

CAPITAL IMPROVEMENT PROGRAM

ANNUAL REPORT | FISCAL YEAR 21/22

BUILDING A STRONGER FOUNDATION





LETTER FROM DIRECTOR OF ENGINEERING



The Orange County Sanitation District (OC San) Engineering Department builds towards the future of the agency while maintaining our levels of service Orange County residents have come to rely on every day. OC San's Capital Improvement Program (CIP) during the July 1, 2021 - June 30, 2022 Fiscal Year spent \$195 million on capital projects to replace and repair our facilities to uphold our mission to protect public health and the environment.

We have active projects constructing large structures that need a solid foundation, like a new grit handling building for the Headworks Rehabilitation Project, four new primary clarifiers to replace the original clarifiers constructed in the early 1960s, and a new Headquarters building to bring together 300 administrative staff under one roof.

A foundation does much more than support the weight of a structure. In an organization, the makings of a sturdy foundation include a vision, core values, and forward-thinking strategies. This combined with implementation programs continuously strengthen the stability of OC San. As stated recently by General Manager Jim Herberg, "OC San is on a solid footing, and the agency is well positioned for continued success into the future."

We have a comprehensive 20-year CIP that road maps a path that optimizes the refurbishment and replacement of our collection system and treatment plants. We take part in studies and research to improve water quality, seek opportunities for maximizing resource recovery, and look at innovative technologies such as supercritical water oxidation as a means for biosolids management. We incorporate what we learn into our work to address environmental matters of water recycling, energy conservation, seismic, and climate resiliency.

On behalf of the Engineering Department, I am pleased to present this year's CIP Annual Report. The effort and dedication to execute the CIP is accomplished by a team of extraordinary people I have the privilege to lead and work with every day. We not only aim to build strong foundations in the physical sense, but also the strong working relationships through cooperative efforts and collaboration with each other.

Kathleen T. Millea

Kathleen T. Millea, P.E.
Director of Engineering

Concrete placement for a new electrical duct bank on the A-Side Primary Clarifiers Replacement Project at Plant No. 2 in Huntington Beach.



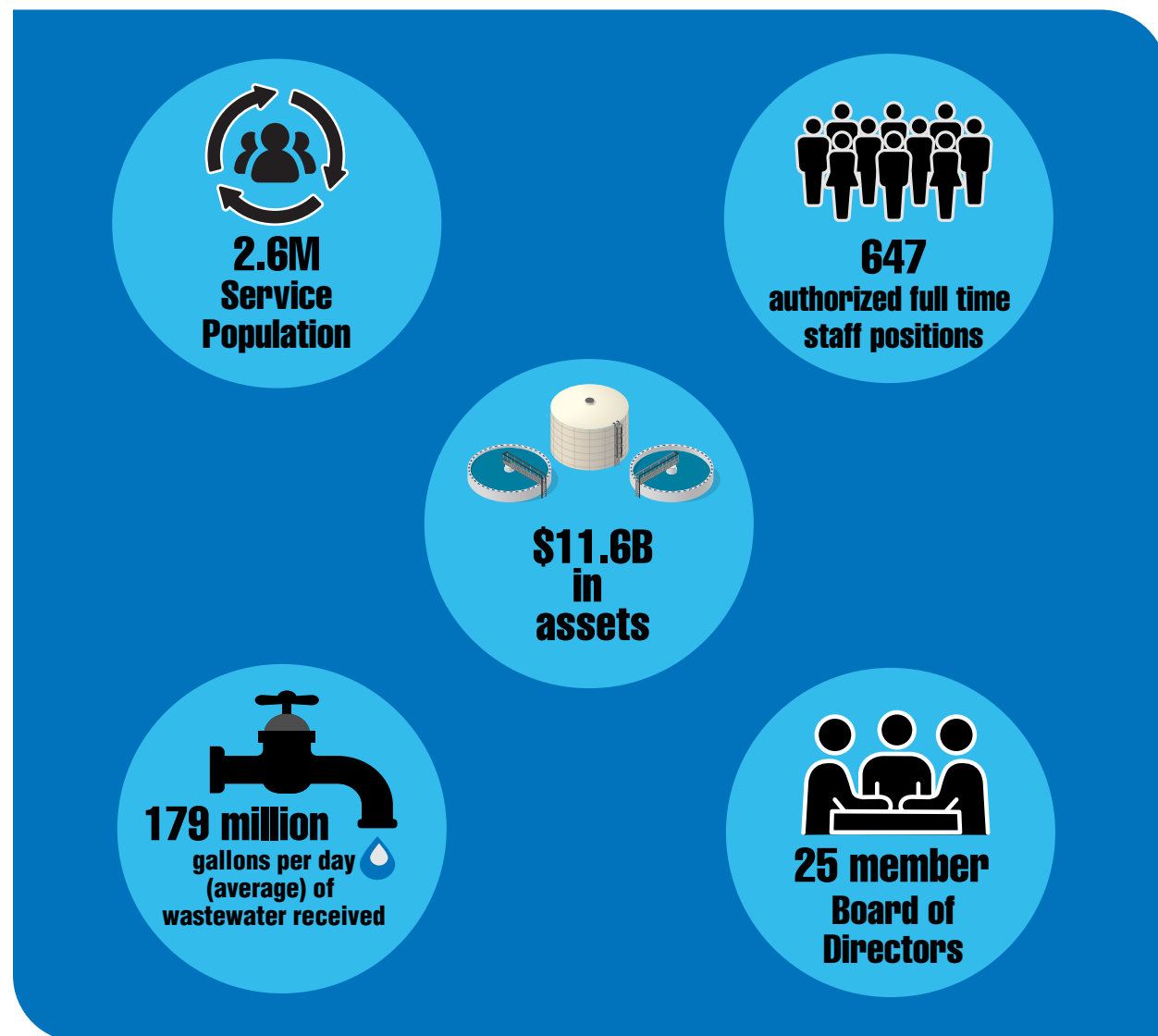
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AGENCY BACKGROUND

The Orange County Sanitation District (OC San) operates one of the largest wastewater agencies in the United States. Operations officially began in 1954, then known as the County Sanitation Districts of Orange County. Today, OC San provides wastewater collection, treatment, and recycling for approximately 2.6 million people living and working in central and northwestern Orange County, California.

OC San's wastewater collection facilities include 388 miles of regional sewer pipelines and 15 offsite pump stations, located throughout its 479 square miles of service area. Reclamation Plant No. 1 in Fountain Valley and Treatment Plant No. 2 in Huntington Beach treat an average of 179 million gallons of wastewater a day from residential, commercial, and industrial sources. The treated wastewater is either sent to the Orange County Water District for recycling or released out the end of a five-mile-long ocean outfall pipeline into the Pacific Ocean off the coast of Huntington Beach.



CAPITAL IMPROVEMENT PROGRAM OVERVIEW

The interconnected pipelines and pump stations that transport wastewater to OC San were not constructed overnight. In the early 1920s, cities partnered to address the public needs of a sanitary sewer system. This eventually launched the formation of the original sanitation district and building of a strong foundation OC San continues to uphold.

MISSION STATEMENT

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

Today’s OC San Capital Improvement Program (CIP) ensures that the current infrastructure remains reliable to fulfill the basis of the mission statement. The current CIP focuses on rehabilitating existing infrastructure to prolong its life in the most efficient and cost-effective ways and on modernizing older facilities that are nearing the end of their useful life. The CIP is a continuous process identifying and prioritizing risks and mapping a course for the agency. As a long-term guide, it charts a path moving forward for the next two decades.

The CIP provides the framework to deliver a robust plan that builds upon the groundwork and foundation that has already been laid through asset management and previous CIP Planning. The CIP helps to form a steady structure of safe and reliable infrastructure and process equipment that are essential to providing industry-leading wastewater collection and management.

During the July 1, 2021 - June 30, 2022 fiscal year, OC San’s CIP included over 90 active projects. These projects were in various phases between project development and completion, and range in budget from small projects of \$320,000 to large projects of \$421 million. This annual report highlights just a few of these active projects. For additional information about the CIP, please visit the website www.ocsan.gov/construction.

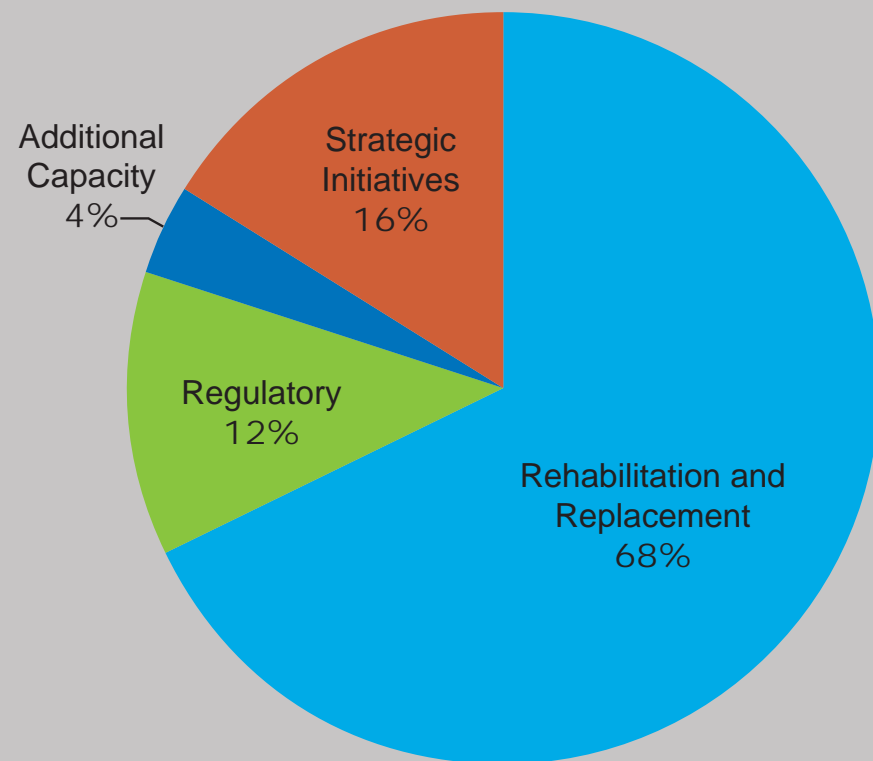
Globally, it has been years of uncertainty as we all try to rebound from the effects of the COVID-19 pandemic. The CIP continues to encounter challenges including keeping workers safe and healthy, dealing with rising construction costs, and managing project schedules based on the supply chain.



