ORANGE COUNTY SANITATION DISTRICT

Strategic Plan 2025

PROPOSED

OC SAN
ORANGE COUNTY SANITATION DISTRICT

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Board of Directors

City	Active Director
Anaheim	Carlos A. Leon
Brea	Christine Marick
Buena Park	Joyce Ahn
Cypress	Scott Minikus
Fountain Valley	Glenn Grandis
Fullerton	Jamie Valencia
Garden Grove	Stephanie Klopfenstein
Huntington Beach	Pat Burns
Irvine	Melinda Liu
La Habra	Jose Medrano
La Palma	Debbie Baker
Los Alamitos	Jordan Nefulda
Newport Beach	Erik Weigand
Orange	Jon Dumitru (Vice-Chair)
Placentia	Chad Wanke
Santa Ana	Johnathan Ryan Hernandez
Seal Beach	Lisa Landau
Stanton	David Shawver
Tustin	Ryan Gallagher (Chair)
Villa Park	Jordan Wu

AGENCIES

Costa Mesa Sanitary District	Robert Ooten
Midway City Sanitary District	Andrew Nguyen
Irvine Ranch Water District	John Withers
Yorba Linda Water District	Tom Lindsey
Member of the Board of Supervisors	Doug Chaffee

Message from the *General Manager*

At the Orange County Sanitation District (OC San), our mission remains clear: to protect public health and the environment by providing effective wastewater collection, treatment, and recycling services for the 2.6 million residents in our service area.

As we launch our 2025 Strategic Plan, we do so with a renewed commitment to resource recovery, resilience, innovation, service, and equity—core pillars that guide our organization. These values ensure that OC San remains adaptable, visionary, and responsive.

The Strategic Plan is the foundation of our three-year planning and execution cycle. Informed by shifts in regulations, emerging technologies, infrastructure needs, and the changing expectations of those we serve, this plan charts a clear path forward. We are leveraging new technologies, data-driven decision-making, and sustainable practices to strengthen reliability, improve efficiency, and expand opportunities for resource recovery. It defines our service levels across 16 policy areas and provides direction for budgeting, capital planning, and operations.

This process is also an opportunity for renewed leadership and unity. With a Board of Directors that sees a significant number of new members every two years, the Strategic Plan gives each Board the ability to shape OC San's future while continuing the momentum built by those who came before. By embracing innovation and fresh perspectives, our Board and staff ensure that OC San continues to grow stronger with every planning cycle.

Thank you to our past and current Board Members for their vision and leadership. Your contributions have shaped an organization that continues to innovate, improve, and adapt in service to the people of Orange County. With the guidance of this 2025 Strategic Plan, OC San will continue to rise to meet tomorrow's challenges—delivering results our community can count on and building more resilient future for generations to come.

Sincerely,

Robert Thompson
General Manager

Executive Summary

The Orange County Sanitation District (OC San) is driven by its mission to protect public health and the environment by providing reliable, cost-effective wastewater and resource recovery services. The 2025 Strategic Plan is the guiding framework that aligns the priorities of the Board of Directors, staff, and community to meet emerging challenges with forward-thinking solutions.

OC San's strategic planning is based on a three-year cycle and a four-step management process that ensures continuity, accountability, and progress toward long-term goals.

This process includes:

1. **Strategic Planning** – Establishing a shared vision and identifying our capacity (people and assets) to fulfill our mission.
2. **Budget Development** – Allocating resources and setting tactical plans aligned with the adopted Strategic Plan.
3. **Implementation** – Executing the day-to-day operations and delivering essential services to our stakeholders.
4. **Performance Reporting** – Measuring and reporting on progress, service levels, and goal attainment.

This continuous improvement model fosters accountability and innovation, ensuring OC San stays true to its mission while adapting to evolving community needs, regulatory requirements, and technological advancements while maintaining organizational stability—even through Board and staff transitions.

The 2025 Strategic Plan builds upon the foundation of the 2021 and 2023 plans, reaffirming the direction while incorporating meaningful updates. Based on extensive input from the Board and staff, OC San refined its strategic policy framework, which is organized into four key focus areas and now includes 16 policy areas (an increase from 15) with the addition of Potable Water Salinity Control. The inclusion of Potable Water Salinity Control and Cybersecuity and Artificial Intelligence underscores how innovation is central to advancing the mission.

Strategic Focus Areas and Policy Topics

Business Principles

- Budget Control and Fiscal Discipline
- Asset Management
- Cybersecurity and Artificial Intelligence
- Property Management
- Organizational Advocacy and Outreach

Environmental Stewardship

- Energy Independence
- Climate and Catastrophic Event Resiliency
- Food Waste Treatment
- Environmental Water Quality, Stormwater Management, and Urban Runoff
- Potable Water Salinity Control (New)

Wastewater Management

- Chemical Sustainability
- Biosolids Management
- Constituents of Emerging Concern
- Water Reuse

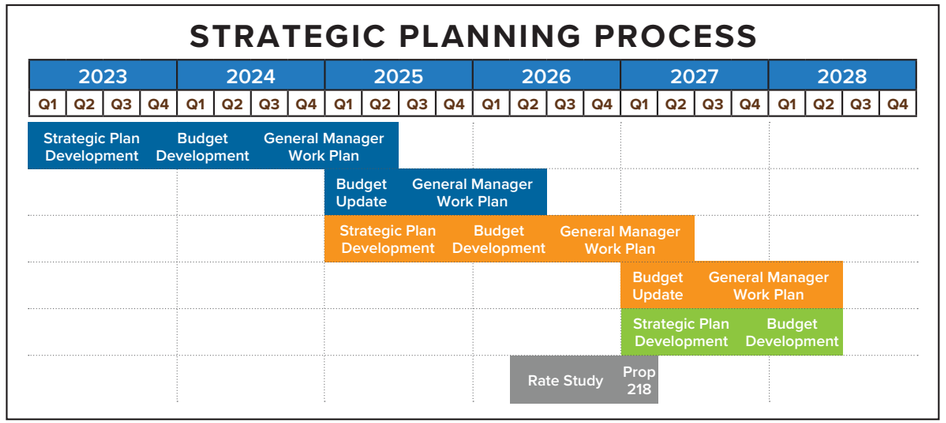
Workplace Environment

- Resilient Staffing
- Safety and Physical Security

Throughout the year, OC San engaged the Board of Directors in reviewing the prior plan and updating each policy area. The result is a set of clear policy statements, background context, current conditions, and refreshed initiatives that are measurable and actionable. These initiatives will guide the development of the next steps in the planning cycle, the Budget and two General Manager's Work Plans.

The Board received updates on Levels of Service (LOS), Core Values, and the Risk Register. LOS ensures OC San's commitment to reliable day to day service, Core Values promote innovation and collaboration, and the Risk Register identifies opportunities and mitigates critical risks to operations.

By building on the strengths of the existing framework and proactively addressing new challenges, the 2025 Strategic Plan ensures OC San continues to lead with purpose, resilience and innovation. OC San is prepared to meet the needs of today and to reshape its staff and facilities for generations to come.



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. These Core Values 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

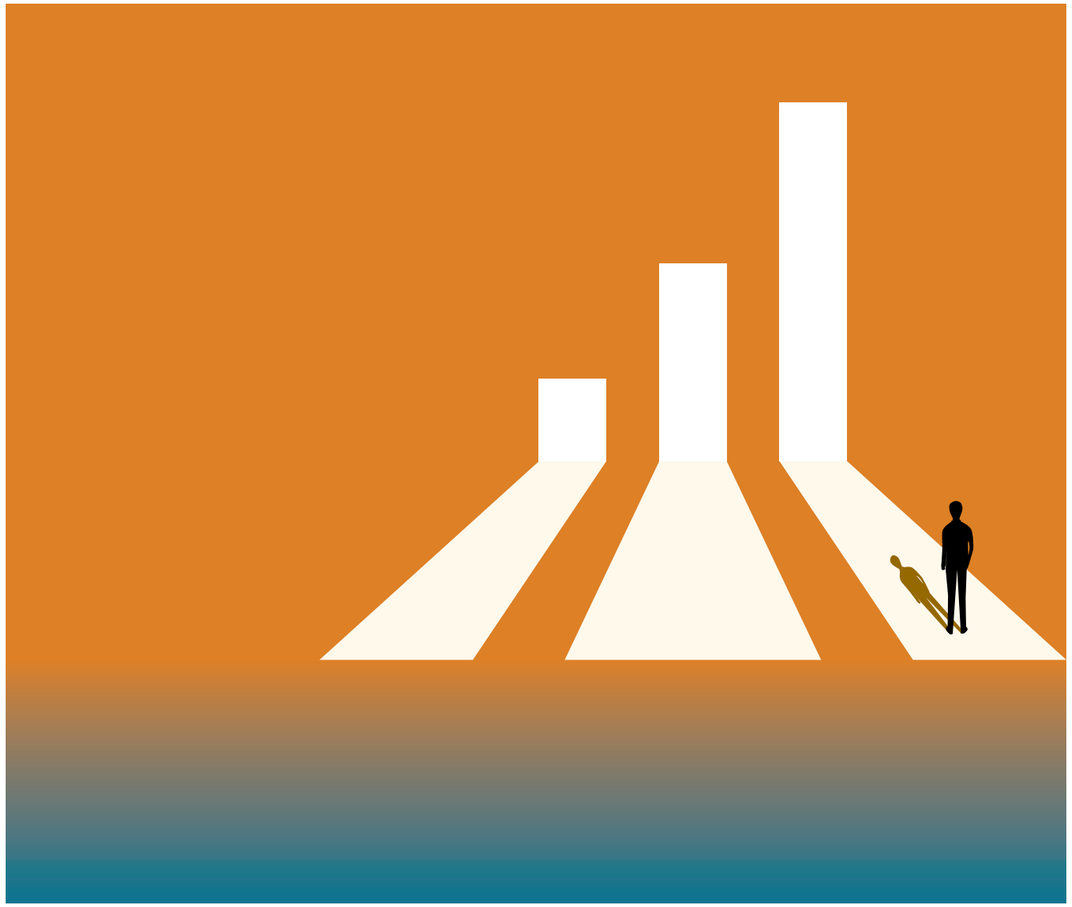
OC San's Strategic Plan consists of various elements including the Levels of Service (LOS). OC San's LOS are the commitments made to our ratepayers, regulators, employees, and the Board of Directors on our operational efforts. The LOS were updated in 2023 and were designed to better align with the Strategic Plan and showcase how the initiatives are being implemented and monitored. As part of the 2025 Strategic Plan update, the LOS are being updated once again to address improvements made. The LOS consists of four categories which coincide with the Strategic Plan policy areas: Environmental Stewardship, Wastewater Management, Business Principles, and Workplace Environment.

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	< 10 events for the treatment plants < 12 events for the 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	Levels of Service
OC San will be a good neighbor and will be responsive to its customers.	
Respond to collection system spills within 1 hour of notification	100%
Respond to odor complaints	Within 1 hour in plants Within 24 hours in collections
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	<=10 days
Dig alert response within 2 business days	100%
OC San will manage its assets to ensure reliability and security.	
Respond to all cybersecurity events and incidents to mitigate risks and maintain an overall cyber health rating according to security operations standards.	>90%
Annual real property assessments/inspections	20% of the properties
Annual Inspection, documentation, and evaluation of collection system	70 miles of sewers 880 manholes

Business Principles	Levels of Service
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	Levels of Service
OC San will provide a safe, productive workplace.	
Employee injury incident rate per 100 employees	<4.2
Annual days away from work, restricted activity, or job transfer resulting from a work-related injury	<3.2
Annual training hours per employee	>=40



Risk *Register*

The Risk Register is a compilation of various risks facing OC San for the annual review by management. The findings from this assessment are used in the development of the Strategic Plan and the General Manager's Work Plan to ensure OC San's operations remain unaffected.

