

Staff Report: 2012 Water System Condition, Failures, and Impacts

As drought conditions and high demands prevail into the fall, water system weaknesses manifest themselves as failures and result in customer service interruptions. These failures have increased in frequency and severity resulting in added costs or lost revenues or both, not only to the Utility, but also to residential, commercial, and industrial customers. The Lawrence Utilities Department maintains a water distribution system that includes over 480 miles of water lines with 12,400 valves. Based on pipe material and material age the latest master plan identifies 18% of the system (87 miles of water lines) that need replacement between now and 2030 at an estimated cost of \$72.3 million (2012 dollars). This includes over \$19 million dollars of work already deferred.

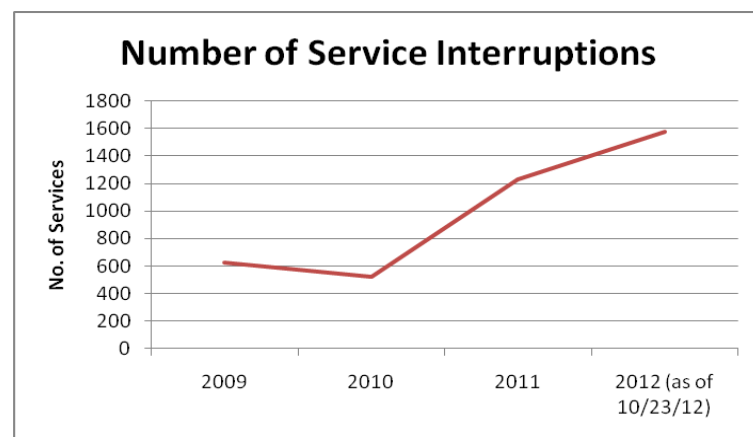
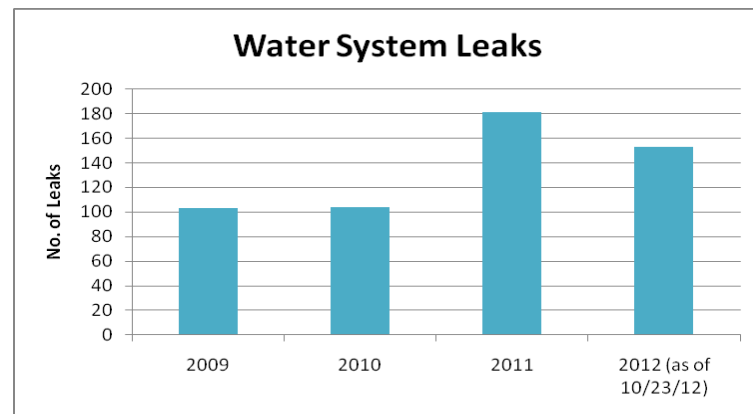
The recommended Capital Improvement Program (CIP) outlines a schedule for water line replacements. The program, as recommended, continues to defer needed water line replacements for 15 years through 2045. While considering a more aggressive program seems reasonable, the recommended CIP attempts to balance addressing other priorities related to aging infrastructure, regulatory requirements, and community growth. Previous CIPs allocated approximately \$1 million annually for water line replacement. Utility crews also replace water lines using Operations and Maintenance funding. City crews replaced 4 miles of line from 2009 through 2010. For 2011 and through this year crews have replaced less than two miles of water lines, as they have been busy repairing leaks.

Leak Frequency and Impacts

The number of system leaks since 2009 and to date for 2012 have increased the last two years by nearly 80% to a rate of 180 per year. Interruptions in service to residential, commercial, and industrial customers have increased even more indicating the severity, and leak locations have become more critical. For 2012 to date service interruptions already have increased over 200% from two years ago and are also up nearly 33% compared with last year even though the total number of leaks is currently below the total for 2011.

Some of the service interruptions for 2012 that affected Lawrence residents, businesses, and industries include:

- On July 6, a water main break serving the Northwest industrial area interrupted water service to Del Monte Pet Foods, K Mart Distribution, O'Malley Beverage, and nine homes. This required Del Monte to shut down production and send employees home. Del Monte estimates the interruption cost them \$29,603. K Mart Distribution also ceased operations resulting in delays in workflow, national re-routing of distribution trucks, re-scheduling of drivers, out-of-stock products to retail stores, and lost wages to 150 employees. K Mart estimates the interruption cost them \$30,000.
- In early August, a failed system valve serving the University of Kansas resulted in an unscheduled service interruption to the majority of the University requiring some departments and services to close for the day. The University uses City water for heating, cooling, and power generation. KU's staff supplemented source water to keep these critical services in operation.



- Three water line failures occurred along 23rd Street on August 16, October 10, and October 15. In addition to traffic delays, 22 businesses, including McDonald's, Wendy's, Dunkin Donuts, Panera Bread, Mr. Goodcents, and others closed for up to 6 hours during peak business hours while repairs were made.
- On September 21, a water main break at 5200 Clinton Parkway left approximately 108 residential customers without water service. This included the KU Tennis center that at the time was hosting a tournament.
- On September 24, a water main failure on the same line as the July 6 leak again interrupted water service to Del Monte, K Mart Distribution, O'Malley Beverage, and others. Del Monte has estimated their costs for this interruption at \$25,048. Kmart Distribution continued operations and have estimated their expenses at \$2,000 for portable toilet rental purchase of bottled water for employees, and production losses.

Summary

Lawrence is not alone in dealing with aging utility infrastructure and balancing those needs with other demands for public dollars. It is a national issue. Commissioner Hugh Carter forwarded an article from [USA Today](#) that discusses the trends of increasing water rates across the country. In 29 of the locations surveyed, monthly water costs doubled and in three others, the costs tripled since 2000 as revenue needs have increased to pay for debt payments on bonds used to fund repairs, meet additional regulatory requirements, and pay for the higher priced energy and chemicals. Over the same period, Lawrence's rates have increased by 45% while the consumer price index has risen 35%.

It is important to address the current backlog and future needs to replace aging water lines to ensure service reliability and to control costs. Expenditures on materials and use of staff time to repair leaks reduce the resources available to correct the cause of the leaks, namely - aging water lines. Fixing a leak does not improve the integrity of the system since repairs are made by installation of clamps or very short sections of pipe that are torn out at the time of line replacement. It is apparent that continued deferral of water line replacement would cost more over the long haul than adopting a program that keeps up with needed water line replacements.

Adoption of an adequately funded program to address already deferred water line replacement projects as well as to address current and future infrastructure needs is critical to sustaining service and controlling costs for the Utility, the City, and the ratepayers.