

FISCAL
YEAR
12/13
UPDATE

protect improve restore

capital
improvement
program

ORANGE COUNTY SANITATION DISTRICT

from the
director of
engineering


This past year was one of success and achievement for the Orange County Sanitation District (OCSD). It was great to join the agency at a time when such significant accomplishments were being achieved. The Consent Decree OCSD voluntary entered into was successfully met in December 2012, ending a 10-year commitment made to our rate payers to reach full secondary treatment standards.

Now as we embark on the next phase of the Capital Improvement Program (CIP), we shift to rehabilitating and protecting the existing assets. Through our intensive planning and asset management program, we will prioritize rehabilitation projects to meet our demands and future challenges.

I look forward to seeing this new phase of the CIP evolve. The future renewal, replacement, and rehabilitation of our assets will allow our agency to achieve greater results and continue meeting our mission of protecting public health and the environment for the citizens of central and northern Orange County.

On behalf of the Engineering Department, I would like to extend our gratitude to the Board of Directors for their continued support of our Capital Improvement Program.

Respectfully submitted,



Nick Kanetis, P.E.

Director of Engineering

Orange County Sanitation District





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introduction & background



The Orange County Sanitation District collects, treats, recycles, and disposes of wastewater for the 2.5 million people living in central and northern Orange County, California. Our infrastructure consists of two treatment plants, 15 pump stations, and over 570 miles of sewers throughout a service area of close to 500 square miles.

Our facilities operate 24-hours a day to carry out our mission of protecting public health and the environment. As the fifth largest wastewater treatment plant in the country, we strive to meet and exceed the expectations of our rate payers. We work day in and day out to ensure the 200 million gallons of wastewater collected each day is treated to the highest level. Our dedicated staff sets us apart from other agencies by elevating our levels of service and setting higher standards for ourselves.

CAPITAL IMPROVEMENT PROGRAM OVERVIEW

Over the past ten years, we've been working on an extensive Capital Improvement Program (CIP) focusing on expanding our treatment level to reach full secondary treatment standards. We've built new facilities, updated our technology, and automated our process, all in an effort to improve the quality of the water that is released into the Pacific Ocean. The commitment we made in 2002 to the Regional Water Quality Control Board, the Environmental Protection Agency, and the rate payers to reach full secondary treatment standards was successfully achieved in December 2012.

During this expansion phase of the CIP, we have completed more than 70 projects and invested \$1.8 billion in our infrastructure. With the completion of the expansion portion of our program, we are now shifting our focus to rehabilitation. OCSD's assets valued at \$6.2 billion must now be maintained, updated, and replaced to continue the level of service to which we've committed. Many of our assets extend as far back as the 1920s and 30s; as such, it is imperative that we now focus on protecting and preserving our infrastructure.

The next phase of our Capital Improvement Program extends to 2030. During this time, the two plants will continue to see enhancements made and our collection system will continue to be updated and upgraded. Our planning efforts remain focused on scheduling the right job, at the right time, with the appropriate budget, schedule, and resources.

As our rehabilitation efforts unfold, our Community Outreach team will work closely with the neighborhoods and communities in our service area to keep them well informed and engaged with our planned infrastructure improvements. Our team understands the importance of communicating regularly and consistently when construction is required; as such, great effort is taken into establishing contact early and building a relationship with the community.

Information regarding our CIP and the Community Outreach efforts can be found on our website at www.ocsewers.com or by contacting our Construction Hotline at 714-378-2965 or constructionhotline@ocsd.com.

ENGINEERING ACCOMPLISHMENTS 2012-13

Capital Projects

This year was marked by the completion of several large and important projects, including the completion of the Secondary Treatment milestone projects. The Engineering CIP program for 2012-13 included 64 active projects. These projects were projected to expend \$126 million during the fiscal year and closed the year with an actual expense of \$87 million. During the year, five new capital projects and 13 new planning studies were started. Eight projects completed construction, including some very difficult rehabilitation projects, totaling \$447.5 million in contracts. Construction contract change orders for those completed projects were within projected goals at 2.41% of the contract value. Non-construction costs for the program remained below the goal threshold of 35% of the constructed value.

Secondary Treatment Expansion Milestones

OCSD was committed to completing the program for secondary level treatment and produce wastewater effluent that exceeds secondary treatment standards by December 31, 2012. This was done to comply with a Consent Decree we entered into with the United States Environmental Protection Agency (EPA) and the Regional Water Quality Control Board. We met this challenge early; in October 2012, we began treating wastewater to these higher standards. We proudly satisfied this mandate and completed these projects ahead of the milestone schedule and under budget. This was a coordinated effort between OCSD staff, our design consultants, and contractors that were committed to the completion of these projects and our ultimate goal.

SARI Line Relocation

The Santa Ana River Interceptor (SARI) is a critical pipeline located within the Santa Ana River that is currently being relocated to a safer and stable location. This cooperative project is being led by the County of Orange with support from OCSD and the Santa Ana Watershed Project Authority (SAWPA). The project was divided into separate contracts. The Yorba Linda Spur, which connects the local sewer to the SARI line, was completed and placed in service over the course of the year. The Main Line project is continuing construction with the majority of the tunneled and open-cut construction sections completed; the contract is now over 80% complete. The current schedule has the Main Line operational by year-end, ahead of the winter rains which will reduce the risk of having the older pipeline in service through the winter wet season. Final cleanup and abandonment activities will continue into the spring of 2014.

Completion of the Headworks Facility at Plant No. 2

May 2013 marked the construction completion of the largest and most complex project we have ever attempted. The new Headworks Facility at Plant No. 2 was completed and operational in January 2012, but then the tougher portion of the project began. All the large plant pipelines had to be connected to the new facility. Each one of these connections was a major project in of itself and required significant detailed planning with the contractor and operations staff to ensure the temporary facilities and contingency plans were in place before these lines were taken out of service. Plant flows had to be coordinated between new and old facilities until these lines were finished and the new facility was completely connected. The entire team did a remarkable job and the work was completed without major incidents. Plant No. 2 is more reliable than ever performing with higher efficiency and fewer odors.

Ocean Outfall Repair Projects

Over the course of 2012, the primary ten-foot diameter, five-mile Ocean Outfall pipeline was inspected, repaired, and rehabilitated in the first planned outage in the last 40 years. This was a culmination of a major, complex planning effort which included the local cities, environmental groups, permitting agencies, as well as the marine biology community in order to allow us an opportunity to make these repairs to one of our most critical facilities. This work was strategically planned based on many restrictions to minimize impact to the community and to the environment. The project was successfully completed as planned prior to the winter rains in the fall of 2012.



Planning Studies

OCSD actively plans future projects necessary to meet anticipated capacity needs, assure operable condition of assets, take advantage of technology advancements, and comply with regulatory changes. The Engineering Planning Division contracts with various engineering firms to augment staff efforts to define future project scopes, schedules, and budgets. These outsourced engineering services primarily include specialized condition and structural assessments of current assets and surveys of available technology to improve operational efficiencies. This comprehensive planning approach is expected to create fewer but larger projects with greater delivery efficiency and fewer change orders.

Engineering Staffing Support Contracts

Jacobs Engineering was awarded a contract last year to augment OCSD's staff to provide needed resources and expertise and thus continue to make the CIP successful. We have benefited from this new relationship by receiving critical expertise assistance in construction support as well as in constructability reviews for critical projects to reduce project risk. Contract spending is only about a third of the approved amount, which has helped keep costs down while still managing project risks and maintaining a flexible resource pool.

Safety Program

Projects covered by OCSD's Owner Controlled Insurance Program (OCIP) continued to demonstrate a high level of safety. During the course of the year, there was a total of 543,000 work hours with over \$23 million in worker payroll, yet there was only one claim filed. The OCIP has enrolled 21 prime contractors and 204 subcontractors, with the vast majority showing considerable respect and consideration for the ongoing safety of their workers. OCSD's OCIP continues to operate with more success than many other OCIPs and non-OCIP programs. OCSD staff continues to promote a safety culture that helps ensure all staff and contractor personnel work in a safe manner.

