)(3) of SDWA defines a “disadvantaged community” as: “...the service area of a public water system that meets affordability criteria established after public review and comment by the State in which the public water system is located.”

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