

EPA's Final Lead and Copper Rule Improvements

Technical Fact Sheet: Summary of Benefits and Costs

October 2024

The final Lead and Copper Rule Improvements (LCRI) strengthen nationwide requirements to protect children and adults from lead in drinking water. These advancements are commonsense, achievable, and built on actions taken by States and cities. There is no known safe level of lead in drinking water. Exposure to drinking water contaminated with lead can cause serious human health impacts including neurodevelopmental problems in children and heart disease in adults.

The final LCRI benefits significantly outweigh the costs. EPA estimates the benefits are up to 13 times greater than the costs. Investments in removing lead pipes will create good-paying local union jobs. The LCRI will improve public health and help protect millions of people across the country from exposure to lead in drinking water.

Table 1. Summary of Annual Incremental Estimated Benefits and Costs of the Final LCRI

	How Much?	What From?	Potential Impact
Benefits	\$13.5 – \$25.1 Billion per year	Annually, the rule will protect up to 900,000 infants from low birthweight, prevent up to 2,600 children from experiencing Attention Deficit Hyperactivity Disorder (ADHD), reduce up to 1,500 cases of premature death from heart disease, and prevent up to 200,000 IQ points lost in children.	The LCRI will help protect millions of people across the country from exposure to lead in drinking water.
	Non-quantified*	Decreased risk of heart-related diseases. Preventing other developmental effects and negative impacts to vital systems in the body including to renal, reproductive, immune, and nervous systems. The rule will also increase public awareness of the harmful effects of lead and potential sources of lead at their home. Additional benefits from lower exposure to lead in drinking water in homes in systems with higher levels of lead and reduced corrosion of pipes within homes.	
Costs	\$1.47 - \$1.95 Billion per year	Estimated costs include replacing lead service lines, water system monitoring, communicating with customers, and – if necessary – installing treatment technologies, among other actions. See Table 3 for cost breakdown.	EPA estimates 67,000 water systems will be regulated under this rule. Of these systems, approximately 26,000 water systems will be required to replace lead and/or galvanized requiring replacement (GRR) service lines and between 7,000-10,000 water systems may have to take additional actions (e.g., corrosion control treatment) as a result of the new action level. States, Tribes, and territories with primacy will have increased oversight and administrative costs.
	Non-quantified*	Downstream ecological impacts of phosphate addition and some lead service line replacement (LSLR)-related costs, such as the disruption of normal traffic patterns in communities implementing LSLR programs.	

*Non-quantified benefits and costs are those for which EPA could not assign a specific dollar amount as part of its national level quantified analysis, but it does not mean their benefits or costs are less important than those with numerical values.

What are the benefits of the rule?

The final LCRI is expected to result in significant health benefits since exposure to both lead and copper in drinking water are associated with adverse health effects. The estimated annual benefits of the rule are up to 13 times greater than its estimated annual costs. EPA estimates LCRI benefits will be up to \$25 billion per year. EPA's benefits assessment focuses on the estimated impact of reductions in lead exposure on IQ values and cases of Attention-Deficit Hyperactivity Disorder (ADHD) in children, reduced low birth weights in children of women of childbearing age, and cases of cardiovascular disease (CVD) premature mortality in adults.

Table 2. Quantified Health Benefits of the Final LCRI

<i>Final LCRI Benefit</i>	<i>Annual Quantified Benefits Once Fully Implemented</i>
Annual ADHD Benefits	\$162.7 - \$419.6 million
Annual Adult CVD Premature Mortality Benefits	\$7.70 - \$17.04 billion
Annual IQ Benefits	\$5.62 - \$7.68 billion
Annual Low-Birth Weight Benefits	\$3.9 - \$4.4 million

Note: This table shows the quantified health benefits of the final rule. EPA expects there are significant additional non-quantified health benefits that are not included but would result in a much greater number of avoided illnesses or deaths once the rule is fully implemented.

What will implementation of this rule cost?

The annual benefits of the LCRI are estimated up to 13 times greater than the costs. EPA estimates the incremental costs for public water systems and primacy agencies to implement this regulation are between **\$1.47 billion** (low estimate) and **\$1.95 billion** (high estimate) per year. These costs include regulated water systems completing service line replacement, improved lead and copper tap sampling, new or improved corrosion control treatment, making lead filters available where required, and public education. The estimated costs also include the cost of rule implementation to systems, States, Tribes, and primacy agencies, as well as wastewater treatment costs.

