

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

Jointly with the

**PLANNING & OPERATIONS COMMITTEE**

October 2, 2017, 8:30 a.m.

MWDOC Conference Room 101

**P&O Committee:**

Director Dick, Chair

Director Tamaribuchi

Director Yoo Schneider

Staff: R. Hunter, K. Seckel, J. Berg,

H. De La Torre, K. Davanaugh

Ex Officio Member: W. Osborne

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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>.

**PRESENTATION**

1. ORANGE COUNTY WATER LOSS CONTROL PROGRAM

**DISCUSSION ITEM**

2. STATUS OF ORANGE COUNTY'S CYCLIC IN-LIEU PROGRAM

**ACTION ITEM**

3. SEISMIC STUDY RESULTS FOR THE MWDOC OFFICES AND PROPOSED STAFF WORK PLAN AND AWARD OF CONTRACT TO IDS GROUP FOR ADDITIONAL SEISMIC WORK AT BOTH THE MWDOC OFFICE AND THE SOUTH EOC

**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.)

4. STAFF REPORT ON RECENT UPPER BASIN COLORADO RIVER TOUR (AUGUST 28-31, 2017)
5. SOLE SOURCE PROCUREMENT JUSTIFICATION FOR MIKE MARTINET (WEROC)
6. 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
7. 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.



**PRESENTATION ITEM**

October 2, 2017

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

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

Staff Contact: J. Berg, Director of Water Use Efficiency

**SUBJECT: Water Loss Control Program – Year II Results**

**STAFF RECOMMENDATION**

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

**COMMITTEE RECOMMENDATION**

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Committee recommends (To be determined at Committee Meeting)

**SUMMARY**

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Last September, staff provided the Planning & Operations Committee with a presentation describing water loss control methodologies and the Year I Water Balance results from our technical assistance program.

**DETAILED REPORT**

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At the October 2017 Planning & Operations Committee meeting, staff from MWDOC and Water Systems Optimization, Inc. will provide the attached presentation summarizing the Year II water balance results for 16 agencies, the sales meter accuracy testing results for 9 agencies, and the plans for Year III of MWDOC's Water Loss Control technical assistance program.

Budgeted (Y/N): N/A	Budgeted amount: N/A	Core <u>  X  </u>	Choice <u>  X  </u>
Action item amount: N/A	Line item: N/A		
Fiscal Impact (explain if unbudgeted): N/A			

# OC Water Loss Control Program

*Striving to Achieve an Economically Optimized Level of Water Loss*



October 2, 2017

Planning & Operations Committee Meeting

Joe Berg, Municipal Water District of Orange County

Reinhard Sturm and Lucy Andrews, Water Systems Optimization, Inc.

# Presentation Summary

- MWDOC Water Loss Control Program Overview
- Year 2 water balance results
- Customer meter test results
- Year 3 planning

# MWDOC Water Loss Control Program

## Overview

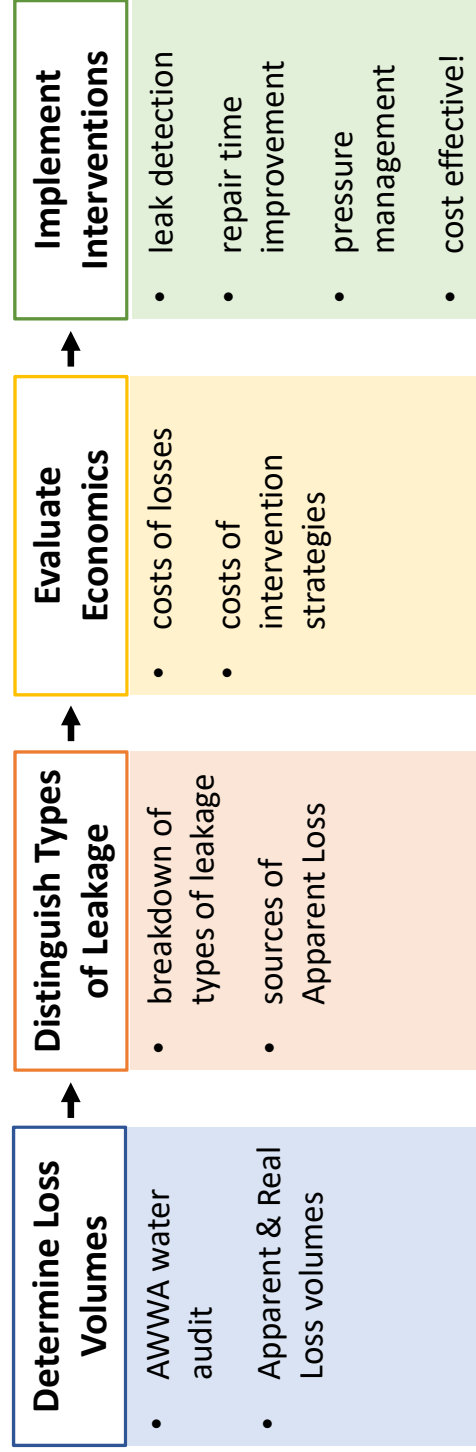
### One-on-One Technical Assistance

- Choice-based; funded by 16 participating retail agencies
- Water Systems Optimization
  - Water Balance, Component Analysis, Leak Detection and Reporting
- Sales Meter Accuracy Testing
  - McCalls Meter's, Inc. and Westerly Meter Service Company

### OC Water Loss Control Work Group

- Core-based; funded through MWDOC's general fund
- Bi-monthly Work Group Meetings for all OC water agencies
- Focus on elevating knowledge of water loss control
- Leak detection equipment grant Project Advisory Committee

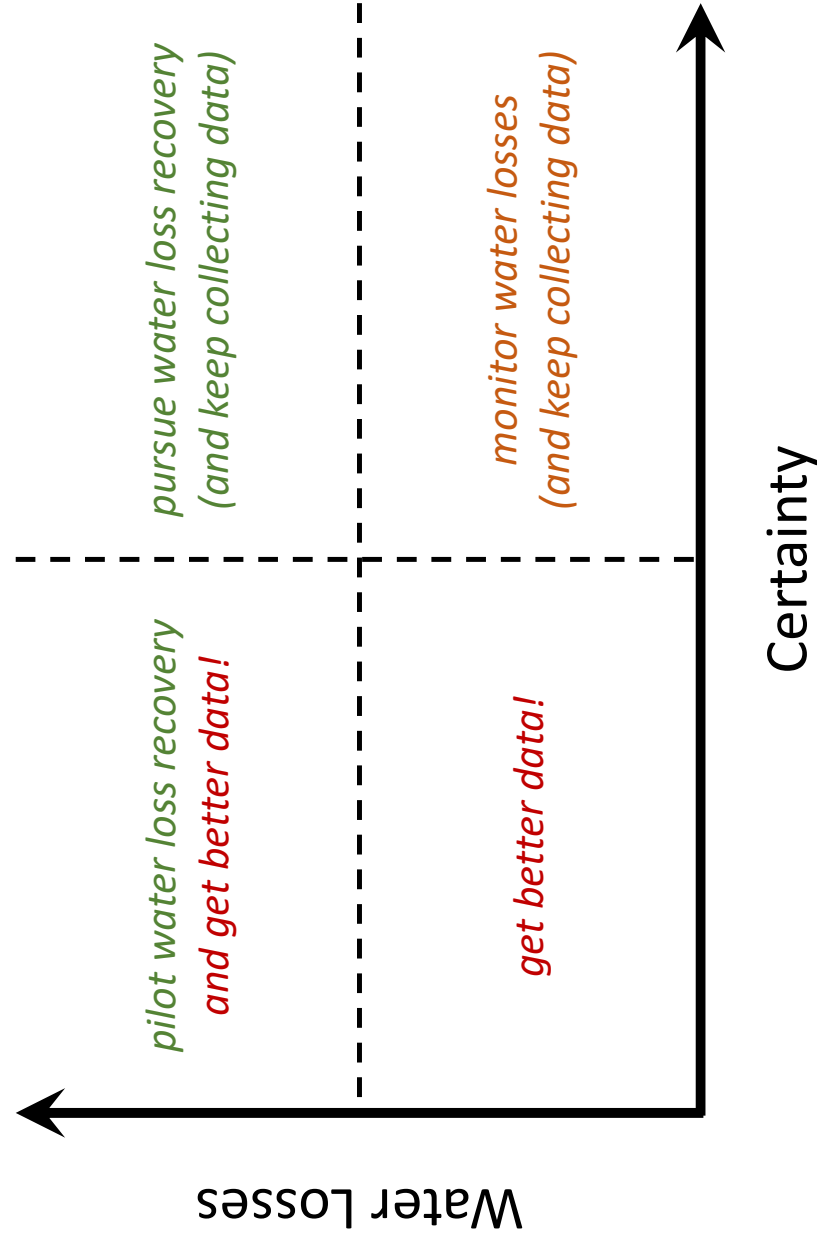
# Water Auditing and Water Loss Control



*Most agencies are here*

Well-planned water loss control reduces production costs, extends asset life, and improves revenue.

