MEETING OF THE
BOARD OF DIRECTORS OF THE
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
Jointly with the
PLANNING & OPERATIONS COMMITTEE
October 6, 2014, 8:30 a.m.
MWDOC Conference Room 101

P&O Committee:
Director Osborne, Chair
Director Barbre
Director Hinman

Staff: R. Hunter, K. Seckel, R. Bell,
H. De La Torre, P. Meszaros, J. Berg

Ex Officio Member: L. Dick

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.

ACTION ITEMS

1. AUTHORIZE THE GENERAL MANAGER TO ENTER INTO A CONSULTING AGREEMENT WITH CDM-SMITH TO PROVIDE TECHNICAL ASSISTANCE FOR THE OC WATER RELIABILITY STUDY AT A COST NOT TO EXCEED $197,240

2. ADOPTION OF THE ONE WATER ONE WATERSHED 2.0 PLAN

DISCUSSION ITEMS

3. UPDATE ON SANTIAGO FIRE (oral discussion)

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. OVERVIEW OF OCWD CLEAN ENERGY CAPITAL REPORT ON THE POSEIDON PROJECT

5. STATUS REPORT ON SAN JUAN GROUNDWATER BASIN

6. METROPOLITAN'S ASSESSED VALUATION FOR MWDOC AND ORANGE COUNTY FOR FISCAL YEAR 2014-15

7. STATE OF CALIFORNIA OCEAN DESALINATION ACTIVITIES

8. 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

9. REVIEW OF ISSUES RELATED TO CONSTRUCTION PROGRAMS, 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
October 15, 2014

TO: **Board of Directors**

FROM: **Planning & Operations Committee**
(Directors Osborne, Barbre, Hinman)

Robert Hunter
General Manager

Staff Contact: Karl Seckel/Richard Bell

SUBJECT: **Authorize the General Manager to Enter into a Consulting Agreement with CDM-Smith to Provide Technical Assistance for the OC Water Reliability Study at a Cost Not to Exceed $197,240**

STAFF RECOMMENDATION

Staff recommends the Board authorize the General Manager to enter into a Consulting Agreement with CDM-Smith to provide technical assistance for the OC Water Reliability Study at a cost not to exceed $197,240.

COMMITTEE RECOMMENDATION

The Committee recommends . . . . (to be developed at the Committee meeting).

SUMMARY

MWDOC has continued working on the Orange County Reliability Study Scope of Work with the Member Agencies and a Workgroup that also includes Anaheim (representing the Three Cities).

The most recent meeting was held on September 15 with the Workgroup from our agencies and the Three Cities. Comments were provided on the original Scope of Work and MWDOC was requested to work with CDM-Smith to revise the Scope of Work and circulated it one last time for any remaining comments.

Budgeted (Y/N): Yes	Budgeted amount: $340,000	Core X	Choice __
Action item amount: $197,340	Line item: 21-7010 $98,670 & 23-7010 $98,670		
Fiscal Impact (explain if unbudgeted):			

The revised Scope of Work, as attached, was sent to our agencies and the Workgroup members on September 29. Following is a progression of securing the Workgroup concurrence with the study Scope of Work:

Study Schedule

- Information Included in Budget Process (March-June 2014)
- RFP Issued (July 29) & Addendum (August 14)
- Work Group Meeting (August 7)
- Managers Meeting (August 21)
- Proposal Review Committee (August 29)
- Work Group Meeting (September 15)
- Managers Meeting (September 19)

Upcoming Meetings

- Committee Meetings in October (MWDOC & OCWD)
- MWDOC Board to Award Contract (October 15)
- Kick-off meeting with Workgroup – Early November

Milestone Dates

- Completion of GAP Analyses – February 2015
- Completion of Study – June 2015

Attached is the Scope of Work, as revised.

MWDOC Orange County Water Reliability Investigation
CDM Smith Scope of Work

CDM Smith's scope of services for this effort recognizes that it is a cooperative effort between staff from MWDOC, OCWD, MWD, and consultant. Because at this time we do not know the commitment of data to be provided by MWD, we have estimated a project contingency budget for CDM Smith to augment or develop alternative ways to obtain reliability data from other sources or methods in the event it is not provided directly by MWD.

Task 1 – Project management, existing information, meetings, and report

Subtasks 1.1 and 1.2 – Existing information and project meetings/workshops

A Work Group (WG) will be formed for this Investigation and will be responsible for providing information, feedback, review, and guidance throughout the project. The WG and MWDOC will provide information on existing demands, supplies, and projects that are already underway. CDM Smith will collect and review all existing information provided by MWDOC and its member agencies.

CDM Smith will develop a project information form with standardized requests for information on yield, cost parameters, timing, and constraints. The contents of the information form will be discussed and agreed upon at one of the early WG meetings. Initially, the following types of information will be characterized:

- Project costs (capital, O&M, unit costs per AF of yield)
- Description of the benefits provided by the project in the form of supply and system reliability and under what circumstances
- Characterization of risk and uncertainties associated with the project
- Project constraints to implementation should be discussed, such as environmental, regulatory, institutional and legal.

In addition to regular monthly status meetings and a project kick-off meeting, CDM Smith has budgeted 10 meetings with the WG. CDM Smith is well versed in navigating such meetings and will provide support to MWDOC in developing agendas, presentation materials, and developing meeting notes and action plans. The exact content of the WG meetings will be determined at the WG kick off meeting, however, the following is a possible listing of content for these meetings:

WG Meeting 1: Overview of project, review and definition of reliability terms (e.g., supply vs system), and identification of local data needs.

WG Meeting 2: Overview of water demand forecasting and demand analysis

WG Meeting 3: Develop reliability scenarios and provide input on MWD IRP

WG Meeting 4: Review water supply and system improvement projects

WG Meeting 5: Review water demand forecast

WG Meeting 6: Review results of reliability scenarios

WG Meeting 7: Review MWD and OC policies to improve reliability

WG Meeting 8: Review portfolios of projects/policies

WG Meeting 9: Demonstration that projects/policies can meet supply/system gaps

WG Meeting 10: Review Draft Report

Subtask 1.3 – Report

CDM Smith will prepare a draft report documenting the investigation. The draft report will constitute an 80% draft document. The report will document all of the baseline information, data, assumptions, and evaluations.

After review by MWDOC and WG, CDM Smith will incorporate comments and prepare a final report within two months of receiving comments.

Schedule

A project schedule was prepared by CDM Smith (see next page). As shown on the schedule, many tasks and subtasks will have to be completed in parallel in order to meet the desired deadline of a final report by summer 2015.

Our understanding is that the WG desire is to have the GAP Analyses, Tasks 5 and 6, completed by February 2015. We will work with that goal in mind, but that is a fairly tight time-frame and is dependent on issues outside of the control of CDM Smith.

Project Schedule

Task	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
Task 1 Project Management												
1.1 Collect Data												
1.2 Project Meetings and Workshops	Kick Off	AWG 1	AWG 2	AWG 3	AWG 4	AWG 5	AWG 6	AWG 7	AWG 8	AWG 9	AWG 10	
1.3 Draft and Final Reports										Draft		Final
Task 2 Review and Projection of Demands												
2.1 Historical Demands Analysis												
2.2 Projected Demands Analysis												
Task 3 Review Existing OC Local Supplies												
3.1 SAR Watershed Supply Analysis												
3.2 Non-OCWD Local Surface and Groundwater Supplies												
3.3 Recycled Water												
3.4 Regional Alliance Compliance Analysis												
Task 4 Estimate of Supplies Available from MET												
4.1 Base Case - BDCP Implemented												
4.2 BDCP is Not Implemented												
4.3 Extended Drought												
4.4 Extended Outage of the SWP due to Earthquake												
4.5 Others as Suggested												
Task 5 Develop a Supply Gap Analysis												
5.1 Develop a Supply Gap Analysis												
Task 6 Develop an Emergency System Gap Analysis												
6.1 Develop an Emergency System Gap Analysis												
Task 7 Review New Options												
7.1 OCWD Basin Options												
7.2 Ocean Desalination												
7.3 Other Recycling Projects												
7.4 San Juan Basin Storm Water Conservation												
7.5 Water Exchanges and Transfers												
7.6 Contract for a Higher Reliability from MET												
7.7 Conjunctive Use Storage of Imported Water												
7.8 Expansion of the Existing Emergency Services Concept												
Task 8 Analysis of Policy Issues												
8.1 MET Water Supply and Drought Management Plan												
8.2 Extraordinary Water Supplies												
8.3 Regional vs. Local Benefits												
8.4 MET as the Regional Supplier												
8.5 Level and Extent of MET Storage for Managing Supplies												
8.6 Incentives Provided by MET												
8.7 Extended Drought Planning Criteria												
8.8 Water Supply and Storage Reserve												
8.9 Evaluation and Inclusion in Decision-Making												
Task 9 Demonstrate Reliability												
9.1 Build Example Portfolios												
9.2 Test Example Portfolios												

Task 2 – Review and projection of water demands

Subtask 2.1 – Review historical demands

CDM Smith will review all historical water demands going back to 1990 including water conservation estimates. We will utilize our proven statistical regression method to analyze changes in water demands that have occurred since 2007. This method develops a statistical regression of historical monthly water production (assumed to be provided by MWDOC) and explanatory factors such as population, economy, unemployment rate, climate, price of water, passive water conservation, and drought-related conservation. The model will be used to establish bounds around demand projections and inform the demand projection model in terms of rebound from economic recession and drought-related conservation that have taken place since 2007. CDM will also examine the regression over the entire

period to comment on the amount of overall conservation achieved in demands since 1989-90, to the extent possible.

Subtask 2.2 – Project water demands

CDM Smith will review the current water demand forecast using the MWD-Main Forecast Model, and develop appropriate ranges of above-normal and below-normal demands around the base projection using both historical weather and climate change scenarios. We will use our statistical regression model results from Task 2.1 to develop this range of demands due to climate variability. MWDOC and WG will provide estimates of active conservation, and CDM Smith will advise on how to incorporate real changes in the price of water and passive conservation into the demand forecast. CDM will also provide input regarding the historical accuracy of the MWD forecast by examining prior projections. A key WG question is understanding how the recent recession was addressed in the MWD-Main Model update as this could have considerable influence on out-year projections and what the rebound or recovery might be from the recession.

Currently, the difference between the updated MWD-Main projections MWDOC recently received from MWD and the sum of MWDOC's agencies demand projections is about 100,000 AF in 2035. This is a large difference and we need to be able to reconcile the two. MWDOC believes the main differences have to do with the estimates of passive conservation (including price effects) which may not be fully accounted for in the agencies projections. CDM Smith will help to explain the differences.

As a final demand forecasting product, CDM Smith will provide demand estimates summarized for all three areas of the County, Brea/La Habra, OCWD and the South County area.

Task 3 – Review existing Orange County water supplies

Subtask 3.1 – Santa Ana River (SAR) supply analysis

In this task, CDM Smith will work closely with OCWD in the evaluation of SAR supplies to the OC Basin. Our role will be mostly advisory, but we will share our perspectives on how to account for changes in long-term SAR flows from the impacts of climate change (building off of the Santa Ana Watershed Project/Bureau of Reclamation's climate change work).

OCWD will provide CDM Smith with estimates of needed GW replenishment, either from MWD or other sources, to maintain a 75% basin pumping goal. OCWD will provide information from OCSD regarding any future recycling or reuse beyond that expected for GWRS.

Subtasks 3.2 and 3.3 – Review non-OCWD surface and groundwater supplies, and recycled water

CDM Smith will review the local water supplies for the Brea and La Habra agencies, including the San Gabriel Groundwater supplies (Main Basin) through Cal Domestic Water Company. CDM Smith will reference any studies currently underway to evaluate the Main Basin in terms of replenishment and climate change impacts. We will work with local water agencies to obtain such information including information MWDOC obtains in a meeting with Cal Domestic.

CDM Smith will collect information on local groundwater and surface water in South Orange County, and characterize reliability and issues impacting that supply. This will include the San Juan Basin and San Mateo Basins. SMWD has the information for the San Juan Basin and San Clemente has information on the San Mateo Basin.

CDM Smith will review and assess current and projects underway for recycled water, including indirect and direct potable reuse, as well as additional stormwater capture. A primary contact for this in South County is SMWD.

Subtask 3.4 – Regional alliance compliance analysis for 20x2020

CDM Smith will evaluate Orange County's regional alliance in meeting the water conservation targets set forth in the 20x2020 California law. We will also evaluate the potential state requirements for achieving 25 and 30 percent reduction in per capita use by 2025 and 2030, respectively. We will examine use of different baselines as well as use our work in Task 2.1 as another way to assess conservation. Information MWDOC has developed on the 20x2020 compliance and for the WUE Master Plan will also be incorporated.

Task 4 – Estimate MWD water supplies

CDM Smith understands that this will be a major part of the consultant's overall effort for this Investigation. We have a long history working with imported water hydrologies for different scenarios. We also have a very strong working understanding of MWD's simulation model IRPSIM. For this effort we will build a customized Excel spreadsheet that can accept scenarios of imported water availability and hydrologic factors. This spreadsheet will be customized in such a way as to easily facilitate changing key assumptions and producing results in a probabilistic manner. Our recent work for MNWD demonstrates our abilities to present imported water availability for different scenarios.

CDM Smith, working closely with MWD and MWDOC staff, will develop supply availability of imported water for the following scenarios:

- Base case (BDCP implemented and operational by 2030) – subtask 4.1. This would constitute MWD's IRP base case.
- BDCP is not implemented – subtask 4.2. This is a case CDM Smith has used many times for other reliability studies in Southern California and represents an erosion of SWP reliability due to current and future endangered species listings. MWDOC has noted that this analysis is pretty much a worst case analysis which would incorporate export reductions due to the recent Court of Appeals Decision, the implication of EPA's comments, and the SWRCB's outflow decision as may be guided by their expert panel report on outflows. Discussions with MWDOC have indicated the need for a meeting with MWD to determine what information and analyses they will share and whether or not CDM will have to utilize a portion of the contingency funds for this evaluation.

- Extended droughts and climate change – subtask 4.3. Extended droughts will be simulated by examining paleoclimatology data (e.g., reconstructed Sacramento River flows) and various climate change scenarios using the latest set of GCM data.
- Through this process, CDM will help the WG to better understand MWD's IRP and the assumptions that lead MWD to the conclusions of being reliable over the long run. The key assumptions to be reviewed include, but are not limited to, projected increases in local recycling, stormwater capture, development of groundwater supplies, and WUE/conservation over the entire MWD service area, combined with imported water to meet overall regional water demands.
- SWP system outages – subtask 4.4. CDM Smith has already utilized DWR's Delta Reliability study in which seismic events were simulated for the Delta islands and supply impacts and probabilities were estimated. We will build off of this work and estimate the impacts of seismic events on the Colorado River Aqueduct, and critical SWP facilities (e.g., Edmonston Pumping Plant and Porter Tunnel). We will use MWD's latest system reliability studies and combine them with the analysis we have conducted for other Southern California water agencies.
- MWD and local outages – subtask 4.5. This scenario will examine imported water availability during five major earthquake faults located in Orange County. MWDOC will take the lead on providing preliminary analysis for use by CDM Smith. CDM will also provide advice to MWDOC using our seismic expert.
    - This scenario would evaluate the impact on supplies from four potential major earthquake risks: (1) Delta, (2) San Andreas Fault that would knock out both the Colorado River Aqueduct and California Aqueduct (Porter Tunnel, Edmonston Pumping Plant over the Tehachapis and the East Branch Aqueduct), (3) San Andreas rupture of CRA only, and (4) San Andreas rupture of the SWP under case (2). Recovery times should be based on current MWD or DWR estimates, if available or based on informed professional opinion.

Task 4.6 will examine MWD's Colorado River Aqueduct Future Supply Risks, including the potential for curtailment in MWD's 4th priority right due to continuing drought and imposition of shortages under the Law of the River and due to political pressures (California takes the first shortage after Nevada and Arizona – political pressures and necessity may likely require that California will have to yield water to Nevada). This task would also consider the ability for MWD to acquire additional higher priority California Agricultural or Indian water rights, but these may be further complicated by Salton Sea salinization issues.

** If MWD is unable to provide information on supply reliability, including potential impacts from climate change, CDM Smith will develop an alternative method to capture this. Our proposed method will rely on the Water Evaluation and Planning System (WEAP) modeling efforts in the Bay Delta and Colorado River Basin that will be joined with local water demands in order to estimate imported water availability. This effort will require the use of a contingency budget, shown in our fee estimate.

Task 5 – Develop water supply GAP analysis

CDM Smith will use its customized Excel spreadsheet developed in Task 4 to join imported water availability and local supply availability (Task 3), along with current and projected water demands (Task 2) to develop a gap analysis of water supplies. This gap analysis will be presented for each of the different study areas (e.g., Brea/La Habra, OCWD total, South Orange County and total OC) and for different time periods from now until 2035.

The supply gap will be presented under the different imported water availability scenarios, in AFY. The gap analysis will also reflect differing assumptions regarding MWD drought allocation formulas per your RFP. Due to the critical nature of this analysis, before proceeding with this task, MWDOC has requested that discussions be conducted with the WG to review the methodologies and options for the basis of allocating MWD supplies to Orange County.

Joining the hydrologies so a consistent, usable probability of shortages can be determined will require consensus among MWDOC, OCWD, and MWD. CDM Smith will facilitate this consensus. The supply gaps will also be summarized in non-probabilistic ways for ease of understanding (in different types of hydrology years, i.e., critical dry, dry, average and above normal).

Task 6 – Develop emergency system GAP analysis

Unlike the water supply gap which will be expressed in acre-feet over the course of a year or several years, the system gap during emergency conditions will be expressed in cubic feet per second over the course of days, weeks and months. System gaps occur when outages of key imported or local facilities are caused by seismic events or system failures (such as the AMP outage that occurred due to a failure of pre-stressed concrete). While MWDOC will take the lead in completing the system gap analysis, CDM Smith will provide review and assistance. One area CDM Smith can provide important information is on the recurrence interval for different faults that can impact critical facilities. Our seismic expert utilizes the ground motion software EZ-FRISK to estimate the probability of a certain seismic event that is capable of knocking out a certain facility. Our expert can be a useful resource in determining how much ground motion is needed to take out a treatment plant, large conveyance pipeline or groundwater well field. Then the seismic software examines which faults, in which proximity can deliver that ground motion and at what probability.

The system gap analysis can then be presented for different time periods to estimate the impact on peak water demands. For example, during a regional imported pipeline failure, which could last five to seven days, local emergency storage can mitigate much of the gap. However, during a regional water treatment plant failure, which could last two months, the emergency storage would likely be depleted after 14 days and the gap would be considerably larger. Prior to start of this task, MWDOC has requested a WG meeting to review the methodology for the system GAP analysis to be completed by MWDOC with input from CDM. The GAP will be characterized for all three OC areas (Brea/La Habra, OCWD and South OC).

Task 7 – Review options for new water supplies and system capacity improvements

There are many local and regional water supply and system capacity improvements that are being explored by Orange County water agencies. CDM Smith will develop a project information form that asks for information on a consistent basis. One of the most important aspects of assessing these options is putting them into comparable water supply and cost terms. For example, a water banking or storage program in which the water is only used during droughts or emergencies will have a different unit cost calculation because all fixed costs (e.g., capital costs) will have to be recovered for a fraction of the time the water supply is used. CDM Smith will summarize all of the information on these projects/programs, and augment any data information gaps using best engineering judgment from other studies we have implemented in California.

In addition to the supply and cost calculations, CDM Smith's assessment of these new options will account for institutional issues, water quality, environmental, and other factors that could affect implementation. The options that will be summarized include:

7.1 OCWD Basin Options (Working with OCWD)

a) Expansion of GWRS beyond 130,000 AF per year ("Phase 4")
b) Increased Storm Water Conservation at Prado (Under completed enlarged reservoir/dam)
c) Purchase upstream SAR water (groundwater, recycled or storm water)
d) Capture of basin outflow losses (LA County pumping and options for recovery to reduce losses)
e) Increase capture and reuse of urban runoff (OCSD and IRWD)

7. 2 Ocean Desalination

a) Poseidon Resources Proposed Huntington Beach Project
b) Doheny Ocean Desalination Project
c) Camp Pendleton (Joint with SDCWA)
d) Other OC public developed project

7.3 Other Recycling Projects

a) Non-Potable Dual Distribution "Purple Pipe" Systems
b) Indirect Potable Reuse (San Juan Basin IPR, other)
c) Surface Water Augmentation (potentially in Irvine Lake)
d) Direct Potable Reuse (excluding "pipe-to-pipe")
e) Combined Ocean Desalination and Direct Potable Reuse

7.4 San Juan Basin Storm Water Conservation

a) Storm water Capture and Use (for water supply to meet demands)
b) Urban Runoff Capture and Reuse (for water supply to meet demands)

7.5 Water Exchanges and Transfers

a) Strand Ranch (IRWD will be the source of information)
b) Cadiz (SMWD will be the source of information)
c) Other

7.6 Contract for a Higher Reliability from MWD – This concept involves working with MWD to secure additional supplies/transfers or dedicated storage in their system for drought or other reliability purposes, as contracted by their member agencies. These supplies would be paid for on a reimbursement basis and would be counted as "extraordinary water supplies" when needed by the MWD member agencies contracting for these supplies.

