ORANGE COUNTY SANITATION DISTRICT

Strategic Plan '21

OC SAN
ORANGE COUNTY SANITATION DISTRICT

Table of Contents

Appendix

Board of Directors

CITIES	ACTIVE DIRECTOR	ALTERNATE DIRECTOR
Anaheim	Stephen Faessel	Jose Diaz
Brea	Glenn Parker	Steven Vargas
Buena Park	Art Brown	Connor Traut
Cypress	Paulo Morales	Anne Hertz
Fountain Valley	Patrick Harper	Glenn Grandis
Fullerton	Jesus J. Silva	Nick Dunlap
Garden Grove	Steve Jones	John O'Neill
Huntington Beach	Kim Carr	Dan Kalmick
Irvine	Anthony Kuo	Farrah N. Khan
La Habra	Rose Espinoza	Jose Medrano
La Palma	Marshall Goodman	Nitesh Patel
Los Alamitos	Mark Chirco	Ron Bates
Newport Beach	Brad Avery	Joy Brenner
Orange	Kim Nichols	Chip Monaco
Placentia	Chad Wanke	Ward Smith
Santa Ana	Johnathan Ryan Hernandez	Nelida Mendoza
Seal Beach	Sandra Massa-Lavitt	Schelly Sustarsic
Stanton	David Shawver	Carol Warren
Tustin	Ryan Gallagher	Austin Lumbard
Villa Park	Chad Zimmerman	Robert Collacott
AGENCIES		
Costa Mesa Sanitary District	Robert Ooten	Art Perry
Midway City Sanitary District	Andrew Nguyen	Sergio Contreras
Irvine Ranch Water District	John Withers	Douglas Reinhart
Yorba Linda Water District	Brooke Jones	Phil Hawkins
Member of the Board of Supervisors	Doug Chaffee	Donald P. Wagner

Message from the GM

The Orange County Sanitation District's (OC San) resilience and preparedness have been clearly demonstrated over the past year and a half as we continued to deliver our mission to protect public health and the environment, while also planning for the future.

Working through the COVID-19 pandemic, we continued to move forward, making progress on the strategies set by our Board of Directors in our previous Strategic Plans. We even adopted a new logo and name that is reflective of our innovation and culture, changing from OCSD to OC San.

This Strategic Plan, which sets the course for our agency for the next few years, is the result of a Board of Directors-driven planning process. The plan is reviewed and updated every two years to verify and validate whether the issues, policies, and initiatives are still relevant and appropriate. This year's update coincided with the addition of eleven new Board Members.

While it may have seemed like inopportune timing to update a plan of this nature, it was actually a great opportunity. The process allowed the new members to become engaged in the important strategic issues facing OC San. This fresh set of eyes created greater clarity and validated the issues and topics being addressed. The Board's direct input into the Strategic Plan has also created organizational alignment ensuring that staff's efforts are in line with the Board's priorities.

I would like to thank our former Board Members for their vision and guidance that set the course we are on today, and our current Board for their trust and confidence giving us the opportunity to grow and excel as we strive to provide industry leading service.

Sincerely,

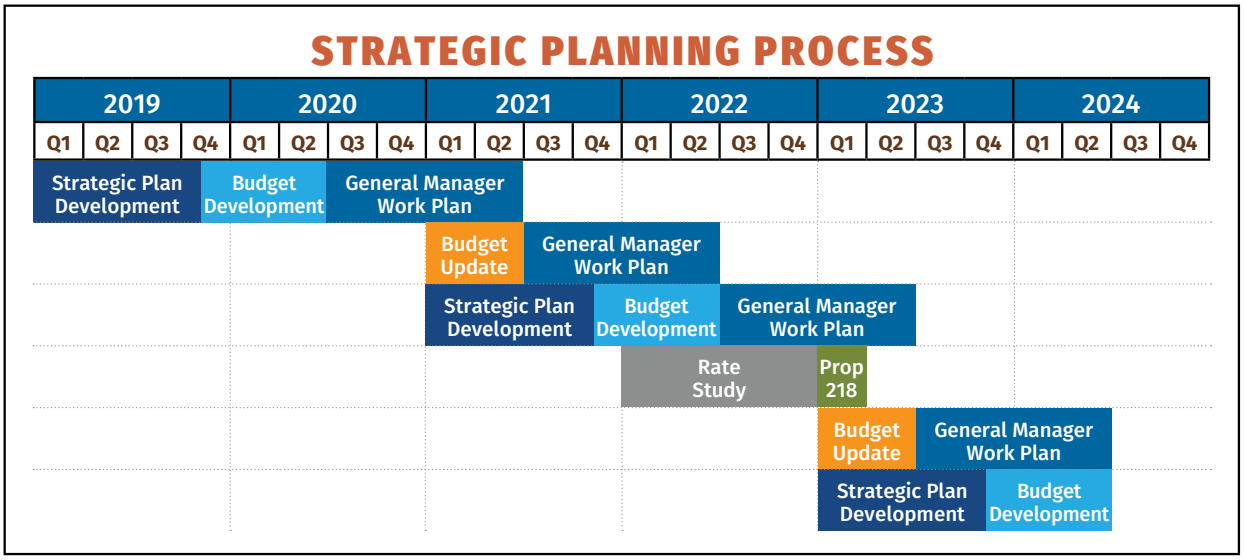
James D. Herberg
General Manager

Strategic Plan Executive Summary

The Orange County Sanitation District (OC San) is a resource recovery agency focused on providing reliable and cost-effective public services. OC San uses a two-year, four-step management process that creates and maintains vision alignment between the Board of Directors, staff, and the public we serve. It all begins with a Strategic Plan developed by the Board and staff that provides guidance and direction for long-term financial, capital, and operational efforts.

Strategic planning is the first step to define OC San's ability to have people and assets in place to meet its agreed upon mission. The second step is budget development. The budget document lays out the tactical planning and resource allocation based on the adopted Strategic Plan. The third step is budget execution which is the day in and day out delivery of services to the public we serve. The final step is reporting on our level of service delivery and goal attainment.

These four steps are repeated every two years to maintain alignment and adjust based on Board Member input, legal and regulatory changes, and the needs of the communities we serve. This management system is intended to carry on over the course of transitioning Board Members and staff to deliver resilient daily services and morph our facilities and systems over time to meet new challenges facing Orange County.



The policy areas from the 2019 Strategic Plan were evaluated and determined to be relevant today, slight modifications were made to address new findings or continue to advance the original goal with new initiatives. We are continuing with four broad categories with 15 policy areas that define our role in the wastewater environment for Orange County.

The areas are:

Business Principles
- Budget Control and Fiscal Discipline
- Asset Management
- Cybersecurity
- Property Management
- Organizational Advocacy and Outreach

Environmental Stewardship
- Energy Independence
- Climate and Catastrophic Event Resiliency
- Food Waste Treatment
- Water Reuse
- Environmental Water Quality, Stormwater Management and Urban Runoff

Wastewater Management
- Chemical Sustainability
- Biosolids Management
- Constituents of Emerging Concern

Workplace Environment
- Resilient Staffing
- Safety and Physical Security

Three workshops were held with the Board of Directors from February to April to introduce and present each area and the corresponding initiatives. Feedback and recommendations were made by the Board leading to revisions of some of the proposed initiatives for each area.

During these workshops, a fifteenth topic was introduced to reinforce the importance of transparency and communication with our public. Organizational Advocacy and Outreach was added under the category of Business Principles. While OC San already has active communication efforts and programs in place, including it in the Strategic Plan emphasizes to our stakeholders the importance we place on keeping our community informed and involved.

Based on direction from the Board, the Strategic Plan policy papers were finalized and included in the appendix of this report. Each paper includes a policy statement, background information, the current situation, and initiatives to reach the policy goal.

The topics covered in this report will trickle down to supporting documents such as the Budget and General Manager's Work Plan. The work plan is where we will note measurable results on each goal and the supporting initiatives.

As part of the Strategic Plan, the agency's Core Values, and Levels of Service (LOS) were also updated to be reflective of the current status of OC San. The Core Values are intended to reflect and guide the culture practiced at OC San. Our LOS are our commitment to our various stakeholders; that includes the public, regulators, our Board, and our employees. As regulations change, technology advances, expectations change, so must our service to the public. Our LOS were updated to more closely align with the Strategic Plan. They reflect our promise to the public to protect public health and the environment by providing them with state-of-the-art service. OC San's Risk Register was also reviewed and updated to capture the appropriate areas of concern as well as our action plan to mitigate those risks.

Our Mission

"To protect public health and the environment by providing effective wastewater collection, treatment, and recycling."

Our Vision

ORANGE COUNTY SANITATION DISTRICT WILL BE A LEADER IN:

- Providing reliable, responsive, and affordable services in line with customer needs and expectations.
- Protecting public health and the environment utilizing all practical and effective means for wastewater, energy, and solids resource recovery.
- Continually seeking efficiencies to ensure that the public's money is wisely spent.
- Communicating our mission and strategies with those we serve and all other stakeholders.
- Partnering with others to benefit our customers, this region, and our industry.
- Creating the best possible workforce in terms of safety, productivity, customer service, and training.

Core Values

OC San's Core Values support the Mission and Vision Statements by expressing the values, beliefs, and philosophy that guides the agency's daily actions. They help form the framework of the organization and reinforce a professional work ethic. The Core Values were updated this year as part of the overall Strategic Plan update to reflect the agency and workforce we are today. These Core Values more accurately express the philosophy and practice of OC San's workforce.

Integrity, Inclusion, Honesty, and Respect

We aspire to the highest degree of integrity, inclusion, honesty, and respect in our interaction with each other, our suppliers, our customers, and our community. We strive to demonstrate these values in our actions, commitments, and service.

Leadership, Teamwork, and Problem Solving

We lead by example, acknowledging the value of our resources and using them wisely to achieve our mission. We strive to reach OC San goals through cooperative efforts and collaboration with each other and our constituencies. We work to solve problems in a creative, cost-effective, and safe manner, and we acknowledge team and individual efforts.

Customer Service, Transparency, and Accountability

We are committed to acting in a timely, accurate, accessible, and transparent manner through excellent customer service. We are committed to act in the best interest of our internal and external stakeholders.

Resiliency, Innovation, and Learning

We continuously develop ourselves, enhancing our talents, skills, and abilities. We recognize that only through personal growth and development will we progress as an agency and as individuals.

Safety

We are committed to providing a safe work environment. We will demonstrate leadership, promote individual accountability, and participate actively in the advancement of our health and safety practices.

Levels of Service

OC San's Levels of Service (LOS) are the commitment made to our rate payers, regulators, employees, and the Board of Directors on our operational efforts. The LOS have been updated from last year to better align with the Strategic Plan and showcase how the initiatives are being implemented and monitored.

ENVIRONMENTAL STEWARDSHIP	LEVELS OF SERVICE
OC San will protect public health and the environment.	
· Compliance with Ocean Discharge Permit	100%
· Dry weather urban runoff collected and treated	Up to 10 MGD
· Major non-conformance audit findings	<5 per permit per audit
· Respond to corrective actions within regulatory timeline for air, solids, and water compliance audits	100%
· Comply with Fleet Air Emission Regulations	100%
· Number of odor complaints under normal operations	< 5 events per treatment plant < 12 events for collection system
· Sanitary Sewer Spills per 100 miles	<2.1
· Compliance with core industrial pretreatment requirements	100%
OC San's effluent, solids and biogas will be recycled.	
· Provide specification effluent to Groundwater Replenishment System	100%
· Beneficially reuse biosolids during normal operations	100%
WASTEWATER MANAGEMENT	
OC San will be a good neighbor and will be responsive to its customers.	
· Respond to collection system spills within one hour of notification	100%
· Respond to odor complaints	Within 1 hour in plants Within 24 hours in collection system
· Respond to public complaints or inquiries regarding construction within 24 hours	100%
· Respond to biosolids contractor violations within one week of violation notice	100%
· Respond to Public Records Act requests within the statutory requirements	Within 10 days
· Dig alert response within 48 hours	100%

OC San will manage its assets to ensure reliability and security.	
· Cybersecurity event monitoring and incident handling, percent successful	>87%
· Annual real property assessments/inspections	25% of properties
· Annual Inspection, documentation, and evaluation of collection system	70 miles of sewers 880 manholes
BUSINESS PRINCIPLES	
OC San will exercise sound financial management.	
· Annual user fees sufficient to cover 100% of O&M Budget	100%
· Collection, treatment, and disposal costs per million gallons	Within 10% of budget
· Maintain Credit Rating* (Moody's, Fitch, S&P)	AAA
WORKPLACE ENVIRONMENT	
OC San will provide a safe, productive workplace.	
· Employee injury incident rate per 100 employees	<4.4
· Annual days away from work, restricted activity, or job transfer resulting from a work-related injury	<2.5
· Annual training hours per employee	45 hours

**As of 2021*

Risk Register

The Risk Register is a biennial report that is prepared for management to use as a reference in the daily activities of OC San and in the preparation and support of the Strategic Plan and General Manager's Work Plan. It provides an overview, from an internal perspective, of OC San's risks as identified by the Executive Management Team and Managers.

The 2021 Risk Register was developed by conducting two types of analysis:

- Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis focusing on internal areas that OC San actions can directly impact.
- Political, Economic, Social, and Technology (PEST) Analysis recognizing outside influences that OC San needs to be aware of and may affect OC San operations.

The results from the analysis were further explored to identify possible solutions and level of priority and concern. Due to the nature of the information, specific details are limited to reduce OC San risk.

The risks fell across the board with many of the top concerns having to do with staffing and succession management, cybersecurity, supply chain issues, and operating concerns.

The opportunities included asset management, staffing and succession management, working with other agencies, and technology.

The information included in the 2021 Risk Register is a resource for management. It is part of an effort to maintain and improve the operation and status of OC San going forward.

Policy Areas

The Strategic Plan is broken down into four categories with 15 topic areas. Below are the policy statements and corresponding initiatives to achieve the goals of the plan. The complete policy papers can be found in the appendix.

BUSINESS PRINCIPLES

Budget Control and Fiscal Discipline
POLICY STATEMENT

OC San will prudently manage the public funds that it collects. It will take a long-term planning approach to its facilities and rate setting that provides a stable setting program, prudent reserves, and pay-as-you-go philosophy for operating and replacement capital expenses.

Initiatives

- Maintain a stable and fiscally responsible financial plan that is based on long-term planning which supports stable rate setting and a pay-as-you-go philosophy for operating and replacement capital expenses.
- Maintain the current investment policy that prioritizes safety, liquidity and return on investment, in that order.
- Maintain a long-term debt program that will pay off all existing debt issuances by 2044 and avoid new debt to support existing facilities.
- Maintain all Post Employment Benefit funding levels between 95% and 105% while minimizing and/or eliminating Unfunded Actuarially Accrued Liabilities.

Asset Management
POLICY STATEMENT

OC San 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.

Initiatives

- Create an annual Asset Management Plan documenting the condition of the collection system and treatment plants, and upcoming maintenance or capital projects.
- Coordinate the efforts of operations, collections, mechanical maintenance, electrical maintenance, instrument maintenance and engineering through process teams to assure OC San's resources are focused on the high priority work functions.
- Maintain a 20-year forecast of all CIP projects needed to maintain or upgrade OC San's nearly $11 billion in assets on a prioritized risk basis to establish rate structures.

Cybersecurity
POLICY STATEMENT

OC San must maintain adequate cybersecurity (information technology security) techniques that protect computer assets, networks, programs, data, and industrial control equipment from unauthorized access or attacks that are aimed for exploitation.

Initiatives

- Conduct various tabletop exercises to determine the organization's ability to respond to a targeted cyberattack and to improve the quality of the response, should an attack occur.
- Evaluate, enhance, and monitor network security including activities to protect the usability, reliability, integrity, and safety of the network by developing Security Operations Center capabilities that support continuous monitoring and is responsible for the continuous threat protection process.

- Conduct a comprehensive third-party cybersecurity operations assessment (Red Team). A thorough Red Team engagement will expose vulnerabilities and risks regarding:

  Technology — Networks, applications, routers, switches, appliances, etc.

  People — Staff, independent contractors, departments, business partners, etc.