# Water Loss Management





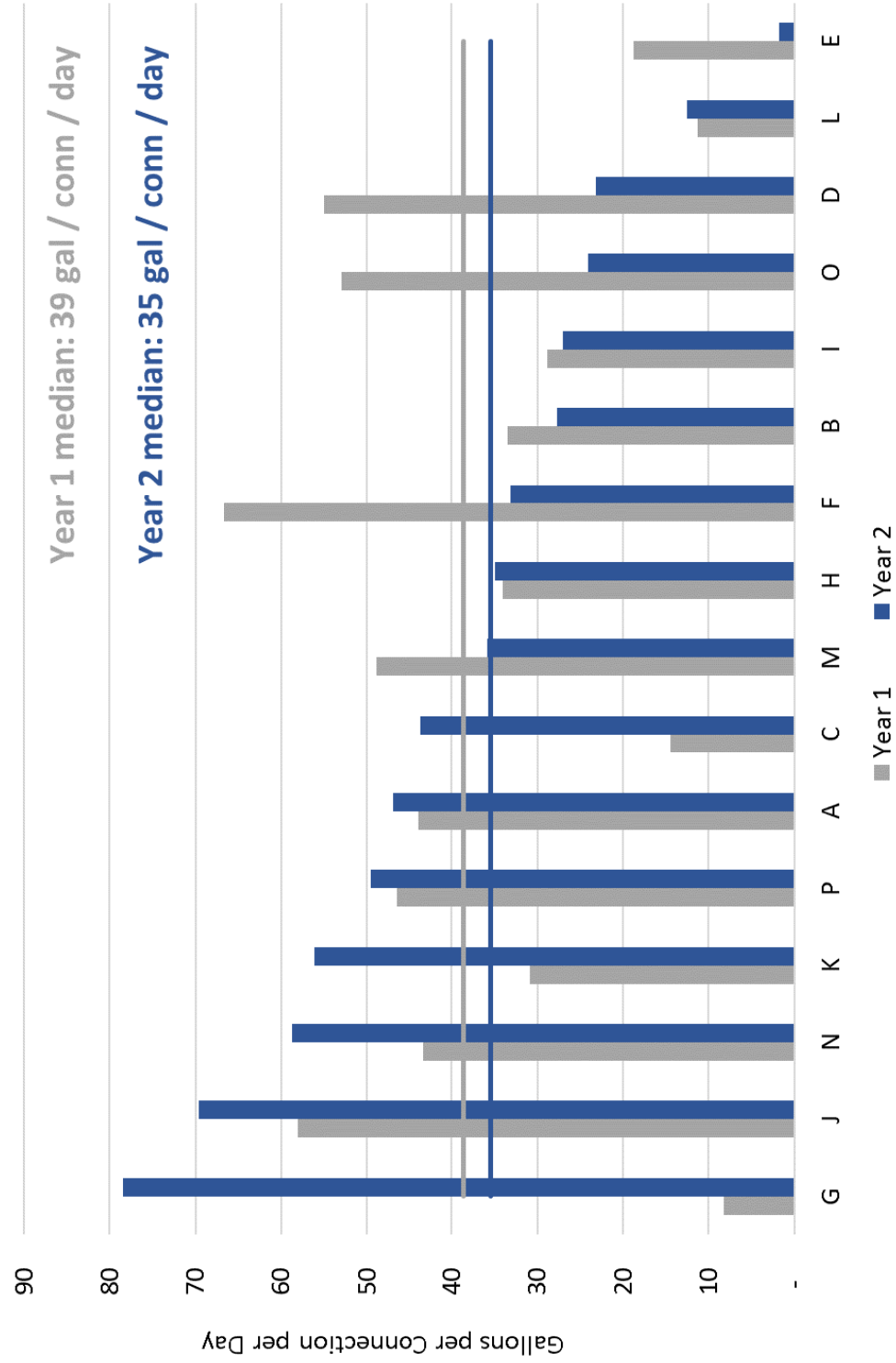
## Year 2 Water Balance Results

16 agencies participated in year 1 and year 2

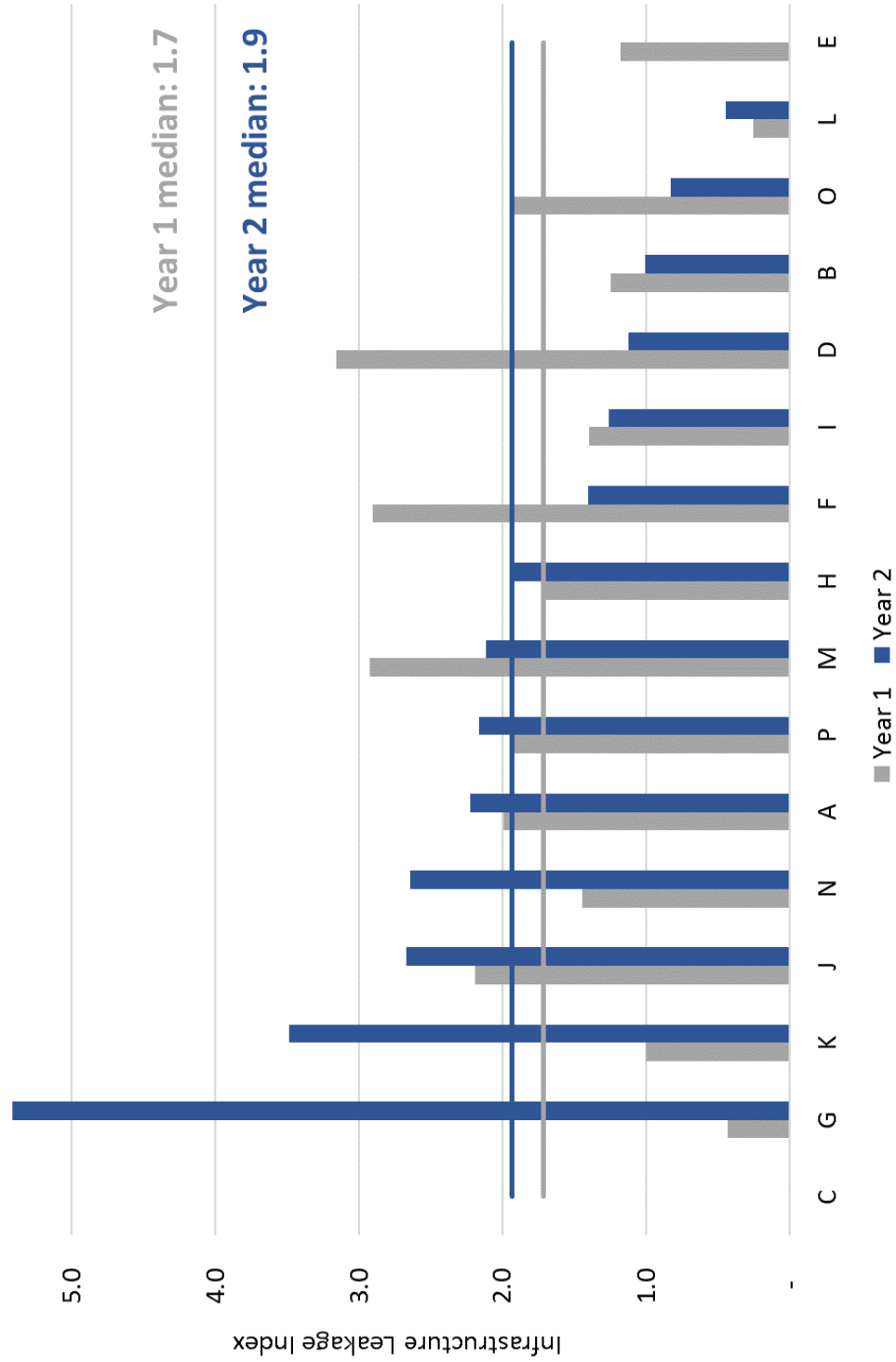
*7 agencies tested customer meters*

**9,900 AF of water loss valued at \$9.7M**

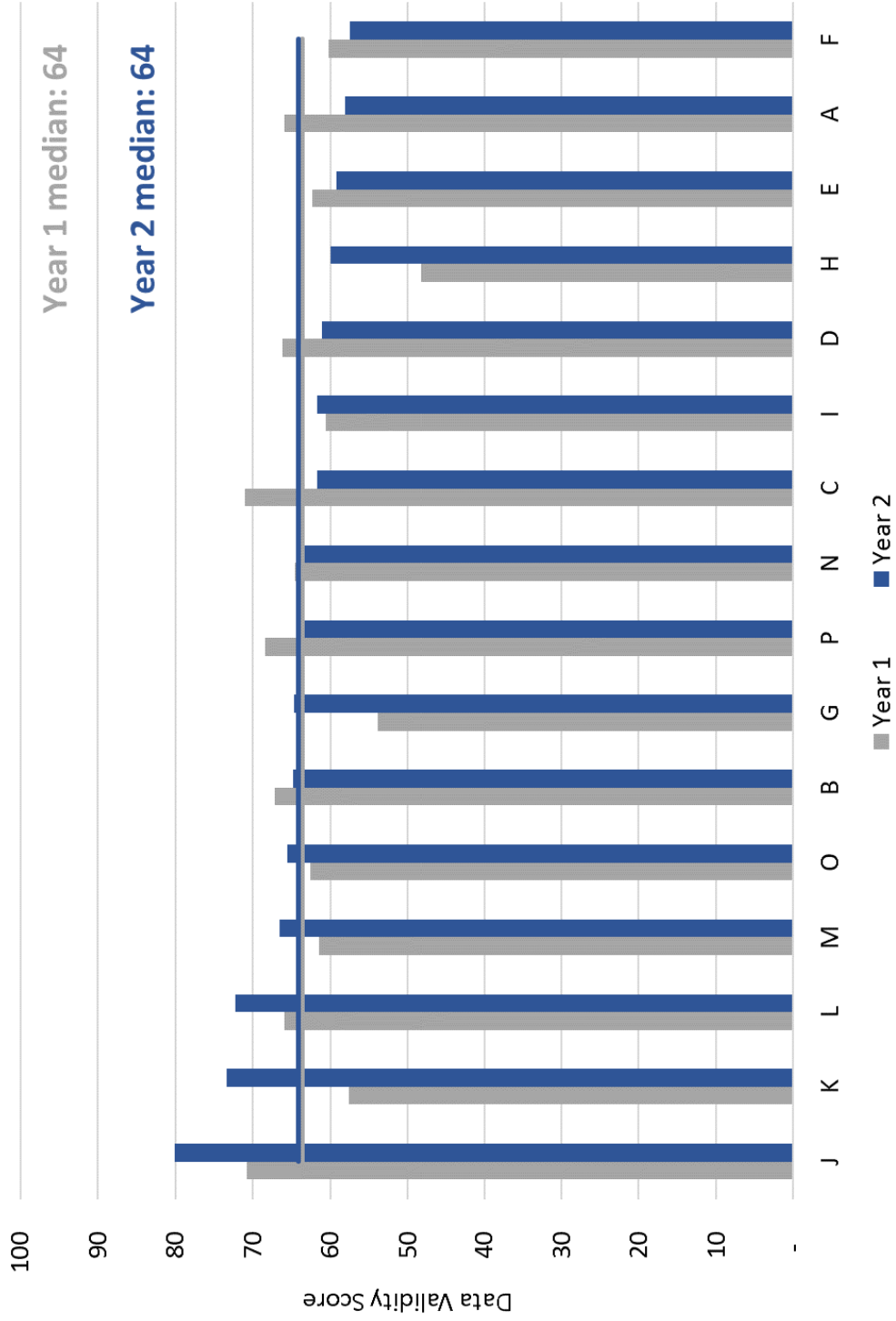
## Water Loss per Connection per Day



## Infrastructure Leakage Index



## Data Validity Score



## Year 1 to Year 2 Changes

Half of the audits didn't change (either data or outcomes).

Changes in the other half:

- Source meter accuracy – measured and incorporated
- Meter register units – corrected
- AMI data issues – solved
- True leakage reduction

# Customer Meter Accuracy

Why do customer meters degrade?

*meter technology*

*customer use patterns*

*accumulated throughput*

*water quality*

*age*

*pressure*

*manufacturer*

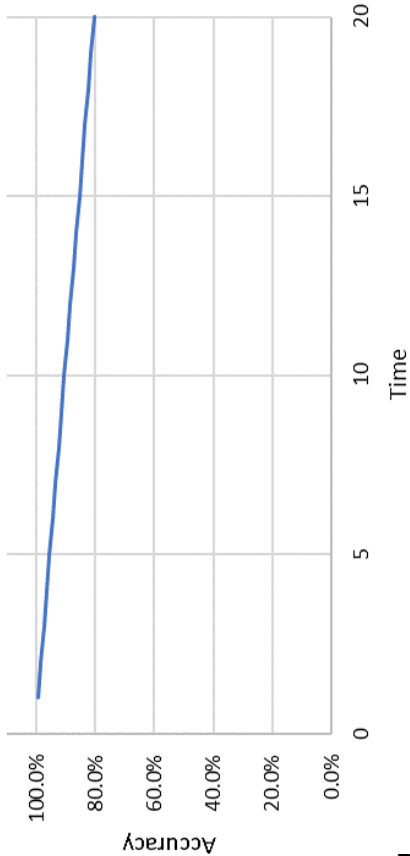
*tampering*

*installation*

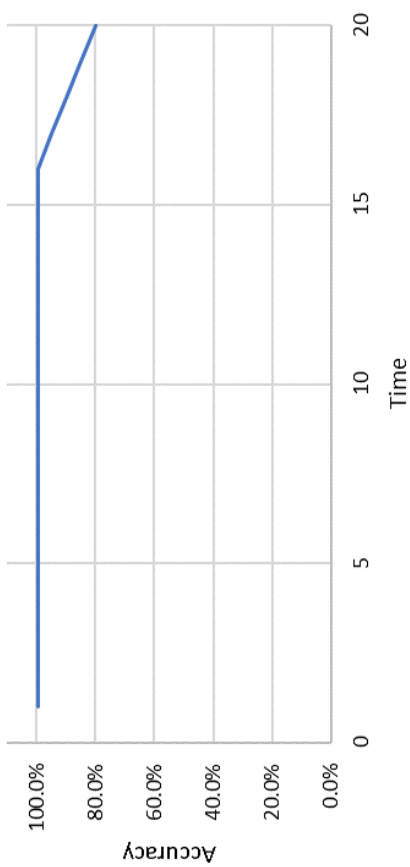
# Customer Meter Accuracy

How do customer meters degrade?