7.7 Conjunctive Use Storage of Imported Water in OCWD Basin MWD CUP Account for South Orange County for Emergency Supply – This option would evaluate concepts and arrangements for providing system reliability improvements for the South Orange County area from imported water stored within the OCWD basin. Opportunities for mutual benefits between the basin agencies and the SOC area would be key to the analysis.

7.8 Expansion of the Existing Emergency Services Concept from 2006 – The 2006 Emergency Supply Project (The Irvine Interconnection Project) that involved agreements between MWDOC, OCWD, IRWD and others would be examined for expansion opportunities. The provisions allowed imported water to be exchanged with groundwater via the IRWD system to provide up to 50 cfs of system supplies to South Orange County. To date, only 30 cfs of supplies have been implemented, leaving room for expansion under the existing agreement. In addition, per the terms of the IRWD Agreement, their system capacity to provide these supplies to others diminishes over time. An updated evaluation of their system capacity needs to be undertaken to evaluate the potential for extensions to this agreement for 2030 and beyond.

7.9 New Surface Storage Facilities for Recycled Water and Imported Water – Examine the benefits of new storage in the County towards meeting the reliability goals.

7.10 Expansion of WUE in the County **–** CDM Smith will work with MWDOC and MWD to determine the potential for expanding water use efficiency in the county beyond 20 x 2020 goals.

Task 8 – Analysis of policy issues or changes for project implementation

CDM Smith understands that implementation of local/regional water supply projects can be impacted by MWD's policies regarding drought allocation and shared benefit. MWDOC has listed out all of the potential policy issues that can be a factor in considering whether or not to implement a new project based on how it would improve imported reliability during drought allocation. These concerns are not usually an issue regarding emergency conditions.

In addition, CDM Smith will factor in MWD's policies for financial incentives, such as its long-range plan, and how that program helps achieve regional reliability. Other financial incentives from state and federal programs will be reviewed and assessed in this task as well.

CDM Smith will work closely with MWDOC in assessing these policy issues and help recommend potential changes in policies that would benefit the development of local water supplies, while maintaining MWD's principle of "shared pain" during droughts.

8.1 MWD Water Supply and Drought Management Plan (WSDM) – MWD's method of allocating water during shortages is covered in its WSDM. The methodology is based on allocating MWD's available

water across the MWD service area based on "the need for imported water". This can be viewed as a disincentive for certain types of projects when developed and paid for locally. With allocations, the local agency would receive a lower allocation from MWD and hence a significant portion of the project reliability benefit is transferred to the region. This occurs whether or not MWD has provided an incentive to the project and limits the ability of a local area to substantially change its reliability under this current policy.

8.2 Extraordinary Water Supplies – Unlike other local projects, local projects developed to provide NEW supplies ONLY in the event of an allocation scenario are not discounted as noted in (8.1) above. These types of supplies essentially provide a 1:1 benefit for the local agency making this investment. These include groundwater storage banks that would be dedicated during periods of shortage allocations, reducing their overall supply benefit (e.g., not being used to reduce risk of going into a shortage, but used only after a shortage is declared).

8.3 Regional vs Local Benefits – Various types of water supply projects carry with them different local and regional benefits. For example, an ocean desalination project provides a constant supply into the region under any type of hydrology. The water may not be needed to balance water supplies each and every year from a local basis, but operationally, it may offset the sale of MWD water in average and wet years but may be critically important in dry years. How can these types of benefits be accounted for and valued in looking at the regional system? What is the value created by offsetting MWD water, in certain amounts, and allowing MWD to store that water for future use during dry periods when water has a much higher value, approximating the value of the cost of ocean desalination? One of the trade-offs is MWD loses a sale of water during normal periods and their financial integrity is partially affected, but if they have storage capacity to allow storage of that water, it becomes higher valued for later use in a dry period – how should this be accounted for in the regional system? If MWD is restricted in its ability to export SWP during above normal and wet periods in order to increase outflows, will MWD have sufficient wet period supplies to fill cyclical storage accounts?

8.4 MWD as the Regional Supplier – MWD as the regional provider, provides for water supply reliability in Southern California – if MWD is reliable, we all are reliable (in the MWD family) and the opposite is also true. How can decision-making be applied to avoid collective regional over or under investing? How should the MWD Integrated Resources Plan coordinate these types of decisions while allowing flexibility for local control to adjust reliability while maintaining MWD and local agency financial integrity?

8.5 Level and Extent of MWD Storage for Managing Supplies – With increasing variability and uncertainty in supplies from both the CRA and SWP due to restrictive regulations that have decreased the developed supply, future major floods and earthquakes that could disrupt the imported water supply for long periods, combined with population and economic driven water demand growth and climate change impacts, the overall future variability and uncertainty in supplies for the region needs to be evaluated and the system and supply enhanced. MWD's increased storage was planned to meet demands under a six year drought, but loss of SWP supply has likely reduced this capability. How much additional storage does the SWP and MWD need to develop, both surface and groundwater, to meet future demands through 2035? Given the difficulty of dealing with a substantial outage of the SWP or

Bay-Delta due to a major earthquake, should MWD be pursuing additional surface and groundwater storage south of the Tehachapi Mountains? How would this storage provide benefits in conjunction with the Bay Delta Conservation Plan?

8.6 Incentives Provided by MWD – MWD's financial strength helps stabilize the State and Southern California. MWD compensating agencies for developing more local supplies can cut into MWD's sales base and financial integrity, driving up rates. What types of partnership or policy arrangements can be developed for the region to grow more reliable together? Where do we draw the line between the regional and local system, investments and responsibilities and who is best suited to address these issues?

MWD's historical contribution of $250 per AF for local projects and ocean desalination is just now being adjusted up to $340 per AF over 25 years or up to $475 per AF over 15 years. MWD's rate increases over the past 10 years also provide incentives to pursue local project development at or below the cost of MWD water.

The rationale MWD used in establishing the LRP contribution for groundwater desalters was based on a study of the costs/economics of groundwater desalters compared to MWD's projected rates. Is this still the appropriate approach or is there a better way, such as MWD/Member Agency partnerships in new southern California supply development? Valuing water produced that would be available for placing into long-term storage? What are possible next steps in evaluating or modifying the level of incentives or partnerships provided by MWD?

8.7 Extended Drought Planning Criteria – What is the appropriate extended drought sequence to hedge against? What is DWR and MWD considering based on new reconstructions of Sacramento River flows and mega-droughts?

8.8 Water Supply and Storage Reserve – How large should a water supply and storage reserve or "contingency" be planned for regionally? What are the risks associated with such a reserve supply? The Consultant is encouraged to identify other or new policies that represent obstacles to supply development or that would further the development of local water supplies for benefit of the region.

8.9 Sharing of Supplies Within the County – What would be the benefit of sharing water supplies within the County. Such a program would identify concepts and conditions for sharing water supplies (e.g., only during system emergencies or during droughts).

8.10 Other Policy Issues – Other policy issues identified as discussion items included:

- MWD payment for LRP projects in the Upper SAR watershed that do NOT result in NEW NET water in the watershed (the water otherwise comes to OC via the SAR and is captured)
- Chino Basin GW Storage and relationship to OCWD
- SAR watershed policy issues
- Storage of MWD water inside and outside of the MWD service area and priority of MWD water for use in storage programs
- Others as may be identified

Option Task 9 - Demonstration of Reliability Improvements

If WG and MWDOC sees value, CDM Smith could test alternative portfolios (not rank them, but merely test them) to see if they can eliminate supply and system constraints. This effort would take 56 hours and a fee of $10,500 to complete.

Contingency Task

If MWD is unable to provide information on reliability of imported water under the scenarios described in Task 4, CDM Smith has identified an approach to mimic MWD's system under various hydrologic and climate change scenarios. This would involve using DWR's WEAP model and constructed WEAP model of Colorado River Basin, along with assumptions of MWD demand and storage accounts to determine reliability of imported water. This contingency task would involve 120 hours and a fee of $24,000. In addition, each additional WG meeting beyond the 10 specified would cost $4,000 per meeting. This includes meeting preparation, attendance, and follow-up action items.

BUDGET

CDM Smith's base budget (no optional task or contingency) for this scope of work is attached.

Municipal Water District of Orange County
Orange County Water Reliability Investigation 2015
BASE PROJECT FEE (NO Optional Task or Contingency)

		Principal-In-Charge	Project Manager	Knowledge Experts	Task Leads	Engineer/ Planner	Assistant Engineer	Graphics/ GIS	Admin/ Word Proc.	Labor Hour Total	Labor	Outside Professionals	Other Direct Costs	Total Fee
	Hourly Rate	$190	$250	$210	$190	$155	$125	$130	$115					
Task 1 Project Management														
1.1	Existing Information		4		6	6	20		5	41	$ 6,145	$ -	$ 20	$ 6,165
1.2	Project Meetings and Workshops	24	60		10	30			24	148	$ 28,870	$ -	$ 150	$ 29,020
1.3	Draft and Final Reports	8	16	8	16	16	40	20	16	140	$ 22,160	$ 500	$ 75	$ 22,735
	Subtotal - Task 1	***32***	***80***	***8***	***32***	***52***	***60***	***20***	***45***	***329***	***$ 57,175***	***$ 500***	***$ 245***	***$ 57,920***
Task 2 Review and Projection of Demands														$ -
2.1	Historical Demands Analysis		10		16	8	40	4	1	79	$ 12,415	$ -	$ 10	$ 12,425
2.2	Projected Demands Analysis		15		24	4	40	4	1	88	$ 14,565	$ -	$ 10	$ 14,575
	Subtotal - Task 2		***25***		***40***	***12***	***80***	***8***	***2***	***167***	***$ 26,980***	***$ -***	***$ 20***	***$ 27,000***
Task 3 Review Existing OC Local Supplies														$ -
3.1	SAR Watershed Supply Analysis		1	2	6		6		1	16	$ 2,675	$ 800	$ 10	$ 3,485
3.2	Non-OCWD Local Surface and Groundwater Supplies		1	2	6		6		1	16	$ 2,675	$ 200	$ 10	$ 2,885
3.3	Recycled Water		1	2	6		6		1	16	$ 2,675	$ -	$ 10	$ 2,685
3.4	Regional Alliance Compliance Analysis		1	2	4		6		1	14	$ 2,295	$ -	$ 10	$ 2,305
	Subtotal - Task 3		***4***	***8***	***22***		***24***		***4***	***62***	***$ 10,320***	***$ 1,000***	***$ 40***	***$ 11,360***
Task 4 Estimate of Supplies Available from MET														$ -
4.1	Base Case - BDCP Implemented		2				4		1	7	$ 1,115	$ -	$ 10	$ 1,125
4.2	BDCP is Not Implemented		4		12		18		1	35	$ 5,645	$ -	$ 10	$ 5,655
4.3	Extended Drought		6		24		42		1	73	$ 11,425	$ 15,000	$ 10	$ 26,435
4.4	Extended Outage of the SWP due to Earthquake		4	4	4		8		1	21	$ 3,715	$ -	$ 10	$ 3,725
4.5	Others as Suggested		2	6			8		1	17	$ 2,875	$ -	$ 10	$ 2,885
	Subtotal - Task 4		***18***	***10***	***40***		***80***		***5***	***153***	***$ 24,775***	***$ 15,000***	***$ 50***	***$ 39,825***
Task 5 Develop a Supply Gap Analysis for Projected Demands and Local Supplies														$ -
5.1	Develop a Supply Gap Analysis	1	10		24		56	2	4	97	$ 14,970	$ 1,000	$ 15	$ 15,985
	Subtotal - Task 5	***1***	***10***		***24***		***56***	***2***	***4***	***97***	***$ 14,970***	***$ 1,000***	***$ 15***	***$ 15,985***
Task 6 Develop an Emergency System Gap Analysis														$ -
6.1	Develop an Emergency System Gap Analysis	1	4	8	12		24	4	4	57	$ 9,130	$ -	$ 15	$ 9,145
	Subtotal - Task 6	***1***	***4***	***8***	***12***		***24***	***4***	***4***	***57***	***$ 9,130***	***$ -***	***$ 15***	***$ 9,145***
Task 7 Review Options for New Local Supplies and New System Capabilities/Supplies														$ -
7.1	OCWD Basin Options		1		4	1	8	1	1	16	$ 2,410	$ 900	$ 10	$ 3,320
7.2	Ocean Desalination	1	1		4	1	8	1	1	17	$ 2,600	$ -	$ 10	$ 2,610
7.3	Other Recycling Projects	1	1	2	4	1	8	1	1	19	$ 3,020	$ -	$ 10	$ 3,030
7.4	San Juan Basin Storm Water Conservation	1	1		4	1	8	1	1	17	$ 2,600	$ -	$ 10	$ 2,610
7.5	Water Exchanges and Transfers		1		2	1	8	1	1	14	$ 2,030	$ -	$ 10	$ 2,040
7.6	Contract for a Higher Reliability from MET		2			1	8	1	1	13	$ 1,900	$ -	$ 10	$ 1,910
7.7	Conjunctive Use Storage of Imported Water	1	2			1	8	1	1	14	$ 2,090	$ -	$ 10	$ 2,100
7.8	Expansion of the Existing Emergency Services Concept from 2006	1	1	4		1	8	1	1	17	$ 2,680	$ -	$ 10	$ 2,690
	Subtotal - Task 7	***5***	***10***	***6***	***18***	***8***	***64***	***8***	***8***	***127***	***$ 19,330***	***$ 900***	***$ 80***	***$ 20,310***
Task 8 Analysis of Policy Issues or Changes Needed for Implementation of New Projects														$ -
8.1	MET Water Supply and Drought Management Plan		5			6				11	$ 2,180	$ -	$ 10	$ 2,190
8.2	Extraordinary Water Supplies		4			5				9	$ 1,775	$ -	$ 10	$ 1,785
8.3	Regional vs. Local Benefits		4			4				8	$ 1,620	$ -	$ 10	$ 1,630
8.4	MET as the Regional Supplier		4			6				10	$ 1,930	$ -	$ 10	$ 1,940
8.5	Level and Extent of MET Storage for Managing Supplies		4			4				8	$ 1,620	$ -	$ 10	$ 1,630
8.6	Incentives Provided by MET		4			4				8	$ 1,620	$ -	$ 10	$ 1,630
8.7	Extended Drought Planning Criteria		4			4				8	$ 1,620	$ -	$ 10	$ 1,630
8.8	Water Supply and Storage Reserve		4			4				8	$ 1,620	$ -	$ 10	$ 1,630
8.9	Evaluation and Inclusion in Decision-Making		4			4				8	$ 1,620	$ -	$ 10	$ 1,630
	Subtotal - Task 8		***37***			***41***				***78***	***$ 15,605***	***$ -***	***$ 90***	***$ 15,695***
	TOTAL HOURS	**39**	**188**	**40**	**188**	**113**	**388**	**42**	**72**	**1070**	**$ 178,285**	**$ 18,400**	**$ 555**	**$ 197,240**
	TOTAL FEE	**$7,410**	**$47,000**	**$8,400**	**$35,720**	**$17,515**	**$48,500**	**$5,460**	**$8,280**					

Item No. 2

ACTION ITEM
October 15, 2014

TO: Board of Directors

FROM: **Planning & Operations Committee**
(Directors Osborne, Barbre & Hinman)

Rob Hunter
General Manager

Staff Contact: J. Berg
WUE Programs Manager

SUBJECT: **Adoption of the One Water One Watershed 2.0 Plan**

STAFF RECOMMENDATION

Staff recommends the Board of Directors adopt the attached resolution approving the Santa Ana River Watershed Project Authority One Water One Watershed 2.0 Plan, the Integrated Regional Water Management Plan for the Santa Ana River watershed.

COMMITTEE RECOMMENDATION

SUMMARY

The Integrated Regional Water Management (IRWM) Grant Program is designed to encourage integrated regional strategies for management of water resources and to provide funding for programs and projects that support integrated water management planning and implementation. The Department of Water Resources is in the process of disbursing the last round of implementation grant funding under the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond act of 2006 (Proposition 84). The Santa Ana Watershed Project Authority (SAWPA) is lead agency seeking access to more than $16 million in IRWM funds on behalf of the stakeholders in the Santa Ana River watershed.

On December 13, 2012, the One Water One Watershed (OWOW) Steering Committee approved 22 projects that were included in a Proposition 84 “implementation” grant application to the California Department of Water Resources. MWDOC‘s Commercial, Industrial, and Institutional Performance-Based Water Use Efficiency Program is one of the 22 projects selected to receive $500,000 from this round of funding. SAWPA and the 22 project proponents are now in the process of signing funding agreements for project implementation.

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

To be eligible for funding, DWR requires each project proponent to adopt the OWOW 2.0 Plan through a Board Resolution, which is provided as Attachment A. The detailed report below provides background information on the OWOW 2.0 Plan.

DETAILED REPORT

The Santa Ana Watershed Project Authority is the regional watershed planning organization for the Santa Ana River Watershed and has been facilitating efforts to develop a watershed planning framework to guide water resource managers. To date, this has resulted in the development of the *One Water One Watershed Plan*. This OWOW Plan originated in 2002 and has been updated in 2005, 2007, and most recently in February 2014. The goal of this planning process is to develop the tools and strategies to work across the watershed to develop an integrated water resource plan where all types of water (local surface and groundwater, imported water, stormwater, and treated wastewater effluent) are viewed in a comprehensive, integrated manner as a single water resource.

OWOW 2.0 Integrated Regional Water Management Plan

The OWOW process is led by a Steering Committee composed of public officials from counties and cities in the Watershed, representatives from the environmental, regulatory, and business communities, and representatives from the Santa Ana Watershed Authority (SAWPA). The Steering Committee was supported by numerous technical experts grouped into 10 disciplines (known as Pillars) such as water resource optimization, natural resource stewardship, and water use efficiency. Participants from numerous agencies and organizations have volunteered to serve on the Pillar groups and committees and have addressed every aspect of water management planning.

SAWPA acted as lead agency for the Regional Water Management Group (RWMG). While SAWPA facilitated the planning process and provided technical input and support through its staff and consultants, the development of the goals and strategies of the Plan and the decision making process were done by the Steering Committee with the support of the Pillars and with consideration to comments from the public at large.

The fundamental concept for this planning process was to pull parties together in every aspect of the water arena – those who provide water, those who use it, and those who manage it – in a way that has never been done before and in a way that goes beyond the interests of any one agency. This approach marked a major shift from previous IRWM planning efforts by greatly expanding the number and type of agencies and organizations involved in the process.

In developing the OWOW 2.0 Plan, a decided “bottom up” approach for governance was envisioned. Unlike in previous SAWPA plans or other planning approaches across the state, every effort has been made to allow the key discussions of major water resource issues, concerns, problems, goals and objectives, and potential solutions to originate and be first fully vetted at the stakeholder level. By expanding the involvement and collaboration to the *on the ground* level, greater buy-in and support was realized for this planning development process.

Pillar Groups

In order to manage the planning work, the stakeholders were organized into ten separate workgroups or *Pillars* centered around the following water resource management areas:

1. Water Resource Optimization
2. Stormwater – Resource and Risk Management
3. Beneficial Use Assurance
4. Natural Resource Stewardship
5. Operational Efficiency and Water Transfers
6. Government Alliance
7. Water Use Efficiency
8. Energy and Environmental Impact
9. Water and Land Use
10. Disadvantaged and Tribal Communities

The Pillar Groups consisted of approximately 10 to 60 volunteers, depending on the topic and interest level, and included participants from local agencies, special districts, non-profit organizations, universities, Native American tribes, and the public, led by a volunteer chair having expertise in that specific water resource area. The Pillar Groups were tasked with the definition of the watershed problems for their respective discipline and the identification and development of potential solutions and strategies. While Pillar Groups were asked to focus on one specific discipline based on their technical expertise, they were also asked to step out of their role and view problems from the other Pillar Group perspectives. It was through this process that new synergies were developed and multi-benefit programs were formed.

Through participation in the OWOW process, MWDOC staff and other water, wastewater, city, and environmental organizations throughout the watershed provided input to SAWPA on the development of the OWOW 2.0 Plan.

Steering Committee

The next level of governance up from the foundation of the Pillars was the OWOW Steering Committee, which consisted of 10 representatives from across the Santa Ana River Watershed. The Committee was convened by the SAWPA Commission, and included two representatives from the SAWPA Commission representing water agencies, who serve as Convener and Vice-Convener; three County Supervisors - one from each county; three mayors - from large cities in each county; a business representative from the development community; and a representative from the environmental community. Steering Committee members representing Orange County include: Supervisor Shawn Nelson, Council Woman Beth Krom from the City of Irvine, Garry Brown, environmental representative from the Orange County Coast Keeper, and Linda Ackerman from the Regional Water Quality Control Board.