  Physical — Offices, warehouses, substations, data centers, buildings, etc.

Property Management
POLICY STATEMENT

OC San owns and operates assets throughout its service area located in property owned in fee, through easements, and in the public right-of-way. OC San will identify and protect all of its property rights to assure assets are not encumbered or encroached upon so that the facilities may be properly operated, maintained, upgraded, and replaced.

Initiatives

- Review property rights to identify encroachments or encumbrances that restrict operation, maintenance, inspection, or emergency repair access.
- Work with identified parties to remove encroachments or encumbrances.
- Consolidate real estate and property management activities to maximize its resources and effectiveness.
- Augment OC San resources with contracted specialized real estate services to limit the need for additional staffing.

Organizational Advocacy and Outreach
POLICY STATEMENT

OC San will create and disseminate information to our stakeholders with an end goal to educate, inform, and garner support for the services provided thus allowing us to operate in a more efficient and effective manner. OC San will deliver messages that are accurate, transparent, and designed to foster public trust and confidence. Additionally, following legislative oversight will ensure OC San's interests are explained and protected.

Initiatives

- Relaunch the Vendor Outreach Program with a focus on Orange County firms to enhance the competitive bidding opportunities for OC San. This effort will increase the number of vendor and contractors soliciting OC San projects thus expanding the pool and providing a greater variety of partners.
- Develop an outreach program for member agencies regarding inflow and infiltration issues within their sewer system. The program will aim to educate, inform, and reduce inflow and infiltration affecting the local and regional sewer system.
- Develop an educational display in the Headquarters building to illustrate OC San's reuse and recycling efforts in support of the environment and public health. Display to be revealed when new building is unveiled.
- Commemorate OC San's achievement of reusing 100 percent of the reclaimable flow upon completion of the Groundwater Replenishment System's Final Expansion. Celebrate the milestone and acknowledge the accomplishment with staff and stakeholders.
- Actively monitor and engage regulatory and legislative activity across California and Washington, D.C. And take appropriate action in support of or opposition to, legislative and regulatory initiatives affecting OC San and the wastewater industry. This includes using Monitoring and Analysis, Advocacy Days, Position letters and Funding Requests (as deemed suitable).

ENVIRONMENTAL STEWARDSHIP

Energy Independence
POLICY STATEMENT

OC San will strive to be a net energy exporter. Electrical, thermal, and methane gas generation will be maximized. Energy utilization will be minimized using sound engineering and financial principles.

Initiatives

- Maximize the anaerobic digestion conversion of organics to methane through receipt of food waste and operational techniques.
- Investigate and install energy storage and photovoltaic systems where practical to achieve energy independence/resilience.
- Continue to support the conversion of biomethane into electricity and heat for process use. Improve systems as necessary to comply with air regulations.
- Pursue technology innovation to reduce energy use, reduce transportation energy impacts, and reduce greenhouse gas impacts.

Climate and Catastrophic Event Resilience Policy
POLICY STATEMENT

OC San aims to design, maintain, and operate valuable wastewater assets that withstand or adapt to adverse conditions in a reasonable manner that is both cost-effective and sustainable for present and future generations. These adverse conditions include drought, heavy rains, flooding, sea level rise, earthquakes, tsunamis, extreme heat, wildfires, pandemic, and electrical grid interruptions.

Initiatives

- Complete an engineering study of the seismic vulnerabilities of the treatment plants. Incorporate necessary upgrades into future capital improvement projects.
- Complete the biannual high flow exercise to assure readiness for a high flow event. Maintain a higher level of readiness October 15 through March 15 and in advance of predicted significant rain events.

Food Waste Treatment
POLICY STATEMENT

The State of California limits the volume of organic waste that may be diverted to landfills. OC San will collaborate with the County of Orange, other local agencies, and waste haulers to find ways to beneficially reuse food waste, a type of organic waste, to assist cities in our service area in meeting their diversion requirements while increasing OC San's energy production.

Initiatives

- OC San will accept a preprocessed food waste slurry from contracted waste haulers that will be fed to existing anaerobic digesters. OC San will charge a tipping fee to offset its costs for capital construction, operations, handling, maintenance, and biosolids disposal.
- Design, build, and operate a food waste receiving station. Create a specification for food waste slurry and contract with solid waste haulers to receive and process food waste.

Water Reuse
POLICY STATEMENT

OC San will seek to beneficially reuse all reclaimable water for potable, industrial, irrigation, and environmental uses.

Initiatives

- Support the completion of the final phase of the Groundwater Replenishment System and maximize reclaimable wastewater availability to the Orange County Water District.
- Support Green Acres project water production to provide reclaimed water for industrial and irrigation uses.

Environmental Water Quality, Stormwater Management and Urban Runoff
POLICY STATEMENT

OC San will collaborate with regional stakeholders to accept up to ten million gallons per day of dry weather urban runoff at no cost to the dischargers through its permit-based Dry Weather Urban Runoff Diversion Program (DWURD Program). The primary objective of the DWURD Program is to improve water quality in streams, rivers, and beaches in OC San's service area without adversely impacting OC San's occupational safety, collection and treatment systems, reuse initiatives, or permit compliance. Unauthorized discharge of urban runoff to OC San is strictly prohibited.

Initiatives

- Issue dry weather urban runoff connection permits to accept up to a total of ten million gallons per day of controlled discharge of dry weather urban runoff where existing conveyance capacity exists, and the constituents within the flow will not adversely impact OC San.
- Safeguard OC San's sanitary sewer system against uncontrolled and unregulated discharge by supporting responsible industry practices for flow management and urban runoff pollutant reduction at the source. Utilize OC San's pretreatment expertise to support effective urban runoff best management practices and special purpose discharge requests among OC San's regional stakeholders.
- Conduct a comprehensive study of the feasible opportunities for cooperative projects for urban runoff diversions to OC San to improve water quality and increase water recycling by maximizing the useful capacity of local collection systems, OC San treatment systems, and OCWD recycling and recharge systems.
- Support responsible and practicable urban runoff management and reuse legislations and regulations.

WASTEWATER MANAGEMENT

Chemical Sustainability
POLICY STATEMENT

OC San has a need to use chemicals in its treatment process to improve plant performance, reduce odor and corrosion potential, and meet its regulatory requirements. These commodity chemicals are provided by outside vendors through the purchasing process. Some of these chemicals are subject to price swings due to market condition changes such as energy cost impacts, raw material cost changes, commercial competition changes, and transportation cost volatility. OC San will identify chemicals key to its operation, investigate the market risks for those chemicals and devise strategies to mitigate identified risks to availability and pricing.

Initiative

- Reduce the exclusive reliance on particular chemicals and individual vendors to establish flexibility to utilize other chemicals/processes to accomplish operational objectives.

Biosolids Management
POLICY STATEMENT

OC San will remain committed to a sustainable biosolids program and will beneficially reuse biosolids in accordance with Resolution No. OC San 13-03 and the 2017 Biosolids Master Plan.

Initiatives

- Proceed with implementation of new thermophilic biosolids facilities at Plant No. 2 to improve OC San's operational resiliency against seismic events while enhancing biosolids quality and marketability.
- Continue to explore biosolids thermal conversion technology for energy generation and destruction of persistent contaminants.
- Engage with local, state, and federal agencies to ensure that biosolids will continue to be safely and legally used as a soil amendment.
- Stay abreast of new biosolids management options, technologies, and biosolids recycling and renewable energy partnerships in Southern California, with

special emphasis on technologies that address the removal, sequestration, and destruction of contaminants of emerging concern.

Constituents of Emerging Concern
POLICY STATEMENT

OC San will partner with other agencies, associations, and institutions to support the use of sound science to inform policy and regulatory decisions on constituents (or contaminants) of emerging concern (CECs) at the federal, state, and regional levels. Staff will obtain and maintain current knowledge on CECs under regulatory consideration, including occurrence, analytical methods, regulations, and treatment to support OC San's mission and regulatory compliance.

Initiatives

- Actively engage water and wastewater stakeholders to stay abreast of the scientific progress and any potential operational and financial impacts of CECs and provide timely briefings to OC San's Executive Management Team and Board of Directors to facilitate informed decision making.
- Develop capacity to identify, detect, quantify, and characterize CEC sources throughout the service area and treatment process to promote source reduction, treatment effectiveness, communication of credible risks, and responsible reuse and disposal.
- Proactively establish internal expertise and develop laboratory capability to research the potential impact of CECs on beneficial reuse of water and biosolids.
  OC San will use science-based knowledge to help shape CEC legislation and regulations to protect the public health and environment.
- In the absence of promulgated regulatory limits for specific CECs, OC San will work with regulatory agencies to establish interim source control measures to safeguard its water and biosolids reuse initiatives and ocean discharge against potential adverse impacts.

WORKPLACE ENVIRONMENT

Resilient Staffing
POLICY STATEMENT

OC San will attract and retain high-quality talent to support its mission and continue to be an industry leader. It will safeguard leadership continuity and support effective performance of the organization by proactively monitoring the changing work environment and requirements to ensure employee development programs are relevant and facilitate building a skilled bench of readily available successors for key leadership and mission-critical positions.

Initiatives

- Maintain and enhance current employee development programs that are in place to provide the direction to identify, develop and select the next generation of prepared, capable, and engaged leaders, which include:
  - Vocational/Professional Student Internship Programs
  - Employee Development Programs
  - Workforce Vulnerability Assessments
  - Talent Readiness Assessments
  - Orange County Sanitation District University (OC San "U")
- Continue to build the OC San "U" program and evaluate various options to partner with member agencies to share content and interactive development opportunities.
- Continue to build on the employee development opportunities to enhance organizational awareness and strengthening knowledge, skills, and abilities in the areas of OC San business systems, leadership, technology, and communication. Additionally, Human Resources will partner with other member agencies to provide and host training and development programs to foster collaboration and innovation.
- Conduct a Classification & Compensation study to ensure job classifications accurately depict the work being performed, to set compensation levels accordingly, and stay abreast of market benefit and salary data.

  Human Resources and the Board-approved Consultant will work with stakeholders to complete an organization-wide Classification & Compensation Study. It will incorporate feedback on survey agencies solicited from the Board over the past year and union feedback through meet and confer in upcoming labor negotiations.

Safety and Physical Security
POLICY STATEMENT

OC San will ensure the safety and security of employees, contractors and visitors through standard practices, policies, and procedures that support a safe and secure environment, provide an appropriate level of security and safeguard OC San's property and physical assets.

Initiatives

Safety

- Complete outstanding safety projects, improvements, and corrective actions to apply and obtain Cal/OSHA Voluntary Protection Program (VPP) status; and continue to foster a culture where employees are accountable for their safety as well as the safety of others.

Emergency Management

- Support facility and countywide emergency preparedness, response, and recovery efforts by partnering with entities, such as the Water Emergency Response Organization of Orange County (WEROC), Orange County Sheriff's Department, and local fire departments to plan and continue to conduct disaster preparedness training and exercises.

Security

- Continually identify and assess vulnerabilities and implement solutions through the Security Committee and third-party assessments. Prevent/mitigate security breaches using physical security systems such as video monitoring, access control, and armed security patrols.

APPENDIX

Business Principles

Budget Control and Fiscal Discipline Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) will prudently manage the public funds that it collects. It will take a long-term planning approach to its facilities and rate setting that provides a stable setting program, prudent reserves, and pay-as-you-go philosophy for operating and replacement capital expenses.

Background

OC San's annual budget is approximately $500 million. These funds support OC San's Operating, Capital, and Debt expenditures. OC San focuses its fiscal policy around three distinct areas, (1) Revenues, (2) Portfolio Management and (3) Debt Management and these areas are described in the Budget, Investment Policy and Debt Policy, all of which are updated annually.

Current Situation

1) Revenues

Most of OC San's revenue is generated by user fees and charges. Currently, OC San fees are in the lower third of its comparison agencies.

OC San's revenues come from three general areas: Fees and Charges (74%), Property Taxes (21%) and other smaller revenue sources (5%).

Fees and Charges: User fees are ongoing fees for services paid by Single Family and Multifamily customers connected to the sewer system. Also included in this category are Permit Fees (User fees paid by large industrial and commercial business owners connected to the sewer system and Capital Facility Capacity Charges (CFCC) (a one-time charge imposed at the time a newly constructed building or structure is connected to the OC San system. The OC San policy has been to focus on cost recovery while keeping fees as low as possible.

Property Taxes: OC San receives a share of the basic property tax levy proportionate to what was received in the 1976 to 1978 period less $3.5 million allocated to school districts. These funds are dedicated to the payment of debt service.

Other Revenue: Other Revenue includes Interest Earnings, Intra-District Transfers, and small revenue sources.

2) Portfolio Management

The OC San Investment Policy is governed by three tenets:

A. Safety: The safety and preservation of principal is the foremost objective of the investment program. Investments shall be selected in a manner that seeks to ensure the preservation of capital in the overall portfolio. This will be accomplished through a program of diversification and maturity limitations.

B. Liquidity: The investment program will be administered in a manner that will ensure that sufficient funds are available for OC San to meet its reasonably anticipated operating expenditure needs.

C. Return on Investments: OC San's investment portfolio will be structured and managed with the objective of achieving a rate of return throughout budgetary and economic cycles, commensurate with legal, safety, and liquidity considerations.

OC San's investments are separated into two distinct portfolios, Long-term and Short-term, with a primary focus on the Long-term portfolio.

The Long-term portfolio always focuses on four elements: duration, sector allocation, term structure, and security selection.

Duration

- Typically, OC San keeps the duration of a portfolio 'close' to the benchmark duration as we feel the benchmark duration is consistent with the risk tolerance of the strategy.
- The investment policy of OC San stipulates the average duration must not exceed 60 months and be within 80-120% of the benchmark.
- Historically, the deviation of the long-term portfolio versus the benchmark is close to 5%. Large deviations in the duration of the portfolio compared to the benchmark are an anomaly.

Sector Allocation

- OC San takes an active approach to asset allocation, differentiating our holdings versus the benchmark, with typically a modestly higher risk exposure compared to the benchmark.
- Some of the asset classes we find more attractive in the current investing environment include Corporate notes, Asset Backed Securities, and Treasury notes relative to the Agency and Supranational sectors.
- The sector allocation of the portfolio will evolve over time as our outlook for the various eligible investment options changes.

Term Structure

- OC San manages the term structure of the portfolio by focusing on either a bullet, ladder, or barbell structure, relative to the benchmark.
- For most of 2019, the structure was gravitating towards more of a bullet structure in light of the change in the yield curve, with short-term interest rates moving higher at a greater velocity than longer maturity securities.
- Currently, with the yield curve very flat, we are migrating back towards more of a barbell structure, with new purchases focused at the short and long end of the eligible maturity distribution. We also find the middle of the maturity distribution, near the three-year maturity point, to be the most expensive from an absolute and relative value perspective, further supporting the barbell structure.

Security Selection

- Within the Corporate and Asset Backed sector, the Chandler team focuses on adding stable to improving credits to be consistent with the overall investment objective of safety, liquidity, and return.
    - As a Corporate holding becomes more seasoned with a short maturity, it is often utilized as a 'source of funds' to facilitate new holdings in the portfolio.
    - Typically, Asset Backed securities are held to maturity, but in the event of a liquidity need and/or a deteriorating credit situation, we would look to reduce the exposure.

- OC San allocates to the Agency and Supranational asset classes when we find the spread over like maturity Treasury notes to be attractive.
    - Considering the lack of issuance in the Agency sector since the financial crisis, the relative value of the sector has become more challenging.
    - OC San has a core view that the Supranational Asset class should offer a modest spread concession to the Agency sector, and the team is typically active in the sector when the additional spread pick-up is compelling.
- Across all asset classes, OC San will remove exposure to a security that is faced with a deteriorating credit situation and/or trading at an irrational valuation where a swap into an alternative security will be beneficial to the portfolio over a reasonable investment time horizon.

3) Debt Management

Due to the magnitude of the capital improvement program, OC San has utilized a combination of user fees, property taxes and debt to meet its total obligations and maintain generational equity.