Steady Degradation

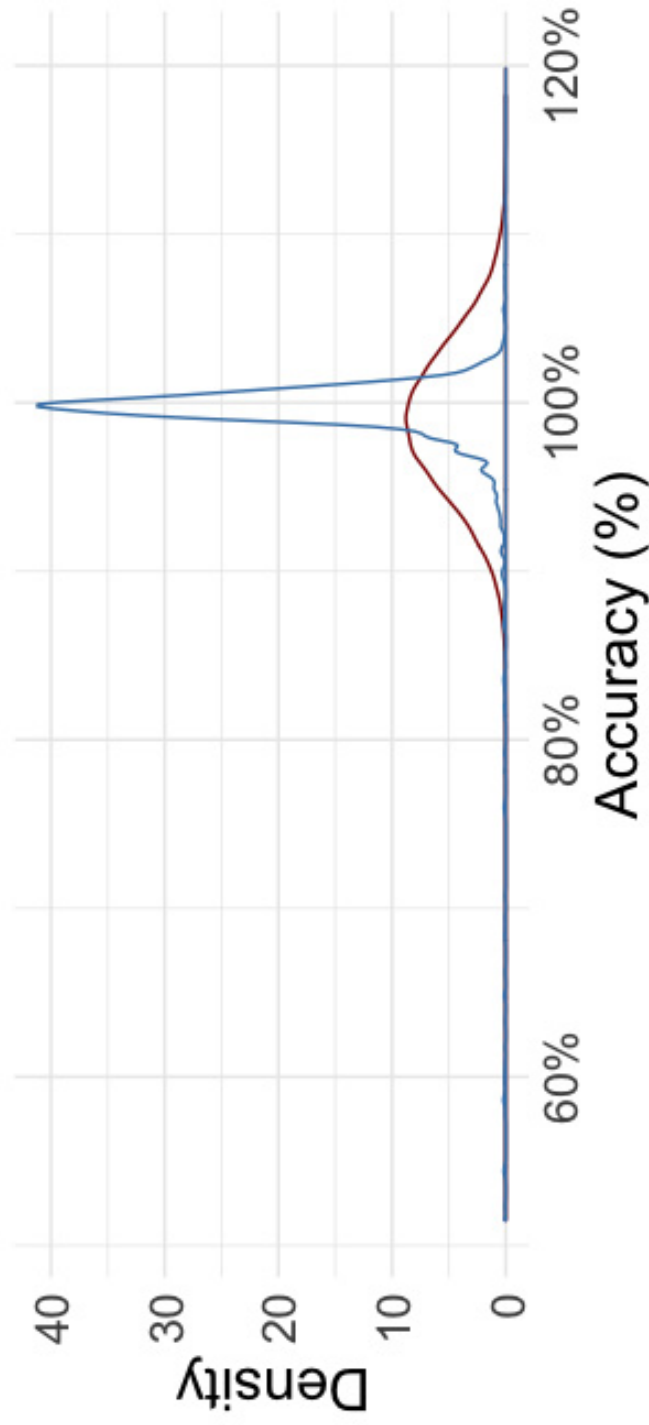


Sudden Degradation



# Small Meter Statistics

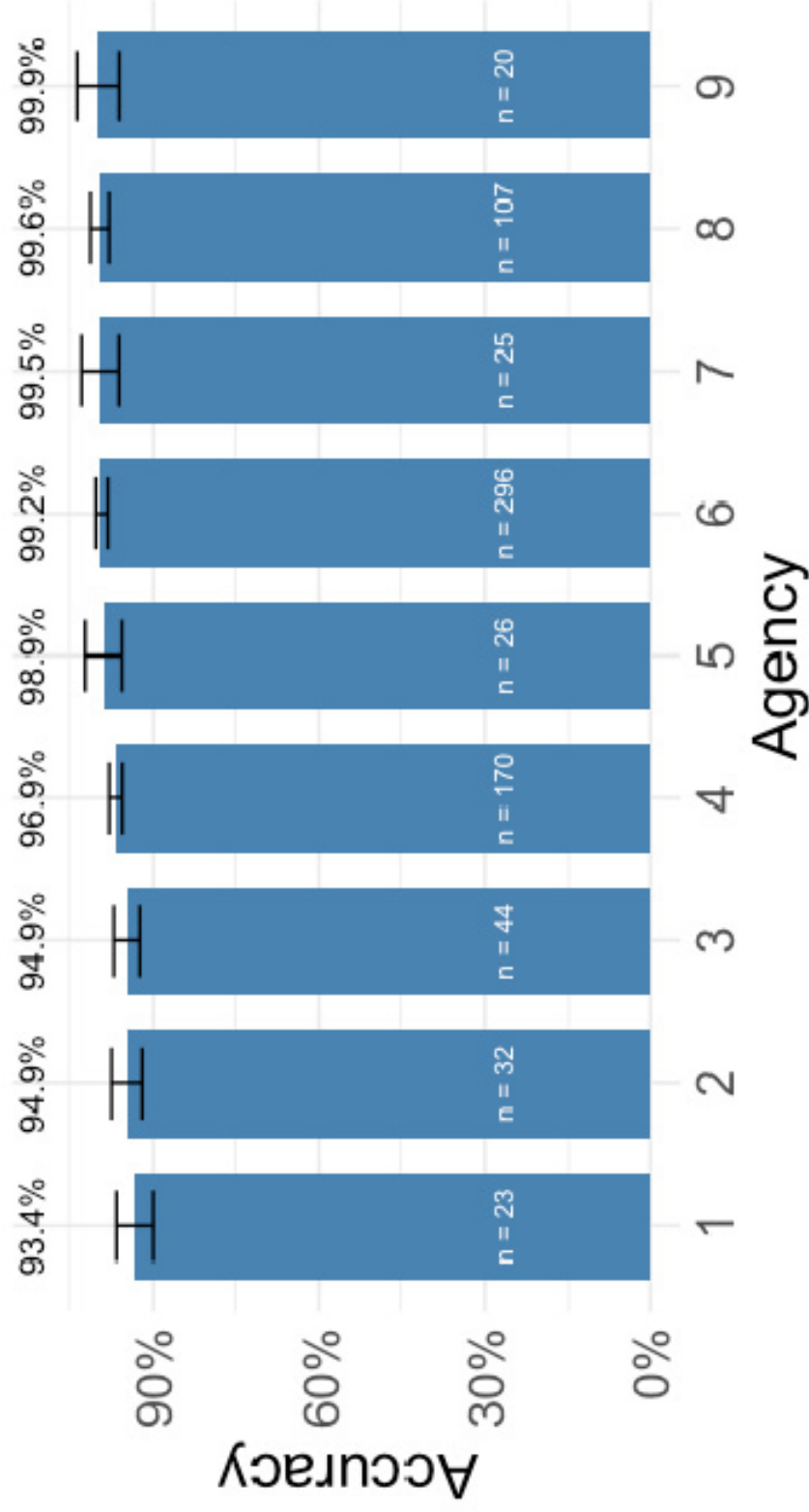
Describing a **non-normal distribution** only with average and standard deviation:



\*Results <50% not shown

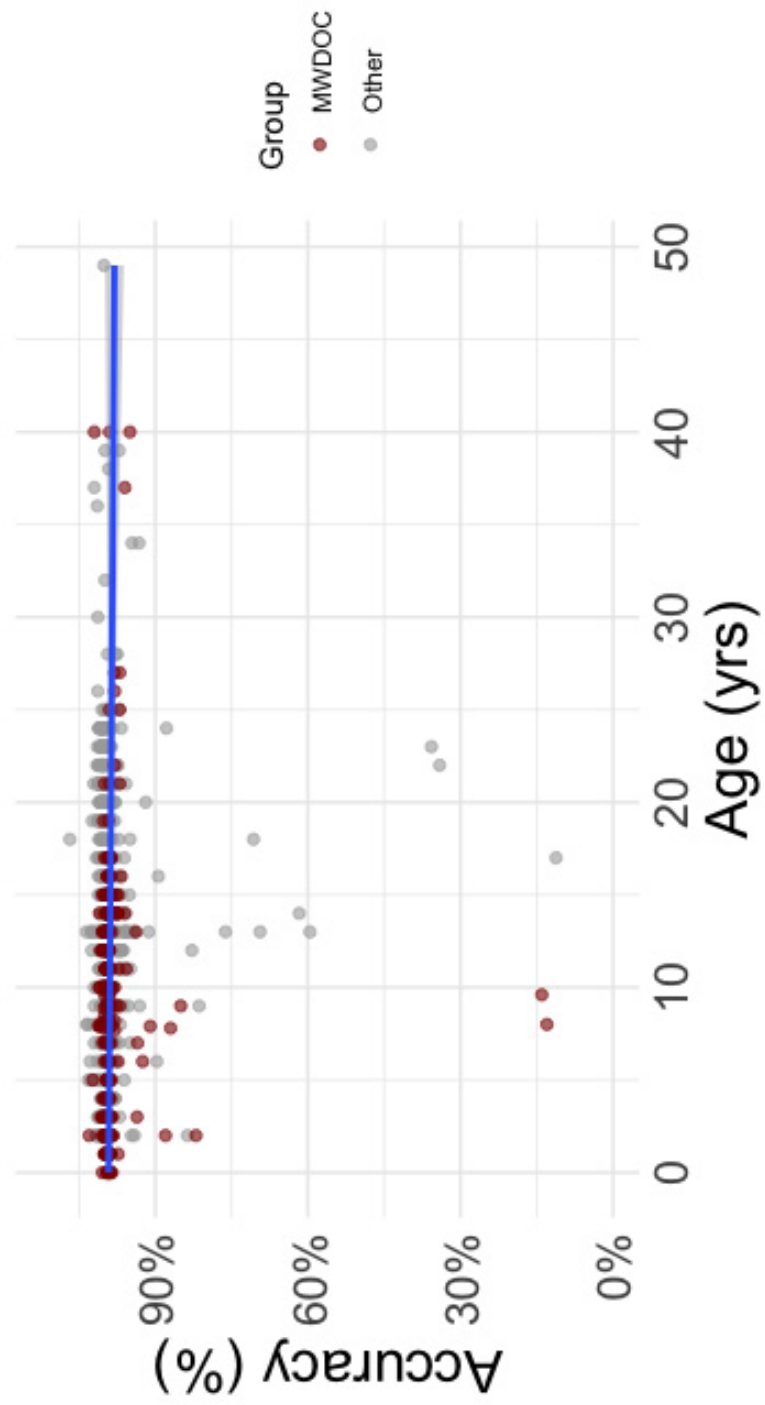


# Small Meter Test Results



\*Simple averages, no excluded results

# Small Meter Test Results



n = 2352

# Small Meter Test Results

## **So what does this mean?**

- Small sample sizes are a starting point but need to be built upon over time.
- Throughput and age are not reliable predictors for accuracy degradation.
- Meter performance appears to be utility-specific.

# Small Meter Test Results

Why should I test customer meters?

- **Large meters** – to maintain revenue
- **Small meters** – to:
  - Study meters slated for replacement
  - Achieve higher data validity scores
  - Consider population performance *if enough tests are conducted (250+)*

## Year 3 Planning

### Upcoming:

- 2018 water audit compilation and validation
- Narratives of data and/or water loss improvement
- Leak Detection Equipment Lending Library
- 2019-2020 performance targets – SB555 and EO “Conservation as a California Way of Life”

## Year 3 Planning

Goal: every agency...

- Has a flexible, customized leakage management program (monitoring and/or intervention)
- Can defend the extent of investment in water loss control to DWR/SWRCB
- Understands water loss control better than peers!

# Year 3 Planning

## Steps:

- Water audit compilation and validation
  - Source meter testing
  - Large sales meter testing (especially for revenue maximization)
- Component Analysis of Real Losses to establish specific leakage profiles and determine recoverable leakage (technically, cost-effectively)
- Water loss control program design

*Striving to Achieve an Economically Optimized Level of Water Loss*

# Questions and Answers





**DISCUSSION ITEM**

October 2, 2017

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

**FROM: Robert Hunter  
General Manager**

Staff Contact: Harvey De La Torre  
Kevin Hostert

**SUBJECT: STATUS OF ORANGE COUNTY'S CYCLIC IN-LIEU PROGRAM**

**STAFF RECOMMENDATION**

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

**COMMITTEE RECOMMENDATION**

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Committee recommends (To be determined at Committee Meeting)

**REPORT**

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On July 19, 2017, the MWD OC Board of Directors authorized the General Manager to enter into Cyclic Agreements with the Metropolitan Water District, Orange County Water District, and the cities of Anaheim, Fullerton, and Santa Ana in the implementation of a one-time Metropolitan In-Lieu Program, as adopted by the Metropolitan Board on July 11, 2017. The purpose of this program is to replenish local groundwater storage that was severely depleted during the recent drought and optimize the storage of the excess supplies available to Metropolitan this year.

Water year (October to September) 2017 is officially the wettest year on record for Northern California, yielding record breaking runoff and a State Water Project (SWP) "Table A" allocation of 85%; and for the first time in six years, the Upper Colorado River Basin has resulted in above normal runoff. Additionally, Metropolitan has received approximately 124 TAF of Article 21 SWP supplies, which are surplus SWP supplies for state contractors. This will result in an estimated 2.75 MAF of available supplies for Metropolitan this year. With

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

current demand trends of 1.47 MAF, supplies will exceed demands by approximately 1.27 MAF.

As a result of abundant supplies on the SWP and the discovery of suspected Quagga Mussels in the East Branch of the California Aqueduct limiting direct replenishment deliveries, the Metropolitan Board offered a one-time In-Lieu Program to its member agencies with cyclic agreements to maximize their ability to capture excess imported water supplies. The In-Lieu program directly puts water into the Orange County Groundwater Basin by allowing groundwater producers to take additional Metropolitan treated imported water at a cost-neutral price “In-Lieu” of pumping groundwater. The Orange County Water District (OCWD) has committed to taking up to 100 TAF of In-Lieu water for the 2017-18 Fiscal Year, which will refill the Orange County Basin to 60% (Note: OCWD’s ideal basin operating range is 70% to 80% full).

In coordination with OCWD staff and the eighteen participating groundwater producers, MWDOC staff is administering the operations of the program and submitting monthly certification forms to Metropolitan. The purpose of this report is to provide the MWDOC Board with the first quarter certification update and progress toward achieving the storage goal of 100 TAF by the end of the fiscal year.

## **QUARTERLY UPDATE**

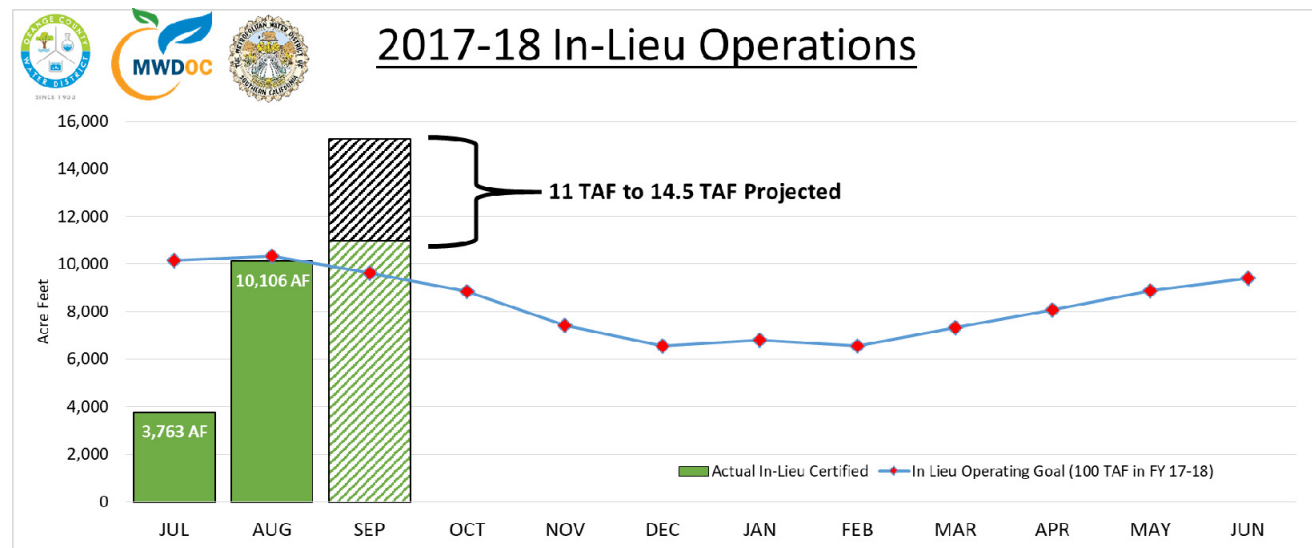
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This first quarter certification update is comprised of the imported water requested to be certified as In-Lieu by Metropolitan for the months of July, August, and September for MWDOC’s member agencies and the Cities of Anaheim, Fullerton, and Santa Ana. For the month of July, 3,762.7 AF of imported water has been requested to Metropolitan to be certified as In-Lieu water. For the month of August, we requested that 10,105.6 AF of imported water be certified as In-Lieu. For the month of September, MWDOC staff is projecting between 11,000 AF and 14,500 AF of In-Lieu deliveries depending on water demands and how agencies perform. The September projections far exceed the month’s operational goal, making up for July’s shortfall. The first quarter cumulative total of approximately 27 TAF is on track for achieving the 100 TAF goal by the end of the fiscal year.