The Steering Committee's role was to serve as the developer of plan goals and objectives for the Watershed, and to act as the oversight body that performs strategic decision making, crafts and adopts programmatic suites of project recommendations, and provides program advocacy necessary to optimize water resource protection for all.

Resource Management Strategies

The OWOW 2.0 Plan encourages the development and implementation of multi-benefit projects and programs that are linked together for improved synergy. Examples include:

- Proactive, innovative, and sustainable solutions
- Integrated regional solutions supporting local reliability and local prioritization
- Watershed-based projects and programs that effectively leverage limited resources, promote trust and produce a greater bang for the buck
- Integrates water supply, water quality, recycled water, stormwater management, water use efficiency, land use, energy, climate change, habitat, and disadvantaged communities and tribes
- Coordinates resources so that water is used multiple times
- Manages stormwater for drinking water
- Treats wastewater for irrigation and groundwater replenishment
- Builds or modifies parks to support water efficiency, ecosystem habitat, and stormwater capture
- Improves water quality and pollution prevention
- Addresses the energy and water nexus

For brevity, the Executive Summary of the OWOW Plan is provided as Attachment B. If you would like to view the full One Water One Watershed 2.0 Plan for the Santa Ana watershed go to: http://www.sawpa.org/owow-2-0-plan-2/

Summary

SAWPA selected MWDOC's Commercial, Industrial, and Institutional Performance-Based Water Use Efficiency Program for Proposition 84 Round 2 funding. To be eligible for funding, DWR requires each project proponent to adopt the OWOW 2.0 Plan through a Board Resolution. SAWPA and the 22 project proponents are now in the process of signing funding agreements. Staff recommends the Board of Directors adopt the attached resolution approving the Santa Ana River Watershed Project Authority OWOW 2.0 Plan.

Attachments

Attachments include:

Attachment A –	Resolution Adopting the SAWPA OWOW 2.0 Integrated Regional Water Management Plan
Attachment B –	One Water One Watershed Integrated Regional Water Management Plan Executive Summary

Attachment A

RESOLUTION NO. ___

RESOLUTION OF THE BOARD OF DIRECTORS OF THE MUNICIPAL WATER DISTRICT OF ORANGE COUNTY ADOPTING THE SANTA ANA WATERSHED PROJECT AUTHORITY ONE WATER ONE WATERSHED 2.0 PLAN, THE INTEGRATED REGIONAL WATER MANAGEMENT PLAN FOR THE SANTA ANA RIVER WATERSHED

WHEREAS, on February 4, 2014, the Santa Ana Watershed Project Authority (SAWPA) Board of Commissioners adopted the One Water One Watershed (OWOW) 2.0 Plan, the Integrated Regional Water Management Plan for the Santa Ana River Watershed, as a planning document outlining a sustainable water future for the region; and

WHEREAS, on December 18, 2012, the SAWPA Board of Commissioners approved a list of 22 projects for funding under SAWPA's Round Two funding allocation through the DWR, including MWDOC's Commercial Industrial Institutional Performance-Based Water Use Efficiency Program; and

WHEREAS, as a condition of the grant funding for MWDOC's Commercial, Industrial, and Institutional Performance-Based Water Use Efficiency Program, the DWR and SAWPA require that all project sponsors also adopt the OWOW 2.0 Plan.

NOW, THEREFORE, the Board of Directors of the Municipal Water District of Orange County does hereby acknowledge the OWOW Plan and, as a required condition of receiving grant funding under the Plan, adopts the current Santa Ana Watershed Project Authority One Water One Watershed 2.0 Integrated Regional Water Management Plan.

Adopted at the regular meeting of the Board of Directors held October 15, 2014, by the following roll call vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

I hereby certify that the foregoing is a 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 October 15, 2014.

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

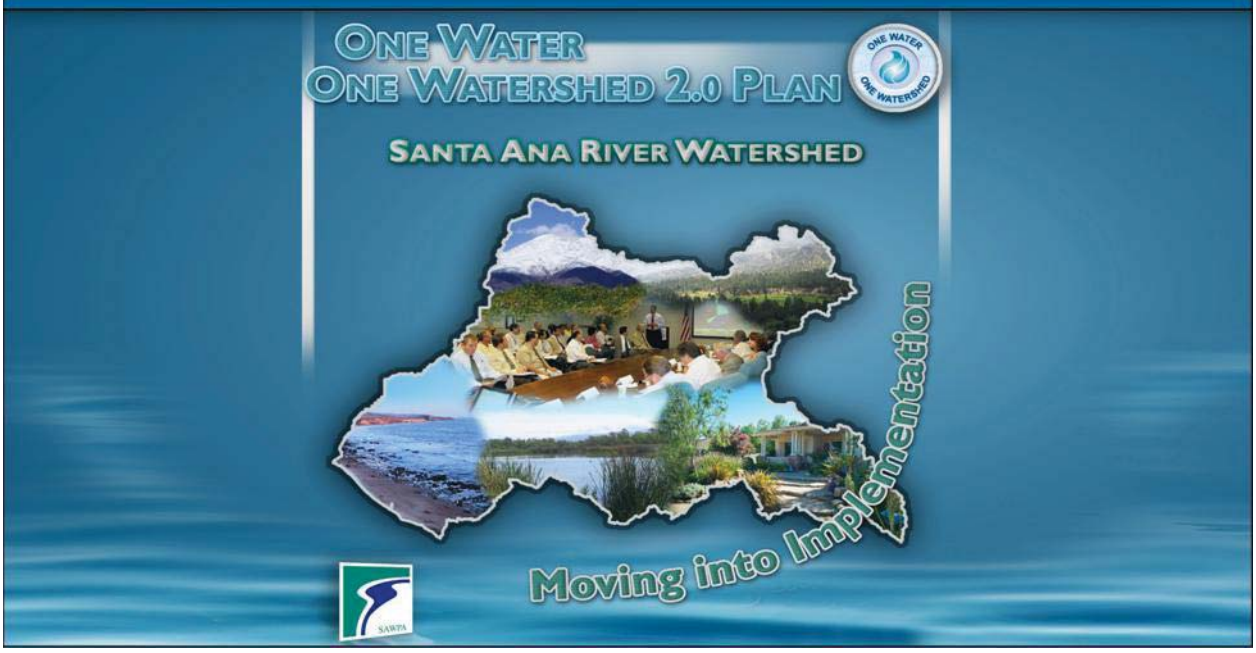
By:_____

President

By:_____

Secretary

Executive Summary



The Santa Ana River Watershed faces enormous challenges as it strives to adapt to changing conditions, many of which are at an unprecedented scale in its modern history. The watershed's population, already one of the most densely populated in the State, continues to grow and urbanize, increasing demands on water supply, water quality, and flood management. Even with its plentiful groundwater resources, several basins now are experiencing declining groundwater levels and overdraft conditions. With the uncertainties of climate change and its impacts, environmental concerns are taking even greater precedence than they ever have in the past, affecting how we manage water for the future.

Most agree that the water management approaches of the past several decades are no longer sustainable in today's environment and economic climate. And most agree that a more integrated and collaborative approach to water resource management will show tremendous promise to water resources everywhere. But in the Santa Ana River Watershed, this approach is not new; it has been our practice and legacy since the first integrated plan was approved by the Santa Ana Watershed Project Authority (SAWPA) Commission in 1998.

In a nutshell, the goal of yesteryear was affordable water for a growing economy. But over time, the goal has changed to become a more complicated balancing act of environmental sustainability, quality of life and, economic growth in a changing environment dominated by water and financial scarcity. The strategy to achieve this goal is integrated water management. This means the various silos of water supply, flood management, water quality, ecosystem restoration, and recreation are brought together as one. Another way to think about it is that while the drop of water may at different times be characterized by different elements, it is still the same drop of water.

The benefits of this approach are better coordination across functions that are often managed separately and across a broader geographic scale larger than the boundaries of individual agencies. Through integration at the watershed scale, economic and environmental performance is more effectively balanced. This water resource planning approach based on a watershed basis has even been recognized by independent review, objective and nonpartisan research organizations such as the Public Policy Institute of California, which cited SAWPA as an excellent example of integrated water management in the State.

> SAWPA 's approach – coordination, cooperation, and integration of water agencies to pool resources and manage water at the basin scale-is one of California's best models for integrated water management.
>
> *Public Policy Institute of California 2011 "Managing California's Water – From Conflict to Reconciliation"*

The Santa Ana River Watershed continues to progress with many "bright spots" and pilot projects accomplished to date. The use of sophisticated "big data" analytics continues to set us apart, resulting in a more robust watershed and a very competitive position to compete for State and Federal funds.

The "One Water One Watershed" (OWOW) 2.0 Plan is the Santa Ana River Watershed's integrated regional water management (IRWM) plan. This plan reflects a collaborative planning process that addresses all aspects of water resources in a region or watershed, in our case. It includes planning of future water demands and supplies over a 20-year time horizon within the watershed as a hydrologic and interconnected system. The plan represents collaboration across jurisdictions, and political boundaries involving multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through mutually beneficial solutions. The plan reflects a new suite of innovative approaches that instead of relying solely on continued imported water deliveries to meet growing water demands in the region, is leading with a water demand reduction strategy. These approaches include the following:

- Multi-beneficial projects and programs that are linked together for improved synergy
- Proactive innovative, and sustainable solutions
- Integrated regional solutions supporting local reliability and local prioritization
- Watershed based project and programs that effectively leverage limited resources, promote trust and produce a greater bang for the buck
- Integrates water supply, water quality, recycled water, stormwater management, water use efficiency, land use, energy, climate change, habitat, and disadvantaged communities and tribes
- Coordinates resources so that water is used multiple times
    - Manages stormwater for drinking water
    - Treats wastewater for irrigation and groundwater replenishment
    - Builds or modifies parks to support water efficiency, ecosystem habitat, and stormwater capture
    - Improves water quality pollution prevention
    - Addresses energy and water nexus

The OWOW 2.0 Plan was funded by the SAWPA member agencies with grant funding assistance from the California Department of Water Resources (DWR) through the Proposition 84 IRWM Planning Grant program, and a funding partnership from the U.S. Bureau of Reclamation (Reclamation) through their Basin Studies program. Work with Reclamation, the State, local and non-profit organizations provided the OWOW 2.0 Plan with the necessary resources to expand outreach and support that ultimately will create more cost effective integrated water resource management solutions.

In the final analysis, the prescription for success is clear; we need to "double down" on integrated water management, strengthen the alignment among all government agencies, and invest in innovation and infrastructure. For the Santa Ana River Watershed, the road map for this success is our IRWM plan known as the OWOW Plan.

The emphasis of this new OWOW 2.0 Plan is that all people are encouraged to adopt a water ethic that focuses on understanding where their water comes from, how much they use of it, what they put into water, and where it goes after they finish using it. To meet growing water demands in the region, a new suite of approaches to planning are needed now that lead with a water demand reduction strategy.

Analysis and Support Tools

To support implementation of the OWOW 2.0 Plan, SAWPA in conjunction with its funding partners, conducted research and analyses on climate change impacts to the watershed, and developed a variety of new computer support tools to support our modern water management goals. Under this Plan, new resource tools and analyses were developed to help water resource managers adapt to changing climate conditions, support project proponents in better integrated solutions, assist analysis of watershed performance over time, and provide the public better access to water quality for beneficial use.

Through the work of Reclamation, an interactive climate change modeling tool was developed to provide water planners with information on potential impacts of climate change within the Santa Ana River Watershed. This tool provides a simplified modeling framework for evaluating climate change impacts, as well as mitigation/adaptation alternatives. The climate change tool enables the user to explore, identify, and download custom climate change data for various scenarios modeled for the Santa Ana River Watershed**.** Some of the results of the climate change analysis for the watershed that address common public concerns are as follows:

Will surface water supply decrease?

- Annual surface water is likely to decrease over future periods.
- Precipitation is projected to show long-term slightly decreasing trends.
- Temperature is projected to increase, which will likely cause increased water demand and reservoir evaporation.
- Snow melt water runoff is projected to decrease.

Will I still be able to go skiing at Big Bear Mountain Resorts?

- The projected warmer temperatures would result in a delayed onset and shortened ski season. Both

Big Bear Mountain Resorts lie below 3,000 meters and are projected to experience declining snowpack that could exceed 70% by 2070.

How many more days over 95°F are expected in Anaheim, Riverside, and Big Bear City?

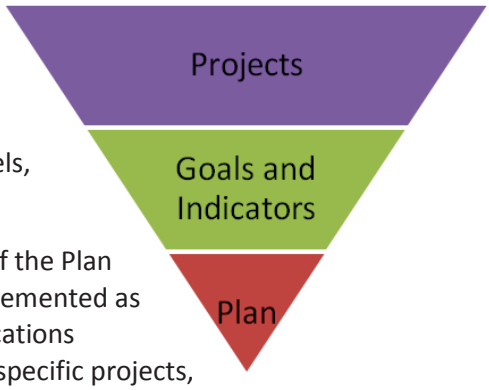
- By 2070, it is projected that the number of days above 95°F will quadruple in Anaheim (4 to 16 days) and nearly double in River*side* (43 to 82 days). The number of days above 95°F at Big Bear City is projected to increase from zero days historically to four days in 2070.

Another powerful tool that Reclamation developed under the OWOW 2.0 Plan is an interactive green house gas (GHG) modeling tool to provide water planners and the public about the impacts of GHG within the Santa Ana River Watershed. This tool enables the user to explore, identify and download custom GHG data for a suite of water technologies modeled for the Santa Ana River Watershed. It also will exhibit energy consumption in the delivery and treatment process with relation to water. In accordance with AB – 32, which requires regions to reduce their overall GHG emissions, the tool also evaluates both water supply and demand in the Santa Ana River Watershed. This tool will prove to be very useful within the watershed because it allows users to calculate different scenarios, which can be used to compare each outcome and result. Further, the tool can be adapted to individual projects and is anticipated for use in future GHG emissions calculations by project proponents.

Santa Ana River Watershed Water Quality Tools

SAWPA, partnering with the Santa Ana Regional Water Quality Control Board and local stakeholders, has developed a suite of tools to provide water planners and the public access to water quality information relating to designated beneficial uses, water quality objectives, and water quality data for water bodies and waterways within the Santa Ana River Watershed.

Watershed Assessment Tool, Plan Performance and Monitoring



In order to track progress, SAWPA has developed a system to monitor the implementation of the OWOW Plan and projects implemented under OWOW. The monitoring takes place at two levels, the plan level and project level, to:

- Ensure progress is being made toward meeting objectives of the Plan
- Ensure specific projects identified in the Plan are being implemented as planned in terms of schedule, budget, and technical specifications
- Identify potential necessary modifications to the Plan or to specific projects, to more efficiently and effectively accomplish the goals and objectives of the Plan
- Provide transparency and accountability regarding the disbursement and use of funds for project implementation

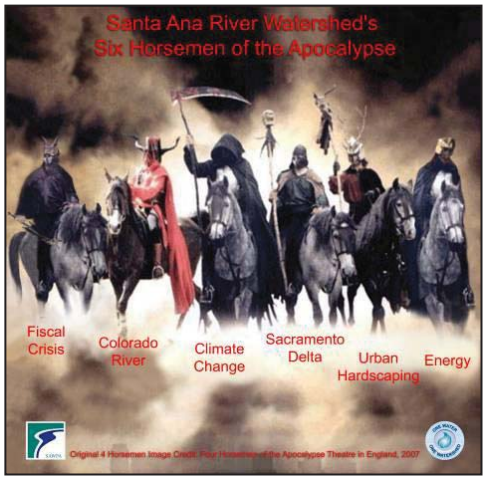
To tie the plan and project monitoring together, SAWPA recognized the need for an interface process of measuring progress on meeting the goals and objectives, as well as the health of the Santa Ana River Watershed. SAWPA engaged the services of the Council for Watershed Health, a nonprofit organization, and Dr. Fraser Shilling of the University of California, Davis to develop a watershed assessment framework for the Santa Ana River Watershed. The Council and Dr. Shilling worked with the OWOW Pillars, workgroups of experts and stakeholders organized generally based on water resource management strategies, to update the watershed management goals, establish planning targets, and

utilize data indicators from existing datasets to track progress. With the input of SAWPA staff, a new tracking computer tool was created, incorporating this work that will allow managers to evaluate and assess progress, and assure actionable results for implementation.

Vision, Mission and Challenges

Under OWOW 1.0, the vision for the watershed was developed and continues under the OWOW 2.0 Plan as follows:

1. A watershed that is sustainable, drought-proofed and salt-balanced by 2035, and in which water resources are protected and water is used efficiently
2. A watershed that supports economic and environmental viability
3. A watershed that is adaptable to climate change
4. A watershed in which environmental justice deficiencies are corrected
5. A watershed in which the natural hydrology is protected, restored, and enhanced
6. A water ethic is created at the institutional and personal level



The mission of the OWOW Plan is to create opportunities for smarter collaboration to find sustainable watershed-wide solutions among diverse stakeholders from throughout the watershed. Clinging to the path of yesteryear will place us at greater risk of producing results with limited impact and unintended consequences. Our 21st Century plan creates a blueprint for more effective water resource management by using data and tools to keep us better informed and allowing us to be more productive in using less energy and producing less GHG emissions.

To achieve this vision and mission, stakeholders must address four major threats, which we have dubbed the Four Horsemen of the Apocalypse: 1) Climate Change resulting in reduced water supplies combined with increased water needs in the region; 2) Colorado River Drought Conditions resulting in pressures on imported supply due to upper basin entitlements and continued long-term drought; 3) San Joaquin-Bay Delta Vulnerability resulting in loss of supply due to catastrophic levee failure or changing management practices of the Delta; and 4) Population Growth and Development resulting in interruptions in hydrology and groundwater recharge while increasing water needs.

To implement OWOW 2.0 and adjust to current affairs, SAWPA and stakeholders needed to adapt to address the new challenges, the Energy and Fiscal Crises. The Four Horsemen of the Apocalypse herd has grown to six. The Fiscal Crisis reflects the impacts of the Great Recession commonly marked by a global economic decline that began in December 2007, and took a particularly sharp downward turn in September 2008. Some say the epicenter was the Inland Empire. By late 2013, the recession remains a part of our lives resulting in far fewer State and Federal funds, and State bond funding being deferred each year as the realization that they would not likely be supported by the California electorate.

Recent energy developments such as the closure of the San Onofre Nuclear Generating Station, have forced us to recognize the water-energy nexus and the need to address our energy needs and escalating costs for delivering energy. Energy costs can be reduced by water agencies through energy efficiency measures, while teaching the public that water conservation equates to energy conservation and thus money saved.

Goals, Objectives, Targets and Indicators

As previously stated, in order to achieve the watershed's vision, the Pillars worked with the Council of Watershed Health on updating the goals and objectives for the OWOW 2.0 Plan as part of the new watershed assessment framework.

The Pillars and the Council selected five areas: water supply, hydrology, open spaces, beneficial uses, and effective and efficient management. Using these newly defined goals and objectives, an assessment process was established that will assure actionable results for implementation.

Thereafter, the new goals and objectives were shared with the Steering Committee for their acceptance. Planning targets within the watershed along with data indicators were developed to track progress and allow measurement of the extent to which the plan objectives are being met. To achieve the updated goals and objectives, resource and broad management strategies were investigated through work of the Pillars. Quantifiable planning targets were developed in conjunction with the 20-year planning horizon of Year 2035.

Goals	Objectives
Maintain reliable and resilient water supplies and reduce dependency on imported water	•Decrease water demand •Increase water-use efficiency •Increase use of rainfall and snowpack as a resource •Increase use of recycled water •Sustainably develop local water resources •Maintain sufficient storage to overcome multi-year (3 year) drought over a ten year hydrologic cycle •Reduce green-house-gas emissions and energy consumption from water resource management
Manage at the watershed scale for preservation and enhancement of the natural hydrology to benefit human and natural communities	•Preserve and restore hydrologic function of forested and other lands •Preserve and restore hydrogeomorphic function of streams and water bodies •Safely co-manage flood protection and water conservation •Include ecosystem function in new development planning and construction
Preserve and enhance the ecosystem services provided by open space and habitat within the watershed	•Increase the capacity of open space to provide recreational opportunities without degrading its quality or increasing its consumption of water & energy •Protect existing and restore native habitats •Protect and maintain healthy forests •Manage aquatic and riparian invasive species •Protect estuarine and marine near-shore habitats •Reduce ornamental irrigated landscapes •Improve management support for landscaping that utilizes native and drought tolerant vegetation •Protect and Restore wildlife corridors •Protect endangered and threatened species and species of special concern through improved habitat
Protect beneficial uses to ensure high quality water for human and natural communities	•Attain water quality standards in fresh and marine environments to meet designated beneficial uses •Protect and improve source water quality •Achieve and maintain salt balance in the watershed
Accomplish effective, equitable and collaborative integrated watershed management	•Improve regional integration and coordination •Ensure high quality water for all users •Balance quality of life and social, environmental and economic impacts when implementing projects •Maintain quality of life •Provide economically effective solutions •Engage with disadvantaged communities to eliminate environmental injustices •Engage with Native American tribes to ensure equity •Reduce conflict between water resources and protection of endangered species

The targets and indicators are listed in Chapter 4.3, Planning Targets.

