

MEETING OF THE BOARD OF DIRECTORS OF THE
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

Jointly with the
PLANNING & OPERATIONS COMMITTEE

March 6, 2017, 8:30 a.m.
MWDOC Conference Room 101

P&O Committee:

Director Dick, Chair
Director Tamaribuchi
Director Yoo Schneider

Staff: R. Hunter, K. Seckel, J. Berg,
H. De La Torre, K. Davanaugh

Ex Officio Member: W. Osborne

MWDOC Committee meetings are noticed and held as joint meetings of the Committee and the entire Board of Directors and all members of the Board of Directors may attend and participate in the discussion. Each Committee has designated Committee members, and other members of the Board are designated alternate committee members. If less than a quorum of the full Board is in attendance, the Board meeting will be adjourned for lack of a quorum and the meeting will proceed as a meeting of the Committee with those Committee members and alternate members in attendance acting as the Committee.

PUBLIC COMMENTS - Public comments on agenda items and items under the jurisdiction of the Committee should be made at this time.

ITEMS RECEIVED TOO LATE TO BE AGENDIZED - Determine there is a need to take immediate action on item(s) and that the need for action came to the attention of the District subsequent to the posting of the Agenda. (Requires a unanimous vote of the Committee)

ITEMS DISTRIBUTED TO THE BOARD LESS THAN 72 HOURS PRIOR TO MEETING --
Pursuant to Government Code section 54957.5, non-exempt public records that relate to open session agenda items and are distributed to a majority of the Board less than seventy-two (72) hours prior to the meeting will be available for public inspection in the lobby of the District's business office located at 18700 Ward Street, Fountain Valley, California 92708, during regular business hours. When practical, these public records will also be made available on the District's Internet Web site, accessible at <http://www.mwdoc.com>.

BOARD ACTION ITEM (The MWDOC Board will convene as a full Board and may take action as a Board on the following item):

1. PARTNERSHIP WITH WYLAND FOUNDATION - OC CHALLENGE

Recommendation: Approve a partnership with the Wyland Foundation for a separate Orange County break-away contest, within the Wyland National Mayor's Challenge, which would award a pocket park demonstration garden to the highest participating Orange County city within the Municipal Water District of Orange County's (MWDOC) service area.

(Reconvene as Planning & Operations Committee)

ACTION ITEMS

2. LANDSCAPE DESIGN ASSISTANCE PROGRAM
3. ADDITIONAL AUTHORIZATION OF WORK FOR THE OC WATER RELIABILITY STUDY 2017 UPDATE
4. WEROC RADIO SYSTEM REPLACEMENT EVALUATION
5. APPROVE PARTICIPATION IN THE CENTER FOR DEMOGRAPHIC RESEARCH
6. MULTI-FAMILY TOILET REBATE PROGRAM

DISCUSSION ITEM

7. METROPOLITAN PROPOSED FIXED TREATMENT CHARGE

INFORMATION ITEMS (The following items are for informational purposes only – background information is included in the packet. Discussion is not necessary unless a Director requests.)

8. DESALINATION SLANT WELL DECOMMISSIONING PROJECT STATUS UPDATE
9. STATUS REPORTS
 - a. Ongoing MWDOC Reliability and Engineering/Planning Projects
 - b. WEROC
 - c. Water Use Efficiency Projects
 - d. Water Use Efficiency Programs Savings and Implementation Report
10. REVIEW OF ISSUES RELATED TO CONSTRUCTION PROGRAMS, WATER USE EFFICIENCY, FACILITY AND EQUIPMENT MAINTENANCE, WATER STORAGE, WATER QUALITY, CONJUNCTIVE USE PROGRAMS, EDUCATION, DISTRICT FACILITIES, and MEMBER-AGENCY RELATIONS

ADJOURNMENT

NOTE: At the discretion of the Committee, all items appearing on this agenda, whether or not expressly listed for action, may be deliberated, and may be subject to action by the Committee. On those items designated for Board action, the Committee reviews the items and makes a recommendation for final action to the full Board of Directors; final action will be taken by the Board of Directors. Agendas for Committee and Board meetings may be obtained from the District Secretary. Members of the public are advised that the Board consideration process includes consideration of each agenda item by one or more Committees indicated on the Board Action Sheet. Attendance at Committee meetings and the Board meeting considering an item consequently is advised.

Accommodations for the Disabled. Any person may make a request for a disability-related modification or accommodation needed for that person to be able to participate in the public meeting by telephoning Maribeth Goldsby, District Secretary, at (714) 963-3058, or writing to Municipal Water District of Orange County at P.O. Box 20895, Fountain Valley, CA 92728.

Requests must specify the nature of the disability and the type of accommodation requested. A telephone number or other contact information should be included so that District staff may discuss appropriate arrangements. Persons requesting a disability-related accommodation should make the request with adequate time before the meeting for the District to provide the requested accommodation.



ACTION ITEM

March 6, 2017

TO: Board of Directors

FROM: **Public Affairs & Legislation Committee**
(Directors Tamaribuchi, Dick, Yoo Schneider)

Robert Hunter
General Manager

Staff Contact: Tiffany Baca

SUBJECT: Partnership With Wyland Foundation - OC Challenge

STAFF RECOMMENDATION

Staff recommends the Board of Directors approve a partnership with the Wyland Foundation for a separate Orange County break-away contest, within the Wyland National Mayor's Challenge, which would award a pocket park demonstration garden to the highest participating Orange County city within the Municipal Water District of Orange County's (MWDOC) service area.

COMMITTEE RECOMMENDATION

The Public Affairs and Legislation Committee recommends the Board consider approving the staff recommendation for a partnership with the Wyland Foundation, provided that the winning city is responsible for the maintenance and upkeep of the pocket park.

SUMMARY

For the first time in the Wyland National Mayor's Challenge contest history, a separate challenge for an individual county's participation in the contest is being proposed. As negotiated with the Wyland Foundation and MWDOC staff, the city within MWDOC's regional service area with the most participants in the contest will be awarded a pocket park demonstration garden and will receive plants, irrigation equipment, lighting, signage and design, and installation services at a location to be mutually determined by the city, water agency, and program organizers. **The winning city will be responsible for maintaining the park in its entirety for a minimum of 5 years.** The awarded pocket park will serve as a community model for water efficient landscaping, and will use a variety of landscaping practices and strategies to promote sustainable water usage and stormwater capture.

Budgeted (Y/N): N	Budgeted amount:	Core X	Choice __
Action item amount: \$10,000		Line item: 32-7040	
Fiscal Impact (explain if unbudgeted): Staff is proposing to use \$10,000 of the \$20,000 budgeted for Drought/Conservation Advertising.			

DETAILED REPORT

The Wyland National Mayor's Challenge is an annual outreach campaign which encourages cities nationwide to be more water and energy efficient. Cities with the highest percentage of residents who take the challenge in their population category can win hundreds of prizes supplied by the Wyland Foundation and their presenting partners.

As an additional incentive for Orange County cities, Wyland Foundation and the Municipal Water District of Orange County will award a professionally designed water-efficient pocket park makeover to the winning city served by one of MWDOC's 28 retail water agencies. This would be the first time in the contest's history that a break-away challenge for a county's participation would be recognized.

The city within MWDOC's regional service area with the most participants in the 2017 Wyland National Mayor's Challenge will receive plants, irrigation equipment, lighting, signage and design and installation services for a park makeover at a location to be mutually determined by the city, water agency, and program organizers. The Foundation will work with the winning city to obtain all permits and securing of volunteers, providing plants and supplies from a variety of partners such as The Toro Company, local landscape contractors and nurseries. This is also an opportunity for MWDOC to include some of its newer partners in a highly-visual community project; partners like the Boy Scouts whose volunteer time could earn credit towards their Soil and Conservation Merit Badge.

MWDOC would contribute \$10,000, to assist with project completion. All three partner logos, Wyland Foundation, MWDOC and the winning city, would be represented on signage in the final pocket park design.

BACKGROUND

My Water Pledge is a friendly competition between cities across the United States to see who can pledge to be the most "water-wise" city in the nation. This contest, which runs from **April 1 through April 30**, offers incentives that encourage residents across the country to get involved with their communities and to commit to using water more efficiently. Mayors nationwide challenge their residents to be more water-wise through a series of informative, easy-to-complete pledges online. This year, MWDOC staff has been asked to contribute pledge selections that are timely, effective and educational.

The challenge is presented annually by the **Wyland Foundation** and **Toyota**, in association with the **National League of Cities**, **U.S. EPA**, **U.S. Forest Service**, **The Toro Company** and **Earth Friendly Products** (the makers of ECOS). The campaign includes animated PSAs from behind the TV series "Rugrats," and promotions by media partners including **USA Today** and **CBS/KCAL 9**.

Each city can do as much, or as little as they want to. Wyland Foundation and their sponsors provide toolkits to ensure successful participation for all cities who want to enter the competition. The free toolkit includes sample social media posts, PSA and commercial scripts, videos, promotional flyers and sample blogs.

HOW IT WORKS - OVERALL CHALLENGE: Cities with the highest percentage of residents who take the challenge in their population category win. Cities across the nation compete in the following population categories: 5,000-29,999, 30,000-99,999, 100,000-299,999, 300,000-599,999, 600,000+. Individual participants in the winning cities are eligible to win hundreds of prizes including smart controllers, water bottles, and low-flow showerheads. The grand prize offered to one lucky individual (selected through a drawing) is a Toyota Prius Prime.

Last year, 139 Mayors in 39 states participated in the Challenge. 45,005 residents from 4,100 cities made 404,407 total pledges, and 1.9 billion gallons of water were potentially saved.

2016 Nationwide Winning Cities:

- * **Laguna Beach, California** (Population Category 5000-29,999)
- * Andover, Minnesota (Population Category 30,000-99,999)
- * Ventura, California (Population Category 100,000-299,999)
- * Aurora, Colorado (Population Category 300,000-599,999)
- * Boston, Massachusetts (Population Category 600,000 and over)



WHO (Not a comprehensive list):

- **Landscape Design**, Robert Farnsworth, Landscape Architecture Dept. Chair, Saddleback College
- **Installation**, Native West Sustainable Landscaping
- **Water Smart Irrigation and Energy Efficient Lighting**, The Toro Company
- **Education / Coordination**, Wyland Foundation, MWDOC



WHEN: The winning city will be selected by May 15, 2017. Winners will be notified by June 1, 2017. Project installation is expected to be completed within six months of winner notification. The City Mayor must be available for ribbon cutting as a pre-condition of participation.

ADDITIONAL DETAILS: The project will be designed to serve as a community model for water efficient landscaping at a location of up to 1,000 square feet. The project will use a variety of landscaping practices and strategies to promote sustainable water usage and stormwater capture, while connecting the surrounding community with California's native landscape. Components provided will include native trees, plants, and grasses, water efficient irrigation, energy efficient

lighting and signage to promote water smart landscaping at home. In 2015, the Wyland Foundation created a water efficient landscape makeover to the city of Dallas in recognition of its efforts as the winner of the National Mayor's Challenge for Water Conservation.



ACTION ITEM

March 15, 2017

TO: Board of Directors

FROM: **Planning & Operations Committee**
(Directors Dick, Tamaribuchi, Yoo Schneider)

Robert Hunter
General Manager

Staff Contact: J. Berg
Director of Water Use Efficiency

SUBJECT: Landscape Design Assistance Program

STAFF RECOMMENDATION

Staff requests the Board authorize the General Manager to enter into professional services agreements with both DeLorenzo International and EcoTech Services, Inc. to provide landscape design assistance in an amount not to exceed \$140,000. Should other firms (to be determined) demonstrate they are qualified to do the work and agree to a competitive fee structure, staff requests Board authorization to contract with them as well.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

Landscape water use accounts for approximately 50 percent of total water use in Orange County. There is a relatively untapped opportunity for water savings in the landscape as our focus historically has been on indoor residential plumbing fixtures. During this time, landscape water saving efforts have focused on education and landscape design standards, such as landscape ordinances administered by city planning departments. A comprehensive and prolonged approach is needed to achieve and maintain landscape water savings.

The Municipal Water District of Orange County began offering a variety of landscape rebates starting in 2004 with Smart Irrigation Timers to promote irrigation scheduling efficiency. This water savings opportunity was pioneered in Orange County and has resulted in quantifiable and reliable savings over time. Since then, we have expanded the opportunities to include low-volume sprinkler nozzles (2007), turf grass removal (2010),

Budgeted (Y/N): Y	Budgeted amount: \$140,000	Core __	Choice _X_
Action item amount: \$140,000		Line item: Fund No. 8116 & 9111	
Fiscal Impact (explain if unbudgeted): The proposed design assistance will be funded through a combination of grant funds awarded to MWDOC from the US Bureau of Reclamation (\$90,000) and California Department of Water Resources (\$50,000).			

spray-to-drip conversions (2014), education, and regulations such as landscape ordinances. These efforts focus on both residential and commercial landscapes. Ultimately, we are seeking to establish a transformation of urban landscapes to better match the water needs of our landscapes to our local climate and available water resources. That said, we are NOT advocating for the complete removal of turf grass; rather, we are advocating for functional turf areas that provide for recreation and other beneficial uses.

There are four factors that influence landscape water use: Landscape management, plant selection, irrigation equipment, and maintenance. Each of these factors contributes to the potential water savings at a site. However, simply improving the water use efficiency of one of these factors alone will only result in moderate water savings. To achieve the maximum potential water savings, these factors must each be considered in combination. For example, the water savings potential of efficient irrigation equipment is maximized with proper landscape management. Likewise, the water savings potential of climate appropriate plants is maximized with efficient irrigation equipment. Often times, a site will only upgrade one of the four factors.

Staff is now proposing to add Landscape Design Assistance into our portfolio of landscape water use efficiency programs. Landscape design has been found to be one of the biggest barriers for homeowners to overcome when participating in our turf removal rebate program. Our intention is to break down barriers and help ensure aesthetically appealing landscapes that will be adopted/emulated by others. The proposed Landscape Design Assistance Program will provide the site with customized tools to achieve maximum water savings by considering all four factors that influence landscape water use.

DETAILED REPORT

The proposed Landscape Design Assistance program will provide for the development of up to 36 design templates that will be posted on the program website, along with offering one-on-one landscape design assistance to approximately 100 residential property owners. The templates are intended to provide consumers with design ideas for their yards. The templates and one-on-one design assistance will include consultation (one-on-one only), a planting plan, an irrigation design plan, and instructions for proper maintenance once the new landscape is installed. Templates will include six design themes for participants to choose from as described below.

Design themes include:

- Mediterranean, Spanish
- Tuscan, Italian
- California Native, California Friendly Rain Garden, Ocean Friendly Garden
- Modern
- Cottage
- Coastal

Participants will be asked to select plants they like from a designated list of plants that are well adapted to Orange County's climate. Plant selection is a critical component of the program and is designed to create a vested interest and ownership in developing and maintaining the participant's landscape. The use of designs produced through this effort will extend beyond the individual receiving the one-on-one assistance; these designs will

become templates posted on MWDOC's website that can be used by other residents, thereby greatly expanding the usefulness of each design.

One of our goals is to create design packages that meet the architectural requirements of Homeowner Associations to streamline the HOA approval process. This has been successfully accomplished by Santa Margarita Water District's SustainaBlue landscape design assistance program (<http://www.smwd.com/conservation/landscape/>); MWDOC intends to model their approach.

Request for Proposals Process

Staff composed and distributed a Request for Proposals (RFP) outlining the desired services, schedule, and budget for the MWDOC Landscape Design Assistance program. On December 7, 2016, the RFP was distributed to more than 80 design firms thought to be capable of providing the needed services. On December 13, 2016, staff held a meeting to review the RFP with potential respondents and give them an opportunity to ask questions of clarification regarding the desired work to be performed. Six organizations attended this meeting. The RFP required proposals to be submitted to MWDOC on January 6, 2017. Two landscape design firms submitted proposals: DeLorenzo International, based in San Diego, and EcoTech Services, Inc., based in Monrovia.

Staff convened a review panel to evaluate and score proposals and recommend a design firm for MWDOC Board Consideration. The review panel included 10 representatives from four agencies including MWDOC, Irvine Ranch Water District, Mesa Water District, and Santa Margarita Water District.

The review panel found both design firms to be qualified to perform the landscape design work. However, the fees proposed by the two design firms differed significantly. Because the review panel felt that more than one design assistance firm was needed to meet program demand and schedule, staff approached both firms to verify their understanding of what was being requested in the RFP and to discuss a similar fee structure that both firms would honor. These discussions resulted in the fee structure outlined in Table 1.

Table 1 Landscape Design Assistance Fee Structure		
Consultant	Design Templates (fixed cost per template)	One-on-One Design Assistance
EcoTech Services, Inc.	\$1,500	\$150.00 / hour
DeLorenzo International	\$1,475	\$136.50 / hour

Funding for this design assistance comes from a combination of state and federal sources. The US Bureau of Reclamation will contribute \$90,000 through a Water Smart Grant, and the California Department of Water Resources will contribute \$50,000 through a South

Orange County Integrated Resources Plan Gant. MWDOC's staff time to administer this effort will contribute toward matching fund requirements of the grants.

Staff requests the Board authorize the General Manager to enter into professional services agreements with both DeLorenzo International and EcoTech Services, Inc. to provide landscape design assistance in an amount not to exceed \$140,000. Should other firms (to be determined) demonstrate they are qualified to perform the work and agree to a competitive fee structure, staff requests Board authorization to contract with them as well. Should this occur, staff will inform the Board via the monthly Water Use Efficiency Projects Status report contained in the Planning and Operations Committee packet.



ACTION ITEM

March 15, 2017

**TO: Planning & Operations Committee
(Directors Dick, Finnegan & Yoo Schneider)**

**FROM: Robert Hunter
General Manager**

Staff Contact: Karl Seckel

SUBJECT: Additional Authorization of Work for the OC Water Reliability Study 2017 Update

STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee recommends the Board increase the authorization to CDM-Smith by \$44,013 to complete \$81,590 in additional work on updating various aspects of the 2016 OC Water Reliability Study, using \$37,577 that was remaining from the prior authorization. The work is expected to take about 4 to 5 months to complete.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

At the February P&O Committee meeting, staff recommended follow-up work to the 2016 OC Water Reliability Study. CDM-Smith was requested to provide a proposal to complete the following work:

Budgeted (Y/N): Yes	Budgeted amount: \$44,013	Core ✓	Choice ____
Action item amount: \$81,590	Line item: 02-21-7010		
Fiscal Impact (explain if unbudgeted) The cost of the work is \$81,590; this will require \$44,013 in a new authorization to combine with \$37,577 in funds remaining from the 2016 study.			

- Updating Climate Change Data and Colorado River Assumptions
- Splitting Treated vs Untreated MWD Deliveries
- Evaluating Scenarios in Which Poseidon Desalination is Needed
- Assessing the Value of New Storage
- Project Management, Meetings and preparation of a Technical Memo

MWDOC staff will provide assistance in the way of costs related to the various options for integration of the Poseidon water. Staff will also work on a methodology to determine future minimum flows in pipelines to maintain high water quality.

