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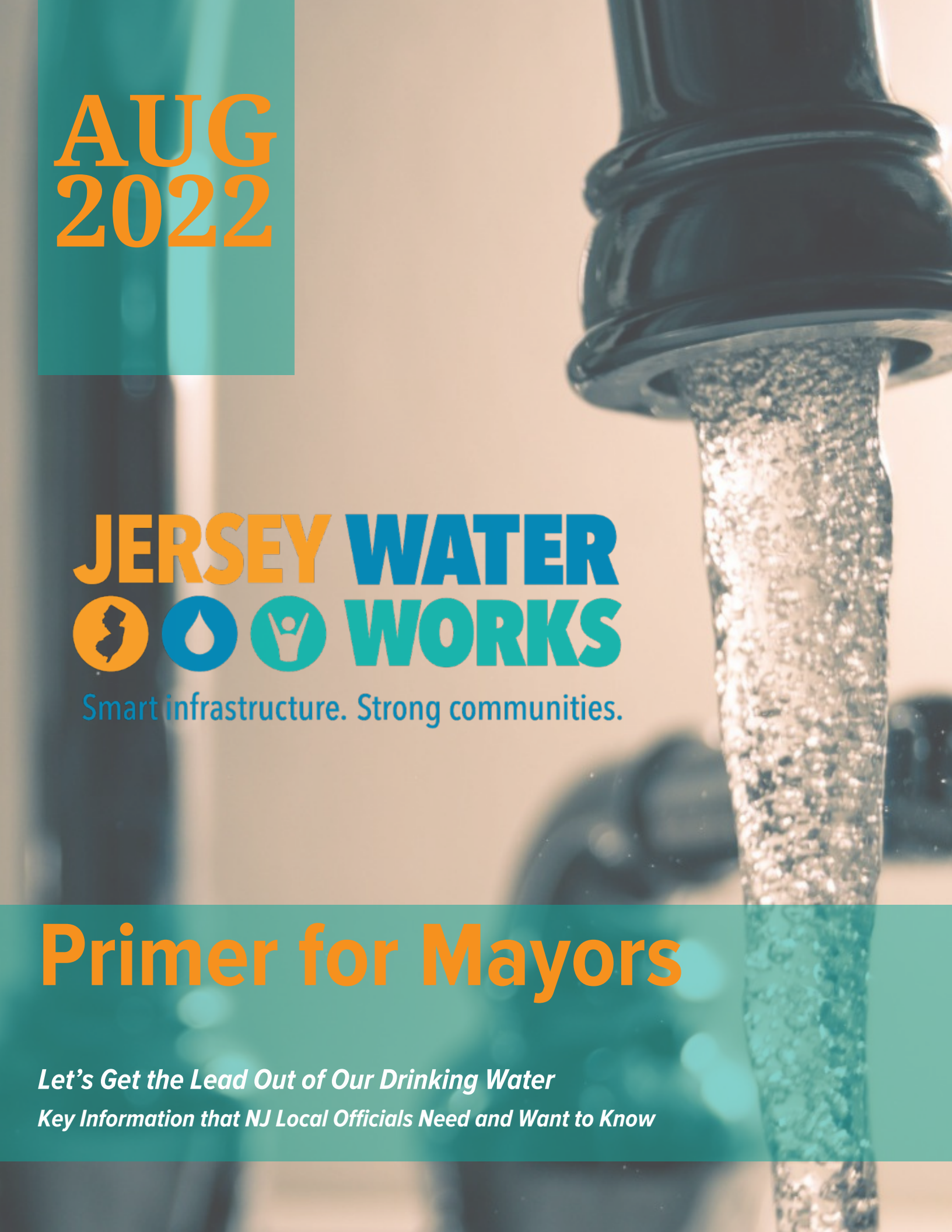
JERSEY WATER WORKS

Smart infrastructure. Strong communities.

Primer for Mayors

Let's Get the Lead Out of Our Drinking Water

Key Information that NJ Local Officials Need and Want to Know



JERSEY WATER WORKS
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Let's Get the Lead Out of Our Drinking Water

Key Information that NJ Local Officials Need and Want to Know

Jersey Water Works (JWW) 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.

