

INTRODUCTION / BACKGROUND

Water utilities throughout the United States are currently facing the challenge of extensive rehabilitation and replacement of aging and deteriorated water mains. The Sacramento Suburban Water District (SSWD) is no different in this regard. In 2010, the American Society of Civil Engineers (ASCE) published a report card on America's infrastructure and their rating for drinking water systems was a D⁻¹. As part of this study, ASCE estimated the 5-year funding requirement for drinking water and wastewater infrastructure in the U.S. at \$255 billion.

Of particular concern for SSWD are older portions of the water distribution system that date back prior to the 1950s. Some portions of these pipelines have been in service since the mid 1920's. An ongoing program to replace aging water mains is necessary to maintain reliability and high quality service to SSWD customers.

The formation of the former Arcade and Northridge Water Districts dates back to the 1950's. The distribution mains in the District's South Service Area, (SSA), (formerly part of the Arcade Water District) were constructed during the building boom following World War II. The most common pipe material used in the 1950's and 1960's was tar coated steel pipe, known as ODS, which after more than 50 years of service has experienced frequent leaks and requires replacement. The old steel pipe has become unreliable and will continue to deteriorate, causing significant increases to the cost of maintaining the water system and potential damage to customer property. The outdated water system with its increased maintenance requirements undermines the District's ability to provide a continuous, reliable, and cost effective water supply to customers. In addition numerous leaks associated with the ODS pipe negatively impact the District's water conservation efforts. Frequent service interruptions have caused considerable inconvenience to the District and its customers, resulting in multiple complaints.

Additionally, examining the 4-inch and 6-inch ACP in the District's system is the next priority based on the leak history, location of the mains in the back yards, fire flow analysis, and recent studies conducted by EBMUD. The replacement of the areas with the most backyard 4-inch and 6-inch ACP will minimize mainline leaks due to tree roots damaging the pipe, and will provide a safer more reliable distribution system located in the County Right-of-Way along with an increase in fire flows.

¹ Source: *Report Card for American Infrastructure*, American Society of Civil Engineers, 2009.
SSWD Distribution Main Asset Management Plan
September 2014

A significant portion of these aging water mains are located in back-lot and side-lot easements where access to perform repairs is difficult and must be made across the homeowner's property. The District has also found many of the existing mains are installed in areas without recorded easements which are required for the District to place water facilities on and/or in private property. The service and repair work, when necessary, is inconvenient to customers and very costly for the District. Today's standard for water main installation is to install the main in the public right-of-way fronting customer's homes, where access for service and repairs is more convenient for the customer and much more efficient for the District's maintenance personnel. However, County regulations continue to change. Changes include difficult paving conditions, inability to support water mains on bridge structures to cross streams, and changing regulations pertaining to water and air discharges.

Prior to the consolidation on February 1, 2002, the former Arcade Water District had begun a somewhat limited program to replace aging backyard water mains, with good success. Between 1993 and 2001, a total of 13.5 miles of backyard mains were abandoned in-place and replaced with new mains located in the public right-of-way fronting customer's homes. After a 2 year period where no mains were replaced, a more aggressive program was initiated in 2004 which through the end of 2007 has resulted in the replacement of an additional 12.3 miles of water mains. Starting in 2008 and through 2014, 67.2 miles of water mains were replaced. Since 2002 a total of 70 miles of backyard ODS has been replaced with new ductile iron pipe (DIP) that has a life expectancy of 100-150 years.

Staff is proposing to continue the Distribution Main Asset Management program. Replacing the water mains with new mains in conformance with District specifications will allow the District to provide decades of reliable and cost effective service for our customers. The current direction is to replace the backyard ODS pipe, then move on to backyard ACP along with problem areas with MLS, and to relocate backyard mains to the roadways fronting residences. Upon relocation of backyard mains and the replacement of ODS and other pipe over the next 20 years or more, the entire network of water mains in the District will be placed under an updated the Distribution Main Asset Management Plan which will be a continuous capital outlay task for the District.