our mission
to protect public health and the environment by providing effective wastewater collection, treatment, and recycling
message from the general manager

For the past 62 years, the Orange County Sanitation District has been protecting public health and the environment by providing effective wastewater collection, treatment and recycling. And, as times have changed, the agency has evolved, leading the way in adapting to new mandates, setting new levels of service, and utilizing new technology.

Today, I am pleased to present to you, the Orange County Sanitation District’s 2015-2016 Annual Report—Utility of the Future.

In August 2016, OCSD was recognized as a “Utility of the Future, Today” for our progressive programs, initiatives, and business practices. This recognition by a partnership of the National Association of Clean Water Agencies, the Water Environment Federation, the Water Environment & Reuse Foundation and the WateReuse Association—with input from the U.S. Environmental Protection Agency—recognizes the progress and exceptional performance of wastewater utilities who “transform the traditional wastewater treatment system to a community-based resource recovery center and leader in the overall sustainability and resilience of the communities they serve.”

Throughout this report, you can see the progress that OCSD achieved in 2015-16, and a glimpse of what is in store for OCSD’s future, our industry, and our customers.

Our Board of Directors and staff are committed to sustaining and improving our performance into the future. To meet the Board’s vision, we will continue to move forward focusing on the areas of safety and security, succession planning, resource recovery, reliability and operational optimization in the coming year.

The successes described in this report would not be possible without the collective dedication and effort of our employees and the commitment and support of our Board of Directors and the public we serve.

James D. Herberg, General Manager
who we are

The Orange County Sanitation District (OCSD) is a public agency that provides wastewater collection, treatment, and recycling for 2.6 million people in central and northwest Orange County. OCSD is a special district that is governed by a 25 member Board of Directors comprised of 20 cities, four special districts, and one representative from the Orange County Board of Supervisors. OCSD has two operating facilities that treat wastewater from residential, commercial and industrial sources. The wastewater from these communities is conveyed through 386 miles of regional sewers to either the reclamation plant in Fountain Valley or the treatment plant in Huntington Beach where it is treated and sent for water recycling or released into the Pacific Ocean.
Community Engagement at a Glance

15 community events
27 speaking engagements
180 tours reaching over 8,500 people

Infrastructure

Reliability
In Fiscal Year 2015-16, through OCSD’s Capital Improvement Program, approximately $147 million was spent on 75 active projects.

1. Metering and Diversion
Taking the wastewater away – Collection – When you flush the toilet, take a shower or empty the sink, the wastewater goes down the drain into a series of sewer pipes that eventually end at the Orange County Sanitation District.

2. Preliminary Treatment
Preliminary Treatment – Screening – The first stage of cleaning wastewater is to remove large objects that do not belong in the sewer: rags, floss, and wipes in addition to the grit that gets washed into the sewer such as coffee grounds and egg shells. Over 5,000 tons of debris, that was brought in with the wastewater, was hauled from OCSD to a local landfill. That is equivalent to about 170 elephants per month!

Workforce
624 authorized employees, over 70 percent of our employees live in Orange County, with an average of 12 years of service.

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3. Primary Treatment
Primary Treatment – Physical – The wastewater still contains biodegradable microscopic suspended solids. The next stage is to separate this waste from the water, and to do this, we put the wastewater into large settling tanks, which allows the solids to sink to the bottom of the tank. 80 percent of solids are removed during this process.

4. Secondary Treatment
Secondary Treatment – Biological – The wastewater is put into aeration basins; air is pumped into the water to supply oxygen. Microorganisms in the wastewater grow as they feed on the organic materials in these tanks. The microorganisms clump together and settle to the bottom, where they are removed and recycled back into the treatment process. Treated water is sent to either the Orange County Water District to recycle or released into the ocean.

5. Advanced Treatment
Advanced Treatment – the Groundwater Replenishment System – After the wastewater treatment process, the clean water flows to GWRSS at the Orange County Water District where it undergoes a state-of-the-art purification process consisting of microfiltration, reverse osmosis, and ultraviolet light with hydrogen peroxide. This near-distilled-quality water is pumped into the groundwater basin to increase the local drinking water supply.

