MEETING OF THE BOARD OF DIRECTORS OF THE
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
Jointly with the
**PLANNING & OPERATIONS COMMITTEE**
February 6, 2017, 8:30 a.m.
MWDOC Conference Room 101

**P&O Committee:**
Director L. Dick, Chair
Director J. Finnegan
Vacant

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

Ex Officio Member: W. Osborne

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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. ADOPT RESOLUTION DECLARING "WATER SUPPLY WATCH - END OF EMERGENCY DROUGHT CONDITIONS"

   *Recommendation:* *Adoption of a Resolution requesting the Governor and State Water Board to end the declared statewide drought emergency and withdraw drought emergency water use regulations as well as change from Condition 2 – Water Supply Alert, to Condition 1 – Water Supply Watch.*

   *(Reconvene as Planning & Operations Committee)*

**ACTION ITEMS**

2. WEB HOSTING AND ANNUAL SUPPORT FOR THE CALIFORNIA SPRINKLER ADJUSTMENT NOTIFICATION SYSTEM

3. REFINEMENTS TO THE TURF REMOVAL REBATE PROGRAM

**DISCUSSION**

4. UPDATE ON ISSUES ASSOCIATED WITH THE OC WATER RELIABILITY STUDY

**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.)

5. UPDATE REGARDING STATUS OF LOCAL RESOURCES PROGRAM (LRP) PROJECTS

6. UNTREATED FULL SERVICE/REPLENISHMENT WATER PURCHASES FOR THE ORANGE COUNTY BASIN IN CY 2016

7. 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

8. 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.

**Item No. 1**

**ACTION ITEM**
February 6, 2017

**TO:** **The Board of Directors**

**FROM:** **Robert Hunter, General Manager**

Staff Contact: Harvey De La Torre, Damon Micalizzi, Melissa Baum-Haley

**SUBJECT:** **ADOPT RESOLUTION DECLARING "WATER SUPPLY WATCH – END OF EMERGENCY DROUGHT"**

## RECOMMENDATION

It is recommended the Board of Directors adopt a Resolution requesting the Governor and State Water Board to end the declared statewide drought emergency and withdraw drought emergency water use regulations, as well as change from Condition 2 – Water Supply Alert, to Condition 1 – Water Supply Watch.

## COMMITTEE RECOMMENDATION

The full Board will consider this item at the February 6, 2017 Planning & Operations Committee.

## REPORT

Staff recommends the adoption of a resolution requesting the Governor and State Water Resources Control Board to end the declared statewide drought emergency and withdraw drought emergency water use regulations as well as change the District's water supply condition from a "Condition 2 – Water Supply Alert" to "Condition 1 – Water Supply Watch". This recommended change is due to this year's improved water supply conditions that have increased State Water Project deliveries, refilled key state and local reservoirs, and improved storage levels. Moreover, this call for ending the drought emergency is critical to maintain credibility with the public and acknowledge the visible improvement in our water supply situation. We commend the public for remarkable water savings achieved throughout the declared drought emergency, and have great confidence that our residents and businesses have adopted water use efficiency as a way of life, and will to continue to be mindful of their water use.

Attached – MWDOC Resolution

| | | | |
|---|---|---|---|
| **Budgeted (Y/N): N** | Budgeted amount: None | Core __ | Choice __ |
| **Action item amount: N/A** | Line item: | | |
| **Fiscal Impact (explain if unbudgeted):** | | | |

**RESOLUTION NO. _____**

OF THE BOARD OF DIRECTORS OF THE MUNICIPAL WATER DISTRICT OF ORANGE COUNTY DECLARING "WATER SUPPLY WATCH – END OF EMERGENCY DROUGHT"

**Whereas**, following five years of below average precipitation, Orange County is no longer listed as suffering exceptional or extreme drought conditions and while some element of drought may still exist in the state, the "emergency" is clearly over; and

**Whereas**, precipitation for the first four months of water year 2016-2017 has been 255 percent of normal in Orange County, 198 percent of normal for Northern California, and 137 percent of normal for the Upper Basin of the Colorado River; and

**Whereas**, on January 18, 2017, the California Department of Water Resources officially reported the State Water Project's "Table A" Allocation is at 60 percent of contract amounts for 2017 in comparison to 35 percent, 5 percent and 20 percent for 2013, 2014, and 2015, respectively; and

**Whereas,** the Metropolitan Water District of Southern California (Metropolitan) water storage ended calendar year 2016 at 1.3 million acre-feet and is likely to increase by an additional 400,000 to 600,000 acre-feet this year; and

**Whereas**, the residents, cities and water agencies serving Orange County's population of 3.1 million have achieved an extraordinary accomplishment by saving nearly 19 percent (more than 59,500 acre-feet) over the past 6 reporting months, exceeding the countywide voluntary reduction of 10 percent; and

**Whereas,** key State reservoirs including Oroville and San Luis are at or near capacity**;** and

**Whereas**, Orange County residents are aware that efficient water use is critical to help ensure Orange County has enough water to maintain our quality of life and thriving economy; and

**Whereas,** regional and local water agencies have placed great emphasis on developing long-term local water-supply and storage projects; and

**Whereas,** the State Water Resources Control Board (SWRCB) on Wednesday, February 8, 2017 will consider whether to readopt Drought Related Emergency Regulations; and

**Whereas,** Public trust in local water agencies will be irreparably damaged if the SWRCB on February 8, 2017 votes to continue the "emergency" declaration; and

**Now, therefore, be it resolved that the** Municipal Water District of Orange County Board of Directors call for an end to emergency drought conditions; and encourages Governor Brown and the SWRCB to end the statewide drought emergency and withdraw drought emergency water use regulations s; and

**Be it further resolved**, the Municipal Water District of Orange County continues to support the efficient use of water and declares a "Condition 1 – Water Supply Watch" within the District's service area, which encourages every Orange County water agency to continue voluntary water use efficiency measures.

Said Resolution was adopted on February __, 2017, by the following roll call vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

I HEREBY CERTIFY the foregoing is a full, true and correct copy of Resolution No. ____ adopted by the Board of Directors of Municipal Water District of Orange County at its meeting held on February __, 2017.

_____
Maribeth Goldsby, Secretary
Municipal Water District of Orange County

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

**Item No. 2**

**ACTION ITEM**
February 15, 2017

**TO:** Board of Directors

**FROM:** **Planning & Operations Committee**
(Directors Dick and Finnegan)

Robert Hunter
General Manager

Staff Contact: J. Berg
Director of Water Use Efficiency

**SUBJECT:** **Web Hosting and Annual Support for the California Sprinkler Adjustment Notification System**

## STAFF RECOMMENDATION

Staff recommends the Board of Directors authorize the General Manager to enter into a professional services contract with Enterprise Information Systems, Inc. for annual web hosting and maintenance of the California Sprinkler Adjustment Notification System at a cost not to exceed $14,400.

## COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

## SUMMARY

In October 2012, the Board authorized staff to develop and implement the California Sprinkler Adjustment Notification System (CSANS). The CSANS allows urban irrigators to voluntarily register to receive regular emails containing an updated irrigation index factor specific to their property location. The factor is used to make global irrigation scheduling adjustments on irrigation timers that have a percent adjustment feature. Essentially, CSANS allows property owners to turn their "dumb" irrigation timers into smart timers at no cost. The difference between CSANS and Metropolitan's Watering Index is that CSANS sends, or pushes, the localized index to customers rather than requiring the customer to pull generic information from the Bewaterwise.com website.

CSANS produced a web site widget (application), posted on the MWDOC website, that allows Orange County residents to enroll in this educational program. If our member agencies choose to administer CSANS for their customers all they need to do is post

| | | | |
|---|---|---|---|
| **Budgeted (Y/N): Partial** | Budgeted amount: $2,400 | Core __ | Choice _X_ |
| **Action item amount: $14,400** | Line item: 62-7040 | | |
| **Fiscal Impact (explain if unbudgeted):** While the full amount of $14,400 was not budgeted for CSANS (only $2,400 was budgeted for web-hosting) budgeted funds for program marketing are available, while maintaining overall expenditures within budget for the year. | | | |

the widget on their website and provide customized messaging, at no cost to the retail agency.

In addition to the irrigation index factor, MWDOC and IRWD provide customized email messages, such as seasonally appropriate gardening suggestions, California Friendly plant spotlights, rebate program information, water supply updates, etc. A sample CSANS e-mail is provided as Attachment 1. MWDOC currently has over 80 customized messages that can be sent to CSANS subscribers. New messages are created on a regular basis.

**Figure 1**
**California Sprinkler Adjustment Notification System Widget**


CSANS was developed in partnership with the California Department of Water Resources (DWR) and relies on evapotranspiration (ET) data from DWR's California Irrigation Management Information System (CIMIS). ET is the amount of water that has evaporated from the soil and transpired from plant material in a given period of time. ET considers a number of factors, such as wind, humidity, temperature, and solar radiation. All of these characteristics of weather vary throughout the year, as do the water requirements of plants. CIMIS has a network of more than 230 weather stations throughout California. Each of the weather stations houses a suite of sensors that measure the weather parameters needed to calculate ET. The calculated ET value can be used to estimate the amount of irrigation needed to maintain the health of plants in both urban and agricultural settings.

In July 2015 the MWDOC Board authorized staff to develop a Base Irrigation Schedule Calculator to assist consumers to establish irrigation schedules for CSANS. This Base Irrigation Schedule Calculator can also be used outside of CSANS as a monthly irrigation scheduling tool.

It has been DWR's intent to significantly expand the use of CIMIS data through a CSANS type tool. Keeping this in mind, MWDOC staff worked very closely with DWR's CIMIS staff to develop the mathematical calculations for the weekly and monthly irrigation index factors used by CSANS. DWR has monitored the development of

CSANS over time and asked that it be implemented more broadly before they deploy it state-wide. In 2016, utilizing a grant from DWR, staff worked with the California Urban Water Conservation Council to implement CSANS in the East Bay Municipal Utilities District and Bay Area Water Supply and Conservation Agency service areas. These agencies will begin promoting and administering CSANS within the next few months. More recently, staff introduced CSANS to the Association of California Water Agencies (ACWA) to encourage its use of CSANS within the state-wide Save Our Water Campaign that is being implemented in partnership with DWR.

The purpose of this staff report is to request Board authorization for the General Manager to enter into a professional services contract with Enterprise Information Systems, Inc. (EIS) for annual web hosting and maintenance of the California Sprinkler Adjustment Notification System at a cost not to exceed $14,400.

## DETAILED REPORT

Staff has been administering CSANS since late 2014. Currently, there are more than 370 CSANS subscribers in Orange County; 101 are receiving weekly reports and 272 are receiving monthly reports. Annually, this represents a total of 8,516 CSANS reports to Orange County consumers. While program growth has been slow, more MWDOC member agencies are expressing an interest in marketing and administering CSANS themselves. Irvine Ranch Water District (IRWD) began administering CSANS in November 2016.

It is time to renew the annual web hosting for CSANS with EIS at a budgeted cost of $2,400. At the same time, staff is proposing to enter into an annual maintenance contract with EIS for an additional $12,000 per year. While web hosting will be billed all at once, annual maintenance will be billed quarterly. Annual maintenance is needed to fix any existing or new issues that arise during the year. Currently, there are three fixes that are needed:

- CSANS relies on Google Earth to geo-locate the CSANS user so that the correct evapotranspiration data is used to calculate their irrigation factor. In approximately November 2016, Google changed their geo-locating protocol, which needs to be updated in CSANS. Until this is fixed, no new subscribers can register to receive CSANS messages.

- The MWDOC logo should appear in the top right corner of the e-mail header when it is viewed on the computer and in printed form. This needs to be fixed to ensure the MWDOC logo is visible.

- Zip code (92677) in the Moulton Niguel Water District service area provides a 100% irrigation index every week. This index factor should be changing on a weekly or monthly basis as weather changes.

- Reporting should be on a retail or regional (MWDOC) basis.

These are examples of fixes that are currently needed. The annual maintenance contract will provide for these fixes along with any other fixes that come up during the year. This annual maintenance contract will ensure that CSANS is working properly as

other agencies such as DWR or ACWA consider expanding its use.

Vision for the future:
While CSANS was originally created by MWDOC for Orange County, since its development, it has become apparent that CSANS could be implemented state-wide. Staff has the following vision for broadening the use of and funding of CSANS:

- Hand over administration to DWR (or other state-wide organization) for state-wide implementation and financial support.