The analysis enables management to identify solutions and prioritize concerns efficiently and effectively. The risks analyzed include staffing, cybersecurity, and operational issues. The 2023 Risk Register serves as a tool for management to maintain OC San's progress while taking into account the identified risks.

Policy Areas

The Strategic Plan is divided into four categories with 16 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

The Orange County Sanitation District (OC San) has practices and safeguards in place to ensure its long-term fiscal stability. These provide direction so that OC San's finances are managed in a manner that will continue to support the daily collection and treatment of wastewater; meet the mission of the organization; maintain our AAA Bond Rating; ensure a responsible budget consisting of Revenues, Operating Expenditures, Capital Improvement Program (CIP), Debt Service; and establish reserves necessary to meet known and unknown future obligations. OC San has established Fiscal Policies and Reserve Criteria, which are included in the budget, and separately adopted Investment and Debt Policies. These policies set the guidelines for planning the cashflow of OC San and have helped to stabilize the rates that our residents pay.

Initiatives

- Use established resources, along with developing and implementing additional resources to assist OC San staff in tracking and monitoring expenditures to ensure smooth business operations while maintaining budgetary control.
- Maintain a 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 capital expenditures.
- Leverage the centralized training program to provide targeted training opportunities for employees to remain current with financial best practices and OC San fiscal policies and procedures.
- Monitor the long-term debt program and continually assess market conditions to identify possible opportunities to reduce outstanding debt balance and term, while maintaining a AAA rating. Maintain reserve levels within policy guidelines, while optimizing the use of available funds to finance capital programs and ensure a balanced budget.

Asset Management

Policy Statement

The Orange County Sanitation District (OC San) will assess and manage the collection 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

- Continue developing 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 area teams to assure OC San's resources are focused on the high priority work functions.
- Identify critical collections and plant assets that have long lead times for parts and replacement and mitigate procurement risks and impacts to collections and plant resiliency based on market conditions.
- Maintain a 20-year forecast of all CIP projects needed to maintain or upgrade OC San's in assets on a prioritized risk basis to establish rate structures.
- Leverage asset information and tools to define the remaining useful life of assets.

Cybersecurity and Artificial Intelligence

Policy Statement

The Orange County Sanitation District (OC San) is committed to building and maintaining resilient, secure, and ethically governed technology systems. This includes a robust cybersecurity posture and the responsible adoption of Artificial Intelligence (AI), including both generative AI and advanced operational AI. As OC San advances its digital transformation, the agency must ensure that its technology practices safeguard data, systems, and operations, while also leveraging innovation to improve service delivery, operational efficiency, and decision-making. This policy outlines OC San's dual approach: securing our digital assets from evolving threats and strategically implementing AI in a phased, ethical, and transparent manner aligned with organizational goals.

Initiatives

Cybersecurity Initiatives

- Conduct tabletop exercises to test and improve incident response readiness.
- Expand SOC capabilities and automation to support real-time threat protection.
- Perform ransomware readiness and third-party red team assessments.

AI Initiatives

- Implement a phased AI resourcing plan leveraging support from Microsoft and Gartner.
- Launch awareness campaigns and targeted training for Microsoft Copilot and other AI tools.
- Evaluate AI infrastructure options (e.g., hosted vs. on-premises).
- Expand operational AI use in areas such as SCADA, asset health monitoring, and CCTV analytics.
- Continuously update generative AI policy to reflect advancements and align with OC San values.

Property Management

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 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.

Initiatives

- Leverage technology to review property rights and identify encroachments or encumbrances that restrict operation, maintenance, inspection, or emergency repair access to remove encroachments or encumbrances.
- Collaborate with Engineering to obtain property, easements, and rights-of-way in a timely manner for capital projects.
- Augment OC San resources with contracted specialized real estate services to limit the need for additional staffing.

Organizational Advocacy and Outreach

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.

Initiatives

- Implement a multipronged outreach strategy that will include industry and media coverage for the Supercritical Water Oxidation project and Deep Well Injection.
- Develop and implement a Local Government Affairs Outreach Program to enhance OC San business goals and build local relationships that benefit OC San, cities we serve, member agencies, and officials.
- Actively monitor and engage in 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

The Orange County Sanitation District (OC San) will strive to be energy neutral. Electrical, thermal, and methane gas generation will be maximized within the current anerobic digestion engine generator infrastructure. Energy utilization will be minimized using sound engineering and financial principles. OC San will investigate new technologies to more directly convert solids associated with wastewater treatment into energy.

Initiatives

- Maximize the anaerobic digestion conversion of organics to methane through receipt of food waste and operational techniques.
- 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 Adaptation and Catastrophic Event Resilience

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, high wind, and electrical grid interruptions. OC San is also committed to economically minimizing its greenhouse gas emissions to minimize its impact.

Initiatives

- Evaluate the seismic vulnerabilities of Plant No. 2 flow processes (primary clarifiers, activated sludge facility, and ocean outfall piping) within the plant. Determine the required improvements to maintain dry weather flow capacity after a seismic event. 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.
- Pursue Deep Well Injection of Biosolids to safely sequester carbon rich materials and associated constituent of emerging concern to create a negative carbon footprint for OC San.

Food Waste Treatment

Policy Statement

The State of California limits the volume of organic waste that is 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.

Initiatives

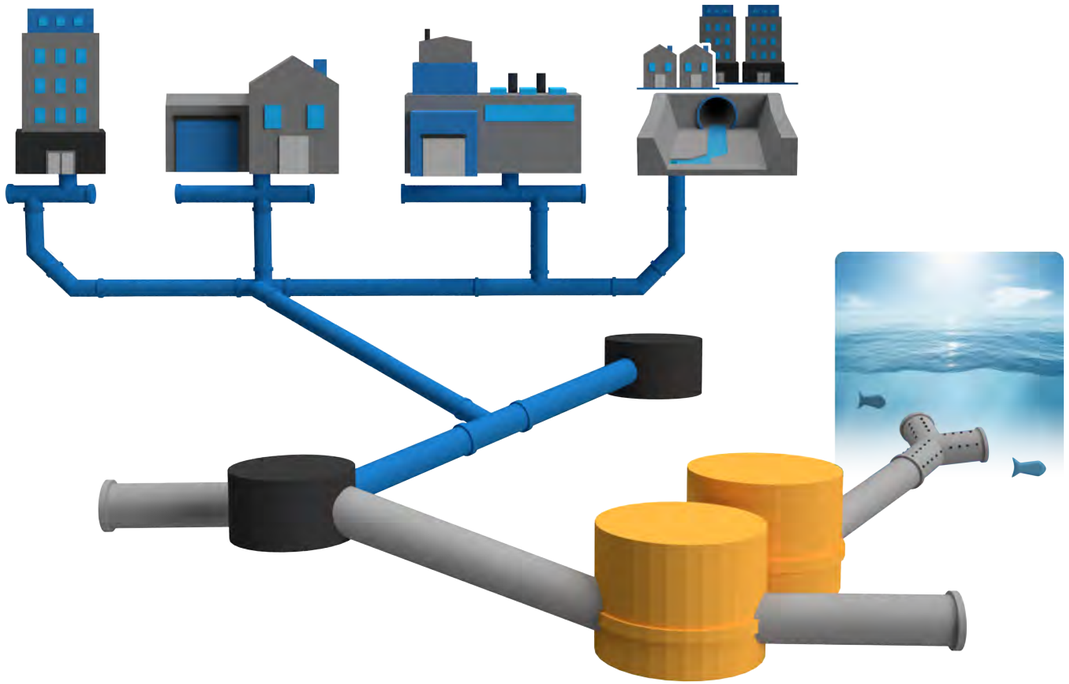
- OC San will accept a preprocessed food waste slurry that meets OC San's specifications from an in-county partner that is compatible with its existing anaerobic digesters. OC San will charge a tipping fee to offset its costs for capital construction, operations, handling, maintenance, and biosolids disposal.
- Design, build, and operate a food waste receiving station. Utilize a county-wide specification for food waste slurry and contract with OCWR to receive and co-digest food waste slurry.

Battery storage system at Plant No. 1 in Fountain Valley.

Environmental Water Quality, Stormwater Management, and Urban Runoff

Policy Statement

The Orange County Sanitation District (OC San) will collaborate with regional stakeholders to accept up to ten (10) 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.
- Support responsible and practicable urban runoff management and reuse legislations and regulations.
- Initiate timely enforcement actions to safeguard OC San occupational safety, collection and treatment systems, reuse initiatives, or permit compliance.

Potable Water Salinity Control

Policy Statement

The Orange County Sanitation District (OC San) will partner with other Public Agencies in our watershed to reduce the salinity of the potable water supply of our stakeholders. OC San will use its existing facilities, including its Ocean Outfall, to safely dispose of naturally occurring dissolved solids, or salts, which may be attributed to water reuse, imported water, brackish groundwater, or past agricultural activities.

Initiatives

- OC San will continue to invest in the maintenance of the Ocean Outfall system to assure long-term viability.
- OC San will maintain a National Pollution Discharge Elimination System Permit that supports treatment operation and safe outfall disposal of Groundwater Replenishment System reverse osmosis concentrate and dissolved solids from the Santa Ana Watershed.
- OC San will support the Santa Ana Watershed Project Authority strategic planning process to support watershed salt management through 2046 and beyond.

WASTEWATER MANAGEMENT

Chemical Sustainability Policy

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.

Initiatives

- Reduce the exclusive reliance on particular chemicals and/or individual vendors to establish flexibility while accomplishing operational objectives.
- OC San has evaluated the potential for generating pure oxygen onsite and will be initiating a Capital Improvement Program project to develop and maintain an oxygen generation facility, reducing reliance on the delivery of liquid oxygen by truck.

Biosolids Management

Policy Statement

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

Initiatives

- Assess Deep Well Injection to handle up to 100 percent of OC San's biosolids production as a sustainable and diverse biosolids management strategy with the benefit of carbon sequestration and reduction in transportation costs and impacts.
- Partner with other POTW agencies to conduct a feasibility study on a proposed regional biosolids facility in the Inland Empire to address rising costs, regulatory changes, and disposal challenges.
- Continue to engage with local, state, and federal agencies to ensure that biosolids will continue to be safely and legally used as a soil amendment.
- Continue working with OCWR to explore regional biosolids management opportunities as well as local solutions to meet SB 1383's organics diversion mandates, with an emphasis on in-county biosolids utilization, composting, food waste co-digestion, and biogas production.
- Implement new mesophilic digesters at Plant No. 2, with the option to upgrade to thermophilic, to improve OC San's operational resiliency against seismic events while enhancing biosolids quality and marketability.

Constituents of Emerging Concern

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.

Initiatives

- OC San will continue to 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.
- OC San will continue to 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.
- OC San will 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. If OC San is regulated, OC San will regulate upstream.

Water Reuse

Policy Statement

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

Initiatives

- Support 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.

WORKPLACE ENVIRONMENT

Resilient Staffing

Policy Statement

The Orange County Sanitation District (OC San) has comprehensive programs in place to attract, develop, and retain high-quality talent to support its mission of protecting public health and the environment. Some of these programs include training and development, employee recognition, diversity and inclusion, recruitment and selection, and competitive benefits and compensation, which help promote employee engagement and productivity to make OC San an employer of choice.

Initiatives

- Vocational Training – seek out partnership opportunities with vocational training institutions to enhance recruitment options, especially for hard-to-fill positions. Increase the levels of outreach and participation on advisory councils and committees on curriculum for vocational trade schools to ensure the current staffing needs are met.
- Identify targeted development for lead-level positions to prepare for future attrition to ensure sustainability into the future.
- Maintain and enhance workforce planning initiatives to efficiently and effectively identify, develop, and select the next generation of prepared, capable, and engaged employees through:
  - Employee Training and Development Programs
  - Vocational/Professional Student Internship Programs
  - Workforce Vulnerability Assessments
  - Talent Readiness Assessments
- Continue to build the OC San's centralized training program and evaluate various options to partner with member agencies to share content and network.

