ROI PROFILE

Comprehensive Flow Monitoring Delivers Savings of $46.5 Million and Eliminates Capital Projects

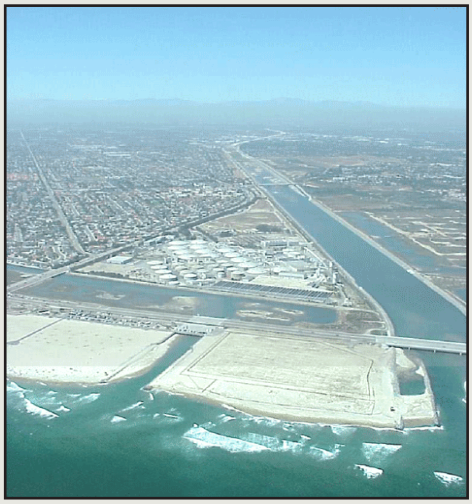
Orange County, California

ADS Managed Flow Monitoring Eliminates Need for Capital Projects

In 1998, an engineering consulting group performed single-season flow monitoring in the northern half of Orange County (OCSD Service area). The engineering firm used this flow monitoring data to produce a capital plan that stated a required investment of $177.5 million for numerous sewer system expansion and hydraulic relief projects over the next 10 years. The flow monitoring services were contracted to ADS but ADS did not control the placement of the 62 flow monitors and 27 rain gauges. Engineering consultants determined the placement of the flow monitors on this initial project. The data from flow monitoring were used to produce the capital plan without isolating reasonable sized hydraulic tributary zones (basins) and properly characterizing RDII contributions and proper hydraulic routing through the > 100 diversion structures in their sewer flow model.

Not long after the initial capital improvement plan was published, OCSD recognized they needed to gain a better understanding of the impacts of RDII, along with determining more accurate system maps/layout (including a better understanding of the diversions), before the capital plan should be implemented.

In 2002, OCSD contracted with ADS and Montgomery Watson Harza (MWH) to conduct a comprehensive multi-season flow monitoring program and RDII study. In the updated flow study, ADS did control the locations of the 150 flow monitors. This was a much more comprehensive study and was implemented using the ADS strategy for equivalent basin sizing and proper hydraulic isolation of basins. ADS provided final flow and rainfall results in 2005 in a comprehensive RDII report.



Orange County Sanitation District (OCSD)
Aerial Photograph

The Return on Investment for OCSD

An investment of $5.5 million in an updated strategic plan based on comprehensive flow and rainfall monitoring resulted in a savings to OCSD of $46.5 million. This is a net savings of $41 million. The savings was realized through an improved plan for flow monitoring, which recognized the impact of RDII and located 150 flow meters in equivalent sized basins with proper hydraulic isolation.

Comprehensive flow monitoring is the subdivision of a sewershed into small and uniformly-sized meter basins so that RDII volume and sewer operational capacity are measured at each metering point. The result is that causes are separated from symptoms. If the basin size is small enough, RDII in collection systems can conform to the 80/20 Rule of Pareto's Principle. Application of the Rule says that 80% of the total volume of RDII entering a collection system will enter in just 20% of the system. Therefore, rehabilitation can be performed on a smaller portion of the system saving time and expense.

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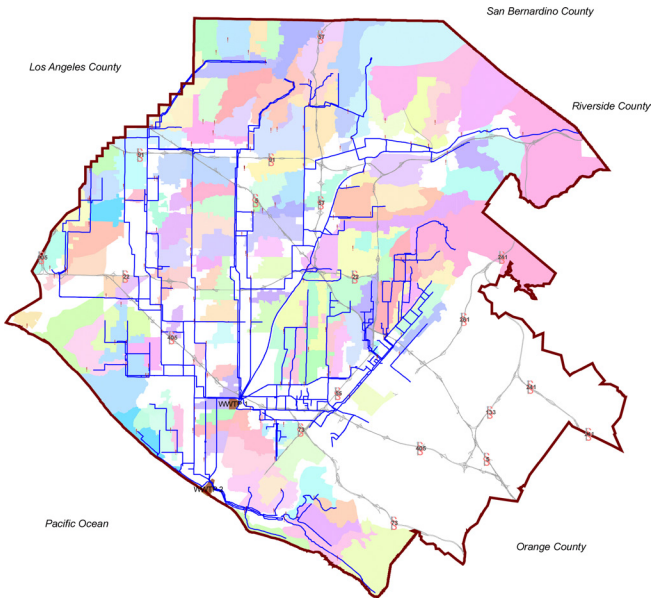
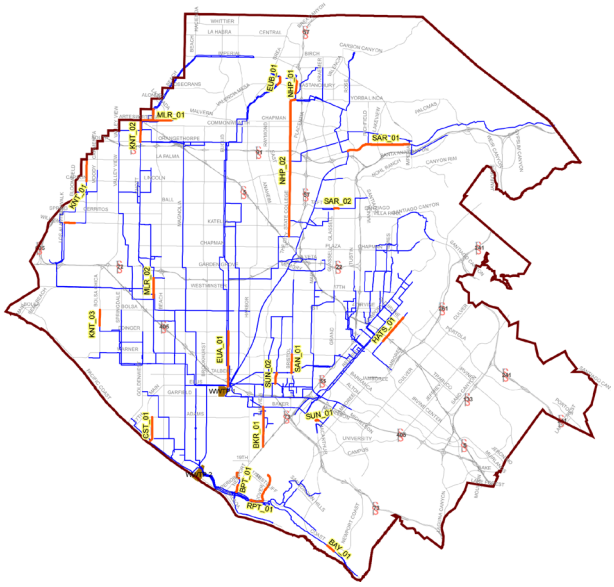
Armed with the improved map and better flow and rainfall information, MWH updated the OCSD flow model and delivered a strategic plan update in 2006. This plan recommended an investment of $131 million for various sewer system expansions and relief projects that were right-sized based on the updated and comprehensive data provided by ADS; resulting in $46.5 million in savings over the previous strategic plan.

The investment made in the second round of flow monitoring, mapping, and modeling was approximately $5.5 million. This reflects more than an 8 to 1 return on their investment in a higher degree of map and flow data accuracy.

Only a few of the numerous capital projects in the $131 million strategic plan update have begun to be implemented. These projects are planned to occur over a 10 to 20 year period, depending on priority based on the modeling effort and assumptions of growth/development made therein.



OCSD Long-Term Flowmeter Basin Map



OCSD Capacity Improvement Projects Map

Specific value ADS provided in this project:

- The ADS Strategy for right-sizing basins and properly locating flow meters to optimize the understanding of hydraulic performance in discrete sewer shed areas
- Recognizing that RDII was an issue and incorporating that into the flow monitoring program
- Using this new data to produce a different, more optimized and cost-effective capital improvement plan

Comprehensive Flow Monitoring Reduces Project Costs, Saves Time, and Solves Problems

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