Access to clean and safe drinking water is important for the health and safety of all individuals in New Jersey, and has been a national priority since Congress passed the Safe Drinking Water Act of 1974. As there is no safe level for lead exposure, water systems in New Jersey are working to meet the new statutory requirement to replace all lead service lines (LSL) by 2031. This monumental effort requires collaboration and coordination; mayors, business administrators, and city managers will all play a pivotal role. This quarterly primer from the JWW Lead in Drinking Water Task Force provides key information on how lead pipes can be replaced quickly, cost-effectively, and with community support.

Executive Summary

This primer provides an overview of the health effects of lead exposure, state statutory requirements regarding lead pipes, and potential funding sources.

Lead is harmful to human health when ingested, and is particularly threatening to children under six years of age and infants who are formula-fed. According to the U.S. Environmental Protection Agency (EPA), lead service lines (LSLs) are responsible for 50–75% of total lead exposure from drinking water.

To address this public health crisis, the State of New Jersey enacted a statute on July 22, 2021 (P.L. 2021,c.183) that established a series of deadlines for action by public water systems. Most importantly, local water utilities must develop a service line inventory and prepare a plan by July 2022 (with updates thereafter) to replace all LSLs within ten years, and must periodically notify customers whose property is served by a LSL. Separately, the U.S EPA's lead and copper rule (section §141.84) requires water utilities to submit a lead service line inventory (including the portions owned by the water utility and the water customer) by October 16, 2024, or requires proof that no LSLs exist.

There are an estimated 350,000 LSLs in New Jersey, ranking the fifth highest in the nation, with a projected replacement cost of $2.8 billion. Thus far, only $241 million has been provided to NJ for lead pipe replacement from the federal Infrastructure Investment and Jobs Act (IIJA). Those funds will flow to the NJ Water Bank over the next five years (i.e., FY2022 through FY2026). In addition, the FY2023 State Budget appropriated $300 million from the federal American Rescue Plan (ARP) to the New Jersey Department of Environmental Protection (NJDEP) for water infrastructure projects. LSL replacement is an eligible cost, but it remains to be seen how much of the ARP allocation will be available for that purpose versus other critical water infrastructure needs (e.g., treatment plants, combined sewer overflows, etc.)

If you would like access to more detailed, technical information about lead in drinking water, including best practices for water utilities (e.g., Model Ordinance on Property Access and Fifth Liter Sampling), email info@jerseywaterworks.org or call 609-393-0008 ext.122.

Health Effects

In addition to drinking water, lead is found in paint, dust, soil, air, food. The NJDEP estimates that 20% of all lead exposure is from drinking water, and can be as high as 60% for infants, particularly those who are formula fed. Typically, there is no lead in the source water that is provided from the state's reservoirs, aquifers, and rivers. Rather, lead is introduced into older homes through lead service lines (LSLs), which are responsible for 50–75% of total lead from drinking water, and indoor lead plumbing.

Lead is a toxic metal. Even at low exposure levels, it can be harmful to human health when ingested, as it accumulates in the body over time. To guard against exposure, federal and state regulations (i.e., lead and copper rule) sets the lead action level (AL) at 15 parts per billion (ppb), and requires water utilities to take remedial action when it is exceeded. (This rule is currently under revision by the NJDEP.)

Lead poisoning has been an issue for centuries. Congress banned the use of lead pipe in 1986, but its use was prevalent prior to that, particularly in buildings constructed prior to the 1950s. There is a direct relationship between older housing and the prevalence of LSLs and lead plumbing.