Project Awards

The OCSD Engineering staff has been working hard to deliver on the promise of providing well-designed projects with efficient execution and completion. Over the last year, our efforts have not gone by unnoticed. Several projects and programs have won awards from the engineering and construction community. A few of these include:

Trickling Filters at Plant No. 2, Project No. P2-90

- Construction Management Association of America - Project Achievement Award

Activated Sludge Facility at Plant No. 1, Project P1-102

- Construction Management Association of America - Project Achievement Award
- Orange County Engineering Council - Engineering Achievement Award
- American Society of Civil Engineer - Project of Merit
- American Academy of Environmental Engineers - National Honor Award

Ocean Outfall Rehabilitation, Project No. J-112

- American Society of Civil Engineers - Project of Merit
- California Water Environment Association - Engineering Achievement

Bitter Point Pump Station, Project No. 5-49

- Engineering News Record - Merit Award for Civil/Infrastructure Project

Magnolia Trunk Sewer, Project No. 3-58

- North American Society for Trenchless Technology - Rehabilitation Project of the Year

Secondary Program

- National Water Research Institute - Award of Excellence

We are very proud of our project teams and the hard work they have put forth for the Capital Improvement Program.





highlighted capital projects



Our collection system is a crucial component of our operations. Before we can treat the water, it needs to reach our plants through reliable and sustainable sewer lines. OCSD has close to 600 miles of sewers throughout our service area that keep our system functioning. Maintaining the pipelines in top shape is a major goal that we focus on every day. Our collection projects go through an intense planning and design process to ensure the right repairs are being made to the right sewers. The projects are constructed in a systematic manner to align with efforts at the two plants, and are designed with input from the cities they serve in order to coordinate construction efforts and minimize impacts to the city infrastructure, residents, and local businesses. Constructing new lines or rehabilitating existing lines is quite challenging while working on arterial roads and close to homes and businesses.

OCSD has an intensive outreach program that focuses on working with the communities where construction is taking place to keep them informed of our activities, and share information and learn ways to better improve our efforts. Our outreach team meets with homeowners, business owners, school administrators and parents, community groups, and anyone else who may have an interest in our projects. The team uses a full array of tools to share information, such as flyers, bulletins, letters, emails, social media, or meeting face-to-face with a concerned resident. Our staff is always available to share information and answer questions. In addition to building sewers, we strive to build relationships with our neighbors.

For information regarding the Capital Improvement Program and our outreach efforts, please visit our website at www.ocsewers.com. We can also be reached via email at constructionhotline@ocsd.com or at 714-378-2965.

NEWPORT BEACH

Over the next few years, there will be several OCSD projects in construction in the streets of Newport Beach. We realize the potential impacts the Construction Program's multiple projects can pose on the community and we are working proactively to mitigate these impacts. During design, we partner with the city to coordinate and develop construction plans. In addition, an outreach team was formed specifically for the city to work closely with residents, businesses, schools, and commuters to keep them informed of the project activities. Various tools will be used throughout the course of construction to disseminate information to the community. For additional information regarding the Newport Beach Program, please visit our website at www.ocsewers.com/NBprogram

Rehabilitation of Balboa Trunk Sewer (Project No. 5-47)

One of the Newport Beach projects scheduled to start construction this year is the Balboa Trunk Sewer. The project runs along Balboa Blvd. starting at A Street and ends at Newport Blvd. and Finley Avenue. The existing sewer is close to 70-years old and the pipe and manhole corrosion requires repairing. In an effort to minimize impact to the beach community and its many visitors, it was decided to reline the sewer instead of replacing it; this will reduce the time required for construction and avoid extensive digging along the two mile project alignment. Due to the age of the sewer, several manholes will also need to be replaced. Parking will be restricted as construction takes place. Our outreach team will be working with the community and the local businesses to keep them informed of project activities.

The project is scheduled to start in the fall to avoid the summer crowd as much as possible and is scheduled to conclude by May 2014.

Newport Force Main Rehabilitation (Project No. 5-60)

The Newport Beach force main system captures all the wastewater flow from the numerous pump stations in Newport Beach and conveys it to the Huntington Beach treatment facility. The system consists of dual parallel force mains that run beneath Pacific Coast Highway extending from east of Dover Drive to 61st Street. After

assessing the condition of the pipes, it was concluded that both the pipe on the north and south side of the street must be repaired and in some instances replaced. The assessment discovered corrosion and capacity issues on the force mains. Various alignment alternatives were analyzed during the design phase of the project to minimize impacts as much as possible on such a busy thoroughfare for the beach communities.

To alleviate the effect on traffic and the community, the work will be split into two phases. The first phase will rehabilitate the south force main beginning in fall 2014 and the second phase will focus on the north side in fall 2015. OCSD has committed to limiting construction to non-summer months to avoid construction when the traffic flow is at its peak on Coast Highway. Some preliminary work may begin as early as April 2014 to prepare for the construction after the summer months.

Dover Drive Trunk Sewer Relief (Project No. 5-63)

Another aging sewer in Newport Beach is the Dover Drive Trunk Sewer. This 60-year old sewer has not only met the end of its useful service life, it also has wet-weather capacity issues which need to be addressed. The 15-inch sewer will be replaced from Pacific Coast Highway to Irvine Blvd. with a 24-inch line. In addition to the sewer replacement, a water line will also be replaced for the City of Newport Beach. The work will be done concurrently to minimize the impacts to the community and reduce the duration of the project.

Construction began in July 2013 on the northern portion of the alignment. The plan was to complete the sewer in the upstream section of Dover Drive while Mariners Elementary School students were on summer break. Once the upstream work was completed, crews moved downstream to West Coast Highway and Dover Drive to work their way north. Final project completion is scheduled for summer 2014.

MULTI-CITY PROJECTS

Anaheim/Yorba Linda Santa Ana River Interceptor Realignment (Project No. 2-41)

OCSD, the Santa Ana Watershed Project Authority (SAWPA) and the County of Orange have joined efforts to relocate four miles of sewer pipeline out of the Santa Ana River scour zone. The Santa Ana River Interceptor (SARI) carries 42 million gallons per day of commercial and industrial wastewater from Orange, Riverside, and San Bernardino counties to OCSD's Treatment Plant No. 2. The high stormwater releases from Prado Dam during major flood events put the pipe in risk of failure. To ensure reliability and eliminate serious consequences of failure, it is necessary to relocate the pipe.