It is OC San's policy not to issue any new additional debt for any existing obligations. However, OC San will actively review opportunities to refinance existing debt where possible, provided the new refinancing results in a lower total cost and/or shortens the length of the obligations.

The primary debt financing mechanism used is Certificates of Participation (COP). COPs are a repayment obligation based on lease or installment sale agreements. As of July 1, 2020, the total outstanding COP indebtedness was $940 million with a blended interest rate of 3.05%. It is anticipated that the debt will be paid off by 2044.

Initiatives to Support Progress Toward the Policy Goal

- Maintain a stable and fiscally responsible financial plan that is based on long-term planning which supports stable rate setting and a "pay-as-you-go" philosophy for operating and replacement capital expenses.
- Maintain the current investment policy that prioritizes safety, liquidity and return on investment, in that order.
- Maintain a long-term debt program that will pay off all existing debt issuances by 2044 and avoid new debt to support existing facilities.
- Maintain all Post Employment Benefit funding levels between 95% and 105% while minimizing and/or eliminating and Unfunded Actuarially Accrued Liabilities.

Asset Management Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) 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

OC San 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 OC San serves is our principal concern.

OC San owns and operates extensive facilities to achieve its mission. OC San 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. OC San has been building the piping, pumping, and treatment infrastructure it utilizes for more than 65 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 OC San 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 OC San has been the ability to upgrade and repurpose its operating facilities to accomplish high levels of treatment and reuse.

Current Situation

OC San 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. OC San 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. OC San 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. OC San 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. OC San must always maintain the ability to treat both the average flow and peak wet weather flow.

OC San 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, OC San 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 OC San 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

OC San will continue to invest in the infrastructure necessary to meet its mission. OC San 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.

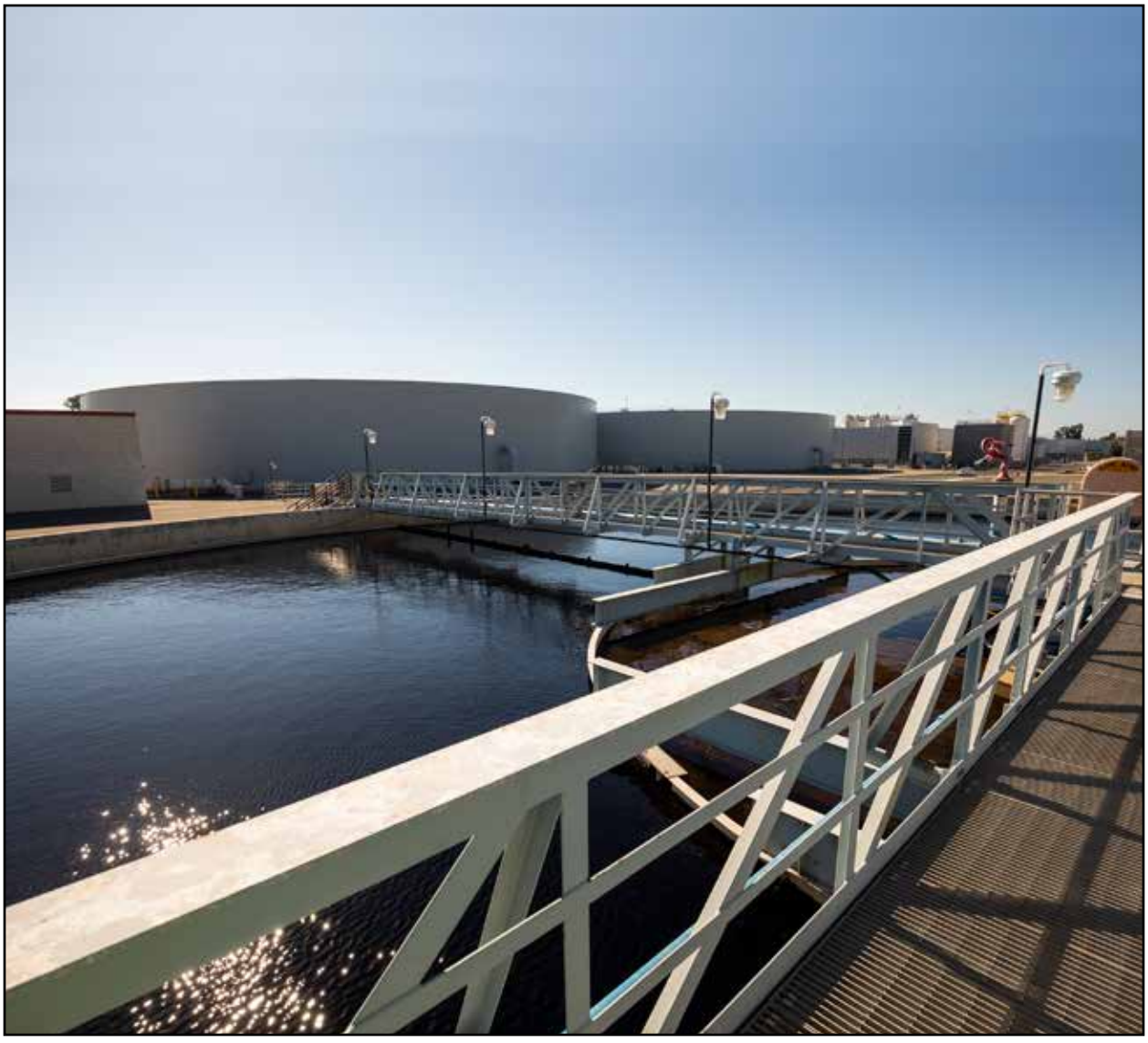
OC San will understand in a transparent way: what it owns, the condition of those assets, the capacity of collections and treatment required, the level of service required by its regulators and Board of Directors and will anticipate new regulations that may require system improvement. This understanding 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 Improvement 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 OC San is the living management of the operation strategies, maintenance plans, and implementation of the Capital Improvement Program. OC San will find creative ways to maximize asset life or meet new capacity or level of service goals through operations and maintenance. OC San will annually reassess its condition, capacity, level of service, and regulatory conditions to drive operations and maintenance practices and modify the Capital Improvement Program projects.

Initiatives to Support Progress Toward the Policy Goal

- Create an annual Asset Management Plan documenting the condition of the collection system and treatment plants, and upcoming maintenance or capital projects.
- Coordinate the efforts of operations, collections, mechanical maintenance, electrical maintenance, instrument maintenance and engineering through process teams to assure OC San's resources are focused on the high priority work functions.
- Maintain a 20-year forecast of all CIP projects needed to maintain or upgrade OC San's nearly $11 billion in assets on a prioritized risk basis to establish rate structures.



Cybersecurity Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) must maintain adequate cybersecurity (information technology security) techniques that protect computer assets, networks, programs, data, and industrial control equipment from unauthorized access or attacks that are aimed for exploitation.

Background

Developing an effective, sustainable cybersecurity program is a pressing challenge for organizations of all sizes. The reasons behind the scope of the challenge are many. Cyber risk continues to grow at an exponential rate with routine attacks from nation states, criminal elements, hacktivists, and insider threats. The bottom line is cybercrime pays. The booming cybercrime economy is productizing malware and making cybercrime as easy as shopping at Amazon. With this easy access to cybercriminal tools and services, enterprises are experiencing rapid increases in the volume, scale, and sophistication of cyberattacks. Complex and dynamic information security disciplines are subject to continuous changes in the business, technology, and threat environments. Many organizations will struggle to implement security programs that support continuous improvements in this challenging environment.

Current Situation

OC San has evolved over recent years from dedicating less than half of a position towards cybersecurity, to one position, to currently two full-time positions. OC San's cybersecurity portfolio consists of strategic policy management, defense in depth practices, periodic risk assessments, ongoing awareness communication and operational (e.g., security monitoring and incident response, threat and vulnerability management, user provisioning) processes. For example:

- **Cybersecurity Awareness and Training Program -** OC San understands that our employees are our best line of defense in protecting and defending our enterprise from attack. We have built a comprehensive security awareness program by focusing on four critical functions: phishing attack simulations and reporting, quarterly education requirements, targeted training for IT developers and SCADA engineers, and pervasive communications utilizing internal communication tools.
- **Vulnerability Management -** IT staff subscribe to and monitor security advisories and threat bulletins from Microsoft, US-CERT, ICS-CERT, KnowBe4, Cisco, and other vendors to understand and manage new vulnerabilities. All internet accessible servers and applications are scanned weekly for vulnerabilities and remediated, as necessary. Microsoft operating system and application patches are deployed monthly while third party updates are deployed weekly. We use a vulnerability platform for continuous assessment of our security and compliance posture.
- **Intrusion Detection and Response -** We have implemented several security solutions to be able to detect, prevent and respond to malicious network activity. These include firewalls, intrusion prevent systems, web security gateway, and next-generation anti-malware. In addition, we also have user behavior analysis tools to identify insider threats and ransomware activity.
- **Privileged Access Management Program -** We use a privileged access management solution to remove and manage local administrative rights on workstations/servers to prevent lateral

movement. The solution is also used to protect, control, and monitor privileged access across files and systems.

- **Backup and Restore Capabilities** — IT practices a 3-2-1 backup strategy:

  3 – Keep three copies of critical data
  2 – Have your data on two types of media
  1 – One copy must be offsite and offline

Restores are performed on at least a weekly basis in response to customer incidents. Disaster Recovery Testing is performed monthly by selecting a major system and testing restore capabilities of that system to our secondary treatment facility, as well as our remote site. We sandbox the restores and provide access to our application subject matter experts to conduct application specific testing. These tests are logged and kept for auditing and management purposes.

- **Security Incident Response** — A security incident response plan is an organized approach to handle a cyberattack. We have developed an incident response plan, playbooks, and procedures for various attacks as well as trained IT security staff. In addition, there are external contacts we can call for assistance including the FBI, Department of Homeland Security and organizations that specialize in incident response like Mandiant, Cylance, and Microsoft.

- **Security Assessments** — The purpose of a security assessment is to identify the current security posture of a system, network, or organization. The assessment provides recommendations to improve the security posture by mitigating identified risks. Our goal is to do one or two security assessments per year.

Future Policy Statement

The main objective of our information security program is the establishment of a continuous, iterative regimen of planning, building, running, and governing security capabilities that are derived from business requirements. Our security program cannot be a static entity. It must be adapted and continuously refined to keep pace with the ever-changing threat environment and changes in how OC San adopts digital business practices. Cybersecurity incidents are inevitable. Mistakes and/or a lack of preparation in the response can have serious repercussions. The ability of an organization to respond effectively to a security incident is a direct result of the time spent preparing for such an eventuality. If you fail to prepare, then you effectively prepare to fail. OC San will be prepared. This will be accomplished by the following proposed initiatives.

Initiatives to Support Progress Toward the Policy Goal

- Conduct various tabletop exercises to determine the organization's ability to respond to a targeted cyberattack and to improve the quality of the response, should an attack occur.

- Evaluate, enhance, and monitor network security including activities to protect the usability, reliability, integrity, and safety of the network by developing Security Operations Center capabilities that support continuous monitoring and is responsible for the continuous threat protection process.

- Conduct a comprehensive third-party cybersecurity operations assessment (Red Team). A thorough Red Team engagement will expose vulnerabilities and risks regarding:

  - Technology — Networks, applications, routers, switches, appliances, etc.
  - People — Staff, independent contractors, departments, business partners, etc.
  - Physical — Offices, warehouses, substations, data centers, buildings, etc.

Property Management Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) owns and operates assets throughout our service area located in property owned in fee, through easements, and in the public right-of-way. OC San will identify and protect all of its property rights to assure that our assets are not encumbered or encroached upon so that the facilities may be properly operated, maintained, upgraded, and replaced.

Background

OC San owns and operates more than $11 billion in assets. A portion of those assets include buildings, easements, rights-of-way, and other encroachments. OC San has recently sold and purchased property to support its efforts. OC San does not maintain expertise in the real estate discipline. Since these transactions are limited and not core to OC San, it has been determined that it is more cost effective to augment OC San resources with contracted specialized real estate services.

Current Situation

OC San manages its physical property and property rights. Additionally, it manages landscaping, building maintenance, security and building maintenance. OC San staff primarily manages these activities.

Future Policy Statement

OC San will effectively manage its assets and proactively research and maintain all encroachments, encumbrances, and easements. Many of these activities are not core to OC San's mission. When prudent, OC San will augment resources with contracted specialized real estate and property management services. Although OC San is not in the business of managing property as a revenue enhancement or core activity, it does own and operate millions in physical property and property rights.

Initiatives to Support Progress Toward the Policy Goal

- Review property rights to identify encroachments or encumbrances that restrict operation, maintenance, inspection, or emergency repair access.
- Work with identified parties to remove encroachments or encumbrances.
- Consolidate real estate and property management activities to maximize resources and effectiveness.
- Augment OC San resources with contracted specialized real estate services to limit the need for additional staffing.

Organizational Advocacy and Outreach Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) will create and disseminate information to our stakeholders with an end goal to educate, inform, and garner support for the services provided, thus allowing us to operate in a more efficient and effective manner. OC San will deliver messages that are accurate, transparent, and designed to foster public trust and confidence. Additionally, following legislative activity will ensure OC San's interests are explained and considered.

Background

OC San provides regional sewer service for 2.6 million people living, working, and commuting in central and northwest Orange County. The various stakeholders include over 600 employees, 50 local elected officials appointed to our Board of Directors, regulators, policy makers, and the public. It is critical for OC San to have a multi-pronged outreach program to reach the intended audiences and to gain support for OC San's mission.

OC San provides services and tools to effectively communicate about the various programs that help achieve its mission. These programs include:

- **Student Educational Outreach**

  Promoting and educating the youth within our service area on OC San's mission and the essential services provided. Reaching out to students allows for future generations to be aware of the environmental impact we each make and what we can accomplish working together. This knowledge will help our future generations to take action and make positive changes. It also introduces them to an industry they may be unaware of as a career choice. We do this through programs such as Inside the Outdoors which goes directly into classrooms to teach the wastewater treatment process; school-based plant tours that give them an inside view into a treatment plant and how the system works; events such as the Youth Environmental Summit (YES) which provides an opportunity to reach thousands of local children in a short amount of time with clear and direct messaging; and contests such as the Public Service Announcement, which is an incentive for students to get involved in developing messages for environmental issues.

- **Infrastructure Outreach**

  OC San has $11 billion in infrastructure that must be designed, operated, maintained, replaced, and enhanced to continue providing the essential service of protecting public health and the environment. Forming a positive presence in the community prior to the start of construction projects or maintenance activities is imperative to build trust, understanding, and support for the necessary construction. This is done through an extensive outreach program that develops and implements communication tools, such as dedicated Community Liaisons, construction webpages, collateral material, and presentations, to engage the communities affected by OC San Construction projects. Over the next fiscal year about two dozen projects will be in construction with various degrees of public impacts.

- **Employee Engagement**

  Open and honest communication with our employees creates a positive and trusting environment, thus resulting in a more engaged workforce and ambassadors for our

agency. OC San creates employee engagement by utilizing various communication methods to share agency-wide messages. A diverse toolkit of communication pieces allows messages to be delivered to over 600 staff with various professional backgrounds, work shifts, work locations, and access to online materials. This toolkit of communication pieces includes The San Box (intranet), *Pipeline* Newsletter, Digester (messaging piece), Three Things to Know email, etc.

- **Brand Recognition**

  As an industry leader, OC San must ensure its brand and image are portrayed accurately and positively. A cohesive voice, message, look, and feel are critical to maintaining a positive public perception and the trust granted to us by the community we serve and the stakeholders we work with. To build and maintain a positive image, we engage in general outreach efforts such as plant tours; community newsletters; a Speakers Bureau Program (which allows us to go into the community and meet with various groups to inform them of who we are and what we do); an informative and educational website, an active social media presence; and the development of programs such as Wastewater 101 Academy which provides an opportunity to s howcase OC San's operations and initiatives for our ratepayers, fellow agencies, and influential public.

- **Regulatory and Legislative Advocacy**

  OC San also recognizes the need for an active regulatory and legislative advocacy program at the local, state, and federal levels to ensure that the interests of the rate payers and the Board of Directors are communicated, understood, and supported. Towards this end, the legislative and regulatory team actively monitors and engages officials across California and in Washington, D.C., and takes appropriate action in support of, or opposition to, legislative and regulatory initiatives.