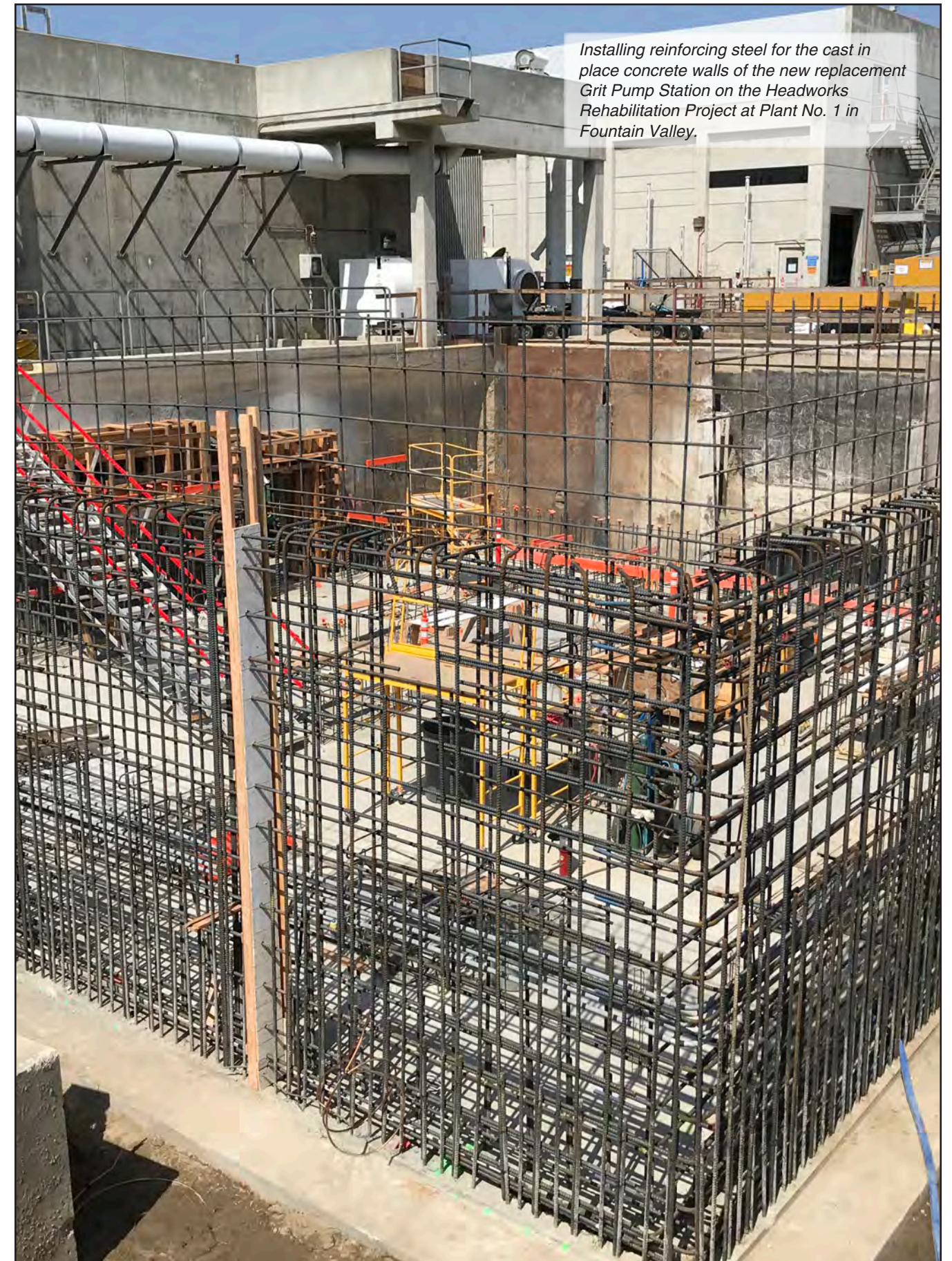
Reclamation Plant No. 1 in Fountain Valley.

OC SAN CIP PROJECT DRIVERS

OC San CIP projects are created based on four main drivers: rehabilitation and replacement, strategic initiatives, regulatory compliance, and additional capacity or the volume of what OC San can collect and treat. A breakdown of the current CIP projects for Fiscal Year 2022/23 are based on the four drivers shown here:



Many of the existing projects identified in the CIP address **rehabilitation and replacement** since existing infrastructure and process equipment are either at the end of useful life or in need of major rehabilitation to extend its life. Other projects are driven by **strategic initiatives** set forth by OC San’s 25-member Board of Directors. One such initiative is to support the final phase of the Groundwater Replenishment System and maximizing reclaimable wastewater availability to the Orange County Water District. There are current CIP projects in construction to support this initiative. As time moves forward, **regulatory requirements** often become more stringent, and projects are developed that keep OC San in compliance. Lastly, additional capacity may be needed to support growing populations. Most of the facilities were built anticipating and knowing growth, or **additional capacity** was inevitable. Because of long-term planning, there are few CIP projects that are driven by this category to add more capacity to handle more wastewater flows. However, there are some pipelines in the collection system that need upsizing to accommodate community developments and future growth.



ABOUT THE PEOPLE

OC San is currently in the midst of over a \$3.0 billion CIP for the next 10 years. The projected workload to achieve a CIP of this magnitude requires a great deal of resources. The successful deliverance of the CIP is a large endeavor and is achieved with agency-wide collaboration and support. These resources are the building blocks that come together to maintain and build upon the foundation of OC San.

The Engineering department is responsible for implementing the CIP by delivering world class engineered projects through skilled staff, technical excellence, proactive project planning, efficient project delivery, effective communication, and critical thinking. It includes 123 full-time staff positions in a variety of engineering, inspection, administrative, supervisory, and support roles.

Planning

OC San plans, prioritizes, and prepares projects for execution with the help from the Planning division. Projects are identified that are necessary to maintain the level of service OC San has committed to its customers. Using advanced asset management principles, asset engineers identify the condition, capacity, and lifespan of a facility and determine the timeframe for replacement and/or rehabilitation.

Project Management

The Project Management division delivers high quality, reliable, and cost-effective project solutions, managing projects from the project development through closeout phases.

Design

The Design division works closely with design consultants and ensures all projects are designed to be reliable, maintainable, and operable at optimum lifecycle costs in accordance with OC San's Engineering Design Guidelines and industry standards and codes.

Construction Management

The Construction Management division safeguards OC San assets, ensuring engineering projects are safely constructed and are fully inspected to be compliant with the contract documents while minimizing impacts to operations, maintenance, local agencies, and the public.

The Community Outreach Program supports the CIP and helps to keep OC San customers informed with a proactive approach, reaching out early when projects are still in the design phase and continuing through construction. Community liaisons connect with residents and businesses to work towards minimizing impacts associated with construction. The community liaisons work in good faith to address concerns and quickly respond to issues and provide reasonable solutions.

OC San also utilizes additional resources with supplemental engineering services. This allows the Engineering Department to obtain certain engineering disciplines, specialists, and technical experts as needed to ensure the successful and timely execution of the CIP. Having the ability to obtain needed resources and expertise continue to make the CIP successful. These services help OC San receive vital expertise assistance for critical projects to reduce project risk.



Collage of some of the staff that make up the Engineering Department.

PLANNING STUDIES

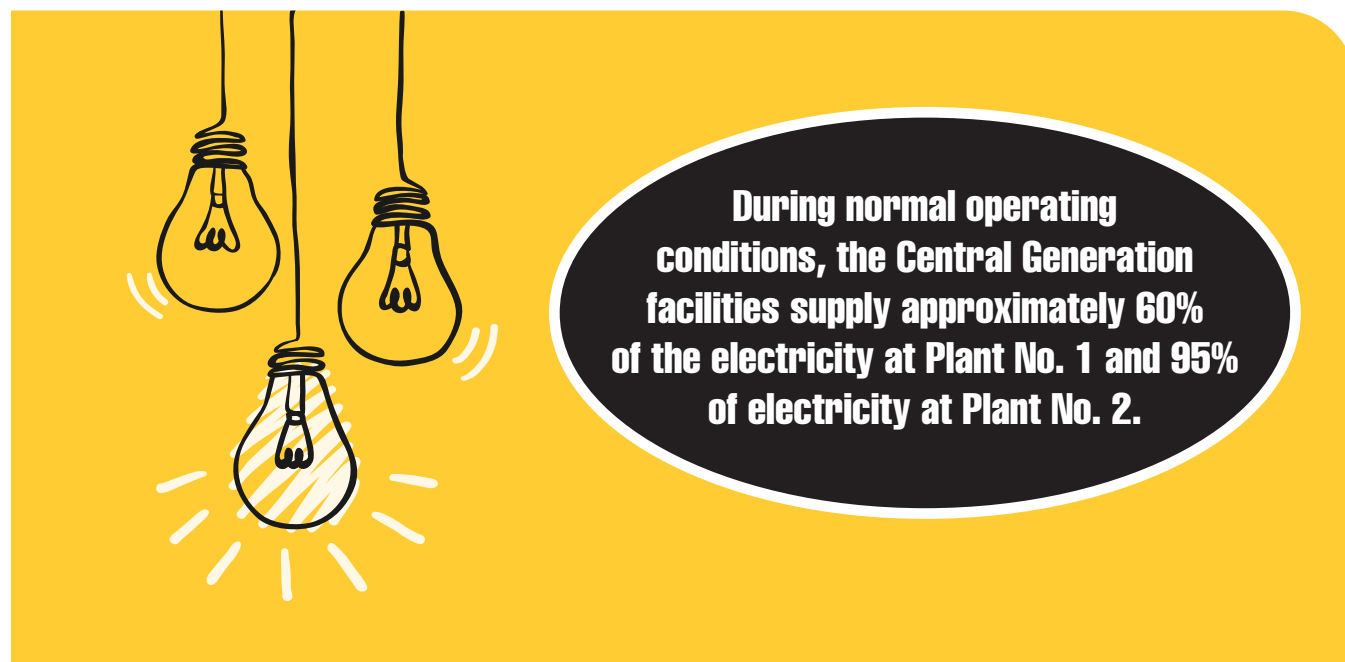
Planning Studies are comprehensive reviews that aim to collect data for analyses to provide results and recommendations. Outcomes from Planning Studies can ultimately result in new projects or elements that are added to or eliminated from the CIP. Rather than narrowly focused projects to solve individual problems, studies are comprehensive and cover larger areas with a more encompassing approach.

Energy and Digester Gas Master Plan

In the early 1990s, OC San constructed eight internal combustion engines at the Central Generation facilities at Plant Nos. 1 and 2 to generate electricity using digester gas with the excess heat used for digester heating, pipeline maintenance, and heating and cooling buildings.

OC San's 2021 Strategic Plan includes an Energy Independence Policy. With this policy in place, OC San strives to be a net energy exporter by maximizing electrical, thermal and methane gas generation while minimizing energy using sound engineering and financial principles.

The Energy and Digester Gas Master Plan will provide a road map with options for OC San's beneficial use of digester gas. This study will look at long-term options if the engines can no longer be maintained due to lack of parts, or if regulations become more stringent. This study will also establish a standby power policy, update OC San's power outage response plan and procedures, and evaluate alternative power generation and energy storage methods. Conducting this study now will provide a road map that includes options with implementation triggers to guide timely future CIP projects that will address the beneficial use of digester gas and standby power needs.



Regional Urban Runoff Diversion Optimization Study

OC San accepts dry weather urban runoff flows from local agencies to improve water quality in streams, rivers, and beaches in OC San's service area. OC San's Dry Weather Urban Runoff Diversion Program allows the diversion of up to 10 million gallons per day of dry weather urban runoff into OC San's treatment plants.