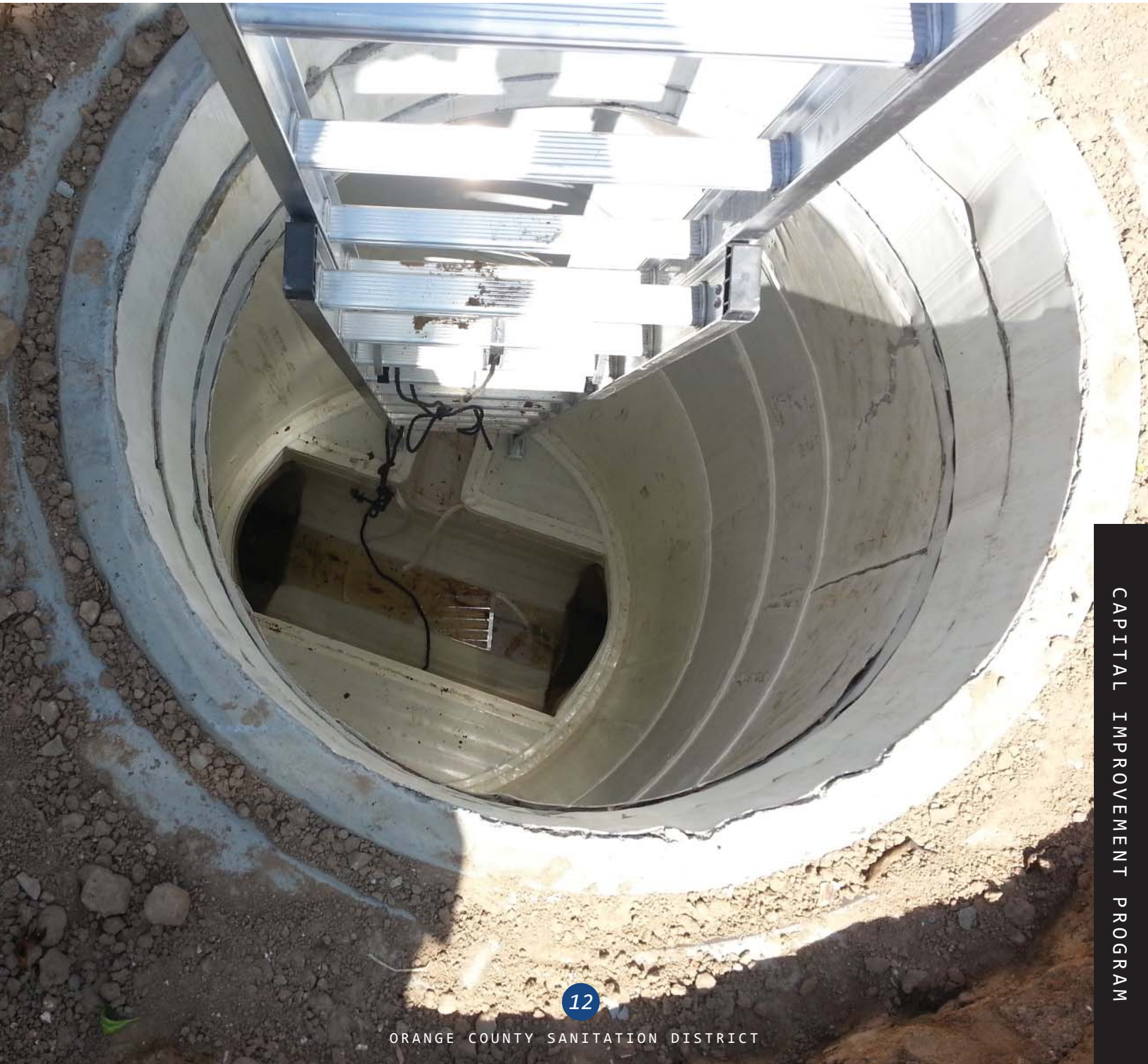
The relocation project consists of two components; the first was to replace two laterals that would capture the flows from the north side of the river. That section of work known as the Yorba Linda Spur was completed last year and is now operational. The second component is the main line and metering station construction. This project focuses on relocating the main line through a combination of open-cut trenching and micro-tunneling efforts. The new 54-inch diameter pipe is being installed on the south side of the river just north of the Riverside (91) Freeway. The project is scheduled to go into operational use in November 2013 with total contract completion in spring 2014.

Costa Mesa/Newport Beach District 6 Trunk Sewer Relief (Project No. 6-17)

The three-quarter mile section of sewer that runs along Newport Blvd. from Pomona Street in Costa Mesa down to Coast Highway in Newport Beach needs to be upsized. The sewer has capacity issues and poses a risk for spills; increasing the pipe size would provide for adequate volume needed for wet-weather capacity. The project is still in the early phases of design. As this process evolves, we will identify which areas of the existing sewer line need to be upsized and which will need to be rehabilitated due to the condition of the line. Detailed design started this summer and construction is scheduled to begin in August 2014.

**Costa Mesa/Newport Beach
Southwest Costa Mesa Trunk
(Project No. 6-19)**

As a regional sewer agency, we must look at the various sewer needs throughout our service area in an effort to increase reliability. The Southwest Costa Mesa Trunk sewer attempts to do just that. The project is proposing to allow the abandonment of several pump stations in Costa Mesa and Newport Beach by installing a new sewer line from West 19th Street, crossing a wetlands marsh area, the Santa Ana River, and ending at our Huntington Beach treatment facility. The project is currently in the environmental review phase where various alternatives are being analyzed to identify a preferred option and proceed with designing the project. The Draft Environmental Impact Report will be available for public review in fall 2013. Construction of this project is anticipated to start as early as winter 2016.







Plant No. 1 is located in Fountain Valley, California adjacent to the Santa Ana River and the I-405. This facility works 24-hours a day, 7-days a week to treat and deliver an average of 100 million gallons of wastewater a day to the Orange County Water District for its Groundwater Replenishment System.

Below is a brief description of some of the larger projects scheduled for Plant No. 1.

Sludge Digester Rehabilitation (Project No. P1-100)

As a result of higher treatment levels and the need to supply additional flow to the Orange County Water District for the Groundwater Replenishment System, we have a greater quantity of solids in the system to deal with. Twelve digesters will undergo intensive rehabilitation to extend their life and provide the adequate handling capacity for the solids. The digesters will be cleaned, grit will be removed, and equipment such as pumps, grinders, heat exchangers, and piping will be replaced. Rehabilitation of two digesters was completed earlier this year; currently three digesters are being repaired and the remaining seven will follow. Once rehabilitated, the 2 million gallon digesters will be able to handle thicker solids, which will in turn result in greater digester efficiency and reduced handling cost. The project is scheduled for completion in fall 2015.

Sludge Dewatering and Odor Control (Project No. P1-101)

With more solids in the plant from improved water treatment the Sludge Dewatering and Odor Control Project at Plant No. 1 focuses on improving solids handling. This project will construct primary sludge thickening facilities to improve digester treatment capacity. It will also replace the sludge dewatering facilities and install modern centrifuge equipment that will reduce the amount of water in the solids resulting in reduced hauling costs. The odor control equipment will also be replaced. The project, which is expected to be completed in early 2017, is expected to provide greater and more efficient solids management and reduced odors.

Plant Water System Rehabilitation (Project No. P1-112)

During the recently completed secondary treatment expansion program, many of the rehabilitation projects to plant utilities were deferred to keep resources focused on the major expansion efforts. Now that the expansion work is complete, this project continues forward with the rehabilitation of the utilities by replacing a critical loop in the plant water system. In addition to the pipes, valves will also be replaced. It is imperative that the system remains operational during the rehabilitation. As such, temporary measures will be taken to keep the system running. The project is scheduled to begin construction later this year and conclude work in 2016.

Title 24 Access Compliance and Building Rehabilitation Project (Project No. P1-115)

Improving and maintaining the condition of the process area facilities is very important, but so is maintaining the support services buildings that hundreds of our employees occupy. Several buildings require renovations to comply with Title 24 of the California Code of Regulations, which includes accessibility for disabled persons, as well as structural, mechanical, and electrical improvements needed to correct code violations and repairs due to building age.

Based on the large number of buildings that require modifications, the project was split into various packages to phase the construction over the next five years. Construction of the first phase will begin with buildings 1-7, shops A and B, the warehouse, and the Purchasing conference room. Additional buildings included in the project are the Administration Facility, Laboratory, Human Resources offices, Auto Shop compound, Purchasing Building, and multiple office trailers. This latter portion was analyzed over a 30-year planning horizon for replacement versus retrofit; the results of this evaluation are included in the Administrative Facilities Master Plan which will be presented to our Board of Directors later this year.



Photo by Ddaze Phuong



treatment plant no. 2 projects

Plant No. 2 is located in Huntington Beach, California adjacent to the Santa Ana River and across the road from Huntington State Beach. This facility treats over 100 million gallons of wastewater a day to full secondary treatment standards. The recent upgrades to the facility enable us to release better quality water to the ocean through our five mile long outfall off the coast of Huntington Beach.

Below is a brief description of some of the Plant No. 2 projects.

Headworks Improvements (Project No. P2-66)

In 2005, we began construction of the largest and most complex project our agency has performed, the Headworks Replacement Project at Plant No. 2. The system was over 50 years old and suffering from mechanical failures and capacity issues. Repairing the system was not feasible as space was not available and cost would have far exceeded the replacement option.

