

Business Case for Forest View Acres Water District Pipe Replacement Project

OVERVIEW

The District has approximately 65,000 linear feet of distribution lines. Most of these lines are deteriorating at a rapid rate. The District records indicated that the system water loss on an annual basis is 40-50%. The system has had ten (10) to twenty (20) leaks per year that surface and each is repaired immediately by the District; however, with 40-50% water loss, many of the system leaks are not surfacing and go undetected. With all of the system leaks, the District representative are concerned about the possibilities for contamination, as well as the high cost to treat water which is never seen or used by the District residences. The system loses approximately 1,000,000 gallons of water per month. Many of the lines need to be upgraded to conform to AWWA standards.

BACKGROUND

The existing distribution system was installed in the mid-1950's, and much of the system is made up of cast iron, schedule 40 PVC, polypipe and asbestos cement line pipe which are showing signs of deterioration. The system experiences 40-50% water loss on an annual basis. In 2009, the difference between water produced and water billed showed a loss of 33% or over 24 million gallons treated and only 16 million billed. In 2010, that number jumped to a loss of 40% or 30 million gallons produced and only 18 million billed. In the first six months of 2011, the losses continued to raise to 46% or 14 million gallons produced and just under 8 million gallons billed (see attachment one). The system has approximately 65,000 LF of distribution line that ranges in size from 1" to 6". The system also has several different pressure zones which require pressure reducing valves (PRVs).

PROJECT

The project will take to 2 phase approach to addressing the significant water loss currently seen throughout the system.

Phase I: Installation of Master Meters at the different pressure zone locations. Use data to identify area of most significant water loss.

Phase II: Design replacement of lines in areas where most water loss occurs as identified in Phase I.

CONCLUSION

The District is not in a position to do a system wide line replacement, therefore the District would like to install master meters at the different pressure zone locations throughout the system to determine the areas of most significant water loss and design replacement of the areas where most loss occurs.

By installing several master meters, leaks can be identified, thus prioritizing the worst areas of leakage and possibly avoiding entire system replacement. The project proposed to use \$1,000,000 on distribution line replacement at a cost on \$75/LF. Based on the costs identified in the loan application and the PER, the \$1,000,000 could replace up to 13,000 LF of distribution line or approximately 20% of the system. Since phase 1 of this project is to install meters to determine the areas of greatest water loss and focus the \$1,000,000 on those areas, we are unable to provide a calculation of water savings due to this project. However, if we were to assume equal water loss across the entire system, replacing 20% of the system should reduce water loss 20%. Therefore if water loss is 12,000,000 gallons per year, we can assume almost 2.5 million gallons saved per year.

GREEN PROJECT RESERVE CATEGORY

The District proposed that this portion of their project qualifies under the Green Project Reserve Water Efficiency Section 2.5-2: *Distribution pipe replacement or rehabilitation to reduce water loss and prevent water main breaks*, as defined in the 2011 Clean Water and Drinking Water SRF 20% Green Project Reserve: Guidance for Determining Project Eligibility. The total cost set aside for distribution line replacement is \$1,000,000 or the \$2,000,000 loan request.