The work is expected to take 4 to 5 months.

DETAILED REPORT

At the February 2017 MWDOC P&O Committee meeting, staff recommended the following additional work be pursued with respect to the OC Water Reliability Study:

- Work with MET and MET's member agencies to ascertain the future direction of local supply development. We should also recommend that MET take a closer look at where the various other MET agencies are heading as they pursue additional projects to reduce their use of imported water from MET. This has implications for the future of the MET Local Resources Program, MET's Integrated Resources Plan, and the fixed treatment charge.
- Work with MET and our agencies to examine how water pipelines should be operated at various water temperature conditions throughout the year to enable a high chloramine residual to be maintained. What is envisioned are minimum recommended flows on a monthly basis in the various pipelines.
- With respect to various base-loaded or supply projects in Orange County, additional work should be pursued to better understand how project costs and project benefits align under MET's Water Supply Allocation Plan. Specific analyses of the total cost of these projects with an analysis of where the benefits of the projects accrue should be completed.
- Consideration should be given to the cost-efficiency of additional future project investments so as to maximize water supply reliability while minimizing costs.
- Changes in the Colorado River Supply situation have occurred since completion of the 2016 OC Water Reliability Study. It is suggested that we take a closer look at

the assumptions under the completed modeling work compared to where the negotiations are today under the Colorado River Drought Contingency Plan to examine if updates to the modeling are warranted. Newer climate data is also available and it may be possible to incorporate it into the modeling study as an additional update.

- The assumption on the Santa Ana River base flows to OCWD and the addition of the Santa Ana River Conservation and Conjunctive Use Project (SARCCUP) will also be incorporated.

Staff requested CDM-Smith to develop a proposal to pursue the following work:

- Update and quantification of potential climate change impacts. Work was underway by others in updating climate impact projections for both the SWP and the CR systems when our reliability study was underway. Information from those efforts was not available within our initial study timeframe. Staff has asked CDM-Smith to consider additional modeling work on both watersheds.
 - MWDOC is interested in quantifying the climate implications for future supplies (as best as can be done based on the current status of climate change modeling)
- With respect to future Colorado River supplies, we also have the structural deficit issue and the rules for the drought contingency plan to incorporate into the modeling
- It is suggested that the OCWD base flow assumption be changed from 53kaf to 34kaf under the belief that the upstream watersheds will make full use of the water available to them which will result in lower flows over the long run being available to OC.
 - Additionally, the SARCCUP dry year project yield to OCWD will be included in the modeling. Also with respect to SARCCUP, we asked CDM-Smith to examine the SARCCUP Program modeling work by CH2MHill to see how it compares to the work completed in the OC Study.
- The modeling will incorporate the Doheny and San Juan Project yields to determine what additional supplies might be needed by SOC, if any. The modeling will result in a basis for other agencies to consider participating in the Doheny Project.
- The Poseidon Project will be evaluated in more detail to further understand the quantification of benefits from base loaded projects that provide supplies in excess of the average GAP (difference between supplies and demands). CDM-Smith has suggested examining under what future conditions the Poseidon Project should be pursued:
 - Delineating when it makes sense, such as if there is no WaterFix and No Carson IPR project or when Climate change has impacted us to a certain degree.

- Under this analysis, we will utilize costs developed to integrate the Poseidon supplies into the Orange County system.
- Due to the variety of discussions at MWDOC with respect to additional surface storage in Southern California, we asked CDM-Smith to include the addition of a “second” theoretical DVL Project into the modeling to understand how often and under what circumstances it would prove to be useful.
- MWDOC staff will work with MET and others to develop recommendations for minimum flow in pipelines to maintain water quality; to help in this analysis; CDM will look at various approaches to distinguish future MET flows in OC between treated and untreated water to help with the evaluation of this issue.

CDM-Smith has estimated the updated cost of the work at \$81,590; this will require \$44,013 in a new authorization to combine with \$37,577 in funds remaining from the 2016 study. The work is expected to take about 4 to 5 months to complete.

The CDM-Smith scope is attached.



600 Wilshire Blvd., Ste. 750
Los Angeles, CA 90017
tel: 213-457-2149

February 27, 2017

Karl Seckel, Assistant General Manager
Municipal Water District of Orange County
P.O. Box 20895, Fountain Valley, CA 92708

Subject: Orange County Reliability Study, Amendment to Budget for Further Work

Dear Karl:

As requested, CDM Smith is providing you with a scope of work and budget for further work associated with the Orange County Reliability Study. This scope of work is based on our meeting with you on February 9, 2017, and includes:

- Updating climate change data on Colorado River and State Water Project, and potential impacts on reliability resulting from shortage declarations on the Colorado River
- Splitting treated vs untreated MWD deliveries in the OCSIM model
- Evaluating scenarios that show need for Poseidon desalination at various sized capacities

Scope of Work for Amended Work

Task 1. Updating Climate Change Data and Colorado River Assumptions

For the original OC Study, we used currently available climate change data at the time of the study for the Colorado River and State Water Project. Some of this information has changed since the modeling portion of our study was completed. We will incorporate, to the best of our ability, any latest information and review the likelihood that our original climate change scenarios for the OC Study were too optimistic (indicated a lower impact). All indications are that the recent Global Circulation Models (GCMs) using Representative Concentration Pathways (RCPs), RCP8.5, which reflects the latest information regarding emission scenarios and potential for mitigation, are more in line with current observed data. We will explore whether we can utilize these newer GCMs in some capacity.

We will also incorporate the latest information regarding the Colorado River Drought Contingency Plan and structural shortages that might occur to MWD in terms of reliability impacts for Orange County.

Task 2. Splitting Treated vs Untreated MWD Deliveries

To demonstrate the cost effectiveness of projects like the Poseidon desalination project and to better understand the demand for treated imported water in OC, it is necessary to split out untreated vs treated MWD deliveries. This would be done for the three study areas within the OCSIM model. This would also allow us to determine more refined simulation in South County



as the Baker Water Treatment Plant requires untreated MWD water, while all other MWD deliveries are treated by MWD.

Task 3. Evaluating Scenarios in Which Poseidon Desalination is Needed

This effort would involve simulating the conditions that result in demonstrating a need for supplies from the Poseidon desalination project at different sized capacities. We would also assess a range of costs for the Poseidon project that are associated with different recharge strategies for the OC Basin. We envision simulating at least 3 conditions in which some sized Poseidon project is needed. We would then be able to determine the relative cost-effectiveness of the project by comparison to MWD water purchases and other potential projects. One such potential project for the OC Basin area is Santa Ana River Conservation and Conjunctive Use Project (SARCCUP). SARCCUP is a conjunctive use storage program for the members of SAWPA and could provide Orange County with drought year water supplies that are counted as “extraordinary supply” under MWD’s drought allocation formula. We will evaluate the SARCCUP project using information provided to us from OCWD.

For South County, we will estimate the remaining needs if Doheny Desalination and San Juan Groundwater Augmentation projects are implemented, which could be fulfilled by Poseidon Desalination.

Task 4. Assessing the Value of New Storage

As requested by MWDOC, CDM Smith will add new surface reservoir storage at a size equal to MWD’s Diamond Valley Reservoir and with a cost double of that project in today’s dollars. This will determine if additional storage in the system has more or less value than other projects such as Poseidon.

Task 5. Project Management, Meetings and TM

To support Tasks 1-3, project management including meetings with MWDOC staff will be needed. We envision no more than 3 meetings with MWDOC staff for this amended scope of work. This task would also include a brief TM summarizing Tasks 1-3.

Current Budget Status

Our original budget for the OC Study was \$425,275, of which \$37,577 remains.



Orange County Reliability Study Budget Amendment
February 27, 2017
Page 3

Summary of Budget for Amended Scope of Work

The table below summarizes the additional budget for the amended scope of work.

Tasks	Labor Hours					Labor Dollars	Other Costs	Total Fee
	Project Manager	Engineer	Dr. Yates	Admin	Total			
Task 1. Update Climate Change Data	10	60	48	-	118	\$ 19,800	\$ 400	\$ 20,200
Task 2. Split Treated vs Untreated MWD Water	10	32	-	-	42	\$ 7,980	\$ -	\$ 7,980
Task 3. Poseidon Scenarios, including SARCCUP	40	72	-	-	112	\$ 22,680	\$ -	\$ 22,680
Task 4. Assess Benefit of New Reservoir Storage	10	24	-	-	34	\$ 6,660	\$ -	\$ 6,660
Task 5. PM, Meetings and TM	48	48	8	16	120	\$ 23,920	\$ 150	\$ 24,070
Total	118	236	56	16	426	\$ 81,040	\$ 550	\$ 81,590
<i>Billing Rate (\$/Hour)</i>								
	\$270	\$165	\$150	\$115				

The total budget for the amended scope of work is \$81,590. The net additional budget needed for this scope of work is \$81,590 less \$37,577 = \$44,013. We believe this work can be completed in four to five months. If you should have any questions, please do not hesitate to contact me at 213-798-6142.

Sincerely,

Dan Rodrigo
Sr. Vice President
CDM Smith Inc.

cc: Lanaya Voelz, CDM Smith





Item No. 4

ACTION ITEM

March 15, 2017

TO: Board of Directors

FROM: **Planning & Operations Committee**
(Directors Dick, Tamaribuchi, Yoo Schneider)

Robert Hunter
General Manager

Staff Contact: Kelly Hubbard
WEROC Manager

SUBJECT: WEROC Radio System Replacement Evaluation

STAFF RECOMMENDATION

It is requested that the P&O Committee recommends that the Board of Directors directs staff to explore the best radio replacement solution for the WEROC radio including holding discussions with the WEROC funding agencies and the MWDOC member agencies; it is recommended that WEROC submits a formal request for permission to join the Orange County Sheriff's Department 800 MHz Radio Program as a Participating Agency. Staff will come back to the board with final proposed solutions and costs for approval.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

The WEROC Radio System has had a number of recent problems with clarity of communications; the current problems are more severe than other problems that have occurred now for many years. Staff was under the belief that the radio system would need replacing in the next several years, but now would like to advance the schedule. WEROC staff has spent significant time and money in researching, trouble shooting and repairing or replacing individual components of the system over the last five years or so, and the more recent problems have seemed to accelerate. In considering possible solutions for the WEROC radios, staff contacted METs Communications staff and Orange County Sheriff's Communications staff to identify options for long term solutions, including the pros and cons of each. At this time, WEROC staff believes that the best solution is to join the OC Sheriff's

Budgeted (Y/N): N	Budgeted amount: \$0	Core <input checked="" type="checkbox"/> X	Choice <input type="checkbox"/>
Action item amount:		Line item:	
Fiscal Impact (explain if unbudgeted):			

800 mhz Radio Program. Staff is looking for Board Action to approve moving forward in exploring this solution with the Sheriff's Department and the WEROC Member Agencies.

DETAILED REPORT

The WEROC Radio system most recently experienced interference/static in the system approximately six months ago. This seems to be one of several problems that occur with the radio system over the last couple of years or even longer. Over the last six months, staff has pursued a variety of measures to try to identify the nature of the problem by conducting radio tests from different sites, using different repeaters and having radio technicians participate. The Fountain Valley radio was re-inspected since it was recently moved several times. The testing and site visits have not identified a distinct component to target for repair or replacement (equipment or programming issue) at a specific site. So far, the interference can only be attributed to what is considered normal interference for low-band radio systems. Further investigations would be needed to identify who or what is causing the interference before actions can be initiated to correct or mitigate the interference. For many years, some of the interference was attributed to the MET Member Agency Response System (MARS) radios which were very close in frequency and operating from the same repeater sites as the WEROC radios. MET has since changed their radio system and is no longer a contributing factor. When that problem was occurring, it took well over a year for WEROC staff to identify the MET system as the problem, and was only then able to make that determination after staff became aware of changes in the MET system which helped to locate the problem.

Staff was under the belief that the radio system would need replacing in the next several years, but now would like to advance the schedule rather than spending time, energy and money in correcting a problem with what is becoming an obsolete system. MET had the same type of system and made the change to a digital low band system several years ago; they were only able to make the system work by securing a number of radio frequencies in the same frequency vicinity to make their system work proficiently.

Possible Solutions

In speaking to various radio experts from MET, OC Sheriff's Communications and some private radio technicians, interference is a problem to be expected with low-band radio systems and will be a continual challenge. Furthermore, our radio system is aging and is nearing or at its useful life expectancy. Speaking with these same experts Kelly Hubbard explored possible solutions and considerations for the WEROC radio system.

Possible Solutions with Notes for Each:

1. Keep Current System – Low Band System with WEROC holding the FCC license and member agencies responsible for their own maintenance and upkeep.
 - a. Continued interference with no viable long-term solution (MET's solution was very expensive).
 - b. Agencies are spending money on repairs in addition to what WEROC staff invests.
 - c. Inconsistent programming and upkeep of the system amongst agencies.
 - d. Cost for correcting the current system interference is unknown.
2. Digital Low-Band – Low-band frequency through a digital radio that selects the frequency to be used during each transmission based on clarity.

- a. This is the system that MET converted to. They are very pleased with the resulting clear communications throughout their entire service area.
 - b. Requires the purchase of dozens of frequencies at a very high cost. This took MET several years and cost a considerable sum.
 - c. Low-band is necessary for MET because it is the only system that provides them the geographic coverage they need across the counties they serve and over to Arizona.
3. Independent 800 MHz System – WEROC could explore purchasing its own 800 MHz frequency.
 - a. This is improbable considering the high demand for 800 MHz and the high costs of frequencies within this band.
4. OC Sheriff's Department Communications Mutual Aid Frequency – The County system offers the ability to add on to their system to establish a group frequency and to jointly share in the system cost with other entities.
 - a. This does not create a separate channel for WEROC Member Agencies. We would be grouped in with another "mutual aid radio group" that makes sense to our mission. For example, one possibility could be the "OC Public Works Group." During an event WEROC agencies would share this channel with whichever Mutual Aid group we joined.
 - b. Once a mutual aid group is identified that makes sense for us to join, we would need to ask that group for permission to join.
 - c. Clear communications are expected throughout the county for WEROC Member Agencies, but would be tested prior to joining the system.
 - d. This appears to be a relatively inexpensive solution in that it only requires new radios (estimated cost at about \$3,500 per radio) and programming (\$50 per radio) for most of the WEROC agencies (some of the agencies may already be part of the existing system and may only need re-programming at \$50 per radio). It does not include annual maintenance of the system or radios.
 - i. Agencies that already have 800MHz radios would only cost \$50 for programming. This would mostly apply to Cities.
 - ii. Maintenance and upkeep would remain with the member agencies.
 - e. Cost savings of approximately \$20,000 to eliminate the Catalina Island Repeater Site Lease.
5. OC Sheriff's Department Communications WEROC Channel - This option would create a "WEROC Channel" within the current 800 MHz system, with WEROC and its agency's as "Participating Agencies."
 - a. This option provides a WEROC specific channel, with the ability to be "patched in" with other operations, such as fire, law, public works, etc. at the time of a disaster is needed.
 - b. WEROC would have to request permission from the 800MHz Governance Committee to join the system. The Governance Committee is managed by the OC Sheriff's Communications and Technology Division, and its members include four City Managers and representative of 3 County Departments (Sheriff, Public Works, and Chief Executive Office (CEO)).
 - c. Clear communications are expected throughout the county for WEROC Member Agencies, but would be tested prior to joining the system.

- d. There may be some cost savings in switching to this system, with agencies who already 800MHz members. Most of the cities and maybe a district or two are already members.
- e. Annual maintenance of the system and individual agency radios would be consistent and provided through the OC Sheriff's Communications and Technology Division.
- f. In total to provide each WEROC Member Agency with one radio, one at the South EOC and one at Fountain Valley, the estimated initial cost will range between \$120,000 and \$185,000 (the range is provided because we are not sure which agencies have existing compatible radios) and the annual cost is estimated at \$12,000 to \$14,000 per year for the annual maintenance. Agencies could opt to have additional radios if they choose to at the additional costs below.
 - i. Program includes one-time initial set-up fees of Template Development Fee (\$2,840), radio equipment if needed (est. \$3,500), and a system entry fee (\$2,480) or programming fee (\$50), if already a participating agency and radio within the system. Once the system is set-up, there is an annual access fee (\$250 per radio per year) and maintenance fee (\$96-132) per radio per year within the system.
- g. Cost savings of approximately \$20,000 a year to eliminate the Catalina Island Repeater Site Lease.

Staff Recommendation

Staff believes that Option 5, the OC 800MHz system is the best solution moving forward economically and most importantly for reliability. There are still several steps needed to narrow down the actual cost of participation and to make a final determination on whether this is the best option for WEROC's Member Agencies. First, WEROC staff wants to work closely with the WEROC Member Agencies to ensure that this solution is one that would be preferred, to determine what their preferred radio location would be, and if their participation level would include multiple radios (2 or more). Additionally, staff will need to work with the Sheriff's Communications group to ensure the system will work at all our Member Agency sites. We would also determine which WEROC agencies already have radios within the 800 MHz system and what types of radios will be needed for each agency, to come up with an exact cost for initial installation and for ongoing system access and maintenance costs.

To continue in this exploration process, staff would like to move forward with formally requesting permission via a Letter of Request to the 800MHz Governance Committee to join the 800MHz radio system. This committee only meets quarterly and its next meeting is in April. By making this request, MWDOC is not committed to joining the program, however staff want to ensure that this possible solution is not delayed further by having to wait for the Committee's next quarterly meeting in July or August.

Staff recommends the Board of Directors direct staff to explore the best radio replacement solutions with the WEROC Member Agencies, as well as to move forward with the formal request for permission to join the Orange County Sheriff's Department 800 MHz Radio Program as a Participating Agency. Staff will come back to the board with final proposed solutions and costs for approval.



ACTION ITEM

March 15, 2017

TO: Board of Directors

FROM: **Planning & Operations Committee**
(Directors Dick, Yoo Schneider, Tamaribuchi)

Robert Hunter
General Manager

Staff Contact: Karl Seckel

SUBJECT: APPROVE PARTICIPATION IN THE CENTER FOR DEMOGRAPHIC RESEARCH

STAFF RECOMMENDATION

Staff recommends the Board of Directors: Approve participation in the Center for Demographic Research for fiscal years 2017-18 (\$43,802.57), 2018-19 (\$47,044.26), and 2019-20 (\$50,155.80). These amounts will be included in the budgets for each of the aforementioned fiscal years.

COMMITTEE RECOMMENDATION

To be determined.

SUMMARY

The Center for Demographic Research (CDR) produces estimates and projections of demographic variables in Orange County. CDR's demographic data and projections are the "official" ones within Orange County that are built into the overall SCAG forecast for Southern California. CDR is supported and overseen by several governmental agencies (Sponsors) under a Memorandum of Understanding (MOU). MWDOC has historically shared a Sponsorship with OCWD so that each pays only half dues. Staff recommends continuation of this arrangement. The latest MOU covers fiscal years 2017-18, 2018-19, and 2019-20; MWDOC's contributions would be \$43,802.57, \$47,044.26, and \$50,155.80, respectively.