Safety and Physical Security

Policy Statement

The Orange County Sanitation District (OC San) will ensure the safety, health, and security of employees, contractors, and the public through industry best 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

- Identify regulatory gaps and opportunities to continually improve OC San's safety and health management system to maintain the Cal/OSHA Voluntary Protection Program (VPP) designation.
- 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 WEROC, Orange County Sheriff Department, and local fire departments to plan and conduct disaster preparedness exercises and drills.
- Develop and conduct a comprehensive emergency exercise on a biannual basis to evaluate the effectiveness of systems, processes, and operational efficiency.

Security

- Develop a physical security master plan based on findings from past results of audits and surveys with a focus on mitigating risk, compliance with applicable regulations and standards, and enhancing security measures in OC San facilities and operations.

APPENDIX

Business *Principles*

Budget Control and Fiscal Discipline Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) has practices and safeguards in place to ensure its long-term fiscal stability. These provide direction so that OC San's finances are managed in a manner that will continue to support the daily collection and treatment of wastewater; meet the mission of the organization; maintain our AAA Bond Rating; ensure a responsible budget consisting of Revenues, Operating Expenditures, Capital Improvement Program (CIP), Debt Service; and establish reserves necessary to meet known and unknown future obligations. OC San has established Fiscal Policies and Reserve Criteria, which are included in the budget, and separately adopted Investment and Debt Policies. These policies set the guidelines for planning the cashflow of OC San and have helped to stabilize the rates that our residents pay.

Background

OC San's annual budget for Operating, Capital, and Debt Service expenses is approximately $600 million. OC San maintains all physical assets at a level adequate to meet its mission, protect OC San's capital investment, and to minimize future maintenance and replacement costs. OC San maintains budgetary and accounting practices that balance the budget cycle without deferring costs to future budgets. These efforts are supported by OC San's pay-as-you-go policy for its capital projects and expenditures.

OC San focuses its fiscal policy around seven distinct areas, (1) Revenues, (2) Operating Budget, (3) CIP, (4) Long-Term Debt, (5) Reserves, (6) Investments, and (7) Accounting, Auditing, and Financial Reporting. These areas are reviewed, updated annually, and described as follows:

1) Revenues

OC San's revenues come from three general areas: Fees and Charges, Property Taxes, and other smaller revenue sources. Because revenues are sensitive to both local and regional economic conditions, revenue estimates are conservative. Staff estimates annual revenues by an objective, analytical process that utilizes trends, judgment, and statistical analysis as appropriate. Property tax revenues of OC San are first dedicated to debt service. OC San sets fees and user charges at a level that fully supports the total direct and indirect costs of operations, capital improvements, and debt service requirements not covered by property taxes and reserves.

2) Operating Budget

The budget is used as a fiscal control device as well as a financial plan. Budget preparation and monitoring are performed by each division within OC San at the organizational level to ensure accountability and control. An annual operating budget is developed by Financial Management and the respective divisions, conservatively projecting expenditures for the current and forthcoming fiscal years. During the annual budget development process, the existing programs are examined to assure removal or reduction of any services or programs that could be eliminated or reduced in cost. Annual budgets provide for adequate repair and maintenance of facilities and equipment. Current operating expenditures are supported by current revenues.

3) Capital Improvement Program

OC San makes all capital improvements in accordance with an adopted and funded CIP. OC San maintains a current Asset Management Plan and a twenty-year plan for capital improvements, including design, construction, and OC San staff costs. All capital projects approved in the annual budget are approved for the budgeted amounts through the completion of the project. The Board of Directors approves both the individual project total budget and the projected cash outlays for all capital projects. Staff identifies which capital projects may have a significant impact to ongoing operating and maintenance costs, staffing impacts and estimates the impact as the project is developed. Staff coordinate the development of the CIP budget with the development of the operating budget. All operations and maintenance resources required to implement the CIP have been considered and appropriately reflected in the operating budget for the year the project is to be implemented. Cost tracking for components of the project is updated quarterly to ensure project completion against budget and established timelines.

4) Long-Term Debt

OC San maintains a Board of Directors adopted Debt Policy. Before any new debt is issued, the impact of debt service payments on total annual fixed costs is analyzed. Proceeds from long-term debt cannot be used for current on-going operations. OC San maintains a AAA credit rating from Moody's, S&P, and Fitch.

5) Reserves

OC San has a Board of Directors Reserve Policy which governs the establishment of our reserve level and the use of those funds. To ensure an adequate and diverse reserve policy, we have established seven different criteria. These criteria ensure that OC San will have sufficient funds for debt covenants, operating expenditures, and debt service payments prior to receiving our revenue from the county, operating contingency, rehabilitations and refurbishment, CIP contingency, and self-insurance for catastrophic loss. Any amount more than these criteria are used to fund capital projects on a pay-as-you-go basis.

6) Investments

OC San annually submits an investment policy to the Board of Directors for review and adoption. The investment policy emphasizes safety and liquidity before yield. OC San contracts with an Investment Manager to manage its portfolio in accordance with State Code and the investment policy.

7) Accounting, Auditing, and Financial Reporting

OC San's accounting and financial reporting systems are maintained in conformance with accepted accounting principles. Quarterly financial reports are submitted to the Board of Directors and made available to the public. Monthly Operating Budget Reports are compiled, analyzed, and distributed to each division. Financial Management staff meet quarterly with each division to review the operating expenditure and with the Project Management Office to review the CIP progress. An annual audit is performed by an independent public accounting firm with the subsequent issue of an official Annual Comprehensive Financial Report, including an audit opinion and a management letter. Various internal audits are undertaken each year under the direction of the Audit Ad Hoc Committee to ensure adherence to policies, processes, and procedures.

Current Situation

1) Revenues

Most of OC San's revenue is generated by user fees and charges. This category accounts for approximately 70 percent of OC San revenue in a year. Currently, OC San fees are in the lower third of its comparison agencies. After completing a rate study, a new five-year rate schedule was adopted by the Board of Directors in March 2023.

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 make up approximately 22 percent of the total revenue for the year. Other Revenue includes Interest Earnings, Intra-District Transfers, and small revenue sources that make up the remaining eight percent of the annual revenue.

Budget Expenditures

OC San adopts a biennial budget with an update in the second year of the adopted budget. The annual budgeted expenditures are approximately $600 million. This document lays out the framework of OC San's activities during the upcoming fiscal year and serves as a source of information for the Board of Directors, our ratepayers, investors, and our employees. This budget includes the operational, capital and debt service expenditure necessary to cost-effectively support our mission and execute the Strategic Plan adopted by our Board of Directors. OC San has received the Government Finance Officers Association Distinguished Budget Presentation Award for the last 29 years.

2) Operating Budget

OC San's Operating Budget is the financial plan and fiscal control mechanism for the 25 divisions that comprise the six departments. The Operating Budget accounts for the costs to operate, maintain, and manage OC San's two treatment plants, 15 pump stations, and over 380 miles of collection systems. Outside of salaries and benefits, the largest expenditure categories are repairs and maintenance and operating supplies. The budget preparation process is collaborative among the divisions, departments, Finance, and upper management. The General Manager and Assistant General Manager met with each of the departments to ensure their budget proposals were prudent and cost-effective. This process assists to develop a comprehensive budget for OC San that meets the needs of the organization and is fiscally responsible.

3) CIP

OC San's CIP has evolved over time. It began by focusing on creating the initial infrastructure of the collections and treatment system, shifted to expanding capacity, and now our focus is on aging infrastructure, incorporating climate resiliency, seismic risk, and maximizing resource recovery in every project we execute. There is $3.5 billion in planned capital projects over the next ten years. The CIP is supported by the Asset Management Plan, which is updated annually and provides a comprehensive analysis of the condition and capacity of OC San's wastewater infrastructure. The Asset Management Program continuously validates and updates the projects that are within the CIP. Current and near-term future projects are validated annually to ensure an accurate schedule, scope, and budget.

4) Long-Term Debt

OC San's long-term debt fiscal policy restricts long-term borrowing to capital improvements that cannot be financed from current revenue. Before any new debt is issued, the impact of debt service payments on total annual fixed costs will be analyzed. OC San has $606 million in outstanding debt. No new money debt issuances are planned. The debt issuances are regularly reviewed and evaluated for potential savings through refinancing. All existing debt is scheduled to be paid off by 2040.

5) Reserves

OC San conducted an in-depth review of the agency's reserve policies. This review included a survey of the reserve policies of 23 other public agencies and is periodically updated. It serves as a tool to assist in the evaluation of the underlying economic reasons supporting OC San's reserve policies. There are seven distinct reserves criteria which together comprise OC San's reserve fund target. These criteria are cash flow, operating contingency, capital improvement, catastrophic loss/self-insurance, replacement and refurbishment, debt service, and accumulated funds. Collectively, these individual criteria require a minimum average reserve amount of approximately $580 million a year over the current ten-year cash flow forecast. This reserve amount, while significant, totals less than five percent of the replacement value of our $15.7 billion in assets.

6) Investments

OC San invests public funds in a manner which ensures the safety and preservation of capital while meeting reasonably anticipated operating expenditure needs, achieving a reasonable rate of return, and conforming to all state and local statutes governing the investment of public funds. OC San uses a bank checking account and sweeps account for its daily transactions. Liquidity needs are met through funds invested in the Local Agency Investment Fund managed by the State Treasurer's Office. Most of OC San's investments are separated into two distinct portfolios, Long-term and Short-term, with a primary focus on the Long-term portfolio, which are managed by an outside investment manager. Monthly, quarterly, and annual reporting and review mechanisms are in place.

7) Accounting, Auditing, and Financial Reporting

An audit of the books, financial records, and transactions of OC San is conducted annually by independent certified public accountants. The Annual Comprehensive Financial Report includes the financial position and activity of the organization and is prepared by the Financial Management Division. Responsibility for both the accuracy of the data, and the completeness and fairness of the presentation, including all disclosures, rests with OC San. The auditor's report on OC San's basic financial statements and supplementary information renders an unmodified opinion on OC San's basic financial statements for the year ended June 30, 2024. OC San has been awarded the Government Finance Officers Association Certificate of Achievement in Financial Reporting for 31 consecutive years. Along with monthly budget reviews and quarterly reporting to the Board, OC San's internal accounting controls adequately safeguard assets and provides for proper recording of financial transactions.

Budget Control Resources

OC San has various structures, procedures, and resources in place to help assist with project and operating budget controls. Several software systems such as PM Web, Request to Purchase, JDE reports, and monthly operating budget reports provide information and have controls in place to be able to restrict purchases to budgeted amounts and monitor overall spending per division. Contract structures have also been optimized to fix costs over longer periods to ensure controlled and predictable expenditures for goods, services, and labor.

Future Policy Statement

OC San will maintain and enhance the sound fiscal condition of the organization by regularly updating and following the individual policies that provide guidelines for OC San's day-to-day financial affairs. The scope of these policies includes accounting, purchasing, auditing, financial reporting, internal controls, operating and capital budgeting, pay-as-you-go for capital expenditures, revenue management, cash and investment management, expenditure control, debt management, and planning concepts. OC San will actively monitor budget expenditures, be transparent, submit quarterly financial reports to the Board, have financial information available to the public, and follow industry best practices. OC San's accounting and financial reporting systems will be maintained in conformance with generally accepted accounting principles and standards promulgated by the Governmental Accounting Standards Board.