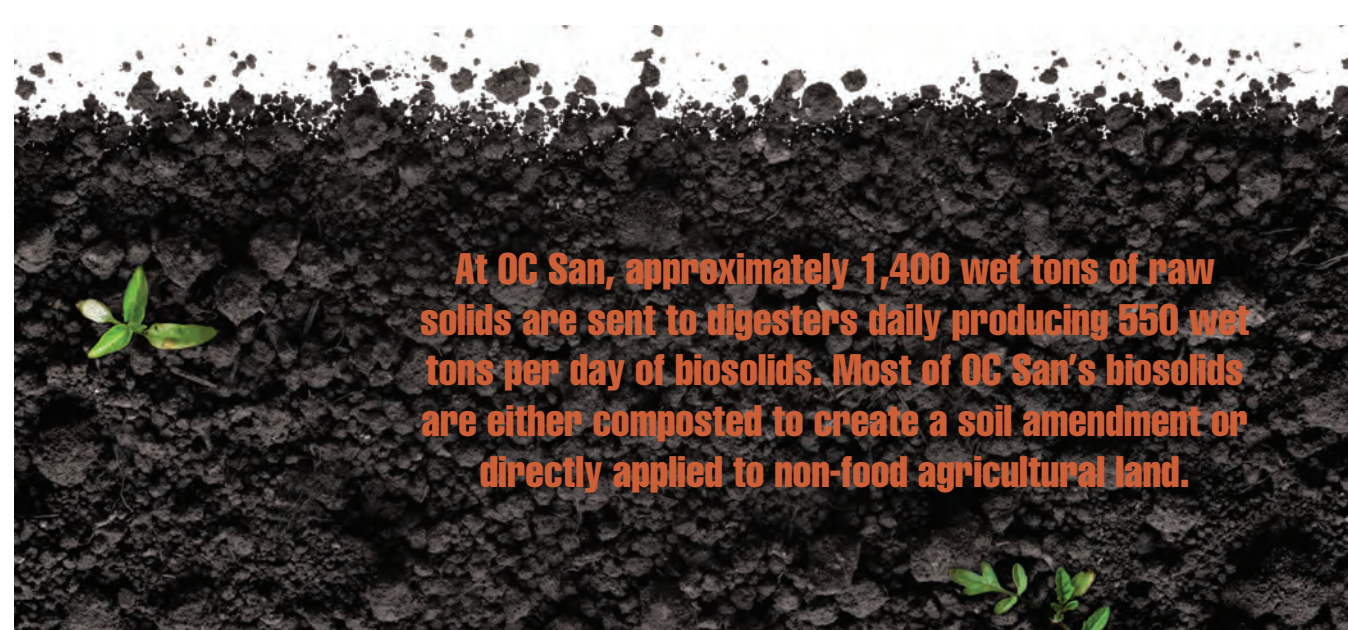
With the Regional Urban Runoff Diversion Optimization Study, OC San is collaborating with the Orange County Water District (OCWD) and OC Public Works. This will be a comprehensive engineering study to identify feasible opportunities to improve water quality to the ocean, and increase water recycling by maximizing OC Public Works runoff management systems, OC San treatment systems, and OCWD recycling and recharge systems.

Supercritical Water Oxidation Demonstration at Plant No. 1

OC San collects and processes on average of 179 million gallons of wastewater every day. Cleaning this water results in concentrated solids called sludge and scum. These solids are processed through anaerobic digestion to create methane-rich gas and biosolids. The methane-rich gas is cleaned and used in the treatment plants to make electricity and heat. Biosolids, the enriched nutrients, are the residual material commonly used in the agricultural, non-human food crop industry as a soil amendment.

OC San maintains a diverse portfolio of biosolids management options that utilize multiple contractors, facilities, and produce markets, while maintaining fail-safe back-up options. This portfolio ensures that there are reliable options for managing the material should regulations, market conditions, severe weather, or other situations impact any one management option.

Staff have been following a new technology called supercritical water oxidation for solids treatment that takes advantage of a unique property of water at high temperature and pressure. The technology presents an opportunity to convert all complex organic material (including plastics and PFAS) to more basic compounds like nitrogen, water, carbon dioxide, and mineral salts. This research project will install a pilot system using supercritical water oxidation to process six tons per day of biosolids.



At OC San, approximately 1,400 wet tons of raw solids are sent to digesters daily producing 550 wet tons per day of biosolids. Most of OC San's biosolids are either composted to create a soil amendment or directly applied to non-food agricultural land.

Ocean Outfall Condition Assessment and Scoping Study

The original ocean outfall into the Pacific Ocean was constructed in the 1920s. By the 1950s, a new 78-inch outfall approximately one mile long was constructed. In the 1970s, a 120-inch outfall five miles long was constructed and is still used today to discharge OC San's Plant No. 2 effluent off the coast of Huntington Beach. The last mile of the ocean outfall pipeline is a diffuser with over 500 ports through which treated wastewater is slowly released at a depth of 200 feet.

This study performed a condition assessment on the aging outfall. The assessment included an internal inspection by remote operated vehicle, external inspection by divers, port cleaning and clearing, development of a 3D model using both internal and external mapping, and a study on the impacts of low flows through the outfall due to increased water recycling.



A remote operated vehicle was lifted by a crane and slowly lowered into a surge tower at Plant No. 2 in Huntington Beach to perform an internal inspection of the ocean outfall.

COLLECTION SYSTEM

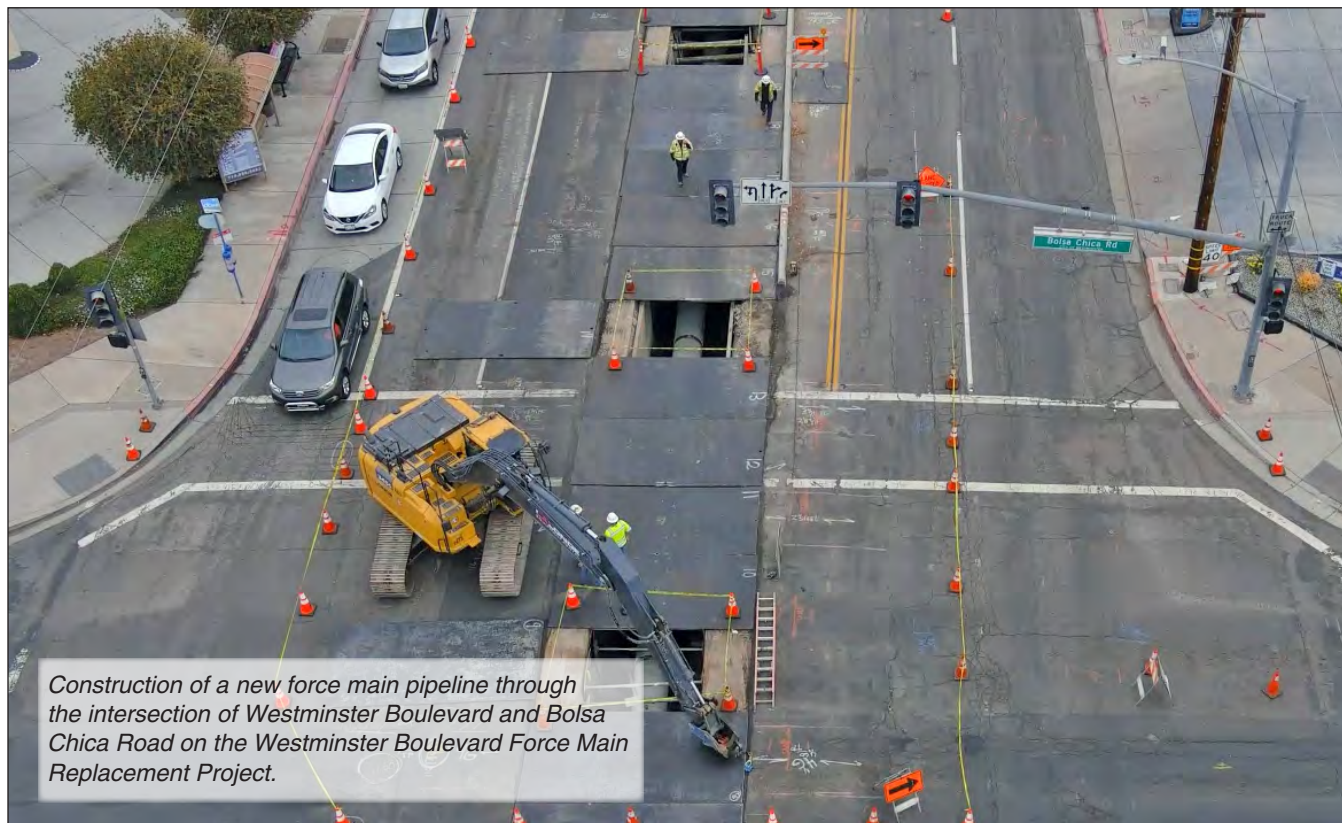
OC San treats wastewater at its two facilities located in either Fountain Valley or Huntington Beach. The collected wastewater of 2.6 million customers is transported through the regional collection system — an elaborate interconnected series of pipelines, manholes, and pump stations. Projects within OC San’s collection system throughout 21 cities, three special districts and portions of the unincorporated area of Orange County are planned, designed, and constructed to keep the wastewater system running efficiently and effectively.

Since most projects in the Collection System are on the streets and in the public eye, the community outreach team has a significant role by communicating often and promptly responding to the impacted community.

FISCAL YEAR 2021/22 COMMUNITY OUTREACH STATS

3 active projects currently in construction impacting 9 cities

Over 100 information pieces reaching over 120,000 residents, businesses, and schools about construction activity in their neighborhoods.



Construction of a new force main pipeline through the intersection of Westminster Boulevard and Bolsa Chica Road on the Westminster Boulevard Force Main Replacement Project.

Taft Branch Improvements, Project No. 2-49

The Taft Branch Improvements Project will be adding capacity to the collection system. Originally constructed in 1960, the clay pipe of the Taft Branch Sewer located in the City of Orange ranges in size from 12- to 18-inches in diameter. A previous Collections Capacity Evaluation Planning Study identified the pipeline of not having enough capacity when modeled under wet weather flows. Subsequently, the 2019 Facilities Master Plan recommended the upsizing of approximately 10,000 feet of the Taft Branch to address the insufficiencies.

This project is still early in the design, finalizing the Preliminary Design Report at the end of the CIP Annual reporting cycle. Construction is anticipated to begin in 2024.

Seal Beach Pump Station Replacement, Project No. 3-67

The Seal Beach Pump Station was constructed in 1973 and is located at the intersection of Seal Beach Boulevard and Westminster Boulevard in the City of Seal Beach. For some time now, the pump station has been showing its age with frequent maintenance needs and many electrical, mechanical, and control systems components becoming obsolete.

This project will build a new pump station with an electrical room, odor control improvements with vapor-phase and liquid-phase treatment to minimize both upstream and downstream odors and corrosion, and an emergency generator. These new facilities will be built within the same footprint, while keeping the existing pump station in service until it can be demolished at the completion of the project. The pump station will have a deep 50-foot wet well which will allow gravity flow from a future sewer pipeline project that will ultimately allow for the abandonment of the West Side Pump Station located in the Community of Rossmoor. When complete, the site will be structures, a perimeter wall, and landscape designed with Spanish mission style architecture to seamlessly blend with the City of Seal Beach City Hall.

The design is nearly complete and will advertise later this year. Construction is anticipated to begin Fall 2023 and take four years to complete.

Westminster Boulevard Force Main Replacement, Project No. 3-62

This project in the cities of Seal Beach and Westminster replaces three miles of the dual force main system from the Seal Beach Pump Station along Westminster Boulevard ending near Rancho Road. This project included an assortment of construction methods varying from open cut excavation, sliplining, and cured-in-place pipe. The more traditional construction method is open cut, or the use of an open trench excavation to replace the pipeline. With sliplining, a new smaller pipe is pulled into the larger host pipe through excavated pits several hundred feet apart. Cured-in-place pipe is a rehabilitation method that cures an inserted liner into an existing pipe.

Construction began in 2020 and is anticipated to be completed by late 2022.

Gisler-Red Hill Interceptor and Baker Force Mains Rehabilitation, Project No. 7-65

This project consists of multiple elements that will optimize and maximize the service lives of the Gisler-Red Hill Interceptor and Baker Force Mains. It also includes improvements to associated pipelines, manholes, and other appurtenances.

