United States
Environmental Protection
Agency

CASE STUDY

South Placer Municipal Utility District Collection System Asset Management Program

Overview

With increasing pressure to meet state and federal regulatory requirements, eliminate sanitary sewer overflows (SSO's), and prevent discharges to waters of the United States, municipalities have a growing obligation to manage their aging infrastructure with limited budget and resources. Asset management planning is an essential tool in maintaining levels of service for water and wastewater systems.

In 2006, the California State Water Resources Control Board adopted a *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems* (General Permit). In order to anticipate and justify current and projected costs of complying with federal, state and local regulations, and effectively manage its collection system, the South Placer Municipal Utility District (District) has elected to develop an asset management program.

Background

The District operates a satellite sanitary sewer system made up of approximately 255 miles of sanitary sewer pipe with 5,800 mainlines and manholes and 14 lift stations. The collection system discharges to the City of Roseville's Pleasant Grove and Dry Creek wastewater treatment plants. Since forming in 1956, the District has grown from 452 connections then to the current 22,600 connections. Thus, the District has had to adjust management of the system as it has evolved from a small- to medium-sized system.

South Placer MUD

By the Numbers…

Population
72,000

Area
31 Square Miles

Miles of Sewer Lines
255 Miles

As required by the General Permit, the District adopted a Sewer System Management Plan (SSMP) in August 2009, and updated it in August 2014, to facilitate proper funding and management of the collection system. The District's asset management program is critical to achieving the stated goals of the SSMP.

Computerized Maintenance Management System (CMMS)

The District developed a custom CMMS, the Waste Water Management System (WWMS), in 1989 to maintain system data and produce work orders. The WWMS has extensive reporting capabilities that allow for data analysis used for condition assessment, predictive maintenance, and prioritization of work. The District also utilizes a geographical information system (GIS) mapping system that includes information for its collection system assets.

Although the WWMS has been an integral part of the District's asset management program, the needs of the District have changed as the District has grown. Thus, the District is currently upgrading to a new CMMS that will integrate information from the District's various databases, including asset attribute and work order data, GIS data, closed-circuit television (CCTV) inspection data, and hydraulic modeling information. The District will use the new CMMS to assign activities to assets, bundle repair/rehabilitation/repair projects into capital improvement projects, generate reports, and geographically display data.

Condition Assessment Process

As part of the asset management program, the District implements a condition assessment process to evaluate mainline pipes (all collection, trunk, and interceptor pipes), for the purpose of determining condition and identifying problems to be addressed. The process is designed to narrow the District's focus to only those pipes that may require repair or increased maintenance.

The District has developed a defect rating system with a scale of 1 (slight) to 3 (severe). The District enters defect ratings into the WMMS, and is able to generate reports by rating and type (e.g., roots, cracks, offset joints, infiltration and inflow, and misaligned pipe). Using rating information, the District is able to identify problem line segments and prioritize repairs. For example, the District typically only repairs defects rated as "1" in conjunction with repairs rated "2" or "3" located in the general vicinity, whereas any defect rated a "3" is immediately evaluated and considered for repair.

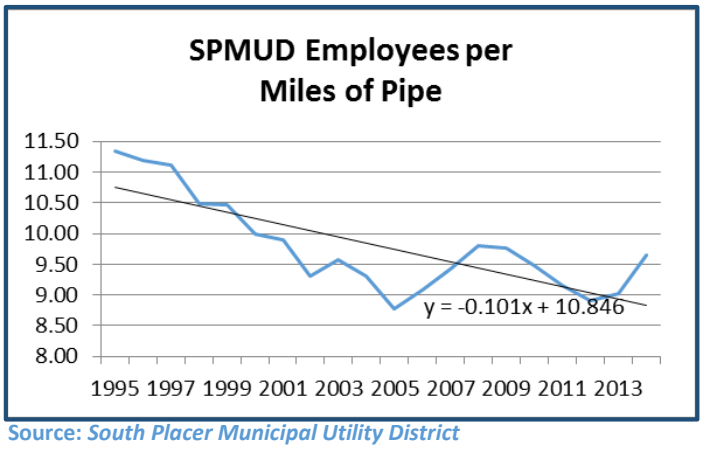
Once a line segment is identified as a candidate for some action, the District evaluates CCTV inspection records, work order history (e.g., past blockages/sanitary sewer overflows, past repair work), line cleaning history, high frequency cleaning for identified "hot spots", institutional knowledge, asset age, and their *System Evaluation and Capacity Assurance Plan* (SECAP) to determine the appropriate course of action. The District reviews the SECAP to determine if and when upsizing is required, and conducts a cost analysis to decide whether to upsize or rehabilitate the affected asset. Using the CCTV inspection reports, the District considers the number, type, and proximity of defects on a line segment. Significant and/or multiple defects on a line segment may suggest that rehabilitationg the entire pipe will be more cost-effective than multiple point-repairs.

Funding and Planning

The District develops an annual Repair and Rehabilitation (R&R) Plan and a 5-year Capital Improvement Plan (CIP) to ensure adequate funding support and resources for sustaining long-term asset management. The R&R Plan is funded through maintenance and operations revenue, collected through monthly service charges, and is used for maintenance-related work to improve functionality, reduce maintenance, and reduce the probability of failure of an asset. The CIP is funded through depreciation revenue, also collected through monthly service charges, and local participation charges from developers. The CIP is used for replacement of pipes that have reached or exceeded their uesful life and cannot perform their designed function identified through the condition assessment process, and for upsizing pipes based on results of the SECAP.

Successes

Through their asset management program, the District has been able to meet regulatory requirements and effectively and efficiently manage their system as the service area has grown. The District maintains an average spill rate well below the regional and state averages. Having utilized the WMMS for almost 25 years, the District has generated a substantial dataset for their system, which the District has used to identify hot spots within the system and generate a routine maintenance program. The District has been able to better identify the level of effort required to perform all functions and tasks required to propely manage its collection system and is able to program and prioritize work in an efficient manner, which has allowed the District to improve the ratio of employees to miles of pipe by approximatey 10% per year.



Source: *South Placer Municipal Utility District*

For More Information on the South Placer Municipal Utility District:

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To access the SSMP, visit: http://spmud.ca.gov/about-us/sanitary-sewer-management-plan-ssmp/

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