Initiatives to Support Progress Toward the Policy Goal

- Use established resources, along with developing and implementing additional resources to assist OC San staff in tracking and monitoring expenditures to ensure smooth business operations while maintaining budgetary control.
- Maintain a 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 capital expenditures.
- Leverage the centralized training program to provide targeted training opportunities for employees to remain current with financial best practices and OC San fiscal policies and procedures.
- Monitor the long-term debt program and continually assess market conditions to identify possible opportunities to reduce outstanding debt balance and term, while maintaining a AAA rating. Maintain reserve levels within policy guidelines, while optimizing the use of available funds to finance capital programs and ensure a balanced budget.

Asset Management Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) will assess and manage the collection and reclamation 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. OC San 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 479 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 $15.7 billion. OC San has been building the piping, pumping, and treatment infrastructure it utilizes for over 70 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 2012 were more defined by improved levels of treatment. The last thirteen years have been focused on increasing the level of recycling while rehabilitating and replacing facilities to maintain reliable operations. One of the key success factors for OC San has been the ability to maximize the life of our facilities, through cost-effective maintenance and long-range planning to ensure reliable systems.

Current Situation

OC San is a highly planned, forward-looking organization. The collection system and each of the reclamation plants are broken down into granular functional parts. Each part is well defined, and future requirements are routinely updated within the annual asset management plan. This plan may also be supplemented with detailed planning studies to optimize the timing and extent of upcoming projects. 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. The natural watershed drainages in the service area are served by major trunk sewer systems. OC San has worked with member 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. Detailed modeling efforts are used to determine when upgrades are required.

The reclamation plants are broken down into two process units. Each plant has preliminary treatment to remove debris and grit, primary treatment for gravity settling solids, 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 up to 320 million gallons per day of wet weather flow, but only 185 million gallons is the combined average treated by both plants. 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 with electronics are generally limited by component obsolescence to 20 years of life and electrical distribution equipment is limited to 30 to 40 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. Generally, process facilities are renewed about every 25 years.

OC San creates and adopts an annual Asset Management Plan 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, or coating system failure. The 15 regional pump stations are renewed about every 25 years due to the mechanical wear and tear, and electrical component obsolescence needs.The master plan for the reclamation 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 requirements 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 Biochemical Oxygen Demand/Total Suspended Solids to the outfall, lower nutrients to the ocean), more water for reclamation, better energy conversion of solids. The annual Asset Management Plan looks 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 are laid out for each individual unit of the reclamation 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/reclamation systems. The annual Asset Management Plan is the basis of the Capital Improvement Program (CIP) and the means to update and modify the CIP 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. OC San will work to anticipate new regulations that may require system improvements. 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 requirements. Maintenance is committed to maintaining 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 CIP. The CIP is based on the annual Asset Management Plan, and will execute the projects to install, renew, or replace trunk sewers and reclamation 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 CIP. OC San will find creative ways to maximize asset life and meet 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 CIP.

Initiatives to Support Progress Toward the Policy Goal

- Continue developing an annual Asset Management Plan documenting the condition of the collection system and reclamation plants, and upcoming maintenance or capital projects.
- Coordinate the efforts of operations, collections, mechanical maintenance, electrical maintenance, instrument maintenance and engineering through process area teams to assure OC San's resources are focused on the high priority work functions.
- Identify critical collections and plant assets that have long lead times for parts and replacement and mitigate procurement risks and impacts to collections and plant resiliency based on market conditions.
- Maintain a 20-year forecast of all CIP projects needed to maintain or upgrade OC San's assets on a prioritized risk basis to establish rate structures.
- Leverage asset information and tools to define the remaining useful life of assets.

Cybersecurity and Artificial Intelligence Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) is committed to building and maintaining resilient, secure, and ethically governed technology systems. This includes a robust cybersecurity posture and the responsible adoption of Artificial Intelligence (AI), including both generative AI and advanced operational AI. As OC San advances its digital transformation, the agency must ensure that its technology practices safeguard data, systems, and operations, while also leveraging innovation to improve service delivery, operational efficiency, and decision-making. This policy outlines OC San's dual approach: securing our digital assets from evolving threats and strategically implementing AI in a phased, ethical, and transparent manner aligned with organizational goals.

Background

Cybersecurity has become an increasingly complex challenge for all public agencies. Threats from nation-states, cybercriminals, and insider risks continue to grow in scale and sophistication. At the same time, the rapid rise of artificial intelligence—particularly generative AI like ChatGPT and Microsoft Copilot — presents both powerful tools for operational efficiency and significant ethical, legal, and cybersecurity risks.

OC San recognizes the need for continuous improvement in both cybersecurity readiness and AI maturity. Cybersecurity must be embedded across all technology layers, and AI must be introduced through a structured governance framework that supports safe and equitable innovation.

Current Situation

OC San has significantly expanded its cybersecurity capabilities over the past several years. OC San now maintains a 24/7 Security Operations Center (SOC) -as-a-Service, with staffed security and a comprehensive portfolio of protection measures, including:

- Security Awareness & Training: Quarterly training, phishing simulations, and targeted sessions for IT and engineering teams.
- Vulnerability Management: Continuous scanning and patching supported by threat intelligence from US-CERT, ICS-CERT, and others.
- Intrusion Detection & Response: Tools include firewalls, behavior analytics, web gateways, and next-gen anti-malware.
- SOC Monitoring: Around-the-clock threat monitoring for network reliability and integrity.
- Privileged Access Management: Tools to control and audit administrative access.
- Data Backup & Disaster Recovery: A 3-2-1-1-0 strategy with monthly restore testing.
- Security Incident Response: Playbooks and partnerships with DHS, FBI, and private incident response firms.
- Security Assessments: Regular third-party security reviews and red team exercises.

Artificial Intelligence

OC San is in the early stages of AI implementation, following a "crawl-walk-run" maturity model to ensure thoughtful and responsible adoption. Current activities include:

- AI Use Guidelines: Initial generative AI use policy established and aligned with HR.
- AI & Data Analytics User Group: A cross-functional team exploring and piloting use cases.
- Pilot Programs: Microsoft Copilot and ChatGPT pilots underway to improve office productivity.
- Trends & Education: Ongoing training based on insights from Microsoft, Gartner, and industry groups.

AI is being approached in two distinct categories:

- Generative AI — Focused on content creation (e.g., text, code) to support administrative and communication functions.
- Operational AI — Used for predictive analytics, SCADA optimization, video input, and equipment monitoring.

Future Policy Direction

Looking ahead, OC San will continue to strengthen and evolve its cybersecurity and artificial intelligence capabilities to meet the demands of a rapidly changing technological landscape. Cybersecurity incidents are no longer a question of "if" but "when," and OC San is committed to building a resilient security program that anticipates threats and responds effectively. This includes continuous refinement of its threat detection, incident response, and recovery protocols. At the same time, the agency will expand its AI capabilities beyond pilot programs, with a focus on operational applications such as predictive maintenance, real-time process optimization, and intelligent video surveillance. A phased AI maturity model—moving from foundational awareness to full-scale implementation—will guide this progression, ensuring that each stage builds the necessary governance, technical expertise, and ethical safeguards.

As both cybersecurity and AI continue to evolve, OC San will align its strategies with emerging best practices and maintain governance frameworks that address key risks such as data privacy, misinformation, algorithmic bias, and system integrity. By integrating security and innovation, OC San aims to responsibly adopt new technologies that enhance service delivery and protect public trust.

Initiatives to Support Progress Toward the Policy Goal

To support the continued advancement of both cybersecurity and AI, OC San will pursue the following initiatives:

Cybersecurity Initiatives

- Conduct tabletop exercises to test and improve incident response readiness.
- Expand SOC capabilities and automation to support real-time threat protection.
- Perform ransomware readiness and third-party red team assessments.

AI Initiatives

- Implement a phased AI resourcing plan leveraging support from Microsoft and Gartner.
- Launch awareness campaigns and targeted training for Microsoft Copilot and other AI tools.
- Evaluate AI infrastructure options (e.g., hosted vs. on-premises).
- Expand operational AI use in areas such as SCADA, asset health monitoring, and CCTV analytics.
- Continuously update generative AI policy to reflect advancements and align with OC San values.

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 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 $15.7 billion in assets. A portion of those assets include buildings, easements, rights-of-way, while also managing encroachments. OC San has a real property analyst that serves as a resource in support of OC San's real property assets. The position acts as project leader and/or technical expert for real property matters, including purchase, sale, lease, rent, acquisition, disposition, appraisal, inspection, title, right of way, easements, permits, licenses, contracts, agreements, relocation, property and space management, and other related activities. Periodically, OC San sells and purchases property to support its efforts. 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 in support of Reclamation Plants Nos. 1 and 2, 15 pump stations, and 388 miles of trunk sewer lines in the Collection System. The real property analyst works closely with Operations and Maintenance staff to ensure that OC San has the necessary easements and rights-of-way for operations along with unencumbered access for repairs and maintenance. Staff works with Engineering to obtain property, easements, and rights-of-way to facilitate the completion of projects for our Capital Improvement Program (CIP). Additionally, OC San manages landscaping, building maintenance, and security for its facilities.

Future Policy Statement

OC San will effectively manage its property assets and actively manage all encroachments, encumbrances, easements, and rights-of-way. When prudent, OC San will augment resources with contracted specialized real estate and property management services. OC San staff will work to support the property needs of Operations and Maintenance and the CIP.

Initiatives to Support Progress Toward the Policy Goal

- Leverage technology to review property rights and identify encroachments or encumbrances that restrict operation, maintenance, inspection, or emergency repair access to remove encroachments or encumbrances.
- Collaborate with Engineering to obtain property, easements, and rights-of-way in a timely manner for capital projects.
- 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 650 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 we provide. 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 act and make positive changes. It also introduces them to an industry that 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 Children's Water Festival, which provides an opportunity to reach thousands of local children in a short amount of time with clear and direct messaging; our partnership with local libraries; and scholarship opportunities which is an incentive for students to get involved in developing messages for environmental issues.

- *Infrastructure Outreach*

  OC San has more than $15.7 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 to engage the communities affected by OC San construction projects. This includes dedicated community liaisons, construction webpages, collateral material, presentations, etc. Over the next fiscal year, over 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 which can result 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 660 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, 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); Member Agency Outreach Toolkits which allows us to increase our reach to our rate payers via their communication channels; an informative and educational website, an active social media presence; and the development of programs such as Wastewater 101 Citizens Academy which provides an opportunity to showcase 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 Orange County, 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 ratepayers. 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.

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.

OC San actively works with other public agencies in its service area to develop opportunities to provide additional value from the assets we own and operate to the ratepayers we serve. Initiatives like dry weather urban runoff diversion, and full reclamation of wastewater to potable water are examples of public-to-public partnerships.

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.

OC San will engage with other local government entities and nonprofit organizations to coordinate our existing messaging and services; and will search for new and innovative ways to add more value from our assets and operations.

Initiatives to Support Progress Toward the Policy Goal

- Implement a multipronged outreach strategy that will include industry and media coverage for the Supercritical Water Oxidation project and Deep Well Injection.
- Develop and implement a Local Government Affairs Outreach Program to enhance OC San business goals and build local relationships that benefit OC San, cities we serve, member agencies, and officials.
- Actively monitor and engage in 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 *Principles*

Energy Independence Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) will strive to be energy neutral. Electrical, thermal, and methane gas generation will be maximized within the current anaerobic digestion engine generator infrastructure. Energy utilization will be minimized using sound engineering and financial principles. OC San will investigate new technologies to more directly convert solids associated with wastewater treatment into energy.

Background

OC San is an environmental steward that seeks to maximize the harvesting of energy available in the incoming wastewater. A natural result of wastewater treatment is the separation and concentration of solid and gaseous materials which provide opportunities to create sustainable and renewable energy and reduce greenhouse gas emissions.

OC San is also committed to be 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 our central generation facilities for internal use.

Current Situation

OC San invests prudently in lifecycle energy efficiency to minimize the use of energy to achieve its mission. Process technology selection includes life-cycle cost analysis. Treatment processes and pump stations are designed with energy efficient equipment Aeration blowers 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, BTU of heat, and therm of gas consumed.