The Gisler-Red Hill Interceptor is a gravity pipeline that runs adjacent the 405 freeway in the City of Costa Mesa. There are also several tributary trunks that cross underneath the wide, multi-lane freeway that will be rehabilitated as part of this project. These pipes, like branches, feed additional collected wastewater directly into the Gisler-Red Hill pipeline on its journey to the treatment plant. The Baker Force Mains run side-by-side from the Main Street Pump Station located in the City of Irvine through an industrial area adjacent the John Wayne Airport. These pipelines and force mains will be rehabilitated using the cured-in-place pipe method. This project will also include upgrades and modifications to the piping and vault improvements at the Main Street Pump Station.

The project is anticipated to advertise late 2022 and begin construction Spring 2023.

Rehabilitation of Western Regional Sewers, Project No. 3-64

This project is a combined program to replace or rehabilitate the regional sewers in OC San's northwestern service area of the cities of Los Alamitos, Cypress, La Palma, Buena Park, Anaheim, Seal Beach, and Rossmoor, an unincorporated area. These sewers range in age from 40 to 60 years and require refurbishment. To manage public impacts and resource demands, the work was divided into separate contracts to be completed on separate schedules.

The **Orange-Western Sub-Trunk Rehabilitation** rehabilitates 2½ miles of pipeline along Orange Avenue between Valley View Street and Western Avenue and along Western Avenue between Orange Avenue and Santa Elena Drive in the cities of Anaheim, Cypress, and Buena Park. The project also includes the rehabilitation of 35 manholes.

Los Alamitos Trunk Sewer Rehabilitation will rehabilitate 6 miles of pipeline and work on over 70 manholes in the cities of Seal Beach, Los Alamitos, and Cypress.

The two projects were bid together, and began construction in January 2022 and will be completed by 2023.

The **Los Alamitos Sub-Trunk and Westside Relief Interceptor Rehabilitation Project** is the final project of the Western Regional Sewers program. Primarily in the city of Cypress with some work in the cities of La Habra and La Palma, it will rehabilitate or upsize over 6½ miles of pipeline.

This project is currently in design and is anticipated to begin construction Summer 2023 and last approximately 3 years.



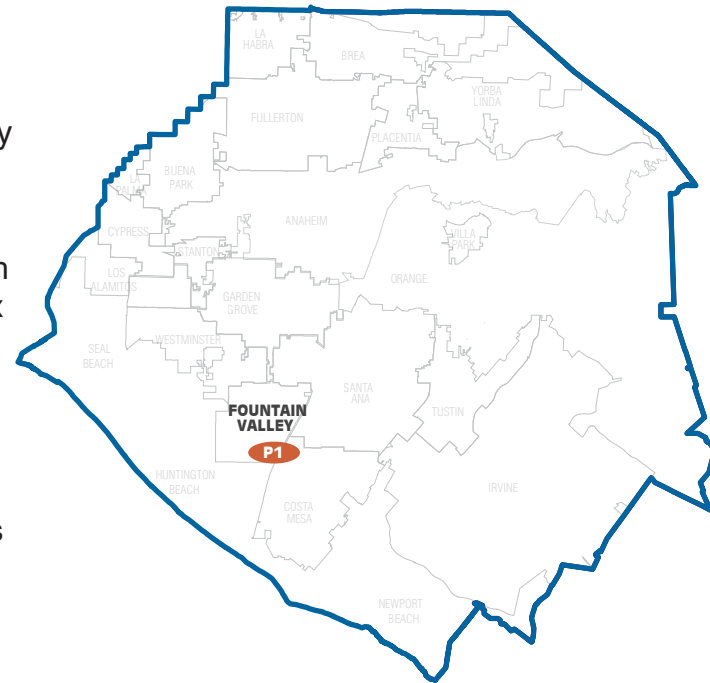
The contractor on the Los Alamitos Trunk Sewer Rehabilitation project is monitoring heat and pressure during the curing process of a manhole liner.

PLANT PROJECTS

PLANT NO. 1

OC San's Reclamation Plant No. 1 is located in the City of Fountain Valley. It is bounded by Ellis Avenue, Ward Street, Garfield Avenue, and the Santa Ana River, with the 405 Freeway near the front entrance.

The treatment facilities have expanded over the past 68 years. Making sure there is enough room to build new structures can be a complex puzzle of moving pieces. Wastewater enters the treatment plant 24/7, and the 2.6 million customers rely on OC San's sewer services to continuously collect, treat, and recycle. Some challenges of capital improvement projects include maintaining existing structures and having available space to construct new structures, all while maintaining the required level of service.



Headworks Rehabilitation at Plant No. 1, Project No. P1-105

The Headworks Facility is where all incoming sewers converge through a series of pipes, screens, and gates that make up the preliminary phase of a wastewater treatment plant. Headworks are critical water-in, water-out facilities and cannot be readily taken out of service.

The current Headworks facilities include the original facilities built and modified between the 1950s and 1960s, only used for emergencies, and the active facilities which began service in 1989. The facilities are mechanically intensive, operate in a very corrosive environment, require frequent maintenance and servicing, and can generate substantial odors. Complete rehabilitation, including demolition of abandoned facilities, is needed to ensure efficient and reliable operation of this critical facility. The nature of these facilities makes the work highly complex and risky. The project must maintain wastewater flow in active portions of the headworks while rehabilitation work is performed.

With a cost of \$222.3 million, it is OC San's largest construction project to date. This is a complex project requiring extensive coordination with plant operations due to the challenging rehabilitation work with confined space entry and handling live flows. The plant must continue to operate in compliance with regulatory requirements during construction without disruption.

Most of the construction in the first year consisted of major demolition to make room for the construction of new structures, tunnels, and buried utilities. Over 500 foundation piles were driven for several new structures including a grit pump station, grit handling building, headworks odor control and chemical facility, a drainage lift station, electrical buildings, and other support systems.

Construction began in 2021 with six more years until completion.



South Perimeter Security and Utility Improvements at Plant No. 1, Project No. P1-134

Even with a strong foundation, the structure itself needs to be protected. OC San's facilities are considered critical infrastructure under Homeland Security Guidelines. To provide the necessary protection, the southern end of the plant is getting a few security improvements. A chain link fence will be replaced with a new perimeter wall along Ward Street. The new brick wall will be eight feet high and made to match the existing wall along Ellis Avenue with new landscaping. Additional security measures will be installed as part of the project including interior security lighting, cameras, and a permanent security guard house.

The project is scheduled to be completed later this year.



A new brick wall is being constructed at Plant No. 1 as part of the South Perimeter Security and Utility Improvements Project.

Primary Sedimentation Basins No. 6-31 Reliability Improvements at Plant No. 1, Project No. P1-133

After wastewater flows through the Headworks, it moves on to the second liquid stage called primary treatment. Primary treatment removes approximately 75-80 percent of suspended solids from wastewater using large concrete basins known as primary clarifiers or sedimentation basins. Plant No. 1 includes two sets of primary clarifiers; a set of 26 rectangular clarifiers and a much older set of three circular clarifiers. Regardless of their shape, the primary function of the clarifiers is to settle the solids. Heavier solids in the water sink to the bottom and lighter less, dense materials float to the top.

This project will rehabilitate and make improvements to the rectangular primary clarifiers. Ensuring these facilities are in good working condition is paramount for OC San to maintain the required level of service. With a future construction project that will take the circular clarifiers out of service, the rectangular clarifiers need to be reliable to safeguard and reduce risks.

This project is currently in construction and will be completed in 2024.

Primary Sedimentation Basins No. 3-5 Replacement at Plant No. 1, Project No. P1-126

The circular primary clarifiers at Plant No. 1, built in the 1950s and early 1960s, and many of their associated support facilities including the primary odor control facility are nearing the end of their useful life. The facilities will become increasingly unreliable as time passes and need to be replaced. The rehabilitation of the rectangular primary clarifiers in the project above will be completed by the time construction begins on this replacement project.

This project is currently in preliminary design. Construction is anticipated to start in 2026 and take approximately five years to complete.



View of the circular primary clarifiers at Plant No. 1 in Fountain Valley.

Headquarters Complex, Project No. P1-128A

Current OC San administrative staff are dispersed throughout the 100-acres of Plant No. 1 in aging buildings and trailers that are in need of repairs and require upgrades and a nearby office building. As part of OC San’s long-term planning, the 2017 Facilities Master Plan identified the need for additional land area for future treatment process needs. With the lay of the land much more developed today than during the original formation of OC San, finding additional space for treatment facilities will become much more difficult to come by. As time goes on, additional process facilities to support the growing needs of Orange County will require land space. In an effort to preserve treatment process space at the existing Plant No. 1 site, a new Headquarters Complex is being constructed offsite.

The new administrative headquarters building will be a hybrid of mass timber columns and decking combined with exposed steel-braced framing. Mass timber is made up for compressed layers of wood and engineered for high strength ratings like concrete and steel but significantly lighter in weight. It also provides a natural warmth on the interior of the building. The new building is set to achieve LEED Gold certification and is on the path to be net zero energy. Residual water from the treatment plant processes will supply 100 percent of the new Headquarters’ heating and cooling.

Construction began Fall 2021 and will wrap up by late 2023.



The foundation work is completed and vertical structural steel elements and mass timber are starting to go up on the Headquarters Complex Project.

Architectural rendering of the front lobby with mass timber elements.



Architectural rendering of the Headquarters Complex and bridge at night, view from Ellis Avenue.

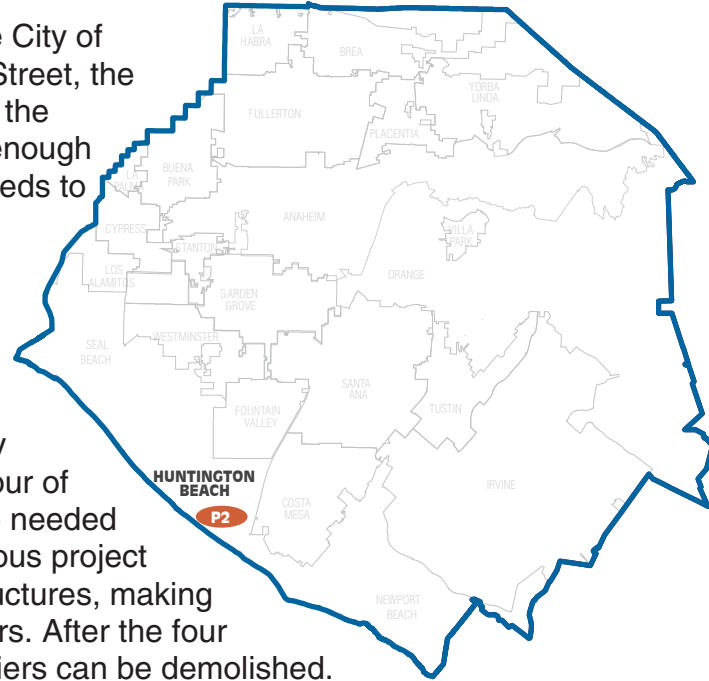
PLANT NO. 2

OC San's Treatment Plant No. 2 is located in the City of Huntington Beach. It is bordered by Brookhurst Street, the Talbert Marsh along Pacific Coast Highway, and the Santa Ana River. Similar to Plant No. 1, having enough space for process facilities is a challenge that needs to be assessed when planning any project.