Since New Jersey's urban areas have a relatively high proportion of older housing, they have higher rates of elevated blood lead levels (EBLLs) in children ranging from 3.8% in Paterson, to 5.9% in Irvington, Trenton, and Atlantic City, and as high as 6.6% in East Orange. (See NJDOH 2019 Report on Childhood Exposure)

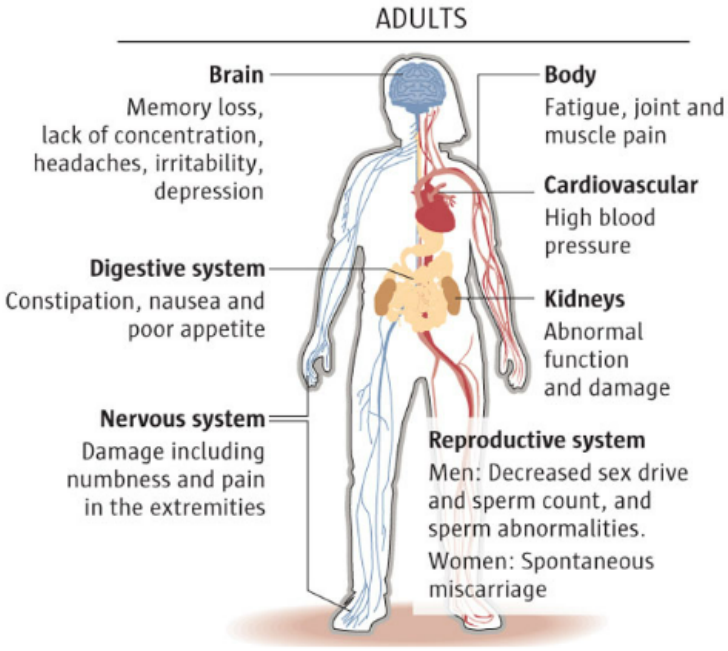
Blood Lead Levels (BLL) Disproportionately Higher in Urban Areas

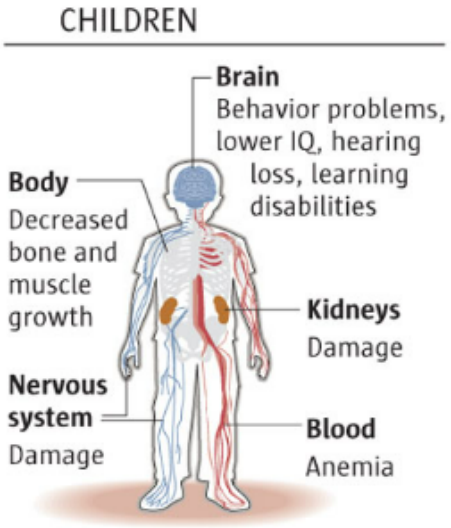
Top 10 Large Municipalities Ranked by Highest Percentage of Children Less Than Six Years of Age with an EBLL in SFY 2019

Municipality (County)	% of Children < 6 Years with an EBLL
East Orange (Essex)	6.9%
Trenton (Mercer)	5.9%
Atlantic City (Atlantic)	5.9%
Irvington (Essex)	5.9%
West Orange (Essex)	4.3%
Newark (Essex)	3.9%
Patterson (Passaic)	3.8%
Edison (Middlesex)	3.3%
Plainfield (Union)	3.2%
Monroe (Middlesex)	3.2%

Varying Effects of Lead Exposure in the Body of Adults and Children

In young children, the ravaging effects of lead are particularly acute, as even low EBLLs can trigger behavioral and learning problems, slowed growth, and anemia. In adults, lead exposure causes cardiovascular effects, increased blood pressure, decreased kidney function, and reproductive problems (in both men and women). Prior to birth, lead that accumulates in pregnant women can cross the placental barrier, inhibiting the growth of the fetus and causing premature births.





Since these health impacts occur gradually, they can be difficult to identify. Symptoms include abdominal pain, fatigue, headaches, irritability, loss of appetite, memory loss, and pain or tingling in the hands and/or feet. Both the EPA and the Centers for Disease Control and Prevention (CDC) report that there is no known safe level of lead in a child's blood. Additionally, proper nutrition is recommended for those at risk of lead exposure, as iron, calcium, and vitamin C can prevent the absorption of lead and slow kidney and brain damage.