Current Situation

OC San is an industry leader involved in innovative and significant programs. However, it is most often seen as a silent utility due to its consistent attainment of its mission. News coverage for a wastewater resource recovery agency is most often about a mission failure. People tend not to think about their wastewater or where it goes until a beach is closed or a spill occurs.

In addition, OC San has no direct connection to its rate payers. User fees are paid via property tax bills thus eliminating an opportunity to reach our customers directly. This ultimately results in a limited understanding of OC San, what we do, and the important service provided to the community.

To that extent, OC San's outreach efforts are imperative to positively inform and educate the public we serve about the value we provide, including policy makers and regulators.

Future Policy Statement

OC San will creatively and effectively develop communication tools and tactics to inform and educate our various stakeholders. As a silent utility, is it imperative that OC San connect with the public we serve in a clear and transparent way to create a bank of trust, and garner support for the programs that allow us to continue protecting the public health and the environment.

OC San will maintain an active legislative and regulatory outreach program to help inform and guide leaders to ensure the wastewater industry is able to protect the public health and environment in a cost-effective way.

Initiatives to Support Progress Toward the Policy Goal

- Relaunch the Vendor Outreach Program with a focus on Orange County firms to enhance the competitive bidding opportunities for OC San. This effort will increase the number of vendors and contractors soliciting OC San projects, thus expanding the pool of service providers thus generating a greater variety of partners.
- Develop an outreach program for member agencies regarding inflow and infiltration issues within their sewer systems. The program will aim to educate, inform, and reduce inflow and infiltration affecting the local and regional sewer system.
- Develop an educational display in the Headquarters building to illustrate OC San's reuse and recycling efforts in support of the environment and public health. Display to be revealed when new building is unveiled.
- Commemorate OC San's achievement of reusing 100 percent of the reclaimable flow upon completion of the Groundwater Replenishment System's Final Expansion. Celebrate the milestone and acknowledge the accomplishment with staff and stakeholders.
- Actively monitor and engage regulatory and legislative activity across California and Washington, D.C., and take appropriate action in support of, or opposition to, legislative and regulatory initiatives affecting OC San and the wastewater industry. This includes using Monitoring and Analysis, Advocacy Days, Position letters and Funding Requests (as deemed suitable).


STATE COLLEGE
SEWER CONSTRUCTION
How we install
SEWER PIPES

Environmental Stewardship

Energy Independence Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) will strive to be a net energy exporter. Electrical, thermal, and methane gas generation will be maximized. Energy utilization will be minimized using sound engineering and financial principles.

Background

OC San must balance the impacts of its operation between land, air, and water. For example, as a water focused utility, OC San seeks to produce the cleanest water possible to minimize the impacts of human activity on the ocean, as well as to renew freshwater resources for further domestic and commercial use. A natural result of cleaning this water is the separation and concentration of constituent solid and gaseous materials. These solid and gaseous products can impact land and air. The balance of impact on land, air, and water are shifted by application or creation of energy through chemical, biological, or thermal conversion techniques.

OC San is also committed to being a good neighbor. As such, significant amounts of energy are spent capturing and converting odorous air and vapor streams. OC San has pursued a comprehensive program to cover and seal its liquid and solid processes. Air streams are ducted to large fans which move thousands of cubic feet of foul air per minute through chemical, biological, and activated carbon beds to scrub the air of odorants that are regulated or may be perceived as a nuisance by the community.

OC San has utilized an anaerobic digestion process that relies on biological conversion of solid organic material to methane and carbon dioxide gas or Biogas. The Biogas is converted to electrical and heat energy in power plants for internal use. OC San's secondary treatment system is another example of using energy to convert water impacts to air emissions. Approximately 23% of OC San's energy usage within the treatment process is devoted to aerating water so biological agents can convert soluble organic material to nitrogen and carbon dioxide. The generation of energy itself creates an impact on the environment in air and thermal emissions.

Current Situation

The potential exists to further shift environmental impacts between land, air, and water through the utilization of energy. OC San is an environmental steward that seeks to balance and minimize overall impact by efficiently utilizing the energy inputs to its processes and maximizing the harvesting of energy available in the incoming wastewater.

On the energy use side of the ledger, OC San invests prudently in lifecycle energy efficiency to minimize the use of energy to achieve its mission. Pumping systems to lift water and move material are premium efficiency. Thermal energy is harvested from power production for use in the process and to heat and cool occupied buildings. Aeration compressors and diffusers are selected by overall efficiency. Lighting systems are upgraded over time to more efficient technologies and lighting levels are balanced between safety and security needs versus energy utilization and light pollution concerns. Facility designers and operators make careful choices regarding the utilization of every watt of electricity, British Thermal Unit of heat, and therm of gas consumed.

On the energy generation side of the ledger, OC San seeks to maximize the internal creation of energy. The primary source of energy creation is in Biogas. Organic solids collected and concentrated in the water treatment processes are converted biologically to Biogas composed of 65% methane, 34% carbon dioxide, and other trace constituents. OC San has been using this technology since the 1950s. Research has been ongoing since that time to maximize the production of digester gas. Some of the areas of research include improved mixing and

heating; improved feeding; chemical addition to limit trace pollutant production; introduction of food waste; injection of fats, oils, and grease; and cell lysing.

OC San cleans the Biogas and converts this Biogas into electricity, heat, and exhaust gas. The exhaust gas is regulated even more tightly for nitrogen compounds, carbon monoxide, particulates, and volatile organic compounds which require costly and performance degrading engine control technologies. This is another example of an air impact/energy trade off. These internal systems of energy harvesting provide roughly 66% of OC San's electrical demand and 92% of OC San's thermal demand in the treatment plants. OC San can shift the digester gas between treatment plants via an interplant pipeline and has roughly eight megawatts of additional generation capacity if more gas is produced.

In addition, OC San has installed electrical battery storage capacity. This system is primarily in place to lower operating cost by importing electricity for charging during low-cost nighttime hours and discharging that energy for process use during peak-cost hours. The slight energy loss due to system inefficiencies is outweighed by the cost savings and benefit to the region by lowering the peak demand of OC San by up to five megawatts.

Future Policy Statement

OC San seeks to be energy independent by self-generating all the electrical and thermal energy necessary to sustain its operations. This will be accomplished by economically minimizing its utilization requirements and maximizing energy harvested from the wastewater it receives. Energy independence will improve OC San's environmental impact and improve its operational reliability and resiliency.

OC San will also study and use photovoltaic cells in non-process areas where it makes economic sense. For example, the new Administration Building will include photovoltaic panels linked to the treatment plant. Staff will also investigate the installation of photovoltaic arrays over OC San owned property between the treatment plants with additional battery storage systems.

OC San also plans to investigate the treatment and sale of Biogas to external users. The State of California has set goals for renewable energy utilization for electrical production and hydrogen transportation fuels. OC San's Biogas is viewed favorably in these industries to meet the State of California targets. OC San is working very diligently and creatively to maximize the production of gas and reduce its own energy needs, but energy independence is the first goal which has not yet been met.

Staff recommends that innovative research continue to maximize energy harvesting and to minimize energy usage to make OC San energy independent in the most basic mission of protecting the public health and the environment. Super Critical Water Oxidation and other biosolids thermal conversion technologies offer some exciting opportunities to cut power use, reduce diesel fueled transportation, and create useful energy.

Initiatives to Support Progress Toward the Policy Goal

- Maximize the anaerobic digestion conversion of organics to methane through receipt of food waste and operational techniques.
- Investigate and install energy storage and photovoltaic systems where practical to achieve energy independence/resilience.
- Continue to support the conversion of biomethane into electricity and heat for process use. Improve systems as necessary to comply with air regulations.
- Pursue technology innovation to reduce energy use, reduce transportation energy impacts, and reduce greenhouse gas impacts.


TESLA
TESLA
TESLA

Climate and Catastrophic Event Resilience Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) aims to design, maintain, and operate valuable wastewater assets that withstand or adapt to adverse conditions in a reasonable manner that is both cost-effective and sustainable for present and future generations. These adverse conditions include drought, heavy rains, flooding, sea level rise, earthquakes, tsunamis, extreme heat, wildfires, pandemic, and electrical grid interruptions.

Background

OC San owns and operates extensive wastewater collection and treatment facilities valued at nearly $11 billion. The OC San service area faces special challenges because of the geographic location of its facilities. These challenges include: its position on and near seismic risk factors, its proximity to the Pacific Coast, adjacency of its treatment facilities to the Santa Ana River, and being served by increasingly fragile energy utilities.

OC San's facilities are situated on or near several seismic risk factors. Plant No. 2 is located directly on top of the Newport-Inglewood fault. Both plants and the collection system are influenced by many adjacent major and minor faults capable of delivering damaging energy. Both of our treatment plants and the majority of our collection system sit on top of silty, alluvial soils that can have the effect of amplifying the earth motion and risk liquefaction during a seismic event. OC San has invested significantly over the last 50 years to improve the soils, foundations, and structures to mitigate these seismic risks. As geotechnical and structural knowledge and building codes progress, upgrades and facility replacements will be necessary.

Another seismic risk associated with having a treatment plant and several pump stations located on the Pacific Coast is the risk of tsunami inundation. OC San has been working with and reviewing the plans of the City of Huntington Beach and the City of Newport Beach to understand and quantify this risk. The American Society of Civil Engineers (ASCE) has created a new standard, ASCE 7-16, to layout design parameters for lateral forces an inundation zone associated with potential tsunamis.

OC San understands that climactic factors we face change widely over time. OC San's systems must perform in extreme wet weather situations (atmospheric rivers), extreme dry weather conditions (drought), extreme tidal conditions (king tides, rising sea levels), as well

as high and low temperature extremes. OC San generally designs for historical and expected "average conditions" for optimal performance but must also assure operations for extreme weather events.

OC San serves a critical public health role. Its operations must be reliable 24-hours per day, 365 days a year. Electricity, and to a lesser extent natural gas, are necessary for pumping and treatment operations. Both electricity and natural gas supplies have become increasingly vulnerable to interruption. Electricity deliveries are more vulnerable due to wildfire outage criteria, loss of local generation assets, aging infrastructure, and extreme weather events. Natural gas supplies are more vulnerable due to the loss of local storage capacity, aging infrastructure, line corrosion, and more stringent regulatory requirements. OC San has significant capacity to self-supply critical energy requirement for extended periods.

Current Situation

OC San has spent considerable effort quantifying its seismic, climate, and utility supply risks. Several key studies have been initiated and will be completed in the next two years. The most acute risk factor faced by OC San is seismic risk. Climate and utility supply risks are more accurately described as chronic risks.

Seismic risk factors include ground shaking, liquefaction, lateral spreading, and fault rupture. Both treatment plants are situated in a historic riverbed with poor soil conditions. The collection system is vulnerable to failures during seismic events. The state of the art for seismic design has changed greatly over OC San's history and will continue to do so. Many of our critical structures were designed or installed prior to the advancements that occurred as a result of the various earthquakes of the 1990s. Significant effort has been expended to better characterize the soil conditions under our treatment plants and pump stations. Projects to refurbish or replace existing unit processes are, or soon will be, scoped and budgeted to provide enhanced seismic resilience. These measures include soil mixing to stiffen the soil, various foundation designs and building structure improvements.

Tsunami resilience and flooding protection can go hand in hand. To a great extent, these two risk factors can be mitigated in the same way. The Tsunami guidelines for inundation in ASCE 7-16 are a reasonable peer reviewed standard. By complying with this standard for Huntington Beach and Newport Beach, OC San will be reasonably prepared for flooding caused by extreme storm events and conservative sea level rise estimates at Plant No. 2 and pump stations in the City of Newport Beach.

OC San has also expended significant effort to prepare for the effects of weather extremes on its operations. Extreme wet weather impacts operations. Inflow and infiltration during intense storm activity have multiplied average dry weather flow rate by up to three times in recent years. OC San has significant wet weather capacity and will continue to maintain a 640 million gallon per day influent and outfall capacity which is roughly 3.5 times our average dry weather flow. Historically, high rains as seen in 1863 and 1938 will push our systems to the limit.

OC San has also adapted its systems to perform in extreme dry weather. OC San in cooperation with OCWD operates the largest potable water reuse system in the world. This is made possible by replumbing our treatment plants and adding new smaller pump stations to deal with extreme low outfall flow rates in the morning hours. OC San also continues to grow the ability to shift influent flow between its treatment plants which creates additional resilience for risk factors.

Finally, on the topic of utility supply, OC San built redundant supplies for its most critical needs: electricity, natural gas, and water. OC San has maintained three sources of electricity supply for more than 25 years. The treatment plants can be supplied with power from Southern California Edison, OC San's Central Generation Plants, or on-site diesel generation systems to maintain basic operation to protect public health. In terms of natural gas, OC San has been producing bio-methane through anaerobic digestion since the 1950s with enough capacity to provide electricity and necessary process heat.

Future Policy Statement

OC San will continue to build and improve its facilities to meet the seismic, climate and energy infrastructure risks that it faces with a long-term, planned approach. Acute life-safety risks that are identified or facilities that are damaged or fail in a catastrophic event will be addressed very quickly. However, it is not practical to update $11 billion in facilities every time a code is updated, or a new climate change estimate is released. OC San will stay abreast of code and climate change estimates as they occur and will implement improvements or replacements to facilities on a long-term basis in line with its asset management practices. OC San generally plans to refurbish or replace its mechanical and electrical assets every 20 to 25 years with an average capital improvement investment of $250 million per year.

OC San facilities are designed to meet industry codes. As time goes on and codes are updated, it is not required to upgrade existing facilities to meet those latest codes unless there is a mandate to do so, or an unacceptable risk in not doing so is recognized. OC San will accept some incremental risk in having some facilities that are not necessarily compliant with the latest building codes until a project to rehabilitate or replace these facilities is developed. All of OC San's facilities have a planned life span with two to three refurbishment cycles. Identified seismic or flooding vulnerabilities may drive a replacement versus refurbishment decision in the normal capital planning process.

OC San will continue to aspire to energy independence which will help mitigate vulnerabilities to loss of electrical and gas utilities. In addition, OC San will continue to maintain third level, diesel generator, electrical supply capability for critical loads. On-site diesel storage will provide up to three days of power to run the plants. Pump stations diesel generation will be site specific in its design based on flow risks, hydraulic storage capacity, and site constraints. Either on-site generation or quickly deployable mobile generators will provide emergency power for up to several days at a time.

Initiatives to Support Progress Toward the Policy Goal

- Complete an engineering study of the seismic vulnerabilities of the treatment plants. Incorporate necessary upgrades into future capital improvement projects.
- Complete the biannual high flow exercise to assure readiness for a high flow event. Maintain a higher level of readiness October 15 through March 15 and in advance of predicted significant rain events.

Food Waste Treatment Policy

Summary Policy Statement

The State of California limits the volume of organic waste that may be diverted to landfills. The Orange County Sanitation District (OC San) will collaborate with the County of Orange, other local agencies, and waste haulers to find ways to beneficially reuse food waste, a type of organic waste, to assist cities in our service area in meeting their diversion requirements while increasing OC San's energy production.

Background

Whether supplying secondary treated wastewater for the Groundwater Replenishment System, creating renewable energy in the form of biogas from anaerobic digestion to produce electricity, or benefiting from the use of biosolids as a soil amendment, OC San is a resource recovery agency committed to providing resilient and reliable wastewater treatment service while protecting the public health and the environment.

In recent years, there has been a significant change in the regulatory landscape in California related to the diversion of organics such as food, green material, wood, paper, biosolids, digestate, and sludges from landfills. Currently, much of the state's diverted organics are being composted or used as alternative daily cover on landfills. With the phaseout of organics as alternative daily cover, the regulatory shift is creating an organics market for the wastewater sector to provide a solution to manage organics such as food waste by way of co-digestion. There is an opportunity for OC San to produce additional biogas, reducing the need to purchase electricity from the local utility.