6. Ocean Release
Ocean Release – The remaining clean water, approximately 80 million gallons per day, is released to the ocean five-miles off shore, 200 feet deep.

Energy – Methane gas that is captured from digesters is compressed and used to fuel engine-generators that produce electricity, supplying more than 60% of OCSD’s energy needs, saving OCSD’s rate payers $4.8 million in power that would otherwise have to be purchased.

Products of the Treatment Process
Biosolids – The solids removed during the process are captured, treated and recycled to agricultural land as a soil amendment and used to generate energy. Ninety-four percent of all biosolids processed at OCSD were recycled as compost in Kern County, La Paz County and Inland Empire (49%), farmland application in Yuma County (41%) and as land cover with biogas recovery for energy at Prima Deshecha landfill (8%).

Water Reuse – In 2015, the initial expansion of the Groundwater Replenishment System was completed. The Orange County Water District now receives 130 million gallons per day of secondary treated effluent from OCSD, in turn increasing GWRSS water production from 70 million gallons per day to 100 million gallons per day. GWRSS produces enough water to serve 850,000 people in Orange County.

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2015-2016 highlights

• Transfer of Local Sewers – OCSD successfully transferred 174-miles of local sewers serving parts of Tustin and the unincorporated areas north of Tustin to the East Orange County Water District, allowing OCSD to focus on regional wastewater collection, treatment and recycling.

• Completion of the Newport Force Main Rehabilitation Project – A critical project along a 2.5-mile stretch of Pacific Coast Highway in the City of Newport Beach was completed ahead of schedule. This $41.4 million project replaced two parallel pressurized sewer pipelines while maintaining continuous sewer service.

• GWRS Initial Expansion Begins Operation – Today, more than 50 percent of the total wastewater flow that we receive is being recycled in partnership with the Orange County Water District. Read more under “Products of the Treatment Process”.

• OCSD Co-Sponsors Legislation Allowing Californians to Taste Purified Recycled Water – OCSD, Orange County Water District and WaterReuse co-sponsored new legislation (AB 2022) which will allow Californians to taste-test highly purified recycled water. AB 2022 allows water agencies to bottle their potable recycled water and distribute small amounts for educational purposes. AB 2022 was signed by the Governor and will become law on January 1, 2017.

• Financial Planning for the Future – OCSD maintains its pension program through the Orange County Employees Retirement System (OCERS). Three years ago, OCSD had an Unfunded Actuarial Accrued Liability (UAAL) of close to $200 million. OCERS developed a long term funding plan to allow agencies to fund their liabilities over a 20 to 30-year period. OCSD elected to make additional payments to eliminate its UAAL more quickly saving tens of millions of dollars in additional payments. The last payment of $6 million, eliminating OCSD’s existing UAAL, was approved this reporting year. However, OCERS’ investment returns on its portfolio were less than anticipated, creating an additional liability for OCSD that will be addressed during the 2016-17 fiscal year.

• Reorganization for the Future – OCSD restructured and created the Environmental Services Department. As we strive to fulfill our mission of protecting public health and the environment, reinvent ourselves as a resource recovery agency, and operate in a heavily regulated environment, this reorganization will provide functional alignment of operating, engineering, environmental and regulatory resources.

OCSD’s sewer fee rates remain in the bottom third of our comparable agencies in California and are still below the statewide average. OCSD’s 2015 - 2016 sewer fee was $0.89 a day.
looking towards 2017

- **More Water Recycling** – In partnership with the Orange County Water District (OCWD), we will execute a new agreement for the ultimate expansion of the GWRS. We will continue to work with OCWD to secure grant funding and complete preliminary engineering and environmental work on the expanded facilities to recycle effluent from OCSD’s Huntington Beach Plant No. 2. These actions will allow us to achieve the ultimate final expansion of GWRS, producing 130 million gallons of purified new water.

- **Biosolids Master Plan** – The Solids Digestion complex at Plant No. 2 is in need of replacement due to wear, corrosion, and seismic vulnerabilities. We are using this opportunity to investigate technology options to maximize energy production and create high value fertilizer products. The master plan should be completed in spring 2017.