## 2017-18 In-Lieu Deliveries by Retail Agency

Actual In-Lieu Credits (AF)	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	Total
City of Anaheim	0.0	0.0											0.0
City of Buena Park	0.0	0.0											0.0
East Orange County Water District	77.2	80.7											157.9
City of Fountain Valley	0.0	382.1											382.1
City of Fullerton	0.0	0.0											0.0
City of Garden Grove	66.9	391.7											458.5
Golden State Water Company	490.9	1,095.0											1,585.9
City of Huntington Beach	1,279.1	1,837.9											3,117.0
Irvine Ranch Water District	777.7	2,123.0											2,900.7
Laguna Beach County Water District	21.6	190.2											211.9
Mesa Water District	47.1	927.0											974.1
City of Newport Beach	426.9	448.3											875.2
City of Orange	0.0	390.0											390.0
City of Santa Ana	398.5	557.1											955.6
City of Seal Beach	37.0	62.8											99.8
City of Tustin	20.1	711.6											731.6
City of Westminster	95.5	277.4											372.9
Yorba Linda Water District	24.3	630.8											655.1
<b>Total OCWD Agencies</b>	<b>3,762.7</b>	<b>10,105.6</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>13,868.3</b>
<b>Total MWDOC Agencies</b>	<b>3,364.2</b>	<b>9,548.5</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>12,912.7</b>

## 2017-18 Total In-Lieu Deliveries VS. Operating Goal





**ACTION ITEM**  
October 18, 2017

**TO:** Board of Directors

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

Robert Hunter  
General Manager

Staff Contact: Kelly Hubbard

**SUBJECT: Seismic Study Results for the MWDOC Offices and Proposed Staff Work Plan and Award of Contract to IDS Group for Additional Seismic Work at both the MWDOC Office and the South EOC**

**STAFF RECOMMENDATION**

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Staff recommends the Board of Directors review the Seismic Study for the MWDOC Offices, review the proposed staff work plan for addressing seismic recommendations at both the MWDOC Office and the South EOC, and award 3 additional contracts to IDS at an estimated cost of \$17,800 to complete the following:

1. Prepare plans for support and bracing of elements of the South EOC and provide engineering support services for plan check approval and construction observation at an estimated cost of \$4,900.
2. Prepare plans for non-structural retrofit elements of the MWDOC Administrative Building and provide engineering support services for plan check approval and construction observation at an estimated cost of \$6,300.
3. Additional engineering analysis and evaluation of up to three seismic performance levels for structural retrofit of the MWDOC Administration Building at an estimated cost of \$6,600.

**COMMITTEE RECOMMENDATION**

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Committee recommends (To be determined at Committee Meeting)

<b>Budgeted (Y/N): Y &amp; N</b>	Budgeted amount: See below	Core _X_	Choice __
<b>Action item amount: \$17,800</b>		Line item: 7040- Professional Services	
<b>Fiscal Impact (explain if unbudgeted):</b> \$30,000 was budgeted for the South EOC work; nothing was budgeted for the MWDOC Building retrofit; the costs for the MWDOC building are being funded out of reserves.			

## SUMMARY

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Following the completion of a seismic study of the WEROC South Emergency Operations Center, staff determined that it was important to complete a similar evaluation of the MWDOC administration building as the primary property for MWDOC staff's daily operations and in consideration of its designation as the WEROC Alternate EOC. Staff completed a Change Order with IDS Group for the original Seismic Assessment of the South EOC to also include an assessment of the MWDOC Administration Building. Below is a summary of the MWDOC seismic assessment and proposed next steps to follow-up on the study recommendations for both facilities.

## DETAILED REPORT

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### Seismic Study of MWDOC Offices

As with the seismic assessment of the WEROC South EOC, the purpose of the MWDOC Administrative Building assessment was to evaluate the facility for its seismic stability, with the primary focus being:

1. Life safety protections of employees or volunteers working at the facility; and
2. Ability of the facility to continue to function for business purposes, as well as to be available to serve as a backup WEROC EOC if the South EOC was unavailable.

Life safety protection involves reviewing what mitigation actions are needed to physically protect the safety of any employees within or immediately around the building during the actual shaking of an earthquake. Life safety evaluation includes the most standard (lowest required) building code requirements, as well as considerations of non-structural components that can cause injury. The second area of focus is the ability of the facility to immediately continue to serve in its daily business capacity, or as an EOC after an event. Otherwise what we would like to know is how much clean-up/restoration may be needed in order to function at this location. This concept of operations was evaluated based on building code designations for an Essential Facility (Category 4), the highest level of building resilience identified. The mitigation actions related to this area, are often associated with the reduction of or elimination of down time created by damage from the shaking.

In general the assessment stated "We do not believe there are any substantial issues that would prevent the building from performing at the Life-Safety performance level." The report did raise concerns about potential building damage and impacts to operational performance. In order for the building to be used for critical operations, the following items are recommended as necessary:

1. Upgrade of the Seismic Force Resisting System (degree of upgrade to be determined)
2. Replacement or Treatment of some windows for safety
3. Ceiling and light support and bracing improvements
4. Anchor non-structural elements and equipment
5. Secure loose roof tiles

In further discussions with IDS, they recommend that MWDOC complete at least the non-structural recommendations at the MWDOC building, which are items 2-5. These are items

that will reduce potential injuries and improve immediate operational capabilities of the facility.

In regards to the structural recommendation (item 1), the report suggested that the retrofits needed in order to meet full Essential Facility requirements would be extremely costly and difficult to achieve, but that some level of improvement could be completed. Staff feels that it is our obligation to explore what levels of structural improvement can be achieved through structural retrofits to ensure the appropriate level of safety for staff, as well as business continuity. In order to determine what levels of improvement are achievable and affordable, IDS recommended a more in-depth structural matrix analysis of the current structure, including the retrofits completed in 1996. The additional study will provide an engineering analysis and evaluation of up to three seismic performance levels (between the minimum code requirements and essential facility - highest level) for structural improvements and provide the details needed to prepare cost estimates and recommended actions.

The decision facing us is not necessarily a technical one but more of a policy issue regarding what level of risk the district is willing to take and what level of investment to make to reduce risk. IDS does not believe the existing building meets today's code requirements for an office building, let alone an Essential Facility. One option would be to simply bring the building to current code standards. A second level of retrofit might bring the structure up to the code of say a school facility that is higher than the basic code but lower than an Essential Facility. The proposed additional study would provide staff and the Board information on these type of additional options. Staff would utilize this analysis to recommend to the Board the most efficient and appropriate structural measures to implement at the MWDOC Administrative Building. It is important to note, MWDOC is not currently required to make any seismic improvements to the building at this time, however the District may be required to make some level of improvements through the permitting process for the office remodel work or due to permitting the non-structural work (such as meeting ADA requirements).

### **Seismic Work Plan and Costs**

Staff recommends that we proceed with the identified non-structural recommendations at both the WEROC South EOC and the MWDOC Administration Building for the safety of our staff, for emergency response purposes, and to meet our business continuity needs. This includes an upcoming decision on the structural retrofits at the MWDOC building. The proposed steps and costs (both to date, quoted and estimated) to accomplish the seismic retrofit at each facility is outlined below.

### **South EOC**

The proposed work at the South EOC is simpler in nature, as staff is proposing we move forward with only non-structural improvements. Staff proposes that the South EOC retrofits should be completed as quickly as possible and not wait for the MWDOC Administration Building work. The following steps would be completed:

1. Contract with IDS to complete plans for Support and Bracing of Elements of the South EOC and provide engineering support services for plan check approval and during construction.
2. Utilize completed plans from IDS to bid the construction work. Staff will bring the construction award contract to the Board for Approval. This work will include:
  - a. Reinforce or replace ceiling system

- b. Reinforce suspended lights
  - c. Reinforce suspended mechanical registers (such as T.V.s and projectors)
  - d. Restrain equipment and contents (such as bookshelves, and wall mounted items).
  - e. Complete required ADA enhancements (20% of project costs)
  - f. May include additional required improvements within this Bid Process for efficiency. This would include:
    - i. Replacement of AC Unit
    - ii. Replacement/Revision of Doors for fire safety
3. Contract and complete work with selected vendor.

For the WEROC South EOC, the seismic assessment was completed in FY16/17 with WEROC reserves and \$30,000 was budgeted in the FY17/18 WEROC capital budget for seismic retrofits.

Status	Work Description	Vendor	Costs
Completed	South EOC Seismic Study	IDS Group	\$3,700
Proposed	WEROC South EOC Seismic Plans and Contractor Oversight – Non-Structural	IDS Group	\$4,900*
Estimated	WEROC South EOC Seismic Retrofit – Non-Structural Estimate	TBD	\$15,000-20,000 **
<b>WEROC TOTAL (EST)</b>			<b>\$23,600-28,600</b>

\*Clarification of study components and study costs are in process.

\*\*Estimate from IDS Group; does not include an estimated \$5,000 for item f above.

### **MWDOC Administrative Building**

The proposed work for the MWDOC Administrative Building is more complex, as it will include structural recommendations and will need to be coordinated with the space study analysis and potential construction being facilitated by Cathy Harris. Staff is recommending two concurrent processes, one in relation to the non-structural retrofits and one in relation to the structural retrofits.

#### **Non-Structural Retrofit Process:**

1. Contract with IDS to complete plans for non-structural improvements of the MWDOC Administrative Building and provide engineering support services for plan check approval and during construction.
  - a. This step may include modifications or adjustments to the non-structural plans and work based on the expected space study analysis and construction designs for MWDOC work spaces.
2. Utilize completed plans from IDS to bid the construction work (may be bid in conjunction with the South EOC improvements). Staff will bring the construction award contract to the Board for Approval. This work will include:
  - a. Replacement or Treatment of some windows for safety
  - b. Reinforce or replace ceiling and light support systems
  - c. Anchor non-structural elements and equipment
  - d. Secure loose roof tiles
3. Contract and complete work with selected vendor.

### Structural Retrofit Process:

1. Contract with IDS for additional engineering analysis and evaluation of up to three seismic performance levels for structural retrofit of the MWDOC Administration Building.
2. Staff will come back to the Board for approval of:
  - a. Recommend appropriate level of seismic performance structural upgrades.
  - b. Contract with a consultant (possibly IDS) to complete plans for both the selected structural improvements of the MWDOC Administrative Building, including the provision of engineering support services for plan check approval and construction.
    - i. This step will include modifications or adjustments to the seismic retrofit plans and work based on the finalized space study analysis and construction designs for MWDOC work spaces.
3. Staff would use the plans and specifications from selected consultant to bid the recommended work.
4. Contract and complete work with selected vendor.

The need to evaluate the MWDOC Administrative Building became apparent after the completion of the WEROC South EOC Seismic Study in June. Therefore, the seismic study of the MWDOC Administrative Building, the proposed additional work with IDS for MWDOC, and the actual seismic retrofits for the MWDOC Administrative Building were not budgeted. This work would fall under the MWDOC capital budget and come from reserves. Please note that the estimated costs below are rough estimates as the design work which would serve as the basis for detailed cost estimates has not yet been completed. Part of the design work tasks are to provide detailed cost estimates of the work.

Status	Work Description	Vendor	Costs
Completed	Admin Building Seismic Study	IDS Group	\$7,800
Proposed	Admin Plan Seismic Plans and Contractor Oversight – Non-Structural	IDS Group	\$6,300*
Proposed	Admin Building Additional Engineering Analysis	IDS Group	\$6,600*
Estimated	Admin Building Seismic Retrofit – Non-Structural	TBD by Public Works Bid	\$25,000+**
Estimated	Admin Building design fee for Plans, Specifications, and Opinion Cost for Architectural, Structural and MEP (Mechanical, Electrical and Plumbing)	TBD	\$70,000-90,000 **
Estimated	Admin Building Seismic Retrofit - Structural Estimate	TBD by Public Works Bid	\$725,000-1,225,000**
<b>MWDOC TOTAL (Est.)</b>			<b>\$840,700-1,360,700</b>

\*Clarification of study components and study costs are in process.

\*\*Estimate from IDS Group.

### IDS Group Contracts

IDS Group was initially selected via a competitive process for the South EOC Seismic study. When it was determined that a seismic study of the MWDOC Administrative Building



should also be completed, staff completed a change order with IDS Group to include the additional assessment. Below is a chart of the work IDS has completed to date, as well as the proposed additional work at both facilities:

<b>Status</b>	<b>Work Description</b>	<b>Costs</b>
Completed	South EOC Seismic Study	\$3,700
Proposed (Requesting Approval)	WEROC South EOC Seismic Plans and Contractor Oversight – Non-Structural	\$4,900 *
<b>WEROC SUBTOTAL</b>		<b>\$8,600</b>
Completed	MWDOC Seismic Study	\$7,800
Proposed (Requesting Approval)	Admin Plan Seismic Plans and Contractor Oversight – Non-Structural	\$6,300 *
Proposed (Requesting Approval)	Admin Building Additional Engineering Analysis	\$6,600 *
<b>MWDOC SUBTOTAL</b>		<b>\$20,700</b>
<b>TOTAL PROPOSED IDS CONTRACTS</b>		<b>\$29,300</b>

\*Clarification of study components and study costs are in process.

### **Staff Recommendation**

Staff recommends the Board of Directors review the MWDOC Seismic Study results, review the proposed staff work plan for addressing seismic recommendations, and award 3 additional contracts to IDS to complete the following:

1. Prepare plans for support and bracing of elements of the South EOC and provide engineering support services for plan check approval and during construction.
2. Prepare plans for non-structural retrofit elements of the MWDOC Administrative Building and provide engineering support services for plan check approval and construction observation at an estimated cost of \$6,300.
3. Additional engineering analysis and evaluation of up to three seismic performance levels for structural retrofit of the MWDOC Administration Building.

Since staff has used IDS for the initial structural review, it is recommended that the additional awards be made on a sole source basis. Depending on what level of work is ultimately required at the MWDOC offices, we can continue with IDS or select another vendor.

Staff will come back to the Board with updates and recommendations.