The project installed new bar screens, an influent pump station, odor control facilities, grit chambers, and several other components that make up our new headworks facility. In all, 13 new buildings were constructed with supporting pipeline connections. The entire system had to be fully constructed before the old headworks facility could be demolished. Headworks is the starting point for the wastewater entering our plant from five trunk lines, as such, having a reliable and efficient system in place is imperative.

The project will be completed and closed-out in September 2013.

Solids Thickening & Processing Upgrades (Project No. P2-89)

The previously constructed Trickling Filters project helped improve water quality at Plant No. 2 which resulted in additional biosolids. With more solids, we need more treatment and storage capacity. This project is upgrading four Dissolved Air Flotation Thickeners (DAFT) and modifying two holding tanks to serve as digesters. The DAFT separates the grit from the organic solids before it enters the digesters. If this didn't occur, grit would accumulate inside the digester and reduce the available volume over time.

The first upgraded DAFT will be placed into service in April 2014 and the fourth tank is scheduled for completion in May 2016. The modified digester holding tanks will be placed into service in June 2015.

Sludge Dewatering and Odor Control (Project No. P2-92)

Another project supporting the increased amount of solids is the Sludge Dewatering and Odor Control project. This project will construct a new centrifuge dewatering facility to replace the existing aging belt press dewatering system. An odor control system for dewatering and the existing truck loading facility will also be constructed. The centrifuge technology will remove a greater amount of water from the sludge which will result in substantial savings in sludge disposal costs. Once fully constructed, the existing outdated facilities will be demolished.

Construction is anticipated for summer 2014 and should be fully operational by summer 2017.

15 kV Upgrades (Project No. P2-108)

Being so close to the ocean, it is no surprise that the natural elements impact our equipment. Age and corrosion has required the upgrades to the 15kV switchgear in Power Building A and replacement of six 15 kV pull boxes in the 15kV main distribution system. With the needed repairs, the system is now much more reliable and provides a safer working environment.

Construction was completed on schedule earlier this summer. This project was an in-house design that allowed no change orders making it a great accomplishment for the team.



joint treatment plant projects

Reclamation Plant No. 1 and the Treatment Plant No. 2 work in unison to carry out our purpose of safely collecting, treating, recycling, and disposing of millions of gallons of wastewater each day. The two plants support one another and must operationally perform together in order to maintain an effective and efficient system. The joint treatment plant projects are jobs that make simultaneous improvements at both facilities.

Below are a few of those projects:

Interplant Gas Line Rehabilitation (Project No. J-106)

The interplant gas line that runs alongside the Santa Ana river trail transports digester gas from Plant No. 1 to Plant No. 2 to be beneficially used and avoid flaring. The aging line was severely corroded and previous repairs made were no longer sufficient or reliable enough to keep the line operational. Because of its content, the pipeline falls under the requirements of the Department of Transportation which required us to demonstrate the integrity of the pipe prior to it being placed back in service. The line was recently rehabilitated and it is now fully operational. This means we are using the digester gas more effectively to generate electricity and save money on operational costs.

CenGen Cooling Water System Replacement (Project No. J-109)

In our Central Generation Facility, the methane gas captured from the digesters is used to power engine-generator units that produce the electricity to operate the plants. In turn, the engines give off heat which requires a cooling water system. The existing system utilizes reclaimed water from the Orange County Water District, which can be costly. By replacing the cooling water system, it will improve heat recovery from the engines and switch to in-plant water that is more reliable and affordable. The new system will also utilize less water resulting in cost savings for the district. OCSO Operator Skip Berner conceived the idea; it was tested and proved to be a very effective improvement for the district.

The project is currently in construction with expected completion slated for fall 2013.

CenGen Emission Control Project (Project No. J-111)

As previously mentioned, the Central Generation System engines provide electricity and heat to our treatment plants. The emissions from the engines must be below the threshold established by the South Coast Air Quality Management District (SCAQMD) for the engines to be permitted. SCAQMD has amended an existing rule which would require significant reductions in common pollutants. To comply with this new amendment and other existing rules, we need to install new equipment at both plants to reduce the emissions.

The project will be advertised for bid in early 2014, with construction scheduled to start in summer 2014. Construction is estimated for completion by November 2015, ahead of the new permit requirements which take effect on January 1, 2016.





Outfall Land Section and Booster Station Piping Rehabilitation (Project No. J-112)

Last year we initiated a very important project for OCSD, the repair of the Ocean Outfall pipeline system. The Ocean Outfall is used daily to release treated water five-miles from the shore and 200-feet below the water surface. As such, inspection and repair is virtually impossible. A prior assessment of a portion of the pipeline had revealed severe corrosion which poses a significant risk to the treatment operation as well as the beach community. The project required inspections and repairs to various components on one of our most critical assets. The first element consisted of rehabilitating the part of the system between the Surge Tower No. 2 and the Ocean Outfall Booster Station. The second and most difficult element was inspecting the section between the Surge Tower and the beach Junction Box. The beach box was built in the 1960's at the mouth of the Santa Ana River in the Huntington State Beach area and incases the five-mile and one-mile outfalls. The box also required repair to maintain its integrity and continue protecting the pipelines.

In September 2012, the section of the outfall between the Surge Tower and the beach box, along with the beach box was inspected and repaired. A very tight timeframe was available to accomplish this work; all activity had to take place in a six-week period between the endangered bird nesting season and the rain season. In order for this activity to take place, the five-mile outfall had to be taken out of service and the one-mile outfall was used. Extensive ocean monitoring was conducted during this time to ensure the quality of the ocean water and marine life was not impacted. All of the reports and studies conducted demonstrated positive results for us. The work by the beach box was successfully completed in October 2012 and repairs at Plant No. 2 were recently completed as well.

Power Monitoring and Control Systems (Project No. J-33-3)

The treatment plants require quite a bit of power to run and as such, having a reliable system in place is imperative. The Power Monitoring and Control Systems project installs electrical power monitoring and control equipment to protect the plants from power outages and reduce the recovery time if a problem occurs. These systems will continuously evaluate the power supply and adjust the plant electrical systems to prevent power variations and outages from causing process failures. The new system will allow the operation of critical electrical equipment from a single location at Plant No. 1. The sophisticated controls of the new system will protect workers and equipment from the serious problems that can occur with these high voltages. With the recent expansion, the plants are more vulnerable to power variations and outages than previously so ensuring we have a reliable system in places gives us the protection we need.

The project is currently ahead of schedule with an estimated completion scheduled for November 2014.





secondary treatment expansion projects

In 2002, OCSD made the commitment to treat our wastewater to full secondary standards. We entered into a Consent Decree with the Environmental Protection Agency and the Regional Water Quality Control Board to reach full secondary treatment standards by December 31, 2012. Four projects were created to accomplish that commitment. In August 2012, the last of the four projects to be constructed was completed reaching our goal ahead of schedule and under budget. We are now able to treat the 200 million gallons of wastewater that enter our plants to full secondary treatment standards. The water leaving our plants is of greater quality, better protects the environment and gives us a great sense of pride for the work we perform and the services we provide.

The Consent Decree projects and milestone dates are listed below:

Trickling Filers Rehabilitation and Clarifiers (Project No. P1-76) – completed

The first project was the Trickling Filters Rehabilitation and New Clarifiers which was completed in 2006, a couple of weeks ahead of schedule. This project removed four trickling filters and replaced them with two new trickling filters and two new clarifiers. A new power building was also constructed to help support the increased electrical demands. Two effluent lines were constructed; one connecting to the Groundwater Replenishment System and the other to the 66-inch interplant line.

Rehabilitation of the Activated Sludge Plant (Project No. P2-74) – completed

The second project was at Plant No. 2. The Rehabilitation of the Activated Sludge Plant was completed in 2008, 200 days ahead of schedule. The project replaced major mechanical equipment, relined pipes, added odor control measures to the aeration basin splitter box, and updated instrumentation and controls.

