

Proposed Orange County Sanitation District

Asset Management Policy

Summary Policy Statement

The Orange County Sanitation District (Sanitation District) will assess and manage the collection system and treatment plant systems and assets to improve resilience and reliability while lowering lifecycle costs. This will be accomplished through adaptive operation, coordinated maintenance and condition assessment, and planned capital investment. Staff will balance maintenance, refurbishment, and replacement strategies to maximize useful life, system availability and efficiency.

Background

The Sanitation District is a regional governmental agency principally chartered to protect the public health through collection and treatment of wastewater. The governing Board of Directors has defined this role to include the recovery and utilization of resources from wastewater for the public good as a part of that mission. The environmental impact mitigation of the human activity of 2.6 million people and the natural drainage of the 471 square miles the Sanitation District serves is our principal concern.

The Sanitation District owns and operates extensive facilities to achieve its mission. The Sanitation District estimates the replacement value of the civil, mechanical, and electrical assets in its collection system, Plant No 1 in Fountain Valley, and Plant No. 2 in Huntington Beach to be nearly \$11 billion. The Sanitation District has been building the piping, pumping, and treatment infrastructure it utilizes for more than sixty-five years. It is necessary to expand, renew, replace, demolish, and rebuild components of the system to deal with wear and tear and meet new challenges.

The early years for the Sanitation District were characterized mostly by capacity expansion to meet the challenges of increased flows as the county grew. The late 1970s to the 2000s were more defined by improved levels of treatment. The last ten years have been focused on increasing the level of resource reuse. One of the key success factors for the Sanitation District has been the ability to upgrade and repurpose its operating facilities to accomplish high levels of treatment and reuse.

Current Situation

The Sanitation District is a highly planned, forward-looking organization. The collection system and each of the treatment plants are broken down into granular functional parts. Each part is well defined and future requirements are estimated. The Sanitation District has a detailed understanding of what is owned, what condition it is in, and how it is capable of performing.

The collection system is made up of independent pipe networks that were installed by the former independent sanitation districts to deliver flow to the joint treatment works. Generally speaking,

the natural watershed drainages in the service area are served by major trunk sewer systems. The Sanitation District has worked with member city and agency staff to understand future development plans, flow estimates, and has collected historical inflow and infiltration rates during wet weather events to assure adequate flow carrying capability exists in each trunk sewer system. The Sanitation District also factors in the effects of drought and lower domestic water usage rates to make sure the sewers operate properly at low-flow rates.

The treatment plants are broken down into the discrete process units that make up the whole. Each plant has a headworks unit that brings in flow and does preliminary treatment, a primary treatment unit which does gravity settling, multiple biological secondary treatment systems, solids handling and dewatering, power generation and distribution utilities, water and air system utilities, and an outfall system to release treated water to the ocean. Each plant can treat 320 million gallons per day of wet weather flow, but only 185 million gallons total on average is treated. The Sanitation District must always maintain the ability to treat both the average flow and peak wet weather flow.

The Sanitation District understands that every asset has an expected life. Electrical systems are generally limited by component obsolescence to 20 years of life. Mechanical and coating systems are also generally limited by erosion, corrosion, and wear to 20 years of life. Civil structures and pipes are generally limited to 60 to 80 years of life if maintained on a regular basis.

With this in mind, the Sanitation District has created a facilities master plan that plans to renew or replace facilities on this regular basis. Collection system projects are driven by growth projections or condition findings. Pipes are upsized or renewed based on flow projections, corrosion observation, coating system failure, or the ability to increase reclamation. The 15 regional pump stations are renewed on a more frequent basis due to the mechanical wear and tear and electrical component obsolescence needs, about every 25 years.

The master plan for the treatment plants is much more dynamic. In addition to the electrical, mechanical, and civil asset considerations, there is also the need to meet new requirements. The new requirements are driven by regulatory agencies or by the Board of Directors to change a discretionary level of service. Examples include: capacity demands (more water, more solids), lower discharge requirements (lower BOD/TSS to the outfall, lower nutrients to the ocean), more water for reclamation, better energy conversion of solids, and many more. The 2017 Facilities Master Plan took a snapshot in time looking at the anticipated needs and levels of service to lay out a detailed project plan to morph the Sanitation District infrastructure over time to meet the expectation. Renewal or replacement projects with costs and schedules were laid out for each individual unit of the treatment plants to address capacity, condition, level of service, and anticipated new regulatory drivers.

Future Policy Statement

The Sanitation District will continue to invest in the infrastructure necessary to meet its mission. The Sanitation District will seek to provide its required level of service at the minimum lifecycle

cost for its collection and treatment systems. The 2017 Master Plan was the snapshot basis of the Capital Improvement Plan, but the Asset Management Plan is the means to update and modify the Capital Improvement Plan to meet new requirements and conditions as time goes by.

The Sanitation District will understand in a transparent way: what it owns, the condition of those assets, the capacity of collections and treatment required, the level of service required by its regulators and Board of Directors and will anticipate new regulations that may require system improvement. This understanding will drive coherent operations, targeted maintenance, and capital investment strategies to assure resilient, lowest lifecycle cost compliance with the requirements.

Operations is committed to optimizing the operation of the systems to extend equipment life and minimize energy and chemical utilization, while meeting all regulatory and level-of-service requirement. Maintenance is committed to maintain the installed assets in a ready state for operations. Maintenance will seek to balance individual component preventive maintenance, repair, and renewal in harmony with the Capital Program. The Capital Improvement Program is based on the Master Plan, modified by the annual Asset Management Plan, and will execute the projects to install, renew, or replace trunk sewers or treatment plant units on a scheduled basis.

Asset Management at the Sanitation District is the living management of the operation strategies, maintenance plans, and implementation of the Capital Improvement Plan. The Sanitation District will find creative ways to maximize asset life or meet new capacity or level of service goals through operations and maintenance. The Sanitation District will annually reassess its condition, capacity, level of service, and regulatory conditions to drive operations and maintenance practices and modify the Capital Improvement Plan projects.

Initiatives to Support Progress Toward the Policy Goal:

Initiative: Create an annual Asset Management plan documenting the condition of the collection system and treatment plants, and upcoming maintenance or capital projects.

Initiative: Coordinate the efforts of operations, collections, mechanical maintenance, electrical maintenance, instrument maintenance and engineering through process teams to assure the Sanitation District's resources are focused on the high priority work functions.

Initiative: Maintain a 20-year forecast of all CIP projects needed to maintain or upgrade the Sanitation District's nearly \$11 billion in assets on a prioritized risk basis to establish rate structures.