SMARTCOVER®
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Ross Valley Sanitary District, CA

Enhances Operations and System Resilience with Proactive Infiltration and Inflow Assessments

Established in 1899, the Ross Valley Sanitary District (RVSD) in San Rafael, CA operates California's oldest sanitary sewer district. RVSD serves 10 communities and more than 47,000 residents, maintains 200 miles of sewer lines and 19 pump stations, which collect, store and transport millions of gallons of sanitary sewage and stormwater a day to the Central Marin Sanitation Agency for treatment. About 60% of the district's sewer lines were installed prior to 1955; the oldest section is more than 100 years old.

The Challenge

With a growing population, aging infrastructure, and unpredictable weather patterns, RVSD experienced escalating levels of sanitary SSOs that threatened local waterways and public health. Surcharging and flooding occurred every time it rained. That led to a series of regulatory infractions in which the city was fined while working with limited capital. A Cease-and-Desist Order from the California State Water Quality Control Board (SWQCB) warned RVSD it faced legal action, including hefty fines, if it did not make capital improvements within five years to decrease SSOs and correct other system issues.
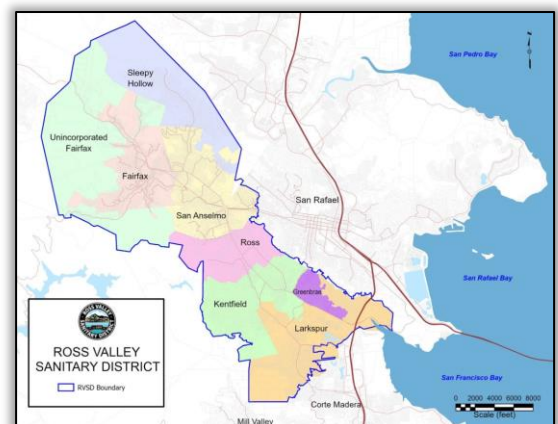
The Solution

In response to the SWQCB's mandate, Ross Valley implemented an Asset Management Program to mitigate spills that could contaminate waterways and to improve operational performance for long-term capital planning. As part of the plan, SmartCover's real-time, remote sewer monitoring and data-tracking technology was installed to gauge infiltration and inflow (I&I) and provide advance alerts to engineering and operations teams of potential problems.

Utilizing SmartCover applications helped RVSD produce immediate measurable improvements that resulted in the SWQCB amending the Cease-and-Desist Order. Since RVSD's 2016 pilot program with SmartCover, the district has expanded its use of SmartCover technology, currently utilizing 66 SmartLevel monitors that are integrated with software to track various kinds of data.
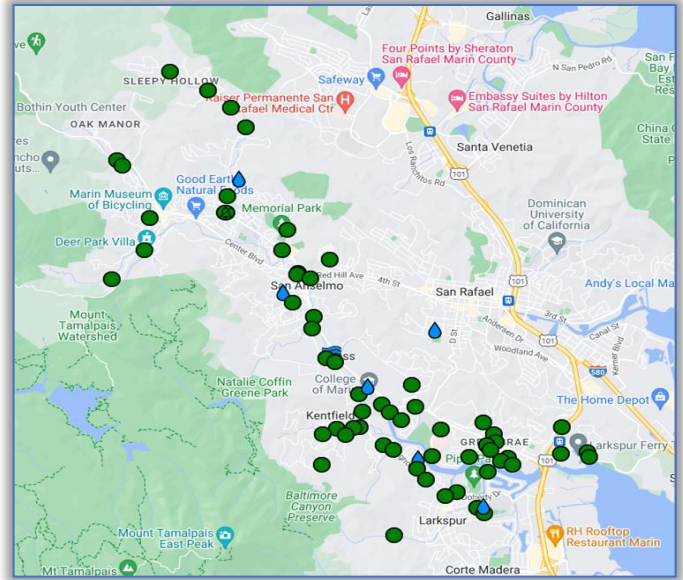
Highlights:

- **Implemented advanced asset management and real-time collection system monitoring to improve operations and long-term planning.**

- **Proactively assessed infiltration and inflow (I&I) risks and improved emergency response times.**

- **Optimized maintenance schedules and reduced required manpower time during wet weather events.**
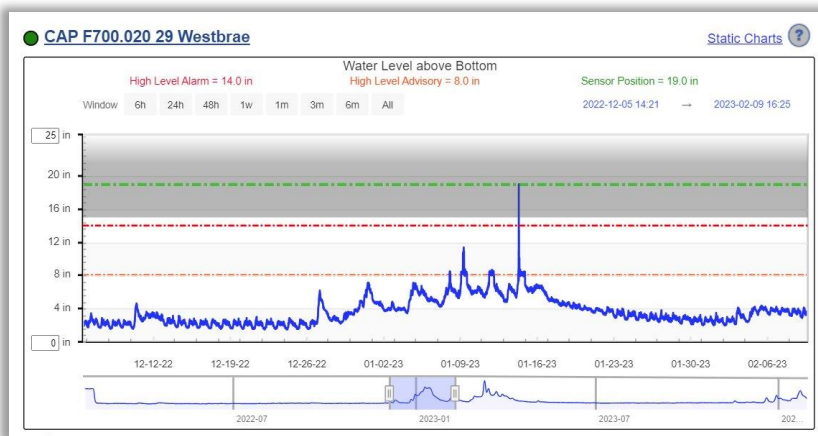
The Results

SmartCover helped RVSD extend the life of its aging infrastructure and reduce the risk of capacity overload and other issues resulting from stormwater runoff, blockages, sanitary sewer overflows and flooding. The district reduced the amount of contamination entering fresh waterways. In addition to SmartCover real-time monitoring, other SmartCover technology—SmartTrend® management software and SmartRain™ data integration—enables better use of limited staff and resources.

Instead of chasing problems, Ross Valley has enhanced its ability to do proactive risk assessment and data-driven clean-out scheduling. Additionally, the district's response time for real emergencies has improved with real-time monitoring and the alarm technology.

SmartCover units in the RVSD

Example of SSO Site Monitoring /
High Level Alarm Notification

Once, during an electrical failure at an RSVD pump station, the alarm system failed. However, SmartCover alerts prompted an immediate response that prevented millions of gallons of sewage from entering a local waterway. Now, standard protocol is to install SmartCover sensors upstream of all future RVSD pump station capital improvement projects.

Conclusion

Initially, RSVD sought to better understand how its sewer system reacts during heavy rain events and to track and reduce inflow & infiltration. Over time, RSVD's use of SmartCover remote sewer monitoring technology applications expanded to include such things as trending analysis, tide predictions, smoke testing, identifying lift and pump station backups, detecting illegal dumping and unauthorized access, and improved cleaning management.

SmartCover resources have provided RVSD with multiple ways to meet its goals and avoid massive capital investments, translating into millions of dollars saved.

RVSD efforts were recognized in 2022 by the California Water Environment Association, receiving that organization's Wastewater Collection System of the Year Award for small systems (less than 250 miles in length). The district was lauded for its commitment to innovative asset management and infrastructure maintenance and for contributing to environmental sustainability efforts.