Anaerobic digestion is currently at the nexus of important State of California mandates, namely: (1) organics diversion from landfills (AB 1826 and SB 1383), and (2) increased renewable energy and fuels generation (SB 32 and SB 100). The primary alternatives for organics management are anaerobic digestion and composting – of which anaerobic digestion is the only process offering energy recovery potential. Over the next few years, California's cities and counties, along with municipal solid waste haulers, material recovery facilities, and landfills will need to develop collection, processing, and energy recovery infrastructure to address new state legislation and goals. Existing wastewater treatment plants such as OC San are uniquely positioned to play a role in the new organics marketplace since solid waste management facilities do not typically have anaerobic digesters, the energy recovery infrastructure in place, or experience regarding the management of biosolids for beneficial use.

In 2017, OC San completed a comprehensive Biosolids Master Plan (Plan) that provides a roadmap and framework for sustainable and cost-effective biosolids management options and future capital facilities improvement over a 20-year planning horizon. Considering the timeliness of the regulatory mandates requiring organic diversion from landfills and increased renewable energy, the Plan evaluated the feasibility of implementing a high strength organic waste receiving program involving the co-digestion of preprocessed food waste.

While food waste digestion appears to be feasible, OC San's existing infrastructure isn't well suited for receiving, handling, or digesting green waste. Current digester feed, mixing, heating, dewatering and truck loading facilities aren't designed to deal with cellulosic products in green waste. The highly fibrous material doesn't readily break down and clogs the various systems optimized for sewage sludge treatment. In addition, there are legal hurdles specified in the California Health and Safety Code, Section 4700, that must be addressed before OC San could operate a refuse transfer facility.

Current Situation

Project Viability

OC San's Plan concluded that the costs to construct and operate a food waste receiving facility could be offset by tipping fees charged to food waste processors/haulers and by additional power generated from the increased digester gas production. The Plan recommended that OC San build an interim food waste receiving station immediately to take advantage of existing digestion and power generation capacity of approximately 150-250 wet tons per day at Plant No. 2. OC San will construct a more permanent facility in the future to coincide with the planned construction of new digesters at Plant No. 2, allowing additional capacity to co-digest approximately 500 wet tons per day of food waste. OC San also has at least six megawatts of installed electrical generation capacity that can convert the produced digester gas to electricity and heat.

Based on these recommendations, in 2018, OC San's Board approved a project (P2-124) to construct an interim (10-15 year service life) food waste facility to receive, store, and feed preprocessed food waste slurry to the digester complex at Plant No. 2 to generate additional digester gas. This project will be designed to accept approximately 150 wet tons per day of preprocessed food waste and will produce approximately 15 percent more methane gas for onsite energy production. This results in a greenhouse gas reduction of approximately 10,800 metric tons of carbon dioxide, which is equivalent to the annual greenhouse gases generated by approximately 2,000 passenger vehicles. This is consistent with OC San's Energy Independence Policy, which is to strive to be energy independent by minimizing energy utilization and maximizing useful energy recovery from the sewage it receives.

The final biosolids product currently produced by OC San is anticipated to be largely unaffected by the addition of food waste slurry. Pilot testing conducted by OC San indicates that there will be increased gas production due to mixing sewage sludge and food waste feed stock, but the final biosolids product will remain largely unchanged.

A draft Preliminary Design Report was issued in June 2019 for the interim receiving facility which included a viability evaluation concluding that the project is economically justifiable based on project costs and anticipated tipping fees. Final design of the interim food waste receiving station is complete and ready to bid for construction. The tipping fee and food slurry specifications are complete, and OC San is soliciting waste hauling partners to contract deliveries of material. When contracts for food waste deliveries are signed, OC San will commence bidding and construction to be in a position to receive material within two years.

There are three large municipal solid waste haulers that have expressed interest in collaborating with OC San to provide preprocessed food waste for digestion. Of these, two haulers are located within the county, and one is located outside the county. Another important partner for OC San is Orange County Waste and Recycling (OCWR). OC San has met with OCWR, and they have expressed interest in partnering with OC San to find local solutions to meet SB 1383's organics diversion mandate including in-county biosolids management, composting, food waste co-digestion, and biogas production.

Future Policy Statement

Food Waste Slurry

OC San will only accept a preprocessed food waste slurry. We do not have available land or air permits to handle, sort, and process solid or green wastes. OC San will work with other public agencies and waste haulers to develop an industry standard for food waste slurry

that specifies water, organic, metal, plastic, and glass content requirements. A common specification for slurry will help all parties make investment decisions.

Food Waste Volume

OC San has identified available capacity within its infrastructure at Plant No. 2 to accommodate food waste conversion to energy. The processes impacted by food waste conversion are digestion, gas cleaning, gas compression, generation, process heating, biosolid dewatering, and biosolids loading. Each of these impacted systems at Plant No. 2 in Huntington Beach have the capacity to accept 150 to 250 wet tons per day for the next ten years. Beyond ten years, OC San plans on upgrading its digestion, gas compression, and gas treatment systems. Based on the lessons learned from the interim system and the development of the food waste market, OC San plans to be able to accept up to 500 wet tons per day when the new digestion, gas compression, and gas treatment systems are completed.

OC San believes that the full implementation of the current regulations will create a food waste slurry market significantly greater than 500 wet tons per day in Southern California.

Tipping Fee Basis

The acceptance of food waste has the opportunity to more fully utilize the system capacity that already exists for the benefit of OC San's rate payers.

OC San staff will develop a base tipping fee rate schedule for Board of Directors' approval that meets the following criteria:

- Recover all capital costs to construct facilities within ten years (this will allow OC San and waste haulers to properly invest in processing facilities);
- Recover all on-going costs including operating cost, maintenance cost, electricity usage, biosolids dewatering, and reuse costs;
- Food Waste will not be operated "for profit" but rather a cost recovered service with tipping fees offsetting costs to not impact OC San's wastewater service fee structure.

Food waste generated and processed within the service area will be charged the base rate and will be prioritized over food waste from outside the service area. This is justified by the fact that the underlying infrastructure of OC San is already owned by service area rate payers. OC San contracts with service area waste haulers must provide for a pass-through savings to OC San rate payers. That means waste haulers may charge for collection and processing of food waste but must disclose to their City or Special District franchise partner OC San's tipping fees and negotiate pricing adjustments as necessary with City or Special District franchise partners.

If additional capacity exists, but isn't utilized by in-service area users, then that capacity may be contracted by out-of-service area users at a premium to help offset the cost of the underlying infrastructure necessary to process the food waste.

OC San will pursue grant opportunities to the extent possible to reduce the overall capital and operating cost basis for the program to reduce the tipping fee base rate.

Initiatives to Support Progress Toward the Policy Goal

- OC San will accept a preprocessed food waste slurry from contracted waste haulers that will be fed to existing anaerobic digesters. OC San will charge a tipping fee to offset its costs for capital construction, operations, handling, maintenance, and biosolids disposal.
- Design, build, and operate a food waste receiving station. Create a specification for food waste slurry and contract with solid waste haulers to receive and process food waste.

Water Reuse Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) will seek to beneficially reuse all reclaimable water for potable, industrial, irrigation, and environmental uses.

Background

For over 40 years, OC San and the Orange County Water District (OCWD) have partnered to beneficially reuse treated wastewater from OC San. OCWD, which serves roughly the same service area as OC San, manages and replenishes the groundwater basin in northern and central Orange County, ensures water reliability and quality, prevents seawater intrusion, and protects Orange County's rights to Santa Ana River water.

Beginning in 1975, OC San contributed treated wastewater from its Plant No. 1 to OCWD for the operation of Water Factory 21, which reclaimed the treated wastewater and injected it along with deep well water into the groundwater basin to prevent seawater intrusion. In the mid-1990s, OCWD needed to expand Water Factory 21. At the same time, OC San faced the challenge of having to build a second ocean outfall pipe to discharge treated wastewater into the Pacific Ocean. Both agencies collaborated to build an advanced water purification facility to resolve these challenges. This state-of-the-art facility, known as the Groundwater Replenishment System (GWRS), took the place of Water Factory 21, and began operation in 2008.

The GWRS treats secondary treated wastewater from OC San Plant No. 1 to drinking water standards and uses the purified water for both injection and percolation, through injection wells and recharge basins, as source water to replenish the groundwater basin's drinking water supplies. With approximately 75 percent of the water demand in northern and central Orange County cities coming from the groundwater basin, GWRS supplements existing water supplies by providing a new, reliable, high-quality source of water. OC San made a considerable investment to improve its level of treatment and source control to support the GWRS partnership. The upgrade to full secondary treatment and shifting the source control regulations, testing, and enforcement from a focus on ocean discharge to drinking water supply was very significant.

While the original GWRS facility was initially constructed to supply up to 70 million gallons per day (MGD) of purified water, the facility was designed for an ultimate treatment and conveyance capacity of 130 MGD. The original GWRS design intent was to expand the GWRS facility in two phases – an initial and a final expansion of an additional 30 MGD of treatment capacity with each expansion. The GWRS Initial Expansion Project was completed in June 2015 and has been producing up to 100 MGD of purified water for groundwater injection and recharge. The Final Expansion of GWRS is scheduled to be completed in 2023 and will produce the maximum capacity of 130 MGD.

In addition to providing treated wastewater to the GWRS, OC San also provides treated water to OCWD's Green Acres Project and OC San uses treated effluent within the treatment plants to offset potable water use. The Green Acres Project provides recycled water for landscape irrigation at parks, schools, and golf courses; and industrial uses, such as carpet dying; toilet flushing; and power generation cooling. OC San uses nearly 10 MGD of treated effluent, called Plant Water, within the treatment plants for engine and equipment cooling, polymer make-down, equipment flushing and washdown, and other uses.

Current Situation

The GWRS currently produces 100 million gallons per day of purified water – enough water for about 850,000 people. All of OC San's Plant No. 1 secondary effluent, between 120-130 MGD, is made available to OCWD for the GWRS and Green Acres Project. However, secondary effluent from OC San's Plant No. 2 and other non-reclaimable flows, such as brine from inland desalters and GWRS's reverse osmosis process, and OC San's process sidestreams, continue to be released into the ocean.

In 2016, OC San and OCWD jointly conducted the Effluent Reuse Study, which evaluated the feasibility of recycling OC San's secondary effluent from Plant No. 2 and identified projects required to achieve the final expansion of the GWRS. The GWRS final expansion effort will include implementation of projects to construct new, modified or rehabilitated facilities at Plant No. 2 to separate reclaimable flows from non-reclaimable flows; to equalize, pump, and convey secondary effluent from OC San's Plant No. 2 to the GWRS facility; and to treat the additional source water to produce 130 MGD of purified water.

Reverse Osmosis brine generated at the GWRS is currently discharged into the ocean. The 2016 Effluent Reuse Study identified alternative brine management strategies such as evaporation ponds, deep well injection, and engineered wetlands. Evaporation ponds are land intensive and are also energy intensive when combined with a brine crystallizer to remove solids from highly concentrated brine system using heat and pressure. While the areas around both OC San treatment plants have the appropriate geology for brine injection, there are concerns with contamination of drinking water aquifers, and seismic risks due to the Newport-Inglewood zones near Plant No. 2. At this time, it does not appear economically feasible to provide alternative management strategies for the brine discharge.

In November 2016, OC San Board of Directors adopted the Second Amended and Restated Joint Exercise of Powers Agreement for the Development, Operation, and Maintenance of the Groundwater Replenishment System and Green Acres Project, which committed the agency to continue supporting the GWRS and the Green Acres Project, and specifically, the final expansion of the GWRS. The implementation of the final phase of the expansion will be executed by multiple projects, some executed by OC San while the others executed by OCWD. Project costs related to the GWRS are funded by OCWD, including up to $50 million in reimbursements to OC San for its costs incurred to execute related projects.

By supporting the GWRS Final Expansion, OC San will be able to recycle all reclaimable wastewater generated in its service area and treated at its two treatment plants, and OCWD will have sufficient water to run the GWRS facility to full capacity.

Future Policy Statement

The treated effluent produced from OC San's Plant Nos. 1 and 2 is a valuable resource that can help boost local water resources and reduce dependence on imported water, while reducing the effluent discharged to the ocean. OC San will continue to seek opportunities for beneficial reuse of all reclaimable wastewater collected and treated at its facilities.

OC San will continue to support the completion of the final expansion of the GWRS in accordance with the adopted Second Amended and Restated Joint Exercise of Powers Agreement for the Development, Operation, and Maintenance of the Groundwater Replenishment System and Green Acres Project. This includes providing secondary effluent as source water for the GWRS free of charge; allowing OCWD to discharge brine via OC San's ocean outfall free of charge; leasing approximately 10 acres of land to OCWD at $1 per year for GWRS;

allowing OCWD to discharge North and South Basin extraction well flows to OC San sewers; managing the design and construction efforts of the Plant No. 2 Headworks Modifications Project and the Plant Water Pump Station Replacement Project (OCWD will reimburse up to $50 million of project cost); managing and financing the construction of the Ocean Outfall Low Flow Pump Station at Plant No. 2, and the construction of Plant No. 2 primary and secondary facilities to allow segregation of non-reclaimable flows.

OC San will continue to maximize the delivery of secondary effluent available to GWRS and the Green Acres Project in order to maximize full production of purified recycled water for indirect potable reuse, and industrial and irrigational uses. OC San has been operating the Steve Anderson Lift Station to divert more flows to Plant No. 1. The two agencies regularly communicate and coordinate OC San operations and construction projects that may have impacts on GWRS operation and will continue this collaboration effort.

OC San has adequate flow to maximize the production of the GWRS through final expansion. Diversion of additional non-wastewater into the sewer system is unnecessary. Non-wastewater diversions create high flow risks during wet weather conditions and can introduce constituents of concern to existing water and biosolid reuse programs.

Initiatives to Support Progress Toward the Policy Goal

- Support the completion of the final phase of the Groundwater Replenishment System and maximize reclaimable wastewater availability to OCWD.
- Support Green Acres project water production to provide reclaimed water for industrial and irrigation uses.

Environmental Water Quality, Stormwater Management, and Urban Runoff Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) will collaborate with regional stakeholders to accept up to ten million gallons per day (MGD) of dry weather urban runoff at no cost to the dischargers through its permit-based Dry Weather Urban Runoff Diversion Program. The primary objective of the Dry Weather Urban Runoff Diversion Program is to improve water quality in streams, rivers, and beaches in OC San's service area without adversely impacting OC San's occupational safety, collection and treatment systems, reuse initiatives, or permit compliance. Unauthorized discharge of urban runoff to OC San is strictly prohibited.

Background

OC San is a regional governmental agency principally chartered to protect public health and the environment through an extensive regional sanitary sewer system and a highly effective wastewater treatment operation. The governing Board of Directors (Board) has refined this role to include the recovery and utilization of resources from wastewater for the public good. In addition to beneficial reuse of biosolids and responsible ocean discharge, OC San delivers high-quality treated wastewater to Orange County Water District's (OCWD) Groundwater Replenishment System (GWRS) for advance treatment and purification followed by storage in the Orange County groundwater basin.

OC San operates its regional wastewater collection system in accordance with its Sewer System Management Plan, which was developed in compliance with the California Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ. The Board periodically updates OC San's Wastewater Discharge Regulations Ordinance (Ordinance) to set uniform requirements for all users of OC San's system and enable OC San to comply with all applicable state and federal regulations. The Ordinance establishes limits on all wastewater discharges which may adversely affect OC San's system and includes language that prohibits sewer users from discharging groundwater, stormwater, surface runoff, or subsurface drainage to the sewer without written authorization or a valid permit. Uncontrolled discharge of any type is strictly prohibited and any person who violates any provision of the Ordinance is subject to administrative, civil and criminal penalties.

Most of the local sanitary sewer systems within OC San's highly urbanized service area are owned and operated by cities, water districts, or sanitary districts. These local systems are designed to transport wastewater from homes and businesses to OC San's regional sewers. These local and regional wastewater systems are designed to be wholly separate from Orange County's Municipal Separate Stormwater Sewer System (MS4), which is a system of conveyances that includes roads, streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains that carry surface runoff into receiving waters and is regulated by the Santa Ana Regional Water Quality Control Board. Throughout the year, dry and wet weather urban runoff are collected through the MS4 and discharged along the coastline.