**INFORMATION ITEM**

October 2, 2017

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

**FROM: Robert Hunter, General Manager**

Staff Contact: Heather Baez  
Melissa Baum-Haley

**SUBJECT: STAFF REPORT ON RECENT UPPER BASIN COLORADO RIVER TOUR**  
(AUGUST 28-31, 2017)

**STAFF RECOMMENDATION**

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

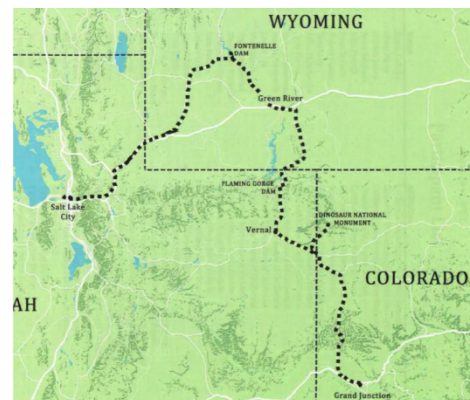
**COMMITTEE RECOMMENDATION**

Committee recommends (To be determined at Committee Meeting)

**REPORT**

The Upper Basin Drought Contingency Plan Tour, hosted by the Colorado River Authority (CRA) and Colorado River Board (CRB) of California, was held on August 28-31, 2017. This Upper Basin Inspection Trip commenced in Grand Junction Colorado, visiting sites in Colorado, Wyoming, and Utah. This inspection trip focused on Drought Contingency Planning within the Upper Basin of the Colorado River.

MWD OC staff was invited as a guest of Metropolitan Water District, along with West Basin Municipal Water District, and Eastern Municipal Water District. Other tour participants included:



<b>Budgeted (Y/N):</b> N/A	Budgeted amount: N/A	Core ____	Choice ____
<b>Action item amount:</b> None	Line item:		
<b>Fiscal Impact (explain if unbudgeted):</b>			

- CRA Member Agency Representatives - 20
- CRA Member Sub-agencies - 4
- California Department of Water Resources - 3
- International Boundary and Water Commission
  - US Section - 2
  - Mexican Section - 4
- Upper Colorado River Commission -1
- CRB and CRA Staff - 7
- Several partial participants from the Upper Basin

Presentations were given by:

- Upper Colorado Region, Bureau of Reclamation
- Colorado Water Conservation Board
- Colorado Attorney General's Office
- Colorado Watershed & Flood Protection Section
- Grand Valley Water Users Association
- Upper Colorado River Commission
- California Department of Water Resources
- Utah Division of Water Resources
- Wyoming State Engineer's Office
- Wyoming Water Development Office

This tour provided MWDOC staff with a greater knowledge of Colorado River demand management, drought planning, and regional/federal policy issues. It has allowed for relationship building through face-to-face interaction with representatives of other participating agencies.









# 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: Mike Martinet, (415) 500-5255  
MWDOC Contact, Kelly Hubbard, (714) 593-5010
- B. Contract awards to Supplier over prior 36-months:  
Disaster Finance Cost Recovery Training; August 2015; \$6,000, plus \$55 per notebook
- C. Product(s) or Service(s) to be provided and Deliverables:  
Provide instruction and materials for 2 one day classes. The first class is a 1-day 2 CFR, Part 200 Analysis Workshop on December 11, 2017 with a max of 20 participants. The second class is for a 1-day Supervisor's Disaster Finance on Activity Documentation, Work Process Flow and Photo Documentation on December 12, 2017 for a max of 30 participants. See attached Proposals.
- D. Justification Definition\*\* : Proprietary Item and Special Technical Expertise
- E. Narrative Explanation: Mike Martinet leads the country in disaster financial aid training and knowledge. He chairs the National Disaster Cost Recovery Caucus on federal reimbursement. He has develops training programs based on his years of experience within local government and as a consultant to government agencies trying to protect their FEMA public assistance funds. He is the only individual or company that I know of providing this type of training. Lastly, he developed both trainings based on specific requests from our member agencies.
- F. Budget Line Item Reference & Amount: This is an unbudgeted expense. Although MWDOC will be signing and paying the contract, we will be charging the cost share equally among the attendees from our agencies. The only cost to MWDOC will be for our own staff (2-3) to attend.
- G. Core or Choice designation: NA

H. Signature/Approvals:

Requestor

General Manager

Date

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.

## ENGINEERING & PLANNING

### **Doheny Desalination Project**

#### **UPDATED - Doheny Desal Project**

South Coast WD is continuing to move the project forward, as follows:

#### **STATUS INFORMATION BY TASK ORDER**

##### Task Order # 1 – Program Management

Work on the DWR Water Desalination Grant Application was completed and submitted by the due date of September 1, 2017.

DWR is anticipating announcement of Draft Funding Decision (Awards) November 3, 2017.

DWR anticipates announcing Desalination Final Funding Decision on December 1, 2017.

##### Task Order # 5A – Public Outreach Phase 2

The SCWD Water Reliability Public Working Group has conducted meetings; on August 30<sup>th</sup>, September 13<sup>th</sup> and September 19<sup>th</sup>.

##### Task Order # 7 – Project Delivery Analysis

Project Delivery Workshop 5 upcoming.

Next Major Deliverable Milestones are:

Workshop 5, timing to be determined (tentatively for mid-November).

##### Task Order # 8B– Environmental Impact Report

Work on the Administrative Draft EIR has continued, with additional technical studies on the South East Intake area wrapping up. These include:

- Coastal Hazards and Brine Modeling
- Cultural
- Update to piping alignments/sizing and construction impacts
- Updating Regional Conveyance conceptual option

Future milestones are:

- October 13, 2017: Submit Administrative Draft to District for Review
- Mid October, 2017: 2<sup>nd</sup> NOP Scoping Meeting (tentatively October 17<sup>th</sup>) to discuss revised possible slant well locations and regional conveyance advancements.
- November 13, 2017: Draft EIR Released for Public Comments

	<ul style="list-style-type: none"> <li>• March 23, 2018: Final EIR Publication</li> </ul> <p><u>Task Order # 12 – Desal Plant Site Hydrology Study</u></p> <p>The Draft Report has been submitted to the District for Review.</p> <p>District is currently reviewing the Report.</p> <p><u>Task Order # 13 – Value for Money Analysis (VfM)</u></p> <p>The VfM Board Workshop was held on March 22, 2017, and follow up meetings took place with Directors to review the Risk Register in more detail and understand additional concerns.</p> <p>The team is finalizing customer impact numbers, including an evaluation of the existing planned rate increases through 2021.</p> <p>Next Major Deliverable Milestones are:</p> <ol style="list-style-type: none"> <li>1) Board briefing to be scheduled</li> <li>2) Final VfM Report, including additional information to address Director’s specific concerns, including customer rate impact, after Board briefing</li> </ol> <p><u>Task Order # 14 – Updated Slant Well Modeling</u></p> <p>Task 1 – Additional Data Analysis has been completed. Data analysis resulted in modifications to preliminary paleochannel configuration that warrants slightly different approach for exploratory boreholes.</p> <p>Next Major Deliverable Milestones are:</p> <ol style="list-style-type: none"> <li>1) Task 2 - Exploratory borehole work to be conducted upon receipt of Part 2 Permit from OC Parks, still pending, but anticipated to be complete by September 31, 2017</li> <li>2) Task 3 – Refinement and recalibration of model has based on geophone work has been completed.</li> <li>3) Task 4 – Modeling of initial scenarios to support the Draft EIR is underway, early key results expected by September 22<sup>nd</sup>.</li> <li>4) Draft Report – Estimated at October 18, 2017</li> <li>5) Final Report – Estimated at October 31, 2017</li> </ol> <p><u>Task Order # 15 – Alternative Power Supply Analysis</u></p> <ul style="list-style-type: none"> <li>• Final Alternative Power Supply Analysis by August 31, 2017</li> <li>• SDG&amp;E has indicated their ability to provide power for a desalination plant up to 5 MGD in size. Anything over 5 MGD will require additional energy infrastructure which SDG&amp;E estimates will take 3 years to complete.</li> </ul>
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<b>Poseidon Resources</b>	<b>(Nothing New)</b> Poseidon is still working on the permitting process. The public review period for the Draft Supplemental Environmental Impact Report (EIR) was extended to July 27, 2017. Poseidon anticipates a decision by the State Lands Commission on October 19 and then will continue working their way towards the Santa Ana Regional Water Quality Control permit and then on to the California Coastal Commission, likely in the first half of 2018. OCWD is still working on the system integration concepts.
<b>Orange County Reliability Study</b>	<b>(Nothing New)</b> CDM-Smith and MWDOC staff are in the process of completing follow-up work to the 2016 study. The work includes modeling of more recently available information, updating Colorado River assumptions, assessment of additional scenarios for the Huntington Beach Desalination Plant, assessment of the value of new storage and evaluation of various project options. The work is expected to be completed in the next few months.
<b>OC-28 Flow Metering Issue with MET</b>	<p>On September 18, MWDOC, MET and OCWD staff met to discuss questions MET had developed regarding the OCWD flow metering at the Anaheim Lake Facilities with respect to OC-28 deliveries. The follow-up from the meeting included:</p> <ol style="list-style-type: none"> <li>1. MET staff will complete a report to their Auditor that will recommend that MWDOC &amp; OCWD be credited in the amount of 445.6 AF from metering issues that occurred in the summer of 2016. It is expected to take a month or so for the process to be completed and for the credit to be applied to our water bill in the amount of \$296,769.60, assuming that the Auditor is in agreement.</li> <li>2. MET still does not understand the exact nature of the hydraulic or high frequency transient that produced the problem in the first place. The problem does not consistently occur. At the higher flows OCWD is taking now, the meters are in proper agreement. MET would like to do some testing at OC-28 later in the year when the flows can be brought down to the 50 cfs range at OC-28. MET would like to try various methods of dampening out of the transient to get an accurate pressure indicator to their flow meter. OCWD agreed to provide notice at such time as flows will be reduced and work with MET staff on flow testing at that time.</li> </ol> <p>Resolution of this issue took a long time due to the complexity of the situation and the inability to determine the nature of the problem. Thanks to both the OCWD and MET staff for their patience and endurance in resolving this issue.</p>



<b>Service Connection CM-1 Cost Issues with MET</b>	<p>Over the past six months, Tom Epperson from Tetra Tech has been providing hydraulic analyses on the concurrent ability to deliver MET water and groundwater at the same time to LBCWD through Newport Beach's water system. The solution being contemplated at this time by LBCWD will work well and does not require MET to make any changes, but there may be times when water quality issues arise in the MET system. MWDOC has hired Tetra Tech to examine several other options that can eliminate the water quality problems in the MET pipeline. The first meeting to consider alternatives is scheduled for September 28.</p>
<b>North and Central O.C. Integrated Regional Watershed Management Area</b>	<p>Charles Busslinger has been participating in weekly ad hoc committee meetings to develop the goals, objectives, and strategies for the North and Central IRWM Plan. The draft goals, objectives, and strategies were presented to stakeholders. The final draft plan is anticipated by the end of November 2017.</p>
<b>San Juan Basin Authority</b>	<p>Santa Margarita WD continues working on the San Juan Watershed Project. Phase 1, which is being designed to capture wet and dry weather runoff, with subsequent phases looking to introduce recycled water into San Juan Creek for Indirect Potable Reuse. The Draft Environmental Impact Report (DEIR) is now scheduled for public review at the end of September 2017 with a Public Meeting anticipated in early October 2017. An overview video is available at: <a href="http://sanjuanwatershed.com/project-overview-video/">http://sanjuanwatershed.com/project-overview-video/</a></p>
<b>Use of East Orange County Feeder No. 2 for Conveyance of Groundwater</b>	<p>MWDOC has been discussing concepts for pumping groundwater into the EOCF No. 2 for conveyance to South Orange County during an emergency event. Upcoming discussions will be held with OCWD and then the Groundwater Producers.</p>
	<p>Joe Berg, Karl Seckel and Chris Lingad met with staff from the City of Garden Grove, their consultant Miller Spatial and the Center for Demographic Research to discuss how best to help retail agencies in Orange County better understand the level of their water use today (leaving out Commercial, Industrial &amp; Institutional Water) compared to the proposed State Objectives. The meeting discussion also looked at ways that retail agency meters could be geo-coded (located) to tie them to parcel data that provides irrigable areas for use in water budget comparisons. Joe discussed this with MWDOC's member agencies and has potentially eight agencies interested in accessing funding through SAWPA.</p>

	Karl Seckel and Director Megan Yoo-Schneider attended the San Juan Basin Authority where the annual budget and pumping allowances were discussed.
	Karl Seckel attended the City of San Clemente Council meeting where they approved a Resolution in Support of the California WaterFix.
	Karl Seckel, Heather Baez and John Lewis attended the Board of Supervisors meeting where the Board approved a Resolution in Support of the WaterFix.
	Karl Seckel and Director Joan Finnegan presented on water issues to the Seal Beach Republican Women.
	In response to a concern raised by South Coast WD about the possibility of excessive leakage on the CM-10 isolation valve, MET staff performed a valve test on September 12th. The test proved successful and found the valve fully seated with minimal leakage. This provides South Coast WD assurance that the construction of upgrades to their own vault, immediately downstream of CM-10, can proceed without needing to address excessive dewatering issues.
	Karl Seckel and Charles Busslinger met with Yorba Linda WD staff, and MET staff on September 13th to discuss details of a possible new service connection to the Lower Feeder to supply untreated water for a proposed housing development during construction and for future landscape irrigation needs. A number of items were identified for further follow up and clarification.