Budgeted (Y/N): Yes	Budgeted amount: \$43,802.57
Action item amount: \$43,802.57 for 2017-18	Line item:
Fiscal Impact (explain if unbudgeted): Additional amounts will be budgeted for 2018-19 and 2019-20. Participation will not be brought back to the Board unless changes to these amounts are required.	

The current membership includes:

- OC Transportation Authority
- OC Council of Governments
- County of Orange
- OC Sanitation District
- Transportation Corridor Agencies
- Southern California Association of Governments
- MWDOC
- OCWD
- OC LAFCO (affiliate member/non-voting)

CDR's regular products include:

- Orange County Progress Report, annual
- Orange County Projections OCP-2016 (demographic projections out to Year 2040)
- Orange County Facts and Figures
- Orange County Profiles (a quarterly on OC demographic issues)
- Housing Inventory
- Population, Housing, Employment by Transportation Analysis Zones
- Census Data
- Disaggregate of OCP-2016 to Special District Sponsor Agencies

In addition to its regular products, CDR contracts for specific projects with a variety of public agencies. CDR's charges are less than private sector charges because CDR uses graduate student labor.

CDR is supported and overseen by several governmental agencies that have joined in a Memorandum of Understanding (MOU) to create the CDR Management Oversight Committee. Payment of dues entitles representation on the Committee. MWDOC and Orange County Water District (OCWD) shared a single Sponsorship under the existing MOU that expires 6/30/10. Our current Representative on the CDR Management Oversight Committee is Joan Finnegan; she is backed up by Director Brett Barbre.

MEMORANDUM OF UNDERSTANDING
by and between
ORANGE COUNTY INTERESTS
and
CSU FULLERTON AUXILIARY SERVICES CORPORATION
for the
CONTINUED OPERATION OF THE CENTER FOR DEMOGRAPHIC RESEARCH
AT CALIFORNIA STATE UNIVERSITY, FULLERTON

This Memorandum of Understanding ("MOU") is entered into between the County of Orange, Transportation Corridor Agencies, Orange County Sanitation District, Orange County Transportation Authority, Municipal Water District of Orange County, Orange County Water District, Orange County Council of Governments, and Southern California Association of Governments ("SPONSORS"); the Orange County Local Agency Formation Commission ("CONTRIBUTING PARTNERS") and the CSU Fullerton Auxiliary Services Corporation, ("ASC"), which is a 501 (c)3 California corporation organized under California law as an auxiliary organization of California State University, Fullerton ("CSUF"). This MOU is for the development of demographic data and related support products. Obligations and rights specified for CSUF in the MOU shall be exercised by the ASC.

WHEREAS, the development of demographic and related information for Orange County is a vital data source used for a wide range of local, subregional and regional applications, including, transportation infrastructure planning, facilities planning and timing, development of fee programs, bond revenue stream analysis, general planning and other applications; and

WHEREAS, a number of primary users of data in Orange County have recognized the benefit of having a local area expertise in developing demographic projections and associated products; and

WHEREAS, these SPONSORS, CONTRIBUTING PARTNERS, and California State University, Fullerton agree on the importance of having a single entity in Orange County developing demographic products and providing such products to data users; and

WHEREAS, these agencies also desire to establish a long-term process which allows each individual agency participation in the development and review of demographic products; and

WHEREAS, the Center for Demographic Research ("CDR") located at CSUF provides an opportunity to place demographic activities in a setting that accomplishes SPONSORS' and CONTRIBUTING PARTNERS' objectives and provides augmented educational opportunities for CSUF; and

WHEREAS, CSUF will be listed as a "SPONSOR" based upon their financial contribution as outlined in the budget in Attachment 1 and in-kind contributions for the balance of the remaining Sponsor seat; and

WHEREAS, the SPONSORS and CSUF have worked cooperatively in supporting and organizing the Center for Demographic Research for eighteen years and wish to continue their cooperation; and

WHEREAS, the CONTRIBUTING PARTNERS wish to participate in supporting the Center for Demographic Research beginning in Fiscal Year 2017/2018; and

NOW, THEREFORE, IT IS RESOLVED that the SPONSORS, CONTRIBUTING PARTNERS, and the ASC agree as follows:

- I. The SPONSORS and CONTRIBUTING PARTNERS will fund the CDR for the next three years, subject to an annual review and two one-year options by the SPONSORS and CONTRIBUTING PARTNERS, for an annual total fee as set forth in Item IV below and Attachment 1.

- II. Process and Structure

- A. Orange County Projections

The Orange County Council of Governments ("OCCOG") will be responsible for the approval of the Orange County Projections at the Regional Statistical Area level and subsequent to that action the County of Orange will approve the Orange County Projections. The OCCOG will work with CDR staff to integrate the Orange County Projections as approved into the Southern California Association of Governments ("SCAG") Regional Growth Forecast. Sponsors will make good faith efforts to use the Orange County Projections data in all future forecasting and planning efforts.

- B. Management Oversight

The Management Oversight Committee ("MOC") shall meet at least four (4) times each year to (1) consider policy matters associated with the operations of the Center for Demographic Research, (2) review products status and activities which are part of the core Work Program, (3) review the Center for Demographic Research's financial status and status of annual MOU signatures, (4) set CDR budget and modify staff salaries funded by this MOU (5) consider requests from additional agencies wishing to become sponsors or contributing partners, (6) modify budget and work program upon addition or termination of a sponsor or contributing partner, (7) address other matters vital to the function of the Center for Demographic Research, and (8) undertake additional tasks as requested by the SPONSORS.

The Management Oversight Committee will be comprised of staff representing the SPONSORS, CONTRIBUTING PARTNERS and CSUF. Each SPONSOR will have one voting member of equal standing on the Management Oversight Committee including one member jointly representing the Municipal Water District of Orange County and the Orange County Water District; each CONTRIBUTING PARTNER will have one non-voting Ex-Officio member. The designees from each

SPONSOR, CONTRIBUTING PARTNER, and the university shall be named by July 1 of each year. An organization may also designate an individual(s) to serve as an alternate member of the Management Oversight Committee. The committee chair and vice-chair will be elected for a three-year term.

C. Technical Oversight:

The Technical Advisory Committee (“TAC”) provides technical guidance and input into the development of each product produced under this MOU before they are reviewed by the Management Oversight Committee. The Technical Advisory Committee advises the Director of the Center for Demographic Research, as well as reports to the Management Oversight Committee. The Committee will include one voting representative from each SPONSOR including a member representing the Municipal Water District of Orange County and the Orange County Water District; each CONTRIBUTING PARTNER will have one non-voting Ex-Officio member. University participation on the Technical Advisory Committee will include at least one voting member from CSUF, and one voting member each from the University of California, Irvine and Chapman University. The Director of the Center for Demographic Research will coordinate with research centers at these universities to ensure data consistency. The designees from each SPONSOR, CONTRIBUTING PARTNER, and agency shall be named by July 1 of each year. The committee chair and vice-chair will be elected for a three-year term.

The Technical Advisory Committee shall schedule at least four (4) meetings each year. It will (1) provide a report to the Management Oversight Committee summarizing its meetings, (2) provide advice on the approach, techniques, data sources and methods used to develop new products, (3) facilitate the acquisition of data necessary to produce products, (4) provide suggestions on the interpretation and analysis incorporated into deliverables, (5) provide input on assumptions for the development of the growth projections, (6) provide review of deliverables prior to approval by the Management Oversight Committee and (7) undertake other tasks as identified by the Management Oversight Committee.

D. Transportation Modeling Data

The Orange County Transportation Authority (“OCTA”) will be responsible for the approval of all transportation modeling variables used in the Orange County Transportation Analysis Model (“OCTAM”) at the Traffic Analysis Zone level. The transportation modeling variables shall be consistent with the Orange County Projections, as approved by the Orange County Council of Governments and the County of Orange at the Regional Statistical Area Level. The OCTA and SCAG will exercise user agreements for their consultants to access the transportation modeling variables.

III. Duration and Terminations

This agreement will become effective upon execution and ends on June 30, 2020. A review of the performance of the Center for Demographic Research in meeting its obligations under this MOU will be conducted by the Management Oversight Committee throughout the term July 2017 through June 2020. This MOU may be extended and/or amended by mutual agreement of all signatories.

A party may terminate its participation under this MOU by giving each of the other parties sixty (60) days written notice thereof. Upon said notice of termination, the SPONSOR or CONTRIBUTING PARTNER terminating its participation shall pay the balance of fees owed by the SPONSOR or CONTRIBUTING PARTNER for that given fiscal year. Each fiscal year, the SPONSORS and CONTRIBUTING PARTNERS shall review and approve in writing the MOU, work program, and funding arrangement. Such written approval shall constitute a SPONSOR'S or CONTRIBUTING PARTNER'S agreement to participate in this Agreement. In the event that ASC wishes to terminate its participation, it shall reimburse the SPONSORS and CONTRIBUTING PARTNERS any advance payments, less an amount to cover expenses related to work in progress and less costs reasonably necessary to effect such termination. If a party wishes to withdraw from the agreement, said notice shall be affected by delivery of such notice in person or by depositing said notice in the United States mail, registered or certified mail, return receipt required, postage prepaid.

IV. Funding and Schedule

Respective fees shall be as follows for the following fiscal year:

Payment Schedule for 2017-2020	2017-2018	2018-2019	2019-2020	Three Year Total
Orange County Transportation Authority	\$87,605.14	\$94,088.52	\$100,311.60	\$282,005.26
County of Orange	\$87,605.14	\$94,088.52	\$100,311.60	\$282,005.26
Orange County Council of Governments	\$87,605.14	\$94,088.52	\$100,311.60	\$282,005.26
Orange County Sanitation District	\$87,605.14	\$94,088.52	\$100,311.60	\$282,005.26
Transportation Corridor Agencies	\$87,605.14	\$94,088.52	\$100,311.60	\$282,005.26
Southern California Association of Governments	\$87,605.14	\$94,088.52	\$100,311.60	\$282,005.26
Municipal Water District of Orange County	\$43,802.57	\$47,044.26	\$50,155.80	\$141,002.63
Orange County Water District	\$43,802.57	\$47,044.26	\$50,155.80	\$141,002.63
Orange County Local Agency Formation Commission	\$16,000.00	\$16,000.00	\$16,000.00	\$48,000.00
TOTAL	\$629,235.98	\$674,619.64	\$718,181.20	\$2,022,036.82

Payments shall be made in accordance with invoicing policies of the ASC according to the schedule below. SPONSORS and CONTRIBUTING PARTNERS will be invoiced at the beginning of each quarter. Quarterly payments equal to 25% of the annual fees shall follow invoices submitted according to the calendar below:

Fiscal Year 2017/2018:	July 2017, October 2017, January 2018, April 2018
Fiscal Year 2018/2019:	July 2018, October 2018, January 2019, April 2019
Fiscal Year 2019/2020:	July 2019, October 2019, January 2020, April 2020

SPONSORS and CONTRIBUTING PARTNERS shall pay one-quarter of their annual fees upon receipt of said invoices or may prepay for an entire fiscal year. Prepayment does not imply a discounted rate.

V. Administrative Representatives

- A. The Principal Investigator for the operations and management of the Center for Demographic Research and the conduct of this MOU is Deborah Diep, Director. The Assistant Director, Scott Martin, will serve as the Principal Investigator in the Director's absence. They are authorized to negotiate supplemental services with the SPONSORS, CONTRIBUTING PARTNERS, and Non-sponsors as noted in Section VII. Denise Bell, Director, ASC Office of Sponsored Programs, is designated as the administrative representative for the ASC. Should the Principal Investigators become unavailable for any reason, no other Principal Investigator shall be chosen by CSUF or the ASC without the approval of the SPONSORS. Furthermore, the ASC agrees that the Management Oversight Committee shall make the recommendation on the selection of the Director or interim Director of the Center for Demographic Research and no Director or interim Director shall be appointed without approval of the Management Oversight Committee. The Management Oversight Committee will serve as the search committee if a search committee for the Director is required by the ASC.
- B. Equipment and furniture purchased by ASC under the terms of this MOU shall remain the property of the SPONSORS. In the event that the Center for Demographic Research is disbanded, the equipment remains the property of the SPONSORS and the Management Oversight Committee shall determine its disposition.
- C. Databases and applications developed and maintained for the Center for Demographic Research purposes shall remain under control of the SPONSORS. In the event that Center for Demographic Research is relocated from CSUF, all Center for Demographic Research functions and designations shall accompany the Center for Demographic Research.

VI. Additional Sponsorships and Revenues

Other agencies and entities can become sponsors or contributing partners of the Center for Demographic Research with unanimous agreement among the SPONSORS as determined by a vote of the Management Oversight Committee. Adjustments in sponsor fees found necessary resulting from the addition of sponsors shall be determined by the

Management Oversight Committee with consultation from the Center for Demographic Research Principal Investigators.

The disposition of additional revenues generated through additional sponsors, and the sale of products and services to non-sponsors shall be determined by the Management Oversight Committee. The additional funds shall be prorated according to the respective sponsor fee. SPONSORS shall have the option of expending their share of the additional funds on CDR activities, products or equipment or having the funds returned to the SPONSORS at the end of the fiscal year.

VII. Products and Deliverables

- A. The Center for Demographic Research will produce the identified core Demographic Products and Services as described in Attachment 2 and listed in Attachment 3. Each SPONSOR will receive ten (10) copies in printed form and one (1) copy of estimates and projections in electronic form.
- B. The SPONSORS and CONTRIBUTING PARTNERS have the right to request supplemental products and support services from the Center for Demographic Research through a purchase order. Projects above the amount of \$25,000 shall be approved by the ASC. Such purchases may be entered into if the SPONSOR or CONTRIBUTING PARTNER agrees to pay ASC all additional costs resulting from the additional products or services, including an indirect cost of 26%, and if the activities do not interfere with the normal functioning of the CDR. If requests for additional products or services require interference with the normal functioning of the CDR as determined by the Management Oversight Committee or additional resources from the CDR's basic budget the proposal for such products and services will be forwarded to the Management Oversight Committee for their advice and consent prior to finalization of the agreement. In all cases, supplemental work for SPONSORS and CONTRIBUTING PARTNERS shall be assessed indirect costs of 26%.
- C. Non-sponsors can contract with the Center for Demographic Research through the ASC for its services or obtain supplemental products and support services from the Center for Demographic Research through a Non-sponsor purchase order. A list of these projects will be submitted to the MOC on a quarterly basis. If the Director assesses a proposed project contains a conflict of interest, conflict of time commitment, or interference with the normal functioning of CDR, the Management Oversight Committee will be informed of the request for services and will review it for any potential conflicts. The Director shall notify the Management Oversight Committee of any such proposed agreement and provide the committee with draft text and budget, before the intended start of work. The Management Oversight Committee shall review the proposed project for possible conflicts of interests, conflicts of time commitment, and budgetary adequacy. The Management Oversight Committee may at its discretion impose a surcharge of funds to be used at its discretion. Action on these matters may be taken only with the concurrence of

a majority of the members of the Management Oversight Committee and all such supplemental work for Non-sponsors shall be assessed normal indirect costs of 26%.

- D. Use of revenues generated by the sale of products produced by the Center for Demographic Research shall be determined by the Management Oversight Committee. A quarterly report on product sales will be presented to the Management Oversight Committee.
- E. Additional projects should not adversely affect the schedule of deliverables unless otherwise agreed to by the Management Oversight Committee.

VIII. Sponsorship

This Agreement shall be signed by all SPONSORS and CONTRIBUTING PARTNERS by June 30, 2017 with the exception of the Southern California Association of Governments. The Southern California Association of Governments shall sign this Agreement by September 30, 2017. If all SPONSORS and CONTRIBUTING PARTNERS listed in Section XVIII do not sign by September 30, 2017, the work program and budget will be modified to reflect the committed funding. If any SPONSOR or CONTRIBUTING PARTNER does not sign this Agreement, the funding amounts of the remaining SPONSORS and CONTRIBUTING PARTNERS will not change. The remaining SPONSORS and CONTRIBUTING PARTNERS are not required to make up the difference in the reduced budget. Any SPONSOR or CONTRIBUTING PARTNER listed as an ORANGE COUNTY INTEREST that does not sign this Agreement forfeits all rights, services, and privileges as a CDR SPONSOR or CONTRIBUTING PARTNER unless otherwise negotiated. A formal status report on execution will be delivered at each Management Oversight Committee meeting until all SPONSORS and CONTRIBUTING PARTNERS sign this Agreement.

IX. Liability and Insurance

Each party to this MOU hereby assumes any and all risks for personal injury and property damage attributable to the negligent acts or omissions of that party and the officers, employees, and agents thereof. ASC warrants that it has adequate Worker's Compensation Insurance and liability insurance for its own employees. The ASC, the SPONSORS (the County of Orange, Transportation Corridor Agencies, Orange County Sanitation District, Orange County Transportation Authority, Municipal Water District of Orange County, Orange County Water District, Orange County Council of Governments, and Southern California Association of Governments), and the CONTRIBUTING PARTNERS (the Orange County Local Agency Formation Commission) agree to indemnify and hold each other, their respective officers, employees, students, agents, harmless from and against all liability, loss, expense (including reasonable attorney's fees), or claims for injury or damages arising out of the performance of this Agreement but only in proportion to and to the extent such liability, loss, expense, attorney's fees, or claims for injury or damages are caused by or result

from negligent or intentional acts or omissions of the indemnifying party, its officers, employees, students or agents.

X. Independent Contractor

In the performance of all services and obligations under this agreement, SPONSORS, CONTRIBUTING PARTNERS, and ASC shall act as independent contractors. None shall be considered an employee or agent of the other.

XI. Use of Names

SPONSORS and CONTRIBUTING PARTNERS agree not to use the names of the ASC or CSUF in any commercial connection with work performed under this Agreement without prior written permission from the ASC. SPONSORS and CONTRIBUTING PARTNERS may use said names in ordinary internal business reports concerning this Agreement and may use the names of the Center for Demographic Research and the Principal Investigators in non-commercial publicity announcing the results of the project.

ASC agrees not to use the names of SPONSORS and/or CONTRIBUTING PARTNERS in any commercial connection with this work without prior written permission from SPONSORS and/or CONTRIBUTING PARTNERS. ASC may use SPONSORS' and/or CONTRIBUTING PARTNERS' name in ordinary internal business reports concerning this agreement and in non-commercial publicity announcing the awarding of the contract.

The provisions of this Section of the Agreement shall survive for two (2) years beyond any termination date specified in Section III or any extension thereof.

XII. Force Majeure

SPONSORS, CONTRIBUTING PARTNERS, and ASC shall not be liable or deemed to be in default for any delay or failure in performance under this Agreement or interruption of services resulting, directly or indirectly, from acts of God, civil or military authority, acts of public enemy, strikes, labor disputes, or any similar cause beyond the reasonable control of SPONSORS, CONTRIBUTING PARTNERS, or ASC, provided the affected party notifies the other party of the delay in writing within ten days of the onset of the delay.