During wet weather, the vast majority of urban runoff is comprised of stormwater from rainfall that either travels at a flow rate that does not allow enough time to soak into the ground or whose volume has exceeded the ability of the soil to hold any more moisture. In communities with a high percentage of covered or impervious surfaces, the runoff volume and velocity can be considerably greater when compared to rural areas. Additionally, sheets of runoff in these communities can pick up pollutants and debris from transportation, construction, industrial, and residential sources as they travel by gravity toward storm drains or other low points. Stormwater runoff carries trash, debris, bacteria, chemicals, oil, silt, sediments, microplastics,

and other common and emerging contaminants, and is the responsibility of MS4 permittees, who typically have jurisdiction over land use practices and flood control.

During wet weather, the volume of surface runoff is well beyond the capacity of OC San's conveyance and treatment systems. Inflow and infiltration into the sanitary sewer system during storm events can strain the hydraulic capacity of OC San to its limit of under 1,000 cubic feet per second. In addition, storm flow runoff also contains a much greater debris load that would compromise the sanitary sewer system.

During dry weather, OC San has the capacity normally reserved for inflow and infiltration to accept urban runoff. The Best Management Practices (BMPs) required of MS4 permit holders such as screening, street sweeping, spill prevention, and waste reduction campaigns help to effectively remove trash, silt, and other debris which help make these relatively small flows more compatible with the sanitary sewer. However, pollutants and pathogens that are not removed by the BMPs are carried by runoff from sources such as excess outdoor irrigation into storm drains which is discharged along the coastline.

In response to the significant and persistent adverse impacts from urban runoff to coastal beaches and waters, OC San sought support from the California legislature to accept controlled discharge of surface urban runoff into its wastewater system and was authorized in April 2000 to initiate a permit-based Dry Weather Urban Runoff Diversion Program to accept up to three million gallons of dry weather flow per day. OC San Board Resolution No. 00-04 allowed local agencies to apply for a Dry Weather Urban Runoff Permit where there was not an economically or practically feasible alternative and permittees are subject to requirements of the Ordinance.

Since its inception, the Dry Weather Urban Runoff Diversion Program has significantly improved beach water quality throughout OC San's service area as evidenced by excellent ratings in Heal the Bay's Annual Beach Report Cards and a notable decrease in water quality-based beach closures. In June 2013, OC San modified the Dry Weather Urban Runoff Policy (Resolution No. 13-09) to cap discharges received to 10 million MGD and waived fees associated with the program until discharges exceeded 10 MGD, or until the policy is revised. The Board established an action threshold of nine MGD to trigger revisiting the policy.

In addition to Dry Weather Urban Runoff Permits, OC San's Ordinance allows for normally prohibited wastes such as groundwater, stormwater, surface runoff, and subsurface drainage to be discharged to OC San through a Special Purpose Discharge Permit or written authorization from OC San when no alternate method of disposal is reasonably available to mitigate an environmental risk or health hazard.

Both Dry Weather Urban Runoff and Special Purpose Discharge permits carry strict wet weather shut-off and debris limiting provisions to protect the sanitary sewer system from hydraulic overload and the associated sewer spills. These permits also require flow monitoring and constituent sampling so that OC San can assure that water reused, water discharged to the ocean, and biosolids reused for agriculture are safe and fit for their greater environmental and resource recovery programs.

Current Situation

As of April 2021, OC San has issued 21 Dry Weather Urban Runoff Permits for diversions owned and operated by the City of Huntington Beach, the City of Newport Beach, OC Public Works, Irvine Ranch Water District, and an LLC responsible for the areas in and around Pelican Point community. For the July to December 2020 reporting period, OC San received on average 1.4 MGD from these facilities, which is well below the current 10 MGD policy cap and nine

MGD action threshold. Since the program's inception in 2000, the Dry Weather Urban Runoff Program has treated over 10 billion gallons of urban runoff.

Under special circumstances, OC San may also accept runoff on a limited-term and limited-volume basis through the SPDP or direct authorization process if there is adequate capacity, the runoff/wastewater meets applicable effluent discharge standards, there is no practical alternative method of disposal, and the runoff/wastewater is captured and held until it can be safely discharged to OC San.

In combination, these practices have enabled responsible management of persistent urban runoff challenges in OC San's service area and support a thriving and healthy local economy.

Future Policy Statement

Since the inception of OC San's Dry Weather Urban Runoff Diversion Program, the program success has depended on collaboration among stakeholders to improve beach water quality, urban runoff diversion water quality, coordinate flow management, and minimize any potential adverse impact on OC San's ocean discharge, biosolids management, and potable reuse.

OC San's enhanced source control program and vigilant operations provide a solid foundation for GWRS water's safety and reliability. Much of the current urban runoff diversion is attributable to Plant No. 2 in Huntington Beach which does not provide source water for OCWD. However, as OC San and OCWD progress toward maximizing potable reuse at GWRS to 130 MGD in 2023, OC San is keenly aware of the critical role of source water quality and the need for a region-wide commitment to prevent Constituents of Emerging Concern from entering OC San's system.

Although OC San will continue to accept controlled discharge from Dry Weather Urban Runoff Diversion Program in accordance with Resolution No. 13-09, which supports long-term integrated regional water management, OC San recognizes that urban runoff is a source of Contaminants of Emerging Concern such as microplastics which were measured at levels many times higher than raw wastewater in a 2020 study by the San Francisco Estuary institute. Contaminants in urban runoff will continue to be studied in the future, and the results of these scientific studies will be of utmost importance when considering the viability of future diversions to OC San's system.

There is continuing interest in maximizing urban runoff diversions to OC San's wastewater system to help improve water quality in streams, estuaries, and beaches; and to potentially increase water available for recycling. One potential driver of additional urban runoff diversions is assumed reductions in future wastewater flows due to enhanced indoor water conservation. Reduced wastewater flows may free up system capacity for increased urban runoff diversions.

However, the future available capacity in OC San's system to handle additional urban runoff flows, and the OCWD's need for additional effluent for recycling have not been the subject of a comprehensive engineering study that identifies the opportunities and costs of increasing diversions. Such a study is being jointly planned by OC San, OCWD and the Orange County Flood Control District.

Initiatives to Support Progress Toward the Policy Goal

- Issue dry weather urban runoff connection permits to accept up to a total of ten million gallons per day of controlled discharge of dry weather urban runoff where existing conveyance capacity exists, and the constituents within the flow will not adversely impact OC San.

- Safeguard OC San's sanitary sewer system against uncontrolled and unregulated discharge by supporting responsible industry practices for flow management and urban runoff pollutant reduction at the source. Utilize OC San's pretreatment expertise to support effective urban runoff best management practices and special purpose discharge requests among OC San's regional stakeholders.
- Conduct a comprehensive study of the feasible opportunities for cooperative projects for urban runoff diversions to OC San to improve water quality and increase water recycling by maximizing the useful capacity of local collection systems , OC San treatment systems, and OCWD recycling and recharge systems.
- Support responsible and practicable urban runoff management and reuse legislations and regulations.

Wastewater Management

Chemical Sustainability Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) has a need to use chemicals in its treatment process to improve plant performance, reduce odor and corrosion potential, and meet its regulatory requirements. These commodity chemicals are provided by outside vendors through the purchasing process. Some of these chemicals are subject to price swings due to market condition changes such as energy cost impacts, raw material cost changes, commercial competition changes, and transportation cost volatility. OC San will identify chemicals key to its operation, investigate the market risks for those chemicals and devise strategies to mitigate identified risks to availability and pricing.

Background

OC San's treatment plants and collection system use several bulk chemicals. A sustainable supply of these chemicals is critical to maintaining an acceptable level of treatment and for ensuring compliance with all regulatory requirements. OC San spends about $13 million annually on the procurement of eight key chemicals which generally can be broken down into four categories: coagulants, odor/corrosion control, disinfection, and boiler water treatment. Boiler water treatment chemicals are low volume and readily available and will not be considered here.

Coagulant Chemicals

Coagulant chemicals include ferric chloride, anionic polymer, and cationic polymer. These chemicals are the workhorses of the sewage treatment process. Coagulant chemicals work to clump together organic material so it can more readily be separated from water. Ferric chloride is the first chemical added in the treatment process. It is a powerful settling agent that causes organics to clump together and settle to the bottom of primary basins. It is a double-duty chemical in that it also controls the formation of hydrogen sulfide gas, which is a major odorant, by binding to suspended sulphur compounds and causing them to settle before they can be converted by natural bacterial processes to hydrogen sulfide.

Ferric chloride is an iron salt that is produced by reacting iron with hydrochloric acid. It is generally a byproduct of steel treatment, a leftover pickling agent. Ferric chloride is commonly used in the water and wastewater industries. Historically, this chemical has been the subject of a limited supplier base in Southern California. OC San has been actively splitting supply contracts to multiple vendors to ensure multiple vendors are available. On-site generation of the chemical is impractical due to the hazardous nature of the manufacturing process and acid handling, the bulk steel handing logistics, and waste products disposal.

Anionic polymer works with ferric chloride to further aid in the coagulation or settling of organic compounds in the primary treatment process. These long-chain molecules are designed to be negatively charged to attract or collect positively charged ferric chloride induced organic clumps or flocculant. The use of ferric chloride and anionic polymer is called Chemically Enhanced Primary Treatment or CEPT. OC San has been using CEPT for more than thirty years.

Anionic polymers are specially designed chains with many potential variants and multiple vendors. Part of the purchasing process for polymers involves polymer trials to document the efficacy of different products from different vendors to get the best cost-performance balance.

Cationic polymer is generally used to thicken sludge or biosolids in centrifuges or dissolved air floatation thickeners (DAFT). These long-chained, positively charged molecules are essential to

the proper operation of centrifuges and DAFT units. Part of the purchasing process for these polymers also involves polymer trials to document the efficacy of different products from different vendors to get the best cost-performance balance. It is important to note that it is entirely possible that four different cationic polymers will be used to optimize the performance of Plant No. 1 dewatering centrifuges, Plant No. 1 thickening centrifuges, Plant No. 2 dewatering centrifuges, and Plant No. 2 DAFTs, because the performance can vary greatly depending on the equipment or process. Each process will have its own polymer trial to determine the cost-performance balance for each application.

Odor Control Chemicals

OC San uses several chemicals in the collection system and the treatment plant to reduce the odors normally attributed to sewage and sewage treatment. These chemicals can either prevent the formation of odor causing compounds, called odorants, or they can destroy odorants that already exist. Chemicals that prevent the formation of odorants include ferrous chloride, calcium nitrate, magnesium hydroxide, and caustic.

Chemicals used in the collection systems tend to be more benign than chemicals used in the treatment plants due to their proximity to the public. Ferrous chloride is closely related to Ferric chloride as described above. It is a powerful settling agent that prevents the formation of hydrogen sulfide by tying up and settling sulfide compounds in the collection system. It is a preferred chemical because of its dual role, but it is not as benign as other choices.

Calcium nitrate is another choice for collection system odor control. It works in a different way. Calcium nitrate alters the biological equilibrium in sewage. Generally, bacteria that live by respirating oxygen are the most robust organisms, followed by nitrogen respirating bacteria, and finally sulfur respirating bacteria. Adding calcium nitrate to sewage creates an environment where sulfur loving bacteria do not thrive or create hydrogen sulfide.

Magnesium hydroxide is a third choice for collection system odor control. It works primarily by raising the pH of sewage to a point that is not conducive for odor causing bacteria to thrive. Magnesium hydroxide is the most benign of the chemical choices as it is the main ingredient in Milk of Magnesia.

All three of these chemicals are continuously fed into sewer systems at different points to consistently control the formation of odorants in the system. Where OC San does not have the ability to site a chemical dosing station and persistent odors are being experienced, there is the option to utilize caustic slug dosing. Caustic slug dosing involves using tanker trucks to discharge up to 6,000 gallons of sodium hydroxide into a sewer manhole structure. The very high pH has the effect of killing the bioslime layer on sewer pipes that creates hydrogen sulfide. This treatment has an instant benefit that reduces hydrogen sulfide production for days to weeks depending on system conditions.

The final major odor fighting chemical is bleach. Bleach is used in treatment plant chemical scrubbers to oxidize odorants in air scrubber units. Bleach is an effective neutralizer of hydrogen sulfide, methyl mercaptan, methyl disulfide, dimethyl disulfide, and many others.

Disinfection

OC San successfully discontinued disinfection of its effluent to the long outfall. This means that thousands of gallons of bleach and sodium bisulfate are no longer required to be purchased or discharged to the ocean. However, in the event of a discharge to the short outfall or river overflow, disinfection by bleach will be required. Significant on-site storage of bleach and dechlorination chemical, sodium bisulfite, is necessary for this emergency contingency. Bleach does have a shelf life of about six months. OC San rotates its disinfection supply to its odor control and plant water treatment systems to prevent product waste.

Process Specific Chemicals

OC San uses pure oxygen to support its activated sludge secondary treatment process for Plant No. 2. OC San previously self-generated pure oxygen using a cryogenic oxygen plant rated at 70 tons per day. This plant was removed because it was inefficient at the current average utilization of 35 tons per day and was at the end of its useful life. OC San contracts for delivery of liquid oxygen and uses a vaporization system to deliver pure gaseous oxygen to the activated sludge process.

Chemical Supply — Purchase vs. Make

OC San has relied on purchasing bulk commodity chemicals for its treatment plants and collection system. This has proven to be an effective strategy for operational flexibility and to allow concentration on core business. Operationally, the types and volume of chemicals change over time. Over time the types of polymers that are most efficient change. There is a need for more or less volume of chemicals based on sewage flow rates, sewage composition, and flow splits between plants. Managing the generation of specialized chemicals using hazardous materials imposes a significant training burden on staff, increases the regulatory oversight and requirements, and increases overall risk to the organization.

OC San maintains a policy to split the volume of orders between two vendors to assure competition exists in the marketplace for ferric chloride. While OC San generally cooperates with other public agencies to pool purchasing power to secure the lowest possible cost through high volume purchasing, some specialty chemicals like ferric chloride require split orders to maintain competitive market forces.

Current Situation

OC San is constantly changing and improving its facilities to meet new challenges. Each of the facility changes offer new opportunities to reconsider how OC San operates its processes and how chemicals are used. The best chemical stability outcome is to cost-effectively eliminate the use of the chemical. This is the strategy behind cessation of bleach disinfection of the outfall effluent.

Staff is studying the potential to operate the treatment plants differently to minimize or eliminate use of selected chemicals. Facilities like centrifuge sludge thickening provide new opportunities to adjust ferric chloride and anionic polymer usage. Opportunities for substitute chemicals will be explored to understand overall cost and efficiency savings potential. This includes iron vs. aluminum coagulant studies, anionic polymer trials, and cationic polymer trials. Staff also evaluate operating parameters such as in-basin sludge co-thickening, primary basin sludge blanket level parameters, as well as the greater loading of the secondary treatment systems.

Future Policy Statement

OC San will thoroughly understand its treatment processes, the potential modes of operation, and the benefit and cost of chemicals to improve or stabilize its process. OC San will maintain a list of necessary chemicals for optimal treatment operations which will consider chemical cost, chemical availability, treatment stability, energy utilization, energy creation, nuisance odor control, biosolids generation/cost, and regulatory permit compliance risks.

Chemicals that are deemed most beneficial will be procured at the lowest overall cost from market providers to the extent possible. Where there are market stability concerns, the purchasing division will devise procurement strategies to mitigate procurement risks. Where

procurement risk cannot be satisfactorily mitigated, technical staff will evaluate alternatives such as alternate operating methods, substitute chemical usage, or on-site generation of a chemical if feasible.

Initiatives to Support Progress Toward the Policy Goal

- Reduce the exclusive reliance on particular chemicals and individual vendors to establish flexibility to utilize other chemicals/processes to accomplish operational objectives.

Biosolids Management Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) will remain committed to a sustainable biosolids program and will beneficially reuse biosolids in accordance with Resolution No. OC San 13-03 and the 2017 Biosolids Master Plan.