**Status of Ongoing WEROC Projects  
September 2017**

<b>Description</b>	<b>Comments</b>
<b>Coordination with WEROC Member Agencies</b>	<p><i>Ongoing: WEROC, with Michal Baker as the lead consultant, are facilitating 19 agencies through the process of updating the Orange County Water and Wastewater Multi-Jurisdictional Hazard Mitigation Plan.</i></p> <p>Update: Francisco Soto has been working with each agency to ensure that assignments between meetings are completed on time and the project stays on schedule. Francisco personally met with OCWD and Mesa Water District staff to assist them with reviewing and updating their current capabilities for the next iteration on the plan. Our next scheduled planning meeting will take place on Wednesday, September 27, 2017.</p> <p>Janine Schunk worked with OA Emergency Management staff to update all of our Member Agency's AlertOC authorized users list and their paperwork.</p>
<b>Training and Programs</b>	<p>Francisco worked with the Orange County Sheriff's Department to conduct two 800 MHz radio trainings. The trainings focused on obtaining a better understanding of how to use the new system. Attendees learned about radio components, communication procedures, channel programming, and much more.</p> <p>Francisco and Janine attended the American Red Cross (ARC) Pre-Academy Training. The training focused on procedures for conducting light search and rescue, triage, cribbing, and basic first aid. Janine and Kelly attended the ARC Academy with training focused on business continuity and communications. David Ono of Channel 7 was the keynote speaker and gave a heart wrenching presentation focused on how society continues to build where nature proves we shouldn't (for example flood zones and tsunami zones.)</p> <p>Francisco attended the State Water Project Tour hosted by Director Larry McKenney. This tour provided Francisco with a greater understanding of the water distribution system in California and the effects that wildlife, land use, and the deteriorating delta have on water supply. Tour highlights included the Oroville Dam, Lundberg Family Farms, MWD Legislative Office, Delta Cross Channel, and the Banks Pumping station.</p> <p>Janine researched, prepared and presented weekly newsletters for FEMA's National Preparedness Month for the MWDOC Staff. She also facilitated quick weekly challenges for staff on disaster preparedness and shared discount codes with staff to refresh their home emergency kits.</p>

	<p><i>WEROC EOC Staff Monthly Training:</i> This month Kelly provided staff a refresher on WebEOC and what “paper forms” are associated with each area of WebEOC in case internet access is not available during an emergency. Staff then were provided a FEMA Leadership Briefings on Hurricane Maria and Hurricane Irma. The Leadership Briefings are summary reports produced by FEMA during major disasters and provide a situation summary of the impacts and response. Staff discussed how the information was presented, what was presented and tied it back to the WEROC EOC processes.</p>
<p><b>Coordination with the County of Orange</b></p>	<p>Kelly and Francisco attended the September Orange County Emergency Management Organization (OCOMO) meeting that took place at the City of Buena Park Community Center. Mr. Villwock of the Laguna Beach Police Department provided a briefing on the “America First Rally” that took place within the City of Laguna Beach. His presentation focused on the planning, response, and lessons learned from the event. Ann Cave, retired emergency manager for the City of Brea, provided an update via conference call on the aftermath from Hurricane Harvey in Texas and gave an overview on the effects it had on her and her family.</p> <p>Kelly and Francisco attended the Power Outage Response Annex review meeting which took place on Thursday, September 7, 2017. The meeting focused on reviewing the Operational Area Plan and providing feedback. Our purpose for attending was to ensure that concepts that might affect water districts during a power outage are incorporated into the plan. WEROC provided various comments and recommendations. The plan will be updated by the county to reflect the comments from the meeting and a new draft will be distributed when complete.</p> <p><i>Operational Area Agreement Revision Working Group Updates:</i> The OA is currently making revisions to the OA Emergency Management Agreement. The OA Agreement is signed by 114 government entities in Orange County and hasn't been updated since it was originally created in the late 90's. Key topics of discussion during this month's meeting included reviewing the revised OC Council, OA Executive Board and OCEMO Sections of the plan. Additionally, there was a discussion on the financial considerations in the agreement.</p> <p>Kelly participated in the OCEMO Bylaws Revision workgroup. This is related to the OA Agreement revision in that OCEMO was created by the OA Agreement and its bylaws need to be updated to reflect changes in the proposed new OA agreement and changes in actual processes. It is important for WEROC to participate as this impacts water district emergency management voting in OA matters.</p>

	<p>Francisco attended the WebEOC/Communications meeting at the OA EOC. The meeting focused on reviewing the latest updates to the JIMS (Joint Information Management System) platform, Significant Events Boards, Activity Log features, Training Calendar, and the latest PrepareOC updates.</p> <p>Kelly prepared the annual Federal NIMSCAST document to submit to the County and State verifying the MWDOC's compliance with NIMS requirements and therefor grant eligibility. Kelly also facilitated all water districts submitting their documents as well. OC prides itself on 100% compliance within the OA.</p> <p>Francisco attended the annual OC Winter Weather Workshop. The workshop includes a presentation by the National Weather Service on expected weather for the coming season, as well as presentations by the OC Public Works and others within the county who will have a response role for severe weather. The country response plan and activation procedures are reviewed and agencies share any concerns for the coming season.</p>
<b>Coordination with Outside Agencies</b>	<p>Kelly attended the Southern Chapter – California Emergency Services Association (SCESA) Annual Meeting and Awards Luncheon. The program included a presentation from San Bernardino on the ongoing staffing and physiological impacts of the mass shooting that occurred there and a presentation on cyber security from a professor at CSU Fullerton. Kelly was recognized for her role on the SCESA Board as outgoing President and Board Member, as well as awarded a Certificate of Recognition for her work on Water Points of Distribution Planning last year.</p> <p>Kelly participated in several California Water/Wastewater Agency Response Network (CalWARN) conference calls for Hurricane Harvey and Irma. Texas WARN and Florida WARN were both sharing their mutual aid responses internal to their state and prepping other states for potential intra-state mutual aid requests. This provided a preparation and learning opportunity for the WEROC and CalWARN member agencies to access their ability to meet a mutual aid request based on the AWWA Water and Wastewater Mutual Aid &amp; Assistance Resource Typing Manual. Intra-state mutual aid is done via a program called Emergency Mutual Assistance Compact (EMAC), which is a Governor to Governor agreement with many complexities for approval.</p>
<b>WEROC EOC Readiness</b>	<p>Francisco and Janine completed the replenishment and treatment of the emergency water supplies at the SEOC.</p> <p>Francisco participated in the MARS monthly radio test and the OA monthly radio test.</p>

## Status of Water Use Efficiency Projects

September 2017

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
<b>Smart Timer Rebate Program</b>	MWDSC	On-going	On-going	<p>In August 2017, 157 residential and 43 commercial smart timers were installed in Orange County.</p> <p>For program water savings and implementation information, see MWDOC Water Use Efficiency Program Savings and Implementation Report.</p>
<b>Rotating Nozzles Rebate Program</b>	MWDSC	On-going	On-going	<p>In August 2017, 266 rotating nozzles were installed in Orange County.</p> <p>For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.</p>
<b>SoCal Water\$mart Residential Indoor Rebate Program</b>	MWDSC	On-going	On-going	<p>In August 2017, 320 high efficiency clothes washers and 39 premium high efficiency toilets were installed through this program.</p> <p>For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.</p>
<b>SoCal Water\$mart Commercial Rebate Program</b>	MWDSC	On-going	On-going	<p>In August 2017, 633 premium high efficiency toilets were installed through this program.</p> <p>For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.</p>

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
<b>Industrial Process Water Use Reduction Program</b>	MWDOC	5%	June 2020	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, 593 AFY of water savings is being achieved.
<b>Turf Removal Program</b>	MWDOC	On-going	On-going	<p>In August 2017, 49 rebates were paid, representing \$96,700.85 in rebates paid this month in Orange County. To date, the Turf Removal Program has removed approximately 20.9 million square feet of turf.</p> <p>For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.</p>
<b>California Sprinkler Adjustment Notification System – Base Irrigation Schedule Calculator</b>	MWDOC	On-going	On-going	<p>The California Sprinkler Adjustment Notification System (CSANS) sends an 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 <a href="http://www.csans.net">www.csans.net</a> and can unsubscribe at any time.</p> <p>An annual support contract with Enterprise Information Systems, the original developer of CSANS, was recently executed. Support will include annual web hosting, technical support, functional refinements, and ongoing application health and maintenance.</p>
<b>Spray to Drip Conversion Program</b>	MWDOC	85%	October 2017	This is a rebate program designed to encourage residential and commercial sites to convert their

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
				<p>existing conventional spray heads to low-volume, low-precipitation drip technology.</p> <p>To date, 205 residential sites and 52 commercial sites have completed spray to drip conversion projects.</p>
<b>Landscape Design Assistance Program (LDAP)</b>	MWDOC	45%	December 2017	<p>This is a pilot program designed to offer free front yard landscape design assistance to customers who are participating in MWDOC's Turf Removal Rebate Program.</p> <p>To date, MWDOC has performed forty-eight site consultations. Sixty-five questionnaires have been received and approved. Thirty-one of the forty-eight sites have received their custom designs and have been sent their Letters To Proceed to begin their projects. MWDOC will be visiting these sites to take photos once each project is complete. Photos will also be taken at six and twelve months after installation.</p>



# Orange County

## Water Use Efficiency Programs Savings and Implementation Report

**Retrofits and Acre-Feet Water Savings for Program Activity**

Program	Program Start Date	Retrofits Installed in	Month Indicated		Current Fiscal Year		Overall Program			
			Interventions	Water Savings	Interventions	Water Savings	Interventions	Annual Water Savings[4]	Cumulative Water Savings[4]	
High Efficiency Clothes Washer Program	2001	August-17	320	0.92	862	4.03	113,774	3,925	26,892	
Smart Timer Program - Irrigation Timers	2004	August-17	200	3.03	649	17.85	21,134	7,782	46,482	
Rotating Nozzles Rebate Program	2007	August-17	266	1.06	387	1.55	563,205	2,759	18,321	
SoCal WaterSmart Commercial Plumbing Fixture Rebate Program	2002	August-17	633	1.95	1,369	6.49	86,648	4,728	44,162	
Industrial Process Water Use Reduction Program	2006	August-17	1	0.96	1	0.96	29	593	2,413	
Turf Removal Program <sup>[3]</sup>	2010	August-17	54,466	0.64	92,086	13	20,997,687	2,940	10,198	
High Efficiency Toilet (HET) Program	2005	August-17	39	0.14	148	1.05	59,795	2,210	16,707	
Water Smart Landscape Program <sup>[1]</sup>	1997						12,677	10,621	72,668	
Home Water Certification Program	2013						312	7,339	15,266	
Synthetic Turf Rebate Program	2007						685,438	96	469	
Ultra-Low-Flush-Toilet Programs <sup>[2]</sup>	1992						363,926	13,452	162,561	
Home Water Surveys <sup>[2]</sup>	1995						11,867	160	1,708	
Showerhead Replacements <sup>[2]</sup>	1991						270,604	1,667	19,083	
Total Water Savings All Programs					9	95,502	45	23,187,096	50,941	421,680

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

b Cumulative Water Savings Program To Date totals are from a previous Water Use Efficiency Program Effort.

c Turf Removal Interventions are listed as square feet.

d 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 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	Total	Current FY Water Savings Ac/Ft (Cumulative)	Cumulative Water Savings across all Fiscal Years	15 yr. Lifecycle Savings Ac/Ft
Brea	144	93	115	114	76	57	7	1,874	0.02	448.77	970
Buena Park	145	105	106	91	76	54	12	1,530	0.06	350.94	792
East Orange CWD RZ	10	10	8	8	8	3	-	192	0.00	48.55	99
El Toro WD	112	134	121	111	65	47	9	1,530	0.05	353.22	792
Fountain Valley	158	115	102	110	76	65	14	2,414	0.07	597.42	1,249
Garden Grove	236	190	162	165	251	127	22	3,585	0.11	844.57	1,855
Golden State WC	485	265	283	359	260	138	33	5,048	0.16	1,193.91	2,612
Huntington Beach	582	334	295	319	225	180	32	8,278	0.15	2,086.24	4,283
Invine Ranch WD	2,170	1,763	1,664	1,882	1,521	1,373	294	24,960	1.44	5,620.49	12,915
La Habra	128	82	114	87	66	53	13	1,340	0.07	307.02	693
La Palma	46	34	25	34	29	10	4	462	0.01	106.21	239
Laguna Beach CWD	57	38	37	39	32	19	7	939	0.04	228.73	486
Mesa Water	176	114	86	89	113	80	14	2,532	0.07	636.96	1,310
Moulton Niguel WD	679	442	421	790	688	575	121	10,042	0.55	2,248.12	5,196
Newport Beach	142	116	92	95	66	61	12	2,636	0.05	678.36	1,364
Orange	262	218	163	160	124	80	19	3,917	0.09	992.40	2,027
Orange Park Acres	-	-	-	-	-	-	-	12	0.00	3.76	6
San Juan Capistrano	110	76	73	92	63	33	9	1,468	0.05	350.81	760
San Clemente	206	140	94	141	75	70	22	2,642	0.11	635.21	1,367
Santa Margarita WD	679	553	662	792	466	367	60	9,576	0.27	2,194.86	4,955
Seal Beach	51	31	29	38	23	9	5	607	0.02	145.85	314
Serrano WD	20	13	10	26	8	11	1	358	0.00	90.37	185
South Coast WD	112	89	79	68	43	44	12	1,596	0.06	380.40	826
Trabuco Canyon WD	62	30	45	47	34	28	5	803	0.03	189.44	415
Tustin	97	78	59	80	66	44	9	1,621	0.04	401.68	839
Westminster	208	121	82	109	149	84	15	2,601	0.07	622.99	1,346
Yorba Linda	273	181	167	156	123	56	12	3,764	0.05	951.73	1,948
<b>MWDOC Totals</b>	<b>7,350</b>	<b>5,365</b>	<b>5,094</b>	<b>6,002</b>	<b>4,726</b>	<b>3,668</b>	<b>763</b>	<b>96,327</b>	<b>3.65</b>	<b>22,709.01</b>	<b>18,610</b>

Anaheim	477	331	285	295	266	213	45	10,727	0.19	2,605.38	5,550
Fullerton	270	200	186	211	165	107	23	3,718	0.09	807.98	1,924
Santa Ana	190	163	131	132	259	141	31	3,002	0.09	770.05	1,553
<b>Non-MWDOC Totals</b>	<b>937</b>	<b>694</b>	<b>602</b>	<b>638</b>	<b>690</b>	<b>461</b>	<b>99</b>	<b>17,447</b>	<b>0.38</b>	<b>4,183.41</b>	<b>3,371</b>