OC San seeks to maximize the internal production of energy. The primary source of energy is biogas. Organic solids collected and concentrated in the water treatment processes are converted biologically to biogas composed of 65 percent methane, 34 percent carbon dioxide, and other trace constituents. OC San has been using this technology since the 1950s. The production of digester gas has been maximized by improved mixing, heating, sludge feeding, chemical addition to limit trace pollutant production, and the receiving of fats, oils, and grease. OC San is currently working with Orange County Waste and Recycling to receive preprocessed food waste up to available digestion, gas handling and generator capacity. A food waste receiving station is designed and waiting to be bid once a food waste supply contract is signed.

The biogas from the digesters is cleaned and converted into electricity, heat, and exhaust gas. Plant No. 1 has three 2.5 megawatt (MW), 12.47kV central generators. Plant No. 2 has five 3MW, 12.47 kV central generators and a 1MW steam turbine. These internal systems of energy harvesting provide roughly 66 percent of OC San's electrical demand and 92 percent of OC San's thermal demand in the treatment plants. Heat from the central generation at Plant No. 1 is used to heat the digesters and heat and cool select buildings. Heat from the central generation at Plant No. 2 is used to heat digesters. The central generation exhaust gas is regulated tightly for nitrogen compounds, carbon monoxide, particulates, and volatile organic compounds which require air emission controls to meet permit limits. OC San can shift the digester gas between treatment plants via an interplant pipeline and has roughly 11 MW of additional generation capacity if more gas is produced. The additional capacity provides standby to the large outfall pumping system during an electric utility power outage using natural gas.

In addition, OC San has a 5 MW, 32 megawatt-hour (MWh) electrical battery storage system at Plant No. 1. The operation of this system is scheduled by Southern California Edison to offset plant loads and reduce the demand on the electric utility grid during peak demand times. The battery storage system is operating under a 10-year contract. OC San will evaluate the renewal of this contract as it reaches the expiration date in December 2029 based on need and available load at Plant No. 1.

OC San received approval to participate in Southern California Edison's Direct Access Program at the end of 2021. In early 2022, OC San enrolled in direct access and was on the spot market, time-of-use rate until May 2022, when a 5-year, flat-rate contract was entered into with an energy provider for consistent and cost-effective energy costs.

The Plant No. 1 electricity imports vary between 1 MW and 6 MW, based on the time of day and if the battery storage system is charging or discharging. Currently, the Plant No. 2 load is close to zero on average. The Headquarters Building is fed from Plant No. 1 and has solar photovoltaic cells in the parking lot and at the top of the building to offset building energy requirements.

The 2024 Energy and Digester Gas Master Plan evaluated the use of solar photovoltaic cells with and without batteries at Plant No. 1 and solar photovoltaic cells only at Plant No. 2. OC San's low energy rates resulted in a long payback period for solar. The flat energy rate with direct access provided little benefit for battery storage except reducing some peak demand. This study also evaluated converting a portion or all of the biogas to renewable natural gas for export to the gas pipeline. These alternatives were determined not to be cost effective. The selling of biogas would require additional natural gas or electricity to offset the loss of electricity generated using biogas.

In an era where environmental concerns are at the forefront of global discussions, finding sustainable solutions for creating energy from the solids derived from wastewater treatment is more critical than ever. OC San is researching a potential alternative to anaerobic digestion and agricultural reuse of our solids materials. Supercritical Water Oxidation (SCWO) offers a potential alternative to anaerobic digestions, internal combustion engines and biosolids production.

OC San is currently conducting a SCWO research project which offers the opportunity to directly convert wastewater solids materials to high temperature inert materials. OC San partnered with 374Water to build a six-ton-per-day demonstration project called AirSCWO Nix6. This process uses air and water at a high temperature and pressure to oxidize complex compound materials into more basic and benign compounds. This process should be operational in late 2025 or 2026. SCWO provides opportunities to solve future stringent air emission requirements, treatment of emerging contaminants such as Per- and polyfluoroalkyl substances compounds, treatment of microplastics, increased food waste utilization, and enhance solids recovery. Once the 6-ton SCWO unit is operational, OC San will explore the option of purchasing and testing a 30-ton SCWO unit. The solids screening portion of the SCWO system has already been sized for 30 tons. These larger units are anticipated to incorporate the ability to generate clean electricity through steam generation or other means.

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 reduce OC San's environmental impact and improve its operational reliability and resiliency. Any new occupied buildings will include solar in accordance with building code requirements.

Staff recommends that research continue to maximize energy harvesting and to minimize energy usage to make OC San energy independent in the mission of protecting the public health and the environment. Supercritical 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.
- 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 Adaptation 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, high wind, and electrical grid interruptions. OC San is also committed to economically minimizing its greenhouse gas emissions to minimize its impact.

Background

OC San owns and operates extensive wastewater collection and treatment facilities valued at $15.7 billion. OC San's 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 zone. Both plants and the collection system are influenced by many adjacent major and minor faults capable of delivering damaging energy. Both of our reclamation plants and most of our collection system sit on top of silty, alluvial soils that can have the effect of amplifying the ground motion and increasing the risk of liquefaction during a seismic event. The proximity of the treatment facilities to the Santa Ana River adds the risk of lateral spread at both sites. 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, improvements and facility replacements will be necessary.

Another seismic risk associated with having a reclamation plant and several pump stations located on the Pacific Coast is the risk of tsunami inundation. OC San has been working with and reviewing plans with the City of Huntington Beach and the City of Newport Beach to understand and quantify the risks. In addition, OC San actively monitors and reviews code updates, such as the recently released American Society of Civil Engineers (ASCE) 7-22 standard by the American Society of Civil Engineers, which outlines design parameters for critical assets located in tsunami-prone regions. This information sets the elevation for critical assets.

OC San understands that climatic 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), and 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. The 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 supplies are more vulnerable due to utility Public Safety Power Shutdowns during severe weather conditions, loss of local power generation assets, aging infrastructure, extreme weather events, and high winds. 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 were completed over the past several 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 reclamation plants are situated in a historic riverbed with poor soil conditions. The collection system is vulnerable to failures during seismic events. Building code developments to seismic design has changed greatly over OC San's history and will continue to advance in the future. Many of our critical structures were designed or installed prior to the advancements that occurred due to the major earthquakes of the 1990s. Significant effort has been expended to better characterize the soil conditions under our reclamation plants and pump stations. Projects to replace existing unit processes will be scoped and budgeted to provide seismic resilience. These measures include deep soil mixing to strengthen ground stability, various foundation designs and building structure improvements. For refurbished facilities, the cost to provide soil improvements for existing structures to mitigate liquefaction will be evaluated based on the importance of the structure and the associated impact on pumping and treatment plant operations during dry weather conditions.

Tsunami resilience and flooding protection can go hand in hand. Tsunami protection requires a more robust wall footing and wall structure. To a great extent, these two risk factors can be mitigated in the same way. The structural design guidelines for structures in tsunami-prone areas, as outlined in ASCE 7-22, represent a well-established and peer-reviewed industry 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 projections at Plant No. 2 and pump stations in the City of Newport Beach. A tsunami-resistant wall has been designed for a large portion of the southern perimeter of Plant No. 2 and is currently under construction. A future project will construct the remaining portion of the tsunami-resistant wall. Additionally, OC San routinely updates its design guidelines based on the latest California Climate Assessment reports, Federal Emergency Management Agency flood maps, and ASCE standards for flood-resistant design and construction (such as ASCE 24), ensuring alignment with evolving climate science and regulatory expectations.

OC San has also expended significant effort to prepare for the effects of weather extremes on its operations. Inflow and infiltration throughout the sewer system during intense storm activity have multiplied average dry weather flow rate by up to three times in past years. During recent storms, peak wet weather flows have exhibited fewer extreme peaks due to inflow and infiltration improvements throughout the collections system. Sewer rehabilitation projects helped reduce the amount of inflow and infiltration by lining the pipe or grouting the pipe joints. 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, 1938, 1983, 2005, 2017, and 2023 will push our systems to the limit. We have recently experienced king tides higher than previously anticipated which is impacting our coastal pump stations.

OC San can also shift significant influent flow from Plant No. 1 to Plant No. 2 through the interplant line and a portion of the flow from Plant No. 2 to Plant No. 1, which creates additional resilience for risk factors.

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 approximately 30 years. The reclamation plants can be supplied with power from Southern California Edison, OC San's Central Generation Plants, or onsite 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 for half of the loads at Plant No. 1, all the loads at Plant No. 2, heating and cooling loads at Plant No. 1, and heating loads at Plant No. 2. The 2024 Energy and Digester Gas Master Plan evaluated the standby power capacity at Plant Nos. 1 and 2 and determined that all critical loads required to meet the permit requirements could be operated using the Central Generation Plants and standby generators with a temporary reduction in secondary treatment aeration blower capacity during a 48-hour outage period. Select pump stations are provided with standby generators and 24 hours of fuel for pump stations that require response in two hours or less during a power supply failure. Portable generator connections have been installed at the pump stations to provide increased reliability and maintain pump station operation in the event the onsite standby generators fail or there is an electrical fault.

As environmental stewards, OC San also realizes that it is an emitter of greenhouse gases. OC San has been working for many years to minimize its greenhouse gas footprint through several means such as energy efficiency, methane gas capture and use, engine emission control systems, and organic waste conversion systems. OC San is working toward an innovative approach that has the potential to create a negative carbon footprint for the agency.

The proposed Biosolids Deep Well Injection (BDWI) project presents an innovative approach to managing biosolids. It will screen and pump biosolids several thousand feet underground into a sand layer below several layers of rock. At this depth, the biosolids are separate and safely segregated from the drinking water aquifer. If fully implemented, this solution has the opportunity to reduce semi-trucking milage by 4.5 million miles per year along with its costs and associated greenhouse gas creation, thus creating carbon sequestration by locking away carbon rich biosolids, Per- and Polyfluoroalkyl Substances (PFAS) and microplastics received in wastewater tend to concentrate in biosolid, so they would also be safely sequestered with the biosolids. OC San has completed a Deep Well Injection Feasibility Study for Plant Nos. 1 and 2. It is anticipated that a project will be implemented which will construct a DWI Facility at Plant No. 1. This facility will include a receiving station to receive trucked biosolids from Plant No. 2. This project will include permitting and will be designed and constructed using a progress design-build contract.

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 $15.7 billion in facilities every time a code is updated, or a new climate change assessment report is released. OC San will stay abreast of code and climate change projections 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 $350 million per year over the next 10 years.