- Improve CSANS analytics to better track participants including e-mail open rates, click-through rates on messages, ability to survey participants, etc.

- Include a drought factor range – to allow agencies to customize the irrigation index factor to accommodate their local drought response needs. For example, if the agency is calling for a 15% drought response and the actual index is 80%, the agency could send an irrigation index range of 65% (drought response) to 80%.

- Develop a message clearinghouse - to allow administrators to share messages between agencies to streamline message development and sharing of creative messaging ideas. This would also include the creation of message categories for message organization.

- Develop mobile phone and tablet applications - to expand accessibility to other media platforms.

Consultant Selection:
The consultant MWDOC used to develop CSANS is Enterprise Information Systems (EIS). MWDOC selected EIS as a sole source contract because they have been used extensively by DWR for the last four refinements to CIMIS. EIS is a certified small business based in Sacramento and has been DWR's primary information technology consultant to refine the CIMIS. The California Department of General Services has certified EIS as a California Multiple Award Schedules (CMAS) contractor that offers information technology products and services at prices which have been assessed to be fair, reasonable, and competitive. DWR staff has confirmed that EIS is uniquely qualified to develop CSANS due to their familiarity with CIMIS. Recent work completed by EIS provides continuity in completing the proposed work, and EIS has demonstrated an ability to perform successfully with DWR and with MWDOC. An updated Sole Source form is provided as Attachment 2.

Staff requests the Board authorize the General Manager to enter into a professional services contract with Enterprise Information Systems, Inc. for annual web hosting and maintenance of the California Sprinkler Adjustment Notification System at a cost not to exceed $14,400.

## Joe Berg

**From:** sanswebmaster@gmail.com
**Sent:** Friday, January 27, 2017 6:01 AM
**To:** Joe Berg
**Subject:** CSANS Weekly Sprinkler Adjustment

Santa Margarita Water District

**Here's your Sprinkler Adjustment Percentage**
Thank you for using water wisely

Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, CA 92688

# Please adjust your controller to 10%

Effective for the week of 1/27/2017
for property located in Rancho Santa Margarita, CA 92688

### Capture this Rain!

Now is the perfect time to install a rain barrel. Rain barrels allow you to capture the rain water that falls on your roof and reuse it to water your plants. Rain barrels rebates up to $35 are available at http://www.ocwatersmart.com/barrels. Read More

### Turn it off!

While its raining, don't forget to turn off your sprinklers during the rain and 48 hours following a rain event. Read More

### California Friendly Plant Spotlight

Baja Bush-snapdragon: This Baja native will bloom throughout the year in many Southern California areas. Prefers well drained soils. Is extremely fast growing to 3-4'H x 3-4'W. Should be pruned 1-2 times per year to control shape. An absolute favorite of hummingbirds. For planting information, visit http://www.bewaterwise.com/gardensoft/plant_description.aspx?PlantID=1927
Read More

Want less frequent adjustments? Switch to monthly delivery. You may also unsubscribe or email the CSANS Program Administrator.

# MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

*Fiscal Year 2016-17*

***Sole Source Procurement Justification for Projects under $25,000****

A. Supplier Information/Name of Company and Prime Contact at the Supplier and at MWDOC:

Enterprise Information System, Inc. (EIS)
Carlos Ortega, Chief Architect
5403 Tares Circle
Elk Grove, CA. 95757

B. Contract awards to Supplier over prior 36-months: None, however, the Board authorized a sole source contract with EIS in October 2012.

C. Product(s) or Service(s) to be provided and Deliverables: Annual web hosting and maintenance of the California Sprinkler Adjustment Subscription System.

D. Justification Definition**: The original sole source justification was that EIS successfully completed two previous phases of work leading to the development of the California Sprinkler Adjustment Notification System. The current sole source justification is that EIS successfully developed CSANS for MWDOC.

E. Narrative Explanation: EIS was selected by the California Department of Water Resources through three successive request for proposals processes to enhance the California Irrigation Management Information System (CIMIS). These selections resulted in EIS being certified as a California Multiple Award Schedules (CMAS) contractor by the California Department of General Services. The CMAS certification verified EIS offers information technology products and services at prices which have been assessed to be fair, reasonable, and competitive.

F. Budget Line Item Reference: $14,400 from budget line item 62-7040

G. Core or Choice designation: The California Sprinkler Adjustment Subscription System is a Choice Water Use Efficiency project.

H. Signature/Approvals:

Joseph M. Berg, Director of Water Use Efficiency
Requestor Date

General Manager Date

* Projects over $25,000 must go to a Committee of the Board.
** Possible justifications include but are not limited to: Only qualified bidder; Proprietary item; Urgent necessity; Bid process did not produce competitors; Governmental agency, association or Utility; Prior phase of professional services contract completed successfully by same Consultant; and Special technical expertise by Consultant for tasks desired.

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

**Item No. 3**

**ACTION ITEM**
February 15, 2017

**TO:** Board of Directors

**FROM:** **Planning & Operations Committee**
(Directors Dick and Finnegan)

Robert Hunter
General Manager

Staff Contact: J. Berg
Director of Water Use Efficiency

**SUBJECT:** **Refinements to the Turf Removal Rebate Program**

## STAFF RECOMMENDATION

Staff recommends the Board of Directors authorize the addition of Electronic signatures and Spray-to-Drip rebate processing into Year II of the Droplet Technologies agreement at a cost not to exceed $23,500.

## COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

## SUMMARY

The Water Use Efficiency Department is now concluding the first year of using the Droplet Technologies rebate processing platform. Transitioning to this new rebate processing platform came about through an independent Turf Removal Rebate Program Quality Control and Process Evaluation presented to the Board in June 2015. The new platform was needed due to the significant increase in program participation and customer service needs for both member agencies and participants. This platform was also created with the anticipation of administering the Spray-to-Drip Rebate Program in the same rebate processing platform.

The purpose of this staff report is to inform the Board that we are now transitioning to Year II of this effort and to request authorization to add Electronic signatures and processing of Spray-to-Drip rebates beginning in Year II.

| | | | |
|---|---|---|---|
| **Budgeted (Y/N): Y** | Budgeted amount: $25,000 | Core __ | Choice _X_ |
| **Action item amount: $23,500** | Line item: 62-7040 | | |
| **Fiscal Impact (explain if unbudgeted):** $16,750 for Electronic Signatures and $6,750 to incorporate the Spray-to-Drip Rebate Program into the Droplet rebate processing platform. | | | |

## DETAILED REPORT

### Electronic Signatures

As a result of the Turf Removal Rebate Program's (TRRP) recent evaluation, along with requests from member agencies to streamline the application process, staff is proposing electronic signatures in the TRRP. Currently, the application, pre-inspection, letter to proceed and post-inspection utilize a "check a box to accept" method of acknowledging program requirements for participants applying for a rebate and member agencies processing pre- and post-retrofit inspections. Requiring electronic signatures would make these steps more secure, legal, and enforceable. Droplet Technologies, Inc. has incorporated DocuSign electronic signatures into the rebate processing platform. DocuSign meets or exceeds all Uniform Electronic Transaction Act and Electronic Signatures in Global and National Commerce Act requirements.

As detailed in the Water Conservation Participation Agreement between MWDOC and member agencies and the newly developed Addendum 3B to that agreement, an authorizing signature from the member agency (or their 3rd party designee) approving the eligible square footage is required for the pre- and post-inspection work orders. Addendum 3B requires the member agency General Manager/designee's approval of individuals authorized to sign pre- and post-inspection work orders. Inspection work orders contain language that certifies inspections are conducted in accordance with the "MWDOC Inspection and Verification Procedures." Currently, the pre-inspection and post-inspection documents are supplied via hard copy and scanned into our online database in order to move the project forward. This manual processing of inspection documents is labor intensive for both MWDOC and member agencies and would be eliminated with electronic signatures.

Electronic signatures will take the place of printing, writing applicant information down, signing, scanning, and uploading each application at the application stage, pre inspection stage, letter-to-proceed stage, and post inspection stage. Below is a breakdown of the required signatures.

| | Stage | Signer | Purpose |
|---|---|---|---|
| 1 | Application | Participant | To accept Terms and Conditions |
| 2 | Pre Inspection | Retail Water Agency | To confirm Pre inspection was performed in accordance with program requirements |
| 3 | Letter to Proceed | Participant | To accept maximum square footage for rebate eligibility and restate Terms and Conditions |
| 4 | Post Inspection | Retail Water Agency | To confirm Post inspection was performed in accordance with program requirements |

Droplet Technologies, who administers our online rebate application and document processing database, will administer the electronic signatures using DocuSign. The cost includes a one-time eSignature setup fee of $250 and approximately $1.65 per signature, which is paid annually. We expect that we will see approximately 2,500 applications per year (Turf Removal and Spray-to-Drip applications) that would require four signatures each for a total of 10,000 signatures. The annual cost is $16,500.

## Spray-to-Drip Rebate Processing

Staff has been administering the Spray-to-Drip Rebate program for the past 3 years using the same antiquated rebate processing framework as our original Turf Removal Rebate Program. Droplet Technologies, Inc. now has a Spray-to-Drip Rebate module that can be added into the new Turf Removal Rebate Processing platform that MWDOC has been using for the last year. This new module utilizes the same step by step process for Turf Removal and Spray-to-Drip rebate applications and will include electronic signatures as described above. Additionally, if a resident wanted to participate in both programs, they would complete one combined rebate application, further streamlining the process for both program participants and staff processing rebates. Two applications would no longer be required to participate in both programs.

The cost to add Spray-to-Drip software as a service module to the rebate processing platform is $6,750, which includes an annual licensing fee of $6,000 and a one-time Wholesale Agency On-Boarding fee of $750.

The combined cost to add electronic signatures and the Spray-to-Drip rebate processing module is $23,500. Anticipating the Spray-to-Drip rebate processing module would become available this year, staff budgeted $25,000 to include it in the program. Staff recommends the Board of Directors authorize the addition of Electronic signatures and Spray-to-Drip rebate processing into Year II of the Droplet Technologies agreement at a cost not to exceed $23,500.

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

**Item No. 4**

**DISCUSSION ITEM**
February 6, 2017

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

**FROM:** **Robert Hunter**
**General Manager**

Staff Contact: Karl Seckel

**SUBJECT:** **Update on Issues Associated with the OC Water Reliability Study**

## STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee receives and files the report and provides input as appropriate.

## COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

## SUMMARY

Several events have recently occurred that staff believes should be further investigated with respect to the OC Water Reliability Study (Study). These issues include:

- More clearly delineate the future costs and benefits of new local water supply projects in Orange County.
- Evaluate the implications of developing future local water supplies including impacts to MET and to future flow conditions in pipelines in Orange County. The economic efficiencies of projects should also be considered along with a "selective process" to

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|---|---|---|---|
| **Budgeted (Y/N): Yes** | Budgeted amount: | Core ✓ | Choice __ |
| **Action item amount: n/a** | Line item: | | |
| **Fiscal Impact (explain if unbudgeted):** Staff time only at this time; consulting expenses will be developed. | | | |

reflect that some projects may involve additional benefits than simply a supply to help close the GAP (the difference between supplies and demands).

- Updating the modeling work with respect to changed conditions with respect to the Colorado River Drought Contingency Plan and possibly with the Santa Ana River base flow assumption.

## DETAILED REPORT

This report will cover several topics which will provide:

- A summary recap of conclusions/observations from the Orange County Water Reliability Study
- Examples of how reliability curves can inform decision-making
- A discussion of low flow issues and the implications for future projects
- A discussion of recommended additional work

### Summary of Conclusions/Observations of the Reliability Study

The OC Water Reliability Study (Study) has been published. There have been differing interpretations of what the Study indicates or doesn't indicate with respect to the need for future local supply projects. Therefore, staff would like to summarize the findings for the P&O Committee for discussion purposes and more particularly focus on the implications as it relates to the Poseidon Project, the Carson Project and the California WaterFix.

The Study notes the following:

- Orange County's future water reliability as well as the reliability of other areas in Southern California are inextricably tied to the success of Metropolitan Water District of Southern California's (MET's) Integrated Resources Plan (IRP), which calls for investments in both imported water and new local water supplies to meet the needs of 19 million residents.
- Under MET's IRP, whenever a NEW local water supply project or water conservation measure are implemented anywhere in Southern California, our imported water from MET becomes more reliable. This occurs because there are fewer demands to be met from imported water sources as new supplies or conservation are put into place.
- When MET declares a water shortage of imported water, the amount of imported water that MET makes available is allocated among hundreds of local agencies across Southern California based on their "need" for imported water to meet demands in that year. As an agency develops new local projects, their "need" for MET water decreases and hence they receive a lower allocation. Agencies that develop new local supplies have a resulting reliability that is better than if they had not developed the local supplies, but not on a 1:1 basis. This relationship between

reliability and allocations of water during shortages keeps all agencies in Southern California working together to improve reliability. Because of the regional sharing of water, it also keeps any one agency from having complete control over their water reliability unless that agency does not need any MET imported water, which is extremely rare.