<b>Orange County Totals</b>	<b>8,287</b>	<b>6,059</b>	<b>5,696</b>	<b>6,640</b>	<b>5,416</b>	<b>4,129</b>	<b>862</b>	<b>113,774</b>	<b>4.03</b>	<b>26,892.42</b>	<b>21,981</b>
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# SMART TIMERS 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		FY 17/18		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.	
Brea	8	0	9	8	4	0	43	6	20	4	31	4	7	0	138	80	521.72
Buena Park	4	19	3	0	0	0	4	10	7	4	10	7	8	1	39	42	147.67
East Orange CWD RZ	5	0	2	0	0	0	2	0	1	0	11	1	2	0	27	1	18.80
El Toro WD	26	2	7	2	11	0	8	9	9	17	33	8	8	0	123	355	2,476.50
Fountain Valley	8	2	3	2	4	0	7	10	13	1	33	12	8	0	99	40	178.65
Garden Grove	7	0	5	2	9	0	10	14	13	11	28	0	11	0	112	38	173.20
Golden State WC	13	3	9	49	9	25	39	12	35	16	56	37	24	0	249	192	812.43
Huntington Beach	15	4	18	33	20	35	19	2	42	12	88	94	24	0	296	268	1,061.60
Irvine Ranch WD	267	71	414	135	71	59	67	310	239	207	344	420	92	48	1,861	2,334	11,330.93
La Habra	3	0	4	7	2	0	4	7	3	1	12	7	3	0	39	44	203.18
La Palma	1	0	1	0	2	0	2	0	3	2	1	0	0	0	10	2	5.98
Laguna Beach CWD	109	2	76	2	71	0	86	0	86	1	27	0	5	0	502	20	235.04
Mesa Water	21	0	10	2	15	2	17	28	36	12	149	41	12	0	330	154	733.07
Moulton Niguel WD	179	31	51	74	40	45	46	95	163	100	236	129	98	4	1,012	805	3,577.28
Newport Beach	275	12	242	26	168	75	11	9	28	43	30	12	8	0	1,046	409	2,615.40
Orange	25	0	20	24	13	9	18	31	51	13	69	10	18	12	303	177	936.09
San Juan Capistrano	103	2	14	18	6	11	6	19	20	8	22	8	6	0	228	125	642.45
San Clemente	212	17	26	7	28	2	28	24	26	3	37	13	8	0	1,059	374	2,655.49
Santa Margarita WD	262	7	53	171	64	93	53	321	189	136	326	221	76	84	1,230	1,456	5,671.10
Santiago CWD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Seal Beach	0	3	1	0	1	36	1	12	2	2,446	2	4	4	0	11	2,502	5,119.58
Serrano WD	3	0	1	0	0	0	4	0	11	2	4	0	0	0	38	2	13.96
South Coast WD	78	10	13	16	8	4	104	73	9	11	7	0	6	0	284	212	1,147.62
Trabuco Canyon WD	12	0	6	0	2	0	6	1	16	50	13	3	6	0	109	157	950.38
Tustin	11	0	8	4	9	1	18	14	33	8	33	23	10	1	153	81	339.47
Westminster	2	0	1	1	2	0	13	17	7	1	17	12	8	0	73	44	197.20
Yorba Linda	22	0	20	0	12	5	32	2	61	27	72	71	22	2	360	185	827.01
<b>MWDOC Totals</b>	<b>1,671</b>	<b>185</b>	<b>1,017</b>	<b>583</b>	<b>571</b>	<b>402</b>	<b>648</b>	<b>1,026</b>	<b>1,123</b>	<b>3,136</b>	<b>1,691</b>	<b>1,137</b>	<b>474</b>	<b>152</b>	<b>9,731</b>	<b>10,099</b>	<b>42,591.78</b>

Anaheim	23	60	19	10	9	26	7	52	30	34	87	10	10	0	254	457	2,606.44
Fullerton	22	51	9	29	8	0	40	26	32	12	53	7	11	0	210	199	933.90
Santa Ana	6	5	8	19	7	8	9	27	22	26	15	3	2	0	84	100	350.07
<b>Non-MWDOC Totals</b>	<b>51</b>	<b>116</b>	<b>36</b>	<b>58</b>	<b>24</b>	<b>34</b>	<b>56</b>	<b>105</b>	<b>84</b>	<b>72</b>	<b>155</b>	<b>20</b>	<b>23</b>	<b>0</b>	<b>548</b>	<b>756</b>	<b>3,890.41</b>
<b>Orange County Totals</b>	<b>1,722</b>	<b>301</b>	<b>1,053</b>	<b>641</b>	<b>595</b>	<b>436</b>	<b>704</b>	<b>1,131</b>	<b>1,207</b>	<b>3,208</b>	<b>1,846</b>	<b>1,157</b>	<b>497</b>	<b>152</b>	<b>10,279</b>	<b>10,855</b>	<b>46,482</b>

**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			FY 17/18			Total Program			Cumulative Water Savings across all Fiscal Years
	Small		Large	Small		Large	Small		Large	Small		Large	Small		Large	Small		Large	Small		Large	Small		Large	
	Res	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	
Brea	130	0	0	65	120	0	84	0	0	157	45	0	74	2,484	0	0	0	0	0	0	0	572	2,749	0	49.46
Buena Park	32	0	0	65	0	0	53	0	0	248	0	0	45	98	0	0	0	0	0	0	0	509	173	2,535	813.11
East Orange	340	0	0	55	0	0	30	0	0	221	0	0	0	0	0	0	0	0	0	30	0	781	0	0	19.29
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	0	0	0	3,369	46,222	890	1,191.53
Fountain Valley	108	0	0	35	0	0	0	0	0	107	0	0	222	0	0	0	0	0	0	0	0	710	0	0	17.21
Garden Grove	119	0	0	95	0	0	80	0	0	88	50	0	110	0	0	55	98	0	0	0	0	933	299	0	32.52
Golden State	294	0	0	257	2,595	0	192	0	0	583	1,741	0	1,088	0	0	207	6,008	0	0	0	0	3,448	11,316	0	241.78
Huntington Beach	458	0	0	270	0	0	120	0	0	798	1,419	0	1,345	2,836	0	149	3,362	0	0	0	0	3,797	12,526	2,681	1,310.95
Inyere 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	335	9,511	0	68	0	0	47,205	94,561	2,004	4,744.75
La Habra	33	90	0	0	0	0	15	0	0	109	338	0	300	0	0	0	0	0	0	0	0	481	1,236	900	365.97
La Palma	0	0	0	0	0	0	0	0	0	0	0	0	46	505	0	0	2,385	0	0	0	0	56	2,890	0	26.08
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	0	0	0	12,139	2,896	0	301.19
Mesa Water	297	277	0	270	0	0	361	0	0	229	0	0	166	0	0	113	0	0	0	0	0	2,030	385	343	195.15
Moulton Niguel	1,225	0	0	512	1,385	0	361	227	0	1,596	4,587	0	5,492	1,441	0	153	5,872	0	185	0	0	12,059	20,515	2,945	1,689.15
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	0	0	0	46,678	21,413	0	1,584.10
Orange	343	0	0	264	0	0	245	120	0	304	668	0	631	91	0	0	0	0	0	0	0	3,170	1,072	0	109.25
San Juan Capistrano	949	0	0	684	30	0	370	0	0	495	737	0	310	593	0	75	123	0	0	0	0	5,495	8,852	0	445.50
San Clemente	4,266	117	1,343	631	172	0	415	5,074	0	326	0	0	426	0	0	0	0	0	0	0	0	9,989	7,538	1,343	799.59
Santa Margarita	4,817	0	0	983	0	0	389	0	0	1,207	1,513	0	1,820	837	0	15	0	0	104	0	0	16,269	6,921	611	824.37
Seal Beach	0	0	0	0	0	0	0	0	0	40	5,261	0	0	2,300	0	0	0	0	0	0	155	7,852	0	127.44	
Serrano	58	0	0	190	0	0	105	0	0	377	0	0	695	0	0	0	0	0	0	0	3,405	0	0	93.29	0
South Coast	688	359	0	435	0	0	70	0	0	4,993	13,717	0	1,421	2,889	0	16	0	0	0	0	0	8,130	18,870	0	472.75
Trabuco Canyon	379	0	0	34	0	0	0	0	0	56	0	0	130	0	0	0	4,339	0	0	0	0	2,086	5,130	0	131.59
Tustin	476	1,013	0	378	0	0	329	0	0	408	0	0	317	386	0	65	-341	0	0	0	0	3,371	1,058	0	120.71
Westminster	26	0	0	15	0	0	0	0	0	54	0	0	73	0	0	105	0	0	0	0	0	464	0	0	10.98
Yorba Linda	559	0	0	730	0	0	40	990	0	921	0	0	1,715	0	0	213	0	0	0	0	0	6,081	4,359	500	460.06
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	1,556	31,599	0	387	0	0	193,382	278,833	14,752	16,177.75
Anaheim	742	38,554	0	459	813	0	338	0	0	498	712	0	794	5,221	0	147	3,953	0	0	0	0	4,020	49,799	105	1,350.45
Fullerton	409	0	0	119	0	0	107	0	0	684	1,196	0	521	7,015	0	65	3,034	0	0	0	0	2,910	11,309	1,484	668.74
Santa Ana	22	65	0	99	0	0	86	2,533	0	310	0	0	0	1,420	0	0	1,106	0	0	0	0	859	5,752	0	124.46
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	0	0	0	7,789	66,860	1,589	2,143.65
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	1,768	39,692	0	387	0	0	201,171	345,693	16,341	18,321.39

**SOCAL WATER\$MART COMMERCIAL PLUMBING FIXTURES REBATE PROGRAM<sup>[1]</sup>**  
**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	FY 17/18	Totals	Cumulative Water Savings across all Fiscal Years
Brea	1	234	0	10	91	734	0	1,365	494
Buena Park	290	5	23	56	591	133	0	2,489	1,217
East Orange CWD RZ	0	0	0	0	0	0	0	0	0
El Toro WD	137	0	212	6	268	35	0	1,062	655
Fountain Valley	314	0	0	1	249	0	0	872	644
Garden Grove	0	4	1	167	676	410	0	2,451	1,644
Golden State WC	135	0	1	0	1,008	53	0	2,865	2,083
Huntington Beach	156	104	144	7	783	641	0	2,954	1,753
Irvine Ranch WD	646	1,090	451	725	11,100	5,958	993	28,859	8,538
La Habra	0	0	0	0	340	42	0	925	605
La Palma	0	0	0	0	0	509	0	675	131
Laguna Beach CWD	0	0	27	0	0	0	0	446	342
Mesa Water	41	6	0	79	661	782	0	4,254	2,307
Moulton Niguel WD	0	0	0	3	413	281	0	1,277	908
Newport Beach	35	0	0	0	566	0	0	1,834	1,414
Orange	73	1	271	81	275	2,851	0	5,030	2,035
San Juan Capistrano	0	0	14	0	0	0	0	260	427
San Clemente	19	0	0	1	0	0	0	432	412
Santa Margarita WD	0	0	0	2	90	743	0	950	283
Santiago CWD	0	0	0	0	0	0	0	0	0
Seal Beach	0	0	0	0	0	184	0	538	471
Serrano WD	0	0	0	0	0	0	0	0	0
South Coast WD	84	148	0	382	0	0	0	1,320	577
Trabuco Canyon WD	0	0	0	0	0	0	0	11	16
Tustin	0	0	0	75	358	212	0	1,402	913
Westminster	35	1	28	0	146	177	0	1,138	1,093
Yorba Linda	0	1	0	0	226	84	0	595	616
<b>MWDOC Totals</b>	<b>1,966</b>	<b>1,594</b>	<b>1,172</b>	<b>2,161</b>	<b>17,275</b>	<b>13,829</b>	<b>993</b>	<b>64,004</b>	<b>29,581</b>
Anaheim	48	165	342	463	3,072	309	376	14,129	7,639
Fullerton	0	94	0	178	476	621	0	2,778	1,811
Santa Ana	12	16	17	5	1,293	238	0	5,737	5,131
<b>Non-MWDOC Totals</b>	<b>60</b>	<b>275</b>	<b>359</b>	<b>646</b>	<b>4,841</b>	<b>1,168</b>	<b>376</b>	<b>22,644</b>	<b>14,581</b>
<b>Orange County Totals</b>	<b>2,026</b>	<b>1,869</b>	<b>1,531</b>	<b>2,807</b>	<b>22,116</b>	<b>14,997</b>	<b>1,369</b>	<b>86,648</b>	<b>44,162</b>

[1] Retrofit devices include UL+ Iolets and Urinals, High Efficiency Iolets 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.