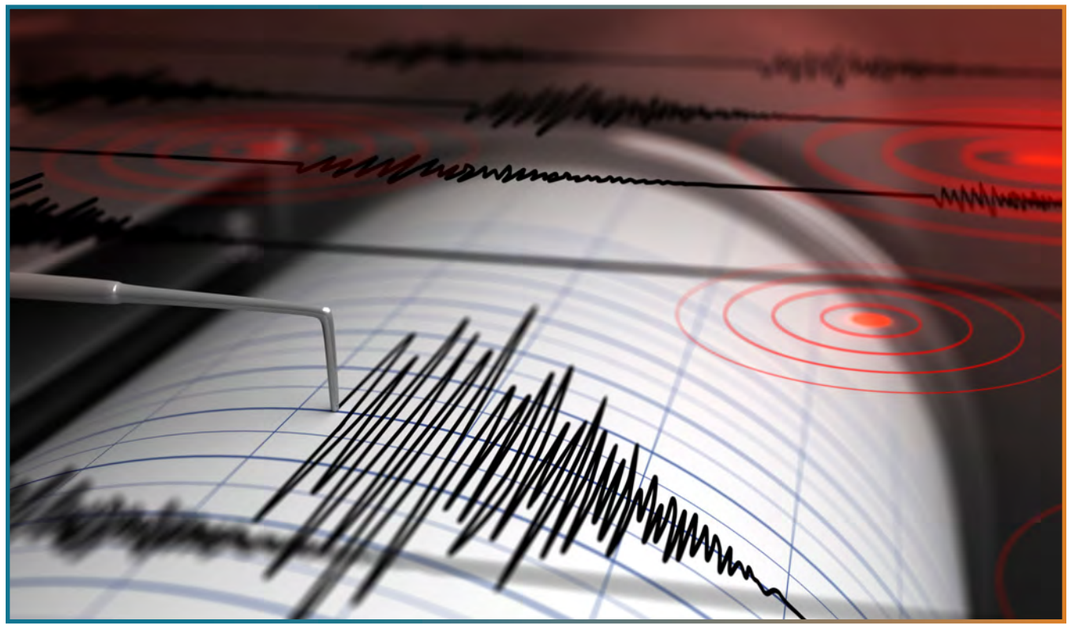
OC San facilities are designed to meet building codes that are standard to our industry. As time goes on and codes are updated, it is not required to upgrade existing facilities to meet those

latest codes unless mandated by regulation or if an unacceptable risk is identified by not doing so. OC San will accept some incremental risk in having some facilities that are not necessarily compliant with 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 for 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 at the plants with up to 48 hours of fuel. Pump stations diesel generation will be site specific in its design based on flow risks, hydraulic storage capacity, and site constraints. Either onsite generation or quickly deployable mobile generators will provide standby power.

Initiatives to Support Progress Toward the Policy Goal:

- Evaluate the seismic vulnerabilities of Plant No. 2 flow processes (primary clarifiers, activated sludge facility, and ocean outfall piping) within the plant. Determine the required improvements to maintain dry weather flow capacity after a seismic event. 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.
- Pursue Deep Well Injection of Biosolids to safely sequester carbon rich materials and associated constituent of emerging concern to create a negative carbon footprint for OC San.



Food Waste Treatment Policy

Summary Policy Statement

The State of California limits the volume of organic waste that is 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 regarding the management of organics in California. This encompasses a range of materials including food, green waste, wood, paper, biosolids, digestate, and sludges, all of which are typically disposed of in the landfills. In response to the phaseout of organics as alternative daily cover on landfills a potential market for food waste co-digestion has emerged for the wastewater industry. Co-digestion is the mixing of sewage solids and food waste in an anaerobic digester to create biogas. There is an opportunity for OC San to produce additional biogas, reducing the reliance to purchase electricity from local utilities.

Anaerobic digestion is currently at the nexus of important mandates within California, 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. California 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 actively address these mandates. OC San and other wastewater digester owners are uniquely positioned to assess whether existing and planned digester capacity could be made available to support diverting food waste from landfills.

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 is not well suited or permitted 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 does not 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 solid waste 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 utilize OC San's available capacity.

Based on these recommendations, in 2018, OC San's Board approved a project (P2-124) to construct an interim (10 to 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. The facility 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 on-site energy production, resulting 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 wastewater 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 2019-2020 tipping fee was established by the Board of Directors, and the food waste slurry specifications were developed by OC San staff.

Between 2020 and early 2023, OC San hosted quarterly check-in meeting with several large municipal solid waste haulers to discuss procuring pre-processed food waste slurry. Although most haulers expressed interest in working with OC San, none were willing to meet OC San's food waste slurry specifications.

In spring 2023, OC San initiated a series of meetings with Orange County wastewater digester owners and Orange County Waste and Recycling (OCWR) to discuss partnership opportunities for in-county food waste preprocessing, co-digestion, composting, biosolids management, and biogas production. The meetings were highly productive, and as of May 2025, the parties have signed a non-binding agreement to assess the feasibility of constructing a centralized food waste pre-processing facility at an OCWR landfill to provide high-quality food waste slurry for co-digestion at in-county wastewater treatment plants.

Future Policy Statement

Food Waste Slurry

OC San will only accept a preprocessed food waste slurry. We do not have land or air permits to handle, sort, and process solid or green waste. OC San will work with other regional partners to develop a county-wide 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 plans to construct a permanent food waste facility based on the lessons learned from the interim system and the anticipated availability of food waste feedstock. The permanent facility will be able to accept up to 300 wet tons per day and utilize the total available capacity of the existing digesters and gas compressors. OC San also has at least 6 Megawatts of installed electrical generation capacity that can convert the produced digester gas to electricity and heat.

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 could more fully utilize the system capacity that already exists for the benefit of OC San's ratepayers.

When requested by OCWR, OC San staff will develop an updated 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 ratepayers. OC San contracts with service area waste haulers must provide for a pass-through savings to OC San ratepayers. That means waste haulers may charge for collection and processing of food waste but must disclose 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 that meets OC San's specifications from an in-county partner that is compatible with its 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. Utilize a county-wide specification for food waste slurry and contract with OCWR to receive and co-digest food waste slurry.

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 (10) 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.

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. WQ 2022-0103-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 enables 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 DWURD Program to accept up to three (3) million gallons of dry weather flow per day. OC San Board Resolution No. 00-04 allowed local agencies to apply for a DWUR Permit where there was not an economically or practically feasible alternative and permittees are subject to requirements of the Ordinance.

Since its inception, the DWURD 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 ten (10) million gallons per day (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 9 MGD to trigger revisiting the policy.

In addition to DWURD 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 (SPDP) or written authorization from OC San when no alternate method of disposal is reasonably available to mitigate an environmental risk or health hazard.

Both DWURD 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

OC San is currently administering 18 DWURD Permits for diversions that are 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. In addition,

three permit renewals are pending. Since the program's inception in 2000, the Dry Weather Urban Runoff Program has treated over 10 billion gallons of urban runoff. As of May 2025, OC San received on average, less than 4.5 MGD combined from these facilities, which is well below the current 10 MGD policy cap and 9 MGD action threshold.

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.

Key Issues for the Future

Since the inception of OC San's DWURD Program, the program success has depended on collaboration among stakeholders to improve beach water quality and 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 now provides source water for OCWD. 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 DWURDs in accordance with Resolution No. 13-09, which supports long-term integrated regional water management, OC San recognizes that urban runoff is a well-established carrier for surface contaminants. The best available scientific studies continue to highlight the need for enhanced surveillance and best management practice for pollution control prior to discharge to OC San consistent with MS4 permit requirements of diversion owners. For example, a 2020 study by the San Francisco Estuary Institute showed that runoff into San Francisco contained over 300 times the amount of microplastics when compared with treated wastewater. A 2021 study that was co-authored by the Southern California Coastal Research Project showed that tire debris in urban runoff released a rubber preservative (6-PPD) that is highly toxic to aquatic life in the Pacific Northwest.

As residents within OC San's service area continue to reduce their indoor water use, there is increasing interest in utilizing dry weather urban runoff as a new source of water for the GWRS. Coupled with the completion of GWRS Final Expansion, the need to reassess available sewer capacity for accepting dry urban runoff was recognized by OC San. A feasibility study was initiated in 2023 by OC San in collaboration with OCWD and Orange County Public Works to identify opportunities to optimize dry weather urban runoff to sewer to augment local water supply. The study determined that there are seven locations with a potential total flow of 2.7 million gallons per day (MGD). These projects will be initiated and executed by sponsoring agencies.

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.
- Support responsible and practicable urban runoff management and reuse legislation and regulations.
- Initiate timely enforcement actions to safeguard OC San occupational safety, collection and treatment systems, reuse initiatives, or permit compliance.

Potable Water Salinity Control Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) will partner with other Public Agencies in our watershed to reduce the salinity of the potable water supply of our stakeholders. OC San will use its existing facilities, including its Ocean Outfall, to safely dispose of naturally occurring dissolved solids, or salts, which may be attributed to water reuse, imported water, brackish groundwater, or past agricultural activities.

Background:

OC San provides regional sewer service for 2.6 million people living, working, and commuting in central and northwest Orange County. The stakeholders include OC San's ratepayers, the Orange County Water District (OCWD), the Santa Ana Watershed Project Authority (SAWPA), potable and reclaimed water providers in OC San's service area and upstream of OC San in the Santa Ana River watershed, and State and Federal regulatory agencies charged with protecting water quality and the environment of the Santa Ana River basin.

The groundwater basin of central and northwest Orange County is managed by OCWD and supplies the majority of potable water to local water suppliers. The groundwater basin is naturally recharged by flows from the Santa Ana River, local rain infiltration, the Groundwater Replenishment System, and purchased imported water from Metropolitan Water District. Flows from the Santa Ana River and imported water have the potential to have high dissolved solids or salinity.

OC San has been working cooperatively with SAWPA and its predecessor agencies since 1969 to intercept high salinity, low quality water that would otherwise flow to the Santa Ana River. The initial problem was attributed to the high concentration of dairy waste that rainwater would push into the Santa Ana River system. Over the years, SAWPA built the Inland Empire Brine Line which is a network of pipes that collects high dissolved solids water from the upper Santa Ana River watershed and transports it to OC San's Plant No. 1 in Fountain Valley. OC San diverts this unreclaimable flow to Plant No. 2 in Huntington Beach, treats it, and safely discharges this flow through its Ocean Outfall. This flow is deemed unreclaimable based on our agreement with OCWD because effluent from a superfund clean-up site in Riverside is included in the flow. This cooperative effort removes more than 500,000 pounds of salt per day from the Santa Ana River system.

Imported water from the Colorado River tends to have a relatively high dissolved solids, or salt, content compared to potable standards. While this is acceptable for initial use, reuse of this water will build up salts over time.

Water in the San Ana River that was imported by upstream users may be used several times before being recharged in aquifers along the Santa Ana River system. SAWPA, through its member agencies, removes salts from otherwise unusable groundwater supplies to render them potable and dispose of the concentrated salts in the Inland Empire Brine Line for eventual ocean disposal.

The Groundwater Replenishment System is the purest source of water to the groundwater basin in central and northwest Orange County. The use of a reverse osmosis water treatment step removes dissolved solids from the product water. The concentrate from the reverse osmosis treatment step is disposed of through OC San's Ocean Outfall, resulting in the removal of more than 1.3 million pounds of dissolved solids, or salt, per day.

Current Situation:

OC San is committed to using its existing infrastructure to maintain or improve the quality of the potable water supply within its service area. We do this through our partnerships with OCWD and SAWPA. OC San accepts OCWD's reverse osmosis concentrate free of charge for ocean disposal through OC San's Ocean Outfall. The Groundwater Replenishment System is currently fully built out with no additional capacity planned in the future.

In addition, OC San has created a dedicated, unreclaimable flow stream from the Inland Empire Brine Line to the Santa Ana River Interceptor to Plant No. 2 in Huntington Beach for treatment and disposal through OC San's Ocean Outfall. SAWPA has a purchased capacity of 17 million gallons of water per day with the contractual opportunity to purchase up to 30 million gallons of water per day. SAWPA pays OC San based on the daily flow, biological oxygen demand, and total settleable solids of the water. It does not pay based on the total dissolved solids or salt content of the water. SAWPA intends to maximize the flow of water to 30 million gallons per day and maximize the total dissolved solids, or salt, content in the future. The current 50-year agreement between OC San and SAWPA expires in 2046.

Future Policy Statement

OC San will continue to partner with OCWD and SAWPA to collect and dispose of naturally occurring dissolved solids, or salts, through its Ocean Outfall system in an environmentally responsible way for the benefit of the potable water supply in its service area.

OC San will continue to work transparently with Federal and State regulators to assure that the ocean disposal of its effluent, including salt, isn't having an unacceptable negative impact on the ocean environment. OC San will balance the benefits of water reclamation/reuse and lower volume/higher concentration of salt to the ocean environment. OC San will continue to invest in the long-term maintenance of its Ocean Outfall system to preserve this vital infrastructure.