- Table 1 provides a simple comparison of how two agencies would perform under MET's Water Supply Allocation Plan when Agency A is 80% dependent on MET and Agency B is 100% dependent on MET and MET has called for a 20% cutback in imported water.

**Table 1**

| Simple Demonstration of MET's Water Supply Allocation Plan (WSAP) To Agency A with a Local Supply and Agency B Without a Local Supply | | | |
|---|---|---|---|
| | | **Agency A** | **Agency B** |
| **A.** | **Total Demands (AF per year)** | **10,000** | **10,000** |
| **B.** | **Local Suppy** | **2,000** | **-** |
| **C.** | **Demand on MET** | **8,000** | **10,000** |
| **D.** | **NEED for Import Water (A-B)** | **8,000** | **10,000** |
| **E.** | **Assume 20% Supply Shortage on import supplies declared by MET = 20% x D** | **1,600** | **2,000** |
| **F.** | **MET Allocation = Need for import water less the shortage amount (D-E)** | **6,400** | **8,000** |
| **G.** | **Plus Local Supply** | **2,000** | **-** |
| **H.** | **Supplies Under Allocation Plan (F+G)** | **8,400** | **8,000** |
| **I.** | **Reliability Under Shortage (H÷A)** | **84%** | **80%** |

**Conclusion: The reliability of Agency A is better off by 400 AF or 4% even though they developed a 2,000 AF local supply project; they are better off by the shortage level times the local project yield (this is simplified from the exact MET allocation formula)**

- Orange County's population will grow by about 10 percent, or 317,000 people, by 2040 while water use will remain fairly level or will slightly decline as Orange County's use of water becomes more and more water efficient. Orange County's 2040 water demand is projected to be 579,000 acre-feet. An acre-foot of water can supply about two and half to three families for a year. Water demands in the future can be higher or lower than those projected.
- **Without any new water investments** made at the regional imported or local levels, the Study reveals the County will face water shortages in eight of 10 years by the year 2040.
- **One single investment alone**, having the California WaterFix in operation, would result in shortages occurring no more often than 3 in 10 years in 2040. Additional investments will improve reliability further, however, the California WaterFix is the single most cost effective large-scale reliability improvement for Southern California.
- The Study concluded that North Orange County (Brea/La Habra and OCWD area) has more local groundwater supplies and a lower dependence on imported supplies and is able to manage through potential shortages by way of demand curtailment about once every 20 years; this area can also develop new water investments to improve reliability.
- The Study concluded that South Orange County needs new water investments to improve supply reliability, especially given the vulnerability with seismic disruptions of imported water. With South Orange County's heavy dependence on imported supplies the Study concluded that water shortage impacts could be significant by 2030 and even more extreme in later years, requiring the need for new supply investments.
- Another portion of the Study evaluated the emergency aspects earthquakes pose to meeting water demands while water systems are being restored from seismic damages. Imported supplies to Southern California cross the San Andreas and other faults numerous times exposing these major conveyance systems to extended outages of six months or more. The majority of the wells in North Orange County would survive an earthquake and continue to supply water if power to run them is available and if the local distribution system is intact. South Orange County has a much greater exposure because of its higher dependence on imported supplies and therefore supplies to meet emergency needs are required.
- Adaptive Management is key; the reliability of supplies is never "static" in California. Following are key "high impact issues" which can impact reliability planning. As these issues evolve, a change in direction may be required:

    1. Progress in getting the California WaterFix Project permitted and under construction
    2. Progress on other new water supply projects in Southern California. This includes the proposal by MET to treat recycled supplies to develop additional

supplies for groundwater replenishment. The almost $3 billion project helps to improve sustainability of local supplies to the region.

3. Major projects are being teed up in the Los Angeles and San Diego areas that involve groundwater treatment and regional recycling. If these move forward, they help MET's regional reliability.
4. Within the next two years, shortage conditions on the Colorado River could be triggered. Reaching shortage conditions for the oversubscribed river system could impact supplies to Southern California.
5. Policy and financial issues at MET include discussions on MET's Local Resources Program regarding how to ensure local projects that are needed are developed, that over-investing is avoided and that MET's long term business model ensure a financially healthy MET over the long run including the avoidance of stranding assets.
6. The impact regulations may have on water supplies via new Endangered Species Act listings or other regulations.

**Detailed Modeling (refer to Figure 6 for the various Portfolios)**

To complete the detailed modeling for the Study, the Study workgroup outlined a number of Portfolio Options to help to better understand the implications of certain projects moving forward or not. Portfolios are defined as "groups of projects" that could be implemented, whether they are implemented by MET, the MET member agencies or within Orange County. The key projects within the Portfolios include:

- California WaterFix
- Carson IPR
- Water Transfers or fallowing by MET
- Local Projects by MET's member agencies

Figure 6 provides the overview of six Portfolios, A through F, with A being the least reliable Portfolio and each successive Portfolio being more reliable including Portfolios D, E, and F all being Highly Reliable, but with differing assumptions on which projects are included. Only Portfolio F has the California WaterFix included. The modeling was approached in this manner to give the Study workgroup a sense for how reliable we would be under the various assumptions as sort of a sensitivity check. It was also realized that by using the Portfolios as outlined, it offered essentially three paths to a "Highly Reliable" future, two of which did not include the WaterFix.

The Study workgroup suggested that OC focus on Portfolio B for the next several years while promoting the California WaterFix. As issues evolve a change in direction may be necessary. Portfolio B still results in shortages occurring about 30% of the time. The Modeling completed for the three areas of OC (Brea/La Habra, OCWD and SOC) all utilized Portfolio B, which **does not include** the California WaterFix. Portfolio B assumes:

- Carson IPR at 100,000 AF (this is less than the total potential project size and was deemed an easier Phase 1 target to implement than the full sized project; it is also a more conservative assumption.)
- MET expansions of Transfers/Fallowing on the CRA at 130,000 AF to allow a full aqueduct when needed
- New Central Valley Transfers of 50,000 AF
- New local projects within MET of 162,000 AF. Of this total, we specifically selected four projects with an interim yield of 88,000 AF as being "highly likely to be developed". The projects are listed in Figure 6. We did not select the remaining projects to make up the 74,000 AF of local supplies required under this Portfolio. It is noted later in the agenda that the Poseidon Project could be one of the local projects making up this total.
- Assumes the CRA base flow from all sources is 920,000 AF per year with Lake Mead Intentionally Created Surplus (ICS) available to MET and 10% of the time it can go as high as 1.1 MAF. Staff is recommending we update this assumption based on the CR Drought Contingency Plan.
- The other item to note in this analysis is MET's average GAP (difference between supplies and demands) is 550,000 AF, compared to the NEW supplies for each Portfolio in Figure 6. Portfolio B develops 442,000 AF of NEW supplies, still leaving a small shortage (it was intended that this remaining shortage would be filled in as some of the key "high impact issues" fall into place or as other local projects develop).
- Portfolio C almost perfectly balances out MET's need by developing 537,000 AF of supplies.
- Portfolios D, E and F are all "Highly Reliable" with supply development on average exceeding the MET GAP shortage level of 550,000 AF per year.

**Comments on the Poseidon, Carson IPR and California WaterFix Projects**

Staff will be commenting on several projects below. When MWDOC proceeded with the Study it was agreed that MWDOC would not complete full evaluations on all projects and that we would not adopt recommended positions on specific projects; our role in the process was to help develop the information and provide example scenarios of how the information could be used. The example scenarios in the Study were only presented for South Orange County. Some of the examples presented below are for North County, they were not included in the Study and are, again, presented to help with the decision-making process.

Three projects are under discussion in various forums and include:

- Poseidon – The Poseidon Project was not specifically included or excluded from the Study analysis. It was shown for demonstration purposes in some of the South County Analyses for informational purposes, but it was not shown for North Orange County. The Portfolio B analysis for North County assumed that the remaining shortages under that Portfolio could be managed by the OCWD area and Brea/La Habra via demand management or by developing additional supplies. The Poseidon Project could also be part of the 74,000 AF of local supplies developed within the MET service area to make up the local projects under Portfolio B. Hence, staff would conclude that the Study does not specifically identify the Poseidon Project as being part of the plan to help MET or Orange County improve their reliability. It does not mean the project could not be developed for such purpose.

  Because the average shortages projected for the OCWD area are less than the yield of the Poseidon Project and because of the way the MET Water Shortage Allocation Plan works (previously discussed), staff believes that the majority of benefits from the Poseidon project would accrue to the MET service area. Staff recommends that additional work be conducted in this area to develop specific conclusions. The other missing part from the analysis is that the full costs of the project, including the integration costs, have not been fully outlined. OCWD staff are working on completing this work.

- Carson IPR – MET is planning the Carson IPR project at this time. It has an ultimate potential yield of 150 mgd or 168,000 AF per year. At the time the reliability Study modeling was completed the Carson project was being presented in three phases. For the Study, we combined phases 1 and 2 and included the project as being about 100 mgd or about 100,000 AF per year through phase 2. Under this scenario, we did not include the project being developed to its full size; it was suggested that this initial size project could be developed and the decision on the later expansions could be considered at a later date.

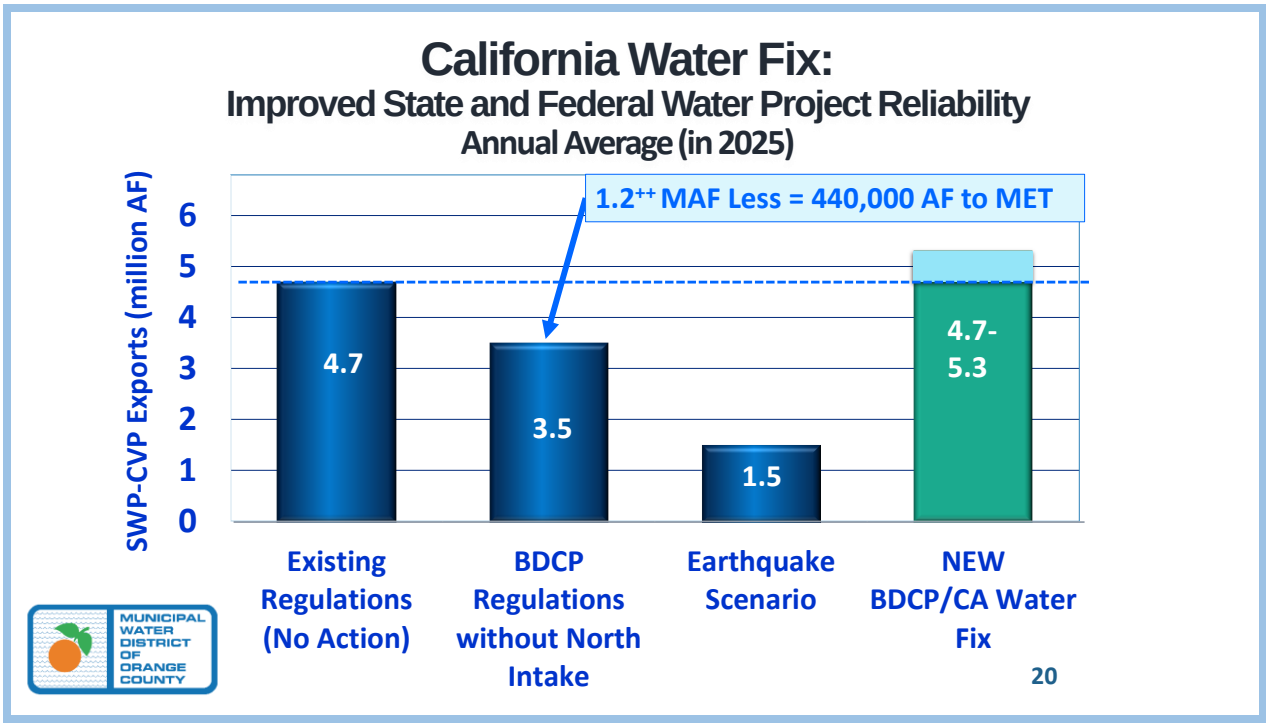
  The benefits of the Carson IPR project are that a new water supply is being created and melded into the MET rates and these supplies to the groundwater basin areas will utilize this highly treated recycled water and convert it to potable water by replenishing it through the groundwater basins and pumping it out for consumptive use. For the Study analyses, we assumed OCWD would receive 65,000 AF per year from MET either by direct delivery of water (treated or untreated) or via the Carson IPR project. Either of these two supplies helps to add replenishment water to the OCWD groundwater basin supplies and allows pumping out of the basin to be increased by a similar amount. If the Carson Project were not included as a base supply in the Study, an additional 100,000 AF per year of supply would have to be developed from another source in the form of local projects. The other benefit of the

Carson Project is that it is a local project totally under the development control of Southern California.