XIII. Assignment

This Agreement shall inure to the benefit of and be binding upon and enforceable by the parties and their successors and permitted assigns. However, neither party may assign any of its rights or obligations under this Agreement without the prior written consent of the other.

XIV. Modification and Waiver

None of the terms of the Agreement may be waived or modified except by an express agreement in writing signed by SPONSORS, CONTRIBUTING PARTNERS, and ASC. Modifications not documented in writing cannot be enforced. The failure or delay of either party in enforcing any of its rights under this Agreement shall not be deemed a continuing waiver or a modification by such party of such right.

XV. Governing Law

The validity and interpretation of this Agreement shall be governed by the laws of the State of California.

XVI. Federal Statutes Relating to Nondiscrimination

ASC will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S. C. sections 1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S. C. section 794), which prohibits discrimination on the basis of handicaps; (d) Age discrimination Act of 1975, as amended (42 U.S.C. sections 6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment, and Rehabilitation Act of 1970 (P.O. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) sections 523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. 290 dd-d and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. section 3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and (j) the requirement of any other federal nondiscrimination statute(s) which may apply to the application.

XVII. Notices

Notices under this agreement shall be considered to be given if delivered by first class mail to the following addresses:

For SPONSORS:

Carolyn McInerney
County of Orange
10 Civic Center Plaza, 3rd Floor
Santa Ana, CA 92701

Marnie O'Brien Primmer
Orange County Council of Governments
c/o Marika Poynter, Irvine Planning Department
One Civic Center Plaza
Irvine, CA 92623-9575

James D. Herberg
Orange County Sanitation District
10844 Ellis Avenue
Fountain Valley, CA 92738-8127

Kurt Brotcke
Orange County Transportation Authority
550 S. Main Street
2nd Floor, Suite 220
Orange, CA 92613-1584

Hasan Ikhata
Southern California Association of Governments
c/o Joann Africa, SCAG Counsel
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

Valarie McFall
Transportation Corridor Agencies
125 Pacifica, Suite 100
Irvine, CA 92618-3304

Robert Hunter
Municipal Water District of Orange County
18700 Ward Street
Fountain Valley, CA 92728

Michael R. Markus
Orange County Water District
18700 Ward Street
Fountain Valley, CA 92728-8300

For CONTRIBUTING PARTNERS:

Carolyn Emery
Orange County Local Agency Formation Commission
2677 N. Main Street, Suite 1050
Santa Ana, CA 92705

For CSU FULLERTON AUXILIARY SERVICES CORPORATION

Denise Bell, Director, Sponsored Programs
CSU Fullerton Auxiliary Services Corporation
1121 N. State College Blvd.
Fullerton, CA 92831-3014

XVIII. Execution

IN WITNESS THEREOF, the SPONSORS, CONTRIBUTING PARTNERS, and the ASC have executed this Agreement on the date first herein written. This Agreement is to be signed in counter parts.

For the CSU Fullerton Auxiliary Services Corporation:

Frank Mumford, Executive Director

Date

For the County of Orange:

Frank Kim, County Executive Officer

Date

For the Orange County Council of Governments:

Marnie O'Brien Primmer, Executive Director

Date

For the Orange County Sanitation District:

James D. Herberg, General Manager

Date

For the Orange County Transportation Authority:

Darrell Johnson, Chief Executive Officer

Date

For the Southern California Association of Governments:

Hasan Ikhrata, Executive Director

Date

For the Foothill/Eastern Transportation Corridor Agency:

Michael Kraman, Chief Executive Officer

Date

For the San Joaquin Hills Transportation Corridor Agency:

Michael Kraman, Chief Executive Officer

Date

For the Municipal Water District of Orange County:

Wayne Osborne, President of the Board

Date

Robert Hunter, General Manager

Date

For the Orange County Water District:

Denis R. Bilodeau, P.E., President

Date

Michael R. Markus, General Manager

Date

For the Orange County Local Agency Formation Commission:

Derek J. McGregor, Chair

Date

Attachment 1: Center for Demographic Research
Annual Budget: July 1, 2017 through June 30, 2020

	2017-18	2018-19	2019-20	
Salaries	\$342,204.62	\$363,939.40	\$391,849.90	
Benefits	\$157,727.36	\$167,011.24	\$178,673.30	
Supplies	\$7,000.00	\$7,000.00	\$7,000.00	
Printing & Publications	\$4,000.00	\$9,000.00	\$4,000.00	
Meetings, Mileage, & Training	\$1,000.00	\$1,000.00	\$1,000.00	
Equipment	\$500.00	\$500.00	\$500.00	
Expenses	\$512,431.98	\$548,450.64	\$583,023.20	
26% Indirect Cost (IDC) / Overhead	\$133,233.00	\$142,598.00	\$151,587.00	
40% of office space rent not paid through IDC (office space rent is exempt from overhead)	\$31,686.53	\$31,686.53	\$32,313.98	
Gross Total	\$677,351.51	\$722,735.17	\$766,924.18	
University will contribute: 40% of office space rent	\$31,686.53	\$31,686.53	\$32,313.98	
HSS Dean will contribute \$16,429 to Administrative Asst salary	\$16,429.00	\$16,429.00	\$16,429.00	
Monetary Subtotal	\$48,115.53	\$48,115.53	\$48,742.98	
NET CDR BUDGET TOTAL	\$629,235.98	\$674,619.64	\$718,181.20	
Number of Seats				
OCTA	1	\$87,605.14	\$94,088.52	\$100,311.60
COUNTY	1	\$87,605.14	\$94,088.52	\$100,311.60
OCCOG	1	\$87,605.14	\$94,088.52	\$100,311.60
OCSO	1	\$87,605.14	\$94,088.52	\$100,311.60
TCA	1	\$87,605.14	\$94,088.52	\$100,311.60
SCAG	1	\$87,605.14	\$94,088.52	\$100,311.60
MWDOC	0.5	\$43,802.57	\$47,044.26	\$50,155.80
OCWD	0.5	\$43,802.57	\$47,044.26	\$50,155.80
CSUF	1	see above	see above	see above
CONTRIBUTING PARTNER: LAFCO		\$16,000.00	\$16,000.00	\$16,000.00
TOTAL	8	\$629,235.98	\$674,619.64	\$718,181.20
Cost per Sponsorship Seat= Net Budget / 7 remaining seats		\$87,605.14	\$94,088.52	\$100,311.60
(Note: New IDC Return Program returns 10% of IDC collected to CDR project. This has been earmarked for a part time GIS Tech/Research Assistant.)				
		\$13,323	\$14,260	\$15,159

Attachment 2
Proposed CDR 2017-2020 Services and Products

REPORTS

Orange County Progress Report

Produce an annual Orange County Progress Report. This document presents a unified and a comprehensive picture of Orange County and its 34 cities including its economic health, its demographic status and trends, and other information of interest to those who might wish to relocate to Orange County, do business in the County, or otherwise have an interest in the economic and demographic status and future of Orange County.

Orange County Projections

Complete OCP-2018 dataset and adoption. Following the adoption of **OCP-2018**, produce a report containing assumptions, tables, charts, maps, and methodology. Preparation and development of **OCP-2022** will begin during this three-year MOU. The OCP dataset contains population, housing, and employment projections by 2010 census tract, jurisdiction, Community Analysis Area, and Regional Statistical Area for a 25-year period. This iteration will incorporate agency boundaries for MWDOC, OCSD, & OCWD.

Orange County Facts and Figures

Update quarterly the Orange County Facts and Figures. This document focuses on the most frequently asked questions about Orange County demographics and related information.

Boundary and Annexation Report

Working with information provided by OC LAFCO, CDR staff will produce an annual report of the jurisdictional boundary changes. This multi-page report will contain a map of the year to year boundary changes and a table listing the area change and specific annexations and incorporations for each calendar year. Detailed annexation and vicinity maps from OC LAFCO's approved changes of organization documents will also be included in the report. For ease of reference and to make the information publically available, the report will be posted on OC LAFCO's website.

PUBLIC INFORMATION SERVICES

Provide Public Information on Orange County Demographics as Requested

Provide information in response to numerous requests made by government agencies, elected officials, private companies, non-profit organizations, schools, students, and citizens regarding demographic and related information about Orange County.

Maintain CDR Homepage

Update the information currently on the CDR homepage on a regular basis and expand as information becomes available.

Provide Information and Analysis to News Media

Provide information, description, interviews, and analysis of demographics to news media to assist them in doing stories where demographics is the focus.

Update RHNA Allocations

Develop allocations of 2012 RHNA for annexations and incorporations as requested. Provide data support to local jurisdictions and SCAG during development of the 2020 RHNA. Monitor RHNA development process to ensure Orange County data is incorporated.

Process Decennial Census and American Community Survey Data

Process Bureau of Census data as it pertains to development of the Orange County Projections and at the request of CDR Sponsors.

DATA BASES

Housing Inventory System

The Housing Inventory System (HIS) is a data system that includes all changes to each jurisdiction's housing stock. Data is collected at the address level and converted into a GIS database by geocoding. After geocoding, quality analysis efforts include tying activity to parcels. Depending on the jurisdiction, different documents are used to record added units including certificates of use and occupancy, utility release log, or building final documents. Demolitions and conversions are recorded through other recordation. Changes to the mobile home inventory will be verified with HCD. This project will be expanded to include an annual review and sign off process by each jurisdiction of their geocoded data to ensure accuracy. HIS will be expanded to include new types of accessory dwelling units per recent legislation (AB 2501, AB 2299 and SB 1069).

Census Data by Partial TAZ

Update the correspondence tables of 2010 Census blocks to the TAZs after release of Census Bureau data and GIS shapefiles. As the various census files become available, transportation modeling variables and other key variables useful for projecting the modeling variables will be aggregated to TAZ.

Calibrate Age Cohort Component, Shift-Share and Headship Rate Models

Based on data from the Census Bureau, DOF, and EDD data, calibrate the models used to project county-wide population, housing and employment.

Master Polygon File

Update master polygon file based on the 2010 Census block file for use in development of OCP dataset and annual population and housing unit estimates. Allocate Census block data to TAZ, CAA, RSA, MWDOC, OCSD, and OCWD. Working with information from OC LAFCO, the master polygon file will be updated annually to include changes to agency boundaries: jurisdiction, MWDOC, OCSD, and OCWD.

Population and Housing Estimates by TAZ (OCP)

Estimates of population and housing by unit type will be developed using the 2010 Census and American Community Survey data at the split TAZ. From 2014 onwards, housing unit changes will be geocoded and aggregated to the TAZ. Annual estimates of population and housing will be produced by TAZ for maintenance of the OCP base file.

Annual Population and Housing Estimates by Partial Census Tract and Sponsor Agency

Estimates of population and housing units developed using the 2010 Census for each of the special district sponsors will be updated annually. From 2014 onwards, annual estimates (January 1) of population and housing will be produced by partial census tract and for each of the special district sponsor agencies: MWDOC, OCSD, and OCWD.

Project Total County Population, Housing, and Employment

Draft assumptions for OCP-2018 will be developed and reviewed by the CDR TAC. These will then be incorporated into the macro level models used to project population, housing, and employment. The resulting projections will be reviewed by the CDR TAC and MOC and then brought to the OCCOG TAC and Board for approval as the controls totals for OCP-2018.

Projected Population, Housing and Employment by TAZ (OCP)

Preparation and development of OCP-2022 will begin during this MOU cycle. Countywide population, housing, and employment for years 2020 through 2045 will be allocated to Traffic Analysis Zones split by jurisdictions. Following the allocation, extensive review and refinement will occur to assure the accuracy of the projections.

Secondary Variables by TAZ (OCTAM)

The basic projected population, housing, and employment from OCP-2014 will be expanded to the 14 OCTAM variables. These variables will include resident population, group quarters population, employed residents, median income, occupied single family dwelling units, occupied multiple family dwelling units, household size, retail employment, service employment, K-12 public school employment, all other employment, school enrollment, university enrollment, and area. Data for the projection years will be updated in the next MOU cycle. Preparation of the base year OCTAM data for OCP-2018 will begin in this MOU cycle.

Consolidated Boundary and Annexation Program (CBAS)

CDR staff will report annual jurisdictional boundary and feature changes through a new, voluntary program of the U.S. Census Bureau that allows for a consolidated annual review of jurisdiction boundaries. This review will be done using the official County Surveyor/OC LAFCO jurisdiction GIS boundary file. Orange County jurisdictions will be able to opt in or out of this CDR service annually. CDR will notify each participating jurisdiction and OC LAFCO of the outcome of the BAS review, i.e. whether there were any areas where jurisdiction boundaries needed to be corrected.

COMMITTEES

Participate in Sponsor Technical Advisory Committees as Requested

Participate in appropriate Sponsor technical advisory committees including, OCCOG TAC, County's Demographic Steering Committee, OCTA's Modeling TAC, Orange County Sanitation District's Planning Advisory Committee, Water Use Efficiency Project Advisory Committee, and SCAG's Technical Working Group and Scenario Planning Model Working Group.

Coordinate with SCAG and SCAG Committees

This service revolves around the incorporation of OCP into the SCAG growth forecast. This service includes participation in SCAG expert panels and workshops to develop assumptions for their population and employment projections; monitoring the discussions relevant to the development of SCAG's growth forecast at SCAG policy committees and subregional coordinator meetings; and coordinating with relevant SCAG staff on this issue.

Coordinate with University Research Centers

CDR staff will coordinate with UCI and Chapman University research centers to ensure consistency between the CDR's forecast and estimates and those produced by these institutes.

2017-2020 LAFCO FUNDED PROJECT: Sphere of Influence Estimates

CDR will update its master polygon file on an annual basis with changes to the sphere of influence (SOI) boundaries. CDR will produce annual estimate of January 1 population and housing for each of the SOI polygons upon completion of the annual Housing Inventory System to maintain this information in preparation for the 2018-2022 OC LAFCO municipal service review cycle.

Boundary and Annexation Report: Working with OC LAFCO over the three-year MOU cycle, CDR will attempt to build a historical reference collection of these reports going back to 2000 as information is available.

NEW PROJECTS & SERVICES

Housing Activity Report

Using information from the Housing Inventory System (HIS), CDR staff will produce an annual report on the housing construction and demolition activity by jurisdiction. Information will be released in aggregate form at the jurisdiction level in a PDF.

State Data Center Affiliate

The CDR will serve as a State Data Center Affiliate to the Demographic Research Unit of the California Department of Finance. As an Affiliate, CDR will assist the SDC and Orange County in disseminating census data and improving public access to census data products consistent with services CDR already provides.

2020 Decennial Census Geographic Support

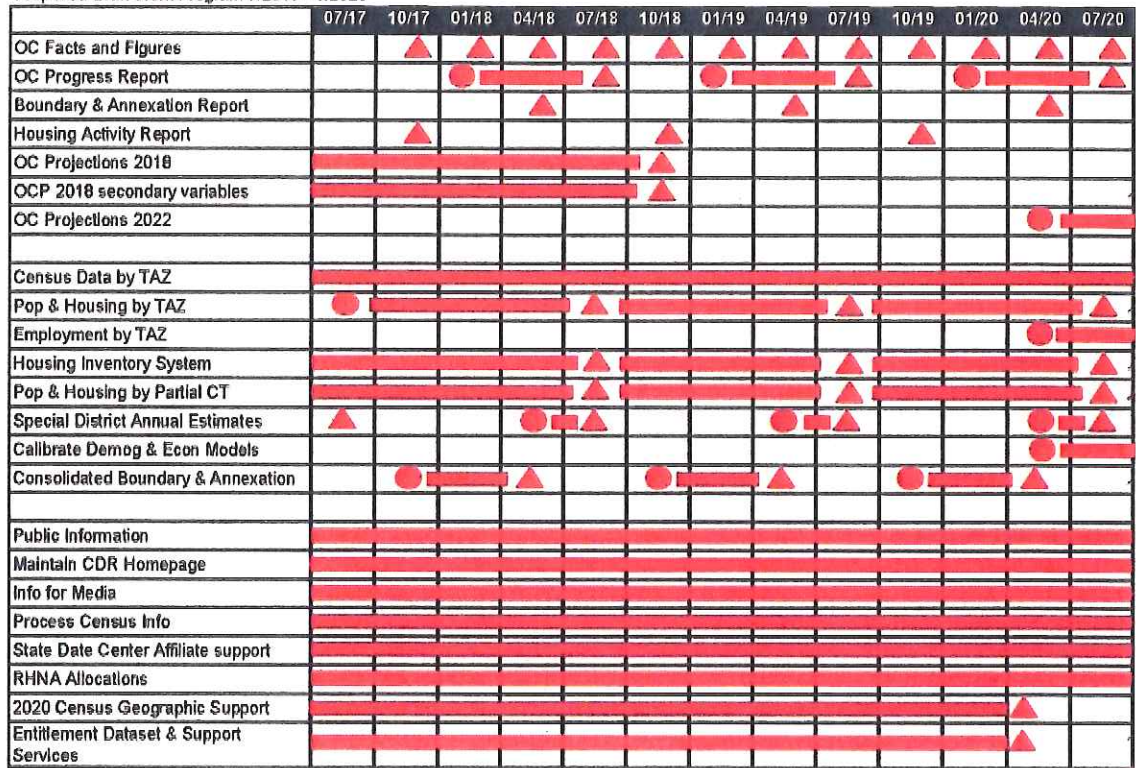
The CDR will participate in the geographic program updates leading up to the 2020 Decennial Census. These will include programs such as the Participant Statistical Area Program (PSAP) to update block group, census tract, and CDP boundaries.

Entitlement Dataset & Support Services

Provide support to Orange County jurisdictions in the development of the entitlements database and other data requested by SCAG during the development of the 2020 RTP/SCS. Monitor development process to ensure Orange County data is incorporated.

Attachment 3

Proposed Draft Work Program 7/2017 - 6/2020



● Startup
▲ Milestone/Completion



ACTION ITEM

March 15, 2017

TO: Board of Directors

FROM: **Planning & Operations Committee**
(Directors Dick, Tamaribuchi, Yoo Schneider)

Robert Hunter
General Manager

Staff Contact: J. Berg
Director of Water Use Efficiency

SUBJECT: Multi-Family Toilet Rebate Program

STAFF RECOMMENDATION

Staff recommends the Board of Directors authorize staff to administer a Multi-family Toilet Rebate Program utilizing MWDOC's allocation of Metropolitan's Member Agency Administered funding.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

Since 1992, more than 423,000 high water use toilets have been replaced with water efficient toilets in single- and multi-family properties throughout the MWDOC service area. While saturation of water efficient toilets is high, water savings potential remains, especially in multi-family properties. As a result, Metropolitan continues to provide a \$40 rebate for residential toilet replacements through their regional rebate program. This rebate is based on replacing a mix of 3.5 and 1.6 gallon per flush toilets with new toilets that flush 1.06 gallons per flush or less.