Trickling Filters at Plant No. 2 (Project No. P2-90) – completed

In December 2010, the Trickling Filters Project at Plant No. 2 was fully constructed, making it the second largest facility of its kind in the world. The project consisted of three trickling filters, a solids contact basin, six clarifiers, odor control scrubbers, and a pump station. Completing this project allowed us to increase our treatment capacity by 60 mgd, producing higher quality effluent at a reduced cost, lowering energy consumption, maximizing the use of space at the plant, and minimizing the visual impact for our neighbors.

New Secondary Treatment System (Project No. P1-102) – completed

Last, but certainly not least, was the completion of the New Secondary Treatment System at Plant No. 1 in August 2012. This final project of the Consent Decree was the largest project ever built at the facility. It consisted of constructing six aeration basins, six clarifiers, a blower building, and return sludge and waste pumping stations which increase the treatment capacity of the plant by 60 mgd.

Upon completion of this project, OCSD reached full compliance with the Consent Decree and allowed us to treat 100 percent of the wastewater we receive to full secondary treatment standards.

financial data & contract activity

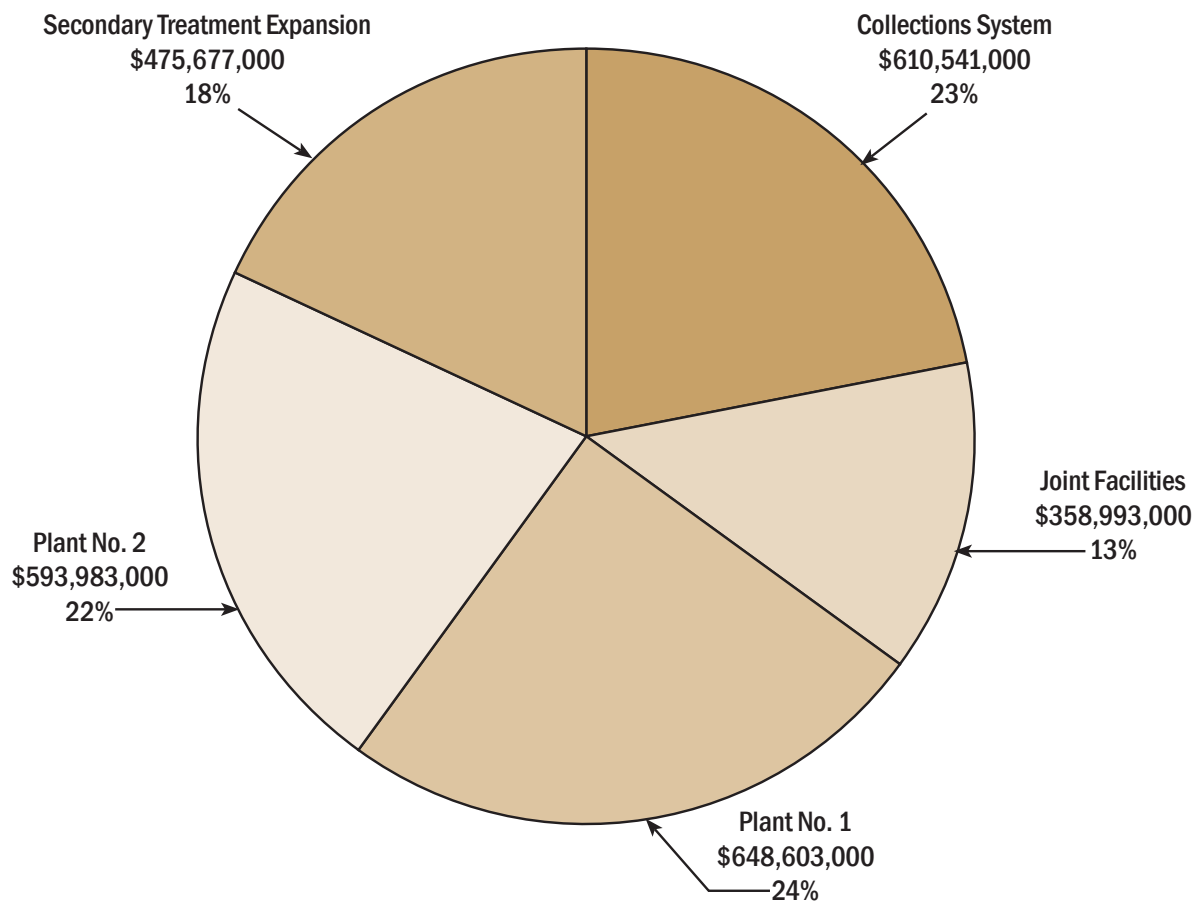
engineering CIP budget

The Capital Improvement Program budget is reviewed and approved on an annual basis in conjunction with the agency's overall budget process. The budget allotted for each project includes the early phases such as project development and concludes with project closeout. During the budget process, the annual cash flow is forecasted for all expenses attributed to the projects.

The Engineering CIP budget only focuses on projects performed by the Engineering Department. The agency's CIP also includes projects by other departments such as Information Technology; those projects are not included in this report.

The graphs and charts shown in this section showcase the productivity of the Engineering CIP projects. The chart below illustrates the approved CIP budget.