Goals	Performance Targets for 2035
Maintain reliable and resilient water supplies and reduce dependency on imported water	•Conserve an additional 256,500 AFY of water through water use efficiency and conservation measures •Create 58,000 AFY using a combination of additional wells, treatment, conjunctive use storage and desalination of brackish groundwater •Increase production of recycled water by 157,000 AFY •Increase both centralized and distributed stormwater capture and recharge by 132,000 AFY •Develop 54,000 AFY of ocean water desalination
Manage at the watershed scale for preservation and enhancement of the natural hydrology to benefit human and natural communities	•Reduce flood risk in 700 acres using integrated flood management approaches. •Remove 500,000 cubic yards of sediment from debris basins and reservoirs
Preserve and enhance the ecosystem services provided by open space and habitat within the watershed	•Preserve or restore 3,500 acres of terrestrial aquatic habitat •Construct 39.5 miles of additional Santa Ana River Trail and Parkway
Protect beneficial uses to ensure high quality water for human and natural communities	• Reduce non-point source pollution by treating an additional 35 MGD of surface and stormwater flow, emphasizing higher priority TMDL areas • Remove an additional 25,000 tons of salt per year from the watershed
Accomplish effective, equitable and collaborative integrated watershed management	•Engage with 50% (approximately 35) Disadvantaged Communities within the watershed •Engage with 100% of the Non-Federally Recognized Tribes in the watershed

OWOW Planning Process

SAWPA officially launched its OWOW 2.0 planning effort on April 20, 2011, with the signing ceremony of the agreement with Reclamation. The work commenced in earnest with the first meeting with the Pillar Co-chairs. Regular workshops throughout the watershed were held with more than 100 agencies and non-profit organizations spanning Riverside, San Bernardino, and Orange counties. From the very beginning, the process has been open to and has received the participation of representatives from all

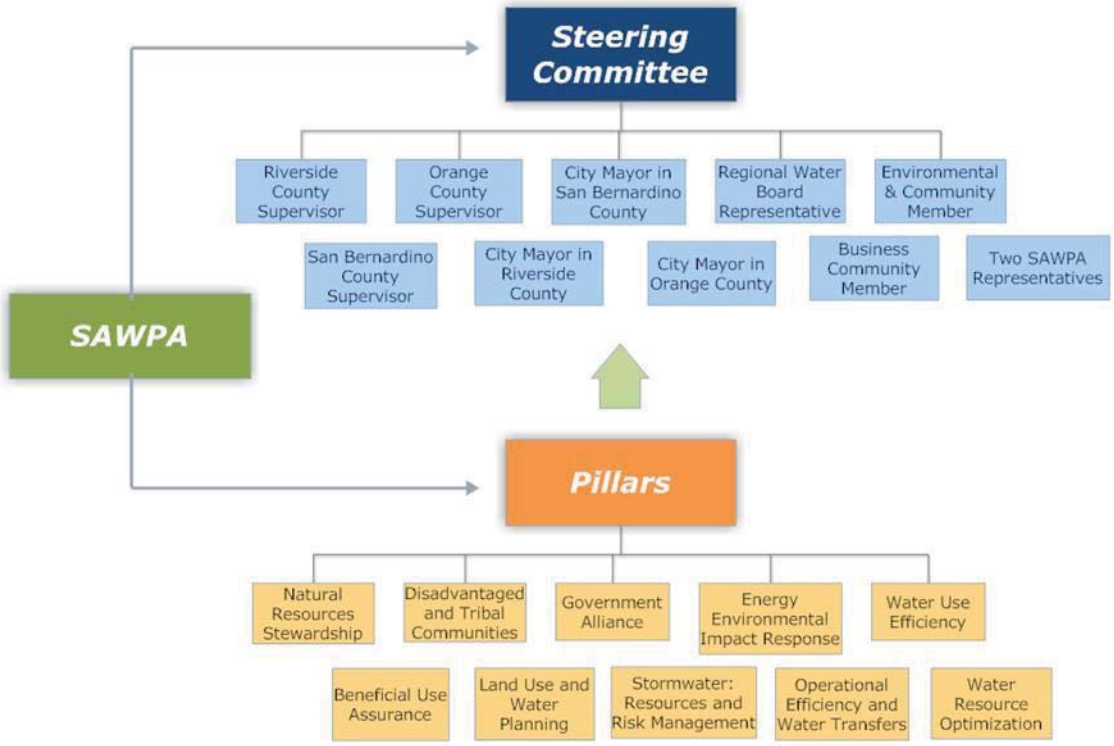
geographic regions and political jurisdictions within the watershed, and from diverse representatives of different sectors of the community (governments, water agencies, the development and environmental community, and the public).

As with the OWOW 1.0 Plan development, the OWOW 2.0 Plan utilized a "bottom up" approach for governance and involvement. Every effort was made to encourage the development of a shared vision and the involvement and participation of all watershed stakeholders in key discussions of major water resource issues, concerns, problems, goals, and objectives, with a particular focus on supporting multi-beneficial system-wide implementation. By expanding the involvement and collaboration to the *on-the-ground* level, greater buy-in and support were realized for this planning development process.

OWOW 2.0 Governance

As with OWOW 1.0, the OWOW 2.0 Plan is led by an 11-member Steering Committee composed of elected officials from counties and cities in the watershed, representatives from the environmental, regulatory, and business communities, and representatives from SAWPA.

The Steering Committee's role is to serve as the developer of integrated regional water management goals and objectives for the watershed, and to act as the oversight body that performs strategic decision making, crafts and adopts programmatic suites of project recommendations, and provides program advocacy necessary to optimize water resource protection for all.

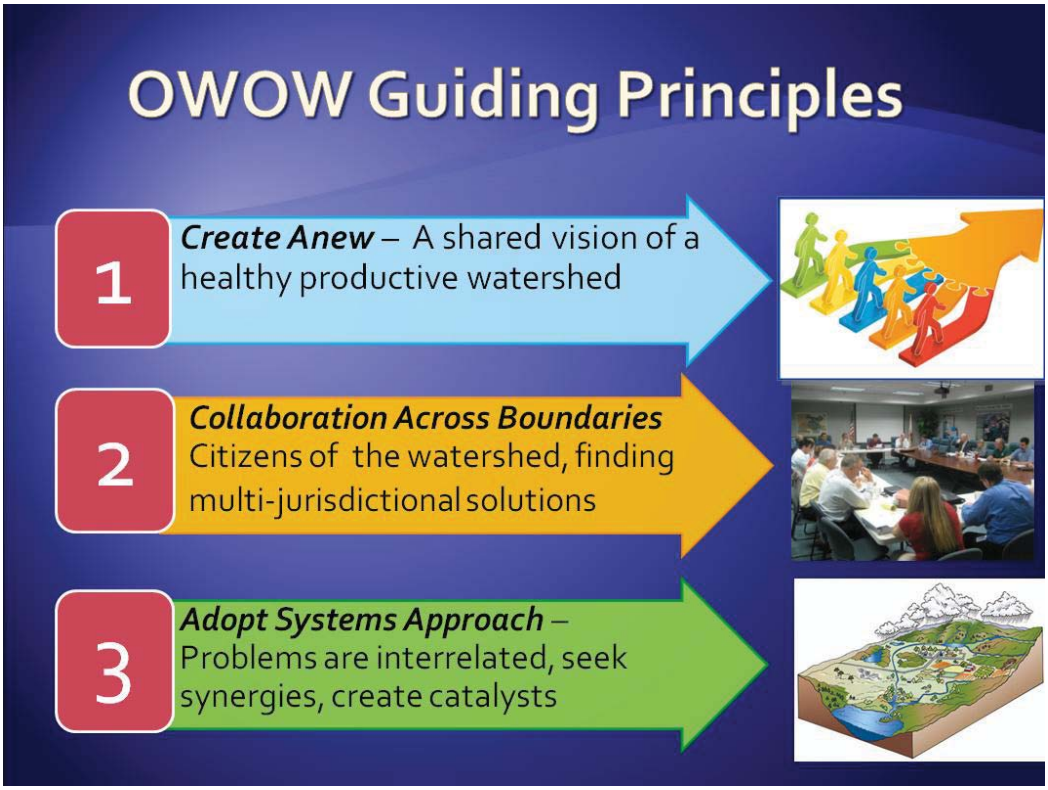


The Steering Committee is supported by technical experts assembled into ten groupings (known as Pillars), generally aligned along major water resource management strategies, but renamed under the OWOW 2.0 Plan to reflect greater integration and synergy.

While SAWPA facilitates the planning process and provides technical input and support through its staff and consultants, the development of the goals and strategies of the Plan, as well as the decision making process, are under the purview of the Steering Committee and the SAWPA Commission, with support of the Pillars and with consideration to comments from the public.

Pillar Work and Key Findings

Under OWOW 2.0, more emphasis is being placed on the watershed scale, and multi-benefit and multi-purpose solutions. Multi-beneficial projects and greater diversification of water management approaches are achieved through greater collaboration and cooperation, building trust among stakeholders, viewing the watershed as a hydrologic whole, working in concert with nature, and seeing each problem as interrelated that provides opportunities for synergy and efficiencies. These OWOW guiding principles were shared with the Pillars and the watershed stakeholders on multiple occasions.



In preparation for the next phase of OWOW 2.0 planning, SAWPA directed that the OWOW 2.0 Plan was not intended to be merely an update of previous planning data from the OWOW 1.0 Plan, but rather would focus on identifying integrated and watershed-wide implementation actions. To achieve this, SAWPA conducted innovative brainstorming processes with the Pillars utilizing the experience and skills of local experts to inspire and promote integrated system-wide implementation actions that address water resource challenges in the Santa Ana River Watershed.

Starting in September of 2011, three well known water resource experts dubbed the "Master Craftsmen", were tasked to develop a list of conceptual project concepts and to describe the spatial, temporal, regulatory, economic, political, and physical barriers that impair the ability to implement

watershed-based implementation actions that support the vision articulated in the OWOW Plan. From these Master Craftsmen meetings, a white paper was developed that identifies 13 key examples of watershed-based water resource management concepts that, when implemented, would provide tangible and measurable benefits by removing impairments. These watershed-based concepts are ideas, vetted by the Pillars, and provide significant additional benefits such as habitat restoration and increased habitat connectivity. Two types of concepts were included: (1) those that require implementation of capital projects, and (2) those that are programmatic and focus on establishment of regional management practices or policies that increase sustainability of existing resources.

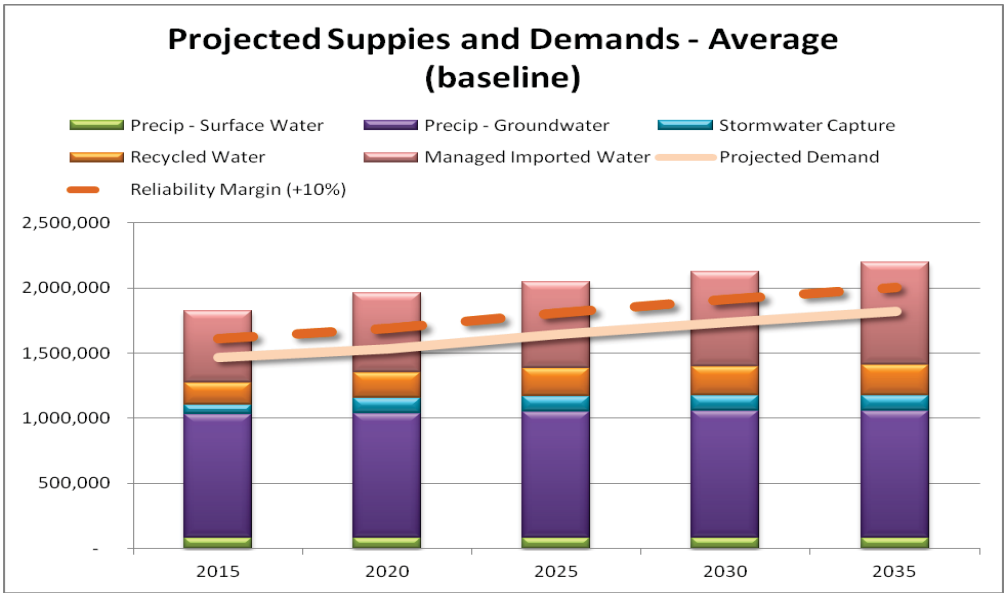
These ideas and concepts were approved by the Steering Committee and the SAWPA Commission. Thereafter, the Pillars commenced their respective meetings over the following 18 months of the OWOW 2.0 planning. They investigated new regional implementation actions within their Pillars that could lead to multiple, integrated benefits that, in turn, could be linked and integrated with other Pillar implementation actions. In addition to conceptual implementation actions, the Pillars developed key findings that will support implementation described as follows:

Water Use Efficiency Pillar – Key Findings

- Water use efficiency practices remain the number one water resource management priority for the watershed.
- Agencies and their partnerships with each other and private industry will continue to collaborate and develop new programs promoting water use efficiency.
- The ultimate goal will be to get water customers to automatically base decisions on what is the most water efficient way to plan, implement, and maintain devices and landscapes. This will require customer education and continued incentives to promote water use efficiency.
- Landscape demonstrates the greatest potential for water savings. Therefore, the Water Use Efficiency Pillar will move forward with collaborative projects that primarily emphasize outdoor efficient use of water.

Water Resource Optimization Pillar - Key Findings

Based on the work of the Water Resource Optimization Pillar, the projected supplies and demands for the average year are as follows:



A key finding from this Pillar's analysis is that with implementation of the 20% water demand reductions by 2020, as well as a reliability margin of 10%, water supplies will be adequate to meet demands through the 20-year planning horizon or Year 2035. This evaluation also was conducted for the single year, the historical year that received the lowest amount of imported water, and the multi-year drought, three- year period that received the lowest amount of imported water. Their findings show that the watershed in the aggregate will be able to meet its demands in a single year drought with a reliability margin of 11% in 2035, and for a multi-year drought of 13% in 2035. The watershed is able to make it through these drought years by relying on the native water, precipitation as surface water and precipitation as groundwater, and imported water storage programs that store water when it is available during wet periods for use during drought periods, and on recycled water that is not impacted by weather.

The Water Resource Optimization Pillar concludes that there is more to be done to ensure water supply reliability for the future. This is particularly true in the face of climate change that may impact local precipitation patterns, the need for intra-basin transfers to maintain groundwater levels, the State-defined mandate for regions to become less dependent on Delta imported water, and a significant funding requirement of water use efficiency and infrastructure to meet future demands.

Beneficial Use Assurance Pillar - Key Findings

- Surface water quality monitoring is not coordinated within the watershed leading to duplicative sampling in some areas and inadequate sampling in others. Work on a plan to improve coordination and development of a regional approach to monitoring that will generate better information and be less expensive.
- New statewide regulations setting biological objectives and nutrient objectives for surface water are being developed and will be a compliance challenge for wastewater agencies. Participate in rule making process to support development of policies and regulations that are effective and efficient.

- A small number of small water systems in operation within the watershed that do not have resources for monitoring and proper operations and maintenance, may result in drinking water provided to customers that is in violation of drinking water standards. Work with California Department of Public Health and county health departments to identify small system water providers, if any, which need assistance with providing safe drinking water. Develop a plan to address any small system water providers that need assistance.
- Sediment deposition in some areas creates water quality impairments, reduces aquatic habitat, and reduces water conservation storage. Reduced sediment flow downstream of dams causes armoring of river/creek beds resulting in reduction in percolation capacity, aquatic habitat, and beach replenishment. Support USACE/OCWD Prado Basin Sediment Management Demonstration Project and Newport Bay Stakeholders to reduce sediment load into Upper Newport Bay.

Land Use and Water Planning Pillar – Key Findings

- Water supply agencies should be consulted early in the land use decision-making process regarding technology, demographics and growth projections.
- City and county officials, the watershed stakeholders**,** Local Agency Formation Commissions, special districts and other stakeholders sharing watersheds should collaborate to take advantage of the benefits and synergies of water resource planning at a watershed level.
- Plans, programs, projects and policies affecting land use and water should be monitored and evaluated to determine if the expected results are achieved and to improve future practices.
- Limited, accessible, and low-cost, outdoor recreational opportunities should be promoted throughout the watershed.

Stormwater: Resource and Risk Management Pillar – Key Findings

- Comprehensive and integrated stormwater management projects driven by a multi-stakeholder project paradigm can more effectively and efficiently address watershed needs. Such projects can assist stakeholders to achieve compliance with the Municipal Stormwater National Pollutant Discharge Elimination System Permits (MS4 Permits), while increasing capture of stormwater and other flows and groundwater recharge using favorable cost benefit approaches.
- Reducing the risk of loss of life and property damage due to flooding remains a high priority within the Santa Ana River Watershed. The completion of the Santa Ana River Mainstem Project will reduce the risk of a catastrophic flood event in the Santa Ana River Watershed. However, there remains significant flood risk related to tributary watercourses within the watershed, compounded by potential impacts of wildfires and earthquakes.

Natural Resources Stewardship Pillar – Key Findings

- A plan for sustainable management of conservation areas with targeted restoration efforts is essential for preventing further deterioration of habitat. Consideration for characteristics of each of the main habitat types: Chaparral/forest, Alluvial fan; Riparian, Wetland, and Coastal and their specific ecosystems, require habitat-specific management plans and restoration criteria.
- Creating sustainable wildlife corridors requires land use planning coordinated across jurisdictional boundaries. Cooperation also must take place among all of the current regional conservation plans, mitigation providers, resource conservation districts, and non-profit conservation organizations.

- Consensus among all agencies and organizations with ownership/stewardship over areas of the Santa Ana River Mainstem and tributaries should be sought that provides for long-term protection of areas where habitat restoration efforts are occurring or need to occur. This kind of cooperative agreement will be critical to the ability of governmental and non-profit organizations to secure mitigation funding to do the necessary habitat restoration work needed in the watershed.
- Grant and bond funding in the watershed have funded the removal of thousands of acres of invasive plants, initial and ongoing restoration of habitat areas, biological monitoring of sensitive species, and conservation of habitat areas. All of these sources and more should continue to support restoration and ongoing maintenance.
- Much of the remaining invasive plant biomass and areas that could benefit from re-establishment activities (removal of invasive species followed by long-term, active planting and biological monitoring) in the watershed is on land owned by Federal, State, and local governments for purposes other than water-oriented habitat conservation. These are prime lands for future habitat restoration projects with multi-use and benefit.

Operational Efficiency and Water Transfers Pillar – Key Findings

- Expand compliance with the SBx7-7 and implement projects that reduce per capita water usage by more than 20 percent by the year 2020.
- Create/ expand supply and system reliability during drought, emergency, and peak demand situations.
- Create/expand coordination with other agencies in the area and develop regional water management strategies that would increase conservation and local water supplies.
- Create/expand local recycled water reuse program(s) in the area with an OWOW 2.0 goal of 157,000 acre feet per year.
- Develop/Implement projects that protect groundwater resources, the environment and consider storage and transfers. These projects are important to assure that water is readily availability in the right place when we need it. This can be overcome with storage and transfers.

Disadvantaged and Tribal Communities Pillar – Key Findings

- Engaging Disadvantage Communities (DACs) and Tribes in water and related resources planning through effective outreach is good for both the community and the water sector itself. There are distinct differences due to cultural and historic context. Both need their voices heard during proposed project development.
- Today, DACs and some Tribes face critical and serious water and related resources challenges, such as failing septic systems, isolation, language barriers, flood risk, and lack of funding and or resources. It is imperative that the water sector and its key stakeholders recognize proposed DAC and Tribe water project needs, and engage these communities early in the process. The OWOW 2.0 process recognizes the various funding needs for DACs and Tribes, and the Federal and State funding programs available to them.
- From engaging and speaking with DAC residents and attending Tribal Council meetings, it is evident that there is a need for continuous networking resulting in consensus based development and implementation of project solutions.

Government Alliance Pillar – Key Findings

- Ensure that Federal and State agencies effectively partner in the management of water and other resources within the watershed, and consider other Pillars' perspectives in their support of OWOW goals and objectives.
- Periodically publish updates of the Resource Guide and post them on SAWPA's website.
- Use the Resource Guide's agency contacts, and assure that steps are taken to keep all information current.
- Continue coordination with various governmental agencies, as appropriate, for all proposed projects, initiatives, and integrated water and related resources activities to help identify necessary environmental compliance requirements and or potential areas of conflict.