Initiatives to Support Progress Toward the Policy Goal

- OC San will continue to invest in the maintenance of the Ocean Outfall system to assure long-term viability.
- OC San will maintain a National Pollution Discharge Elimination System Permit that supports treatment operation and safe outfall disposal of Groundwater Replenishment System reverse osmosis concentrate and dissolved solids from the Santa Ana Watershed.
- OC San will support the Santa Ana Watershed Project Authority strategic planning process to support watershed salt management through 2046 and beyond.

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 $ 27 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 sulfur 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 handling 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 biofilm layer and increasing the solubility of hydrogen sulfide in sewer pipes. This treatment has an instant benefit that reduces hydrogen sulfide production from 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 oxidizer of hydrogen sulfide, methyl mercaptan, methyl disulfide, dimethyl disulfide, and many others.

Disinfection

After a significant amount of work with the regulators, and noticeable degradation of the ocean environment, OC San successfully discontinued disinfection of its effluent to the long outfall in 2015. 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.

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 has evaluated the potential of generating pure oxygen in the future with a different technology that is appropriately sized. 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. The volume and dosing of chemicals is 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 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.

Staff consistently monitor and adjust chemical usage to ensure process performance aligns with permit requirements. OC San has completed a Chemical Resilience Study, which includes contingency planning for chemical substitution during emergencies. Additionally, OC San remains proactive by exploring new technologies to optimize chemical usage.

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/or individual vendors to establish flexibility while accomplishing operational objectives.
- OC San has evaluated the potential for generating pure oxygen onsite and will be initiating a Capital Improvement project to develop and maintain an oxygen generation facility, reducing reliance on the delivery of liquid oxygen by truck.

Biosolids Management Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) will sustain the biosolids program and will continue the beneficial reuse of biosolids in accordance with Resolution No. OC San 13-03 and the 2017 Biosolids Master Plan.

Background

Wastewater treatment, at its most basic level, is the separation of water and solids it carries by gravity and biological means. Since the 1950s, OC San has used anaerobic digestion to reduce the volume of solids, create renewable energy, and create a residual product suitable for agricultural reuse. Anaerobic digestion reduces the volume of solids by 65 percent by converting organic material into biogas, which is a mixture of carbon dioxide and methane gas. This gas mixture powers OC San's Central Generation Engines at each treatment plant which provide electrical power and heat to our reclamation plants. The remaining 35 percent of the solids material are converted by time and temperature into Biosolids. OC San produces approximately 500-600 wet tons per day, at 23-28 percent solids concentration.

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). It consists of the following key initiatives:

- Develop an adaptive and highly effective biosolids program emphasizing diversification and beneficial reuse options and markets.
- Provide a framework for identifying reliable, sustainable, and cost-effective biosolids management options.
- Foster innovation and continuous improvements to OC San infrastructure.
- Ensure regulatory compliance.

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 to provide a framework for identifying and adopting reliable and sustainable biosolids management options while minimizing cost. Moreover, through innovation and continuous improvements in biosolids management practices, OC San has been well-positioned to sustain regulatory compliance and commitment to beneficially reuse biosolids. Currently, about 54 percent is used to produce Class A compost in California, and about 46 percent is used for Class B land application in Arizona.

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 percent organics diversion from landfill by 2020 and 75 percent by 2025, which includes biosolids and mandatory organics procurement (compost and biogas) for impacted jurisdiction.
- SB 32 (2016) — 40 percent Reduction of GHG below 1990 levels by 2030.
- SB 100 (2018) — 50 percent renewable resources (i.e., anaerobic co-digestion of food waste) target by December 31, 2026, and to achieve a 60 percent 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 supply to the "organic waste markets", thereby stimulating interest in siting more composting facilities and organic waste-to-energy projects. The organic waste market in California is composed of food waste, green waste and biosolids. 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 Clean Water SoCal (formerly Southern California Alliance of POTWS, SCAP) to encourage regulators to work across their narrow interests to optimally reuse organic waste products. CASA, in coordination with CalRecycle, has met with counties in California to restrict enforcement of local ordinances on land application of biosolids that are unreasonably restrictive or prohibitive, thus paving the way for more local biosolids management options.

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 Per- and 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 participated in Phase 3 of the investigative order and is actively participating in collaborative studies to evaluate the potential impact of PFAS on beneficial reuse of biosolids.

In an era where environmental concerns are at the forefront of global discussions, finding sustainable solutions for managing the solids derived from wastewater treatment is more critical than ever. OC San is researching potential alternatives to agricultural reuse of our solids materials. Supercritical Water Oxidation (SCWO) offers a potential alternative to anaerobic digestions, internal combustion engines and biosolids production, and Deep Well Injection (DWI) of biosolids offers a carbon sequestering option to agricultural reuse. The SCWO research is more fully discussed in the Energy Independence Policy, and the DWI initiative is more fully discussed in the Climate and Catastrophic Resilience policy.

Future Policy Statement

As California's evolving environmental regulations influence the organic waste markets, 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 agricultural 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 regulations that emerge in the coming years, staff will update OC San's biosolids strategy to account for emerging contaminant management.

Consistent with the Biosolids Master 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

- Assess Deep Well Injection to handle up to 100 percent of OC San's biosolids production as a sustainable and diverse biosolids management strategy with the benefit of carbon sequestration and reduction in transportation costs and impacts.
- Partner with other POTW agencies to conduct a feasibility study on a proposed regional biosolids facility in the Inland Empire to address rising costs, regulatory changes, and disposal challenges.
- Continue to engage with local, state, and federal agencies to ensure that biosolids will continue to be safely and legally used as a soil amendment.
- Continue working with OCWR to explore regional biosolids management opportunities as well as local solutions to meet SB 1383's organics diversion mandates, with an emphasis on in-county biosolids utilization, composting, food waste co-digestion, and biogas production.
- Implement new mesophilic digesters at Plant No. 2, with the option to upgrade to thermophilic, to improve OC San's operational resiliency against seismic events while enhancing biosolids quality and marketability.

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 (PFAS, commonly known as the "Forever Chemicals") 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 treatment systems, digester gas utilization, or advance water purification at the Groundwater Replenishment System (GWRS).

As with most pollutants, the 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 stakeholders 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 operations, 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 Wastewater 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 OC San's 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 the 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 (7), Industrial Endocrine Disrupting Compounds (7), Pharmaceuticals and Personal Care Products (14), Flame Retardants (9) and PFAS (12). Data from OC San's ongoing CEC program will be reviewed by the regulatory and natural resource agencies during the next NPDES permit renewal consultations.

Over time, OC San's source control program has been enhanced and updated to meet the needs of 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 up to 130 million gallons per day (MGD) of purified water.

To safeguard this potable reuse effort against CECs and other pollutants that are not removed by conventional wastewater treatment systems, OC San and OCWD established a notification plan that is activated whenever a pollutant or pollutant precursor becomes a concern to either agency. When the source(s) can be identified, and the signal is persistent, consistent, and of sufficient magnitude, the plan outlines the escalation responsive actions that may include outreach and enforcement.

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.

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 legislation and regulations that reduce the production and use of 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 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

- OC San will continue to 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.
- OC San will continue to 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.
- OC San will 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 If OC San is regulated, we will regulate upstream.

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 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 further processes secondary treated effluent from OC San Plant Nos. 1 and 2 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 85 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 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 Final Expansion of GWRS was completed in December 2022 and can produce a maximum capacity of 130 MGD. OC San, in cooperation with OCWD, operates the largest potable water reuse system in the world. This was made possible by replumbing our treatment plants to segregate non-reclaimable flow and adding a new smaller pump station to deal with low outfall flow rates.

In addition to providing treated wastewater to GWRS, OC San also provides treated water to OCWD's Green Acres Project. The Green Acres Project provides recycled water for landscape irrigation at parks, schools, and golf courses; industrial uses, such as carpet dying; toilet flushing; and power generation cooling. OC San uses reclaimed water and plant water (secondary treated effluent with bleach addition) within the treatment plants to offset potable water use. OC San uses 5-10 MGD of plant water, within the plants for engine and equipment cooling, polymer make-down, equipment flushing and washdown, and other uses.

Current Situation

The GWRS currently produces up to 130 MGD of purified water,enough water for one million people. All of OC San's Plant No. 1 secondary effluent and Plant No. 2 secondary reclaimable effluent is made available to OCWD for the GWRS and Green Acres Project. Non-reclaimable secondary effluent from OC San's Plant No. 2, such as discharges from inland desalters, GWRS's reverse osmosis process, and OC San's process sidestreams, are appropriately treated and released into the ocean.

With this significant investment and partnership, OC San has a policy to retain all wastewater flow attributable to its collection system. The financing, infrastructure, and operating capacity are in place to convert attributable water equitably into valuable potable water for the region we serve. New water reuse systems for the benefit of smaller, individual development undermine this significant existing investment and equitable distribution of potable water across the service area.

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, improve groundwater quality, and reduce dependence on imported water, while reducing the volume of effluent discharged to the ocean.

OC San will continue to support GWRS by providing secondary effluent as source water 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; and allowing OCWD to discharge North and South Basin extraction well flows to OC San sewers.

OC San will continue to maximize the delivery of secondary effluent available to GWRS and the Green Acres Project to maximize full production of purified recycled water for indirect potable reuse, and industrial and irrigational uses. The two agencies regularly communicate and coordinate on operations and construction projects, regulatory compliance, and source water quality to sustain reliable GWRS operations. OC San has adequate flow to maximize the production of GWRS and will work to protect those flows from upstream diversion.

Initiatives to Support Progress Toward the Policy Goal

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

Workplace *Environment*

Resilient Staffing Policy

Summary Policy Statement

The Orange County Sanitation District (OC San) has comprehensive programs in place to attract, develop, and retain high-quality talent to support its mission of protecting public health and the environment. Some of these programs include training and development, employee recognition, diversity and inclusion, recruitment and selection, and competitive benefits and compensation, which help promote employee engagement and productivity to make OC San an employer of choice.

Background

At OC San, employees are the organization's most valuable resource. OC San employs over 650 highly skilled and dedicated individuals committed to providing outstanding service to the community, and whose collective efforts make OC San an industry leader. OC San invests in its employees by providing targeted educational and training opportunities, resulting in a highly skilled and educated workforce tasked with carrying out our mission and sustainability of the agency.

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, plant operators, mechanics, construction inspectors, as well as professionals in public affairs, finance, contracts, information technology, safety, and human resources.

Effective strategic workforce planning allows management to project the loss of institutional knowledge and experience caused by employee turnover. OC San utilizes a variety of methods to ensure we have access to internal talent pools through effective performance management, talent assessments and training, individual development plans, and external talent pools by actively sourcing for passive candidates and leveraging social media outlets and career fairs.

OC San utilizes a competitive recruitment process that prioritizes hiring the best candidate for any given position based on qualifications and merit. Human Resources utilizes an objective multi-hurdle recruitment and selection process which includes screening for minimum qualifications, secondary screening of applications by the hiring manager, assessment centers and skills testing, panel interviews (for technical skills and fit), and a full background investigation and reference check of the selected candidate.

OC San utilizes several strategies to attract, develop and retain highly skilled staff for key positions. These include fostering a strong values-based culture, being intentional with our hiring practices, promoting employees' growth and development, supporting a healthy work/life balance, rewarding and recognizing exemplary achievements, and maintaining a competitive benefits and compensation philosophy, in addition to the following:

- *Equal Opportunity Employer*

As an Equal Opportunity Employer, OC San advertises vacant positions to all segments of the public providing a fair opportunity to all. Jobs are generally advertised on the internet, e-mailed to employees, and posted on social media and other industry-specific sites, and in trade magazines or on trade-specific websites for hard-to-fill, specialized, or technical positions. Recruiters utilize LinkedIn and other platforms to reach potential candidates in the labor market.