- **New Technology** – OCSD is committed to explore options that may not currently be used in our industry as part of the treatment process. The new technology, patented as AquaCritox®, has the potential to deliver up to three times better energy conversion, reduced negative environmental impacts, and superior final products at less cost than the current technology that has been in place for decades. A three-step approach for investigating this process was approved by the Board of Directors in 2014. The first step was a conceptual study to define the process equipment, estimate performance and costs, and do site-specific planning for an AquaCritox® installation. That study has now been completed with a proposed path forward for design and ultimately construction of a demonstration facility.

- **Rates** – OCSD is conducting planning studies including the Odor Control, Biosolids, and Facilities Master Plans to develop updated 20-year cost projections. The outcomes of these studies will be used to complete a rate study to determine the proper allocation of costs among user types and a recommended future rate structure.

- **New Centrifuges** – Last year, construction began on the $90 million, Sludge Dewatering and Odor Control project which is constructing a centrifuge dewatering facility that will reduce the water content of the trucked biosolids, thus resulting in a reduction of six trucks per day and saving OCSD $5.4 million per year in hauling costs. Plant No. 1 centrifuges will be online in 2018 and Plant No. 2 will be online in 2020.

- **OCSD Headquarters Building** – OCSD will study site location options and will make a final site selection after preparing environmental documentation to comply with the California Environmental Quality Act.
awards and accomplishments

Wastewater Conveyance Project of the Year for SARI Line, 2015, American Society of Civil Engineers

Certificate of Achievement for Excellence in Finance Reporting, 2015, Government Finance Officers Association

Excellence in Environmental Engineering and Science - Environmental Sustainability Honor Award for Central Generation Emissions Control (J-111), 2016, American Academy of Environmental Engineers & Scientists

Excellence in Environmental Engineering and Science - Design Honor Award for the GWRS Initial Expansion, 2016, American Academy of Environmental Engineers & Scientists

Excellence in Environmental Engineering and Science - Research Honor Award for OCSD’s Critical Assessment of Process Odorants, 2016, American Academy of Environmental Engineers & Scientists

Gold Peak Performance Award for Plant No. 1 and Plant No. 2 for Excellence in Permit Compliance, 2016, National Association of Clean Water Agencies

Silver Award of Distinction - Annual Report, 2016, Communicator Award

American In-House Award - Annual Report, 2016, Graphic Design USA

Membrane Facility Award, 2016, Membrane Technology Association/American Water Works Association

2015 Collection System of the Year (250-500 miles), 2016, California Water Environment Association

Recycled Water Agency of the Year (Large), 2016, WateReuse Association

Golden Hub of Innovation Award for Newport Beach Outreach Program, 2016, Association of California Cities - Orange County

Client of the Year, 2016, American Council of Engineering Companies
board of directors

Anaheim
   Lucille Kring
Brea
   Glenn Parker
Buena Park
   Fred Smith
Costa Mesa Sanitary District
   James M. Ferryman
Cypress
   Mariellen Yarc
Fountain Valley
   Steve Nagel
Fullerton
   Greg Sebourn (Vice-Chair)
Garden Grove
   Steve Jones
Huntington Beach
   Jim Katapodis
Irvine
   Steven Choi
Irvine Ranch Water District
   John Withers
La Habra
   Tom Beamish
La Palma
   Peter Kim
Los Alamitos
   Richard Murphy
Member of the Orange County Board of Supervisors
   Michelle Steel
Midway City Sanitary District
   Joy Neugebauer
Newport Beach
   Keith Curry
Orange
   Teresa Smith
Placentia
   Chad Wanke
Santa Ana
   Sal Tinajero
Seal Beach
   Ellery Deaton
Stanton
   David Shawver
Tustin
   John Nielsen (Chair)
Villa Park
   Greg Mills
Yorba Linda Water District
   Robert Kiley

Executive Management Team

James D. Herberg, General Manager
Robert Ghirelli, Assistant General Manager
Robert Thompson, Director of Engineering
Edward Torres, Director of Operations and Maintenance
Lorenzo Tyner, Director of Finance and Administrative Services
Celia Chandler, Director of Human Resources
James Colston, Director of Environmental Services
Brad Hogin, General Counsel