- California WaterFix – The recommended Portfolio B did not include the California WaterFix. The logic among the Study workgroup was that our next several years of planning should assume the WaterFix will not be included in our reliability resource mix and then changes can be made if/when we can determine that it will it come to fruition. It is more of a defensive position. The other issues with the California WaterFix are establishing the timing for the project to become operational and determining the additional yield compared to the project NOT moving forward.

  Construction of the WaterFix is estimated to take 13 years – the Study assumed the project to be operational by 2030. The yield of the project was modeled based upon supply curves developed by DWR. If the project is NOT implemented, estimates have been made about the level of potential exports from the Delta indicating that they will decline over time from the historical level of exports. The historical level of exports for the combined SWP & CVP systems have ranged from 4.7 to 5.3 MAF. Without the California WaterFix, the exports could decline to about 3.5 MAF. The estimates of these curves over all hydrologies results in a decline of MET's portion of these supplies in an amount of about 440,000 AF per year if the WaterFix does not come to fruition and so this same amount was used as the yield of the project if the project moves forward. The modeling assumed a decline in water supplies without the California WaterFix and the supply was added back in in the Portfolio where the WaterFix was assumed to proceed. Figure 1 presents a summary of the combined Delta Exports under various scenarios. This yield number can change depending on future regulatory processes.

**Figure 1**




**Probability Curves to Analyze Potential Shortages**

The output from the modeling includes 93 outcomes for each year modeled and so the results are displayed as reliability curves that provide the frequency and duration of potential water shortages. The curves provide information about future shortages, primarily how often they will occur and how large they will be. Figures 2 and 3 provide the shortage curves for the OCWD area and for South Orange County as examples from the Portfolio B analysis.

Both of these curves indicate that shortages of any magnitude would occur a little less than 30% of the time. Shortages that occur 1 to 2% of the time, every 50 to 100 years, are extreme events. In the Study, it was suggested that decisions about asking customers to decrease their usage as a method of managing through shortages should be left up to the local agencies. However, the Study also suggested that it may be appropriate to ask customers to help manage shortage events occurring no more often than once every 20 years (or less than 5% of the time). And because higher levels of water use efficiency are expected out into the future, demand curtailments not to exceed 10% conservation were suggested. The probability curves show the green dashed lines at about the 10% reduction level to demonstrate how shortages can be reduced by requesting help from consumers. Based on local decision-making, supplies could also be developed to meet the extreme events as well, but probably not through base-loaded projects, as it can be very expensive to develop supplies or storage to deal with these infrequent extreme events.

**Figure 2**

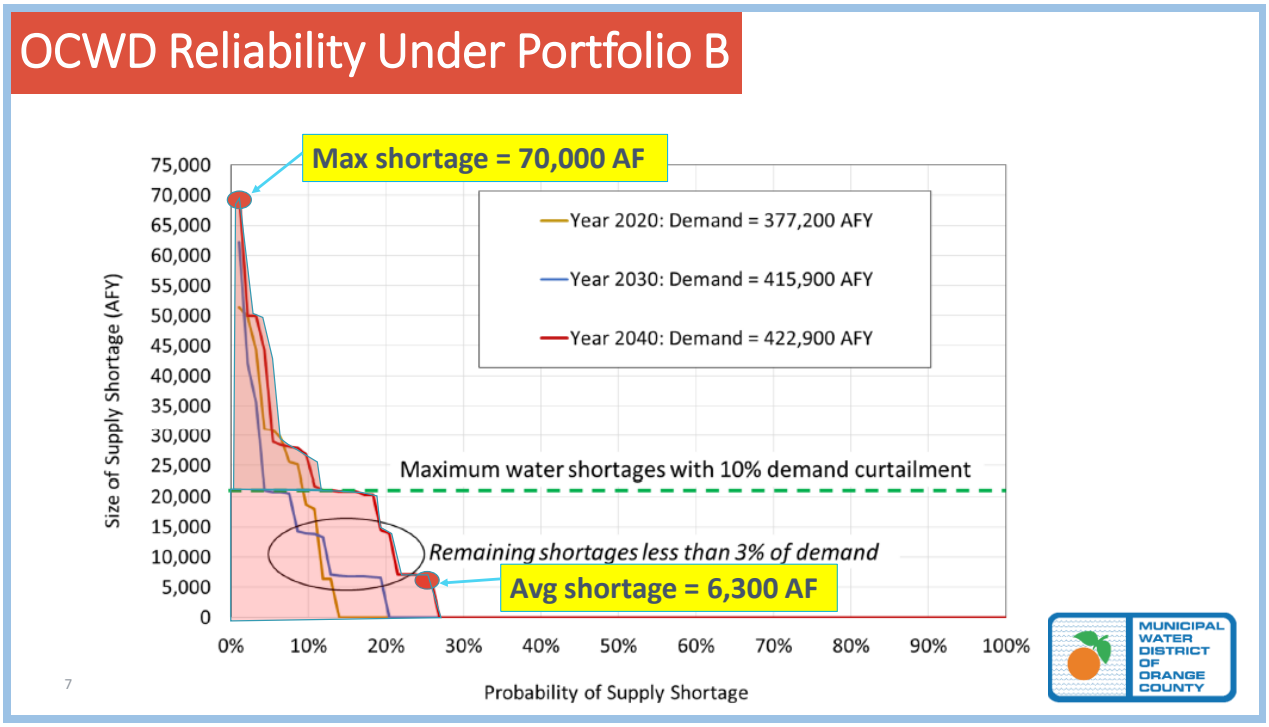
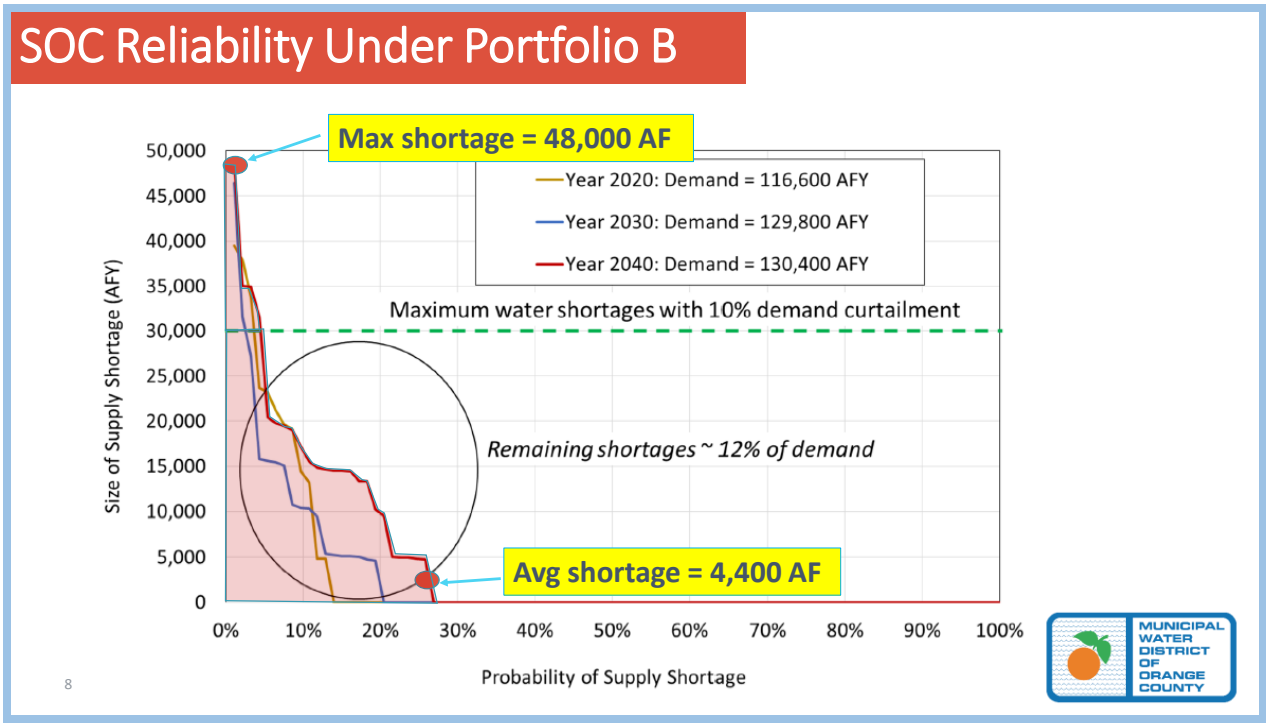



**Figure 3**



The other issue that can be demonstrated with these curves is how well a local supply matches up with the shortage curve. Figure 4, for the OCWD area, demonstrates how the supplies developed from the Poseidon project overlay on the shortage curve. Since the Poseidon project is a base-loaded project, but shortages occur only about 30% of the time, water from the Poseidon project will be directly beneficial about 30% of the time. The remainder of the time the water would offset supplies from MET and result in MET having higher levels of storage which would be a benefit for the entire MET service area including Orange County. This is one of the reasons MET offers LRP incentives towards these types of projects. A question to be resolved is how much of the benefits offered by the Poseidon project will actually benefit Orange County residents compared to how much Orange County rate-payers are paying for the project. Besides the direct benefits noted above, conceptually, Orange County imports about 12% of MET's supplies and so Orange County would indirectly benefit from the water stored within MET.

Figure 5 shows that theoretically, a base-loaded project sized at the average level of shortages, when combined with the ability to store the water in the years when the water is not needed and the ability to recover the water from storage to meet the peak shortages of about 70,000 AF per year would allow the OCWD area to be highly reliable.