Energy and Environmental Impact Response Pillar – Key Findings

- Annual surface water is likely to decrease over future periods with precipitation showing somewhat long-term decreasing trends. Temperature will increase, which is likely to cause increased water demand and reservoir evaporation. Projected decreases in precipitation and increases in temperature will decrease natural recharge throughout the basin.
- Management actions such as reducing municipal and industrial water demands or increasing trans-basin water imports within the watershed may be required to maintain current groundwater levels.
- Warmer temperatures likely will cause Jeffrey Pines to move to higher elevations and may decrease their total habitat. Forest health also may be influenced by changes in the magnitude and frequency of wildfires or infestations. Alpine ecosystems are vulnerable to climate change because they have little ability to expand to higher elevations.
- Increasing temperatures will result in a greater number of days above 95°F in the future. The number of days above 95°F gets progressively larger for all cities advancing into the future.
- Simulations indicate a significant increase in flow for 200-year storm events in the future. The likelihood of experiencing what was historically a 200-year event will nearly double (i.e. the 200-year historical event is likely to be closer to a 100-year event in the future). Findings indicate an increased risk of severe floods in the future, although there is large variability between climate simulations.
- Sea level rise is likely to inundate beaches and coastal wetlands and may increase coastal erosion. The effects on local beaches depend upon changes in coastal ocean currents and storm intensity, which are highly uncertain at this time. Sea level rise will increase the area at risk of inundation due to a 100-year flood event.
- Existing barriers are sufficient to deter seawater intrusion at Talbert and Alamitos gaps under a 3-foot rise in sea levels. However, operation of barriers under sea level rise may be constrained by shallow groundwater concerns.

To further enhance the integration and linkages among the recommended conceptual implementation actions suggested by the Pillars, Pillar Integration Workshops were conducted by SAWPA throughout the OWOW 2.0 Plan development period. The integration workshops included discussion of system-wide regional or watershed scale implementation actions, addressing different components of the hydrologic cycle, evaluating linkages among proposed projects/programs, and developing and identifying synergy among projects and programs to create anew.

OWOW 2.0 Plan – Future Implementation

During the last two years, Pillars have been working together to write the next integrated water plan, OWOW 2.0. The Broad Planning/Management Guidance Strategies were distilled from that work and will serve to guide future planning and management in the watershed. The strategies reflect a change in thinking about water resource management. Historically, water activities were organized into different silos, and managers worked to achieve separate and individual goals that were thought to be unrelated. The water supplier's goal was to deliver water for a growing population and economy. The flood control manager's goal was to channelize stormwater to get it out of the community before it could harm people and property. The wastewater manager's goal was to highly treat wastewater before it is discharged into the river or ocean to be carried away. Managing the watershed and water resources as done in the past realized narrow singular goals, but did so with tremendous unintended consequences. The list of endangered species only grew longer, as did the list of impaired water bodies. Societal values have changed, water and funds are scarcer, and together we have realized that the old way is no longer viable.

These Broad Planning/Management Guidance Strategies are not projects or programs themselves. These strategies represent a shift from remediation to protection. It is the opportunity to be proactive rather than reactive. This can facilitate the vision we want, a sustainable and productive watershed, rather than only focusing on solving the problems that past practices have created.

These watershed planning and management strategies are separate and distinct from priorities assigned to evaluate projects for funding that are often dependent on the grant sponsoring agency criteria. These Planning/Management Strategies are meant to guide planning efforts and are *in no particular ranked or priority order* as shown below.

- **Demand Reduction and Water Use Efficiency**

Water use efficiency practices remain a key resource management priority for the watershed and a cost effective tool for reducing the gap between available supplies and projected demand. This is reflected through a reduced per capita water use as well as potentially reduced commercial and industrial water use. Although significant progress is anticipated with mandated reductions through 20% by 2020 legislation, more can be done. Many water use efficiency actions have been implemented locally, but these can be scaled watershed-wide. These include water rates structures that encourage conservation, also known as budget-based water rates, garden friendly landscaping and landscape ordinance application, smart controllers and irrigation nozzles, and turf buy-back programs, to name a few. The last acre foot of water is often the most expensive, reducing that cost goes far to keep water rates stable.

Monitoring data shows wasteful irrigation runs off yards, down streets and culverts collecting pet waste and pollution until it hits the receiving water with a toxic slug causing beach closures and fish kills. At great expense, cities have been tasked to clean up this dry weather urban runoff pollution. This cost can be avoided with successful water use efficiency.

It is understood too that there is a direct link of water use efficiency with energy efficiency and GHG emission reduction.

- **Watershed Hydrology and Ecosystem Protection and Restoration**

Implementing cost effective programs will protect and restore our watershed's ecosystem and hydrologic system so that it will sustainably produce the array of services including water resources. Recognizing that the Santa Ana River Watershed has multiple interrelated parts, a holistic approach to solving issues of supply, quality, flood, and ecosystem management is necessary. This approach recognizes that in order to achieve a healthy productive watershed, improvements starting at the top of the watershed with a healthy and managed forest effectively support downstream stormwater attenuation and runoff capture and water quality improvement. The emphasis is on source control rather than end-of-pipe treatment as a best management practice. Implementation actions under this priority include forest management, pollution prevention, low impact development, stormwater capture and flood management, and MS4 stormwater implementation.

- **Operational Efficiency and Transfers**

Cooperative agreements arising from water transfers, exchanges, and banking can resulted in better use of water resources. With the rich groundwater storage opportunities available in the watershed, expanding the groundwater storage with a variety of available water sources can be more much more cost effective than new surface storage. Such agreements will result in our ability to stretch available supplies and replace the storage lost by a shrinking snowpack. Projects under this category occur by collaboration and cooperation among the multitude of agencies and entities in the watershed, and agencies that import water into the watershed, expanding on the many past successful water agreements within the watershed. New banking agreements can represent both habitat mitigation

banking as well as groundwater banking. These agreements only can occur by entities working together and opening doors to improved efficiency and increased water supply reliance.

- **Innovative Supply Alternatives**

This strategy recognizes the need for more progress in a portfolio approach with expansion of innovative and effective 21st Century technology for water production, recycling, pumping, and desalinization. Traditionally these projects serve as an important component to achieving water supply reliability. Moving forward, a broader range of tools is available to us to serve both economic and environmental objectives. Projects under this category provide multiple benefits and thus can be mutually reinforcing. Brackish desalination and salinity management are necessary to sustain local supplies. Salinity management is essential for groundwater basin health in the watershed.

- **Remediation and Clean up**

Another strategy is implementing Total Maximum Daily Loads (TMDLs) and pollution remediation. Projects under this category must reflect projects that have region wide benefit, are integrated and have multiple benefits without a focus only on local or single purpose needs. Under this strategy, the focus is on preventing pollution and dealing with the pollution that has already occurred. This reflects a desire to duplicate the successes already established in the watershed to prevent and remediate pollution.

The Broad Planning/Management Guidance Strategies were presented and discussed with the Pillars and other stakeholders for possible prioritization of the five strategies. The feedback received is that all five strategies are a priority to the watershed. But as stakeholders of the watershed, entities are encouraged to consider the long term watershed planning approach as they consider competing alternatives to meet needs and give more merit or attention to strategies such as water use efficiency that has been traditionally found to be more cost effective in reducing water demands and generating water supply. Further, projects should consider system wide benefits before other alternatives. This applies particularly to pollution prevention at the source rather than having to address a chain of unintended and possibly negative consequences downstream for future generations.

Shown below is a list of Pillar Recommended Implementation Actions that were prepared based on the Pillar's work and other stakeholder input. These regional implementation actions are not listed in priority, nor are they in any particular order. They represent the integrated work of the Pillars that resulted from their collaboration internally and with other Pillars and are the solutions to the challenges that they identified in each of their Pillar chapters. This list does not represent a list of projects that been rated and ranked projects under the more formal Project Review Process defined under the OWOW 2.0 Plan. However, they are recommended implementation actions that reflect an emphasis on integration and system-wide solutions to the watershed challenges and include the 13 watershed-wide framework concepts previously discuss.

Each of the Pillar-recommended watershed-wide implementation actions eventually could become projects once they are more fully investigated and analyzed. Multi-agency project proponents for these implementation actions have not have been identified yet. It is anticipated that these recommended actions may best help fulfill the vision of the OWOW 2.0 Plan.

Pillar Recommended Implementation Actions
(In no particular order)

Title	Description
Water Rate Structures that Encourage Conservation	Create incentive programs for retail water agencies in the watershed to reduce water demand and help meet SBX7-7 required demand reductions.
Water Use Efficiency Incentive Program	Create an incentive program for expanded water use efficiency programs including cash for grass, landscape retrofit support, and California-friendly plant discounts. Utilize IEUA Residential Landscape Transformation Program and MWDOC Comprehensive Landscape Water Use Efficiency Programs as template.
Watershed Exchange Program	- Upper watershed foregoes development of more water recycling and provides future treated wastewater to the lower watershed via the Santa Ana River - Lower watershed provides "replacement" water to upper/middle watershed
Wet Year Imported Water Storage Program	- Upper watershed and MWDSC would implement this strategy - Goal: change MWDSC place of storage from Central Valley to Santa Ana River watershed - Develop MWDSC pricing structure to encourage more storage in watershed - Water stored in wet years for a reduced price. Water pumped in dry years for remaining Tier 1 price
Enhanced Santa Ana River stormwater capture below Seven Oaks Dam	Additional stormwater detained by Seven Oaks Dam could enable the diversion of up to 500 cfs and up to 80,000 acre-feet per year. This may require execution of new water rights agreement among SAR Watermaster parties.
Off River Storage and Supply Credits	Additional stormwater capture along the SAR tributaries could enhance capture/ recharge. Specific locations in the watershed would need to be defined. New recharge projects could allow for purchase of "MS4 Credits" by cities and counties as part of new development as a regional MS4 compliant recharge project.
Re-Operate Flood Control Facilities	Working with flood control agencies re-operate flood control facilities with the goal of increasing stormwater capture increasing flood get away capacity and revising decades old storage curves. Without any impending storms, the flood control agencies may be able to release stormwater at a slower rate. This relatively minor operational change would make stormwater flows easier to capture and put to use. It also would result in impounding the water longer, which would increase artificial recharge during the "holding period". This strategy has already been successfully implemented in some portions of the watershed.
Increase Surface Water Storage	Helps offset drought and climate change while also increasing watershed sustainability and less dependence on imported water. This project would supplement but not replace existing or proposed groundwater storage.
Increase Groundwater Storage	Helps offset drought and climate change while also increasing watershed sustainability and less dependence on imported water.

Title	Description
Inland Empire Garden Friendly Demonstration and LID Project	Using the Inland Empire Garden Friendly Program as a template, a demonstration project is proposed to quantify the benefits of installing Inland Empire garden friendly products and further demonstrate Low Impact Development features in a DAC neighborhood. The project would be modeled in part after the successful City of Santa Monica Garden-Friendly Project, as well as the Elmer Ave. Neighborhood Retrofit project in the LA Basin.
DAC Water Supply or Water Quality Improvement Projects	Provide funding support to assure drinking water standards are met such as in the County Water Company of Riverside near Wildomar. Construct new sewer system for the areas that have failing septic systems/undersized treatment facilities like Beaumont Cherry Valley.
Wetlands Expansion Watershed wide	Create new wetlands along the tributaries of Santa Ana River to provide for natural water quality improvement, ecosystem restoration and recreational opportunities. Water supply for such wetlands would be dry weather urban runoff and available recycled water and would be patterned after the Mill Creek Wetlands in Chino Basin.
Watershed wide Multi-Use Corridor Program	Create multi-use corridors along SAR and its tributaries and Upper Newport Bay tributaries in all three counties in watershed to provide for sustainable wildlife corridors, stormwater attenuation and capture, flood control, sediment reduction and erosion restoration, enhanced NPS pollution treatment, removal of non-native species, and creation of recreational trails,. In Riverside County, along Temescal Wash, in San Bernardino in San Timoteo Wash, in Orange County along Borrego Canyon Wash between Irvine Blvd and Town Center Drive.
Multi-Species Habitat Plan for Gap areas of Watershed	Create multi-species habitat plan for San Bernardino County and portions of Orange County. Though work is underway on the Upper Santa Ana Wash Land Management and Habitat Conservation Plan, there is no MSHCP covering the growing areas of southwestern San Bernardino County. Western Orange County is also not covered by an MSHCP.
Water conservation recharge optimization program	Establish a water conservation-recharge optimization plan for existing and potential future flood control facilities, using the example work of the Chino Basin Recharge Master Plan and implementation projects as a template.
Watershed wide geodatabase access	Connect existing county or program-specific geodatabases to create a comprehensive watershed geodatabase that provides access to appropriate stakeholders, and set up a data quality control and maintenance program. The main component County MS4 geodatabases are well under way.
Forest Restoration Projects	Expand forest restoration through fuels reduction, meadow and chaparral restoration projects to strategic areas above major stormwater recharge basins for flood control, water supply and water quality benefits.
Residential Self-Regenerating Water Softener Removal Rebate Program	Removal of self regenerating water softeners has been proven as an effective strategy to reduce TDS levels at WWTP and assure future salt discharge requirements. The project provides watershed-wide rebates and would be a joint program among water agencies in the watershed.
Salt removal projects to achieve Salt Balance	Expand groundwater desalination to key groundwater basins where TDS and Nitrate concentrations are approaching discharge limits. Locations may include Elsinore Basin, Perris Basins in EMWD and Riverside Basins.

Title	Description
Enhanced stormwater capture from the tributaries of the Santa Ana River	Develop additional stormwater capture projects along the SAR tributaries that support key groundwater management zones identified by SB, RV, and OC Geodatabases. Early estimates indicated a capture potential of 12,000 AFY.
Conjunctive Use Storage and Water Transfer Project using Wet Year and Dry Year Allocation	This project concept proposes a purchase by downstream entities of up to 45,000 AF of imported water to be recharged by the upstream agencies during wet years. Water would be purchased at a reduced imported water rate from MWD reflecting the savings of not storing the SWP water at one of MWD's own storage programs such as the Semi-Tropic Water Storage District and/or Kern County Water Bank. In dry years, downstream agencies could request upstream agencies to increase their groundwater production for three years by up to 15,000 AF per year in-lieu of direct deliveries from MWD, while MWD increases deliveries in the downstream area by an equal amount.
Salt Assimilative Capacity Building and Recycled Water Transfer Project	EMWD has the capability to discharge 15,000 AFY of recycled water into Temescal Creek. The recycled water discharge will be dependent on surplus recycled water available and not used within EMWD particularly during wet seasons. With the approval of the SAR Watermaster, this flow can be contractually added to the Santa Ana River base flow allocation at Prado. The water quality of EMWD's discharged recycled water may require some salinity mitigation by downstream parties to meet the RWQCB Basin Plan Objective in Orange County. The GWRS will be used to provide the required mitigation for the discharged water, and EMWD will pay downstream parties for the cost of that mitigation.
Riverside Basin Aquifer Storage and Recovery Project	Riverside Public utilities, in partnership with Valley District and others are developing a design for a rubber dam that would cross the Santa Ana River and be used to divert flows, while mitigating environment impacts. The project is currently anticipated to capture and recharge 15,000 AFY.
Watershed Invasive Plant Removal Project	The Santa Ana Watershed Association, the Front Country District Ranger on the San Bernardino National Forest and Southern California Edison had proposed a major an invasive plant eradication project for the Mill Creek Watershed. This project proposes to expand the San Bernardino Mountains Front Range Invasive Plant Removal Project to an invasive plant removal and restoration project in the Santa Ana River Watershed that has many partners and stakeholders extending from the coast to the headwaters.
Regional BMPs to manage municipal stormwater discharges	Develop regional BMPs including infiltration, harvest & reuse, and biotreatment as proposed under current MS4 Permits. Initial phase would be located in MSAR Pathogen TMDL area and expand into other areas of the watershed under future phases to address pathogen treatment.
Watershed-wide coordinated surface water monitoring program	Surface water quality monitoring is not coordinated within the watershed leading to duplicative sampling in some areas and inadequate sampling in others. In some cases this may lead to 303(d) listings that do not reflect real impairments. A new program to coordinate surface water quality monitoring to enhance efficiency and reduce costs is proposed. Sources of monitoring data would come from MSAR Watershed TMDL, SWQSTF, MS4 Stormwater Permits, and SCCWRP Bioassessment Program.
Watershed Urban Runoff Management	Establishing a Watershed Based Urban Runoff Management Fund to support the implementation of stormwater management programs. Components of this program

Title	Description
Fund	could include the regulatory basis for a watershed based program, the legal basis and authority for the fund, the agreements, and programmatic elements.
Santa Ana River Sediment Transport	Building upon an OCWD demonstration project, implementation of a full scale project that allows for the appropriate transfer of sediment to maximize recharge operations, restore habitat, and reduce operation costs.
Transportation Corridor Stormwater Capture and Treatment	New uses of the current transportation right of ways can be expanded to for capturing rain runoff and replenishing groundwater basins.
Modified Watershed Brine Management System	Optimizing the water used to transport brine so that less water is lost to the ocean through increased concentrating of brine or delivery to the Salton Sea for beneficial use.
Water Industry Energy Use Reduction Incentive Program	Supporting regional purchase and installation programs of water resource related greener energy projects that reduce capital costs and green house gas emissions.
Watershed Land Use Planning Tool Kit	Developing a tool kit that translates water principles to support watershed planning decisions and implements a jurisdictional outreach effort for relevant regional, county and city planning agencies that encourages adoption of the guidance ideology into General Plans and zoning codes at the local level.

OWOW Projects and Benefits

It is the intent of the OWOW planning process to transcend specific funding cycles. Projects are included in the OWOW 2.0 Plan based on the latest rating and ranking criteria and their merit to address the watershed's strategic needs, regardless of available funding opportunities at any given time. (See list in **Appendix K**)

Shown below is a list of the Round 1 Proposition 84 projects and the benefits that ultimately will be realized once all these projects are fully constructed. Round 2 projects submitted by SAWPA are under consideration by DWR for future grant funding with awards anticipated in early 2014.

OWOW Proposition 84, Round 1 Projects

Project	Project Sponsor	Total Local Cost	Grant Amount	Other State Funds Being Used	Total Cost
Groundwater Replenishment System - Flow Equalization	OCWD	$14,399,680	$1,000,000	$0	$15,399,680
Sludge Dewatering, Odor Control, and Primary Sludge Thickening	OCSD	$137,115,600	$1,000,000	$0	$138,115,600
Vireo Monitoring	SAWA	$269,207	$600,000	$0	$869,207
Mill Creek Wetlands	City of Ontario	$14,355,000	$1,000,000	$5,000,000	$20,355,000
Cactus Basin	SBCFCD	$8,250,752	$1,000,000	$0	$9,250,752
Inland Empire Brine Line Rehabilitation and Enhancement	SAWPA	$698,153	$1,000,000	$5,234,576	$6,932,729
Arlington Desalter Interconnection Project	City of Corona	$948,049	$400,000	$0	$1,348,049
Perris II Desalination Facility	EMWD	$1,335,752	$1,000,000	$0	$2,335,752
Perchlorate Wellhead Treatment System Pipelines	WVWD	$419,000	$1,000,000	$0	$1,419,000
Chino Creek Wellfield	WMWD	$5,331,118	$1,000,000	$0	$6,331,118
Impaired Groundwater Recovery	IRWD	$36,321,970	$1,000,000	$0	$37,321,970
Alamitos Barrier Improvement Project	OCWD	$10,571,600	$1,000,000	$0	$11,571,600
Arlington Basin Water Quality Improvement Project	WMWD	$3,443,636	$1,000,000	$0	$4,443,636
Grant Total		$233,459,517	$12,000,000	$10,234,576	$256,354,097

- Reduces water demand by 11,200 AF/YR
- Captures 16,300 AFY of stormwater for recharge
- Produces 28,600 AFY of desalted groundwater while removing 21,600 tons of salt
- Creates 90,400 AFY of new water recycling
- Creates 16,400 AF of new storage
- Improves water quality to 7,800 AFY
- Creates or restores 400 acres of habitat
- Leverages $11.7 million in grants funds with $240 million on local funds
- Creates about 3900 construction related jobs for region

Item No. 4

INFORMATION ITEM
October 6, 2014

TO: **Planning & Operations Committee**
(Directors Osborne, Barbre, Hinman)

FROM: Robert Hunter
General Manager

Staff Contact: Karl Seckel/Richard Bell

SUBJECT: **Overview of OCWD Clean Energy Capital Report on the Poseidon Project**

COMMITTEE RECOMMENDATION

Staff recommends the Committee receives and files the report.

SUMMARY

Staff previously distributed a copy of the Clean Energy Capital Poseidon Report and presentation for the OCWD Board meeting on October 1. The report is very detailed. Staff has summarized key aspects of the report below.

