



WHY DOES THIS MATTER?

An estimated 6-10 million lead service lines (LSLs) are still in use in US drinking water infrastructure, heavily concentrated in marginalized communities. Efficient replacement is critical, but expensive. Smart maps on LSLs improve replacement efficiency and reduce program costs.

WHY USE ARP FUNDS?

Replacing LSLs is a one-time public health investment that delivers job growth and long-term health benefits to communities. Investing in smart maps with ARP funds will improve long-term infrastructure programs.

WHY DO THIS NOW?

Though our water and sewage infrastructure has been in desperate need of repair long before COVID-19, the pandemic has exposed its importance.

Data-Driven Approach to Replacing Lead Service Lines



What are we trying to accomplish? Building sustainable and equitable water infrastructure for the future by improving a jurisdiction's efficiency and effectiveness in removing lead contamination, particularly in the lowest-income communities where lead poisoning is most acute.



Problem we're addressing: Too few communities have an efficient system in place to comprehensively engage in an LSL replacement program. Efforts are often hampered by a lack of necessary data on the number and location of LSLs in a community, resulting in inaccurate, inefficient, and costly removal efforts.



Why does this matter? An estimated 6-10 million lead service lines (LSLs) are still in use in US drinking water infrastructure, heavily concentrated in marginalized communities. Lead in drinking water has serious economic, public health, and environmental consequences.



What is the policy intervention? Data science and statistical modeling can help identify LSLs with much higher accuracy, improving efficiency and costs associated with removal efforts. Through a one-time investment of American Rescue Plan funds, this program can be implemented in two-steps:

1. An initial project planning grant that allows communities to more efficiently gather data and create smart maps showing the likely number and location of LSLs.
2. A second grant that would fund the full replacement of the community's service lines.



Cost: This policy model is proven to be cost-effective for local governments; with an average cost of \$200,000 to \$500,000

ROI: Each dollar spent on service line replacement leads to two dollars in economic benefit.



This is in addition to savings from avoiding future infrastructure or health related costs associated with lead pipes.



Why now? Though our water and sewage infrastructure has been in desperate need of repair long before COVID-19, the pandemic has exposed the neglect and exacerbated inequities in access to these vital services. The importance of our water infrastructure to health and hygiene has never been more stark, and yet millions of vulnerable Americans lack reliable, safe, and affordable access. Investing in these systems can serve as a lever to greater economic equity, environmental resilience, and better public health outcomes, stimulating recovery.



What are the outcomes we're prioritizing?

- Clean drinking water for all; emphasis on marginalized communities heavily impacted
- Remove environmental contaminants and reduce negative public health impacts
- Accurate, efficient, and cost-effective LSL removal strategy
- Generate long-term economic benefit, reduce spending on related health services, create job opportunities



Why ARP funds? Replacing LSLs is a one-time public health investment that delivers job growth and long-term health benefits to communities by ensuring safe drinking water.

- No need for ongoing maintenance costs
- Generates the information necessary to implement a full-scale replacement program
- Aligns with new regulatory requirements that all water utilities must meet
- Benefits the public health of future generations



Additional benefits

- Mitigates negative public health impacts and reduces dollars spent on health services.
- Particularly benefits communities that have historically lacked infrastructure investment, where LSLs tend to be most highly-concentrated and where data gaps are more prevalent.



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TAKEAWAYS

Size of the Challenge

As many as 10 million lead service lines are still in use in the US. Lead in drinking water has serious economic, public health, and environmental consequences.

Innovative Approach

Using data and statistical models, this approach allows for an accurate diagnosis of the location of LSLs, allowing for a targeted and efficient replacement of lead pipes.

High ROI

It is estimated that every dollar invested in LSL replacement leads to at least two dollars in economic benefit, in addition to long-term savings in infrastructure and healthcare.