- *Vocational and Student Internship Programs*

Vocational students from local community colleges work 28 hours a week and rotate through five technical trades for 53 weeks within our Operations and Maintenance Department. OC San has experienced success through the program with 29 of the participants hired on full-time since the program's inception.

OC San also offers a Student Internship Program that provides students at local universities an opportunity to work alongside professional staff while attending college full-time for a one-year maximum duration. OC San partners with Cal State Fullerton, Cal State Long Beach, Cal Poly Pomona, Chapman University, and UC Irvine, among others in Southern California.

- *Employee Training and Development Program*

In addition to providing all legally mandated training, OC San invests in employee training and development to increase job knowledge and skills, optimize performance in current roles and build a skilled pool of internal candidates for future organizational needs.

Comprehensive training programs include legally mandated training, and technical training through industry-specific associations or groups, local schools, and professional associations, including informal on the job training. Employee development is profiled and tracked to ensure compliance with legally mandated training as well as requirements for licenses and certifications. Staff obtains targeted job-related training necessary to keep OC San current with industry best practices and developments in their respective fields of expertise and are eligible to receive development pay for job-related licenses and certifications.

OC San also provides access to developmental learning opportunities that increase knowledge, skills, abilities, and enhance organizational awareness. The elective development training courses are focused on leadership, technology, communication, OC San business systems, and partnerships for the future. These offerings are designed to address knowledge transfer as attrition occurs and to develop employees from within the organization for succession management and business continuity. Employees may also apply to participate in the Cal State Fullerton 14-week Leadership Academy for Public Agencies.

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.

OC San's staffing strategy for difficult-to-fill positions includes investing in employee training and development to build a skilled internal talent pool, particularly when the labor market is not meeting workforce demands. Through upskilling of current employees, OC San can strengthen institutional knowledge and improve retention. Currently there is a limited talent pool, both internally and externally, for state-certified candidates who qualify for the mid-level plant operator positions. In response, OC San will provide an operator certification preparation class to encourage employees to attain higher certification levels, thus qualifying them for more advanced positions for which OC San has difficulty finding qualified candidates. This three-day training is open to the public and includes a plant tour focused on operations to highlight OC San and attract external applicants for these crucial roles.

- *Mentoring:*

OC San's Mentoring Program is built on a collaborative, voluntary relationship between a mentor and a mentee. Mentors are typically more experienced or hold a higher position than the mentee

and are not in the mentee's direct supervisory line, ensuring objective feedback for professional development. Through the mentorship, the mentor and mentee collaborate to develop actionable and measurable goals that fulfill their development plan. Mentorships take place over five one-hour sessions and are completed within a five-month period. During the mentorship period, mentors provide guidance, support, and advice to help mentees pursue their established career goals. Since inception in 2009, there has been an average of seven to eight mentorships annually.

- *Partnerships:*

OC San hosts numerous training sessions on industry specific topics, benefiting not only our employees but also member agencies, local public agencies, and surrounding cities. Additionally, OC San partners with professional associations, such as the California Water Environment Association, to organize certification training events onsite that are open to other agencies. OC San employees volunteer on various commissions and administrative boards for professional associations and participate in advisory councils for both educational curriculum and industry advancements.

- *Workforce Vulnerability Assessments*

OC San management conducts a systematic assessment of its workforce to forecast staffing requirements and identify key and vulnerable positions based on three criteria: criticality, retention, and difficulty to fill. Human Resources facilitates annual workforce vulnerability assessments and works closely with departments to identify potential gaps and develop action plans to respond to future staffing needs.

- *Talent Readiness Assessments*

OC San evaluates staff readiness for key positions on a regular basis and focuses its employee development efforts based on identified gaps. Key positions and feeder roles are also identified along with the knowledge, skills, and abilities needed to perform these jobs to create Individual Development Plans for employees to enhance their skills in their current roles, prepare to compete for future job opportunities, and ensure seamless movement of talent within the organization.

To remain competitive in the labor market and ensure retention of top talent, OC San conducts recurring Classification & Compensation studies to ensure job classifications accurately reflect the work being performed, set compensation levels accordingly, and stay abreast of market benefit and salary data. The process includes feedback from multiple stakeholders including employees, management, bargaining groups, legal counsel, and Human Resources.

Current Situation

Currently, 55 percent of OC San's executives and managers are eligible for retirement. In the next five years, the number of eligible management increases to 73 percent. For trades, para-professional, professional and supervisor occupations, 26 percent are currently eligible to retire, and that increases to 44 percent by 2030. OC San has many long-term employees with vast knowledge in their respective areas of expertise. The average years of service is nine 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 3,614 years of knowledge and experience by 223 individuals leaving the agency since May 2020.

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 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. In the last five years, approximately 35 percent of new hires come from other public sector agencies. This limits our ability to hire staff who are already trained and experienced, which can be particularly difficult for technical, scientific, and management positions.

OC San has recent experience in competing with the private sector labor market, as well as with public sector candidates withdrawing from the process or declining job offers once they learn of the impact to their retirement benefit formula. Given legal restrictions which bind OC San to the classic open retirement formula, it is critical that 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

OC San will continue to implement strategic workforce planning processes to ensure workforce capabilities match the work required to meet OC San's current and future needs. OC San will continue to proactively monitor the changing work environment, labor market, and legal landscape to ensure human resources programs are compliant, relevant, competitive, and help promote the behaviors, culture and competencies needed to achieve organizational goals.

Initiatives to Support Progress Toward the Policy Goal

- Vocational Training — seek out partnership opportunities with vocational training institutions to enhance recruitment options, especially for hard-to-fill positions. Increase the levels of outreach and participation on advisory councils and committees on curriculum for vocational trade schools to ensure the current staffing needs are met.
- Identify targeted development for lead-level positions to prepare for future attrition to ensure sustainability into the future.
- Maintain and enhance workforce planning initiatives to efficiently and effectively identify, develop, and select the next generation of prepared, capable, and engaged employees through:
    - Employee Training and Development Programs
    - Vocational/Professional Student Internship Programs
    - Workforce Vulnerability Assessments
    - Talent Readiness Assessments
- Continue to build OC San's centralized training program and evaluate various options to partner with member agencies to share content and network.

Safety and Physical Security

Summary Policy Statement

The Orange County Sanitation District (OC San) will ensure the safety, health, and security of employees, contractors, and the public through industry best 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

Safety and Health

In California, employers must furnish employees with a place of employment free from known or recognized hazards that cause serious physical harm or death, that is compliant with all legal requirements and aligns with industry best practices. OC San is committed to identifying workplace hazards through regular inspection, with the goal of eliminating or providing an acceptable engineering control, implementing administrative controls such as safe work procedures and training, as well as provision of personal protective equipment. Our safety programs ensure the safety of OC San's workforce, contractors, and members of the public.

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 an explosion, fire, verified bomb threat, civil disorder, active shooter, or uncontrolled hazardous materials release which interrupt OC San's ability to provide safe and environmentally responsible wastewater treatment. OC San's protocol to control and respond to emergencies is outlined in the Integrated Emergency Response Plan (IERP).

The IERP identifies and assesses hazards regarding emergency events which OC San may be confronted with. It contains policies, plans, and procedures for preparing and responding to emergencies. When OC San cannot effectively respond to an emergency under routine operations, the Emergency Operations Center (EOC) is activated. OC San's EOC adheres to the National Incident Management System (NIMS) Incident Command System (ICS) framework, which is a standardized approach to command, control, and coordinate emergency response for incidents of any size. 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 OC San's Continuity of Operations Plan (COOP). In May 2018, a COOP was completed with all divisions contributing to its development. The IERP and COOP programs are regularly updated, based on emergency response exercises, or due to changes in plant processes or personnel.

OC San collaborates, and has mutual aid agreements in place, with other Orange County agencies to ensure available resources are identified and engaged in the event of an emergency. OC San is a member and funding agency of the Water Emergency Response Organization of Orange County (WEROC), which is administered by the Municipal Water District of Orange County. WEROC supports and manages countywide emergency preparedness, planning, response, and recovery efforts among Orange County water and wastewater utilities.

Physical Security

The Department of Homeland Security (DHS) 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, and cyberattacks. In addition, DHS 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 a footprint of approximately 100 acres at each plant, and over 650 employees, contractors, and members of the public onsite for tours and meetings, it is essential to maintain a security presence that can respond to security threats promptly.

OC San contracts with a security firm that includes armed guards to provide round the clock security monitoring of plant access, doors, cameras, and patrolling the perimeter at both plants.

Current Situation

Risk Management identifies potential risks to the organization and provides solutions for mitigation or reduction of the risk to acceptable levels. Through this process, the Risk Management Division will create a safe, healthy, and secure environment for OC San employees, contractors, and members of the public. Risk Management partners with management and employees to take ownership of identifying risks and mitigating risks within their sphere of control. Risk Management, managers, and staff collaborate to develop written procedures (e.g., policies) that are used for eliminating and controlling hazards at OC San; thus, ensuring compliance with occupational health and safety standards and laws.

Safety

OC San strives to achieve safety excellence and continually advance our safety and health culture and associated programs. This is exemplified by our California Voluntary Protection Program (Cal/VPP) designation, which is recognized as a higher level of protection for the workplace. The Cal/VPP is a program created by Cal/OSHA to recognize organizations that 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 illnesses has been documented at sites that have committed to the Voluntary Protection Program approach.

OC San received its Cal/VPP designation in 2023, following a weeklong audit of Plant No. 1's safety and health management system, which included physical walkthroughs, employee interviews, as well as a review of our safety programs and procedures.

OC San utilizes a Safety Incentive Program that recognizes and rewards employees for their improvement of safe work practices, resolving unsafe working conditions, and achieving safety excellence in job performance. The program was revamped in 2022 to make recognition more transparent, flexible, and meaningful to employees and provides a broader selection of awards, ranging from OC San apparel to an assortment of sanctioned products.

OC San continues to conduct third party annual comprehensive surveys. The goal of the surveys is to identify regulatory gaps in safety, health, industrial hygiene, and emergency management. Opportunities for improvement that are identified as part of the survey process are tracked to completion.

Emergency Management

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

In early 2025, OC San conducted a functional seismic emergency exercise with field components at Plant Nos. 1 and 2, and remote facilities. The exercise involved coordination, communication, and decision-making within the Emergency Operations Center (EOC), and included real-world, limited physical activities in the field. These simulation exercises are an instrument to train for, assess, and evaluate OC San's emergency response performance, test our EOC and employee notification capabilities.

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.

OC San partners with the Cybersecurity & Infrastructure Security Agency to identify, protect against, detect, and respond to physical and cyber security incidents affecting plant processes.

OC San issued a Request for Proposal (RFP) in late 2023 for Security Services, which included the expansion of security services for OC San's new Headquarters Complex. As part of the RFP evaluation, OC San reviewed and implemented procedural and technical enhancements.

OC San's Security Committee, which includes stakeholders from a cross-section of the organization, continues to meet quarterly to collect input and assess physical and cyber security concerns and suggestions. Responsibilities of the committee include, but are not limited to, reviewing security orders and policies, reviewing security incident reports, and planning drills.

Future Policy Statement

Risk Management 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 are 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

- Identify regulatory gaps and opportunities to continually improve OC San's safety and health management system to maintain the Cal/OSHA VPP designation.
- 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 WEROC, Orange County Sheriff Department, and local fire departments to plan and conduct disaster preparedness exercises and drills.
- Develop and conduct a comprehensive emergency exercise on a biannual basis to evaluate the effectiveness of systems, processes, and operational efficiency

Security

- Develop a physical security master plan based on findings from past audits and surveys with a focus on mitigating risk, compliance with applicable regulations and standards, and enhancing security measures in OC San facilities and operations.

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OC SAN
ORANGE COUNTY SANITATION DISTRICT

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