Key information from the report includes:

- The cost of the Poseidon water based on the terms of the proposal from Poseidon is $1,871 per AF in 2014$. This assumes an amortization slope of 2.5% (means the capital recover is back-loaded); if a level amortization was used, the cost of the water is estimated at $2,142 or $271 per AF higher.

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

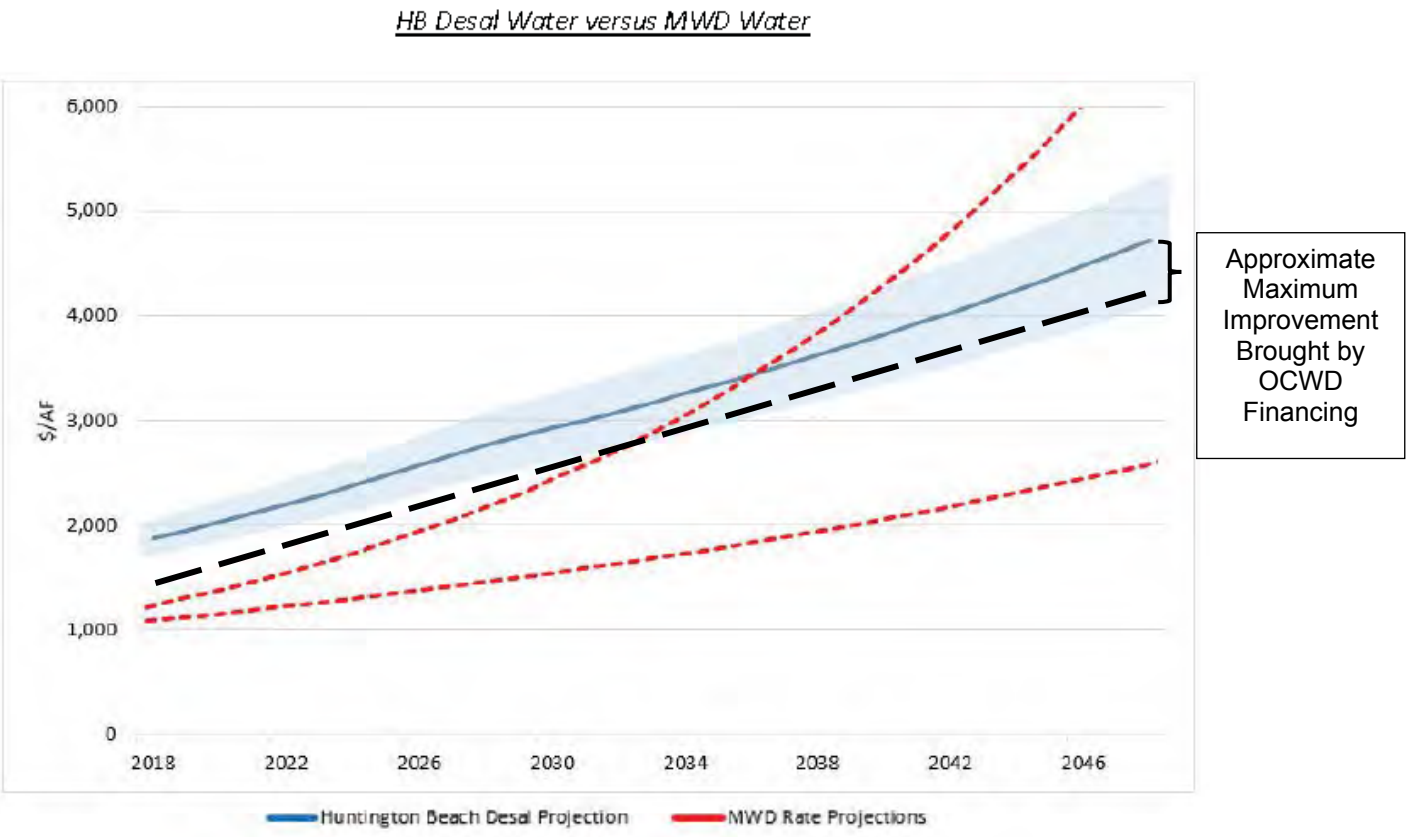
- Clean Energy conducted a Monte Carlo Simulation to take into account cost differences or variations that could occur with various project components in the Poseidon Proposal:
    - Capital cost estimate for Plant, Pipeline and Substation
    - Potential Intake and Outfall Modification Costs
    - Cost Escalation to Financial Close
    - Development costs
    - Transaction costs
    - Bond Interest Rate for Plant and Pipeline
    - First Year O&M
    - Electricity Consumption Rate
    - Electricity Price Escalation
    - Uncontrollable Event Adjustment
- The results of the Monte Carlo Simulation are presented in the form of probabilities of occurrence, P_{10}, P_{50}, and P_{90}:
    - P_{10}, 10% chance the cost would be lower = $1,791 per AF
    - P_{50}, 50% chance (median) that the cost would be lower = $1,922 per AF
    - P_{90}, 90% chance that the cost would be lower = $2,088 per AF
- Future MET rates were bracketed with out-year escalation varying between 3% per year and 6% per year.
- Starting with the P_{50} estimated unit cost of $1,922/acre-foot, the unit cost of the proposed project could become less expensive than MWD water around the year 2036 assuming Tier I MWD rates increase at an average annual rate of 6% and a MWD LRP subsidy of $340/acre-feet is received. If MWD rates increase at an average annual rate of 3%, the cost of the project may never be less than MWD during the 30-year forecast period.
- Poseidon proposes to fund 82% of the project with private activity bonds and the remaining 18% with private equity. A considerable portion of the report is associated with a high level review of OCWD options to use its high credit rating to improve the cost of the project. This could be accomplished by OCWD funding all or some of the project elements. If OCWD took on the responsibility for all debt, savings of up to $471/acre-foot could be achieved. However, it needs to be noted that these options; (1) Fundamentally change the proposed relationship and risks distribution between the OCWD and Poseidon; (2) Could more than double the amount of existing long-term debt the OCWD currently has outstanding depending upon the option selected; (3) Could impact the OCWD's credit ratings going forward; and (4) Would need to be carefully considered and negotiated.

OCWD's plans for moving forward include the following unless new direction is provided by the Board:

1. Request comments by interested agencies and individuals on the draft CEC report by November 7, 2014,
2. Discuss the report with the Groundwater Producers at their October and November meetings,
3. Include this issue on the November 19, 2014 Board agenda to determine future District action. An update on other project issues such as the Coastal Commission process, State Board Ocean Plan Amendment, and other items would be provided at that same time.

Results

The graphic below outlines the primary elements in the projection provided.



Basis of Projections

- Blue line is the Monte Carlo Simulation P_{50} surrounded by the P_{10} and P_{90} estimates.
- The Red line is the escalation of the MET rates at between 3% & 6%

- The Black Dashed Line is the approximate maximum improvement OCWD can bring to the project via its credit strength ($471 per AF)

Item No. 5

INFORMATION ITEM
October 6, 2014

TO: **Planning & Operations Committee**
(Directors Osborne, Barbre, Hinman)

FROM: **Robert Hunter, General Manager**

Staff Contact: Karl Seckel and Richard Bell

SUBJECT: **Status Report on San Juan Groundwater Basin**

STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee receive and file this report and provide input as appropriate.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

This report provides a brief description of the declining water supply situation in San Juan Basin due to the ongoing drought as reported by the San Juan Basin Authority at its September 9, 2014 meeting. Staff regularly attends and participates in the San Juan Basin Authority monthly meetings. At the September 9, 2014 meeting, SJBA consultant, Wildermuth Environment provided a report on groundwater and biological monitoring in the basin. Due to the continuing drought, the basin has been impacted by falling groundwater levels. Specifically,

- Groundwater levels have fallen significantly throughout the basin since the start of drought three years ago. Levels since October 2010 have dropped by 7 feet downgradient of South Coast Water District's production well and by 45 feet near the City of San Juan Capistrano's groundwater production wells.

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

- Riparian vegetation along San Juan Creek upstream of Arroyo Trabuco is showing significant stress due to the lack of water.

- It was reported that the drop in groundwater levels in the San Juan Golf Club well led to its recent shutdown. The San Juan Golf Club also filed a lawsuit against the City of San Juan Capistrano and San Juan Basin Authority alleging that the groundwater production for the City's groundwater recovery project depleted groundwater and caused the adverse decline in groundwater levels.

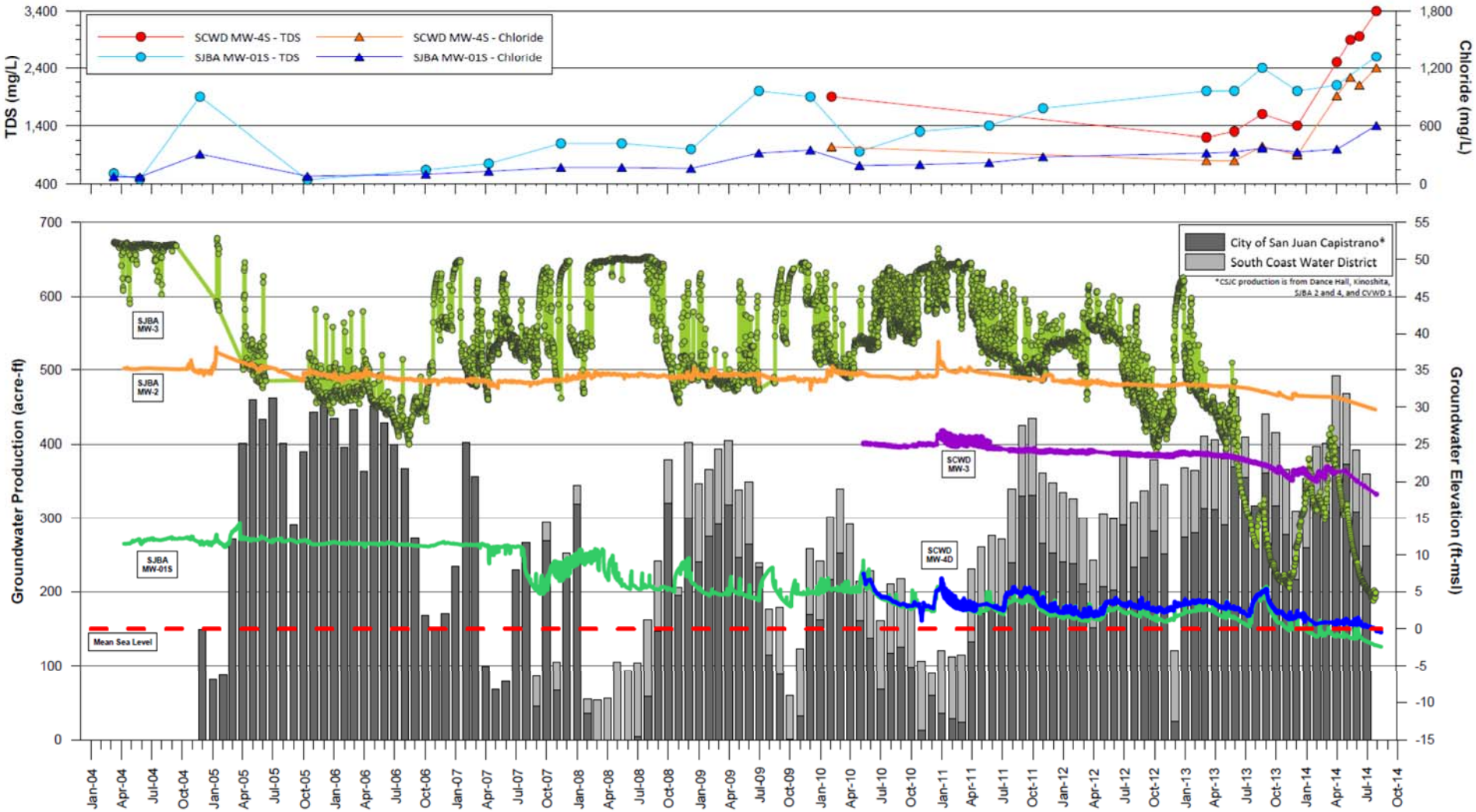
- Monitoring wells have shown groundwater levels near the coast have dropped below mean sea level with evidence of seawater intrusion observed by increasing levels of chloride and TDS.

- South Coast Water District has shut down its Groundwater Recovery Project for 60 days to allow groundwater levels to recover. The City of San Juan Capistrano has also shut down two of its wells along San Juan Creek in the area of riparian habitat stress to allow levels to recover.

- With both State Parks and our approval, SJBA assisted by Geoscience sampled MWDOC's Doheny State Beach Monitoring Well No. 2 to measure depth to groundwater and to measure chloride and TDS to get a better handle on seawater intrusion into the basin. Entry was allowed upon finalization of the multi-year lease for the Doheny Ocean Desalination Project Phase 3 test facilities.

Staff will continue to follow and attend the San Juan Basin Authority monthly meetings. The decline in groundwater levels can be seen in the following figure taken from the agenda packet that was prepared by Wildermuth Environmental for the SJBA.

Groundwater Elevation, Production, and Water Quality in the Lower San Juan Basin



Item No. 6

INFORMATION ITEM
October 6, 2014

TO: **Planning & Operations Committee**
(Directors Osborne, Barbre, Hinman)

FROM: **Robert Hunter, General Manager**

Staff Contact: Harvey De La Torre

SUBJECT: **Metropolitan's Assessed Valuation for MWDOC and Orange County for Fiscal Year 2014-15**

STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee to receive and file the information provided below

REPORT

This letter reports Metropolitan's (MWD) certified assessed valuations for Fiscal Year (FY) 2014/15, as of August 15, 2014, which is used to determine a member agency's percentage participation, vote and director entitlement (as shown in Exhibit "A").

MWDOC's certified assessed valuation for FY 2014-15 total $391,314,134,277, a 6.7% increase from FY 2013-14 assessed valuation. MWDOC's assessed valuation accounts for 17.02% of the total within MWD, an increase of 0.10% from last year. MWD calculates vote entitlement and director entitlement based on the certified assessed valuations. MWDOC's vote entitlement is 39,131 and director entitlement remains at four.

For all of Orange County, MWDOC, Anaheim, Santa Ana, and Fullerton have a combine certified assessed valuation for FY 2014-15 of $470,665,342,422. This accounts for 20.34% of the total assessed valuation for MWD, which provides Orange County with a voting entitlement of 46,769. Orange County's number of MWD Directors remain at seven. Currently, MWD has a total of 37 Directors.

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

The Metropolitan Water District of Southern California
Assessed Valuations, Percentage Participation, and
Vote and Director Entitlement of Member Public Agencies
As of August 15, 2014 ***

Member Agency	*Assessed Valuation Amount Certified	Percent of Total	** Vote Entitlement	Director Entitlement
Anaheim	$ 38,110,182,462	1.66%	3,811	1
Beverly Hills	25,417,176,012	1.11%	2,542	1
Burbank	19,613,383,306	0.85%	1,961	1
Calleguas MWD	85,825,592,317	3.73%	8,583	1
Central Basin MWD	120,508,138,548	5.24%	12,051	2
Compton	3,536,274,964	0.15%	354	1
Eastern MWD	61,063,529,729	2.66%	6,106	1
Foothill MWD	14,946,503,477	0.65%	1,495	1
Fullerton	16,396,363,584	0.71%	1,640	1
Glendale	25,385,261,002	1.10%	2,539	1
Inland Empire Utilities Agency	88,413,900,993	3.85%	8,841	1
Las Virgenes MWD	21,101,419,479	0.92%	2,110	1
Long Beach	43,551,859,340	1.89%	4,355	1
Los Angeles	456,896,494,925	19.88%	45,690	4
MWD of Orange County	391,314,134,277	17.02%	39,131	4
Pasadena	23,856,186,023	1.04%	2,386	1
San Diego County Water Authority	401,644,965,106	17.47%	40,164	4
San Fernando	1,617,600,072	0.07%	162	1
San Marino	5,180,034,982	0.23%	518	1
Santa Ana	21,867,441,564	0.95%	2,187	1
Santa Monica	28,853,277,153	1.26%	2,885	1
Three Valleys MWD	56,005,037,578	2.44%	5,601	1
Torrance	24,480,551,312	1.07%	2,448	1
Upper San Gabriel Valley MWD	83,505,510,463	3.63%	8,351	1
West Basin MWD	155,902,818,281	6.78%	15,590	2
Western MWD	83,740,144,027	3.64%	8,374	1
TOTAL ASSESSED VALUATIONS WITHIN METROPOLITAN	$ 2,298,733,780,976	100%	229,875	37

Percentage may not foot due to rounding.

* The above valuations include only those which have been certified by the County Auditors, in accordance with Section 305 of the Metropolitan Water District Act, Statutes of 1969, as amended. The certified valuations have been reduced to reflect Homeowners' Property Exemptions and do not include areas excluded from Metropolitan

** Each member of the Board shall be entitled to cast one vote for each ten million dollars ($10,000,000) of assessed valuation of property taxable for district purposes, in accordance with Section 55 of the Metropolitan Water District Act.

*** Pursuant to Section 52 of the MWD Act (Chapter 781, Stats. 1998), each member agency shall be entitled to one additional representative for each full five percent of the assessed valuation of property taxable for Metropolitan purposes.

Item No. 7

INFORMATION ITEM
October 6, 2014

TO: **Planning & Operations Committee**
(Directors Osborne, Barbre, Hinman)

FROM: **Robert Hunter, General Manager**

Staff Contact: Karl Seckel and Richard Bell

SUBJECT: **State of California Ocean Desalination Activities**

STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee receive and file this report and provide input as appropriate. This report provides a brief description of ocean desalination activities that took place over the last month:

- September 21 Pacific Institute presentation on Ocean Desalination to the Delta Stewardship Council
- September 24 Assembly Select Committee Hearing on Coastal Protection "Seawater Desalination Impacts and Perspectives"
- September 29 Coastal Commission – Poseidon Resources Independent Scientific Technical Advisory Panel workshop on receiving comments on its Phase 1 Report on Technical Feasibility of Subsurface Intake Designs for the Proposed Poseidon Water Desalination Facility, Huntington Beach
- State Water Resources Control Board Ocean Plan Amendment, Ocean Desalination

Staff will continue to follow, participate, and provide comments as may be appropriate in these and similar activities that relate and bear upon ocean desalination.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

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

Over the last few weeks, there have been three State meetings on ocean desalination:

- September 21 Pacific Institute presentation on Ocean Desalination to the Delta Stewardship Council

- September 24 Assembly Select Committee Hearing on Coastal Protection "Seawater Desalination Impacts and Perspectives"

- September 29 Coastal Commission – Poseidon Resources Independent Scientific Technical Advisory Panel (ISTAP) workshop on receiving comments on its Phase 1 Report on Technical Feasibility of Subsurface Intake Designs for the Proposed Poseidon Water Desalination Facility, Huntington Beach

Staff has been following these activities and prepared written comments on the ISTAP draft Phase 1 report. Staff will continue to track these activities and will offer comments where appropriate and will recommend any Board actions, should that become necessary.

DETAILED REPORT

On September 21, the Pacific Institute (Heather Cooley) provided a presentation on their work on ocean desalination to the Delta Stewardship Council. The presentation covered intakes, brine disposal, energy use and GHG, costs and other issues. Overall, the presentation was generally balanced and informative to the Council. However, she understated the reliability value of ocean desalination, only noting that it is independent of hydrology. She also indicated that seawater desalination intakes were "unique environmental risks", but was fair to say that *freshwater* intakes also have environmental impacts and risks, such as the Delta. She also raised the issue regarding disposal of brine with waste-water and said this would have the potential to impact future recycling efforts. These were the same issues raised by the SWRCB and expressed during the SWRCB hearings. And, she indicated that the high energy use would result in high emissions of carbon dioxide, but provided no details on whether this included the current renewable portfolio standards or how this could be mitigated. The power point presentation has not yet been made available by either the Pacific Institute or the Delta Stewardship Council.

On September 24, the Assembly Select Committee on Coastal Protection (Mark Stone, Chair) held a hearing on "Seawater Desalination Impacts and Perspectives". This hearing covered three main topics: Impingement and Entrainment Impacts, Brine Discharge Impacts, and Policy Perspectives on Water Resource Loading Order (required use of lowest energy use water supplies). Representatives from the Coastal Commission, State Water Resources Control Board, CalDesal represented Water Agencies (West Basin MWD and San Diego CWA), Stanford University, Pacific Institute, and three NGO's provided presentations. It was heavily oriented towards adverse impacts on the marine environment, energy use and carbon emissions. Only two legislators attended the hearing. Assemblyman Stone may seek to author legislation regarding ocean desalination and this should be tracked. The presentations can be found at the following link:

http://coastalprotection.assembly.ca.gov/seawaterdesalinationimpacts/

On September 29, the Coastal Commission – Poseidon Resources Independent Scientific Technical Advisory Panel, facilitated by CONCUR held a public meeting to receive comments on their draft Phase 1 Report "Technical Feasibility of Subsurface Intake Designs for the Proposed Poseidon Water Desalination Facility at Huntington Beach. This draft report was released on September 22. Our comment letter is attached. Our main comments were directed at either misunderstandings of our work or with how the draft report was crafted and how the conclusions from the report, which were meant for the Huntington Beach site only, might be misinterpreted and adversely impact other projects, including the Doheny Ocean Desalination Project. The ISTAP indicated that they would revise their report to be more reflective of our comments and to make sure their findings and conclusions are clearly only for the Poseidon project and Huntington Beach site.

