



# MEMORANDUM

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## LEGISLATIVE REFERENCE BUREAU

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**To:** Ald. James A. Bohl, Jr.  
**From:** Tea Norfolk, Legislative Fiscal Analyst – Lead  
**Date:** December 22, 2016  
**Subject:** Costs of replacing lead water-service lines

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This memo is in response to your request for a breakdown of cost estimates from when Lansing and Madison each started replacing lead water-service lines to when they finished that work. This memo further describes what each community did to drive down costs and become more efficient in their replacement efforts.

### Lansing

A December 19, 2016 article by Eric Lacy<sup>1</sup> published in the Lansing State Journal, “BWL removed Lansing’s last lead water-service line,” stated that the last lead water-service line was removed in December 2016, and that it took 12 years from start to finish to complete the project of total lead water-service line removal in Lansing. In 2004, when the work first started, it costed approximately \$9,000 per line for removal. By the time the last line was removed, it took a crew four hours at a cost of \$3,600 per line. However, when the city did multiple blocks at a time, the cost could be even less than \$3,600 per line.

Dick Peffley, General Manager of Lansing’s Board of Water & Light, stated that when the lead water-service line project began, city workers opened a trench from the curb to the house, and it took approximately eight to nine hours to complete a line replacement. Approximately one year after the start of the project, the city started using a method of pulling pipes through the ground without digging a trench. Instead, workers dug a hole in the street at the water main, then threaded a cable through the old pipe from the customer’s house. They attached a cutter head and the new copper pipe onto the end of the cable and pulled the cable and new pipe through the ground.

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<sup>1</sup> Note that a January 22, 2016 article by Eric Lacy in the Lansing State Journal, “Lansing BWL’s push to remove lead water lines continues,” stated that at the beginning of the lead water-service line removal project, it costed approximately \$3,100 to replace each lead line, but that at the time the article was printed, the cost was approximately \$2,000 per line for a crew of two to three employees. In a follow-up conversation with Board of Water & Light’s General Manager, Dick Peffley confirmed the December 2016 article’s numbers and stated the January 2016 article’s numbers were not accurate.

Approximately 80% of the time, this process took the old lead pipe out of the ground, and approximately 20% of the time, it split the old lead pipe and left it unusable in the ground. This new process reduced the amount of time for replacing a single line to 4 hours. Additionally, Lansing was able to keep costs down because it did not charge permit fees for completing the work. Mr. Peffley stated, however, that the city had first right to do asphalt repair after the line-replacement work was completed. He stated that the city's rates are higher than a contractor's because of requirements to pay higher wages than a contractor is allowed to pay. Therefore, Mr. Peffley believes further savings could be realized without the requirement for the city having first right to do the roadwork repair.

### **Madison**

Madison's program started in 2001 and aimed to replace 8,000 lead water-service lines with copper lines. Madison Water Utility's website states that the program has "largely been completed." Although most of the work has been done, a few lead lines remain. The City covers half of a homeowner's cost, up to \$1,000.

Robin Piper, Customer Service Manager for Madison Water Utility, stated that Madison initially thought each homeowner's service-line replacement would cost approximately \$1,500, which would cost the utility approximately \$700 per customer in reimbursements. Throughout the duration of the replacement project, Madison paid customers an average of \$675.85 per reimbursement, so customers were typically charged a little more than \$1,350 per replacement for their side of the work. In 2016, these costs have gone up because there are fewer lines to replace, and economies of scale cannot be realized. Accordingly, contractors charge more when they are setting up and digging one property at a time. Currently, customers are receiving estimates closer to \$2,000 to \$2,500 per line replacement. Madison is considering changing the reimbursement to \$1,500 to help customers who have received higher estimates this past year.

As for replacement of the utility's side of a lead water-service line, the city started tracking its costs in 1995. In the beginning, instead of replacing lines with copper, the city cut off a line without replacing it at a cost of approximately \$628 per line. That cost has not changed much over time. To replace lead water-service lines with copper, it cost the city an average of \$2,318 on the utility side up until 2010. In 2008, a slow year, the city only replaced 12 lines at a cost of \$6,600 on average for the utility's side of the replacement. In other years, the city was completing 360 to 528 projects per year at a

cost of \$2,000 per line. Cost savings were realized through economies of scale. It was more cost-effective to replace a whole block's worth of lines at one time than to do one line at a time. The more lines Madison replaced, the lower the cost per line.

Madison requires customers to coordinate with contractors to do the private side of the work. Madison provides customers with a list of contractors authorized to do the work. If work is being done on a property, contractors notify nearby residents to let them know work is going to be done, and costs are typically lower to do a customer's work at the same time as their neighbors. Throughout the duration of the project, if the city was planning a street resurfacing project, the city would notify residents that it would be more cost-effective to get their service-line replacement work done at that time because the street was already being opened up for work on the pipes and the residents would not need to pay extra excavation costs.

Like Lansing, Madison uses the method of digging up the ground at the curb stop and threading the new copper line through the ground rather than digging a trench. Unlike Lansing, which provided city workers to complete the entire project, Madison required residents to hire a contractor for the private side of the work. Madison does work with the customer to leave the curb-stop hole open for a few additional days, as needed, to give the customer time to coordinate with the plumber and so the hole would not have to be opened up more than once.

### **Average Statewide Estimate**

According to an April 27, 2016 Wisconsin Public Radio article, "Wisconsin Launches Effort To Replace Aging Lead Pipes To Safeguard Drinking Water," the Department of Natural Resources estimated that, statewide, replacement of a homeowner's portion of a lead water-service line would cost approximately \$3,000.

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