# INDUSTRIAL PROCESS WATER USE REDUCTION PROGRAM

Number of Process Changes by Agency

Agency	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	Overall Program Interventions	Annual Water Savings[1]
Brea	0	0	0	0	0	0	0	0	0
Buena Park	0	0	0	0	1	0	0	2	54
East Orange	0	0	0	0	0	0	0	0	0
El Toro	0	0	0	0	0	0	0	0	0
Fountain Valley	0	0	0	0	0	1	1	2	35
Garden Grove	0	0	0	0	1	0	0	1	0
Golden State	0	0	0	0	0	0	0	1	3
Huntington Beach	0	2	0	1	2	0	0	5	132
Irvine Ranch	1	1	1	0	2	1	0	9	115
La Habra	0	0	0	0	1	0	0	1	0
La Palma	0	0	0	0	0	0	0	0	0
Laguna Beach	0	0	0	0	0	0	0	0	0
Mesa Water	0	0	0	0	0	0	0	0	0
Moulton Niguel	0	0	0	0	0	0	0	0	0
Newport Beach	0	0	0	1	0	0	0	1	21
Orange	0	0	0	0	1	2	0	4	88
San Juan Capistrano	0	0	0	0	0	0	0	0	0
San Clemente	0	0	0	0	0	0	0	0	0
Santa Margarita	0	0	0	0	0	0	0	0	0
Seal Beach	0	0	0	0	0	0	0	0	0
Serrano	0	0	0	0	0	0	0	0	0
South Coast	0	0	0	0	1	1	0	2	134
Trabuco Canyon	0	0	0	0	0	0	0	0	0
Tustin	0	0	0	0	0	0	0	0	0
Westminster	0	0	0	0	0	0	0	0	0
Yorba Linda	0	0	0	0	0	0	0	0	0
<b>MWDOC Totals</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>9</b>	<b>5</b>	<b>1</b>	<b>28</b>	<b>582</b>
Anaheim	0	0	0	0	0	0	0	0	0
Fullerton	0	0	0	0	0	0	0	0	0
Santa Ana	0	0	0	0	1	0	0	1	11
<b>OC Totals</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>10</b>	<b>5</b>	<b>1</b>	<b>29</b>	<b>593</b>

[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<sup>(1)</sup>

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		FY 17/18		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.	
Brea	3,397	9,466	7,605	0	5,697	0	71,981	30,617	118,930	404,411	8,354	479	0	0	215,964	444,973	302,71
Buena Park	0	0	0	0	0	0	11,670	1,626	77,127	16,490	3,741	0	1,000	0	93,538	18,116	47,95
East Orange	0	0	0	0	1,964	0	18,312	0	27,844	0	0	0	0	0	48,120	0	23,32
El Toro	4,723	0	4,880	72,718	4,582	0	27,046	221,612	63,546	162,548	13,139	48,019	1,734	0	119,450	504,897	324,42
Fountain Valley	1,300	0	682	7,524	4,252	0	45,883	5,279	65,232	0	3,679	0	1,907	0	122,635	12,803	68,32
Garden Grove	14,013	0	4,534	0	8,274	0	67,701	22,000	177,408	49,226	11,504	0	0	0	283,434	117,403	223,69
Golden State	42,593	30,973	31,813	3,200	32,725	8,424	164,507	190,738	310,264	112,937	0	0	0	0	581,902	346,272	506,38
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	289	0	539,161	415,705	488,85
Irvine Ranch	6,450	1,666	32,884	32,384	36,584	76,400	234,905	317,999	782,844	2,675,629	231,483	46,725	19,203	22,098	1,349,776	3,185,695	2,008,09
La Habra	0	8,262	0	0	0	0	14,014	1,818	49,691	72,164	0	0	501	0	64,206	90,019	76,92
La Palma	0	0	0	0	0	0	4,884	0	10,257	59,760	0	0	0	0	15,141	59,760	32,14
Laguna Beach	2,533	0	2,864	1,712	4,586	226	13,647	46,850	47,614	0	3,059	0	220	0	75,301	48,788	65,38
Mesa Water	6,777	0	10,667	0	22,246	0	131,675	33,620	220,815	106,896	4,173	77,033	2,000	0	398,353	217,549	284,39
Moulton Niguel	4,483	26,927	11,538	84,123	14,739	40,741	314,250	1,612,845	889,748	1,059,279	220,749	0	13,679	0	1,470,142	2,840,054	2,130,56
Newport Beach	3,454	0	3,548	2,346	894	0	33,995	65,277	76,675	375,404	2,924	0	0	0	121,490	443,027	255,24
Orange	12,971	0	15,951	8,723	11,244	0	120,093	281,402	289,990	106,487	12,847	2,366	1,734	0	464,830	398,978	437,16
San Clemente	21,502	0	16,062	13,165	18,471	13,908	90,349	1,137	215,249	438,963	4,267	0	9,723	0	375,623	467,173	396,84
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	0	0	365,415	347,277	409,91
Santa Margarita	1,964	11,400	10,151	11,600	17,778	48,180	211,198	514,198	534,048	550,420	17,010	28,094	10,387	0	807,019	1,169,453	964,55
Santiago	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Seal Beach	0	0	3,611	0	0	0	15,178	504	17,349	15,911	1,234	0	0	0	37,372	16,415	26,13
Serrano	0	0	0	0	2,971	0	41,247	0	127,877	4,403	5,450	0	0	0	177,545	4,403	82,76
South Coast	6,806	0	9,429	4,395	15,162	116,719	84,282	191,853	181,102	128,290	14,967	0	988	574	312,736	458,155	417,86
Trabuco Canyon	272	0	1,542	22,440	2,651	0	14,771	0	42,510	88,272	1,465	0	768	0	63,979	110,712	85,98
Tustin	0	0	9,980	0	1,410	0	71,285	14,137	232,697	33,362	11,173	0	0	0	326,545	47,499	172,08
Westminster	0	0	0	0	0	0	14,040	34,631	71,833	23,902	11,112	0	958	0	97,943	58,533	70,71
Yorba Linda	0	0	0	0	0	0	112,136	12,702	360,279	116,985	19,420	0	4,323	0	507,507	129,687	289,11
<b>MWDOC Totals</b>	<b>183,524</b>	<b>241,224</b>	<b>216,104</b>	<b>303,923</b>	<b>238,978</b>	<b>304,598</b>	<b>2,195,544</b>	<b>3,692,153</b>	<b>5,493,639</b>	<b>7,015,357</b>	<b>613,934</b>	<b>264,998</b>	<b>69,414</b>	<b>22,672</b>	<b>9,035,127</b>	<b>11,953,346</b>	<b>10,191,54</b>

Anaheim	0	0	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	0	0	9,214	6,45
Santa Ana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
<b>Non-MWDOC Totals</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9,214</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9,214</b>	<b>6,45</b>

<b>Orange County Totals</b>	<b>183,524</b>	<b>241,224</b>	<b>216,104</b>	<b>303,923</b>	<b>238,978</b>	<b>313,812</b>	<b>2,195,544</b>	<b>3,692,153</b>	<b>5,493,639</b>	<b>7,015,357</b>	<b>613,934</b>	<b>264,998</b>	<b>69,414</b>	<b>22,672</b>	<b>9,035,127</b>	<b>11,962,560</b>	<b>10,198</b>
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[1] Installed device numbers are listed as square feet

# **HIGH EFFICIENCY TOILETS (HETs) INSTALLED BY AGENCY**

through MWDOC and Local Agency Conservation Programs

Agency	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	Total	Cumulative Water Savings across all Fiscal Years
Brea	0	0	38	146	154	4	0	450	96.65
Buena Park	0	0	96	153	112	13	0	684	185.90
East Orange CWD RZ	0	0	13	26	24	0	0	86	20.43
El Toro WD	0	133	218	869	264	12	1	2,038	524.33
Fountain Valley	0	0	41	132	220	7	0	823	242.93
Garden Grove	0	0	63	350	363	7	1	1,485	411.46
Golden State WC	80	2	142	794	512	9	5	2,795	758.23
Huntington Beach	0	0	163	1,190	628	4	0	2,901	698.27
Irvine Ranch WD	0	1,449	810	1,777	2,798	638	85	16,994	5,290.99
Laguna Beach CWD	0	0	45	112	81	1	0	388	101.25
La Habra	0	0	37	94	83	5	1	591	190.75
La Palma	0	0	21	59	52	4	0	222	56.39
Mesa Water	0	0	147	162	162	7	0	1,618	580.97
Moulton Niguel WD	0	0	400	2,497	1,939	49	19	5,709	1,100.36
Newport Beach	0	0	49	168	243	11	2	727	177.09
Orange	0	1	142	978	416	17	1	2,180	515.31
San Juan Capistrano	0	0	35	140	202	3	2	525	116.91
San Clemente	0	0	72	225	246	11	0	872	218.24
Santa Margarita WD	0	0	528	997	1,152	114	15	3,324	651.45
Seal Beach	0	2	17	50	69	-1	0	857	385.24
Serrano WD	0	0	2	40	55	3	0	121	23.54
South Coast WD	23	64	102	398	235	11	3	1,024	222.75
Trabuco Canyon WD	0	0	10	108	169	2	0	339	62.73
Tustin	0	0	64	132	201	12	2	1,508	525.01
Westminster	0	0	35	161	359	3	0	1,331	403.37
Yorba Linda WD	0	0	40	280	379	12	4	1,255	335.11
<b>MWDOC Totals</b>	<b>103</b>	<b>1,651</b>	<b>3,330</b>	<b>12,038</b>	<b>11,118</b>	<b>958</b>	<b>141</b>	<b>50,847</b>	<b>13,895.66</b>

Anaheim	0	0	156	1,188	614	70	2	5,867	1,941.76
Fullerton	0	0	61	293	286	14	5	1,060	268.25
Santa Ana	0	0	33	602	293	20	0	2,021	601.53
<b>Non-MWDOC Totals</b>	<b>0</b>	<b>0</b>	<b>250</b>	<b>2,083</b>	<b>1,193</b>	<b>104</b>	<b>7</b>	<b>8,948</b>	<b>2,811.54</b>

<b>Orange County Totals</b>	<b>103</b>	<b>1,651</b>	<b>3,580</b>	<b>14,121</b>	<b>12,311</b>	<b>1,062</b>	<b>148</b>	<b>59,795</b>	<b>16,707.20</b>
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## 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	Overall Water Savings To Date (AF)
Brea	0	0	0	0	22	22	22	22	22	64.37
Buena Park	0	0	17	103	101	101	101	101	101	462.69
East Orange CWD RZ	0	0	0	0	0	0	0	0	0	0.00
El Toro WD	352	384	371	820	810	812	812	812	812	4,856.93
Fountain Valley	0	0	0	0	0	0	0	0	0	0.00
Garden Grove	0	0	0	0	0	0	0	0	0	0.00
Golden State WC	14	34	32	34	32	32	32	32	32	200.59
Huntington Beach	0	0	31	33	31	31	31	31	31	148.43
Irvine Ranch WD	708	1,008	6,297	6,347	6,368	6,795	6,797	6,769	6,780	38,304.89
Laguna Beach CWD	0	57	141	143	141	124	124	124	124	733.07
La Habra	0	23	22	24	22	22	22	22	22	136.72
La Palma	0	0	0	0	0	0	0	0	0	0.00
Mesa Water	165	286	285	288	450	504	511	514	515	2,943.57
Moulton Niguel WD	180	473	571	595	643	640	675	673	661	4,120.71
Newport Beach	58	142	171	191	226	262	300	300	300	1,501.19
Orange	0	0	0	0	0	0	0	0	0	0.00
San Clemente	227	233	247	271	269	269	299	407	459	2,368.77
San Juan Capistrano	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	14,178.10
Seal Beach	0	0	0	0	0	0	0	0	0	0.00
Serrano WD	0	0	0	0	0	0	0	0	0	0.00
South Coast WD	62	117	108	110	118	118	118	164	164	829.91
Trabuco Canyon WD	12	49	48	62	60	60	60	60	60	350.52
Tustin	0	0	0	0	0	0	0	0	0	0.00
Westminster	10	18	18	20	18	18	18	18	18	116.46
Yorba Linda WD	0	0	0	0	0	0	0	0	0	0.00
<b>MWDOC Totals</b>	<b>2,733</b>	<b>4,395</b>	<b>10,025</b>	<b>10,787</b>	<b>11,273</b>	<b>11,766</b>	<b>12,196</b>	<b>12,435</b>	<b>12,487</b>	<b>71,316.9</b>
Anaheim	0	0	142	146	144	190	190	190	190	1,351.53
Fullerton	0	0	0	0	0	0	0	0	0	0.00
Santa Ana	0	0	0	0	0	0	0	0	0	0.00
<b>Non-MWDOC Totals</b>	<b>0</b>	<b>0</b>	<b>142</b>	<b>146</b>	<b>144</b>	<b>190</b>	<b>190</b>	<b>190</b>	<b>190</b>	<b>1,351.53</b>
<b>Orange Co. Totals</b>	<b>2,733</b>	<b>4,395</b>	<b>10,167</b>	<b>10,933</b>	<b>11,417</b>	<b>11,956</b>	<b>12,386</b>	<b>12,625</b>	<b>12,677</b>	<b>72,668.45</b>

# HOME WATER SURVEYS PERFORMED BY AGENCY

through MWDOC and Local Agency Conservation Programs

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

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
<b>Non-MWDOC Totals</b>	<b>0</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>0.82</b>
<b>Orange County Totals</b>	<b>78</b>	<b>0</b>	<b>181</b>	<b>1</b>	<b>53</b>	<b>0</b>	<b>312</b>	<b>1</b>	<b>15.266</b>

# **SYNTHETIC TURF INSTALLED BY AGENCY<sup>[1]</sup>** 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
<b>MWDOC Totals</b>	<b>132,820</b>	<b>18,033</b>	<b>181,848</b>	<b>89,642</b>	<b>97,806</b>	<b>8,624</b>	<b>20,184</b>	<b>0</b>	<b>432,658</b>	<b>116,299</b>	<b>384.83</b>

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
<b>Non-MWDOC Totals</b>	<b>9,400</b>	<b>876</b>	<b>16,282</b>	<b>20,093</b>	<b>20,303</b>	<b>65,300</b>	<b>4,227</b>	<b>0</b>	<b>50,212</b>	<b>86,269</b>	<b>83.81</b>

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

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

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

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
<b>Non-MWDOC Totals</b>	<b>3,011</b>	<b>4,161</b>	<b>3,687</b>	<b>7,583</b>	<b>5,207</b>	<b>18,477</b>	<b>12,133</b>	<b>19,298</b>	<b>22,636</b>	<b>15,988</b>	<b>924</b>	<b>582</b>	<b>531</b>	<b>369</b>	<b>3</b>	<b>114,590</b>	<b>48,682.70</b>

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