Background

Wastewater solids at both our treatment plants are separated, thickened, digested, and dewatered before being recycled offsite by contractors for composting and land application. Biogas created from the digesters is used to generate electricity to offset the need to purchase power from a local utility. Although OC San currently receives sewage sludge from the Irvine Ranch Water District (IRWD) at Plant No. 1, IRWD is currently commissioning its own solids treatment facility and is anticipated to discontinue the sludge transfer to OC San by the second half of 2021.

Prior to 2019, OC San produced an average of 800 wet tons per day (~20 percent solids) of Class B biosolids that were dewatered by belt presses. Following the commissioning of the co-thickening sludge and dewatering centrifuge system in 2019, OC San has been producing approximately 500-600 wet tons per day (23-28 percent solids), which resulted in an approximately $4 million per year reduction of biosolids hauling costs.

OC San's biosolids program is developed in compliance with federal, state, and local regulations, OC San's biosolids policy (Board Resolution 13-03), biosolids management system, and the 2017 Biosolids Master Plan (Plan). OC San's adaptive and highly effective biosolids program emphasizes diversification of beneficial reuse options and markets for biosolids. Although cost is a key consideration, the incorporation of failsafe options is considered paramount. These principles align with the policy and Plan and provide a framework for identifying and adopting reliable and sustainable biosolids management options while minimizing cost. Moreover, through innovation and continuous improvements in its biosolids management practice, OC San has been well-positioned to sustain regulatory compliance and its commitment to beneficially reuse biosolids. Currently, about 20 percent of the annual biosolids production is going to a bioenergy facility in California to create pellets and biochar while producing renewable energy, about 50 percent is used to produce Class A compost in California, and about 30 percent is used for Class B land application in Arizona.

The Plan forecasted future capital improvements projects needed to sustain responsible and cost-effective biosolids management over a 20-year planning horizon. As an example, OC San has initiated a project at Plant No. 2 to construct new thermophilic digesters and batch holding tanks that will generate Class A biosolids beginning in 2030. These new digesters are needed to increase operational resiliency against seismic events and biosolids reuse options. Plant No. 1 will continue to produce Class B biosolids.

According to the Plan, upon commissioning the new thermophilic digesters, future biosolids management options may include:

- Emerging markets: Management options and technologies that become available following the adoption of the Plan, such as mine and fire reclamation, gasification, pyrolysis, supercritical water oxidation, fluidized bed combustion, and cement kiln drying.

- Soil blending: Partner with local soil blenders to deliver and blend Class A biosolids with soil to produce a high-quality soil amendment that can be used in a larger variety of markets than current Class A compost such as construction back-fill.
- California land application: While Class A compost and granules are currently land-applied in California, land application of Class A biosolids is still restricted in most counties. However, with the recent implementation of California's organics diversion regulations and planned enforcement in 2022, stringent local ordinances that unreasonably restrict land application of biosolids are prohibited.
- Arizona land application: Land application in Arizona will continue to be a part of OC San's overall biosolids program and serves as a large-capacity outlet for biosolids management.

Current Situation

The legislative and regulatory landscapes in California are changing regarding organics management. Since 2003, direct land application of Class B biosolids in Southern California has largely been prohibited due to strict ordinances and conditional use requirements that preempted state recycling laws. However, in recent years there has been a greater focus on healthy soils, renewable energy, organics diversion from landfills, and reduction of Greenhouse Gases (GHGs), which are reflected in several bills and initiatives that have been adopted:

- AB 1826 (2014) — Mandatory Organics Recycling for Businesses.
- SB 1383 (2016) — 50% organics diversion from landfill by 2020 and 75% by 2025, which includes biosolids and mandatory organics procurement (compost and biogas) for impacted jurisdiction.
- SB 32 (2016) — 40% Reduction GHG below 1990 levels by 2030
- SB 100 (2018) — 50% renewable resources (i.e., anaerobic co-digestion of food waste) target by December 31, 2026, and to achieve a 60% target by December 31, 2030
- Increasing soil carbon and carbon sequestration under the Healthy Soils Initiative and Forest Carbon Plan.

In combination, these measures are expanding the "organic waste markets", thereby stimulating interest in siting more composting facilities and organic waste-to-energy projects and could also support soil blending and direct land application of biosolids and create opportunities for wastewater agencies to innovate. Agencies such as the State Water Resources Control Board (SWRCB), CalRecycle, California Department of Food and Agriculture, California Air Resources Board, and California Energy Commission are developing regulations to implement the new laws. Throughout the rulemaking process, OC San has been actively involved through the California Association of Sanitation Agencies (CASA) and the Southern California Alliance of POTWs (SCAP) to encourage regulators to open more biosolids management options in California. In particular, the recently adopted regulations for SB 1383 require jurisdictions such as cities and counties to procure recycled organics such as compost and biogas for localized beneficial reuse.

It is worth noting that while there is growing interest in California for enhanced organics management, there has also been a rising concern from the regulatory community regarding emerging contaminants such as polyfluoroalkyl substances (PFAS) and microplastics. These

ubiquitous, often household, compounds have been detected in the wastewater pathway and biosolids, and OC San has been actively monitoring the development of the science and regulations across all water, wastewater, air, and soil sectors. To date, PFAS regulations have been established for drinking water and a series of phased investigative orders were issued by the SWRCB to examine the fate and transport of PFAS. OC San was among 249 wastewater treatment plants that were included in Phase three of the investigative order, and OC San is on track to complete all required sampling, analysis, and reporting. Additionally, effective in Fall 2021, OC San is sending 100 tons per day to a state-of-the-technology bioenergy facility which will be sampled for PFAS to potentially demonstrate the destruction of PFAS in biosolids using pyrolysis while creating biochar for recycling and renewable energy for distribution.

Future Policy Statement

As environmental regulations continue to drive the organic waste markets in California, OC San will continue to leverage its memberships with various professional/industry associations to encourage local, state, and federal agencies to promote the beneficial reuse of biosolids. OC San will also continue to monitor the development of regulations for constituents of emerging concern that may impact the beneficial reuse of biosolids.

OC San's long-standing leadership role in key professional organizations will continue to ensure timely and meaningful engagement on key regional, state, and national biosolids management policies.

OC San will continue to stay abreast of new biosolids management options, technologies, and regional biosolids recycling and renewable energy partnerships within Southern California, especially those that address the removal, sequestration, and destruction of constituents of emerging concern.

Based on the findings from the abovementioned pyrolysis PFAS demonstration project and any regulation that are developed in the coming years, staff will update OC San's biosolids strategy to account for emerging contaminant management.

Consistent with the Plan, staff will work with OC Waste and Recycling (OCWR) to explore regional biosolids management opportunities as well as local solutions to meet SB 1383's organics diversion mandates, with emphasis on in-county biosolids utilization, composting, food waste co-digestion, and biogas production.

Initiatives to Support Progress Toward the Policy Goal

- Proceed with implementation of new thermophilic biosolids facilities at Plant No. 2 to improve OC San's operational resiliency against seismic events while enhancing biosolids quality and marketability.
- Continue to explore biosolids thermal conversion technology for energy generation and destruction of persistent contaminants.
- Engage with local, state, and federal agencies to ensure that biosolids will continue to be safely and legally used as a soil amendment.
- Stay abreast of new biosolids management options, technologies, and biosolids recycling and renewable energy partnerships in Southern California, with special emphasis on technologies that address the removal, sequestration, and destruction of contaminants of emerging concern.

Constituents of Emerging Concern Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) will partner with other agencies, associations, and institutions to support the use of sound science to inform policy and regulatory decisions on constituents (or contaminants) of emerging concern (CECs) at the federal, state, and regional levels. Staff will obtain and maintain current knowledge on CECs under regulatory consideration, including occurrence, analytical methods, regulations, and treatment to support OC San's mission and regulatory compliance.

Background

CECs are pollutants that are not necessarily subject to existing regulations but have the potential to pose significant risk to public health and/or the environment. Wastewater treatment systems are generally not designed to remove or destroy CECs but can serve as a pathway for persistent CECs such as per- and polyfluoroalkyl substances (commonly known as the Forever Compound, or PFAS) and microplastics that enter the system from sources such as residential dwellings, commercial establishments, industrial facilities, dry weather urban runoff diversions, and special purpose discharges. In fact, certain CECs have the potential to compromise wastewater treatment and reuse operations, if found at levels that impair OC San's biological treatment systems, digester gas utilization, or advance water purification at the Groundwater Replenishment System.

As with most pollutants, reduction of CECs at the source is by far the most effective means of safeguarding public health and the environment. However, since the full range of adverse effects associated with each CEC is often unknown until contamination has become wide-spread, OC San routinely coordinates with environmental regulators, industry partners, and community stakeholder to maintain up-to-date scientific knowledge, technological developments, and relevant regulatory and legislative initiatives.

It is worth noting that some of today's regulated pollutants were once considered CECs, such as 1,4-dioxane and polychlorinated biphenyls (PCBs), and OC San is engaged in multiple regional collaborations to continuously increase our collective understanding of pollutant fate and transport and develop integrated water quality improvement strategies.

With steadfast support from the OC San Board of Directors, multiple generations of staff have acquired and conveyed considerable institutional knowledge and experience with identifying, monitoring, and reducing CECs through a combination of source control, treatment optimization, analytical innovations, outreach, and responsible reuse and disposal.

A key takeaway from OC San's decades-long experience with CECs is that there is no such thing as 'away' for some pollutants. Thus, we must consider CEC management in every facet of OC San operation, with special emphasis on advance planning for source control, beneficial reuse, and responsible ocean discharge.

Current Situation

OC San has prioritized CEC source control to prevent potential adverse impacts to its mission of protecting public health and the environment. Industrial and certain non-domestic discharges are regulated by OC San's Pre-treatment Program through a permitting and source control inspection program that enforces OC San's Waste Discharge Ordinance and federal, state, and local mandates. For CECs that are undergoing regulatory development, OC San may choose to utilize interim guidelines and recommended thresholds from federal, state, and

local regulatory agencies to safeguard our ocean discharge and beneficial reuse of water and biosolids.

Specifically, OC San has worked with regulators at the federal, state, and local levels in advance of CEC regulations to develop special projects that can be incorporated into its National Pollutant Discharge Elimination System (NPDES) Permit to evaluate the presence and quantity of CECs in our final discharge to the ocean and the background levels in the receiving environment. OC San's current CEC monitoring program includes constituents in the following category: Hormones (8), Industrial Endocrine Disrupting Compounds (7), Pharmaceuticals and Personal Care Products (13), and Flame Retardants (9). Data from OC San's ongoing CEC program were reviewed by the regulatory and natural resource agencies during the recent NPDES permit renewal consultations, and additional CECs have been added to the 2021 NPDES permit.

Over time, OC San's source control program has been enhanced and updated to meet the needs of the Groundwater Replenishment System (GWRS) as it underwent expansion to increase water supply reliability for north-central Orange County. Through formal agreements and staff-level coordination, OC San and the Orange County Water District (OCWD) have forged a world-class partnership that currently produces 100 million gallons per day (MGD) of purified water and is on track to increase production to 130 MGD in 2023.

To safeguard this potable reus1e effort against CECs and other pollutants that are not removed by conventional wastewater treatment systems, OC San and OCWD established a response plan that is activated whenever a pollutant or pollutant precursor becomes a concern to either agency. Where the source can be identified, the plan organizes responsive actions from OC San and OCWD for industrial and commercial facilities. A typical response could include source investigation by OC San that begins with data review, accelerated sampling, laboratory analysis, and result in inspections and enforcement actions. CECs from suspected domestic and residential sources are typically addressed by way of educational outreach to the public. However, OC San's Board of Directors have also authorized financial and in-kind services to support targeted research at academic institutions that investigate CECs from domestic and residential origins.

CECs that are not removed through the treatment process can also be found in biosolids. At high concentrations, CECs may preclude beneficial reuse of biosolids as soil amendments for non-food crop and force OC San to dispose of biosolids in landfills or pursue costly means of destruction.

Thus, responsible legislations and regulations that reduce the production and use CECs, encourage substitution with less toxic materials, and promote adaptive source control programs are essential for sustaining OC San's mission and commitments to the community.

If source control, education and outreach, or legislative and regulatory efforts are not successful, OC San may be required to implement a technological or operational process change/investment to address a CEC.

Future Policy Statement

OC San shall align its resources to manage CECs throughout its service area and treatment process to comply with existing and anticipated regulatory requirements and sustain beneficial reuse of treated effluent and biosolids.

OC San shall acquire and maintain a high level of subject matter expertise and engagement across the wastewater, water, water reuse, air quality, ocean monitoring, and biosolids sectors to monitor the environmental, operational, and financial threats posed by CECs.

OC San shall continue to work with other agencies and professional organizations to develop robust analytical methods and routinely monitor its local limits in order to shape and comply with regulation to protect public health and the environment.

OC San shall continue to implement and update the GWRS Response Plan to sustain effective water reuse and prepare for next-generation CECs and emerging regulatory obligations.

Initiatives to Support Progress Toward the Policy Goal

- Actively engage water and wastewater stakeholders to stay abreast of the scientific progress and any potential operational and financial impacts of CECs and provide timely briefings to OC San's Executive Management Team and Board of Directors to facilitate informed decision making.
- Develop capacity to identify, detect, quantify, and characterize CEC sources throughout the service area and treatment process to promote source reduction, treatment effectiveness, communication of credible risks, and responsible reuse and disposal.
- Proactively establish internal expertise and develop laboratory capability to research the potential impact of CECs on beneficial reuse of water and biosolids. OC San will use science-based knowledge to help shape CEC legislation and regulations to protect the public health and environment.
- In the absence of promulgated regulatory limits for specific CECs, OC San will work with regulatory agencies to establish interim source control measures to safeguard its water and biosolids reuse initiatives and ocean discharge against potential adverse impacts.

Workforce Environment

Resilient Staffing Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) will attract and retain high-quality talent to support its mission and continue to be an industry leader. It will safeguard leadership continuity and support effective performance of the organization by proactively monitoring the changing work environment and requirements to ensure employee development programs are relevant and facilitate building a skilled bench of readily available successors for key leadership and mission-critical positions.

Background

At OC San, employees are the organization's most valuable resource. With over 600 highly skilled and dedicated employees whose collective efforts make OC San an industry leader, resulting in national awards and recognition. OC San has a continuing commitment to providing educational and training opportunities to its employees, resulting in a prepared, highly skilled, and educated workforce to carry out the mission of protecting public health and the environment.

OC San has a diverse workforce and a wide range of expertise with approximately 70 percent of positions requiring a degree, certification, and/or license. Occupations include scientists, engineers, environmental and regulatory specialists, operators, mechanics, construction inspectors, as well as professionals in public affairs, finance, IT, safety, and human resources.

To cultivate a committed and engaged workforce in a competitive economy, OC San must promote initiatives to attract and retain talent and also prepare staff for both current and future key positions to ensure succession management of our most critical positions. Strategic succession management initiatives have been developed and adopted that support the design and implementation of comprehensive workforce planning and development tools accompanied by activities that facilitate the improvement of workforce capability, adaptability, efficiency, and accountability. Strategic workforce planning empowers management to project the loss of knowledge and experience caused by retirement and attrition and utilizes a variety of methods to ensure that OC San has adequate access to talent internally, and externally through the recruitment, promotion, and selection process.

OC San has a competitive recruitment process that ensures we hire the best person for the job based on qualifications and merit. Human Resources utilizes an objective multi-hurdle approach to hiring which includes, among other processes, assessment centers and skills testing, screening, and recommendation to the hiring authority of only those candidates that meet job specifications. The process also includes a second review by the subject matter expert in the department of those applications that have been forwarded, panel interviews (both for technical skills and fit), and full background and reference checks.

Programs that have proven effective in attracting, retaining, and developing highly skilled staff for key positions, include:

- **Vocational/Professional Student Internship Programs**

  Vocational students from the Water Utility Science Program at Santiago Canyon College, and Los Angeles Trade Technical College work 28 hours a week and rotate through five technical trades for 53 weeks in our Operations and Maintenance Department. Furthermore, 23 of the program participants have been hired full-time since the program inception. OC San is piloting the program with other technical colleges in Southern California to include Cypress College.