A-Side Primary Clarifiers Replacement at Plant No. 2, Project No. P2-98A

Projects are cohesively planned when implementing the CIP. Knowing four new primary clarifiers will need to be constructed to replace four of the oldest clarifiers at Plant No. 2, enough space needed to be reserved for the project to happen. A previous project was completed in 2020 to demolish obsolete structures, making room for the construction of new Primary Clarifiers. After the four primary clarifiers are constructed, the older clarifiers can be demolished.

Construction started earlier this year and will be completed in 2026.



Headworks Modifications at Plant No. 2 for GWRS Final Expansion, Project No. P1-122

Finding a reliable water source continues to be a critical issue in the desert landscape of Southern California. The Groundwater Replenishment System (GWRS) is a partnership between OC San and the Orange County Water District. Final Expansion of the world's largest purification system for indirect potable reuse will help OC San meet its goal of recycling 100 percent of reclaimable flows. This will increase the production of potable water from 100 to 130 million gallons per day, enough water for one million people.

The Headworks Modifications project will allow OC San to reclaim Plant No. 2 wastewater for potable reuse. The Headworks Facility is where all incoming sewers converge as it first enters the plant. The Headworks system needs to be reconfigured to separate wastewater flows from reclaimable and non-reclaimable sources. Without the separation, any non-reclaimable flows will mix with the reclaimable, losing the opportunity to recycle Plant No. 2 wastewater through the GWRS.

This project began construction in 2020 and will be completed by late 2022.

TPAD Digester Facility at Plant No. 2, Project No. P2-128

Liquids and solids in wastewater are separated as it goes through the treatment process. Sludge is a byproduct of wastewater treatment that requires further processing in digesters to reduce pathogens and volatile organic content. Digesters are large enclosed concrete structures requiring pumping, mixing, heating, and gas handling systems.

Digesters mimic the stomach, allowing good bacteria go to work breaking down the organic molecules in sludge and producing methane gas. The digested sludge is called biosolids, that are beneficially reused in compliance with state and federal requirements. OC San recycles biosolids as a bulk soil amendment for farms or compost facilities. As a renewable resource, the methane gas that is generated is converted into electricity to produce the power and heat that run the plant.

OC San has 18 digesters at Plant No. 2 that were built from 1959 through 1979. A comprehensive Biosolids Master Plan completed in 2017 recommended upgrading the existing digester complex with Temperature Phase Anaerobic Digestion (TPAD) facilities.

Four main sequential projects have been incorporated into the CIP which will ultimately replace the entire digester complex by 2040. The first project will build 5 new TPAD digesters. These new digesters will be constructed at the southwest corner of Plant No. 2, immediately adjacent the current digester complex.

The Preliminary Design Report was completed in January 2022. With construction currently estimated at \$290 million, this is anticipated to be the largest project to date when it starts construction in 2025 and takes approximately five years to complete.



Aerial view of Plant No. 2 where four new primary clarifiers will be constructed as part of the A-Side Primary Clarifiers Replacement Project.

JOINT PROJECTS

At OC San, joint treatment plant projects are those that benefit both treatment plants, many times stretching across plant boundaries or relating to support facilities that are not treatment process oriented.

Ocean Outfall System Rehabilitation, Project No. J-117B

The Ocean Outfall Booster Station is the primary pump station and last stop before non-reclaimable treated wastewater is released through the ocean outfall. With the final expansion of GWRS, less flows will be sent out through the ocean outfall, much less than what the Ocean Outfall Booster Station was originally designed and constructed to handle over 30 years ago.

With more water recycling, the pumps are sized much too big, causing inefficiencies. Because of this, a low flow pump station needs to be constructed with pumps sized more appropriately to better reflect the amount of treated wastewater released through the ocean outfall.

Construction started Spring 2019 and is anticipated to be completed in 2024.

Process Control System Upgrades, Project No. J-120

Most of the projects highlighted thus far have focused on the actual structures themselves. What has not been mentioned is the system of networks, servers, and software for process monitoring and control of the collections system and treatment plants. OC San uses a system that provides automatic control and allows operators to interactively monitor and control process facilities from centralized areas.

Just as critical infrastructure such as pipelines, pump stations, and process facilities need to be rehabilitated or replaced over time, the same goes for the software system. The existing human-machine-interface system software package is no longer supported by any vendors and increasingly difficult to service and maintain. The whole system needs to be replaced and upgraded for OC San to have a reliable system.

Upgrades are anticipated to be completed throughout Plant Nos. 1, 2, and pump stations by 2025.



Forming and pouring the concrete walls for the new low flow pump station and plant water pump station structure on the Ocean Outfall System Rehabilitation Project.

FINANCIAL DATA

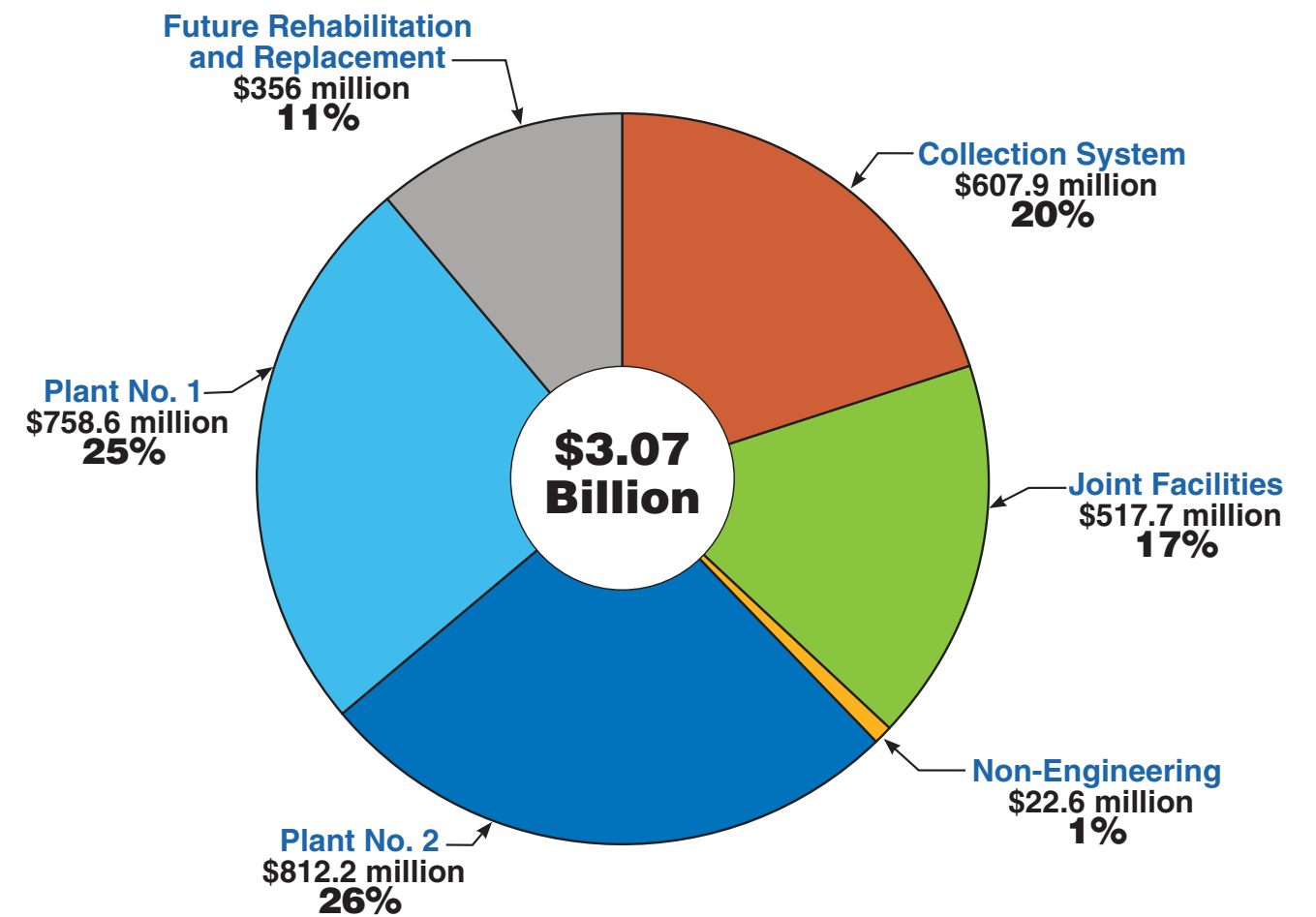
Capital Improvement Program (CIP) projects take many years to complete the planning, design, and construction cycle. The budget includes the total cost from beginning to end of the project.

Each year the CIP is put through a validation effort to ensure that every project is needed, has the appropriate level of resources, and is scheduled properly. This validation accounts for cash-flow projections and planning efforts to assure projects are being constructed at the right time and with the right budget. The CIP budget is approved annually by the Board of Directors as part of the overall budget process.

OC San's CIP budget includes large facility improvement projects that are carried out by the Engineering Department. It also includes non-engineering projects that include Information Technology and Maintenance projects not detailed in this report.

OC San is projecting to spend \$3.07 billion in treatment plant and collection system capital replacement, refurbishments, and rehabilitation improvements over the next ten years. Below is a breakdown of costs by the various locations and categories.