FISCAL YEAR 2012-13 APPROVED ENGINEERING CIP BUDGET



GRAND TOTAL \$2,687,797,000

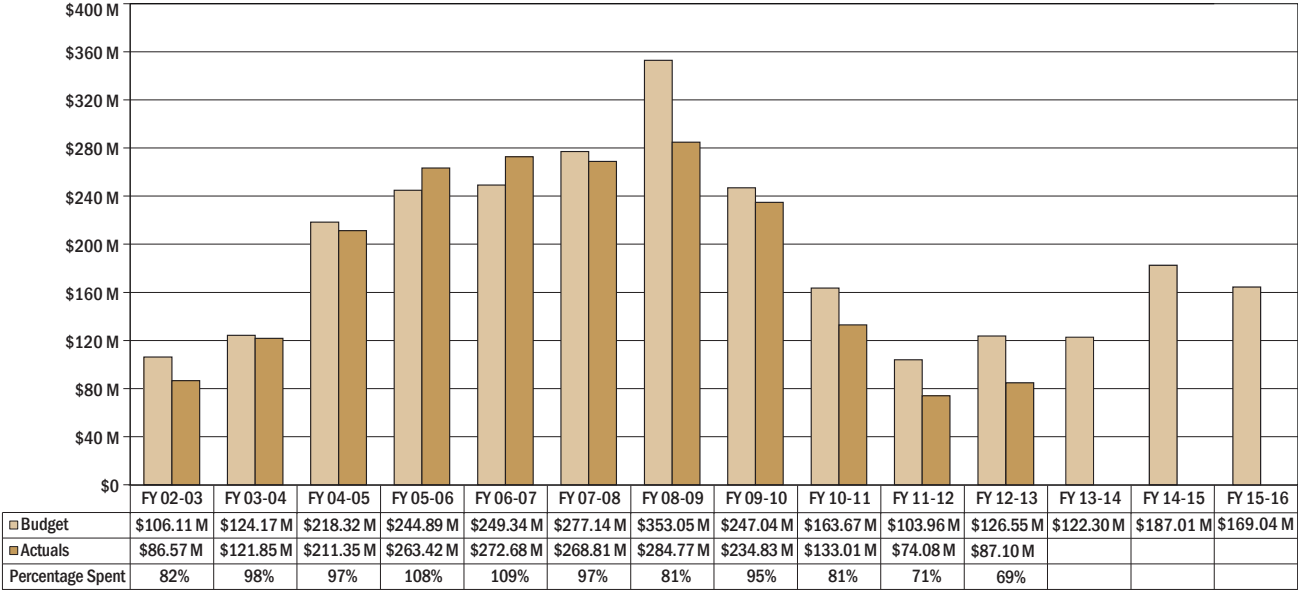


program cash flows

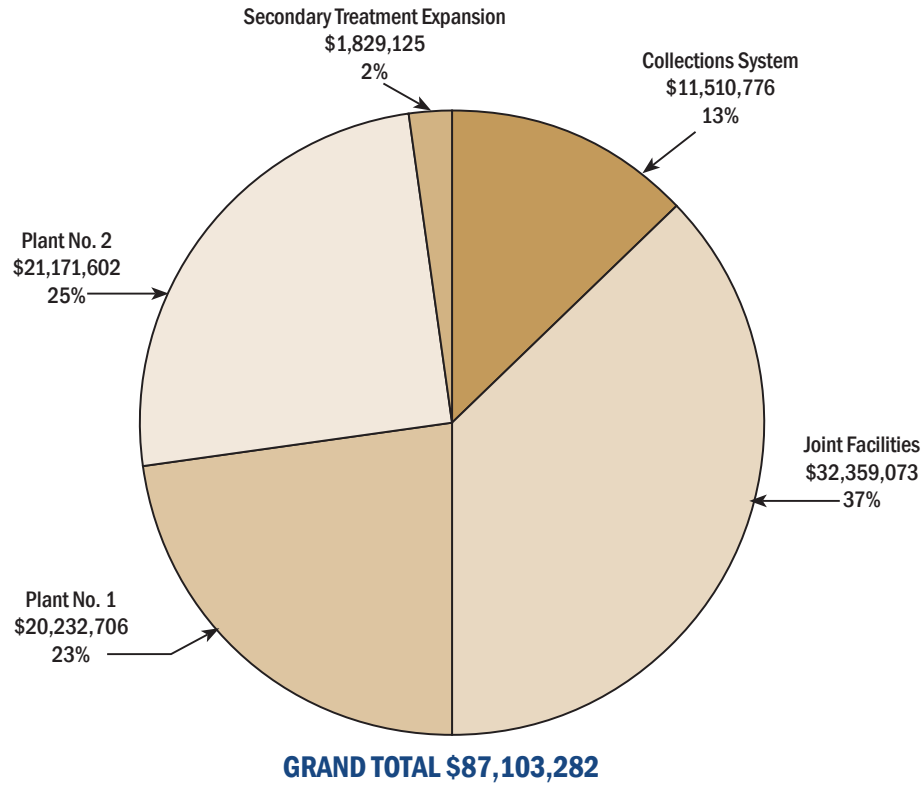
The cash flow figures showcase the approved proposed budget versus the actual expenditures for the CIP program. The forecasted expenses are based on individual project budget and schedule.

The graph below shows the historical trend and projections from program inceptions through Fiscal Year 2015-16. Actual expenditures for the reporting period and future projections are shown in the following pages.

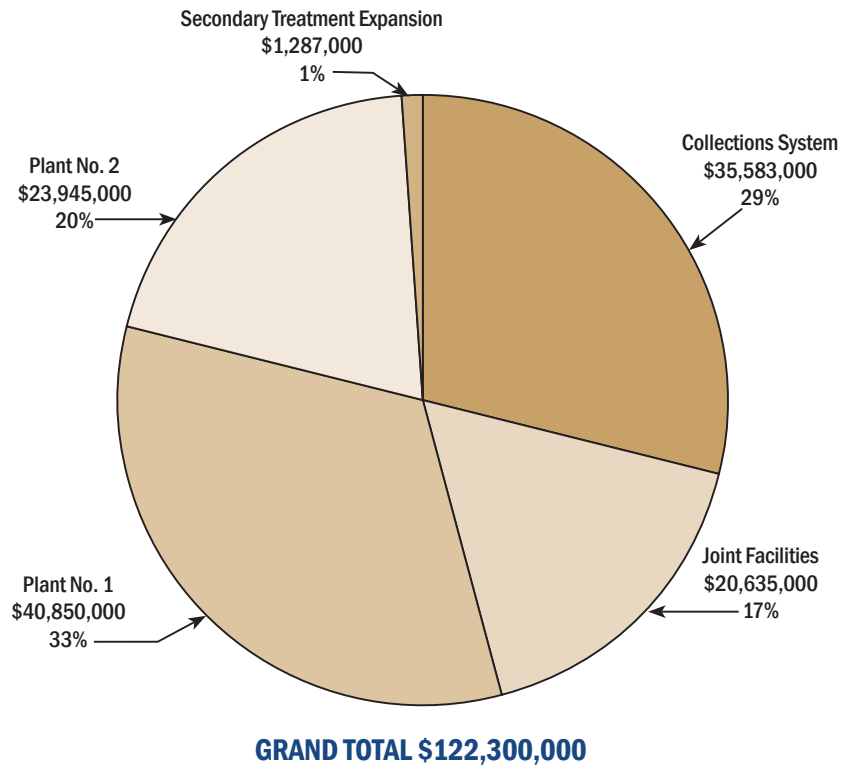
CASH FLOW BUDGET AND ACTUAL TOTALS BY FISCAL YEAR



FISCAL YEAR 2012-13 ACTUAL EXPENDITURES



FISCAL YEAR 2013-14 PROJECTED CASH FLOW BUDGET







contract activity

In a collaborative effort between the Engineering Department and the Contracts Division, over \$148 million worth of design and construction contracts were awarded during the year. Also this year, construction was completed for eight projects.

DESIGN CONTRACTS AWARDED THIS FISCAL YEAR

City	Project No.	Project Name	Consultant	Amount of Award	Date of Award
FV, CM, SA	1-17	Santa Ana Trunk Sewer Rehab	Brown and Caldwell	\$457,475	11/28/2012
HB, NB	5-58D	Bitter Point Force Main Rehabilitation - Santa Ana River Levee and In-Plant Repair	Black & Veatch	\$596,301	1/23/2013
NB	5-63	Dover Drive Trunk Sewer Relief	Atkins North America, Inc.	\$353,791	3/27/2013
CM, NB	6-17	District 6 Trunk Sewer Relief	RMC Water and Environment	\$576,541	12/19/2012
FV	P1-123	Trunk Line Odor Control Improvements	Carollo Engineers, Inc.	\$856,986	2/27/2013
FV	P1-124	Plant 1 Primary Treatment Upgrades	Carollo Engineers, Inc.	\$676,983	1/23/2013
HB, NB	SP-129	Demolition of Oxygen Plant at Plant 2	Hazen & Sawyer	\$134,640	6/5/2013
FV, HB	SP-145-1	Facility-Wide Safety Assessment	Arcadis U.S., Inc.	\$686,400	11/28/2012

CONSTRUCTION CONTRACTS AWARDED THIS FISCAL YEAR

City	Project No.	Project Name	Consultant	Amount of Award	Date of Award
HB, NB	5-58D	Bitter Point Force Main Rehabilitation - Santa Ana River Levee and In-Plant Repair	Magnus Pacific Corporation	\$9,362,000	01/23/13
NB	5-63	Dover Drive Trunk Sewer Relief	Mike Bubalo Construction Company, Inc.	\$6,189,000	03/27/13
FV	J-36-1A	PISB Influent Launder Modification	W. M. Lyles Company	\$81,785	02/05/13
FV	P1-101	Sludge Dewatering and Odor Control at Plant 1	W. M. Lyles Company	\$126,908,300	11/28/12
HB	P2-105	Digester Ferric Chloride System Rehabilitation	ODC Engineering and Technology	\$1,694,000	09/26/12

CONSTRUCTION CONTRACTS COMPLETED

City	Project No.	Project Name	Contractor	Final Contract Amount
NB	5-49	Replacement of Bitter Point Pump Station	Kiewit Pacific Co.	\$20,221,281
NB	5-50	Replacement of Rocky Point Pump Station	Kiewit Pacific Co.	\$10,056,359
HB, NB	5-58	Bitter Point Force Main Rehabilitation	Mladen Buntich Construction	\$19,546,129
FV, HB	J-106	Interplant Gas Line Rehabilitation	J. Fletcher Creamer	\$2,628,062
HB, NB	J-112	Outfall Land Section and OOBS Piping Rehabilitation - Phase 1 - OOBS to Surge Tower No. 2	J.F. Shea Construction, Inc	\$5,030,102
FV	P1-102	New Secondary Treatment System at Plant No.1	Kiewit Pacific Co.	\$208,761,381
HB	P2-90	Trickling Filters at Plant 2	J.F. Shea Construction Inc.	\$181,058,963
HB	P2-90B	West Perimeter Landscaping at Plant No. 2	STL Landscape, Inc.	\$212,000



engineering capital improvement projects

project status

The following tables showcase the status of each one of the active projects. Projects labeled as on schedule refer to physical construction, commissioning (testing and final completion) may still be pending. Estimated at Completion (EAC) refers to allocated funds for the entire project, including development, assessments, design, construction, testing, etc.