Since the SWRCB public hearing on August 19 to receive formal comments, SWRCB staff have been preparing responses to comments received and are in the process of finalizing their environmental documentation and Ocean Plan Amendment. They are currently working to release the final documents later this fall with adoption targeted in December.

Status of Ongoing MWDOC Reliability and Engineering and Planning Projects

September 30, 2014

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 late 2016	MWDOC has been asked to help secure MET's concurrence on the quality of water being introduced into the South County Pipeline. A meeting with MET staff was held on September 10. MET agreed to execution of an amendment for introduction of the Baker Treatment Plant water in exchange for a commitment for longer term good faith effort discussions regarding the AMP, the South County Pipeline and the East Orange County Feeder No. 2. Each of these pipelines have been or are being studied for conveyance of locally produced water. The long term discussions should be interesting.
Doheny Desalination Project	MWDOC			Work is continuing on the Foundational Action Program Studies for both the Doheny Desal and the SJBA. It is expected that the NEW information developed will provide an impetus for the project to move forward. Work continued on providing input and comments on the SWRCB Ocean Plan Amendment process. MWDOC provided comments and worked with CalDesal on additional comments.
Poseidon Resources Ocean Desalination Project in Huntington Beach				OCWD has posted the report by Clean Energy Capital on the cost and financing options for the Poseidon Huntington Beach Ocean Desalination Project. A presentation is scheduled for OCWD's October 1 meeting. A short summary is included in

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
				the P&O Committee packet. Poseidon is continuing to work with the Coastal Commission and the Independent Scientific and Technical Advisory Panel (ISTAP). The draft Phase 1 report on technical feasibility for optional subsurface intake systems was recently released. Phase 2 will include overall feasibility of subsurface intake systems.
OC-88 Metering Issue on the South County Pipeline				MWDOC staff worked with MET to complete the analysis of the refund for the OC-88 metering problem on an agency by agency basis. A letter was released on August 25 with the Final Refund calculations for the South County Pipeline participants. On September 23, a letter went out to ALL of MWDOC's agencies explaining why they would receive a Tier 2 refund because of the OC-88 metering error.
Orange County Water Reliability Study				The P&O Committee is being asked to recommend the revised Proposal developed by CDM-Smith for providing assistance for the study effort. An action item is included in the P&O Packet this month.
Other Meetings/Work				
				Karl Seckel, Keith Lyon and Kevin Hostert met with Golden State Water Company and the City of La Palma for initial planning for shutdown of the Second Lower Feeder for up to 6 months at a time per section for lining of the pipe due to structural integrity concerns with the Pre-Stressed Concrete

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
				Cylinder Pipe. The shutdowns in Orange County may not happen for five years or more, but MET has initiated discussions with all agencies with service connections to the pipeline to determine what types of efforts will be need to keep water flowing to the agencies. Overall, MET will be lining 100 miles of the 160 miles of PCCP in their system over a 10 to 20 year process. Just the Second Lower Feeder may take up to 10 years and is the first MET pipeline scheduled for these improvements.
				Richard Bell continued been participating in discussions with Cal Desal and others regarding the proposed Ocean Plan Amendments. Richard participated in a number of other meetings over the past month. A summary report is included in the P&O Packet.
				Karl Seckel participated in a shutdown planning meeting for the Santiago Lateral and the Baker Pipeline to allow MET to expand the OC-33 service connection, increase the size of Air Vacuum Valves on the system and to provide tie-ins for connection of the Baker Treatment Plant.
				Karl Seckel and Richard Bell met with Samuel Kramer from IDE (the designer of the Carlsbad desalination plant) and Roland Pilemalm of Parsons (provide DBO deliveries) to provide an update on Doheny Desal and the Poseidon Huntington Beach Project.
				Karl Seckel, Harvey De La Torre and Kevin Hostert met with

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
				Gary Breaux and June Skillman to discuss MET rate forecasts out to the years 2035.
				Karl Seckel participated in several conference calls with Green Energy Capital, Poseidon and OCWD to provide input and background towards completion of the report.

Status of Ongoing WEROC Projects
September 2014

Description	Comments
WEROC Activation	The Santiago Fire started on Friday, September 12, 2014 in the Santiago Canyon area of Orange County. Kelly Hubbard was notified of the fire by several water utilities, which serve in or near the area, calling to receive more information. Kelly worked with the OC Operational Area Emergency Operations Center (EOC), who had been activated to a low level, to determine which agencies may be impacted by the fire and to gather more information. Kelly and Karl Seckel notified directly impacted utilities (Irvine Ranch Water District) and several who had the potential for impacts if the fire continued. All member agencies were recommended to take emergency protective actions as outlined in their Fire/Water Coordination response plans, such as topping off reservoirs with water. Since Irvine Ranch Water District was the only directly impacted water utility, Kelly worked with the OC Operational Area EOC to ensure that IRWD could send a staff liaison to the Orange County Fire Authority Incident Command Post. Once on site, this IRWD staff person worked directly with the Fire command to determine potential impacts to water infrastructure, as well as to coordinate operational concepts as it related to fire suppression activities. This set-up worked quite well. WEROC Staff did not need to staff a position at the OA EOC and the fire command worked directly with IRWD. The OA EOC went to a monitoring status by Saturday, September 13th at 9:00 pm.
General Activities	Kelly Hubbard & Lisa Parson attended the California Emergency Services Association (CESA) Annual Training and Conference in Indian Wells, Ca. Lisa assisted with developing forms for the CESA conference to ensure that participants from member agencies received CEU credits for attending and also assisted in developing the Speaker Introduction Team binders. Kelly was the Operations Chief for the conference and had primary responsibility for coordinating 75 paid and volunteer speakers for the conference. The program received great kudos and went smoothly. Both Lisa's and Kelly's attendance and cost of the conference will be reimbursed via Homeland Security Grant funds. Kelly and Lisa attended the annual Orange County Water Association (OCWA) Pipe Tapping Contest and BBQ. This is always an excellent opportunity to connect with the water utility staff

Description	Comments
	and for Lisa to learn more about water operations. Lisa went on a tour of the Orange County Sanitation District treatment plant and was shown all steps of the treatment process.
Member Agency Coordination	Ongoing – Joint Met/WEROC Exercise – WEROC hosted an Exercise Design Meeting for its member agencies that are planning to participate in the November exercise. The meeting provided a good overview of exercise planning and agency preparation for exercises. In addition attendees discussed the proposed scenario and impacts. Additionally, both Kelly & Lisa participated in the Met Exercise Design Group conference call to further develop the exercise scenario and work out logistical needs. WEROC staff provided coordination on 2 fires within Orange County the week of September 8th. The first was on September 10th along the Orange County – Riverside County boundary. Kelly and Karl Seckel worked with the utilities in the area, including Diemer, to assess possible impacts to water systems. Once it was established that there was no impact, WEROC staff simply monitored the situation. The second fire was the Santiago Fire which started on Friday, September 12th. This fire was within the immediate service zone of the Irvine Ranch Water District. WEROC staff provided situation status reports and liaison services between IRWD and the County Operational Area. More information regarding this fire is provided in a staff report. Lisa and Kelly jointly worked on redesigning the PowerPoint materials for the NIMS/ SEMS/ ICS training that Kelly hosts several times a year. Lisa also worked with the test materials to update them to the training and to better cater to an adult learning audience. Kelly provided this newly revised training to South Coast Water District Operations staff on the 24th and has 3 more sessions scheduled in the coming months.
Coordination with the County of Orange	Karl, Kelly and Lisa hosted a meeting with Lt. Brett Faulkner and PJ Davis of the Orange County Intelligence Assessment Center (OCIAC). The purpose of the meeting was to explain how the water systems in Orange County work, possible threats to those systems and to have a

Description	Comments
	discussion on how to work with the OCIAC. Kelly & Lisa attended the Orange County Emergency Management Organization (OCEMO) at the Caltrans administrative offices in Santa Ana. Primary topics included the drought, and an operational area plan on Access, Disabilities & Function needs.
Coordination with Outside Agencies	Ongoing: Kelly was asked to join the California Office of Emergency Services Southern Region Drought Conference Calls as the Region 1 Mutual Aid Coordinator for the California Water and Wastewater Agency Response Network (CalWARN). This is now a bi-weekly conference call to provide an update to the Southern Region and the State Operations Center (SOC) on drought impacts, activities and needs. The conference calls are serving as a way to share methods for assisting this group within the southern region. Lisa Parson performed a review of the California Water/Wastewater Agency Response Network (CalWARN) member agreements listed on the CalWARN website to our database. Kelly is now working with the Cal WARN web developer to update the site to ensure that all information regarding members was accurate.
WEROC Emergency Operations Center (EOC) Readiness	Kelly and Lisa provided two sessions of three different staff trainings to prepare for the November 5th exercise: • WEROC As a Liaison • WebEOC Training • WEROC EOC Situational Status & Reporting These trainings are to better prepare the WEROC EOC staff, as well as member agency staff to respond to the WEROC EOC regardless if the WEROC Program Manager is available. The goal is to have any of the WEROC EOC staff to be able to run the EOC's without a lot of direction. Lisa also made her training debut for WEROC, by covering for Kelly when she was out sick. All reports indicate that the WEROC program has a second strong trainer on board – good job Lisa!

Description	Comments
	Kelly successfully participated in the scheduled OA Radio test this month. WEROC did not participate in the MET Radio test, because staff had a conflicting meeting. Staff will work to ensure a substitute for future scheduling conflicts to allow other staff to conduct radio tests. The WEROC Radio test held on Tuesday, September 30 was successful with 27 radios being tested, representing 24 agencies. The test has focused on how agencies would request flow changes on the MET system and how to report damages via the WEROC radio system. Significant progress has been made in the development and formatting of the MWDOC Continuity of Operations Plan (COOP) that will be uploaded to the new In Case of Crisis phone application. The In Case of Crisis phone App is a NEW resource for WEROC and the member agencies. The App allows WEROC to down load information to smartphones for reference and use during emergency response. The key feature allows updates any of the information simply by posting of the revisions, which are then downloaded into the subscribers' phones. WEROC is organizing key information for WEROC staff, WEROC volunteers and the member agencies. Lisa Parson finalized content for the COOP plan In Case of Crisis App and gave access to the plans to HR for preliminary review. Final reviews and corrections should be completed this month and the application launched to MWDOC staff at the September Staff Meeting.

Status of Water Use Efficiency Projects

October 2014

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
Smart Timer Rebate Program	MWDSC	Ongoing	September 2015	For August 2014, 68 smart timers were installed in the residential sector and 546 in the commercial sector. For program water savings and implementation information, see MWDOC Water Use Efficiency Program Savings and Implementation Report.
Rotating Nozzles Rebate Program	MWDSC	Ongoing	June 2015	For August 2014, 722 residential and 9,178 commercial rotating nozzles were installed in Orange County. For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.
Water Smart Landscape Program	MWDOC	On-going	November 2014	In August 2014, a total of 12,312 meters received monthly irrigation performance reports comparing actual water use to a landscape irrigation budget customized to each meter. For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.
SoCal Water$mart Residential Indoor Rebate Program	MWDSC	On-going	June 2015	In August 2014, 561 high efficiency clothes washers and 557 high efficiency toilets were installed through this program. For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.
SoCal Water$mart Commercial Rebate Program	MWDSC	On-going	On-going	In August 2014, 134 high efficiency toilets and 355 laminar flow restrictors were installed through this program.

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
SoCal Water$mart Commercial Rebate Program (cont.)				For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.
Industrial Process Water Use Reduction Program	MWDOC	84%	December 2014	Survey scheduling is ongoing. A total of 40 Focused Surveys and 19 Comprehensive Surveys have been completed or are in progress. To date, 12 companies have signed Incentive Agreements. Updated discharger lists have been obtained, and outreach is continuing to sites with feasible water savings potential. Fabrica Fine Carpets has signed an Implementation Agreement for a water reuse project. Additionally, UCI Medical Center in Orange is in the process of signing an Implementation Agreement for water reduction devices.
MWDOC Conservation Meeting	MWDOC	On-going	Monthly	This month's meeting was held on September 4, 2014 and was hosted by the City of Santa Ana. The next meeting will be on October 2, 2014 at Santa Margarita Water District.
Metropolitan Conservation Meeting	MWDSC	On-going	Monthly	This month's meeting was held on September 18, 2014. The next meeting will be October 16, 2014 at Metropolitan.
Water Smart Hotel Program	MWDOC	75%	June 2015	MWDOC was awarded a Bureau of Reclamation grant, to be matched with Metropolitan funds, to conduct up to 30 commercial and landscape audits of hotels. Enhanced financial incentives will be provided to augment the current SoCal Water$mart rebates. No surveys were scheduled in September. Two hotels made rebate reservations for high efficiency toilets – the Newport Beach Marriott and the Marriott Laguna Cliffs Resort.
Turf Removal Program	MWDOC	On-going	Ongoing	In August 2014, 99 rebates were paid, representing 153,906 square feet of turf removed in Orange County. To date, the Turf Removal Program has removed approximately 1,887,266 square feet of turf.

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
Turf Removal Program (cont.)				For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.
California Sprinkler Adjustment Notification System	MWDOC	100%	September 2014	MWDOC was awarded a grant from the Bureau of Reclamation to develop the California Sprinkler Adjustment Notification System (CSANS). This system will e-mail or "push" an irrigation index to assist property owners with making global irrigation scheduling adjustments. Participants will voluntarily register to receive this e-mail and can unsubscribe at any time. On August 22, 2014, staff submitted its final report to Metropolitan summarizing the development and implementation of CSANS. Staff is now in the process of composing the final report for Bureau of Reclamation, which is due by October 30. Broad implementation began throughout Orange County in September 2014 with an e-currents article introducing the program. Staff is now gearing up to develop the Base Irrigation Schedule Calculator to be used in conjunction with CSANS.
Public Spaces Program	MWDOC	10%	December 2015	Through the Integrated Regional Watershed Management (IRWM) process, MWDOC is implementing a Proposition 84 grant to target the installation of comprehensive landscape improvements for publicly owned landscape properties throughout the South Orange County IRWM Plan area. The program encourages the removal of non-functional turfgrass, the upgrade of antiquated irrigation timers, and the conversion of high-precipitation-rate fixed spray irrigation to

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
Public Spaces Program (cont.)				low-precipitation-rate rotating nozzles and/or drip irrigation. To date, 10 cities, water districts, or other special districts (i.e., school districts) have applied for funding through this program, and 4 project proposals have been received.
Home Certification Program	MWDOC	10%	July 2015	This program will provide single-family sites with indoor and outdoor audits to identify areas for water savings improvements and opportunities. The program will also provide rebates for the installation of residential water efficiency devices, including smart timers and high efficiency rotating nozzles. In August 2014, MWDOC received thirty-nine (39) applications for the Home Certification Program. Three (3) surveys were conducted, and survey results are pending.
Landscape Irrigation Survey Program	MWDSC	Ongoing	June 2016	Through this program, Metropolitan offers, at no cost, the services of a certified landscape irrigation auditor who will survey and provide written recommendations for qualifying non-residential properties within Metropolitan's service area. Eligible landscapes include commercial and industrial sites, homeowner association common areas, and institutional sites such as schools, parks, and government facilities. To date, 120 sites in the MWDOC service area have contacted Metropolitan to request surveys.
Spray to Drip Conversion Pilot Program	MWDOC	25%	April 2016	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 sites will be encouraged to convert their existing spray nozzles to drip. To date, 50 residential applications and 8 commercial

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
Spray to Drip Conversion Pilot Program (cont.)				applications have been received, and the conversions are currently underway.
Commercial, Industrial, and Institutional Performance-Based Water Use Efficiency Program	MWDOC	2%	December 2015	This program will provide enhanced rebate incentives to commercial, industrial, and institutional sites and large-landscape properties (landscapes $\geq$ 1 acre). The program is scheduled to launch during the fourth Quarter of 2014.
Landscape Training and Outreach	MWDOC	15%	Ongoing	The Orange County Garden Friendly (OCGF) Pilot Program promotes the use of climate appropriate plants and water efficient irrigation practices, with the overall goals of reducing water runoff and improving outdoor water use efficiency. The OCGF Pilot Program is a collaborative effort of the Orange County Stormwater Program (OCSP) and the University of California Cooperative Extension (UCCE). Each partner plays a role in planning and implementing the Program. After the completion of the Pilot Program, the steering committee met to review the Program's successes and lessons learned. The OCGF program is set to continue with two events during Fall 2014 (October 12th and October 18th) and four more events in Spring 2015.

Orange County

Water Use Efficiency Programs Savings
and
Implementation Report

Item 8d

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-14	561	1.29	1,075	3.66	97,802	2,701	17,550
Smart Timer Program - Irrigation Timers	2004	August-14	614	29.60	651	31.36	11,883	4,157	23,859
Rotating Nozzles Rebate Program	2007	August-14	9,900	3.30	12,443	59.92	384,845	2,046	8,453
SoCal Water$mart Commercial Plumbing Fixture Rebate Program	2002	August-14	489	1.18	603	1.86	45,962	3,420	30,400
Water Smart Landscape Program [1]	1997	August-14	12,312	878.58	12,312	1,763.15	12,312	10,316	59,589
Industrial Process Water Use Reduction Program	2006	August-14	0	0.00	0	0.00	11.00	252	983
Turf Removal Program[3]	2010	August-14	153,906	1.79	257,290	36	1,887,266	264	740
High Efficiency Toilet (HET) Program	2005	August-14	557	1.97	1,130	8.01	33,310	1,231	8,574
Home Water Certification Program	2013	August-14	3	0.006	11	0.037	89	2.093	1.835
Synthetic Turf Rebate Program	2007		0	0	0	0	685,438	96	469
Ultra-Low-Flush-Toilet Programs [2]	1992		0	0	0	0	363,926	13,452	162,561
Home Water Surveys [2]	1995		0	0	0	0	11,867	160	1,708
Showerhead Replacements [2]	1991		0	0	0	0	270,604	1,667	19,083
Total Water Savings All Programs				**918**	**285,515**	**1,904**	**3,805,315**	**39,764**	**333,971**

(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 01/02	FY 02/03	FY03/04	FY 04/05	FY 05/06	FY 06/07	FY 07/08	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY13/14	FY14/15	Total	Current FY Water Savings Ac/Ft (Cumulative)	Cumulative Water Savings across all Fiscal Years
Brea	17	107	178	132	143	132	175	156	42	186	144	93	115	24	1,644	0.08	293.00
Buena Park	9	45	88	81	84	85	114	146	59	230	145	105	106	19	1,316	0.06	217.75
East Orange CWD RZ	3	8	20	20	11	18	22	17	3	23	10	10	8	1	174	0.00	32.78
El Toro WD	21	88	108	103	83	91	113	130	32	162	112	134	121	18	1,316	0.05	220.48
Fountain Valley	36	127	209	196	178	205	219	243	72	289	158	115	102	20	2,169	0.08	400.10
Garden Grove	39	173	278	243	243	238	304	332	101	481	236	190	162	24	3,044	0.08	545.00
Golden State WC	37	195	339	374	342	339	401	447	168	583	485	265	283	50	4,308	0.19	759.98
Huntington Beach	114	486	857	738	680	761	750	751	211	963	582	334	295	60	7,582	0.21	1,424.33
Irvine Ranch WD	159	626	1,087	1,093	1,445	1,972	2,052	1,844	1,394	2,621	2,170	1,763	1,664	339	20,229	1.13	3,412.72
La Habra	8	40	86	81	66	96	136	83	22	179	128	82	114	17	1,138	0.06	190.29
La Palma	3	5	13	21	18	33	35	51	25	76	46	34	25	5	390	0.01	64.59
Laguna Beach CWD	17	88	119	84	68	57	77	77	27	96	57	38	37	4	846	0.01	155.89
Mesa Water District	24	117	228	240	212	239	249	246	73	232	176	114	86	14	2,250	0.04	430.76
Moulton Niguel WD	158	630	841	640	570	652	716	742	250	1,127	679	442	421	52	7,920	0.19	1,412.92
Newport Beach	17	144	343	277	243	245	270	259	57	197	142	116	92	19	2,421	0.06	469.64
Orange	58	247	304	358	330	366	365	403	111	349	262	218	163	28	3,562	0.11	671.61
Orange Park Acres	-	-	-	-	-	4	8	-	-	-	-	-	-	-	12	0.00	2.76
San Juan Capistrano	16	95	120	107	102	109	103	127	43	190	110	76	73	17	1,288	0.06	228.74
San Clemente	32	182	235	170	136	204	261	278	63	333	206	140	94	22	2,356	0.08	420.48
Santa Margarita WD	140	510	743	573	592	654	683	740	257	1,105	679	553	662	141	8,032	0.50	1,376.06
Seal Beach	13	28	57	39	46	47	46	57	7	81	51	31	29	2	534	0.01	95.47
Serrano WD	9	16	54	39	39	30	31	23	7	21	20	13	10	5	317	0.01	62.06
South Coast WD	35	138	165	97	103	107	130	148	43	183	112	89	79	12	1,441	0.03	253.61
Trabuco Canyon WD	10	63	76	58	44	69	60	62	28	82	62	30	45	6	695	0.02	124.22
Tustin	21	89	152	138	127	152	146	144	45	174	97	78	59	11	1,433	0.03	269.29
Westminster	37	159	235	196	186	213	171	233	74	329	208	121	82	21	2,265	0.07	412.11
Yorba Linda	36	214	342	355	333	288	350	367	117	394	273	181	167	30	3,447	0.10	643.88
MWDOC Totals	1,069	4,620	7,277	6,453	6,424	7,406	7,987	8,106	3,331	10,686	7,350	5,365	5,094	961	82,129	3.29	14,590.51
Anaheim	917	677	904	1,364	701	854	847	781	860	910	477	331	285	56	9,964	0.19	1,910.74
Fullerton	40	196	369	289	263	269	334	330	69	397	270	200	186	40	3,252	0.12	567.95
Santa Ana	15	69	188	269	244	236	235	257	87	355	190	163	131	18	2,457	0.05	480.92
Non-MWDOC Totals	972	942	1,461	1,922	1,208	1,359	1,416	1,368	1,016	1,662	937	694	602	114	15,673	0.36	2,959.60
Orange County Totals	2,041	5,562	8,738	8,375	7,632	8,765	9,403	9,474	4,347	12,348	8,287	6,059	5,696	1,075	97,802	3.66	17,550.11