**Figure 4**

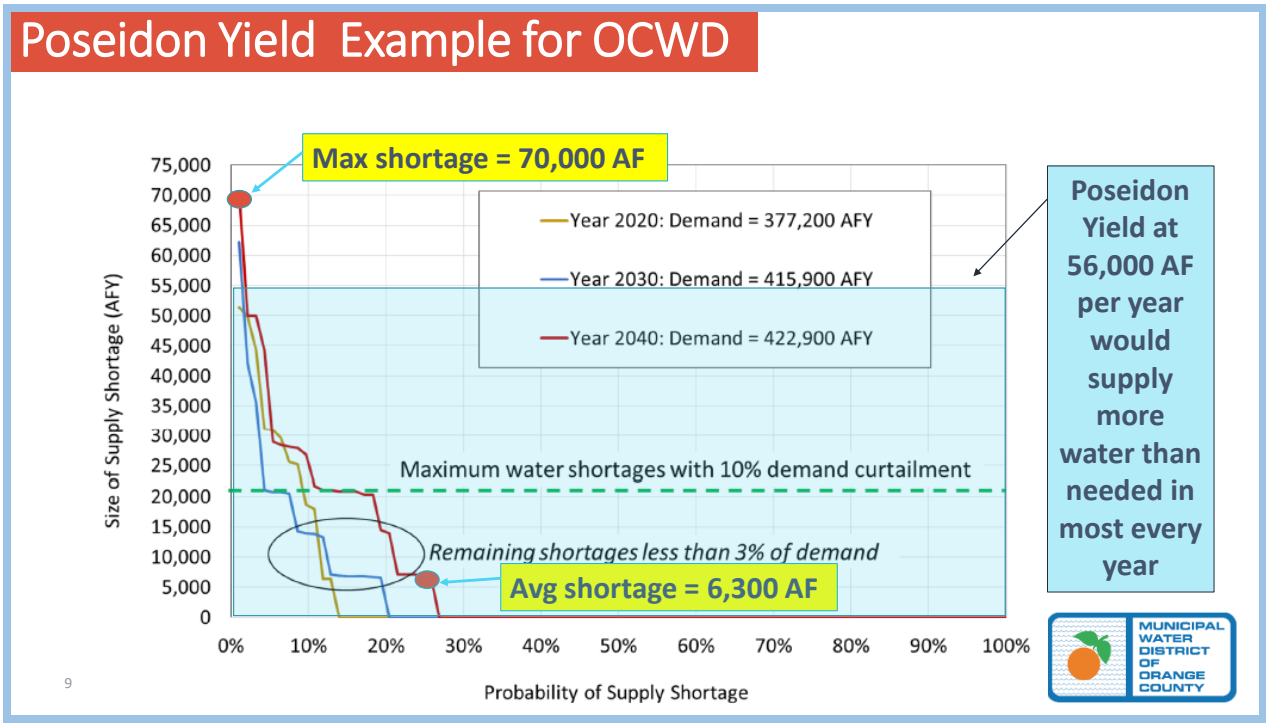
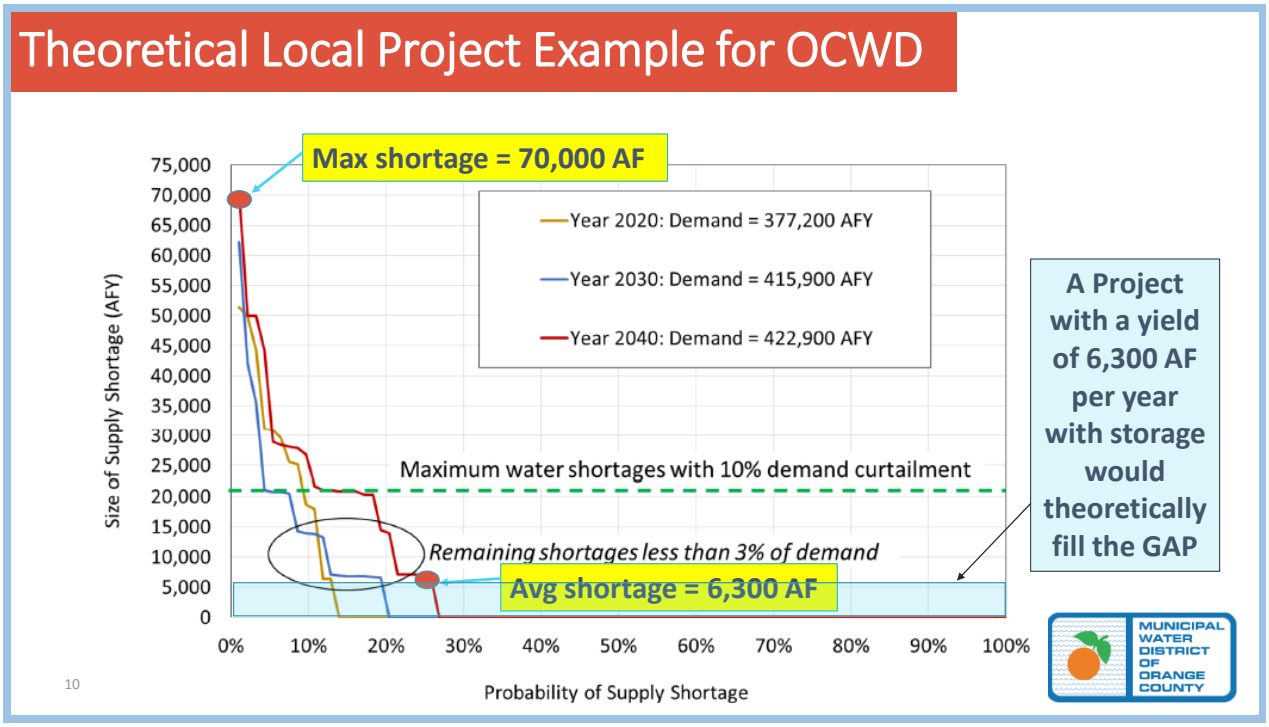


**Figure 5**




**<u>Implications of Future Flows in County Pipelines Under Various Scenarios</u>**

Just recently within the Orange County pipeline system extremely low demands have been experienced. Current low demands, driven down by the on-going water conservation efforts, when combined with the recent wet weather conditions, have resulted in such low flows in pipelines that both MET and our agencies have become concerned about resulting low chlorine residuals. The loss of chlorine residual can result in water quality deterioration. Typically, MET targets a residence time of 3 days or less in their pipeline system after leaving the treatment plants; this allows sufficient level of remaining chlorine residual for water quality to remain high while the water flows through the retail agency systems and on to the end-user. Depending on a number of factors, but primarily the water temperature, the overall chlorine residual can last as short as 10 days or as long as two to three weeks. Minimum flows must be maintained in these major pipelines to maintain high water quality. As examples, flows on the Allen McColloch Pipeline (AMP) on the order of 23 cfs are needed to meet the 3-day retention level; on the EOCF#2 flows of about 15 cfs are required to maintain high water quality. Recently, flows below these levels occurred.

The recent situation was exacerbated by the start-up of the Baker Treatment Plant which takes untreated water from MET's Santiago Lateral, treats it and then delivers it to agency systems or into the South County Pipeline. The start-up of this facility resulted in an additional 43 cfs of demand being taken off of the AMP and the EOCF#2.

This situation along with the Baker Plant start-up resulted in staff examining the potential of low flow situations out into the future in Orange County under various scenarios. Table 2 provides a summary of expected local supplies to the OCWD groundwater basin in 2040 in the total of 299,000 AF per year based on averages. This does not include imported water. Table 3 below provides recent year's water deliveries with the 2040 projections of supplies from the Study.

**Table 2**

| | |
|---|---|
| **GWRS Supplies in 2040** | **134,000** |
| **SAR Base Flows (could be less)** | **53,000** |
| **SAR Storm Flows** | **53,000** |
| **Incidental Recharge** | **59,000** |
| | |
| **Total Local Supplies to OCWD** | **299,000** |

**Table 3**

## Orange County Water Supplies

| FY | O.C. Total Demands | OCWD + Non-OCWD Native Water Pumped | OCWD Imported Pumped | Baker Water | Other Imported Water | Total Imported |
|---|---|---|---|---|---|---|
| 2012-13 | 609,787 | 310,697 | 24,356 | - | 231,402 | 255,759 |
| 2013-14 | 631,877 | 308,598 | 50,701 | - | 231,584 | 282,284 |
| 2014-15 | 573,884 | 269,584 | 58,617 | - | 202,320 | 260,937 |
| 2015-16 | 492,347 | 246,685 | 45,118 | - | 154,666 | 199,784 |
| | | | | | | |
| | | | | | | |
| 2040 | 579,250 | 299,000 | 65,000 | 31,494 | 90,224 | 186,718 |
| | | | Untreated | Untreated | Treated | Total |

| Potential NEW Local Projects | |
|---|---|
| Poseidon | 56,000 |
| Doheny Desal | 16,000 |
| San Juan | 8,000 |
| Subtotal | 80,000 |

| Remaining Import | |
|---|---|
| 10,224 | 106,718 |
| Treated | Untreated |
| 14 cfs | |

What Table 3 points out is that if Orange County developed these levels of local supplies, there is little remaining treated imported water to flow through the pipelines in Orange County to maintain high water quality levels throughout the year. In addition, when considering the development of new local supplies, the supplies should be developed in a manner to avoid offsetting the Baker Treatment Plant flows. The Baker Treatment Plant is a reliability project that plans on treating primarily MET untreated flows in the future and should be operated under a base-loaded condition.

Another observation has to do with the level of treated water demanded from MET. Under the above analysis, we would utilize MET for only about 10,000 AF of **treated** water per year (about 14 cfs in total). This is not sufficient water to keep the water quality high in the pipelines. If MET's other member agencies are considering similar options, it could leave portions of MET's treatment facilities stranded.

**Additional Staff Observations**

The last observations staff developed while discussing future local projects are:

1. Planning should attempt to avoid unintended consequences such as low flows in pipelines that could create water quality problems.

2. Thought should be given, both in Orange County and at the MET level, to a selective process for future local projects that fall under the Local Resources Program, especially if they are large projects (maybe greater than 10,000 AF per year). The selective process should consider that any local project can help meet a shortage GAP, but some projects may involve additional benefits such as providing redundancy in areas where it is needed or providing emergency supplies where needed from a geographic perspective. The selective process could also differentiate between base loaded projects, dry-year yield projects or projects that involve storage to improve the flexibility of future operations.

**Additional Recommended Work**

Staff is recommending that additional work be pursued in the following areas:

- Work with MET and MET's other 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 LRP, IRP 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 high water quality to be maintained. What is envisioned are minimum recommended flows on a monthly basis in the various pipelines.

- With respect to the Poseidon Project and other potential local supply development 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 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. The assumption on the Santa Ana River base flows may also warrant changing.
- The work above would be completed by a combination of MWDOC staff and our Study Consultant CDM-Smith. Staff will bring back a work plan to the next P&O Committee.

## Figure 6 Assumptions of the Various Portfolios Modeled

| New MET/MET Agency Water Supply Projects | Online Date | New Max Supply Yield (AFY) | Portfolios of MET Reliability | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Portfolio A Very Achieveable | Portfolio B | Portfolio C | Portfolio D Highly Reliable | Portfolio E Highly Reliable | Portfolio F Highly Reliable |
| **New MET Projects** | | | | | | | | |
| Delta Regulatory Relief (only with CalFix) | 2020 | 100,000 | - | - | - | - | | 100,000 [1] |
| California WaterFix | 2030 | 440,000 | - | - | - | - | | 440,000 [2] |
| MET Regional Seawater Desalination | 2030 | 200,000 | | | | | 200,000 | |
| Expanded MET-PVID Program | 2020 | 130,000 | 60,000 | 80,000 | 100,000 | 130,000 | 130,000 | 130,000 |
| Other Colorado River Programs/Transfers | 2030 | 100,000 | 10,000 | 50,000 | 75,000 | 100,000 | 100,000 | 100,000 |
| Central Valley Water Transfers | 2020 | 150,000 | - | 50,000 | 100,000 | 150,000 | 150,000 | 150,000 |
| Carson IPR, Phase 1a | 2025 | 65,000 | 65,000 | 65,000 | 65,000 | 65,000 | 65,000 | 65,000 |
| Carson IPR, Phase 1b | 2025 | 35,000 | | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 |
| Carson IPR, Phase 2 | 2030 | 68,000 | - | - | - | 68,000 | 68,000 | 0 |
| **Sub-Total of MET Projects** | | **1,288,000** | **135,000** | **280,000** | **375,000** | **548,000** | **748,000** | **920,000** |
| **New MET Member Agency Projects [3]** | | | | | | | | |
| Likely to Occur[4] | 2025 | 88,000 | 88,000 | 88,000 | 88,000 | 88,000 | 88,000 | 88,000 |
| Full Design with Funds | 2025 | 23,400 | 23,400 | 23,400 | 23,400 | 23,400 | 23,400 | 23,400 |
| Advanced Planning with Environmental | 2025 | 51,000 | - | 51,000 | 51,000 | 51,000 | 0 | 0 |
| Feasibility | 2030 | 71,500 | - | - | | 71,500 | 0 | 0 |
| Conceptual | 2035 | 65,700 | - | - | - | 65,700 | 0 | 0 |
| **Sub-Total of MET Member Agency Projects** | | **299,600** | **111,400** | **162,400** | **162,400** | **299,600** | **111,400** | **111,400** |
| **Total of All Projects** | | **1,587,600** | **246,400** | **442,400** | **537,400** | **847,600** | **859,400** | **1,031,400** |
| **Scenario 2A GAP (2040) - Average MET Shortage** | | **550,000** | | | | | | |
| **Scenario 2A GAP (2040) - Maximum MET Shortage** | | **1,661,000** | | | | | | |

[1] Assumes that MET can get some early regulatory relief in Delta biological opinions from 2020 to 2035 if CalFix is underway. Once WaterFix is online, this goes away.

[2] This represents the full, average year annual yield from WaterFix, and it is not in addition to the Delta regulatory relief yield.

[3] Represents projects for non-OC MET agencies. Data from MET IRP (2015), and includes new recycled water, groundwater, and ocean desal projects.