CURRENT PHASE OF PROJECTS	
Current Phase	Number of Projects
1 - Project Development	16
2 - Preliminary Design	5
3 - Design	12
4 - Construction and Installation	21
5 - Commissioning	0
6 - Closeout	10
Active Projects as of June 30, 2013	64

NUMBER OF PROJECTS	
Total Program	Number of Projects
At Program Inception (FY 03/04)	125
Added as of June 30, 2013	169
Cancelled as of June 30, 2013	(79)
Not Started or On Hold	(61)
Closed/Completed	(90)
Active Projects as of June 30, 2013	64



Secondary Treatment											
City	Project Number	Project Description	Current Phase	OCSD Project Manager	Consultant	Contractor	Construction			Project Cost	
							Consent Decree Deadline	On Schedule	Completed	Estimate at Completion	On Budget
FV	P1-76	Trickling Filters Rehab and New Clarifiers at Plant No. 1	6	Dean Fisher	Black & Veatch	J.R. Filanc Construction Company, Inc.	3/16/2006	√	√	\$46,018,662	√
FV	P1-102	New Secondary Treatment System at Plant No. 1	6	Eros Yong	Black & Veatch	Kiewit Pacific Co.	11/15/12	√	√	\$255,471,000	√
HB	P2-74	Rehab of Activated Sludge Plant at Plant No. 2	6	Kathleen Millea	MWH Americas Inc.	J.S. Shea Construction, Inc.	01/15/09	√	√	\$16,159,081	√
HB	P2-90	Trickling Filters at Plant No. 2	6	Kathleen Millea	Brown and Caldwell	J.F. Shea Construction, Inc.	02/15/11	√	√	\$220,206,000	√
		Closed Projects		Varies	Varies	Varies				\$62,177,743	
Total Secondary Treatment										\$537,854,743	

Plant No. 1											
City	Project Number	Project Description	Current Phase	OCSD Project Manager	Consultant	Contractor	Construction			Project Cost	
							Finish	On Schedule (1)	Completed	Estimate at Completion	On Budget
FV	P1-100	Digester Rehabilitation at Plant No. 1	4	Umesh Murthy	ECOM Technical Services, Inc.	J.R. Filanc Construction Company, Inc.	01/28/15	√		\$57,641,000	
FV	P1-101	Sludge Dewatering and Odor Control at Plant No. 1	4	Umesh Murthy	HDR Engineering, Inc.	Orion Construction	11/16/16	√		\$171,978,000	√
FV	P1-112	Plant Water System Rehabilitation at Plant No. 1	3	Victoria Pilko	TBD	TBD	02/25/15	√		\$9,569,000	√
FV	P1-115	Title 24 Access Compliance and Building Rehabilitation Project	2	Wendy Sevenandt	The Austin Company	TBD	12/26/18	√		\$32,637,000	
FV	P1-123	Trunk Line Odor Control Improvements	2	Eros Yong	Carollo Engineers	TBD	03/04/15	√		\$10,016,000	√
FV	P1-124	Plant No. 1 Primary Treatment Upgrades	2	Eros Yong	Carollo Engineers	TBD	03/31/20	√		\$11,535,000	√
		Closed Projects		Varies	Varies	Varies				\$167,508,067	
		Canceled Projects		NA	NA	NA				\$122,732	
		Future Projects		TBD	TBD	TBD				\$348,816,000	
Total Plant No. 1										\$809,822,799	

Plant No. 2											
City	Project Number	Project Description	Current Phase	OCSD Project Manager	Consultant	Contractor	Construction			Project Cost	
							Finish	On Schedule	Completed	Estimate at Completion	On Budget
HB	P2-66	Headworks at Plant No. 2	6	Umesh Murthy	Carollo Engineers	J.F. Shea Construction, Inc.	12/19/12	√		\$259,124,000	
HB	P2-89	Solids Thickening and Processing Upgrades	4	Jeffrey Mohr	MWH Americas Inc	W. M. Lyles Company	12/21/16	√		\$48,146,000	√
HB	P2-92	Sludge Dewatering and Odor Control at Plant No. 2	3	Jeffrey Mohr	Brown and Caldwell	TBD	05/17/17			\$71,860,000	
HB	P2-96	Plant No. 2 Landscaping Project	1	Gary Conklin	TBD	TBD	N/A			\$2,077,000	
HB	P2-101	Plant Water System Rehabilitation at Plant No. 2	3	Victoria Pilko	Carollo Engineers	TBD	02/10/16			\$4,009,000	
HB	P2-105	Digester Ferric Chloride System Rehabilitation	4	Umesh Murthy	AECOM Technical Services, Inc.	ODC Engineering & Technology	03/17/14	√		\$4,178,000	
HB	P2-106	Chemical Scrubber Conversions and Piping System Improvements	4	Wendy Sevenandt	Dudek & Associates, Inc.	TBD	04/10/15			\$2,906,000	√
HB	P2-108	15 kV Upgrades at Plant No. 2	6	Wendy Sevenandt	In-House Design	Helix Electric, Inc.	06/10/13	√	√	\$4,658,000	√
		Closed Projects		Varies	Varies	Varies				\$103,078,721	
		Canceled Projects		NA	NA	NA				\$1,109,441	
		Future Projects		TBD	TBD	TBD				\$213,321,000	
Total Plant No. 2										\$714,467,162	

Collections

City	Project Number	Project Description	Current Phase	OCS D Project Manager	Consultant	Contractor	Construction			Project Cost	
							Finish	On Schedule	Completed	Estimate at Completion	On Budget
FV,CM, Santa Ana	1-17	Santa Ana Trunk Sewer Rehab	3	Martin Dix	Brown and Caldwell	TBD	08/08/14	✓		\$7,519,000	
Anaheim, YL	2-41	SARI Re-Alignment	4	Hardat Khublall	Tetra Tech, Inc.	LAE Engineering Company, Inc. & W.A. Rasic Contractors	01/22/14			\$11,404,000	✓
Anaheim, YL	2-41-7	Santa Ana River Interceptor (SARI) Inspection & Mitigation	3	Hardat Khublall	RBF Consulting, Inc.	NA	01/31/11	✓		\$1,217,000	✓
Anaheim, YL	2-41-8	SARA Rock Stabilizers Removal	2	Hardat Khublall	TBD	TBD				\$3,092,000	✓
Fullerton	2-65	Newhope - Placentia Trunk Grade Separation Replacement	4	Victoria Pilko	TBD	TBD	03/17/15	✓		\$6,685,000	
Fullerton, Brea	2-71	Fullerton-Brea Interceptor Sewer Relief	6	Martin Dix	TBD	TBD	05/01/15	✓	✓	\$164,000	✓
Anaheim, Placentia	2-75	Lakeview Grade Separation Project	2	Richard Leon	TBD	TBD	08/14/14	✓		\$330,000	✓
Anaheim	2-76	Tustin Rose OCTA Grade Separation	4	Richard Leon	TBD	TBD	01/13/14			\$1,500,000	✓
Placentia	2-77	Orangethorpe OCTA Grade Separation	4	Richard Leon	TBD	TBD	01/02/14			\$3,900,000	✓
NB	5-47	Rehabilitation of Balboa Trunk Sewer	4	Eros Yong	AECOM Technical Services, Inc.	TBD	08/21/14	✓		\$10,622,000	
NB	5-49	Replacement of Bitter Point Pump Station	6	Martin Dix	Lee & Ro	Kiewit Pacific Co.	10/19/12		✓	\$32,095,000	✓
NB	5-50	Replacement of Rocky Point Pump Station	6	Martin Dix	Lee & Ro/Malcolm Pirnie Inc.	Kiewit Pacific Co.	09/06/12		✓	\$22,678,000	
NB	5-58	Bitter Point Force Main Rehabilitation	4	Hardat Khublall	Black & Veatch/Butler Engineering, Inc.	Geo-Solutions Inc. DBA Pennsylvania Geo-Solutions	01/02/14			\$45,829,000	
NB	5-60	Newport Force Main Rehabilitation	3	Martin Dix	Brown and Caldwell/Malcolm Pirnie Inc.		06/10/16	✓		\$45,788,000	
NB	5-63	Dover Drive Trunk Sewer Relief	4	Martin Dix	Atkins	Mike Babalo Construction	07/10/14	✓		\$13,751,000	✓
CM, NB	6-17	District 6 Trunk Sewer Relief	3	Eros Yong	RMC Water	TBD	02/26/16	✓		\$5,638,000	✓
CM, NB	6-19	Southwest Costa Mesa Trunk	1	Victoria Pilko	Dudek & Associates, Inc.	TBD	08/03/18	✓		\$14,993,000	✓
Tustin	7-37	Gisler - Red Hill Trunk Improvements - Reach B	3	Hardat Khublall	Tetra Tech, Inc.	TBD	02/26/16	✓		\$11,814,000	
Westminster	11-32	Wintersburg Channel Siphon Protection Project	3	Hardat Khublall	N/A	N/A	04/03/14			\$75,000	✓
		Closed Projects		Varies	Varies	Varies				315,628,256	
		Canceled Projects		NA	NA	NA				\$10,109,449	
		Future Projects		TBD	TBD	TBD				\$375,267,000	
Total Collections										\$940,098,705	