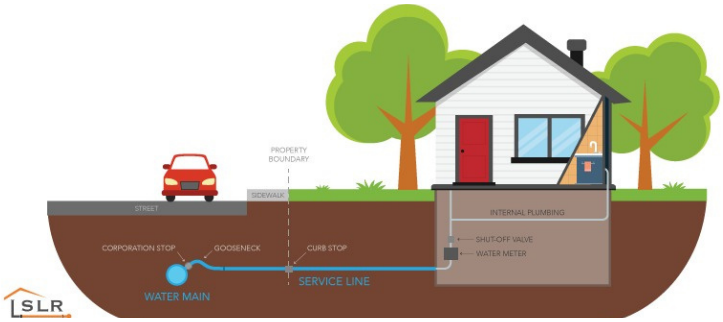
The New Statutory Obligation to Replace Lead Pipes

To protect public health, legislation enacted on July 22, 2021 (P.L. 2021, c.183) creates a program to address lead in drinking water in New Jersey. The law, which affects all public water systems, reflects statewide recommendations issued by a Jersey Water Works Lead in Drinking Water Task Force in a report published in October 2019.

The NJ law includes some of the most aggressive provisions in the country, including a requirement for drinking water systems to replace all LSLs in ten to fifteen years. Other provisions include a comprehensive LSL definition (including "gooseneck" connectors and galvanized pipes), and requirements for service line inventories, disclosure to property owners and tenants, and an annual LSL replacement plan. The law also authorizes utilities to recover their costs from ratepayers across an entire service area.

Service Line Inventory

Since many water utilities lack accurate service line records, a vital first step is to establish a comprehensive service line inventory of pipe materials. Service line ownership in New Jersey is typically split between the utility (water main to the curb) and the property owner (curb to the dwelling), which complicates the effort. (See graphic below). Knowledge of service line locations and composition (i.e., lead, non-lead, unknown) affects the pace of LSL replacement. It is no coincidence that Newark, which replaced all of its 23,000 LSLs in less than three years, had a Substantial inventory with 18,000 known LSLs when it started the work.



The law sets several deadlines and requirements:

Deadline	Time After Law Enactment	Action Required by Utility
Jan. 22, 2022	6 months	Initial inventory (LSLs/unknowns; service line ownership)
Feb. 21, 2022*	7 months*	Written notification to customers with Known LSLs
July 22, 2022	1 year	Updated inventory; LSL replacement plan**
Annually	2 years+	Updated inventory and certification of compliance

**Notify customers within one month of when the water utility submits its initial LSL inventory to DEP.*
***The inventory and LSL replacement plan must be filed annually with NJDEP until all LSLs are replaced.*

Communication to Residents, Landlords, and the Public

- Water systems must send a letter identifying known LSLs to property owners, who must notify tenants. This information must be disclosed during property sale.
- Water systems must submit service line inventories to NJDEP and post them on utility websites. Small systems (i.e., population < 3,300) without a website can choose another approach.
- In municipalities where 10% or more of the residents speak a primary language other than English, the water utility must provide the LSL notice in the other language in addition to English.

LSL Replacement Plan

- Water utilities must file an initial LSL replacement plan by July 2022, with annual updates thereafter. The goal is to replace 10% of known LSLs annually. (The final deadline may be extended from 10 to 15 years).
- Partial replacement of a LSL is prohibited, except in emergencies or as part of a larger water main project. (Those exceptions would not count toward the 10% goal).

Cost Recovery

- Government and investor-owned utilities (IOUs) may recoup the net cost (i.e., excluding grants/subsidies) of LSL replacement through water rates charged to all customers.
- IOUs are prohibited from charging an additive to the cost of replacing the customer-owned portion of the service line, since they do not own that asset.