Supply yields assume:

[4] Most Likely = 100% of the following yields: LADWP GWR (30,000 af), San Diego Pure Water Phase 1 (33,000 af), Eastern MWD IPR (15,000 af), Upper District IPR (10,000 af)

Full Design = 90% of yield from MET IRP Appendix of 26,000 af/yr

Advanced Planning = 75% of yield from MET IRP Appendix of 68,000 af/yr

Feasibility = 50% of yield from MET IRP Appendix of 143,000 af/yr

Conceptual = 30% of yield from MET IRP Appendix of 219,000 af/yr

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

**Item No. 5**

**INFORMATION ITEM**
February 6, 2017

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

**FROM:** **Robert Hunter, General Manager**

Staff Contact: Harvey De La Torre
Melissa Baum-Haley
Keith Lyon

**SUBJECT:** **Update Regarding Status of Local Resources Program (LRP) Projects**

## STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee review and file

## COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

## REPORT

At the January 2017 MWDOC Planning & Operations Committee, MWDOC staff provided the Board with a description and evolution of Metropolitan's Local Recourses Program (LRP). In response to a Board request, MWDOC staff has compiled the financial incentive amounts associated with the past and current LRP projects by member agency within the MWDOC service area.

For LRP project certifications processed through calendar year 2016, Metropolitan has provided the MWDOC service area with a cumulative total of $173 million in financial incentives for LRP projects; corresponding to 1.24 million acre-feet (AF) of eligible local resource production.

For Fiscal Year (FY) 2015-16, $13.4 million dollars in financial credits were provided. The 5-year average annual LRP credit (FY11-12 through FY15-16) for all projects within the

| | | | |
|---|---|---|---|
| **Budgeted (Y/N): N** | Budgeted amount: None | Core _X_ | Choice __ |
| **Action item amount: N/A** | Line item: | | |
| **Fiscal Impact (explain if unbudgeted):** | | | |

MWDOC service area is $13.7 million per year. The smallest average annual incentive over the 5-year period, for a project that was active over the entire period, is the Trabuco Canyon Reclamation Project, averaging $33,402 per year. The largest average annual incentive over the 5-year period was for the Orange County Water District's Groundwater Replenishment System project, averaging $8.1 million per year

The following timeline provides a brief overview of the evolution of the program financial incentive rates provided by MET:

1982 - Local Projects Program (LPP) provides assistance to develop local supplies with a focus on recycled water projects; the financial incentive was a fixed rate of $154 per AF of production.

1991 - Groundwater Recovery Program (GRP), provides assistance to recovery otherwise unusable groundwater; the financial incentive was based on the project's actual unit production cost that was greater than Metropolitan's treated full service rate, on a sliding scale from $0 to $250 per AF.

1995 - LPP and GRP were combined into the Local Resources Program (LRP); financial incentives for existing projects either convert to GRP-type terms (sliding scale) or remain with the fixed incentive.

1998 - LRP application process utilized a competitive approach, whereby potential local projects were evaluated by a panel based on criteria adopted by the Metropolitan Board; financial incentive request within a range from $0 to $250 per AF with lower requests ranking higher.

2007 - Competitive process application was replaced with updated LRP principles allowing for an open application process and eliminating the competitive process.

2014 - Revisions extended the LRP to include ocean desalination projects as well as recycled water[1] and groundwater recovery projects.

Current - Financial incentives are based on the local agency's choice between three different incentive payment structures:

1. Sliding scale from $0 to $340 per AF for 25 years
2. Sliding scale from $0 to $475 per AF for 15 years (with a 25-year term)
3. Fixed up to $304 per AF for 25 years

[1] Recycled water use costs for on-site retrofit now qualify as a project cost to determine an agency's LRP incentive amount.

**Matrix of past and current LRP projects with MWDOC Service Area**

| *Agency* | *Project Name* | *Agreement* | | *MET Incentive ($/AF)* | *Average Annual Production (AFY)* | *Financial Incentive* | |
|---|---|---|---|---|---|---|---|
| | | *Year Executed* | **Status** | | | **Cumulative[a] ($)** | **Fiscal Yr. 2015-16 ($)** |
| EL Toro Water District | Recycled Water System Expansion | 2012 | Active | $0-$250/AF | 309 | $294,775 | $135,500 |
| | Recycled Water System Exp., Phase II | 2016 | New | $0-$475/AF | - | | |
| Irvine Ranch Water District | Irvine Ranch Reclamation Project | 1986 | Expired | $154/AF | 8,827 | $47,360,990 | $2,229,162 |
| | Irvine Desalter | 1993 | Active | $0-$250/AF | 3,229 | | |
| | Reclamation Expansion | 2005 | Active | $117/AF | 6,632 | | |
| | Wells 21/22 Desalter | 2011 | Active | $0-$250/AF | 3,013 | | |
| Mesa Water District | Colored Groundwater Treatment Project | 1999 | Active | $115-$169/AF | 3,731 | $7,354,507 | $538,464 |
| Moulton Niguel Water District | Water Reclamation System | 2006[b] | Active | $154/AF | 5,206 | $18,119,748 | $830,999 |
| Orange County Water District | Green Acres Reclamation Project | 1999[b] | Active | $0-$250/AF | 1,714 | $77,778,117 | $9,090,000 |
| | Groundwater Replenishment System | 2004 | Active | $121/AF | 56,426 | | |
| San Clemente | Water Reclamation Project | 1990 | Expired | $154/AF | 286 | $995,624 | $73,050 |
| | Water Reclamation Expansion Project | 2012 | Active | $0-$250/AF | 155 | | |
| San Juan Capistrano | San Juan Basin Desalter | 1998 | Active | $0-$250/AF | 2,574 | $7,771,950 | $295,775 |
| | Capistrano Valley Non-Domestic Water Supply Expansion | 2000 | Inactive[c] | $150/AF | 0 | | |
| Santa Margarita Water District | Water Reclamation Expansion Project | 1987 | Expired | $154/AF | 1,681 | $7,617,109 | $196,661 |
| | Non-domestic Water System, Ladera Ranch/Talega Valley | 2000 | Active | $114/AF | 2,283 | | |
| | Lake Mission Viejo Advanced Purification Water Treatment Facilities | 2016 | New | $0-$475/AF | - | | |
| South Coast Water District | Capo Beach Desalter | 1998 | Inactive[c] | $0-$250/AF | 654 | $1,307,025 | $0 |
| Trabuco Canyon Water District | Trabuco Canyon Reclamation Project | 1989 | Active | $154/AF | 263 | $1,013,520 | $21,144 |
| Tustin | Tustin Desalter | 1992 | Active | $0-$250/AF | 1,867 | $3,438,478 | $0 |

[a] Cumulative values are approximate based on annual adjustments; [b] These projects had earlier agreements that were amended; [c] Inactive status defines the project as not currently producing

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

**Item No. 6**

**INFORMATION ITEM**
February 6, 2017

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

**FROM:** **Robert Hunter, General Manager**

Staff Contact: Harvey De La Torre, Keith Lyon

**SUBJECT:** **UNTREATED FULL SERVICE/REPLENISHMENT WATER PURCHASES FOR THE ORANGE COUNTY BASIN IN CY 2016**

## STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee receive and file this information.

## COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

## REPORT

In calendar year (CY) 2016, Orange County Water District (OCWD) purchased 58,009 acre-feet (AF) of Metropolitan (MET) untreated full service water to replenish the Orange County Groundwater Basin. OCWD delivered this water for percolation into their spreading grounds, located in Anaheim. For comparison, the CY2015 purchases were lower - totaling 36,924 AF. However, the 2015 purchases were constrained due to MET's & MWDOC's Water Supply Allocations during fiscal year (FY) 2015/16.

OCWD's purchases of MET water for replenishment purposes can vary depending upon rain/runoff collected from the Santa Ana River, water stored behind Prado Dam, and OCWD's water purchases budget. When CY 2016 started, OCWD was capturing runoff stored behind Prado Dam, so they did not start taking delivery of MET water until April 1, 2016. At that point, deliveries ranged from 120 to 180 cfs until November 14 when OCWD achieved its order amount of 55,000 AF.

| | | | |
|---|---|---|---|
| **Budgeted (Y/N): N** | Budgeted amount: None | Core _X_ | Choice __ |
| **Action item amount: N/A** | Line item: | | |
| **Fiscal Impact (explain if unbudgeted):** | | | |

During the second half of November and first half of December, OCWD completed maintenance and cleaning of their recharge facilities. This allowed OCWD to request an additional 5,000 AF of MET water on December 13; however, this order was stopped short a couple of days later due to winter storms. As a result OCWD's MET purchases totaled 58,009 AF for 2016.

It is estimated that OCWD is planning on purchasing between 50,000-55,000 AF of MET water for 2017.

**Past Five-Year OCWD's MET Purchases**

| Calendar Year | Total Acre-Feet (AF) |
|---|---|
| 2012 | 12,859 |
| 2013 | 30,885 |
| 2014 | 73,005* |
| 2015 | 36,924 |
| 2016 | 58,009 |
| **5-Year Avg.** | **42,336** |

[*] Includes 10,000 AF OCWD purchased from the CUP Account

**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 | | | South Coast Water District is continuing to move the project forward and to look for potential partners and grant funding as they proceed through the CEQA process. South Coast held a project briefing attended by MWDOC Directors Yoo Schneider and Tamaribuchi along with staff members Seckel and Busslinger. South Coast shared their most recent update to the project which was the offshore geophysical testing to map out the geology as the San Juan Creek joins the ocean. The good news is that the mapping showed a wider and deeper alluvial channel. South Coast will put its CEQA process on hold for several months while they re-run the groundwater modeling to test for the appropriate location of wells and to see if additional water can be |

| Description | Lead Agency | Status % Complete | Scheduled Completion Date | Comments |
|---|---|---|---|---|
| | | | | drawn into a treatment plant.<br><br>MWDOC's contractor for the decommissioning and removal of the test facilities at Doheny State Park is proceeding on schedule. The construction started the first week in January; work was just completed on the beach; the Mobile Test Facility has been relocated to South Coast WD Bradt reservoir for temporary storage. The contractor should be done in February. |
| **Poseidon Resources Ocean Desalination Project in Huntington Beach** | | | | OCWD is currently working on preparation of the CEQA documentation for the Poseidon Project. Work continues on the project integration into the water supplies for OC. Poseidon is continuing to work on permitting issues which are estimated to be completed by the end of 2017. |
| **Orange County Reliability Study** | | | | Staff completed the study. Most recently presentations were provided to OCBC (Director Tamaribuchi attended) and the City of San Juan Capistrano. |
| **OC-28 Flow Metering Issue with MET** | | | | 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. |
| **Service Connection CM-1 Cost Issues with MET** | | | | Discussions were held with MET on the design and costs of a bypass flow control structure that would allow LBCWD to take low flows of water from MET concurrently with taking flows from the City of Newport Beach. However, the costs of making changes at the CM-1 meter location could reach as high as $150k to $200k. Based on the recent discussions with MET, Laguna |

| Description | Lead Agency | Status % Complete | Scheduled Completion Date | Comments |
|---|---|---|---|---|
| | | | | Beach CWD and Newport Beach are studying another alternative. We are awaiting the outcome of the study. |
| | | | | |
| **Other Meetings/Work** | | | | |
| | | | | Karl Seckel, Heather Baez and John Lewis and many of our agencies have continued to pursue opposition to the terms and conditions proposed by the OC Flood Control District for NEW encroachment permits for crossing of Flood Control property. Flood control is proposing a fee based on current market real estate values, a 7% return and 35 year agreements. This is one of a number of County Initiatives to raise revenue. We are awaiting the outcome of an internal meeting at the County on January 31 to determine if the effort will move forward at the County. Currently, the item is scheduled for consideration by the Board of Sups on February 28. |

| | | | | |
|---|---|---|---|---|
| | | | | Karl Seckel presented the OC Water Reliability Study to the City of San Juan Capistrano Utilities Commission and also provided a status update on the Colorado River and the California WaterFix. |
| | | | | Karl Seckel and Charles Busslinger attended the MET Member Agency Desalination Workgroup who had not gotten together for quite a while. The group is interested in meeting once or twice a year just to keep updated on potential projects within the MET service area including brackish desalination. Paul Kelly, Executive Director from Cal Desal addressed the group. |
| | | | | Charles Busslinger attended the San Juan Basin Authority (SJBA) meeting. Final interviews for a SJBA Administrator are scheduled for February/March 2017. Monthly groundwater monitoring as part of the 2016 Adaptive Pumping Management (APM) plan to ensure groundwater levels are protective of riparian vegetation, indicated water levels needed to increase by another 10 feet before pumping could resume. Wildermuth presented a Precipitation to Net Basin Recharge relationship indicating 8 – 12 inches of Water Year precipitation were needed in San Juan Capistrano to meet the protective threshold groundwater elevation. Area Water Year precipitation exceeded 12 inches within the last two weeks and a meeting is being held January 31st to discuss resumption of basin pumping. |
| | | | | Staff was requested to investigate sewer low flow issues to see if agencies are experiencing problems at the current levels of conservation. A number of discussions have been held. Anecdotal information seems to be that there may be a problem in certain areas, but there does not seem to be anybody addressing the issue in a holistic manner. Staff is assisting Southern California Alliance of Publicly Owned Treatment Works (SCAP) |

| | | | | |
|---|---|---|---|---|
| | | | | with a survey for circulation among the sewer agencies to help provide better information. |
| | | | | Several meetings and discussions were held with MET or MWDOC's South County Agencies regarding low flows within the major pipelines in Orange County which could potentially lead to water quality problems if the chlorine residual deteriorates. This issue was exacerbated by the start-up of the Baker Treatment Plant which took 43.5 cfs of water off of MET's treated water system. Discussion will continue on this issue. |
| | | | | Karl Seckel, Rob Hunter and Director Tamaribuchi met with Garry Brown from Coastkeeper and Tom Raftican and April Wakeman from the Sportfishing Conservancy to discuss how to get the sportfishing enthusiasts more interested in supporting fisheries and habitat restoration efforts under the California WaterFix and EcoRestore efforts. |

