



Planning for Lead Service Line Replacement in Wisconsin
Harris School of Public Policy
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Project Overview

Wisconsin has between 150,000 and 200,000 lead service lines (LSLs) in its water supply systems, presenting a clear public health risk to residents throughout the state.¹ However, previous and currently funded programs facilitated and administered by the state's Department of Natural Resources (DNR) and its Public Service Commission (PSC) can cover far less than half of the total costs of replacing these LSLs.² To assist state policymakers in developing future programs and funding needed to replace remaining LSLs throughout the state, a team of graduate students from the Harris School of Public Policy and the Law School of the University of Chicago provided analysis and recommendations to the DNR and PSC as they plan for the future.

- The students participated in the Harris School's Policy Labs program, in which teams of students work on real-world, client-based projects under faculty and professional guidance. This project was conducted in the nine-week winter quarter ending in March 2021.
- The students focused on water utilities that had the greatest numbers of privately-owned LSLs within their service territories and found:
 - Some utilities have both a high prevalence of LSLs and high shares of vulnerable individuals (e.g., young children), suggesting such utilities might be prioritized in future lead service line replacement (LSLR) programs;
 - While the costs of LSLR vary considerably across utilities, the best estimates available pointed to a unit cost of about \$3000, though costs could be higher in the southeast part of the state, where many LSLs are located;
 - Residential water rates are currently affordable by conventional standards, providing some room for utilities to raise rates as part of a PSC-approved financial assistance program for LSLR in their service areas.³

¹ Tom Neltner, "Latest Wisconsin Data on Water Service Lines Provides Important Insights, Reveals over 150,000 Lead Pipes," *EDF Health* (blog), April 16, 2020, <http://blogs.edf.org/health/2020/04/16/latest-wisconsin-data-on-water-service-lines-provides-important-insights-reveals-over-150000-lead-pipes/>.

² These state agencies have multiple objectives and responsibilities, but each plays a significant role in the water utilities sector. Wisconsin's DNR works with municipalities to administer the state's drinking water revolving loan fund, which is capitalized by funds from the U.S. Environmental Protection Agency and then matched (at 20%) with state funds; these funds are used to provide low-cost loans to municipalities for approved water infrastructure investments. Wisconsin's PSC regulates water utilities and is responsible for approving drinking water utility construction projects; establishing and reviewing the water rates charged to consumers; and reviewing and approving utilities' financial assistance programs.

³ The full report focuses primarily on within-state, across utilities comparisons of residential water rates using data from the PSC but also provides some basic comparisons across states. Interstate comparisons can be difficult due to limited ability to control for differences in usage, household size, climate, and other factors that affect water bills. That said, it should be noted that 2019 1-year American Community Survey estimates of annual residential water



- Case studies from Wisconsin and other states highlight the importance of identifying a “champion” to activate all community stakeholders, pursue creative funding opportunities, and build consensus on the need to replace these lead service lines.
- While the students’ findings are interesting in their own right, the methods and tools developed and now provided to the DNR and PSC may be of even greater value. In particular:
 - The team proposed a new metric to reflect the exposure of vulnerable populations to lead in water supplies. Consideration of this metric or some variation of it may assist DNR in making its funding allocation decisions for its LSLR program.
 - The team applied machine learning techniques to publicly available data on the unit costs of LSLR, and those techniques can be modified and used again in the future as more actual data become available.
 - The team developed an Excel tool to assist local communities in assessing their water rate structure in terms of affordability and revenue generation capacity. Local officials can use this tool to explore the potential for residential customer rate increases to cover some of the costs of LSLRs needed in their communities, modifying it as they see fit to reflect other financial pressures utilities are likely to experience in the future.⁴

Overall, the student team’s work products should provide valuable information and tools for the state’s PSC and DNR going forward and may also be helpful to policymakers in other states as they address legacy infrastructure needs in the drinking water sector.

This overview of the student project was prepared by Paula R. Worthington, Academic Director of the Harris Policy Labs program. Please contact her at pworthington@uchicago.edu with any questions.

and sewer costs indicate Wisconsin’s costs are well below national average and median values (https://data.census.gov/mdat/#/search?ds=ACSPUMS1Y2019&vv=*WATP&rv=ucgid&wt=WGTP&g=0200000US2).

⁴ In the paper itself, “municipalities” and “utilities” are sometimes used interchangeably; however, municipalities and utilities are distinct entities and play distinct though related roles in the drinking water sector.