DETAILED REPORT

Over the past year, MWDOC has been approached by multi-family property owners inquiring about rebate incentives to replace their high water use toilets. This includes The Irvine Company and Western National Property Management. Western National Property Management is a company that provides property management services and management of their own properties throughout southern California. Both companies indicated the \$40

Budgeted (Y/N): Y	Budgeted amount: \$475,000	Core __	Choice _X_
Action item amount: \$475,000		Line item:	
Fiscal Impact (explain if unbudgeted): Other than staff time to administer the rebate program, all funding will be provided by Metropolitan.			

rebate offered through Metropolitan's regional rebate program was not sufficient to justify the retrofits.

With this input, MWDOC approached Metropolitan to see if a higher rebate could be justified to replace 3.5 gallon per flush toilets. Metropolitan confirmed that if MWDOC verified the higher flush volume toilets, Metropolitan would provide a higher rebate. Based on a water savings of 36 gallons per day per toilet, MWDOC proposed and was given approval for a rebate of \$75 per toilet.

The source of the funding is MWDOC's allocation of \$715,000 from Metropolitan's Member Agency Administered funding pool. Should this allocation go unspent by MWDOC, it will be retained by Metropolitan, and MWDOC will lose access to those funds. Of MWDOC's \$715,000 allocation, staff is proposing that \$475,000 be made available for the Multi-Family Toilet Rebate program. This will allow for the retrofitting of more than 6,250 water wasting toilets. These retrofits will result in annual water savings of 252 acre feet or 2,527 acre feet over 10n years. The cost per acre foot saved is 188.

The program will target verified 3.5 gpf or greater toilets and replace them with premium high efficiency toilets flushing from 0.8 to 1.06 gpf. As required by Metropolitan, MWDOC and member agency staff will verify through visual on-site inspections a minimum of 10% of the existing 3.5 gpf toilets to be replaced. The project timeline is approximately March 15, 2017 to June 15, 2017. Should Metropolitan provide additional funding, the number of toilets targeted could increase, along with an extended program implementation timeline. MWDOC will administer the rebates in-house and will issue rebate checks to the property owner on a property-by-property basis.



DISCUSSION ITEM

March 6, 2017

TO: Planning & Operations Committee
(Directors Dick, Tamaribuchi, Yoo Schneider)

FROM: Robert Hunter
General Manager

Staff Contact: Harvey De La Torre

SUBJECT: Metropolitan Proposed Fixed Treatment Charge

STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee review and file.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

BACKGROUND

In April 2016, Metropolitan Water District (MET) staff recommended a new Fixed Treatment Charge within the FY2016-17 & FY2017-18 Biennial Budget and Rates. The purpose of this new charge was to align a portion of fixed treatment costs and services, including treatment capital, with a fixed charge. The recommended charge would cover 38% (or \$98 million) of MET's treatment revenue requirement for FY 2016-17; and would be made up of two components: a fixed standby charge and a fixed demand charge. The methodology would be based on each member agency's historical treated purchases and peak flow.

However, due to concerns raised over the purpose and intent of the Fixed Treatment Charge, recommended methodology (i.e. ten-year historical treated purchases, peaking component), and lack of analysis on other alternative methods, the MET Board voted not to adopt the aforementioned recommended Fixed Treatment Charge. Rather the Board asked that a workgroup of member agency managers be formed to define the objectives of the Fixed Treatment Charge, identify any alternative methodologies, and suggestion for an

Budgeted (Y/N): N	Budgeted amount: None	Core <input checked="" type="checkbox"/> _X_	Choice <input type="checkbox"/>
Action item amount: N/A	Line item:		
Fiscal Impact (explain if unbudgeted):			

implementation date. The workgroup's findings were presented to the MET Board for review and consideration at the February 2017 Finance and Insurance Committee Meeting.

REPORT

Per the Board's April action, a group of 16 member agencies managers, including MWDOC, chaired by MET Chief Financial Officer Gary Breau, held a total of six working group meetings from September 2016 to January 2017. Additionally, MET staff designated Dr. Tom Chesnutt of A&N Technical to help facilitate the discussion. The initial meetings focused on identifying any problems with the current treatment surcharge, distinguishing successful attributions of a new charge, and coalescing an approach that would be beneficial to MET and member agencies.

To help understand the objectives and provide guidance of establishing a fixed charge, the workgroup developed the following policy principles for the MET's Board consideration:

- *Treatment rates and charges shall align treatment costs with treatment services and benefits received consistent with cost of service principles.*
- *Treatment services shall be recognized to include physical water treatment, as well as operational benefits such as available treatment capacity used by member agencies.*
- *In an effort to contain overall treatment costs on an on-going basis, MET shall programmatically identify opportunities to partially or fully decommission unneeded treatment infrastructure and minimize future operations/maintenance and capital expenditures. MET should obtain member agency commitment to utilize new or expanded future treatment capacity.*

From these principles, the workgroup recommended a Fixed Treatment Charge that mirrors the existing Capacity Charge methodology; which would be based upon a member agency's three-year trailing maximum peak day flow of treated water service purchased during the summer demand period of May 1 through September 30. The Fixed Treatment Charge is consistent with MET's cost of service principles and is a familiar methodology among the agencies. It would cover 16% (or \$42 million) of MET's treatment revenue requirement for FY 2016-17, and focus on the treatment demand cost portion.

The workgroup also recommended that the Fixed Treatment Charge should follow a *prospective* implementation date, meaning it should include the peak flows of the upcoming three years (2017, 2018, and 2019), whereby the implementation date would be effective January 1, 2021. The primary reason for this implementation date is to provide sufficient time for agencies to plan for operational and financial impacts, which is consistent with previous new MET charges. Additionally, the future implementation date will help to prevent message confusion, such as the inaccurate implication that the fixed charge could be based on an agency's past purchases while during that same time encouraging them to develop more local resources.

Overall, the workgroup understood this proposed Fixed Treatment Charge neither addressed all concerns raised by a number of member agencies; nor does it go far enough in collecting the proper amount of fixed treated costs as recommended within previous proposals. However, the consensus of the workgroup was that this new proposal is a “step in the right direction.”

MWDOC Impact

If the proposed Fixed Treatment Charge was applied today, MWDOC would see roughly a \$384,000 savings in our total treated water payments to MET. However, it is important to note because the Fixed Treatment Charge includes the next three upcoming years (2017, 2018, and 2019), we cannot guarantee whether MWDOC will see an increase or a decrease when this charge is in effective on January 1, 2021. Similarly, we cannot estimate what the impact would be for each MWDOC member agency.

In addition, if the MET Board does adopt this Fixed Treatment Charge, MWDOC staff would need to work with the MWDOC Board and its member agencies to determine how to best allocate MWDOC's share of MET Fixed Treatment Charge within the MWDOC service area. To note, within the MWDOC service area, an allocation methodology does not necessary need to mirror MET's methodology.

Next Steps

The MET Finance and Insurance Committee will have a final review the proposal in March 2017, and based on the Committee's feedback the Board may considered it for approval in April 2017.

Attachment: **Metropolitan Treatment Charge Workgroup Proposal**

**TREATMENT CHARGE WORKGROUP
PROPOSED POLICY PRINCIPLES, RECOMMENDATIONS, AND
IMPLEMENTATION CONSIDERATIONS**

February 2, 2017

The Treatment Charge Workgroup (“Workgroup”) was initially established by the MWD Board of Directors to develop recommendations for a fixed treatment surcharge for subsequent consideration by the Board. The constraints placed on the Workgroup were simply that any recommendations had to be based on the existing Cost of Service Study. Several meetings of the Workgroup have been utilized to discuss the attributes of successful treatment cost recovery, and the methods of accounting for assets, revenues and costs.

The Workgroup concluded there are several important attributes of effective treated water cost recovery. These include, but are not limited to, providing a clear nexus between member agency treatment service costs and the benefits received, and structuring MWD’s treatment revenues with low variability and appropriate levels of resiliency.

Prior to establishing a specific rate-related proposal, the Workgroup recommends the Board’s consideration and potential adoption of Policy Principles. These principles would provide a guidance framework for changes MWD may wish to make to the treated water portion of its rate structure in the future.

Potential imposition of a new treated water charge would more ideally be done in the context of a full rate refinement review. This would ensure the components of the resultant rate structure are fully harmonized. However, absent a full rate refinement review, modifications to MWD’s existing charges may be implemented to incorporate policy changes regarding the recovery of treatment component costs. This document presents Proposed Policy Principles, Recommendations, and an implementation consideration.

Policy Principles for Treatment Rates and Charges:

1. Treatment rates and charges shall align treatment costs with treatment services and benefits received consistent with cost of service principles.
2. Treatment services shall be recognized to include physical water treatment, as well as operational benefits such as available treatment capacity used by member agencies.
3. In an effort to contain overall treatment costs on an on-going basis, MWD shall programmatically identify opportunities to partially or fully decommission unneeded treatment infrastructure and minimize future O&M and capital expenditures. MWD

should obtain member agency commitment to utilize new or expanded future treatment capacity.

Recommendations for Treatment Rates and Charges:

1. Adopt a Treatment Capacity Charge that mirrors the existing Capacity Charge in a manner consistent with cost of service principles.
2. This Treatment Capacity Charge should be implemented based upon a three-year trailing maximum peak day flow through treated water service connections during the May 1 through September 30 peak summer demand period.

An Implementation Consideration for Treated Water Charges:

1. To provide member agencies with sufficient time to plan for operational and financial impacts to their agencies and sub-agencies, this Treatment Capacity Charge should be integrated into MWD's biennial cost of service process and considered for implementation at the Board's discretion with rates and charges effective no sooner than January 1, 2021 (thus, inclusive only of the summer peaks of 2017-2019.)



INFORMATION ITEM

March 6, 2017

TO: **Planning & Operations Committee**
(Directors Dick, Tamaribuchi, Yoo Schneider)

FROM: **Robert Hunter, General Manager**

Staff Contacts: Karl Seckel
 Charles Busslinger

SUBJECT: Desalination Slant Well Decommissioning Project Status Update

STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee receive and file the report.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

On December 21, 2016, the Board of Directors approved entering into agreements for removal of the desalination test well at Doheny Beach and restoration of the project site. On-site work has been completed, and the project is in the closeout phase pending a final project summary report from the technical consultant, Geoscience. Staff provides the following status update for the project.

DETAILED REPORT

Staff, Geoscience, and the contractor, Jensen Drilling, were able to work together to complete the required work at an overall cost less than what was originally estimated for the decommissioning work. Although the final costs are still to be audited, the preliminary actual project costs are in the range of \$79,000 less than the project cost estimate at the time of award (14% lower than estimated). The primary reason for savings was due to the

Budgeted (Y/N):	Budgeted amount:	Core ____	Choice ____
Action item amount:		Line item:	
Fiscal Impact (explain if unbudgeted):			

efficiency of the contractor once they mobilized and a different approach on how and where to cut the blank casing under the beach prior to the grouting of the well.

The Table below provides the cost summary; photos of the construction are included.

Doheny Decommissioning Project Preliminary Cost Estimate		
Cost Item	Project Cost Estimate at Contract Award	Preliminary Actual Costs
1. Professional Services – Well Destruction + Inspection	\$77k	\$67k
2. Professional Services – Removal of Mobile Test Facility (MTF), Beach Vault piping and Diffuser + Inspection		
3. Site Restoration & Relocation of MTF	\$89.5k ⁽³⁾	\$83.5k ⁽³⁾
4. Beach Facilities Removal and Site Restoration (vault, piping and diffuser removal)	\$172.1k	\$161k
5. Test Slant Well Pump Removal and Well Destruction	\$81k	\$55k
6. Monitoring Well Destruction	---	---
Subtotal	---	---
Contingency 10%	---	---
Project Management & Permitting	\$107k ^(1,4)	\$96k
Well Destruction & Salvage Report	\$15k	Included above
Total	\$542k	\$463k
	Estimated Savings	\$79k (14.5%)
(1) Permitting delegated to consultant & includes providing a field biomonitor for 160 hrs		
(2) Beach diffuser not to be removed; South Coast will assume responsibility		
(3) Includes \$45,000 mitigation payment to State Parks		
(4) Includes MWDOC Project Management charges		



Excavation of the piping and the valve vault on the beach



The valve vault on the beach at the wellhead



Beach piping being removed



Cables and pump column being removed



Videolog of well required by OC Health Care Agency



Mixing of grout for pumping into the abandoned well



Loading and removal of the Mobile Test Facility for storage



Site inspection with contractor, consultant and State Parks

Status of Ongoing MWDOC Reliability and Engineering and Planning Projects

January 31, 2017

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
Baker Treatment Plant or Expansion of Baker Water Treatment Plant	IRWD, MNWD, SMWD, ETWD Trabuco CWD		On line date is January 2017	The Baker Water Treatment Plant is a joint regional project by five SOC water districts to build a 28.1 million gallon per day (mgd) [43.5 cubic feet per second (cfs)] drinking water treatment plant at the site of the former Baker Filtration Plant in the City of Lake Forest. The Baker Plant began water production in early January and ramped up to the full capacity. MWDOC, IRWD, SMWD and the Project Participants are working on the meter reading and water invoicing as part of the water will be pumped into the South County Pipeline. In February, the Treatment Plant will go on-line to treat water from Irvine Lake to complete the performance testing under the construction contract.
Doheny Desalination Project	South Coast Water District, Laguna Beach CWD			Recent offshore geophysical testing and mapping indicated a wider and deeper alluvial channel at the mouth of San Juan Creek than previously anticipated. On February 17, 2017, South Coast WD's Engineering & Operations Committee recommended approval of award for additional groundwater modeling to the SCWD Board. The SCWD Board will consider the recommended action on February 23, 2017. The additional modeling will assess; the maximum amount of groundwater available for production, modeling of alternative placement of production slant well pods both east and west of San Juan Creek, and groundwater modeling with and without the San Juan Watershed Project rubber dams. The additional modeling is scheduled to be completed by the end

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
				<p>of May 2017.</p> <p>A 'Value for Money' workshop is anticipated in March and a separate workshop on the South Coast WD Reliability Study is anticipated in May 2017.</p> <p>MWDOC's contractor for the decommissioning and removal of the test facilities at Doheny State Park completed their work and demobilized from the site. An informational item is included in the P&O Packet; the work was completed under budget.</p>
Poseidon Resources Ocean Desalination Project in Huntington Beach				<p>MWDOC staff and OCWD staff met with JIG Consultants on January 23, 2017 regarding initiation of the CEQA evaluation for a South County pipeline extension (EOCF No. 2 bypass pipeline) to distribute desalinated water to South County.</p>
San Juan Watershed Project				<p>The public comment period on the Notice of Preparation for the Draft Environmental Impact Report closed on February 2, 2017. Comment letters will be posted by the end of February on the project website (http://sanjuanwatershed.com/). SJBA is working through the next steps of forming a Project Committee. Due to the SJBA Joint Powers Agreement, only Authority members can be project committee members, non-members cannot be participants in a project committee.</p> <p>The SJBA Board authorized resumption of limited pumping for the City of San Juan Capistrano and South Coast WD at the</p>

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
				<p>February 14, 2017 Board meeting. Water levels indicate the lower basin area south of the Arroyo Trabuco – San Juan Creek confluence (aka Phase 1 project area) is now rejecting new recharge. Pumping is authorized at the City Alipaz well field in the amount of 90 acre-feet every two weeks and for South Coast WD 36 acre-feet every two weeks.</p>
<p>Orange County Reliability Study</p>				<p>CDM-Smith and MWDOC staff met on Friday February 10, 2017 to discuss updating the Study model to include the most recent information on:</p> <ul style="list-style-type: none"> • Climate change impacts to supply, • Impacts from the Lower Colorado Basin Drought Contingency Plan, • Future increases to the Basin Pumping Percentage, • Downward revisions to future Santa Ana River base flows, and • Minimum system flows necessary to maintain water quality. • Additionally, analysis of the benefits from base loaded projects which provide supplies in excess of the average water supply gap will be looked at. <p>An item is included in the P&O Packet for this item.</p>
<p>OC-28 Flow Metering Issue with MET</p>				<p>MWDOC and OCWD are awaiting MET's analysis of the flow test to examine the metering issue from last summer. Preliminary results indicate that OCWD is owed about 700 AF of water.</p>

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
Service Connection CM-1 Cost Issues with MET				MWDOC and MET are awaiting the outcome of discussions between Laguna Beach CWD and Newport Beach on this issue before moving forward.
MET Metering Issues				MET is convening a workgroup to further examine the use of mag meters in their system to allow further flexibility compared to the current use of venturi meters. This issue has a high level of interest to MWDOC and a number of our agencies. Charles Busslinger and Kevin Hostert will participate in the workgroup. The kick-off meeting is being set in March.
Other Meetings/Work				
				<p>Karl Seckel, Heather Baez and John Lewis met with Chris Wangsaporn in Supervisors Do's office and Melanie Eustice in Supervisor Spitzer's office to discuss the issues related to the OC Flood Control District encroachment permits.</p> <p>On February 9 MWDOC and a legal team and several retail agency reps met with OCFCD staff and County Counsel. The legal team agreed to disagree with the position of County Counsel. OC Flood staff suggested a NEW formula for an on-going maintenance fee arrangement. That formula was reviewed at MWDOC's member agency meeting and essentially rejected as a bad precedent to set, especially given that there was not a clear nexus between the charge and the costs incurred by OC Flood.</p> <p>At the Manager's meeting, the retail agencies suggested entering</p>

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
				into a cooperative or maintenance agreement that allows for reconciliation of cost items on a case-by-case basis. Staff is working on such a request. It is unknown if agreement can be reached with the OC Flood Control District.
				Staff has had several meetings with Advanced Microgrid Solutions to investigate a new initiative that involves entering into electrical load aggregation contracts that will translate into a cost-savings for our agencies and will improve their emergency operations by having energy storage devices at key facilities. Additionally, there may be opportunities to secure state of the art emergency generator back-ups that meet AQMD standards using grant funding. This is an extremely exciting proposition that is just now being kicked off. Staff advanced this idea to our agencies to see if there was sufficient interest at the February Manager's meeting. Staff will continue to work on the next steps.
				Karl Seckel attended MET's Water Tomorrow Conference that included reports from all of the MET Foundational Action Program studies. MWDOC was represented by Don Bunts from SMWD who spoke about the San Juan Watershed project, Andy Brunhart who spoke about the Doheny Desal Project and Jeff Mosher who spoke about the Research into the Direct Potable Research program. MWDOC authorized MET funding for all three efforts.
				Karl Seckel met with SOCWA General Manager Betty Burnett, South Coast Board member Rick Erkeneff and Global Environmental Legacy Foundation President Brett Danson. Brett

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
				Danson has a number of research efforts underway and is looking for support for brine treatment, sustainable energy development and water purification. He has research efforts underway at the Salton Sea and with the Bureau of Reclamation.
				Karl Seckel and MET Director Larry McKenney provided a presentation to the South Orange County Economic Coalition on Orange County's water supply and focused on the question of "Is the Drought Over?" Heather Baez assisted with the presentations and attended the meeting.
				MWDOC staff members Rob Hunter, Harvey De La Torre and Karl Seckel met with MET staff members Debra Man, Deven Upadhyay and Jim Green along with OCWD staff Mike Markus and John Kennedy to discuss storage of imported water for later this year. It appears that the most likely options include maximizing MET untreated deliveries into the groundwater basin and into MET Conjunctive Use Account for later this year, beginning around July 1.