Joint, Facilities Engineering, Special Projects											
City	Project No.	Project Description	Current Phase	OCSD Project Manager	Consultant	Contractor	Construction			Project Cost	
							Finish	On Schedule	Completed	Estimate at Completion	On Budget
FV, HB	FE-J	Facilities Engineering Projects - Joint Works	4	Kathleen Millea	Varies	Varies				\$23,910,000	✓
FV	FE-P1	Facilities Engineering Projects - Plant No. 1	4	Kathleen Millea	Varies	Varies				\$20,910,000	✓
HB	FE-P2	Facilities Engineering Projects - Plant No. 2	4	Kathleen Millea	Varies	Varies				\$20,910,000	✓
All cities	FE-C	Facilities Engineering Projects - Collections	4	Kathleen Millea	Varies	Varies				\$8,250,000	✓
FV	J-33-3	Power Monitoring and Control Systems	4	Wendy Sevenandt	DLT&V Systems Engineering/Vertech Industrial Systems/Black & Veatch	Morrow Meadows Corp.	11/21/14	✓		\$12,327,000	✓
FV	J-36-1	Joint GWRS Microfiltration Backwash Redirection	4	Wendy Sevenandt	Black & Veatch	W.M. Lyles Company	11/07/13	✓		\$522,000	✓
FV, HB	J-79-1	Central Generation Automation	6	Jeffrey Mohr	Black & Veatch	Morrow Meadows Corp./Sachs Electric	01/04/12	✓	✓	\$23,386,000	✓
FV, HB	J-106	Interplant Gas Line Rehabilitation	6	Martin Dix	HDR Engineering, Inc.	J. Fletcher Creamer	04/29/13	✓	✓	\$5,634,000	✓
HB	J-109	Cengen Cooling Water System Replacement Project	4	Victoria Pilko	Malcolm Pirnie Inc.	Stanek Constructors, Inc.	11/22/13	✓		\$11,454,000	✓
HB	J-110	Final Effluent Sampler and Building Area Upgrades	3	Umesh Murthy	Atkins North America, Inc.	TBD	08/18/16	✓		\$14,064,000	
HB	J-111	Cengen Emissions Control Project	3	Jeffrey Mohr	Black & Veatch	TBD	10/27/15	✓		\$29,000,000	✓
HB	J-112	Outfall Land Section and OOBs Piping Rehabilitation	4	Victoria Pilko	Black & Veatch	J.F. Shea Construction, Inc.	10/31/13	✓		\$20,939,000	✓
HB	J-119	Outfall Beach Box Rehabilitation Evaluation	1	Gary Conklin	Brown & Caldwell	N/A	N/A			\$357,000	
HB	J-122	Operations Center Entrance/Building Repairs	3	Jeffrey Mohr	H.H. Framer Architects, Inc.	TBD	03/04/15	✓		\$2,648,000	
FV, HB	J-123	Fall Protection Improvements at Plant Nos. 1 and 2	4	Eros Yong	OCSD	W. M. Lyles Company	09/20/13	✓		\$2,967,000	✓
HB	SP-129	Oxygen Plant Rehabilitation at Plant No. 2	1	Jeffrey Mohr	Hazen & Sawyer	TBD	02/26/16	✓		\$2,300,000	
FV, HB	SP-133	2009 NPDES Permit Renewal	6	James Colston			N/A			\$155,610	
FV	SP-137	Primary Treatment Area Rehabilitation Study	1	Gary Conklin	TBD	TBD	N/A			\$848,000	✓
FV	SP-139	Initial Expansion of the Groundwater Replenishment System	1	Rob Thompson	TBD	TBD	N/A			\$70,000	✓
FV, HB	SP-141	Digester Gas Facilities Assessment	1	Rob Thompson	TBD	TBD	N/A			\$700,000	✓
FV, HB	SP-145	Facilities Assets Assessment	1	Rob Thompson		TBD	N/A			\$2,960,000	✓
FV, HB	SP-145-1	Facility-Wide Safety Assessment	1	Gary Conklin	Arcadis	TBD	N/A			\$930,000	✓
FV, HB	SP-146	Utility Water Systems Study	1	Gary Conklin			N/A			\$800,000	✓
FV, HB	SP-150	Uninterruptible Power System (UPS) Study	1	Gary Conklin		TBD	N/A			\$342,000	✓
FV, HB	SP-155	Sidestream Pumping System and Water Characterization Study	1	Rob Thompson	TBD	TBD	N/A			\$246,000	✓
FV, HB	SP-166	Odor Control Master Plan	1	Rob Thompson	TBD	TBD	N/A			\$1,200,000	✓
FV	SP-182	Plant No. 1 Headworks and Bypass Asset Management Plan	1	Rob Thompson	TBD	TBD	N/A			\$400,000	
HB	SP-186	Plant No. 2 Digester/Boilers Plant Asset Management Plan	1	Rob Thompson	TBD	TBD	N/A			\$200,000	✓
HB	SP-187	Plant No. 2 Outfall Systems Asset Management Plan	1	Rob Thompson	TBD	TBD	N/A			\$300,000	✓
		Closed Projects		Varies	Varies	Varies				\$439,555,350	
		Cancelled Projects		N/A	N/A	N/A				\$17,747,579	
		Future Projects		TBD	TBD	TBD				\$149,357,000	
Total Joint Treatment Plant Projects										\$815,389,539	

new projects

The table below includes projects that are currently in the development phase. During this phase, the scope of work is created and a management plan is put together for the project.

NEW PROJECTS BEGINNING JULY 13 – JUNE 14			
City	Project ID	Project Name	Planned Start
FV	SP-192	Information Technology Master Plan	Jul-13
HB	SP-193	Plant No. 2 Administrative Building Master Plan	Jul-13
HB	P2-110	Consolidated Demolition and Utility Improvements at Plant No.2	Oct-13
FV, HB	J-125	Programmable Control Panel Upgrades	Nov-13
FV, HB	P1-105	Headworks Rehabilitation and Expansion at Plant No. 1	Dec-13
FV, HB	J-117	Ocean Outfall System	Dec-13
FV, HB	J-124	Digester Gas Compressor Improvements	Jul-14



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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@ocsd.com • Phone: 714.378.2965

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