



United States
Environmental Protection
Agency

CASE STUDY

City of Folsom 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), which requires municipalities to develop and implement Sewer System Management Plans (SSMP's) to facilitate proper funding and management of sewer systems. In order to anticipate and justify current and projected costs of complying with federal, state and local regulations, the City of Folsom (City) has elected to develop an asset management program as a component of its SSMP.

Background

The City operates a satellite sanitary sewer system made up of approximately 358 miles of sanitary sewer pipe (main lines, force mains, and laterals), ranging in size from 2 to 33 inches in diameter and pumped throughout the system by 15 pump stations. The collection system discharges to the Sacramento Regional County Sanitation District's regional wastewater treatment plant.

The City experienced a major spill from its collection system to surface water in 2000, prompting the Central Valley Regional Water Quality Control Board (Central

City of Folsom *By the Numbers...*

Population
72,200

Area
24 Square Miles

Miles of Sewer Lines
358 Miles



Valley Water Board) to issue a National Pollutant Discharge Elimination System (NPDES) permit for the collection system in 2002. The City obtained coverage under the General Permit in 2007 and the Central Valley Water Board rescinded the 2002 NPDES permit thereafter.

As required by the General Permit, the City adopted the SSMP in August 2009, and revised it in August 2014. The SSMP establishes specific goals to provide uninterrupted service, minimize the risk of preventable SSO's, mitigate unforeseen SSO's, ensure adequate sewer capacity, sustain the aging sewer infrastructures by implementing an asset management program to extend asset lifecycle, and ensure adequate funding support and resources to sustain long-term asset management. The City's asset management program is critical to achieving the stated goals of the SSMP. The City's asset management program integrates operation and maintenance, capital improvement projects, condition assessments, funding, and risk and service levels to achieve these goals.

Asset Inventory and Condition Assessment

The City utilizes a geographic information system (GIS) to display location and some asset information for the collection system, including pipe locations, pipe sizes, manhole rim elevations, pipe materials manhole depths, pump station locations, force main locations, and sewer lateral locations. The City coordinated the GIS with their computerized maintenance management system (CMMS) to avoid duplicate and conflicting databases. The City uses the GIS to store static asset information (e.g., size, material, length, and slope), whereas the CMMS stores dynamic operation and maintenance information.

The City thoroughly inspected and performed a condition assessment of the collection system between 2002 and 2007. Based upon this condition assessment, the City developed an Operation and Maintenance (O&M) Plan that defines a routine maintenance schedule and describes the activities that the City performs to ensure that each component of the collection system is inspected, cleaned, and repaired, as necessary, at least once every 5 years.

The O&M plan includes standard operation procedures (SOP's) for conducting closed-circuit television (CCTV) inspections, manhole inspections, smoke testing, and sewer flushing/cleaning, each of which includes a condition assessment component. Upon inspection, the City ranks the inspected asset on a scale ranging from 0 (no defects) to 5 (emergency), and an action plan is developed based on that ranking. Based on the ranking, a priority rating is assigned. Once the affected asset has been assigned a priority, different methods to rehabilitate the asset and extend its life are implemented (e.g., cleaning/flushing, manhole lining, cured-in-place pipe, etc.).

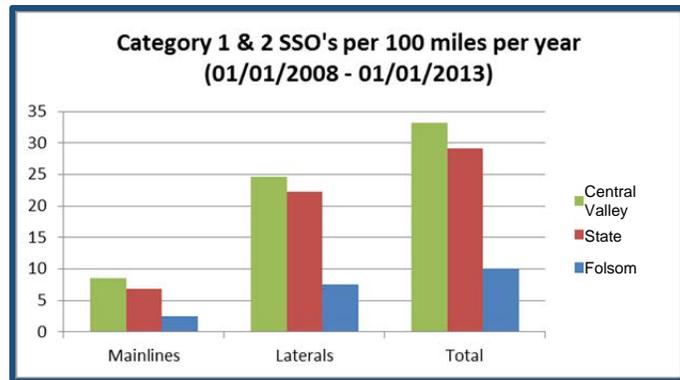
The City develops a *System Evaluation and Capacity Assurance Plan* (SECAP) approximately every 3 to 4 years, which considers land use, inflow and infiltration, wastewater flow, hydraulic modeling, and average dry weather and peak wet weather flows, to ensure adequate capacity and identify areas with capacity issues to prevent overflows. The City first conducted the SECAP in 2003, and has updated the study three times, in 2006, 2008, and most recently in 2013. As a result of the prior studies, the City identified problem areas and implemented several sewer system improvement projects to improve the sewer system's reliability and reduce capacity issues.

Funding

Based on the results of the condition assessments and SECAP, the City develops a multi-year, comprehensive Rehabilitation and Replacement (R&R) Program for the deficient systems. From the R&R Program, the City develops a 5-year Capital Improvement Plan (CIP) for the necessary projects in order to ensure adequate funding support and resources for sustaining long-term asset management. Each year, this plan is approved and adopted by the City Council. The City's annual wastewater budget is \$6 million, of which \$2 million is set aside for rehabilitation and replacement projects. The City has spent \$18 million over the last 10 years to rehabilitate and replace pipelines, increase capacity, and upgrade pump stations, and is planning to spend an additional \$15 million for additional projects over the next 6 years.

Successes

The City has experienced a number of benefits since implementing its asset management program. The City has reduced the number of sewer spill events by 80% since 1998, and maintains an average spill rate well below the regional and state averages. A 2012 audit of the program by the Central Valley Water Board concluded that the collection system was in good operating condition and that the system has adequate capacity for sewage flow, indicating a substantial improvement in operations since the 2000 spill.



Source: City of Folsom Sewer Improvement Program, Informational Presentation, January 2013

For More Information on the City of Folsom Environmental and Water Resources Department:

City of Folsom
Environmental and Water Resources Department
50 Natoma Street
Folsom, CA 95630
Phone: (916) 355-7272
www.folsom.ca.us/depts/ewr

To access the plan, visit:

[http://www.folsom.ca.us/depts/ewr/sewer_system_management_plan_\(ssmp\).asp](http://www.folsom.ca.us/depts/ewr/sewer_system_management_plan_(ssmp).asp)

Publication Information:

Prepared by:
PG Environmental, LLC
570 Herndon Parkway, Suite 500
Herndon, VA 20170

On behalf of:
U.S. Environmental Protection Agency, Region 9
Water Division
75 Hawthorne Street
San Francisco, CA 94105