FOUNDATIONAL ACTIONS FUNDING PROGRAM TECHNICAL CONFERENCE
THURSDAY, FEBRUARY 23, 2017
9:30 AM – 3:30 PM

The Metropolitan Water District of Southern California
700 North Alameda, Los Angeles, CA 90012, Board Room

Webinar link: <https://attendee.gotowebinar.com/register/488204433665566978>

AGENDA

Registration **9:00 – 9:30**

WELCOME **9:30 – 10:00**

Introduction **Deven Upadhyay, MWD Group Manager**
Water Resource Management

Opening **Debra Man, MWD Assistant General**
Manager, Chief Operating Officer

The Foundational Actions Funding Program – **Stacie Takeguchi, MWD**
Reducing Barriers to Future Water Resource Production *Senior Engineer*

SESSION 1 - STORMWATER **10:00 – 10:45**

Moderator: MWD Director Glen Dake

1) **Stormwater Capture Master Plan** **Rafael Villegas**
City of Los Angeles Department of Water and Power *Watershed Mgmt. Program Manager*

2) **Stormwater Harvesting and Direct Use Demonstration Project** **Vik Bapna, CWE**
City of Santa Monica *Principal*

Panel Discussion

SESSION 2 - GROUNDWATER **10:45 – 12:00**

Moderator: Grace Chan, MWD Section Manager

1) **Enhanced Research Using RCF for Hexavalent Chromium Removal** **Michael De Ghetto**
City of Glendale Water and Power *Chief Assist. General Manager – Water*

2) **Pilot-scale Groundwater Desalter Brine Concentrator Study** **Jeff Wall**
Eastern Municipal Water District *Assist. General Manager*

3) **Pilot-scale Biological Treatment Process** **Jess Brown, Carollo Engineers**
Inland Empire Utilities Agency *R&D Practice Director*

4) **San Juan Basin Groundwater and Desalination Optimization** **Don Bunts, Santa Margarita Water**
Program Municipal Water District of Orange County *District, Deputy General Manager*

Panel Discussion



WATER TOMORROW

Foundational Actions Funding Program

LUNCH

12:00 – 1:00

Keynote Address: *Enabling Innovation in Water Management*

Paul Brown, Paul Redvers Brown Inc.

SESSION 3 - SEAWATER DESALINATION

1:00 – 1:45

Moderator: MWD Director Steve Blois

- | | |
|--|---|
| 1) Advancement of Slant Well Technology for Seawater Desalination
<i>Municipal Water District of Orange County</i> | Andrew Brunhart, South Coast Water District, General Manager |
| 2) Ocean Water Desalination Intake Biofouling and Corrosion Study
<i>West Basin Municipal Water District</i> | Diane Gatza
<i>Desalination Project Engineer</i> |

Panel Discussion

SESSION 4 - RECYCLED WATER

1:45 – 3:15

Moderator: MWD Director John Morris

- | | |
|---|--|
| 1) Direct Potable Reuse Research Initiative
<i>West Basin Municipal Water District</i> | Jeff Mosher, Water Environment & Reuse Foundation, Chief Research Officer |
| 2) Innovative Indirect Potable Reuse Treatment Train
<i>Upper San Gabriel Valley Municipal Water District</i> | Fred Gerringer, Trussell Technologies, Principal Engineer |
| 3) Pilot-scale 3-D Fluorescence Excitation Emission Matrix
<i>Inland Empire Utilities Agency</i> | Andy Campbell
<i>Groundwater Recharge Coordinator/Hydrogeologist</i> |
| 4) Recycled Water Intertie Study
<i>Inland Empire Utilities Agency</i> | Jason Pivovarov
<i>Senior Engineer</i> |
| 5) Tracer Alternative Research
<i>West Basin Municipal Water District</i> | Ted Johnson, Water Replenishment District, Chief Hydrogeologist |

Panel Discussion

PARTICIPANT DIALOGUE

3:15 – 3:25

Moderator: MWD Director Richard Atwater

Forward-looking steps to enhance the region's ability to develop future water supplies

CLOSING

3:25 – 3:30

Deven Upadhyay, MWD Group Manager Water Resource Management

**Status of Ongoing WEROC Projects
February 2017**

Description	Comments
Coordination with WEROC Member Agencies	<p>The WEROC Quarterly Emergency Coordinator meeting was held on February 7, 2017. Assistant City Manager of San Juan Capistrano, Jacob Green, provided an excellent presentation on lessons learned from the 2010 Christchurch Earthquake. He did a great job of pulling together lessons specific to water and wastewater utilities. Additional discussions included generators and AQMD regulations, 2017 WEROC exercise and training program, the required update to the Orange County Regional Water and Wastewater Multi-Hazard Mitigation Plan and on-going storm response needs and considerations.</p> <p>Colin Eckerle, Engineering Intern, sent out information to the WEROC member Agencies requesting updated system map information. This information will be pulled together to complete a 2017 WEROC Map Update.</p> <p>Kelly Hubbard met with staff of the City of Newport Water Utilities Division and the City's Emergency Manager to discuss the new Municipal Utilities Department Operations Center and design considerations.</p> <p>Kelly presented at the OC MET Managers Meeting to a majority of the program's funding agency's managers on the proposed 2017-2018 WEROC budget. The group also discussed last year's accomplishments and proposed programs in the coming year.</p>
Training and Programs	<p>Kelly attended a seminar on the new California State Training Institute (CSTI) Emergency Operations Center (EOC) Position Credentialing Program. The credentialing program is not a mandatory program, but is being presented as a best practice moving forward for the training of staff for positions within any EOC. The program's intention is to standardize training between EOC's to ensure a minimal level of knowledge and expertise for critical positions in an emergency. Unfortunately, the program is pretty demanding in the number of hours required for credentialing various positions. Staff will be looking into what it would take to credential the</p>

	<p>WEROC EOC staff in various positions and come up with a multi-year plan on how to achieve this new best practice if it is determined to be feasible and beneficial.</p> <p>Kelly presented “Having What it Takes to be ‘Water Prepared’” at the Three Valleys Municipal Water District Winter Leadership Breakfast on February 16th. The presentation shared some of the hard earned lessons of others, critical areas of planning and staff time that should be invested into, and why some of these steps can make a difference in worker safety, community responsiveness and fiscal recovery.</p>
Coordination with the County of Orange	<p>Kelly attended the February Orange County Emergency Management Organization (OCEMO) meeting and OCEMO Exercise Design meeting. OCEMO had an excellent speaker on communicating with the deaf and hard of hearing community in a disaster. Kelly is working with the speaker to come to a future PAW group meeting to talk about disaster communications, as well as general public outreach that is inclusive. The Exercise Design Committee worked on a county-wide exercise and training schedule and program for 2017.</p> <p>Kelly attending the Urban Area Working Group (UAWG) Meeting, and the Orange County Operational Area (OA) Executive Board Meeting, as a voting member for ISDOC.</p> <p>Janine Schunk and Kelly met with county emergency management staff to work out some outstanding programming issues with Alert OC and WebEOC on behalf of the member agencies. Janine is working on the implementation of those solutions with county staff.</p>
Coordination with Outside Agencies	<p>Kelly participated in the California Water and Water Agency Response Network (CalWARN) State Steering Committee conference call. The primary discussion was to ensure that all coordination requested by impacted water and wastewater utilities in California by flooding was being met and that there were no known outstanding issues with response.</p> <p>Kelly attended the Southern California Critical Lifeline Work Group meeting at Southern California Edison. This group is made up of what is considered to be critical lifeline providers,</p>

	such as power, gas, water, communications companies. The group meets quarterly to ensure networking and the sharing of planning and response coordination concepts.
WEROC Emergency Operations Center (EOC) Readiness	<p>Staff participated in the February MARS and Operational Area radio test successfully. Staff continues to do tests with Member Agencies on the WEROC Radio system and to work with Radio Technicians to identify long-term solutions, see separate staff report.</p> <p>Janine Schunk, MWDOC/WEROC Administrator, has been providing general EOC maintenance by meeting with contractors for site cleanings, lock repair, and phone repair. She has also completed a significant update to the WEROC contact list and is starting to update those contacts in the appropriate EOC support systems (AlertOC, Safety Center, EOC resources, etc.)</p>

Status of Water Use Efficiency Projects

March 2017

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
Smart Timer Rebate Program	MWDSC	Ongoing	Ongoing	For January 2017, 72 residential and 162 commercial smart timers were installed in Orange County. For program water savings and implementation information, please see MWDSC Water Use Efficiency Program Savings and Implementation Report.
Rotating Nozzles Rebate Program	MWDSC	Ongoing	Ongoing	For January 2017, 2,865 rotating nozzles were installed in Orange County. For program savings and implementation information, please see MWDSC Water Use Efficiency Program Savings and Implementation Report.
Water Smart Landscape Program	MWDSC	Ongoing	On hold pending evaluation and RFP process	This Program is currently on hold while a Process and Impact Evaluation is conducted. Once the Evaluation is complete, the results will be used to make refinements to the Program. For program savings and implementation information, please see MWDSC Water Use Efficiency Program Savings and Implementation Report.
SoCal Water\$mart Residential Indoor Rebate Program	MWDSC	Ongoing	Ongoing	In January 2017, 241 high efficiency clothes washers and 37 premium high efficiency toilets were installed through this program. For program savings and implementation information, please see MWDSC Water Use Efficiency Program Savings and Implementation Report.

SoCal Water\$mart Commercial Rebate Program	MWDSC	On-going	On-going	<p>In January 2017, 2 high efficiency toilets and 79 premium high efficiency toilets were installed through this program.</p> <p>For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.</p>
Industrial Process Water Use Reduction Program	MWDOC	96%	September 2016	<p>A total of 41 Focused Surveys and 19 Comprehensive Surveys have been completed or are in progress. To date, 15 companies have signed Incentive Agreements. Updated discharger lists have been obtained, and outreach is continuing to sites with feasible water savings potential. As a result of this program, 412 AFY of water savings is being achieved.</p>
Turf Removal Program	MWDOC	On-going	On-going	<p>In January 2017, 66 rebates were paid, representing \$102,895.83 in rebates paid this month in Orange County. To date, the Turf Removal Program has removed approximately 20.5 million square feet of turf.</p> <p>For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.</p>
California Sprinkler Adjustment Notification System – Base Irrigation Schedule Calculator	MWDOC	On-going	On-going	<p>The California Sprinkler Adjustment Notification System (CSANS) will e-mail or “push” an irrigation index to assist property owners with making global irrigation scheduling adjustments. Participants voluntarily register to receive this e-mail at www.csans.net and can unsubscribe at any time.</p> <p>An annual support contract with Enterprise Information Systems, the original developer of CSANS, was recently executed. Support will include annual web hosting, technical support, functional refinements, and ongoing application health and maintenance.</p> <p>IRWD is now administering CSANS for their customers, along with developing customized messaging content for their customers. Several other agencies are considering access to</p>

California Sprinkler Adjustment Notification System – Base Irrigation Schedule Calculator (cont.)				the CSANS to administer their own messages to their customers: City of Brea, Mesa Water District, City of San Juan Capistrano, and Laguna Beach County WD. MWDOC will continue to work with these agencies to transition administration of CSANS to them. All other agencies are currently receiving educational messages administered by MWDOC.
Spray to Drip Conversion Program	MWDOC	75%	October 2017	<p>This is a pilot program designed to test the efficacy of replacing conventional spray heads in shrub beds with low-volume, low-precipitation drip technology. Through a rebate program format, residential and commercial sites will be encouraged to convert their existing spray nozzles to drip.</p> <p>To date, 193 residential sites and 52 commercial sites have completed spray to drip conversion projects.</p>
MWDOC Conservation Meeting	MWDOC	On-going	Monthly	<p>This month's meeting was held on February 2, 2017 at County of Orange Public Works. The next meeting will be on March 2, 2017 at MWDOC.</p>
Metropolitan Conservation Meeting	MWDOC	On-going	Monthly	<p>This month's meeting was held on February 16, 2017. The next meeting will be March 16, 2017 at Metropolitan.</p>

Orange County

Water Use Efficiency Programs Savings and Implementation Report

Retrofits and Acre-Feet Water Savings for Program Activity

Program	Program Start Date	Retrofits Installed in	Month Indicated		Current Fiscal Year		Overall Program		
			Interventions	Water Savings	Interventions	Water Savings	Interventions	Annual Water Savings[4]	Cumulative Water Savings[4]
High Efficiency Clothes Washer Program	2001	January-17	241	0.69	2,118	26.55	110,901	3,826	23,771
Smart Timer Program - Irrigation Timers	2004	January-17	234	9.02	1,376	367.05	18,858	7,158	38,229
Rotating Nozzles Rebate Program	2007	January-17	2,865	11.46	29,314	117.21	550,672	2,709	11,141
SoCal WaterSmart Commercial Plumbing Fixture Rebate Program	2002	January-17	81	0.25	7,918	102.53	78,200	3,518	39,203
Water Smart Landscape Program [1]	1997	November-15	12,677	904.62	12,677	3,615.21	12,677	10,621	72,668
Industrial Process Water Use Reduction Program	2006	January-17	1	2.92	2	2.92	25	412	2,014
Turf Removal Program ^[3]	2010	January-17	49,581	0.58	504,135	780	20,530,804	2,875	7,206
High Efficiency Toilet (HET) Program	2005	January-17	37	0.13	818	34.84	59,403	2,196	14,146
Home Water Certification Program	2013	November-15	0	0.000	53	0.251	312	7,339	15,266
Synthetic Turf Rebate Program	2007						685,438	96	469
Ultra-Low-Flush-Toilet Programs ^[2]	1992						363,926	13,452	162,561
Home Water Surveys ^[2]	1995						11,867	160	1,708
Showerhead Replacements ^[2]	1991						270,604	1,667	19,083
Total Water Savings All Programs				930	558,411	5,046	22,693,687	48,696	392,214

⁽¹⁾ Water Smart Landscape Program participation is based on the number of water meters receiving monthly Irrigation Performance Reports.

⁽²⁾ Cumulative Water Savings Program To Date totals are from a previous Water Use Efficiency Program Effort.

⁽³⁾ Turf Removal Interventions are listed as square feet.

⁽⁴⁾ Cumulative & annual water savings represents both active program savings and passive savings that continues to be realized due to plumbing code changes over time.

82

Item No. 9d

HIGH EFFICIENCY CLOTHES WASHERS INSTALLED BY AGENCY through MWDOC and Local Agency Conservation Programs

Agency	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY13/14	FY14/15	FY15/16	FY16/17	Total	Current FY Water Savings Ac/Ft (Cumulative)	Cumulative Water Savings across all Fiscal Years	15 yr. Lifecycle Savings Ac/Ft
Brea	156	42	186	144	93	115	114	76	28	1,838	0.30	397.29	951
Buena Park	146	59	230	145	105	106	91	76	29	1,493	0.29	306.86	773
East Orange CWD RZ	17	3	23	10	10	8	8	8	1	190	0.00	43.38	98
El Toro WD	130	32	162	112	134	121	111	65	21	1,495	0.25	309.91	774
Fountain Valley	243	72	289	158	115	102	110	76	36	2,371	0.51	531.91	1,227
Garden Grove	332	101	481	236	190	162	165	251	80	3,516	0.89	744.85	1,819
Golden State WC	447	168	583	485	265	283	359	260	81	4,958	1.06	1,051.74	2,565
Huntington Beach	751	211	963	582	334	295	319	225	81	8,147	1.00	1,866.15	4,215
Irvine Ranch WD	1,844	1,394	2,621	2,170	1,763	1,664	1,882	1,521	714	24,007	9.08	4,877.56	12,422
La Habra	83	22	179	128	82	114	87	66	29	1,303	0.29	268.31	674
La Palma	51	25	76	46	34	25	34	29	6	454	0.07	92.68	235
Laguna Beach CWD	77	27	96	57	38	37	39	32	3	916	0.03	204.36	474
Mesa Water	246	73	232	176	114	86	89	113	51	2,489	0.62	568.06	1,288
Moulton Niguel WD	742	250	1,127	679	442	421	790	688	318	9,664	4.06	1,965.04	5,000
Newport Beach	259	57	197	142	116	92	95	66	35	2,598	0.43	609.05	1,344
Orange	403	111	349	262	218	163	160	124	42	3,860	0.49	886.63	1,997
Orange Park Acres	-	-	-	-	-	-	-	-	-	12	0.00	3.42	6
San Juan Capistrano	127	43	190	110	76	73	92	63	21	1,447	0.25	310.88	749
San Clemente	278	63	333	206	140	94	141	75	32	2,582	0.42	563.83	1,336
Santa Margarita WD	740	257	1,105	679	553	662	792	466	194	9,343	2.46	1,925.01	4,834
Seal Beach	57	7	81	51	31	29	38	23	2	595	0.01	129.36	308
Serrano WD	23	7	21	20	13	10	26	8	7	353	0.10	81.03	183
South Coast WD	148	43	183	112	89	79	68	43	24	1,564	0.29	338.31	809
Trabuco Canyon WD	62	28	82	62	30	45	47	34	12	782	0.14	167.61	405
Tustin	144	45	174	97	78	59	80	66	27	1,595	0.38	357.88	825
Westminster	233	74	329	208	121	82	109	149	54	2,556	0.68	552.62	1,323
Yorba Linda	367	117	394	273	181	167	156	123	33	3,729	0.41	850.93	1,929
MWDOC Totals	8,106	3,331	10,686	7,350	5,365	5,094	6,002	4,726	1,961	93,857	24.53	20,004.65	18,133

Anaheim	781	860	910	477	331	285	295	266	84	10,553	1.06	2,372.83	5,460
Fountain	330	69	397	270	200	186	211	165	49	3,637	0.60	725.64	1,882
Santa Ana	257	87	355	190	163	131	132	259	24	2,854	0.36	667.75	1,477
Non-MWDOC Totals	1,368	1,016	1,662	937	694	602	638	690	157	17,044	2.02	3,766.21	3,293

Orange County Totals	9,474	4,347	12,348	8,287	6,059	5,696	6,640	5,416	2,118	110,901	26.55	23,770.86	21,426
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SMART TIMERS INSTALLED BY AGENCY through MWDOC and Local Agency Conservation Programs