10-Year Net CIP Outlay Fiscal Years 2022/23 through 2031/32



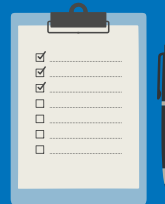
Fiscal Year 2021/22 CIP Stats



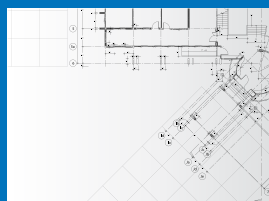
90+
active
projects



7
construction
contracts
completed



6
planning studies
contracts
awarded



4
professional
design service
contracts
awarded



16
construction
contracts
awarded

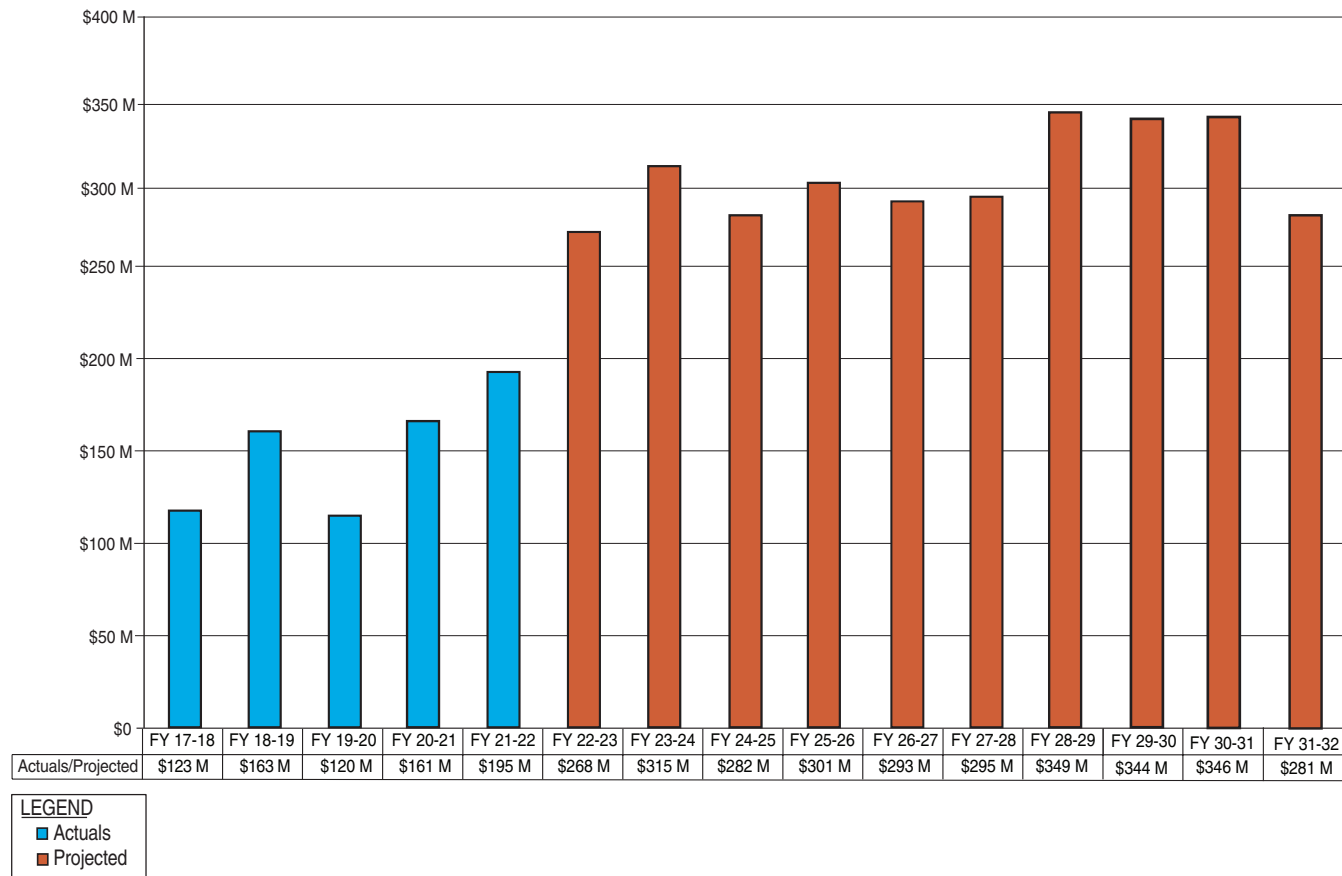


\$195M
CIP
spending

CASH FLOW

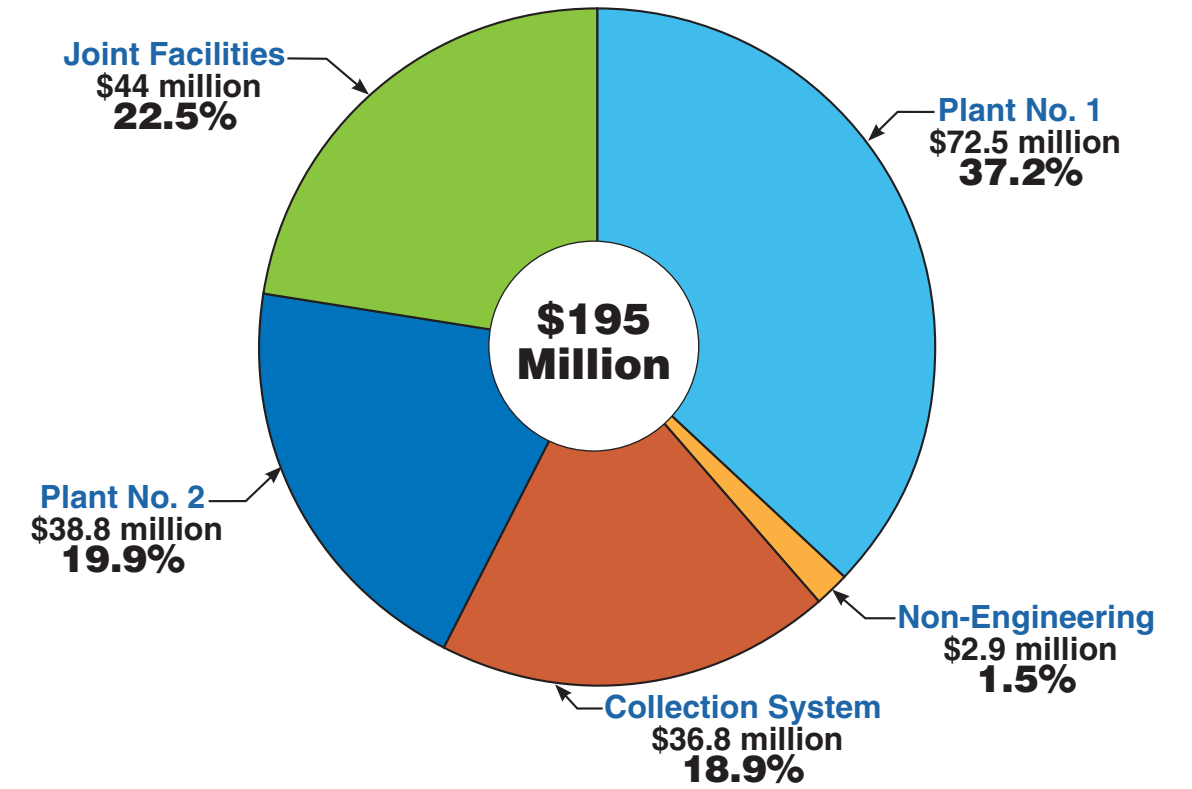
The Annual Net CIP Outlay table below shows the actual expenditures for the past five years of the program and the projected budget for the next ten years. The forecasted budget is trending upwards as the Engineering Department prepares for a construction boom, anticipating future CIP spending ranging between \$250 and \$350 million annually.

Annual Net CIP Outlay

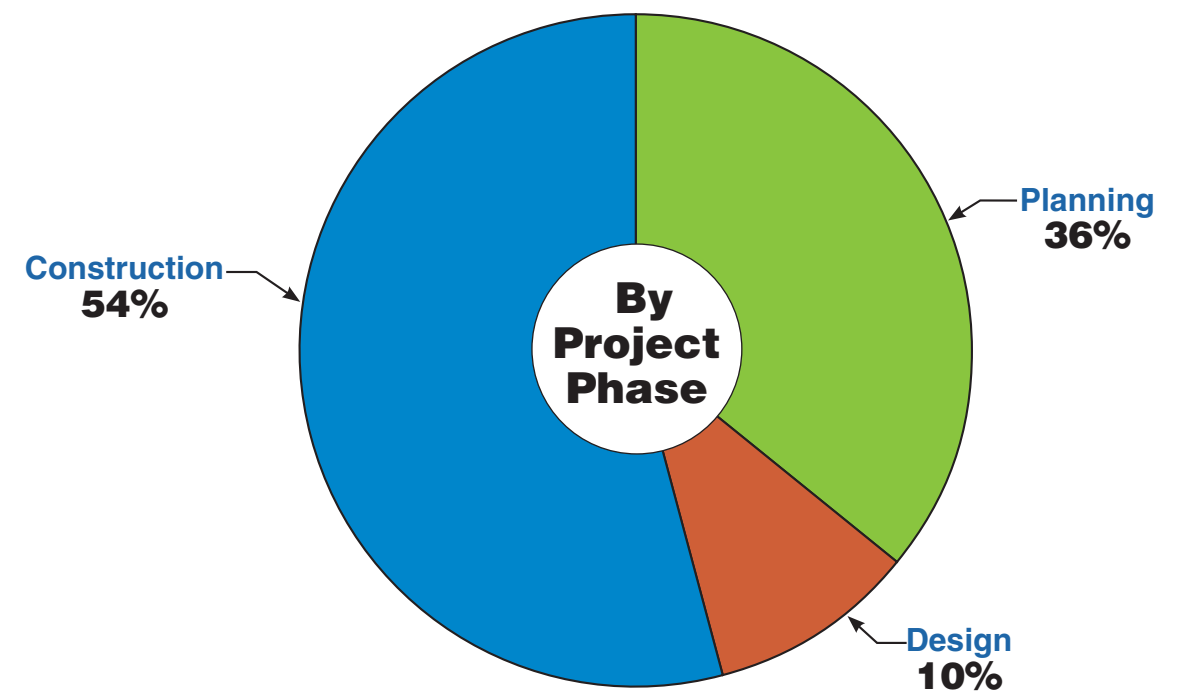


Actual spending during the CIP Annual reporting period show CIP expenditures of \$195 million, with 54% of those projects in construction. As the projected CIP spending increases in the coming years, construction is anticipated to increase from 54% to 80% the following year!

Fiscal Year 2021/22 CIP Expenditures



Fiscal Year 2021/22 Active Projects



CONTRACT ACTIVITY

The Engineering Department works closely with the Contracts Administration division to award design and construction contracts.

There were over 90 active small and large projects in various phases from project development through project completion. The following pages show the new contracts that were awarded during Fiscal Year 2021/22, sorted by the Date of Award. The amount of award is rounded to the nearest thousand. Non-engineering projects are not included in the tables.

PLANNING STUDIES CONTRACTS AWARDED					
Location(s)	Project No.	Project Name	Consultant	Amount of Award	Date of Award
Plant No. 2	PS20-03	Truck Loading Bay Odor Control Improvements Study at Plant No. 2	Hazen and Sawyer	\$226,000	August 2021
Plant No. 2	PS20-01	Collections Yard Relocation Feasibility Study	AECOM Technical Services, Inc.	\$147,000	September 2021
Costa Mesa	PS20-07	College Pump Station Wet Well Condition Assessment Study	HDR Engineering, Inc.	\$182,000	January 2022
Plant No. 1	PS21-03	Process Model for Denitrification Alternatives at Activated Sludge 1	HDR Engineering, Inc.	\$25,000	January 2022
Plant No. 1	PS20-09	Thickening & Dewatering Plant Water Study at Plant No. 1	HDR Engineering, Inc.	\$220,000	April 2022
Plant Nos. 1 and 2	PS21-04	Energy and Digester Gas Master Plan	Brown and Caldwell	\$1,438,000	June 2022

DESIGN CONTRACTS AWARDED					
Location(s)	Project No.	Project Name	Consultant	Amount of Award	Date of Award
Plant No. 2	P2-137	Digesters Rehabilitation at Plant No. 2	CDM Smith Inc.	\$2,650,000	March 2022
Plant No. 1	P1-126	Primary Sedimentation Basins No. 3-5 Replacement at Plant No. 1	Black & Veatch	\$14,163,000	April 2022
Costa Mesa, Santa Ana	1-23	Santa Ana Trunk Sewer Rehabilitation	Stantec Consulting Services, Inc.	\$388,000	April 2022
Plant No. 2	FE21-05	Warehouse Stations and Demolition at Plant No. 2	ProjectLine Technical Services Inc.	\$288,000	April 2022

CONSTRUCTION CONTRACTS AWARDED					
Location(s)	Project No.	Project Name	Contractor	Amount of Award	Date of Award
Costa Mesa, Irvine	7-66	Sunflower and Red Hill Interceptor Repairs	Charles King Company	\$4,777,000	July 2021
Fullerton	FE10-21	Area 02 Craig Regional Park Manhole Improvements	Deark E&C, Inc.	\$427,000	July 2021
Plant No. 1	P1-134	South Perimeter Security and Utility Improvements at Plant No.1	Tovey-Shultz Construction, Inc.	\$4,397,000	July 2021
Huntington Beach	FE18-12	Erosion Control at Santa Ana River and Hamilton Ave	Engineering & Environmental Construction	\$162,000	September 2021
Newport Beach	FE19-01	Pump Station Portable Generator Connectors	Pacific Industrial Electric	\$1,207,000	September 2021
Plant No. 2	FE19-06	EPSA Motor Cooling Improvements at Plant No. 2	MMC, Inc.	\$854,000	September 2021
Plant No. 1	FE18-16	Truck Loading Basement Drain Modifications at Plant No. 1	MMC, Inc.	\$163,000	October 2021
Plant No. 1	FE19-04	Sunflower Pump Replacement at Plant No. 1	GSE Construction Company, Inc.	\$2,123,000	October 2021
Plant No. 1	FE19-03	Trickling Filter Sludge and Scum Pumps Replacement at Plant No. 1	Garney Pacific, Inc.	\$778,000	February 2022
Plant No. 1	FE20-06	Thickening and Dewatering Building Pipe Support Improvements at Plant No. 1	Garney Pacific, Inc.	\$793,000	February 2022
Plant No. 1	P1-133	Primary Sedimentation Basins No. 6-31 Reliability Improvements at Plant No. 1	Shimmick Construction	\$6,275,000	February 2022
Plant No. 2	FE19-08	Secondary Treatment VFD Replacements at Plant No. 2	ACS Engineering	\$1,433,000	March 2022
Seal Beach	FE19-13	VFD Replacements at Seal Beach Pump Station	Energy Management Corporation	\$139,000	March 2022
Plant No. 1	FE20-07	Santa Ana Trunk Rehabilitation at Plant No. 1	Sancon Technologies Inc.	\$395,000	April 2022
Plant No. 1	FE21-02	Lighting Improvements Boiler and Sludge Dewatering Areas at Plant No. 1	Leed Electric	\$82,000	May 2022
Santa Ana	FE18-13	Redhill Relief Sewer Relocation at State Route 55	SRK Engineering, Inc.	\$2,213,000	June 2022

The life of a project goes through several phases. Construction contracts are awarded to contractors that perform the work elements of the project during the construction phase. This table shows the construction contracts that were completed between July 1, 2021 and June 30, 2022.