**Status of Ongoing WEROC Projects**
**January 2017**

| Description | Comments |
|---|---|
| **Fuel Trailers and Grant Projects** | Six fuel trailers were received and delivered to El Toro Water District, Irvine Water District, East Orange County Water District, South Coast Water District, Yorba Linda Water District, and Moulton Niguel Water District. Kelly Hubbard has received approval to purchase two additional trailers that will go to the Cities of Huntington Beach and Westminster. Kelly is working with the Cities and the trailer manufacturer to fulfill this additional request quickly.<br><br>Additionally, MWDOC has received approval for additional grant funds for the Generator Cable project (this project was delayed to pursue additional fuel trailers) and to purchase Emergency Water Quality Sample Training Kits (EWQSK) for a planned multi-discipline full scale exercise in the coming year. |
| **EWQSK Training and Exercise Program (2017-2018)** | Kelly has started to work with the WEROC Member Agencies on the 2017-2018 exercise and training program. She is proposing to re-introduce the Emergency Water Quality Sample Kit (EWQSK) protocols. The sample kits are used when an unknown contamination has occurred and the water system needs to be sampled. Hazmat personnel need to collect the samples. Kelly will design the process to include a series of classroom trainings, small hands on drills and plan development leading up to a multi-discipline field exercise and functional exercise in spring of 2018. This is a very complex exercise and training concept, but one that has been identified several times over the years in various exercise after action reports from both WEROC and Member Agencies. This program will involve law enforcement, hazardous response teams, water quality, regulatory partners, national laboratories, health care, and more.<br><br>To initiate this process Kelly has requested and received approval for grant funding for the sample kits needed for the trainings. She has presented to the Orange County Fire Training Officers group and has asked for a small group of individuals to help her develop a timeline and necessary steps to move this process forward. A more complete exercise and training concept can be presented to the board if of interest. |

| | |
|---|---|
| **Coordination with the County of Orange** | Kelly attended the January Orange County Emergency Management Organization (OCEMO) meeting and OCEMO Exercise Design meeting. OCEMO had an informative speaker on managing post disaster stress/trauma for both the community impacted and for emergency workers. The Exercise Design Committee worked on a county-wide exercise and training schedule and program for 2017.<br><br>Kelly attended the Wildland Urban Interface (WUI) Plan Training that the Orange County Fire Authority hosted. The WEROC Member Agencies participated in this planning process. The training was to roll out the WUI plans to all fire and law enforcement staff. Kelly attended to discuss the water utilities role and how WEROC can assist with response coordination with Water Utilities. |
| **Coordination with Outside Agencies** | Kelly participated in the California Water and Water Agency Response Network (CalWARN) State Steering Committee conference call.<br><br>Kelly participated in the California Office of Emergency Services (Cal OES) Southern Region Mutual Aid Regional Advisory Committee (MARAC) as a voting member. The main discussion of the meeting was on the State's Catastrophic Planning program with an emphasis on Communications. There was a lot of concern in the room regarding the fact that CalOES has largely done this planning without input from local government or other planning and response partners. Additionally, part of the planning included the prioritization of limited fuel supplies to go towards getting communications (landline and cell) back up and running. Many felt that a larger discussion on fuel planning and priorities was needed. It has been scheduled for the next quarterly meeting of the group.<br><br>Kelly met with the County of Santa Barbara Director of Emergency Services and the CalOES Southern Region Deputy Director of Emergency Services via a conference call to discuss alternative water supply planning for Santa Barbara County due to drought. They largely have not seen the benefits of the current wet season and are putting in place plans to identify alternative supplies and methods of distribution. Kelly provided insight to some of the planning occurring in OC and what she has learned from other responses. |

| | |
|---|---|
| **WEROC Emergency Operations Center (EOC) Readiness** | Staff participated in the January MARS radio test successfully. WEROC held its monthly radio test and worked with several agencies for additional testing.<br><br>Kelly and Karl met with Bob Hill and Dennis Cafferty of El Toro Water District to discuss proposed future work at the WEROC South EOC as recommended in the WEROC EOC Facility Assessment. The meeting was to discuss potential actions and protocols to keep ETWD informed. |

**Status of Water Use Efficiency Projects**

**February 2017**

| Description | Lead Agency | Status % Complete | Scheduled Completion or Renewal Date | Comments |
|---|---|---|---|---|
| **Smart Timer Rebate Program** | MWDSC | Ongoing | Ongoing | For December 2016, 20 residential and 0 commercial smart timers were installed in Orange County.<br><br>For program water savings and implementation information, see MWDOC Water Use Efficiency Program Savings and Implementation Report. |
| **Rotating Nozzles Rebate Program** | MWDSC | Ongoing | Ongoing | For December 2016, no rotating nozzles were installed in Orange County.<br><br>For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report. |
| **Water Smart Landscape Program** | MWDOC | On-going | 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.<br><br>For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report. |
| **SoCal Water$mart Residential Indoor Rebate Program** | MWDSC | On-going | On-going | In December 2016, 131 high efficiency clothes washers and 19 premium high efficiency toilets were installed through this program.<br><br>For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report. |

| | | | | |
|---|---|---|---|---|
| **SoCal Water$mart Commercial Rebate Program** | MWDSC | On-going | On-going | In December 2016, no commercial plumbing devices were installed through this program.<br><br>For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report. |
| **Industrial Process Water Use Reduction Program** | MWDOC | 95% | September 2016 | 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, 367 AFY of water savings is being achieved. |
| **Turf Removal Program** | MWDOC | On-going | On-going | In December 2016, 33 rebates were paid, representing $57,547.37 in rebates paid this month in Orange County. To date, the Turf Removal Program has removed approximately 20.5 million square feet of turf.<br><br>For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report. |
| **California Sprinkler Adjustment Notification System – Base Irrigation Schedule Calculator** | MWDOC | On-going | On-going | 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.<br><br>Staff is currently in the process of finalizing an annual support contract with Enterprise Information Systems, the original developer of CSANS. Support will include annual web hosting, technical support, functional refinements, and ongoing application health and maintenance.<br><br>IRWD is now administering CSANS for their customers, along with developing customized messaging content for their customers. Several other agencies are considering access to |

| | | | | |
|---|---|---|---|---|
| **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 | 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.<br><br>To date, 193 residential sites and 52 commercial sites have completed spray to drip conversion projects. |
| **MWDOC Conservation Meeting** | MWDOC | On-going | Monthly | This month's meeting was not held due to the holidays. The next meeting will be on February 2, 2017 at County of Orange Public Works. |
| **Metropolitan Conservation Meeting** | MWDSC | On-going | Monthly | This month's meeting was held on January 19, 2017. The next meeting will be February 16, 2017 at Metropolitan. |

# 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 | December-16 | 131 | 0.38 | 1,877 | 20.46 | 110,660 | 3,818 | 23,763 |
| **Smart Timer Program - Irrigation Timers** | 2004 | December-16 | 20 | 0.09 | 1,142 | 255.27 | 18,624 | 7,045 | 38,117 |
| **Rotating Nozzles Rebate Program** | 2007 | December-16 | 0 | 0.00 | 26,449 | 105.75 | 547,807 | 2,697 | 11,129 |
| **SoCal Water$mart Commercial Plumbing Fixture Rebate Program** | 2002 | December-16 | 0 | 0.00 | 7,837 | 85.01 | 78,119 | 3,518 | 39,200 |
| **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 | December-16 | 1 | 0.66 | 1 | 0.66 | 16 | 367 | 1,962 |
| **Turf Removal Program[3]** | 2010 | December-16 | 30,993 | 0.36 | 504,135 | 780 | 20,530,804 | 2,875 | 7,206 |
| **High Efficiency Toilet (HET) Program** | 2005 | December-16 | 19 | 0.07 | 781 | 33.26 | 59,366 | 2,194 | 14,145 |
| **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** | | | | **906** | **554,952** | **4,896** | **22,690,220** | **48,518** | **392,025** |

(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.

# 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 | 21 | 1,831 | 0.22 | 397.04 | 947 |
| Buena Park | 146 | 59 | 230 | 145 | 105 | 106 | 91 | 76 | 21 | 1,485 | 0.20 | 306.59 | 768 |
| East Orange CWD RZ | 17 | 3 | 23 | 10 | 10 | 8 | 8 | 8 | - | 189 | 0.00 | 43.34 | 98 |
| El Toro WD | 130 | 32 | 162 | 112 | 134 | 121 | 111 | 65 | 18 | 1,492 | 0.19 | 309.81 | 772 |
| Fountain Valley | 243 | 72 | 289 | 158 | 115 | 102 | 110 | 76 | 32 | 2,367 | 0.40 | 531.78 | 1,225 |
| Garden Grove | 332 | 101 | 481 | 236 | 190 | 162 | 165 | 251 | 61 | 3,497 | 0.66 | 744.20 | 1,809 |
| Golden State WC | 447 | 168 | 583 | 485 | 265 | 283 | 359 | 260 | 70 | 4,947 | 0.83 | 1,051.36 | 2,560 |
| Huntington Beach | 751 | 211 | 963 | 582 | 334 | 295 | 319 | 225 | 71 | 8,137 | 0.77 | 1,865.80 | 4,210 |
| Irvine Ranch WD | 1,844 | 1,394 | 2,621 | 2,170 | 1,763 | 1,664 | 1,882 | 1,521 | 647 | 23,940 | 7.03 | 4,875.25 | 12,387 |
| La Habra | 83 | 22 | 179 | 128 | 82 | 114 | 87 | 66 | 22 | 1,296 | 0.21 | 268.06 | 671 |
| La Palma | 51 | 25 | 76 | 46 | 34 | 25 | 34 | 29 | 5 | 453 | 0.05 | 92.65 | 234 |
| Laguna Beach CWD | 77 | 27 | 96 | 57 | 38 | 37 | 39 | 32 | 2 | 915 | 0.02 | 204.32 | 473 |
| Mesa Water | 246 | 73 | 232 | 176 | 114 | 86 | 89 | 113 | 47 | 2,485 | 0.48 | 567.92 | 1,286 |
| Moulton Niguel WD | 742 | 250 | 1,127 | 679 | 442 | 421 | 790 | 688 | 287 | 9,633 | 3.15 | 1,963.97 | 4,984 |
| Newport Beach | 259 | 57 | 197 | 142 | 116 | 92 | 95 | 66 | 33 | 2,596 | 0.33 | 608.98 | 1,343 |
| Orange | 403 | 111 | 349 | 262 | 218 | 163 | 160 | 124 | 37 | 3,855 | 0.37 | 886.46 | 1,995 |
| Orange Park Acres | - | - | - | - | - | - | - | - | | 12 | 0.00 | 3.42 | 6 |
| San Juan Capistrano | 127 | 43 | 190 | 110 | 76 | 73 | 92 | 63 | 20 | 1,446 | 0.19 | 310.84 | 748 |
| San Clemente | 278 | 63 | 333 | 206 | 140 | 94 | 141 | 75 | 31 | 2,581 | 0.33 | 563.79 | 1,335 |
| Santa Margarita WD | 740 | 257 | 1,105 | 679 | 553 | 662 | 792 | 466 | 170 | 9,319 | 1.90 | 1,924.18 | 4,822 |
| Seal Beach | 57 | 7 | 81 | 51 | 31 | 29 | 38 | 23 | 1 | 594 | 0.01 | 129.33 | 307 |
| Serrano WD | 23 | 7 | 21 | 20 | 13 | 10 | 26 | 8 | 7 | 353 | 0.08 | 81.03 | 183 |
| South Coast WD | 148 | 43 | 183 | 112 | 89 | 79 | 68 | 43 | 21 | 1,561 | 0.22 | 338.21 | 808 |
| Trabuco Canyon WD | 62 | 28 | 82 | 62 | 30 | 45 | 47 | 34 | 9 | 779 | 0.10 | 167.51 | 403 |
| Tustin | 144 | 45 | 174 | 97 | 78 | 59 | 80 | 66 | 25 | 1,593 | 0.30 | 357.81 | 824 |
| Westminster | 233 | 74 | 329 | 208 | 121 | 82 | 109 | 149 | 47 | 2,549 | 0.53 | 552.38 | 1,319 |
| Yorba Linda | 367 | 117 | 394 | 273 | 181 | 167 | 156 | 123 | 28 | 3,724 | 0.31 | 850.76 | 1,927 |
| **MWDOC Totals** | 8,106 | 3,331 | 10,686 | 7,350 | 5,365 | 5,094 | 6,002 | 4,726 | 1,733 | 93,629 | 18.89 | 19,996.79 | 18,089 |
| Anaheim | 781 | 860 | 910 | 477 | 331 | 285 | 295 | 266 | 76 | 10,545 | 0.82 | 2,372.78 | 5,456 |
| Fullerton | 330 | 69 | 397 | 270 | 200 | 186 | 211 | 165 | 45 | 3,633 | 0.46 | 725.62 | 1,880 |
| Santa Ana | 257 | 87 | 355 | 190 | 163 | 131 | 132 | 259 | 23 | 2,853 | 0.29 | 667.58 | 1,476 |
| **Non-MWDOC Totals** | 1,368 | 1,016 | 1,662 | 937 | 694 | 602 | 638 | 690 | 144 | 17,031 | 1.57 | 3,765.98 | 3,290 |
| **Orange County Totals** | 9,474 | 4,347 | 12,348 | 8,287 | 6,059 | 5,696 | 6,640 | 5,416 | 1,877 | 110,660 | 20.46 | 23,762.77 | 21,379 |