Table 3. Quantified Incremental Costs of the Final LCRI

<i>Final LCRI Cost</i>	<i>Annual Quantified Costs Once Fully Implemented</i>
Corrosion Control Technology	\$39.1 to \$45.1 million
Filter Installation and Maintenance	\$2.7 to \$3.7 million
Public Education and Outreach	\$197.7 to \$230.1 million
Sampling	\$32.0 to \$32.6 million
Service Line Replacement	\$1.17 to \$1.64 billion
State Rule Implementation and Administration	\$27.7 to \$25.8 million
System Rule Implementation and Administration	\$3.3 to \$3.2 million
Wastewater Treatment Costs	\$0.0 to \$0.3 million

Note: This table shows the quantified costs of the final rule. EPA expects there are additional non-quantified costs that are not included that may result in other increased and decreased costs once the rule is fully implemented.

Why does EPA present costs and benefits on an annual basis?

Presenting estimated annual costs and benefits is useful because it allows considerations of costs and benefits over different timeframes. For instance, more costs may occur in the first years of rule implementation, as water systems invest capital to replace lead service lines, while benefits of avoided deaths and illnesses are anticipated to increase over time since exposure to lead in the populations will be reduced after the rule is implemented. For the LCRI, EPA has estimated the benefits and cost over a 35-year period of analysis.

Is funding available to support implementation of the rule?

There are a number of ways for systems to receive support for LSLR and lead-related activities. Through the Bipartisan Infrastructure Law (BIL) and funding programs like the Drinking Water State Revolving Fund (DWSRF) and the Water Infrastructure Finance and Innovation Act (WIFIA), there has never been more federal funding available to remove lead pipes.

The BIL appropriated **\$26 billion** in supplemental DWSRF funding for lead-related activities and reemphasized the importance of LSLR under the DWSRF program by including **\$15 billion** specifically appropriated for LSLR projects and associated activities. Water systems are encouraged to contact their State's DWSRF program to learn about project eligibilities, requirements, and how to apply for assistance through the DWSRF.

The Water Infrastructure Improvements for the Nation (WIIN) Act established three drinking water grant programs that are available to support activities to reduce lead exposures in drinking water, including the Reducing Lead in Drinking Water grant program, the Voluntary School and Child Care Lead Testing and Reduction grant program, and the Small, Underserved, and Disadvantaged Communities grant program.

Another option for LCRI funding is the WIFIA program, a federal loan program at EPA that provides low-cost, flexible funding to communities for water infrastructure projects, including projects to address lead and copper. WIFIA funding is available year-round, so communities can request financing on their schedule.

These programs are part of the [Justice40 Initiative](#), which set the goal that 40 percent of the overall benefits of certain Federal climate, clean energy, water and wastewater infrastructure, and other covered investments flow to disadvantaged communities that are marginalized by underinvestment and overburdened by pollution. EPA has compiled information on federal and non-federal funding sources available to assist States and water systems with replacement efforts, available online here: <https://www.epa.gov/ground-water-and-drinking-water/funding-lead-service-line-replacement>.

To learn more about the final rule, including the full analysis of the rule benefits and costs, visit: <https://www.epa.gov/ground-water-and-drinking-water/lead-and-copper-rule-improvements>.

Background

The Safe Drinking Water Act requires EPA to conduct a Health Risk Reduction and Cost Analysis to assess the quantifiable and nonquantifiable benefits of the final LCRI and the quantifiable and nonquantifiable costs that are likely to occur solely as a result of compliance with the rule, as well as assess other factors that may impact this overall analysis. The benefits and costs presented throughout this fact sheet are incremental costs; that is, the additional costs and benefits that public water systems, households, and States will incur in response to the final LCRI, above those they would have under the 2021 LCRR if the LCRI was not enacted.

Disclaimer: This document is being provided for informational purposes only to assist members of the public, States, Tribes, and/or public water systems in understanding the Lead and Copper Rule Improvements (LCRI). It includes descriptions of regulatory requirements. In the event that there are any differences, conflicts, or errors between this document and the LCRI, States, Tribes, and/or public water systems should refer to the LCRI. This document does not impose any legally binding requirements on EPA, States, Tribes, or the regulated community. Further, this document does not confer legal rights or impose legal obligations on any member of the public. In the event of a conflict between the discussion in this fact sheet and any statute or promulgated regulation, the statute and any promulgated regulations are controlling.