CONSTRUCTION CONTRACTS COMPLETED					
Location(s)	Project No.	Project Name	Contractor	Total Contract Amount	Date of Completion
Plant No. 2	FE18-19	12KV Distribution B and East RAS Pump Station Roofing Replacement	O'Connell Engineering & Construction, Inc.	\$691,464	July 2021
Plant No. 2	P2-98B	B/C-Side Primary Clarifiers Interim Repair at Plant 2	Myers & Sons Construction, LLC	\$9,158,356	August 2021
Plant Nos. 1 and 2	J-126C	NFPA 820 HVAC and Electrical Improvements	MMC, Inc.	\$473,104	September 2021
Fountain Valley	P1-128C	Headquarters Complex Site Preparation	Resource Environmental, Inc.	\$1,594,557	October 2021
Fullerton	FE19-09	Newhope - Placentia Trunk Grade Separation Replacement Repairs	Charles King Company	\$298,850	December 2021
Plant Nos. 1 and 2	FE18-11	Explosive Gas Monitoring System at Plant No. 1 and No. 2	Baker Electric	\$223,984	April 2022
Huntington Beach	FE18-12	Erosion Control at Santa Ana River and Hamilton Ave	Engineering & Environmental Construction	\$162,281	June 2022



Existing vacant buildings were demolished as part of the Headquarters Complex Site Preparation Project.



Installing a cured-in-place pipe liner to repair a segment of 36-inch diameter pipeline on the Newhope-Placentia Trunk Grade Separation Replacement Repairs project.

ENGINEERING CIP PROJECTS

The following table lists the active and completed planning and research studies. The findings from these studies help to develop future CIP projects. The status and project budget rounded to the nearest thousand are as of August 2022.

PLANNING AND RESEARCH STUDIES				
Location(s)	Project No.	Project Name	Status	Project Budget
Plant No. 2	PS17-03	Active Fault Location Study at Plant No. 2	Completed	\$973,000
Plant Nos. 1 and 2, OC San Service Area	PS18-06	Go/No-Go Lights and Signage	Active	\$495,000
Huntington Beach	PS18-09	Ocean Outfall Condition Assessment and Scoping Study	Active	\$4,250,000
Plant No. 2	PS18-11	ETAP Model Updates for Plant No. 2	Completed	\$360,000
Plant No. 1	PS19-03	Laboratory Rehabilitation Feasibility Study	Active	\$450,000
Plant No. 2	PS20-01	Collections Yard Relocation Feasibility Study	Active	\$375,000
OC San Service Area	PS20-02	Collection System Flow Level Monitoring Study	Active	\$743,000
Plant No. 2	PS20-03	Truck Loading Bay Odor Control Improvements Study at Plant No. 2	Active	\$384,000
Plant Nos. 1 and 2	PS20-04	Power Generation Overhaul Feasibility Study	Active	\$320,000
Plant Nos. 1 and 2	PS20-05	Cen Gen Pressure Vessel Integrity Assessment at Plant Nos. 1 and 2	Active	\$400,000
Costa Mesa	PS20-07	College Pump Station Wet Well Condition Assessment Study	Active	\$365,000
Plant No. 1	PS20-09	Thickening & Dewatering Plant Water Study at Plant No. 1	Active	\$400,000
Plant Nos. 1 and 2	PS21-01	Exterior Lighting Study at Plant Nos. 1 and 2	Active	\$550,000
Plant Nos. 1 and 2	PS21-02	Public Announcement and Fire System at Plant Nos. 1 and 2	Active	\$500,000
Plant No. 1	PS21-03	Process Model for Denitrification Alternatives at Activated Sludge 1	Completed	\$37,000
Plant Nos. 1 and 2	PS21-04	Energy and Digester Gas Master Plan	Active	\$1,785,000
Plant Nos. 1 and 2	PS21-05	CAD Design Manual Update for 3D Design	Active	\$758,000
Plant Nos. 1 and 2	PS21-06	Urban Runoff Optimization Study	Active	\$1,000,000
Plant Nos. 1 and 2	PS21-07	Process Simulation Model Development for Cen Gen Facilities	Active	\$121,000
Plant No. 2	PS21-08	Pure Oxygen Activated Sludge Operations Study at Plant No. 2	Active	\$230,000
Plant Nos. 1 and 2	PS21-10	Sidestream Nitrogen Management	Active	\$211,000
Plant No. 2	PS22-02	Onsite Oxygen Generation Feasibility Study at Plant No. 2	Active	\$220,000
Plant No. 1	RE19-01	Primary Scum Equipment Evaluation at Plant No. 1	Active	\$70,000
Plant No. 1	RE20-01	Co-Thickened Sludge Density Meter Trial at Plant No. 1	Completed	\$43,000
Plant No. 1 and 2	RE20-02	Chemical Resilience Study at Plant No. 1 and 2	Active	\$330,000
Plant No. 1	RE20-04	Holding Digester 6 Solids Shredder Study at Plant No. 1	Active	\$95,000
Plant No. 1	RE20-06	Co-Thickened Sludge Pump Trial at Plant No. 1	Active	\$160,000
Plant No. 1	RE21-01	Supercritical Water Oxidation Demonstration at Plant No. 1	Active	\$6,890,000



42-inch diameter high-density polyethylene pipe segments are fusion welded together to form a long continuous seamless pipe. This was used on the Westminster Force Mains Replacement Project in the cities of Seal Beach and Westminster.

The tables on the next few pages are all the active or completed projects. The phase the project is in and project budget rounded to the nearest thousand are as of August 2022. Non-engineering small capital projects from Information Technology and Operations & Maintenance are not included in the list.

RECLAMATION PLANT NO. 1 IN FOUNTAIN VALLEY			
Project No.	Project Name	Phase	Project Budget
P1-105	Headworks Rehabilitation at Plant No. 1	Construction	\$340,000,000
P1-126	Primary Sedimentation Basins No. 3-5 Replacement at Plant No. 1	Preliminary Design	\$183,000,000
P1-128A	Headquarters Complex at Plant No. 1	Construction	\$164,319,000
P1-128C	Headquarters Complex Site Preparation	Completed	\$2,083,000
P1-132	Uninterruptable Power Supply Improvements at Plant No. 1	Design	\$7,000,000
P1-133	Primary Sedimentation Basins No. 6-31 Reliability Improvements at Plant No. 1	Construction	\$14,000,000
P1-134	South Perimeter Security and Utility Improvements at Plant No.1	Construction	\$8,150,000
P1-135	Digester Ferric Chloride Piping Replacement at Plant No. 1	Construction	\$1,260,000
P1-137	Supports Buildings Seismic Improvements at Plant No. 1	Project Development	\$23,730,000
P1-140	Activated Sludge-1 and Secondary Clarifier Rehabilitation	Project Development	\$280,000,000

TREATMENT PLANT NO. 2 IN HUNTINGTON BEACH			
Project No.	Project Name	Phase	Project Budget
P2-92	Sludge Dewatering and Odor Control at Plant No. 2	Completed	\$86,768,000
P2-122	Headworks Modifications at Plant No. 2 for GWRS Final Expansion	Construction	\$30,400,000
P2-123	Return Activated Sludge Piping Replacement at Plant No. 2	Construction	\$10,000,000
P2-124	Interim Food Waste Receiving Facility	On Hold	\$6,300,000
P2-127	Collections Yard Relocation	Project Development	\$1,900,000
P2-128	TPAD Digester Facility at Plant No.2	Design	\$421,800,000
P2-128A	TPAD Perimeter Wall	Design	\$53,200,000
P2-135	Chemical Systems Rehabilitation at Plant No. 2	Project Development	\$5,000,000
P2-136	Activated Sludge Aeration Basin Rehabilitation at Plant No. 2	Project Development	\$65,600,000
P2-137	Digesters Rehabilitation at Plant No. 2	Project Development	\$40,632,000
P2-138	Operations and Maintenance Complex at Plant No. 2	Project Development	\$84,000,000
P2-98A	A-Side Primary Clarifiers Replacement at Plant No. 2	Construction	\$165,891,000
P2-98B	B/C-Side Primary Clarifiers Interim Repair at Plant No. 2	Close Out	\$12,353,000

JOINT FACILITIES PROJECTS LOCATED AT PLANT NO. 1, PLANT NO. 2, AND/OR OC SAN SERVICE AREA			
Project No.	Project Name	Phase	Project Budget
J-98	Electrical Power Distribution System Improvements	Design	\$27,700,000
J-120	Process Control Systems Upgrades	Construction	\$33,200,000
J-126C	NFPA 820 HVAC and Electrical Improvements	Completed	\$473,000
J-126JK	Stairs, Hatches, Walkway Hazards, Ladders, Guardrails, Roof Fall Protection	Completed	\$3,904,000
J-117B	Outfall Low Flow Pump Station	Construction	\$136,058,000
J-124	Digester Gas Facilities Replacement	Design	\$173,000,000
J-127	Natural Gas Pipelines Replacement at Plant Nos. 1 and 2	Construction	\$2,150,000
J-128	Project Management Information System	Construction	\$2,280,000
J-135A	Central Generation Engine Overhaul at Plant No. 1	Close Out	\$5,000,000
J-135B	Engine and Generator Overhauls at Plant No. 1 and 2	Construction	\$35,937,000
J-136	Power Building Structural Seismic Improvements at Plant No. 1 and 2	Project Development	\$5,400,000