Agency	FY 09/10		FY 10/11		FY 11/12		FY 12/13		FY 13/14		FY 14/15		FY 15/16		FY 16/17		Total Program		Cumulative Water Savings across all Fiscal Years
	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	
Brea	0	0	2	0	8	0	9	8	4	0	43	6	20	4	18	4	118	80	460.90
Buena Park	0	0	0	0	4	19	3	0	0	0	4	10	7	4	3	7	24	41	117.47
East Orange CWD RZ	0	0	1	0	5	0	2	0	0	0	2	0	1	0	2	1	16	1	7.00
El Toro WD	2	18	5	5	26	2	7	2	11	0	8	9	9	17	16	3	98	350	2,227.81
Fountain Valley	0	6	2	2	8	2	3	2	4	0	7	10	13	1	19	9	77	37	144.63
Garden Grove	6	0	5	4	7	0	5	2	9	0	10	14	13	11	13	0	86	38	141.85
Golden State WC	9	22	7	4	13	3	9	49	9	25	39	12	35	16	22	34	191	189	668.43
Huntington Beach	6	27	6	36	15	4	18	33	20	35	19	2	42	12	45	36	229	210	826.80
Invine Ranch WD	14	145	28	153	267	71	414	135	71	59	67	310	239	207	160	113	1,585	1,979	9,478.99
La Habra	0	21	0	0	3	0	4	7	2	0	4	7	3	1	3	7	27	44	171.34
La Palma	0	0	0	0	1	0	1	0	2	0	2	0	3	2	0	0	9	2	4.12
Laguna Beach CWD	2	14	4	1	109	2	76	2	71	0	86	0	86	1	3	0	473	20	197.45
Mesa Water	13	7	7	22	21	0	10	2	15	2	17	28	36	12	21	41	190	154	608.60
Moulton Niguel WD	17	162	36	60	179	31	51	74	40	45	46	95	163	100	134	39	812	711	2,927.89
Newport Beach	7	58	6	0	275	12	242	26	188	75	11	9	28	43	20	11	1,028	408	2,290.84
Orange	2	13	5	8	25	0	20	24	13	9	18	31	51	13	31	9	247	164	800.68
San Juan Capistrano	7	49	13	1	103	2	14	18	6	11	6	19	20	8	11	0	211	117	541.99
San Clemente	13	209	46	11	212	17	26	7	28	2	28	24	26	3	19	7	1,033	368	2,350.19
Santa Margarita WD	10	152	61	53	262	7	53	171	64	93	53	321	189	136	214	54	1,042	1,205	4,523.03
Santiago CWD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Seal Beach	0	1	0	0	0	3	1	0	1	36	1	12	2	2,446	2	4	7	2,502	3,435.01
Serrano WD	11	0	4	0	3	0	1	0	0	0	4	0	11	2	3	0	37	2	10.81
South Coast WD	3	10	13	3	78	10	13	16	8	4	104	73	9	11	1	0	272	212	991.77
Trabuco Canyon WD	2	0	2	10	12	0	6	0	2	0	6	1	16	50	5	0	95	154	837.43
Tustin	10	14	10	0	11	0	8	4	9	1	18	14	33	8	17	10	127	67	269.12
Westminster	3	0	1	1	2	0	1	1	2	0	13	17	7	1	9	7	57	39	160.62
Yorba Linda	5	21	25	0	22	0	20	0	12	5	32	2	61	27	36	66	302	178	682.56
MWDOC Totals	142	949	289	374	1,671	185	1,017	583	571	402	648	1,026	1,123	3,136	827	462	8,393	9,272	34,877.26

Anaheim	5	46	12	11	23	60	19	10	9	26	7	52	30	34	42	10	199	457	2,285.12
Fullerton	2	39	9	33	22	51	9	29	8	0	40	26	32	12	20	7	166	199	788.88
Santa Ana	1	8	8	0	6	5	8	19	7	8	9	27	22	26	6	2	73	99	277.88
Non-MWDOC Totals	8	93	29	44	51	116	36	58	24	34	56	105	84	72	68	19	438	755	3,351.89

Orange County Totals	150	1,042	318	418	1,722	301	1,053	641	595	436	704	1,131	1,207	3,208	895	481	8,831	10,027	38,229
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ROTATING NOZZLES INSTALLED BY AGENCY
through MWDOC and Local Agency Conservation Programs

Agency	FY 11/12				FY 12/13				FY 13/14				FY 14/15				FY 15/16				FY 16/17				Total Program				Cumulative Water Savings across all Fiscal Years
	Small		Large		Small		Large		Small		Large		Small		Large		Small		Large		Small		Large		Small		Large		
	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.		
Brea	130	0	0	65	120	0	84	0	0	157	45	0	74	2,484	0	0	0	0	572	2,749	0	0	0	0	0	0	0	32.68	
Buena Park	32	0	0	65	0	0	53	0	0	248	0	0	45	98	0	0	0	0	509	173	2,535	0	0	0	0	0	0	453.42	
East Orange	340	0	0	55	0	0	30	0	0	221	0	0	0	0	0	0	0	0	751	0	0	0	0	0	0	0	10.93		
El Toro	357	76	0	23	6,281	0	56	3,288	0	1,741	28,714	0	730	4,457	0	55	242	0	3,369	46,222	890	0	0	0	0	0	0	820.63	
Fountain Valley	108	0	0	35	0	0	0	0	0	107	0	0	222	0	0	0	0	0	710	0	0	0	0	0	0	0	10.22		
Garden Grove	119	0	0	95	0	0	80	0	0	88	50	0	110	0	0	55	98	0	933	299	0	0	0	0	0	0	19.72		
Golden State	294	0	0	257	2,595	0	192	0	0	583	1,741	0	1,088	0	0	176	4,701	0	3,417	10,009	0	0	0	0	0	0	0	152.29	
Huntington Beach	458	0	0	270	0	0	120	0	0	798	1,419	0	1,345	2,836	0	149	1,945	0	3,797	11,109	2,681	0	0	0	0	0	0	792.43	
Irvine Ranch	1,715	4,255	0	25,018	1,014	0	11,010	4,257	0	1,421	632	0	1,989	5,047	0	287	4,672	0	47,089	89,722	2,004	0	0	0	0	0	0	2,900.68	
La Habra	33	90	0	0	0	0	15	0	0	109	338	0	300	0	0	0	0	0	481	1,236	900	0	0	0	0	0	0	221.65	
La Palma	0	0	0	0	0	0	0	0	0	0	0	0	46	505	0	0	2,385	0	56	2,890	0	0	0	0	0	0	14.18		
Laguna Beach	763	0	0	3,596	0	0	2,948	878	0	2,879	1,971	0	1,390	0	0	0	0	0	12,139	2,896	0	0	0	0	0	0	0	224.61	
Mesa Water	297	277	0	270	0	0	361	0	0	229	0	0	166	0	0	70	0	1,987	385	343	0	0	0	0	0	0	0	121.99	
Moulton Niguel	1,225	0	0	512	1,385	0	361	227	0	1,596	4,587	0	5,492	1,441	0	76	5,609	0	11,797	20,252	2,945	0	0	0	0	0	0	1,016.16	
Newport Beach	640	3,273	0	25,365	50	0	19,349	6,835	0	460	3,857	0	348	670	0	0	0	0	46,678	21,413	0	0	0	0	0	0	0	1,178.02	
Orange	343	0	0	264	0	0	245	120	0	304	668	0	631	91	0	0	0	0	3,170	1,072	0	0	0	0	0	0	0	69.27	
San Clemente	4,266	117	1,343	631	172	0	415	5,074	0	326	0	0	426	0	0	0	0	0	9,989	7,538	1,343	0	0	0	0	0	0	415.75	
San Juan Capistrano	949	0	0	684	30	0	370	0	0	495	737	0	310	593	0	75	0	5,495	8,729	0	0	0	0	0	0	0	0	256.54	
Santa Margarita	4,817	0	0	983	0	0	389	0	0	1,207	1,513	0	1,820	837	0	15	0	16,165	6,921	611	0	0	0	0	0	0	0	450.33	
Seal Beach	0	0	0	0	0	0	0	0	0	40	5,261	0	0	2,300	0	0	0	155	7,852	0	0	0	0	0	0	0	0	90.55	
Serrano	58	0	0	190	0	0	105	0	0	377	0	0	695	0	0	0	0	3,405	0	0	0	0	0	0	0	0	0	55.23	
South Coast	688	359	0	435	0	0	70	0	0	4,993	13,717	0	1,421	2,889	0	16	0	8,130	18,870	0	0	0	0	0	0	0	0	323.31	
Trabuco Canyon	379	0	0	34	0	0	0	0	0	56	0	0	130	0	0	0	0	2,086	791	0	0	0	0	0	0	0	0	53.52	
Tustin	476	1,013	0	378	0	0	329	0	0	408	0	0	317	386	0	65	0	3,371	1,399	0	0	0	0	0	0	0	0	69.73	
Westminster	26	0	0	15	0	0	0	0	0	54	0	0	73	0	0	105	0	464	0	0	0	0	0	0	0	0	0	6.53	
Yorba Linda	559	0	0	730	0	0	40	990	0	921	0	0	1,715	0	0	213	0	6,081	4,359	500	0	0	0	0	0	0	0	278.38	
MWDOC Totals	19,072	9,460	1,343	59,970	11,647	0	36,622	21,669	0	19,818	65,250	0	20,883	24,634	0	1,357	19,652	0	192,796	266,886	14,752	0	0	0	0	0	0	0	10,038.63
Anaheim	742	38,554	0	459	813	0	338	0	0	498	712	0	794	5,221	0	147	3,953	0	4,020	49,799	105	0	0	0	0	0	0	0	630.16
Fullerton	409	0	0	119	0	0	107	0	0	684	1,196	0	521	7,015	0	65	3,034	0	2,910	11,309	1,484	0	0	0	0	0	0	0	386.40
Santa Ana	22	65	0	99	0	0	86	2,533	0	310	0	0	0	1,420	0	0	1,106	0	859	5,752	0	0	0	0	0	0	0	85.35	
Non-MWDOC Totals	1,173	38,619	0	677	813	0	531	2,533	0	1,492	1,908	0	1,315	13,656	0	212	8,093	0	7,789	66,860	1,589	0	0	0	0	0	0	0	1,101.91
Orange County Totals	20,245	48,079	1,343	60,647	12,460	0	37,153	24,202	0	21,310	67,158	0	22,198	38,290	0	1,569	27,745	0	200,585	333,746	16,341	0	0	0	0	0	0	0	11,140.54

SOCAL WATER\$MART COMMERCIAL PLUMBING FIXTURES REBATE PROGRAM^[1]

INSTALLED BY AGENCY

through MWDOC and Local Agency Conservation Programs

Agency	FY 07/08	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	Totals	Cumulative Water Savings across all Fiscal Years
Brea	27	113	24	4	1	234	0	10	91	0	631	394
Buena Park	153	432	122	379	290	5	23	56	591	0	2,356	1,070
East Orange CWD RZ	0	0	0	0	0	0	0	0	0	0	0	0
El Toro WD	0	92	143	1	137	0	212	6	268	35	1,062	587
Fountain Valley	17	35	0	2	314	0	0	1	249	0	872	584
Garden Grove	5	298	130	22	0	4	1	167	676	310	2,351	1,480
Golden State WC	46	414	55	68	135	0	1	0	1,008	53	2,865	1,896
Huntington Beach	48	104	126	96	156	104	144	7	783	0	2,313	1,541
Irvine Ranch WD	121	789	2,708	1,002	646	1,090	451	725	11,100	3,701	25,609	7,281
La Habra	191	75	53	4	0	0	0	0	340	0	883	544
La Palma	0	140	21	0	0	0	0	0	0	446	612	100
Laguna Beach CWD	20	137	189	0	0	0	27	0	0	0	446	312
Mesa Water	141	543	219	669	41	6	0	79	661	765	4,237	2,068
Moulton Niguel WD	9	69	151	6	0	0	0	3	413	0	996	811
Newport Beach	98	27	245	425	35	0	0	566	0	0	1,834	1,279
Orange	18	374	67	1	73	1	271	81	275	1,535	3,714	1,769
San Juan Capistrano	2	1	1	0	0	0	14	0	0	0	260	397
San Clemente	2	18	43	0	19	0	0	1	0	0	432	381
Santa Margarita WD	6	23	11	0	0	0	0	2	90	0	207	206
Santiago CWD	0	0	0	0	0	0	0	0	0	0	0	0
Seal Beach	1	2	124	0	0	0	0	0	0	184	538	427
Serrano WD	0	0	0	0	0	0	0	0	0	0	0	0
South Coast WD	9	114	56	422	84	148	0	382	0	0	1,320	509
Trabuco Canyon WD	0	4	0	0	0	0	0	0	0	0	11	15
Tustin	115	145	25	230	0	0	0	75	358	0	1,190	814
Westminster	40	161	16	63	35	1	28	0	146	79	1,040	995
Yorba Linda	10	24	8	30	0	1	0	0	226	0	511	555
MWDOC Totals	1,079	4,134	4,537	3,424	1,966	1,594	1,172	2,161	17,275	7,108	56,290	26,014
Anaheim	766	3,298	582	64	48	165	342	463	3,072	39	13,483	6,897
Fullerton	133	579	29	4	0	94	0	178	476	541	2,698	1,624
Santa Ana	493	815	728	39	12	16	17	5	1,293	230	5,729	4,667
Non-MWDOC Totals	1,392	4,692	1,339	107	60	275	359	646	4,841	810	21,910	13,188
Orange County Totals	2,471	8,826	5,876	3,531	2,026	1,869	1,531	2,807	22,116	7,918	78,200	39,203

[1] Retrofit devices include ULF Toilets and Urinals, High Efficiency Toilets and Urinals, Multi-Family and Multi-Family 4-Liter HETs, Zero Water Urinals, High Efficiency Clothes Washers, Cooling Tower Conductivity Controllers, Ph Cooling Tower Conductivity Controllers, Flush Valve Retrofit Kits, Pre-rinse Spray heads, Hospital X-Ray Processor Recirculating Systems, Steam Sterilizers, Food Steamers, Water Pressurized Brooms, Laminar Flow Restrictors, and Ice Making Machines.

Water Smart Landscape Program

Total Number of Meters
in Program by Agency

Agency	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	Overall Water Savings To Date (AF)
Brea	0	0	0	0	22	22	22	22	22	0	64.37
Buena Park	0	0	17	103	101	101	101	101	101	0	462.69
East Orange CWD RZ	0	0	0	0	0	0	0	0	0	0	0.00
El Toro WD	352	384	371	820	810	812	812	812	812	0	4,856.93
Fountain Valley	0	0	0	0	0	0	0	0	0	0	0.00
Garden Grove	0	0	0	0	0	0	0	0	0	0	0.00
Golden State WC	14	34	32	34	32	32	32	32	32	0	200.59
Huntington Beach	0	0	31	33	31	31	31	31	31	0	148.43
Irvine Ranch WD	708	1,008	6,297	6,347	6,368	6,795	6,797	6,769	6,780	0	38,304.89
Laguna Beach CWD	0	57	141	143	141	124	124	124	124	0	733.07
La Habra	0	23	22	24	22	22	22	22	22	0	136.72
La Palma	0	0	0	0	0	0	0	0	0	0	0.00
Mesa Water	165	286	285	288	450	504	511	514	515	0	2,943.57
Moulton Niguel WD	180	473	571	595	643	640	675	673	661	0	4,120.71
Newport Beach	58	142	171	191	226	262	300	300	300	0	1,501.19
Orange	0	0	0	0	0	0	0	0	0	0	0.00
San Clemente	227	233	247	271	269	269	299	407	459	0	2,368.77
San Juan Capistrano	0	0	0	0	0	0	0	0	0	0	0.00
Santa Margarita WD	945	1,571	1,666	1,746	1,962	1,956	2,274	2,386	2,386	0	14,178.10
Seal Beach	0	0	0	0	0	0	0	0	0	0	0.00
Serrano WD	0	0	0	0	0	0	0	0	0	0	0.00
South Coast WD	62	117	108	110	118	118	118	164	164	0	829.91
Trabuco Canyon WD	12	49	48	62	60	60	60	60	60	0	350.52
Tustin	0	0	0	0	0	0	0	0	0	0	0.00
Westminster	10	18	18	20	18	18	18	18	18	0	116.46
Yorba Linda WD	0	0	0	0	0	0	0	0	0	0	0.00
MWDOC Totals	2,733	4,395	10,025	10,787	11,273	11,766	12,196	12,435	12,487	0	71,316.9
Anaheim	0	0	142	146	144	190	190	190	190	0	1,351.53
Fullerton	0	0	0	0	0	0	0	0	0	0	0.00
Santa Ana	0	0	0	0	0	0	0	0	0	0	0.00
Non-MWDOC Totals	0	0	142	146	144	190	190	190	190	0	1,351.53
Orange Co. Totals	2,733	4,395	10,167	10,933	11,417	11,956	12,386	12,625	12,677	0	72,668.45

INDUSTRIAL PROCESS WATER USE REDUCTION PROGRAM **Number of Process Changes by Agency**

Agency	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	Overall Program Interventions	Annual Water Savings[1]	Cumulative Water Savings across all Fiscal Years[1]
Brea	0	0	0	0	0	0	0	0	0	0	0
Buena Park	0	0	0	0	0	0	1	0	2	54	437
East Orange	0	0	0	0	0	0	0	0	0	0	0
El Toro	0	0	0	0	0	0	0	0	0	0	0
Fountain Valley	0	0	0	0	0	0	0	0	0	0	0
Garden Grove	0	0	0	0	0	0	1	0	1	0	0
Golden State	0	0	0	0	0	0	0	0	1	3	26
Huntington Beach	0	0	0	2	0	1	2	0	5	132	408
Irvine Ranch	2	1	1	1	1	0	2	0	8	102	500
La Habra	0	0	0	0	0	0	1	0	1	0	0
La Palma	0	0	0	0	0	0	0	0	0	0	0
Laguna Beach	0	0	0	0	0	0	0	0	0	0	0
Mesa Water	0	0	0	0	0	0	0	0	0	0	0
Moulton Niguel	0	0	0	0	0	0	0	0	0	0	0
Newport Beach	0	0	0	0	0	1	0	0	1	21	46
Orange	0	0	0	0	0	0	1	2	4	88	394
San Juan Capistrano	0	0	0	0	0	0	0	0	0	0	0
San Clemente	0	0	0	0	0	0	0	0	0	0	0
Santa Margarita	0	0	0	0	0	0	0	0	0	0	0
Seal Beach	0	0	0	0	0	0	0	0	0	0	0
Serrano	0	0	0	0	0	0	0	0	0	0	0
South Coast	0	0	0	0	0	0	1	0	1	0	0
Trabuco Canyon	0	0	0	0	0	0	0	0	0	0	0
Tustin	0	0	0	0	0	0	0	0	0	0	0
Westminster	0	0	0	0	0	0	0	0	0	0	0
Yorba Linda	0	0	0	0	0	0	0	0	0	0	0
MWDOC Totals	2	1	1	3	1	2	9	2	24	401	1812
Anaheim	0	0	0	0	0	0	0	0	0	0	0
Fullerton	0	0	0	0	0	0	0	0	0	0	0
Santa Ana	0	0	0	0	0	0	1	0	1	11	203
OC Totals	2	1	1	3	1	2	10	2	25	412	2014

[1] Acre feet of savings determined during a one year monitoring period.
If monitoring data is not available, the savings estimated in agreement is used.