For more information on the new law and its requirements, see https://www.nj.gov/dep/lead/map.html

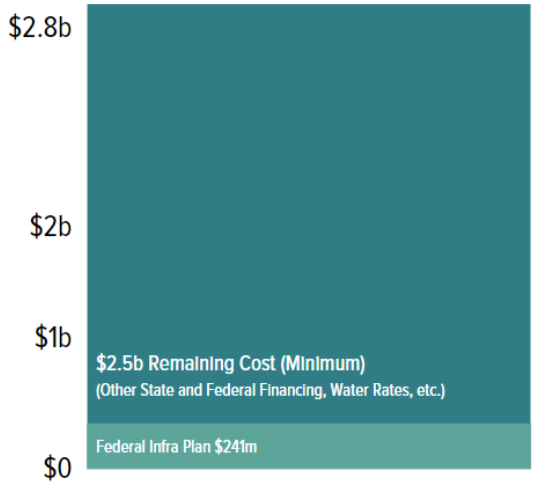
Expected Costs and Potential Funding Sources

With an estimated 350,000 LSLs in New Jersey and an average replacement cost of $8,000 per line, the total cost for LSL replacement statewide is projected to be $2.8 billion. The only dedicated resources presently available to address this problem is the $241 million that Congress appropriated to New Jersey in the IIJA, or "federal infrastructure bill", from FY2022 through FY2026. This represents less than 9% of the total projected need.

Separately, the FY2023 State Budget appropriated $300m from the federal American Rescue Plan program for "water infrastructure" projects. Unlike the IIJA, that amount was not dedicated exclusively for LSL replacement, but rather could be used for a wide variety of critical water infrastructure needs. The exact programmatic allocation of the $300 million will be determined during fiscal year 2023, and it is likely that a sizable portion will be set aside for stormwater and flooding projects.

(Note: Modest additional support will be available for LSL replacement from the Drinking Water State Revolving Fund (DWSRF), federal funding for which will double over the next five years, however, the portion for LSL replacement is yet to be determined).

Lead Service Line Replacement ($2.8b Total Need)
Potential State Resources (FY22 - FY26)



Federal Sources:

Infrastructure Investment and Jobs Act (IIJA)

Though New Jersey is projected to have the fifth highest number of LSLs in the country, the federal IIJA (i.e., Bipartisan Infrastructure Law) provides only $241 million for LSLs over five fiscal years, or roughly 9% of the cost, from the $15 billion appropriated nationally. Based on DEP's proposed Intended Use Plan (https://www.nj.gov/dep/wiip/docs/njwb-ffy22-sfy23-dwppl-pro piup.pdf), released on March 23, 2022, approximately half ($25 million) of the annual $48 million appropriation to New Jersey will be available as "principal forgiveness", an additional federal subsidy designed to assist fiscally-stressed municipalities that would experience significant hardship raising the revenue necessary to finance their projects. The remainder will be issued as low interest loans through New Jersey's Water Bank, which administers the DWSRF.

Note: the majority of the funds from the IIJA will be provided to utilities as low interest loans. Modest principal forgiveness will be available for those who qualify; those serving underserved communities and or replacing LSLs at no cost to the customer.

Water Infrastructure Finance and Innovation Act (WIFIA)

WIFIA is a federally-funded, low-interest loan program that has been used by many cities and states across the country to support water and wastewater projects. As one example, American Water Capital Corp. in St. Louis used a $84m WIFIA loan to replace 100 miles of LSLs. This discretionary program, which could finance up to 49% of the total project cost, has several very attractive features:

- Customized repayment schedule of up to 35 years starts after substantial completion of the project;
- Triple AAA interest rate below prevailing US Treasuries and often below NJ Water Bank;
- Minimum project cost typically $20m, or $5m for small communities (<25,000 pop).

In the spring of 2022, New Jersey's Water Bank received approval to use WIFIA funding to increase the size of the low interest loans that it issues. Specifically, in May of 2022, the EPA awarded a total of $221 million in WIFIA funds to New Jersey for 28 projects, some of which involved the replacement of lead service lines. (See EPA Announces $221 Million Loan to Modernize Water Infrastructure for Approximately Six Million New Jersey Residents | US EPA). In particular, large government-operated or investor-owned water utilities in New Jersey that wish to consider applying for WIFIA funding should consult the NJ Water Bank. https://www.njib.gov/nj/Setup+H2LOans+Account.19

Water Infrastructure for Improvements to the Nation (WIIN) Act

As authorized under the federal WIIN law, the IIJA authorized $500 million over five years for a new Reducing Lead in Drinking Water program. In February 2022, the EPA announced the first appropriation of $20 million for the competitive grant programs listed below for disadvantaged localities, as determined by the affordability criteria established in the DWSRF.