COLLECTION SYSTEM PROJECTS				
Location(s)	Project No.	Project Name	Phase	Project Budget
Costa Mesa, Santa Ana	1-23	Santa Ana Trunk Sewer Rehabilitation	Project Development	\$54,620,000
Santa Ana	1-24	Greenville Trunk Improvements	Project Development	\$48,600,000
Orange	2-49	Taft Branch Improvements	Preliminary Design	\$24,300,000
Fullerton	2-72B	Newhope-Placentia Trunk Replacement, Segment B	Close Out	\$82,880,000
Seal Beach, Westminster	3-62	Westminster Blvd Force Main Replacement	Construction	\$43,000,000
Anaheim, Buena Park, Cypress, Los Alamitos, Seal Beach, County of Orange	3-64A & 3-64B	Los Alamitos Trunk Sewer Rehabilitation	Construction	\$26,089,000
Cypress, La Palma, Los Alamitos	3-64C	Los Alamitos Sub-Trunk and Westside Relief Interceptor Rehabilitation	Design	\$58,616,000
Seal Beach	3-67	Seal Beach Pump Station Replacement	Design	\$87,000,000
Newport Beach	5-67	Bay Bridge Pump Station Replacement	Design	\$105,397,000
Newport Beach	5-68	Newport Beach Pump Station Pressurization Improvements	Bid and Award	\$3,200,000
Costa Mesa	6-20	Fairview Trunk Rehabilitation	Project Development	\$19,300,000
Costa Mesa, Irvine	7-65	Gisler-Red Hill Interceptor and Baker Force Main Rehabilitation	Preliminary Design	\$44,400,000
Irvine, Santa Ana	7-66	Sunflower and Red Hill Interceptor Repairs	Construction	\$7,000,000
Newport Beach	7-68	MacArthur Force Main Improvements	Design	\$7,150,000
Huntington Beach	11-33	Edinger Pump Station Replacement	Project Development	\$17,300,000
Huntington Beach	11-34	Slater Pump Station Rehabilitation	On Hold	\$31,000,000

SMALL PROJECTS				
Location(s)	Project No.	Project Name	Phase	Project Budget
Fullerton	FE10-21	Area 02 Craig Regional Park Manhole Improvements	Close Out	\$1,359,000
Plant No. 1	FE14-05	Plant No. 1 Fleet Services UST Leak Remediation	Completed	\$1,203,000
Plant No. 1	FE17-03	Battery Storage System at Plant No. 1	Close Out	\$650,000
Anaheim	FE17-06	Tustin Ave Manhole and Pipe Repair		
Plant No. 1	FE18-06	CenGen Instrument Air Compressors Replacement at Plant No. 1	Design	\$1,150,000
Plant Nos. 1 and 2	FE18-11	Headworks Explosive Gas Monitoring Systems at Plant No. 1 and No. 2	Close Out	\$605,000
Huntington Beach	FE18-12	Erosion Control at Santa Ana River and Hamilton Ave	Close Out	\$445,000
Santa Ana	FE18-13	Redhill Relief Sewer Relocation at State Route 55	Design	\$3,550,000
Plant No. 2	FE18-14	Plant Water Pipeline Replacement in Kinnison, Lindstrom, and Scott Tunnels at Plant No. 2	Construction	\$1,895,000
Plant No. 2	FE18-15	Plant Boiler System Relief at Plant No. 2	Construction	\$560,000
Plant No. 1	FE18-16	Truck Loading Basement Drain Modifications at Plant No. 1	Construction	\$592,000
Plant No. 2	FE18-17	Trunkline Sampler Power Feed at Plant No 2	Completed	\$249,000
Plant No. 2	FE18-19	12KV Distribution B and East RAS Pump Station Roofing Replacement	Close Out	\$1,188,000
Plant No. 1	FE18-20	DAFT Air Compressors Replacement at Plant No. 1	Design	\$1,360,000
OC San Service Area	FE19-01	Pump Station Portable Generator Connectors	Construction	\$2,570,000
Plant No. 1	FE19-02	Cengen Plant Water Pipe Replacement at Plant No. 1	Design	\$4,165,000
Plant No. 1	FE19-03	Trickling Filter Sludge and Scum Pumps Replacement at Plant No. 1	Construction	\$3,200,000
Plant No. 1	FE19-04	Sunflower Pump Replacement at Plant No. 1	Construction	\$6,300,000
Plant No. 2	FE19-06	EPSA Motor Cooling Improvements at Plant No. 2	Construction	\$1,475,000
Plant No. 2	FE19-08	Secondary Treatment VFD Replacements at Plant No. 2	Construction	\$2,900,000
Fullerton	FE19-09	Newhope - Placentia Trunk Grade Separation Replacement Repairs	Close Out	\$500,000
Plant No. 2	FE19-10	Digesters C, D, F, G and I Gas Balance Lines Replacement at Plant No. 2	Design	\$1,200,000
Plant No. 1	FE19-11	Primary Clarifiers Nos. 6-31 Lighting and Alarm Improvements at Plant No. 1	Close Out	\$1,250,000
Plant No. 1	FE19-12	Rebuild Shop Fume Extractor Installation at Plant No 1	Bid and Award	\$560,000
Seal Beach	FE19-13	VFD Replacements at Seal Beach Pump Station	Construction	\$520,000
Plant No. 1	FE20-01	Wastehauler Station Safety and Security Improvements	Design	\$2,672,000
Plant No. 2	FE20-02	Digester C, D, F, and G Mechanical Rehabilitation at Plant No. 2	Design	\$3,950,000
Plant No. 1	FE20-03	Return Activated Sludge Discharge Piping Replacement at Activated Sludge Plant No. 1	Design	\$6,840,000
Plant No. 2	FE20-04	Cengen Cooling Water Pipe Replacement at Plant No. 2	Design	\$5,380,000
Plant No. 1	FE20-05	Plant Water Piping Replacement at Secondary Clarifiers 1-26 at Plant No. 1	Design	\$1,545,000
Plant No. 1	FE20-06	Thickening and Dewatering Building Pipe Support Improvements at Plant No. 1	Bid and Award	\$1,500,000
Plant No. 1	FE20-07	Santa Ana Trunk Rehabilitation at Plant No. 1	Construction	\$765,000
Anaheim, Orange	FE20-08	Olive Sub-Trunk Siphon Rehabilitation at Santa Ana River	Design	\$2,800,000
Plant Nos. 1 and 2	FE20-09	CenGen Smoke Detection Improvements at Plant No. 1 and No. 2	Design	\$950,000

SMALL CONSTRUCTION PROJECTS (CONTINUED)				
Location(s)	Project No.	Project Name	Phase	Project Budget
Plant No. 1	FE21-01	Plasma Cutting Fume Extractor installation at Plant No. 1 Rebuild Shop	Design	\$277,000
Plant No. 1	FE21-02	Lighting Improvements Boiler and Sludge Dewatering Areas at Plant No. 1	Construction	\$320,000
Plant No. 1	FE21-04	Thickening and Dewatering Facility Handrail Installation at Plant No. 1	Design	\$230,000
Plant No. 2	FE21-05	Warehouse Stations and Demolition at Plant No. 2	Design	\$2,200,000
County of Orange	FE21-06	Chemical Dosing Station Installation at Westside Pump Station	Design	\$560,000
Plant No. 2	FE21-07	Liquid Oxygen Tank A Replacement at Plant No. 2	Project Development	\$5,200,000
Fountain Valley, Garden Grove, Santa Ana	FE21-08	Newhope-Placentia Sewer Manhole Replacements	Design	\$1,225,000



AWARDS

OC San staff work hard to deliver on the promise of providing well-designed projects with efficient execution and completion.

2022 American Society of Civil Engineers Outstanding Wastewater Treatment Project for the Newhope-Placentia Sewer Trunk Line

2022 The Communicator Awards for the OC San CIP Annual Report 2020-2021



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 Cypress
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 Garden Grove
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 La Habra
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 Seal Beach
 Stanton
 Tustin
 Villa Park

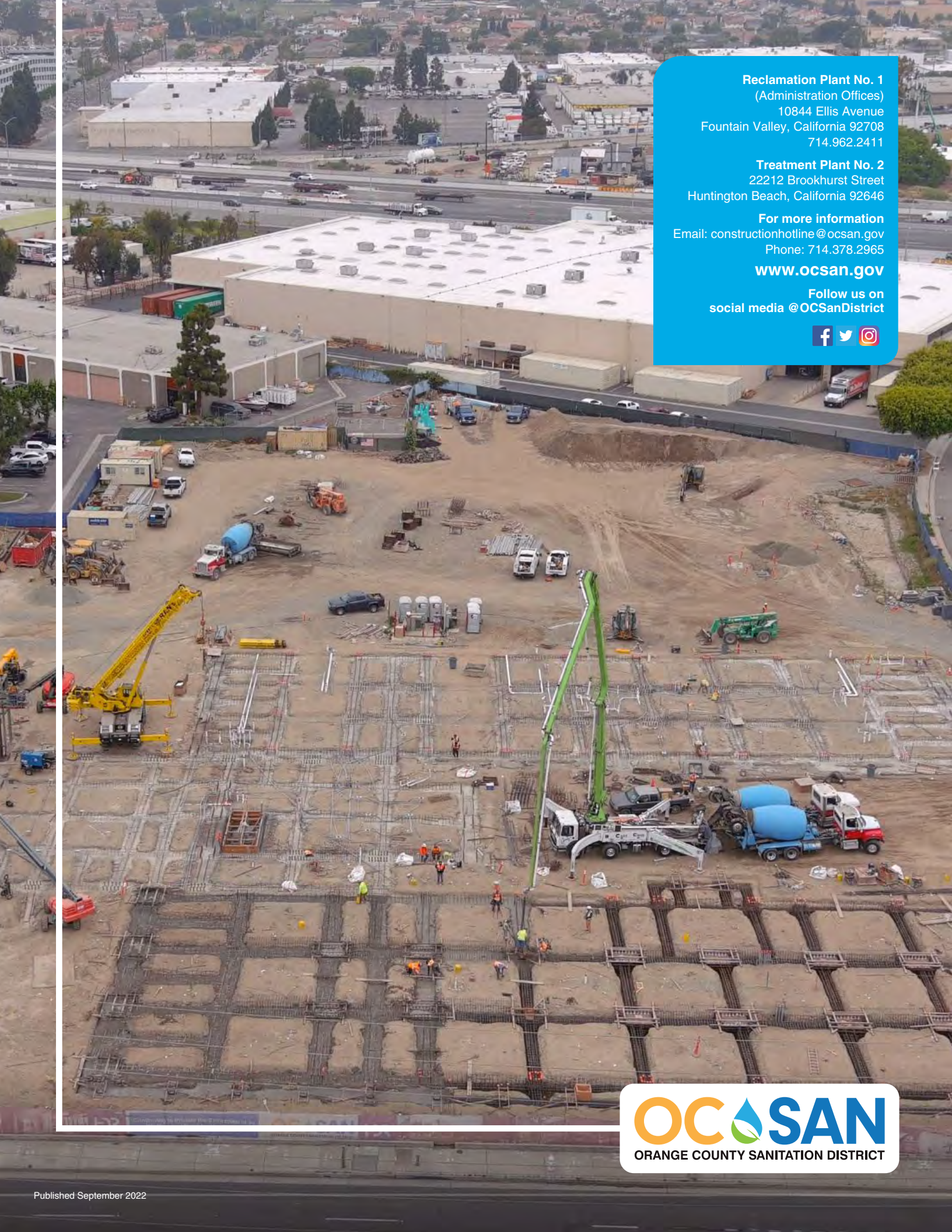
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 David Shawver
 Ryan Gallagher
 Chad Zimmerman

Robert Ooten
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 Brooke Jones
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Reclamation Plant No. 1

(Administration Offices)

10844 Ellis Avenue

Fountain Valley, California 92708

714.962.2411

Treatment Plant No. 2

22212 Brookhurst Street

Huntington Beach, California 92646

For more information

Email: constructionhotline@ocsan.gov

Phone: 714.378.2965

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