TURF REMOVAL BY AGENCY⁽¹⁾
through MWDOD and Local Agency Conservation Programs

Agency	FY 11/12		FY 12/13		FY 13/14		FY 14/15		FY 15/16		FY 16/17		Total Program		Cumulative Water Savings across all Fiscal Years
	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	
Brea	3,397	9,466	7,605	0	5,697	0	71,981	30,617	118,930	404,411	4,016	0	211,626	444,494	209,50
Buena Park	0	0	0	0	0	0	11,670	1,626	77,127	16,490	3,741	0	92,538	18,116	32,32
East Orange	0	0	0	0	1,964	0	18,312	0	27,844	0	0	0	48,120	0	16,59
El Toro	4,723	0	4,680	72,718	4,582	0	27,046	221,612	63,546	162,548	2,852	23,019	107,429	479,897	232,07
Fountain Valley	1,300	0	682	7,524	4,252	0	45,583	5,279	65,232	0	418	0	117,467	12,803	48,90
Garden Grove	14,013	0	4,534	0	8,274	0	67,701	22,000	177,408	49,226	11,504	0	283,434	117,403	167,57
Golden State	42,593	30,973	31,813	3,200	32,725	8,424	164,507	190,738	310,264	112,937	0	0	581,902	346,272	377,04
Huntington Beach	27,630	48,838	9,219	12,437	20,642	0	165,600	58,942	305,420	270,303	9,560	21,534	538,872	415,705	355,17
Irvine Ranch	6,450	1,666	32,884	32,384	36,584	76,400	234,905	317,999	782,844	2,675,629	89,480	38,722	1,188,570	3,155,594	1,352,14
La Habra	0	8,262	0	0	0	0	14,014	1,818	49,691	72,164	0	0	63,705	90,019	55,33
La Palma	0	0	0	0	0	0	4,884	0	10,257	59,760	0	0	15,141	59,760	21,66
Laguna Beach	2,533	0	2,664	1,712	4,586	226	13,647	46,850	47,614	0	0	0	72,022	48,788	47,58
Mesa Water	6,777	0	10,667	0	22,246	0	131,675	33,620	220,815	106,896	3,006	42,848	395,186	183,364	193,22
Moulton Niguel	4,483	26,927	11,538	84,123	14,739	40,741	314,250	1,612,845	889,748	1,059,279	125,885	0	1,361,599	2,840,054	1,573,87
Newport Beach	3,454	0	3,548	2,346	894	0	33,995	65,277	76,675	375,404	953	0	119,519	443,027	175,93
Orange	12,971	0	15,951	8,723	11,244	0	120,093	281,402	289,990	106,487	3,247	2,366	453,496	398,978	314,88
San Clemente	21,502	0	16,062	13,165	18,471	13,908	90,349	1,137	215,249	438,963	3,950	0	365,583	467,173	278,80
San Juan Capistrano	22,656	103,692	29,544	27,156	12,106	0	101,195	32,366	197,290	143,315	2,624	40,748	365,415	347,277	310,13
Santa Margarita	1,964	11,400	10,151	11,600	17,778	48,180	211,198	514,198	534,048	550,420	8,822	28,094	788,444	1,169,453	686,70
Seal Beach	0	0	3,611	0	0	0	15,178	504	17,349	15,911	0	0	36,138	16,415	18,43
Serrano	0	0	0	0	2,971	0	41,247	0	127,877	4,403	2,539	0	174,634	4,403	56,38
South Coast	6,806	0	9,429	4,395	15,162	116,719	84,282	191,853	181,102	128,290	3,312	0	300,093	457,581	308,31
Trabuco Canyon	272	0	1,542	22,440	2,651	0	14,771	0	42,510	88,272	0	0	61,746	110,712	61,32
Tustin	0	0	9,980	0	1,410	0	71,285	14,137	232,697	33,362	9,043	0	324,415	47,499	119,41
Westminster	0	0	0	0	0	0	14,040	34,631	71,833	23,902	5,894	0	91,767	58,533	48,07
Yorba Linda	0	0	0	0	0	0	112,136	12,702	360,279	116,985	15,958	0	499,722	129,687	199,42
MWDOD Totals	183,524	241,224	216,104	303,923	238,978	304,598	2,195,544	3,692,153	5,493,639	7,015,357	306,804	197,331	8,658,583	11,863,007	7,200,74

Anaheim	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Fullerton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.16
Santa Ana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Non-MWDOD Totals	0	0	0	0	0	9,214	0	0	0	0	0	0	0	9,214	5.16

Orange County Totals	183,524	241,224	216,104	303,923	238,978	313,812	2,195,544	3,692,153	5,493,639	7,015,357	306,804	197,331	8,658,583	11,872,221	7,206
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[1] Installed device numbers are listed as square feet

HIGH EFFICIENCY TOILETS (HETs) INSTALLED BY AGENCY through MWDOC and Local Agency Conservation Programs

Agency	FY05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	Total	Cumulative Water Savings across all Fiscal Years
Brea	0	2	7	43	48	8	0	0	38	146	154	4	450	77.50
Buena Park	0	1	2	124	176	7	0	0	96	153	112	3	674	156.36
East Orange CWD RZ	0	0	10	12	1	0	0	0	13	26	24	0	86	16.77
EI Toro WD	0	392	18	75	38	18	0	133	218	869	264	12	2,037	437.55
Fountain Valley	0	69	21	262	54	17	0	0	41	132	220	8	824	207.94
Garden Grove	0	14	39	443	181	24	0	0	63	350	363	3	1,480	348.05
Golden State WC	2	16	36	444	716	37	80	2	142	794	512	5	2,786	638.90
Huntington Beach	2	13	59	607	159	76	0	0	163	1,190	628	2	2,899	574.72
Irvine Ranch WD	29	1,055	826	5,088	2,114	325	0	1,449	810	1,777	2,798	501	16,772	4,558.29
Laguna Beach CWD	0	2	17	91	28	11	0	0	45	112	81	-1	386	84.65
La Habra	0	3	18	296	34	20	0	0	37	94	83	2	587	165.43
La Palma	0	1	10	36	26	13	0	0	21	59	52	0	218	46.77
Mesa Water	0	247	19	736	131	7	0	0	147	162	162	2	1,613	511.90
Moulton Niguel WD	0	20	104	447	188	46	0	0	400	2,497	1,939	39	5,680	856.16
Newport Beach	0	5	19	163	54	13	0	0	49	168	243	6	720	145.85
Orange	1	20	62	423	79	40	0	1	142	978	416	8	2,170	422.10
San Juan Capistrano	0	10	7	76	39	11	0	0	35	140	202	0	520	94.35
San Clemente	0	7	22	202	66	21	0	0	72	225	246	11	872	181.13
Santa Margarita WD	0	5	14	304	151	44	0	0	528	997	1,152	105	3,300	508.96
Seal Beach	0	678	8	21	12	1	0	2	17	50	69	-1	857	348.77
Serrano WD	2	0	0	13	5	0	0	0	2	40	55	3	121	18.39
South Coast WD	2	2	29	102	41	12	23	64	102	398	235	6	1,016	178.83
Trabuco Canyon WD	0	0	4	23	23	0	0	0	10	108	169	1	338	48.26
Tustin	0	186	28	387	479	17	0	0	64	132	201	13	1,507	460.79
Westminster	0	17	25	541	167	23	0	0	35	161	359	2	1,330	346.69
Yorba Linda WD	0	14	89	323	96	18	0	0	40	280	379	6	1,245	281.27
MWDOC Totals	38	2,779	1,494	11,282	5,106	809	103	1,651	3,330	12,038	11,118	740	50,488	11,716.38
Anaheim	0	255	78	2,771	619	114	0	0	156	1,188	614	47	5,842	1,691.17
Fullerton	0	4	28	286	60	23	0	0	61	293	286	11	1,052	223.22
Santa Ana	0	11	25	925	89	23	0	0	33	602	293	20	2,021	515.52
Non-MWDOC Totals	0	270	131	3,982	768	160	0	0	250	2,083	1,193	78	8,915	2,429.91
Orange County Totals	38	3,049	1,625	15,264	5,874	969	103	1,651	3,580	14,121	12,311	818	59,403	14,146.29

HOME WATER SURVEYS PERFORMED BY AGENCY

through MWDOC and Local Agency Conservation Programs

Agency	FY 13/14		FY 14/15		FY 15/16		Total		Cumulative Water Savings
	Surveys	Cert Homes	Surveys	Cert Homes	Surveys	Cert Homes	Surveys	Cert Homes	
Brea	1	0	2	0	0	0	3	0	0.16
Buena Park	0	0	1	0	0	0	1	0	0.05
East Orange	19	0	1	0	0	0	20	0	1.39
El Toro	0	0	3	0	0	0	3	0	0.14
Fountain Valley	3	0	4	0	1	0	8	0	0.42
Garden Grove	0	0	6	0	1	0	7	0	0.31
Golden State	0	0	0	0	0	0	0	0	0.00
Huntington Beach	2	0	5	0	2	0	9	0	0.42
Irvine Ranch	1	0	3	0	6	0	10	0	0.35
La Habra	0	0	1	0	0	0	1	0	0.05
La Palma	0	0	0	0	0	0	0	0	0.00
Laguna Beach	4	0	8	0	1	0	13	0	0.68
Mesa Water	0	0	0	0	0	0	0	0	0.00
Moulton Niguel	4	0	4	0	0	0	8	0	0.47
Newport Beach	2	0	8	0	6	0	16	0	0.66
Orange	2	0	18	0	1	0	21	0	1.01
San Clemente	15	0	13	0	0	0	28	0	1.67
San Juan Capistrano	4	0	13	0	2	0	19	0	0.94
Santa Margarita	15	0	40	1	14	0	69	1	3.27
Seal Beach	0	0	1	0	2	0	3	0	0.09
Serrano	0	0	2	0	0	0	2	0	0.09
South Coast	6	0	4	0	1	0	11	0	0.64
Trabuco Canyon	0	0	4	0	0	0	4	0	0.19
Tustin	0	0	10	0	5	0	15	0	0.59
Westminster	0	0	0	0	0	0	0	0	0.00
Yorba Linda	0	0	13	0	10	0	23	0	0.85
MWDOC Totals	78	0	164	1	52	0	294	1	14.44

Anaheim	0	0	0	0	0	0	0	0	0.00
Fullerton	0	0	17	0	1	0	18	0	0.82
Santa Ana	0	0	0	0	0	0	0	0	0.00
Non-MWDOC Totals	0	0	17	0	1	0	18	0	0.82
Orange County Totals	78	0	181	1	53	0	312	1	15.266

SYNTHETIC TURF INSTALLED BY AGENCY^[1] **through MWDOC and Local Agency Conservation Programs**

Agency	FY 07/08		FY 08/09		FY 09/10		FY 10/11		Total Program		Cumulative Water Savings across all Fiscal Years
	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	
Brea	0	0	2,153	2,160	500	0	0	0	2,653	2,160	3.30
Buena Park	0	0	1,566	5,850	0	0	0	0	1,566	5,850	5.19
East Orange	0	0	0	0	983	0	0	0	983	0	0.55
El Toro	3,183	0	2,974	0	3,308	0	895	0	10,360	0	6.98
Fountain Valley	11,674	0	1,163	0	2,767	0	684	0	16,288	0	12.46
Garden Grove	1,860	0	0	0	3,197	0	274	0	5,331	0	3.47
Golden State	6,786	0	13,990	0	15,215	0	2,056	0	38,047	0	24.88
Huntington Beach	15,192	591	12,512	0	4,343	1,504	0	0	32,047	2,095	25.29
Irvine Ranch	11,009	876	13,669	0	2,585	0	0	0	27,263	876	21.00
La Habra	0	0	0	0	0	0	0	0	0	0	-
La Palma	429	0	0	0	0	0	0	0	429	0	0.36
Laguna Beach	3,950	0	3,026	0	725	0	0	0	7,701	0	5.84
Mesa Water	4,114	0	3,005	78,118	4,106	0	2,198	0	13,423	78,118	63.46
Moulton Niguel	14,151	0	25,635	2,420	7,432	0	0	0	47,218	2,420	35.69
Newport Beach	2,530	0	6,628	0	270	0	0	0	9,428	0	6.92
Orange	4,169	0	7,191	0	635	0	0	0	11,995	0	8.89
San Clemente	9,328	0	11,250	455	2,514	1,285	500	0	23,592	1,740	18.37
San Juan Capistrano	0	0	7,297	639	2,730	0	4,607	0	14,634	639	9.02
Santa Margarita	12,922	0	26,069	0	21,875	0	7,926	0	68,792	0	44.68
Seal Beach	0	0	817	0	0	0	0	0	817	0	0.57
Serrano	7,347	0	1,145	0	0	0	0	0	8,492	0	6.97
South Coast	2,311	0	6,316	0	17,200	0	1,044	0	26,871	0	16.43
Trabuco Canyon	1,202	0	9,827	0	0	0	0	0	11,029	0	7.89
Tustin	6,123	0	4,717	0	2,190	0	0	0	13,030	0	9.67
Westminster	2,748	16,566	8,215	0	890	0	0	0	11,853	16,566	22.47
Yorba Linda	11,792	0	12,683	0	4,341	5,835	0	0	28,816	5,835	24.48
MWDOC Totals	132,820	18,033	181,848	89,642	97,806	8,624	20,184	0	432,658	116,299	384.83

Anaheim	4,535	0	7,735	20,093	13,555	65,300	4,122	0	29,947	85,393	69.18
Fullerton	4,865	876	5,727	0	6,223	0	105	0	16,920	876	12.36
Santa Ana	0	0	2,820	0	525	0	0	0	3,345	0	2.27
Non-MWDOC Totals	9,400	876	16,282	20,093	20,303	65,300	4,227	0	50,212	86,269	83.81

Orange County Totals	142,220	18,909	198,130	109,735	118,109	73,924	24,411	0	482,870	202,568	468.63
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[1] Installed device numbers are calculated in square feet

ULF TOILETS INSTALLED BY AGENCY
through MWDOC and Local Agency Conservation Programs

Agency	Previous Years	FY 95-96	FY 96-97	FY 97-98	FY 98-99	FY 99-00	FY 00-01	FY 01-02	FY 02-03	FY 03-04	FY 04-05	FY 05-06	FY 06-07	FY 07-08	FY 08-09	Total	Cumulative Water Savings across all Fiscal Years
Brea	378	189	299	299	122	144	867	585	341	401	26	48	17	4	0	3,720	1,692.64
Buena Park	361	147	331	802	520	469	524	1,229	2,325	1,522	50	40	18	9	0	8,347	3,498.37
East Orange CWD RZ	2	0	33	63	15	17	15	50	41	44	19	18	13	2	0	332	138.23
El Toro WD	1,169	511	678	889	711	171	310	564	472	324	176	205	61	40	0	6,281	3,091.16
Fountain Valley	638	454	635	858	1,289	2,355	1,697	1,406	1,400	802	176	111	58	32	0	11,911	5,383.10
Garden Grove	1,563	1,871	1,956	2,620	2,801	3,556	2,423	3,855	3,148	2,117	176	106	67	39	0	26,298	12,155.41
Golden State WC	3,535	1,396	3,141	1,113	3,024	2,957	1,379	2,143	3,222	1,870	167	116	501	43	0	24,607	11,731.47
Huntington Beach	3,963	1,779	2,600	2,522	2,319	3,492	3,281	2,698	3,752	1,901	367	308	143	121	0	29,246	13,854.70
Irvine Ranch WD	4,016	841	1,674	1,726	1,089	3,256	1,534	1,902	2,263	6,741	593	626	310	129	0	26,700	11,849.23
Laguna Beach CWD	283	93	118	74	149	306	220	85	271	118	32	26	29	6	0	1,810	845.69
La Habra	594	146	254	775	703	105	582	645	1,697	1,225	12	31	6	7	0	6,782	2,957.73
La Palma	65	180	222	125	44	132	518	173	343	193	31	27	20	17	0	2,090	927.52
Mesa Water	1,610	851	1,052	2,046	2,114	1,956	1,393	1,505	2,387	988	192	124	56	14	0	16,288	7,654.27
Moulton Niguel WD	744	309	761	698	523	475	716	891	728	684	410	381	187	100	0	7,607	3,371.14
Newport Beach	369	293	390	571	912	1,223	438	463	396	1,883	153	76	36	16	0	7,219	3,166.77
Orange	683	1,252	1,155	1,355	533	2,263	1,778	2,444	2,682	1,899	193	218	88	53	4	16,600	7,347.93
San Juan Capistrano	1,234	284	193	168	323	1,319	347	152	201	151	85	125	42	39	0	4,663	2,324.42
San Clemente	225	113	191	65	158	198	667	483	201	547	91	66	37	34	0	3,076	1,314.64
Santa Margarita WD	577	324	553	843	345	456	1,258	790	664	260	179	143	101	29	0	6,522	3,001.01
Seal Beach	74	66	312	609	47	155	132	81	134	729	29	10	6	12	0	2,396	1,073.80
Serrano WD	81	56	68	41	19	52	95	73	123	98	20	15	14	2	0	757	338.66
South Coast WD	110	176	177	114	182	181	133	358	191	469	88	72	32	22	0	2,305	990.05
Trabuco Canyon WD	10	78	42	42	25	21	40	181	102	30	17	20	12	14	0	634	273.02
Tustin	968	668	557	824	429	1,292	1,508	1,206	1,096	827	69	89	26	12	0	9,571	4,423.88
Westminster	747	493	969	1,066	2,336	2,291	2,304	1,523	2,492	1,118	145	105	70	24	0	15,683	7,064.28
Yorba Linda WD	257	309	417	457	404	1,400	759	1,690	1,155	627	158	136	81	41	0	7,891	3,409.49
MWDOC Totals	24,256	12,879	18,778	20,765	21,136	30,242	24,918	27,175	31,827	27,568	3,654	3,242	2,031	861	4	249,336	113,878.61

Anaheim	447	1,054	1,788	3,661	1,755	7,551	4,593	6,346	9,707	5,075	473	371	462	341	1	43,625	18,359.52
Fullerton	1,453	1,143	694	1,193	1,364	2,138	1,926	2,130	2,213	1,749	172	77	44	23	2	16,321	7,435.23
Santa Ana	1,111	1,964	1,205	2,729	2,088	8,788	5,614	10,822	10,716	9,164	279	134	25	5	0	54,644	22,887.95
Non-MWDOC Totals	3,011	4,161	3,687	7,583	5,207	18,477	12,133	19,298	22,636	15,988	924	582	531	369	3	114,590	48,682.70

Orange County Totals	27,267	17,040	22,465	28,348	26,343	48,719	37,051	46,473	54,463	43,556	4,578	3,824	2,562	1,230	7	363,926	162,561.30
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