- $10 million: LSL replacement
- $10 million: Replace indoor lead plumbing in schools and child care facilities with an elevated lead exceedance in the past three years. Applications will be accepted at https://www.grants.gov/

Note: Though the deadline has passed for the initial grant applications, information for future grant rounds can be obtained at the links below: (See EPA Announces Availability of $20 Million to Reduce Lead in Drinking Water and Drinking Water Grants |US EPA).

Federal/State Partnership

Drinking Water State Revolving Fund (DWSRF)

The IIJA also increased federal appropriations for New Jersey's DWSRF by approximately $31 million per year beginning in fiscal year 2023. Roughly half (49%; $15 million) will be issued as additional principal forgiveness (i.e., grant-type funding), but a maximum of only $5 million of that amount will be available for LSL replacement. Combined with the $25 million in principal forgiveness from Congress' direct appropriation for LSL replacement, NJDEP will have a maximum of $30 million in grant-type funding for LSL replacement for overburdened communities, as summarized below:

Principal Forgiveness: DWSRF Bipartisan Infrastructure Law	
Lead Service Line Replacement (direct appropriation)	**$25 million**
General Program Eligibility	**$5 million**
Total Annual Principal Forgiveness, LSL Replacement	**$30 million**

Beyond principal forgiveness, the DWSRF could also provide a significant amount of low interest loans for LSL work, as total funding for all project needs (e.g., treatment facilities, pumping stations, etc.). is expected to more than double from FY22 ($235 million) to FY23 ($502 million).While a set amount has not been established for LSL replacement loans, applicants must be able to document the presence of LSLs, provide a replacement plan (in accordance with P.L. 2021, c. 183), and agree to replace the entire service line (i.e., no "partial" replacements). Apply at the NJ Water Bank: https://www.njib.gov/nj/Setup+H2LOans+Account.19

State Sources

Schools

Through the Securing Our Children's Future Program approved by the voters in 2018, the state appropriated $100 million in bonds to support water improvements in public schools. Of that amount, approximately $94 million remains to be distributed. The second round of grants will most likely be distributed late in calendar year in 2022 after the NJ Department of Education receives the latest lead testing results. (See: https://www.nj.gov/education/facilities/docs/SOCFBondAct/Final%20Water%20Grant%20Instructions.pdf).

American Rescue Plan (ARP)

In response to the pandemic, Congress provided a total of $10 billion in ARP funds to New Jersey, with few strings attached. Water-related investments are an eligible cost.

As noted earlier, the FY2023 state budget appropriated $300 million in ARP funds to NJDEP for water infrastructure projects. While LSL replacement is one of many potential eligible uses, the broader list includes prominent needs such as upgrades to treatment plants, pumping stations, water mains, and other water-related equipment. Later in fiscal year 2023, the Department is expected to provide further information on how much of these funds will be available for LSL replacement.

Separately, Congress directly appropriated approximately $4 billion in ARP funds to New Jersey counties and municipalities prior to 2022. If any of that amount remains unallocated or unspent, it may be used for LSL replacement. See the list below: https://www.booker.senate.gov/news/press/booker-menende z-release-breakdown-of-102b-in-state-and-local-covid-relief- coming-to-nj-counties-municipalities

This report was developed by Jersey Water Works' Lead in Drinking Water Task Force, which is composed of water utility officials, community advocates, and other water experts. The task force issued a report of statewide recommendations in 2019 (see the link below). https://cms.jerseywaterworks.org/wp-content/uploads/2021/0 7/JWW-Lead-Report.pdf

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 or call 609-393-0008 ext.122.