# 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 | | FY16/17 | | 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 | 0 | 118 | 76 | 458.21 |
| Buena Park | 0 | 0 | 0 | 0 | 4 | 19 | 3 | 0 | 0 | 0 | 4 | 10 | 7 | 4 | 3 | 5 | 24 | 39 | 116.12 |
| East Orange CWD RZ | 0 | 0 | 1 | 0 | 5 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 15 | 0 | 6.86 |
| El Toro WD | 2 | 18 | 5 | 5 | 26 | 2 | 7 | 2 | 11 | 0 | 8 | 9 | 9 | 17 | 13 | 3 | 95 | 350 | 2,227.68 |
| Fountain Valley | 0 | 6 | 2 | 2 | 8 | 2 | 3 | 2 | 4 | 0 | 7 | 10 | 13 | 1 | 18 | 9 | 76 | 37 | 144.59 |
| Garden Grove | 6 | 0 | 5 | 4 | 7 | 0 | 5 | 2 | 9 | 0 | 10 | 14 | 13 | 11 | 8 | 0 | 81 | 38 | 141.62 |
| 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 | 44 | 26 | 228 | 200 | 820.03 |
| Irvine Ranch WD | 14 | 145 | 28 | 153 | 267 | 71 | 414 | 135 | 71 | 59 | 67 | 310 | 239 | 207 | 141 | 100 | 1,566 | 1,966 | 9,469.27 |
| La Habra | 0 | 21 | 0 | 0 | 3 | 0 | 4 | 7 | 2 | 0 | 4 | 7 | 3 | 1 | 2 | 7 | 26 | 44 | 171.30 |
| 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 | 17 | 0 | 186 | 113 | 580.82 |
| Moulton Niguel WD | 17 | 162 | 36 | 60 | 179 | 31 | 51 | 74 | 40 | 45 | 46 | 95 | 163 | 100 | 117 | 33 | 795 | 705 | 2,923.07 |
| Newport Beach | 7 | 58 | 6 | 0 | 275 | 12 | 242 | 26 | 168 | 75 | 11 | 9 | 28 | 43 | 19 | 10 | 1,027 | 407 | 2,290.12 |
| Orange | 2 | 13 | 5 | 8 | 25 | 0 | 20 | 24 | 13 | 9 | 18 | 31 | 51 | 13 | 27 | 1 | 243 | 156 | 795.11 |
| San Juan Capistrano | 7 | 49 | 13 | 1 | 103 | 2 | 14 | 18 | 6 | 11 | 6 | 19 | 20 | 8 | 10 | 0 | 210 | 117 | 541.95 |
| San Clemente | 13 | 209 | 46 | 11 | 212 | 17 | 26 | 7 | 28 | 2 | 28 | 24 | 26 | 3 | 19 | 6 | 1,033 | 367 | 2,349.52 |
| Santa Margarita WD | 10 | 152 | 61 | 53 | 262 | 7 | 53 | 171 | 64 | 93 | 53 | 321 | 189 | 136 | 208 | 54 | 1,036 | 1,205 | 4,522.76 |
| 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 | 13 | 1 | 123 | 58 | 262.87 |
| Westminster | 3 | 0 | 1 | 1 | 2 | 0 | 1 | 1 | 2 | 0 | 13 | 17 | 7 | 1 | 7 | 7 | 55 | 39 | 160.53 |
| Yorba Linda | 5 | 21 | 25 | 0 | 22 | 0 | 20 | 0 | 12 | 5 | 32 | 2 | 61 | 27 | 35 | 1 | 301 | 113 | 638.76 |
| **MWDOC Totals** | 142 | 949 | 289 | 374 | 1,671 | 185 | 1,017 | 583 | 571 | 402 | 648 | 1,026 | 1,123 | 3,136 | 756 | 301 | 8,322 | 9,111 | 34,766.20 |
| Anaheim | 5 | 46 | 12 | 11 | 23 | 60 | 19 | 10 | 9 | 26 | 7 | 52 | 30 | 34 | 41 | 10 | 198 | 457 | 2,285.08 |
| Fullerton | 2 | 39 | 9 | 33 | 22 | 51 | 9 | 29 | 8 | 0 | 40 | 26 | 32 | 12 | 20 | 6 | 166 | 198 | 788.21 |
| 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 | 67 | 18 | 437 | 754 | 3,351.17 |
| **Orange County Totals** | 150 | 1,042 | 318 | 418 | 1,722 | 301 | 1,053 | 641 | 595 | 436 | 704 | 1,131 | 1,207 | 3,208 | 823 | 319 | 8,759 | 9,865 | 38,117 |

## 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. | |
| Brea | 130 | 0 | 0 | 65 | 120 | 0 | 84 | 0 | 0 | 157 | 45 | 0 | 74 | 2,484 | 0 | 0 | 0 | 0 | 572 | 2,749 | 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 | 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 | 10.83 |
| 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 | 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 | 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 | 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 | 152.29 |
| Huntington Beach | 458 | 0 | 0 | 270 | 0 | 0 | 120 | 0 | 0 | 798 | 1,419 | 0 | 1,345 | 2,836 | 0 | 149 | 1,465 | 0 | 3,797 | 10,629 | 2,681 | 790.51 |
| 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 | 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 | 221.65 |
| La Palma | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 505 | 0 | 0 | 0 | 0 | 56 | 505 | 0 | 4.65 |
| 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 | 224.61 |
| Mesa Water | 297 | 277 | 0 | 270 | 0 | 0 | 361 | 0 | 0 | 229 | 0 | 0 | 166 | 0 | 0 | 70 | 0 | 0 | 1,987 | 385 | 343 | 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 | 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 | 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 | 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 | 415.75 |
| San Juan Capistrano | 949 | 0 | 0 | 684 | 30 | 0 | 370 | 0 | 0 | 495 | 737 | 0 | 310 | 593 | 0 | 75 | 0 | 0 | 5,495 | 8,729 | 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 | 0 | 16,165 | 6,921 | 611 | 450.33 |
| Seal Beach | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 5,261 | 0 | 0 | 2,300 | 0 | 0 | 0 | 0 | 155 | 7,852 | 0 | 90.55 |
| Serrano | 58 | 0 | 0 | 190 | 0 | 0 | 105 | 0 | 0 | 377 | 0 | 0 | 695 | 0 | 0 | 0 | 0 | 0 | 3,405 | 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 | 0 | 8,130 | 18,870 | 0 | 323.31 |
| Trabuco Canyon | 379 | 0 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 56 | 0 | 0 | 130 | 0 | 0 | 0 | 0 | 0 | 2,086 | 791 | 0 | 53.52 |
| Tustin | 476 | 1,013 | 0 | 378 | 0 | 0 | 329 | 0 | 0 | 408 | 0 | 0 | 317 | 386 | 0 | 65 | 0 | 0 | 3,371 | 1,399 | 0 | 69.73 |
| Westminster | 26 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 54 | 0 | 0 | 73 | 0 | 0 | 105 | 0 | 0 | 464 | 0 | 0 | 6.53 |
| Yorba Linda | 559 | 0 | 0 | 730 | 0 | 0 | 40 | 990 | 0 | 921 | 0 | 0 | 1,715 | 0 | 0 | 213 | 0 | 0 | 6,081 | 4,359 | 500 | 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 | 16,787 | 0 | 192,796 | 264,021 | 14,752 | 10,027.17 |
| 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 | 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 | 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 | 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 | 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 | 24,880 | 0 | 200,585 | 330,881 | 16,341 | 11,129.08 |

# 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 | 25 | **1,052** | **586** |
| 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 | 763 | **4,235** | **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** | **7,096** | **56,278** | **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 | 472 | **2,629** | **1,622** |
| 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** | **741** | **21,841** | **13,186** |
| **Orange County Totals** | **2,471** | **8,826** | **5,876** | **3,531** | **2,026** | **1,869** | **1,531** | **2,807** | **22,116** | **7,837** | **78,119** | **39,200** |

[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 | 0 | 0 | 1 | 54 | 432 |
| 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 | 0 | 0 | 0 | 0 | 0 |
| Golden State | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 26 |
| Huntington Beach | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 3 | 127 | 393 |
| Irvine Ranch | 2 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 6 | 98 | 488 |
| La Habra | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 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 | 44 |
| Orange | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 53 | 387 |
| 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 | 0 | 0 | 0 | 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 | 1 | 1 | 15 | 356 | 1770 |
| 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 | 191 |
| **OC Totals** | 2 | 1 | 1 | 3 | 1 | 2 | 2 | 1 | 16 | 367 | 1962 |

[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 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | **1,513.87** |
| 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** |
| **MWDOC 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 | 9,214 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,214 | **5.16** |
| Santa Ana | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **-** |
| **Non-MWDOC 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** |

[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 | 0 | 446 | **77.33** |
| 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** |
| El Toro WD | 0 | 392 | 18 | 75 | 38 | 18 | 0 | 133 | 218 | 869 | 264 | 10 | 2,035 | **437.46** |
| Fountain Valley | 0 | 69 | 21 | 262 | 54 | 17 | 0 | 0 | 41 | 132 | 220 | 5 | 821 | **207.82** |
| 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 | 484 | 16,755 | **4,557.57** |
| 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 | 37 | 5,678 | **856.08** |
| 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 | 1 | 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 | 712 | 50,460 | **11,715.19** |
| Anaheim | 0 | 255 | 78 | 2,771 | 619 | 114 | 0 | 0 | 156 | 1,188 | 614 | 41 | 5,836 | **1,690.91** |
| 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 | 17 | 2,018 | **515.39** |
| **Non-MWDOC Totals** | 0 | 270 | 131 | 3,982 | 768 | 160 | 0 | 0 | 250 | 2,083 | 1,193 | 69 | 8,906 | **2,429.53** |
| **Orange County Totals** | **38** | **3,049** | **1,625** | **15,264** | **5,874** | **969** | **103** | **1,651** | **3,580** | **14,121** | **12,311** | **781** | **59,366** | **14,144.72** |

# 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 |
|---|---|---|---|---|---|---|---|---|---|
| | Surveys | Cert Homes | Surveys | Cert Homes | Surveys | Cert Homes | Surveys | Cert Homes | Water Savings |
| 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 |

[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** |