In addition to the Vocational Internship Program, OC San also offers a Professional Student Internship Program that allows students at local Universities an opportunity to work at the professional ranks while attending college full-time for a two-year maximum duration. OC San partners with Cal State Fullerton, Long Beach, Cal Poly Pomona, and UC Irvine, among others.

- **Employee Development Program**

  In addition to providing all legally mandated training, OC San provides training and development opportunities for the purpose of increasing job knowledge and to maximize skill sets in employees' current positions and to prepare them for future mission-critical positions. Comprehensive training programs include technical training through industry-specific associations or groups, local schools, and professional associations including informal on the job training. Employees are encouraged to obtain job-related training necessary to keep OC San current with recent industry best practices and developments in their respective fields of expertise and can be eligible to receive Development Pay in select categories that OC San deems mission critical. As 70 percent of OC San's positions require a degree, certificate and/or license, OC San also promotes professional development through its tuition and certification reimbursement programs for courses completed toward obtaining an associate's, bachelor's or master's degree at accredited colleges, universities, or other institutions or industry-specific certifications.

- **Workforce Vulnerability Assessments**

  Each year, OC San management conducts an evaluation of their respective departments and identifies key and vulnerable positions based on three criteria: criticality, retention, and difficulty to fill. Vulnerability assessments provide a broader view into the areas of the agency that could potentially be facing a high risk in turnover and are essential to operations. Management is tasked with identifying positions based on the criteria above, then making recommendations on the level of action that is required, complete with proposed action plans. Human Resources staff facilitates the workforce vulnerability assessments and develops current and future staffing plans based on the management outcomes annually. It is essential that OC San continues its planning efforts in this area and to prioritize sufficient staffing to service the community we serve.

- **Talent Readiness Assessments**

  The process includes departmental leadership evaluating staff preparedness for key positions as well as reviewing current and future development efforts. Key positions along with the positions that feed into those positions is identified with the expectation that talent pools are developed to align with agency goals and builds the talent pipeline.

- **Orange County Sanitation District University (OC San "U")**

  In 2011, OC San began offering a comprehensive voluntary development program to employees. The program was designed to help address the potential loss of talent due to ongoing retirements and to develop employees from within the organization for succession management. The program is currently known as OC San "U" (Orange County Sanitation District University) and it is administered by volunteer employees from across the agency with oversight by the Human Resources Department. Under this program, employees can participate in various learning options to increase their knowledge, skills, abilities, and enhance organizational awareness. The focus of the program and the types of learning options offered have varied over the years to meet the evolving needs of OC San. Employees

may choose to attend on demand web-based courses and live instructor-led virtual trainings on various topics that pertain to OC San business systems, technology, leadership, communications, and more. Employees may also apply to participate in the Cal State Fullerton 14-week Leadership Academy and OC San "U" recently launched a mentoring program. Additionally, OC San U will expand its partnerships for success section of the program to include offerings to outside organizations. The intent is to promote and provide information on OC San as well as network and expand our offerings.

Additionally, OC San partnered with UC Irvine, Cal State University at Long Beach and California Polytechnic University at Pomona, which provided students an opportunity to job shadow Human Resources and Engineering staff to gain insight into the profession, employment in the public sector and the wastewater industry. OC San employees also serve on Advisory Councils that weigh in on course curriculum at various schools, both at the high school and college level, across Southern California.

Throughout the agency, we have several employees who are active members of various professional associations, serve on a Board, or volunteer in various capacities within the industry. OC San is regularly invited to present and teach others about resource recovery. Recruiters attend job fairs, and work closely with universities, professional organizations, and serve on advisory committees.

Education and workforce investment programs represent the most important preparation we can accomplish today to safeguard the agency's future for tomorrow. Finding an adequate pool of applicants and retaining qualified workers is increasingly difficult, which we anticipate will continue. Retirements are disrupting employment within our industry and changes in technology have made work more complex.

Current Situation

Currently, the majority of OC San's executives are eligible for retirement. Managers, our next level of leadership, closely follow with 43 percent of them eligible to retire now, and that number increases to 71 percent in five years. For trades and professional occupations, 48 percent are eligible to retire in the next five years. OC San has many long-term employees with vast knowledge in their respective areas of expertise. The average years of service is 10 years with some employees having been a part of the OC San family for over 35 years. Looking at OC San's total attrition over the last five years, we have lost 2,980 years of knowledge and experience by 128 individuals leaving the agency since 2016.

In 2010, OC San proactively implemented a second retirement benefit formula ("classic open plan") ahead of the Public Employee Pension Reform Act, which offered candidates moving from other public sector agencies to OC San with a retirement benefit of 2.43 percent at 65, with zero employer paid member contribution. Based on OC San's classic open retirement plan, competing for experienced and highly skilled talent from surrounding municipalities, who offer a more attractive retirement benefit of 2.5 percent or 2.7 percent at 55 in addition to paying for a portion of the employees' contribution has been challenging. Since implementation of the classic open plan in 2010, approximately 35 percent of new hires come from other public sector agencies which limits our ability to hire already trained and experienced staff which can be particularly difficult for technical, scientific, and management positions. OC San has had experience with public sector candidates withdrawing from the process or declining job offers once they learn of the impact to their retirement benefit formula. Given the legal restrictions which bind OC San to the classic open retirement formula, it is critical OC San focus its efforts on retaining current staff, attracting qualified and experienced candidates, and investing in

developing and growing employees' knowledge, skills, and abilities for the future, to address any potential talent shortages.

Future Policy Statement

Human Resources will continue to implement strategic initiatives that ensure workforce capabilities match the work required to meet OC San's mission and levels of service. Staff is dedicated to proactively monitoring the changing work environment and requirements to implement programs now that address future vulnerabilities. Assessments of changes in business needs, workforce composition, and legal requirements are necessary to ensure resilient staffing.

Initiatives to Support Progress Toward the Policy Goal

- Maintain and enhance current employee development programs that are in place to provide the direction to identify, develop and select the next generation of prepared, capable, and engaged leaders, which include:
    - Vocational/Professional Student Internship Programs
    - Employee Development Programs
    - Workforce Vulnerability Assessments
    - Talent Readiness Assessments
    - Orange County Sanitation District University (OC San "U")
- Continue to build the OC San "U" program and evaluate various options to partner with member agencies to share content and interactive development opportunities.
- Continue to build on the employee development opportunities to enhance organizational awareness and strengthening knowledge, skills, and abilities in the areas of OC San business systems, leadership, technology, and communication. Additionally, Human Resources will partner with other member agencies to provide and host training and development programs to foster collaboration and innovation.
- Conduct a Classification & Compensation study to ensure job classifications accurately depict the work being performed, to set compensation levels accordingly, and stay abreast of market benefit and salary data. Human Resources and the Board-approved Consultant will work with stakeholders to complete an organization-wide Classification & Compensation Study. It will incorporate feedback on survey agencies solicited from the Board over the past year and union feedback through meet and confer in upcoming labor negotiations.


SECURITY

Safety and Physical Security Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) will ensure the safety and security of employees, contractors, and visitors through standard practices, policies, and procedures that support a safe and secure environment, provide an appropriate level of security, and safeguard OC San's property and physical assets.

Background

In California, employers must furnish employees with a place of employment free from recognized hazards that cause death or serious physical harm, that is compliant with all legal requirements, and aligns with industry best practices. The safety and wellness of the public and employees is our number one priority. OC San is committed to identifying all hazards through inspection and providing engineering controls, job specific safety training, and personal protective equipment.

Programs that have proved effective in ensuring the safety and wellness of OC San's workforce, visitors, and contractors include:

Safety Assessments and Engineering Controls

In 2014, OC San conducted a Facility-Wide Safety Assessment Project (SP-145-1) to identify process equipment design and configuration issues that may impact worker safety, and compliance with regulations. The main purpose of this effort was to enhance worker safety and ensure compliance with safety codes. At the same time, safety improvements allow for reliable and efficient operation, so that our facilities can meet regulatory, and process demands, while providing cost-effective operation. All the Project SP-145-1 recommendations to be implemented by OC San have either been addressed by Maintenance or have been incorporated into the Safety Improvement Project (J-126).

Emergency Management

OC San must be prepared to control risks to the organization, and routinely recognize, evaluate, and prepare for emergencies. An emergency can include a major explosion, fire, verified bomb threat, civil disorder, active shooter situation, or uncontrolled materials release which interrupts OC San's ability to provide safe and environmentally responsible wastewater treatment. The Sanitations District's protocol to control and respond to emergencies is contained within the Integrated Emergency Response Plan (IERP).

The IERP identifies and assesses hazards regarding emergency events which OC San may be confronted with and contains policies, plans, and procedures for preparing and responding to emergencies. The Sanitation District's emergency response organization, called the Incident Command System (ICS), is activated when an emergency condition cannot be effectively responded to under routine operations. Once the immediate emergency has been controlled, then OC San must resume normal operations. In the event of a prolonged emergency state, the return to normal operations is guided by a Continuity of Operations Plan (COOP). In May 2018, a COOP was completed with all divisions contributing to its development. Business continuity planning is an ongoing process for OC San with plans being updated as information changes.

OC San collaborates with local agencies to ensure available resources are identified and engaged in the event of an emergency. OC San has partnered with local agencies in the areas of emergency response for evacuation drills and resource sharing.

1) OC San participated in the 2019 Orange Crush Regional Emergency Preparedness and Training Exercise in January 2019. This county-wide exercise used a scenario of a magnitude 7.8 earthquake strike along the San Andreas Fault. A full Emergency Operations Center activation occurred for this functional exercise and gave OC San the opportunity to test the Integrated Emergency Response Plan.

2) The Orange County Sheriff's Department and the Orange County Health Care Agency established a Joint Information Center at Plant No. 2 on May 13-14, 2019, to host an enforcement event in Talbert Park. In addition, the operation was overseen by three federal judges who were present to ensure the rights of all citizens were not violated by law enforcement or The Health Care Agency. Officials utilized Plant No. 2 contractor gates for points of entry.

3) OC San is a member and funding agency of the Water Emergency Response of Orange County (WEROC), which is an organization that is administered by the Municipal Water District of Orange County (MWDOC). It supports and manages countywide emergency preparedness, planning, response and recovery efforts among Orange County water and wastewater utilities.

Security

The Department of Homeland Security has designated 16 critical infrastructure sectors, which includes water and wastewater systems. Wastewater systems are vulnerable to a variety of attacks, including acts of terrorism, contamination with deadly agents; physical attacks, such as the release of toxic gaseous chemicals, and cyberattacks. In addition, the Department of Homeland Security indicates that the average time it takes for a critical incident to take place is up to 12 minutes while the average police response time can be up to 11 minutes, and that time could increase should there be a natural disaster.

Additional security concerns include physical violence, vandalism, theft, and trespassers. With approximately 100 acres at each site, 600 employees, contractors, and members of the public on site for tours and meetings, it is essential to maintain a security force that can respond to security threats promptly.

OC San contracts with a security firm that supplies four armed and five unarmed guards to provide round the clock security monitoring of over 80 cameras, monitoring gate access, and patrolling the perimeter at both plants.

Current Situation

The Risk Management division has been given the responsibility and an adequate budget to assess and control the safety, security, and health risks that employees, contractors, and guests may be exposed to from OC San operations. Assessment and control of risks is achieved collaboratively between Risk Management staff and internal stakeholders. Risk Management, managers, and staff collaborate to develop written procedures (e.g., policies) that are used for controlling and eliminating hazards at OC San; thus, ensuring compliance with occupational health and safety standards and laws.

Safety

As the health and safety of employees, contractors, and visitors is the number one priority, OC San strives to achieve safety excellence. This is exemplified by our pursuit of the California Voluntary Protection Program (Cal/VPP). The Cal/VPP is a program created by Cal/OSHA to recognize organizations who have implemented safety and health programs that effectively

prevent and control occupational hazards. A Cal/VPP workplace is expected to continually improve its safety program, which means a safe workplace for all. A reduction in injuries and illness has been documented at sites that have committed to the VPP approach. Cal/VPP is recognized as a higher level of protection for the workplace, for this reason, OC San is pursuing this designation.

In preparation for application to the Cal/VPP program, OC San conducted a Cal/VPP readiness assessment in January 2019 and developed an implementation strategy. The assessment included interviews with various OC San subject matter experts and discussions with employees during facility tours. OC San procedures and records were reviewed, and limited visual inspection of work locations and facilities was conducted. The assessment considered basic Cal/OSHA regulatory compliance and additional best management practices that are expected to be implemented in VPP certified workplaces. Based on the results of the VPP assessment, OC San is working toward applying for VPP before the end of calendar year 2019. The timing coincides with the implementation of most of the Safety Improvement Project (J-126), which are critical for success in our VPP pursuit.

This Safety Improvement Project (J-126) is progressing on-schedule. Of the eleven J-126 projects, two have been completed, seven are in the construction phase, and two are pending contractor award. It is important to note that interim measures have been taken to ensure worker safety at the locations identified for safety improvements. Workers are not exposed to hazards while projects are completed.

Eliminating hazards through engineering projects is critical, along with a positive safety culture. In order to assess the safety culture at OC San, a survey was conducted from February to April 2019. The results of this survey indicated employees believe the safety culture is improving, desired an increase in communication on safety issues, and wanted less online and more hands-on customized safety training.

Emergency Management

OC San partners with local agencies to ensure available resources are identified and engaged in the event of an emergency. Collaborations currently scheduled include:

1) In conjunction with WEROC, OC San participated in the development of the Orange County Water and Wastewater Hazard Mitigation Plan (Plan) which will be submitted for approval to the State. The Plan provides a framework for participating water and wastewater utilities to plan for natural and man-made hazards in Orange County. OC San is an active participant in the Plan, and developed a hazard mitigation plan, which is Annex C of the Plan. The resources and information within the Plan will allow OC San, and participating jurisdictions to identify and prioritize future mitigation projects, meet the requirements of federal assistance programs and grant applications, and encourage coordination and collaboration in meeting mitigation goals.

2) On July 27, 2019, the Sanitation District partnered with the Fountain Valley Police Department Explorers during OC San's Open House event. The Police Explorers assisted Human Resources and Risk Management with crowd and traffic control. Their assistance was beneficial in the management of public during this important event.

Security

The designation of wastewater systems as critical infrastructure by the Department of Homeland Security requires OC San to be diligent in protecting people and property from security breaches. OC San seeks to continually improve the security program. On June 7, 2019,

OC San issued a Request for Proposal (RFP) for Security Services, which included a potential expansion of security services for OC San's new Headquarters Complex. As part of the RFP evaluation, OC San will review procedural and technical enhancements/innovations that may improve the existing program.

In addition, OC San has established a Security Committee, which includes stakeholders from a cross-section of the organization, to collect input and assess physical and cybersecurity concerns and suggestions. Responsibilities of the committee include, but are not limited to, development of a physical and cybersecurity plan, reviewing orders and policies, reviewing incident reports, and planning drills. The first meeting of the committee was held on June 6, 2019.

Future Policy Statement

Risk Management has and will continue to implement strategic initiatives that will ensure the safety, health, and security of its workforce, and proactively plan for emergencies to ensure continuity of operations. Staff is dedicated to proactively monitoring the changing work environment and requirements to implement programs now that address future vulnerabilities. Assessments of changes in business needs, plant processes, and legal requirements are necessary to ensure a safe and secure work environment. The results of improvement will be measured using leading metric indicators and reported to the workforce to foster employee engagement.

Initiatives to Support Progress Toward the Policy Goal

Safety

- Complete outstanding safety projects, improvements, and corrective actions to apply and obtain Cal/OSHA Voluntary Protection Program (VPP) status; and continue to foster a culture where employees are accountable for their safety, as well as the safety of others.

Emergency Management

- Support facility and countywide emergency preparedness, response, and recovery efforts by partnering with entities, such as, the Water Emergency Response Organization of Orange County (WEROC), Orange County Sheriff's Department, and local fire departments to plan and continue to conduct disaster preparedness training and exercises.

Security

- Continually identify and assess vulnerabilities and implement solutions through the Security Committee and third-party assessments. Prevent/mitigate security breaches using physical security systems such as video monitoring, access control, and armed security patrols.

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