SMART TIMERS 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		FY 13/14		FY 14/15		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	9	0	0	2	0	8	0	9	8	4	0	3	5	40	71	343.32
Buena Park	3	1	0	0	0	0	4	19	3	0	0	0	0	9	10	29	64.05
East Orange CWD RZ	0	0	0	0	1	0	5	0	2	0	0	0	0	0	11	0	2.86
El Toro WD	0	25	2	18	5	5	26	2	7	2	11	0	0	5	65	326	1,747.29
Fountain Valley	1	0	0	6	2	2	8	2	3	2	4	0	1	0	39	17	87.64
Garden Grove	2	1	6	0	5	4	7	0	5	2	9	0	3	13	53	26	82.36
Golden State WC	1	2	9	22	7	4	13	3	9	49	9	25	8	3	103	130	412.79
Huntington Beach	13	1	6	27	6	36	15	4	18	33	20	35	6	0	129	160	547.33
Irvine Ranch WD	29	56	14	145	28	153	267	71	414	135	71	59	12	78	1,131	1,427	6,593.21
La Habra	0	0	0	21	0	0	3	0	4	7	2	0	0	4	17	33	112.26
La Palma	0	0	0	0	0	0	1	0	1	0	2	0	0	0	4	0	0.51
Laguna Beach CWD	2	0	2	14	4	1	109	2	76	2	71	0	2	0	300	19	123.13
Mesa Water District	6	7	13	7	7	22	21	0	10	2	15	2	4	12	120	85	400.95
Moulton Niguel WD	21	23	17	162	36	60	179	31	51	74	40	45	10	50	479	527	1,896.28
Newport Beach	10	27	7	58	6	0	275	12	242	26	168	75	4	0	973	345	1,648.66
Orange	5	2	2	13	5	8	25	0	20	24	13	9	1	19	148	130	555.73
San Juan Capistrano	10	0	7	49	13	1	103	2	14	18	6	11	1	9	175	99	358.56
San Clemente	81	20	13	209	46	11	212	17	26	7	28	2	4	12	964	346	1,755.86
Santa Margarita WD	25	44	10	152	61	53	262	7	53	171	64	93	5	193	591	887	2,762.54
Santiago CWD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Seal Beach	0	0	0	1	0	0	0	3	1	0	1	36	0	11	2	51	68.21
Serrano WD	0	0	11	0	4	0	3	0	1	0	0	0	0	0	19	0	4.66
South Coast WD	11	6	3	10	13	3	78	10	13	16	8	4	2	18	160	146	639.59
Trabuco Canyon WD	1	0	2	0	2	10	12	0	6	0	2	0	1	0	69	103	620.67
Tustin	7	9	10	14	10	0	11	0	8	4	9	1	6	14	65	49	174.16
Westminster	3	0	3	0	1	1	2	0	1	1	2	0	2	15	30	29	106.13
Yorba Linda	8	5	5	21	25	0	22	0	20	0	12	5	7	2	180	85	460.00
MWDOC Totals	242	238	142	949	289	374	1,671	185	1,017	583	571	402	82	472	5,877	5,120	21,568.77
Anaheim	9	59	5	46	12	11	23	60	19	10	9	26	0	50	120	411	1,658.54
Fullerton	2	2	2	39	9	33	22	51	9	29	8	0	18	0	92	154	492.78
Santa Ana	2	4	1	8	8	0	6	5	8	19	7	8	3	26	39	70	138.55
Non-MWDOC Totals	13	65	8	93	29	44	51	116	36	58	24	34	21	76	251	635	2,289.87
Orange County Totals	255	303	150	1,042	318	418	1,722	301	1,053	641	595	436	103	548	6,128	5,755	23,859

ROTATING NOZZLES 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			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	8	100	0	32	0	0	130	0	0	65	120	0	84	0	0	15	0	0	356	220	0	7.71
Buena Park	0	0	2,535	29	0	0	32	0	0	65	0	0	53	0	0	15	0	0	231	75	2,535	448.41
East Orange	0	0	0	0	0	0	340	0	0	55	0	0	30	0	0	0	0	0	530	0	0	7.50
El Toro	145	2,874	890	174	0	0	357	76	0	23	6,281	0	56	3,288	0	0	6,975	0	843	19,784	890	363.39
Fountain Valley	21	0	0	83	0	0	108	0	0	35	0	0	0	0	0	35	0	0	416	0	0	7.02
Garden Grove	151	45	0	38	0	0	119	0	0	95	0	0	80	0	0	62	0	0	742	151	0	15.43
Golden State	280	29	0	303	943	0	294	0	0	257	2,595	0	192	0	0	172	964	0	1,742	4,531	0	76.42
Huntington Beach	39	3,420	305	203	625	0	458	0	0	270	0	0	120	0	0	59	0	0	1,564	4,909	2,681	721.15
Irvine Ranch	1,034	54,441	1,479	2,411	2,861	0	1,715	4,255	0	25,018	1,014	0	11,010	4,257	0	143	0	0	43,535	79,371	2,004	2,470.28
La Habra	0	273	0	0	0	0	33	90	0	0	0	0	15	0	0	0	338	0	72	1,236	900	215.12
La Palma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0.24
Laguna Beach	191	0	0	156	0	0	763	0	0	3,596	0	0	2,948	878	0	35	0	0	7,905	925	0	96.10
Mesa Water District	195	83	0	118	0	0	297	277	0	270	0	0	361	0	0	27	0	0	1,549	385	343	112.70
Moulton Niguel	234	0	959	1,578	0	0	1,225	0	0	512	1,385	0	361	227	0	39	257	0	4,672	8,872	2,945	845.13
Newport Beach	92	4,781	0	337	1,208	0	640	3,273	0	25,365	50	0	19,349	6,835	0	81	0	0	45,951	16,886	0	705.80
Orange	129	0	0	135	30	0	343	0	0	264	0	0	245	120	0	42	668	0	2,277	981	0	49.64
San Clemente	729	1,299	0	2,612	851	0	4,266	117	1,343	631	172	0	415	5,074	0	70	0	0	9,307	7,538	1,343	358.40
San Juan Capistrano	656	5,709	0	1,452	0	0	949	0	0	684	30	0	370	0	0	0	732	0	4,615	8,131	0	228.50
Santa Margarita	1,731	937	611	3,959	3,566	0	4,817	0	0	983	0	0	389	0	0	245	281	0	13,368	4,852	611	387.53
Seal Beach	0	291	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	115	291	0	8.58
Serrano	1,498	0	0	364	0	0	58	0	0	190	0	0	105	0	0	0	0	0	2,333	0	0	42.79
South Coast	0	0	0	318	1,772	0	688	359	0	435	0	0	70	0	0	0	750	0	1,700	3,014	0	63.31
Trabuco Canyon	1,357	791	0	0	0	0	379	0	0	34	0	0	0	0	0	0	0	0	1,900	791	0	51.53
Tustin	314	0	0	512	0	0	476	1,013	0	378	0	0	329	0	0	102	0	0	2,683	1,013	0	53.71
Westminster	80	0	0	0	0	0	26	0	0	15	0	0	0	0	0	0	0	0	232	0	0	4.75
Yorba Linda	371	3,256	0	529	0	0	559	0	0	730	0	0	40	990	0	42	0	0	3,274	4,359	500	238.86
MWDOC Totals	9,255	78,329	6,779	15,343	11,856	0	19,072	9,460	1,343	59,970	11,647	0	36,622	21,669	0	1,184	10,965	0	151,922	168,315	14,752	7,580.01
Anaheim	273	164	105	372	382	0	742	38,554	0	459	813	0	338	0	0	38	0	0	2,619	39,913	105	538.43
Fullerton	48	0	1,484	416	0	0	409	0	0	119	0	0	107	0	0	131	0	0	1,771	64	1,484	289.91
Santa Ana	48	572	0	53	0	0	22	65	0	99	0	0	86	2,533	0	125	0	0	674	3,226	0	44.62
Non-MWDOC Totals	369	736	1,589	841	382	0	1,173	38,619	0	677	813	0	531	2,533	0	294	0	0	5,064	43,203	1,589	872.97
Orange County Totals	9,624	79,065	8,368	16,184	12,238	0	20,245	48,079	1,343	60,647	12,460	0	37,153	24,202	0	1,478	10,965	0	156,986	211,518	16,341	8,452.97

SOCAL WATER$MART COMMERCIAL PLUMBING FIXTURES REBATE PROGRAM[1]
INSTALLED BY AGENCY
through MWDOC and Local Agency Conservation Programs

Agency	FY 02/03	FY 03/04	FY 04/05	FY 05/06	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	Totals	Cumulative Water Savings across all Fiscal Years
Brea	51	0	22	52	2	27	113	24	4	1	234	0	2	**532**	**300**
Buena Park	83	28	55	64	65	153	432	122	379	290	5	23	53	**1,762**	**797**
East Orange CWD RZ	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
El Toro WD	23	73	42	5	2	0	92	143	1	137	0	212	0	**753**	**452**
Fountain Valley	94	2	59	35	63	17	35	0	2	314	0	0	0	**622**	**463**
Garden Grove	199	51	297	34	136	5	298	130	22	0	4	1	0	**1,198**	**1,171**
Golden State WC	197	34	232	80	531	46	414	55	68	135	0	1	0	**1,804**	**1,522**
Huntington Beach	191	73	185	82	209	48	104	126	96	156	104	144	5	**1,528**	**1,213**
Irvine Ranch WD	1,085	87	325	1,044	429	121	789	2,708	1,002	646	1,090	451	9	**10,092**	**5,150**
La Habra	37	52	45	60	16	191	75	53	4	0	0	0	0	**543**	**429**
La Palma	0	0	0	5	0	0	140	21	0	0	0	0	0	**166**	**65**
Laguna Beach CWD	30	2	18	9	12	20	137	189	0	0	0	27	0	**446**	**250**
Mesa Water District	155	22	130	241	141	141	543	219	669	41	6	0	58	**2,790**	**1,621**
Moulton Niguel WD	74	65	172	3	0	9	69	151	6	0	0	0	0	**580**	**659**
Newport Beach	230	9	77	24	94	98	27	245	425	35	0	0	1	**1,269**	**985**
Orange	144	22	553	127	88	18	374	67	1	73	1	271	0	**1,823**	**1,400**
San Juan Capistrano	34	21	181	0	6	2	1	1	0	0	0	14	0	**260**	**337**
San Clemente	36	5	95	40	173	2	18	43	0	19	0	0	0	**431**	**318**
Santa Margarita WD	16	3	56	0	0	6	23	11	0	0	0	0	0	**115**	**165**
Santiago CWD	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Seal Beach	34	44	40	61	45	1	2	124	0	0	0	0	0	**354**	**346**
Serrano WD	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
South Coast WD	31	8	54	8	4	9	114	56	422	84	148	0	0	**938**	**356**
Trabuco Canyon WD	1	0	6	0	0	0	4	0	0	0	0	0	0	**11**	**13**
Tustin	114	16	82	14	7	115	145	25	230	0	0	0	75	**832**	**647**
Westminster	109	32	153	57	104	40	161	16	63	35	1	28	0	**815**	**814**
Yorba Linda	36	12	42	4	118	10	24	8	30	0	1	0	0	**285**	**447**
MWDOC Totals	**3,004**	**661**	**2,921**	**2,049**	**2,245**	**1,079**	**4,134**	**4,537**	**3,424**	**1,966**	**1,594**	**1,172**	**203**	**29,949**	**19,921**
Anaheim	400	947	362	1,113	780	766	3,298	582	64	48	165	342	347	**10,256**	**5,452**
Fullerton	41	138	270	91	96	133	579	29	4	0	94	0	53	**1,556**	**1,277**
Santa Ana	153	589	227	624	373	493	815	728	39	12	16	17	0	**4,201**	**3,750**
Non-MWDOC Totals	**594**	**1,674**	**859**	**1,828**	**1,249**	**1,392**	**4,692**	**1,339**	**107**	**60**	**275**	**359**	**400**	**16,013**	**10,479**
Orange County Totals	**3,598**	**2,335**	**3,780**	**3,877**	**3,494**	**2,471**	**8,826**	**5,876**	**3,531**	**2,026**	**1,869**	**1,531**	**603**	**45,962**	**30,400**

[1] Retrofit devices include ULF Toilets and Urinals, High Efficiency Toilets and Urinals, 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 05-06	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	Overall Water Savings To Date (AF)
Brea	0	0	0	0	0	0	22	22	22	22	42.39
Buena Park	0	0	0	0	17	103	101	101	101	101	361.79
East Orange CWD RZ	0	0	0	0	0	0	0	0	0	0	0.00
El Toro WD	109	227	352	384	371	820	810	812	812	812	4,045.72
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	0	0	14	34	32	34	32	32	32	32	168.62
Huntington Beach	0	0	0	0	31	33	31	31	31	31	117.46
Irvine Ranch WD	638	646	708	1,008	6,297	6,347	6,368	6,795	6,797	6,713	31,550.95
Laguna Beach CWD	0	0	0	57	141	143	141	124	124	124	609.19
La Habra	0	0	0	23	22	24	22	22	22	22	114.75
La Palma	0	0	0	0	0	0	0	0	0	0	0.00
Mesa Water District	170	138	165	286	285	288	450	504	511	511	2,431.28
Moulton Niguel WD	57	113	180	473	571	595	643	640	675	675	3,445.66
Newport Beach	27	23	58	142	171	191	226	262	300	300	1,201.48
Orange	0	0	0	0	0	0	0	0	0	0	0.00
San Clemente	165	204	227	233	247	271	269	269	299	309	1,982.00
San Juan Capistrano	0	0	0	0	0	0	0	0	0	0	0.00
Santa Margarita WD	619	618	945	1,571	1,666	1,746	1,962	1,956	2,274	2,274	11,864.56
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	0	0	62	117	108	110	118	118	118	118	672.63
Trabuco Canyon WD	0	0	12	49	48	62	60	60	60	60	290.58
Tustin	0	0	0	0	0	0	0	0	0	0	0.00
Westminster	0	0	10	18	18	20	18	18	18	18	98.48
Yorba Linda WD	0	0	0	0	0	0	0	0	0	0	0.00
MWDOC Totals	**1,785**	**1,969**	**2,733**	**4,395**	**10,025**	**10,787**	**11,273**	**11,766**	**12,196**	**12,122**	**58,997.5**
Anaheim	0	0	0	0	142	146	144	190	190	190	591.71
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**	**0**	**0**	**142**	**146**	**144**	**190**	**190**	**190**	**591.71**
Orange Co. Totals	**1,785**	**1,969**	**2,733**	**4,395**	**10,167**	**10,933**	**11,417**	**11,956**	**12,386**	**12,312**	**59,589.24**

INDUSTRIAL PROCESS WATER USE REDUCTION PROGRAM

Number of Process Changes 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	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	1	0	0	0	0	0	0	1	54	306
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	1	0	0	0	0	0	0	0	1	3	19
Huntington Beach	0	0	0	0	0	2	0	0	2	54	115
Irvine Ranch	0	0	2	1	1	1	1	0	6	98	260
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 District	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	0	0	0	0	0	0
Orange	1	0	0	0	0	0	0	0	1	43	283
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	2	1	1	3	1	0	11	252	983

[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 10/11		FY 11/12		FY 12/13		FY 13/14		FY 14/15		Total Program		Cumulative Water Savings across all Fiscal Years
	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	
Brea	0	0	3,397	9,466	7,605	0	5,697	0	2,972	0	19,671	9,466	12.41
Buena Park	0	0	0	0	0	0	0	0	0	0	0	0	-
East Orange	0	0	0	0	0	0	1,964	0	665	0	2,629	0	0.64
El Toro	0	0	4,723	0	4,680	72,718	4,582	0	1,512	2,975	15,497	75,693	37.06
Fountain Valley	0	0	1,300	0	682	7,524	4,252	0	0	0	6,234	7,524	5.36
Garden Grove	0	46,177	14,013	0	4,534	0	8,274	0	0	0	26,821	46,177	44.39
Golden State	0	0	42,593	30,973	31,813	3,200	32,725	8,424	10,971	0	118,102	42,597	68.96
Huntington Beach	801	3,651	27,630	48,838	9,219	12,437	20,642	0	5,193	37,650	63,485	102,576	66.81
Irvine Ranch	5,423	12,794	6,450	1,666	32,884	32,384	36,584	76,400	19,314	0	100,655	123,244	79.05
La Habra	0	7,775	0	8,262	0	0	0	0	0	0	0	16,037	10.07
La Palma	0	0	0	0	0	0	0	0	0	0	0	0	-
Laguna Beach	978	0	2,533	0	2,664	1,712	4,586	226	735	0	11,496	1,938	5.39
Mesa Water District	0	0	6,777	0	10,667	0	22,246	0	9,239	0	48,929	0	15.80
Moulton Niguel	956	16,139	4,483	26,927	11,538	84,123	14,739	40,741	17,122	4,560	48,838	172,490	88.30
Newport Beach	0	0	3,454	0	3,548	2,346	894	0	777	0	8,673	2,346	4.77
Orange	0	0	12,971	0	15,951	8,723	11,244	0	4,890	21,024	45,056	29,747	24.40
San Clemente	0	0	21,502	0	16,062	13,165	18,471	13,908	8,773	0	64,808	27,073	34.61
San Juan Capistrano	0	0	22,656	103,692	29,544	27,156	12,106	0	3,145	0	67,451	130,848	98.40
Santa Margarita	4,483	5,561	1,964	11,400	10,151	11,600	17,778	48,180	14,710	70,952	49,086	147,693	54.11
Seal Beach	0	0	0	0	3,611	0	0	0	869	0	4,480	0	1.64
Serrano	0	0	0	0	0	0	2,971	0	0	0	2,971	0	0.83
South Coast	0	16,324	6,806	0	9,429	4,395	15,162	116,719	9,649	1,980	41,046	139,418	59.60
Trabuco Canyon	0	0	272	0	1,542	22,440	2,651	0	766	0	5,231	22,440	11.07
Tustin	0	0	0	0	9,980	0	1,410	0	1,442	0	12,832	0	4.79
Westminster	0	0	0	0	0	0	0	0	0	0	0	0	-
Yorba Linda	11,349	0	0	0	0	0	0	0	0	5,405	11,349	5,405	8.70
MWDOC Totals	23,990	108,421	183,524	241,224	216,104	303,923	238,978	304,598	112,744	144,546	775,340	1,102,712	737.16
Anaheim	0	0	0	0	0	0	0	0	0	0	0	0	-
Fullerton	0	0	0	0	0	0	0	9,214	0	0	0	9,214	2.58
Santa Ana	0	0	0	0	0	0	0	0	0	0	0	0	-
Non-MWDOC Totals	0	0	0	0	0	0	0	9,214	0	0	0	9,214	2.58
Orange County Totals	23,990	108,421	183,524	241,224	216,104	303,923	238,978	313,812	112,744	144,546	775,340	1,111,926	739.74

[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	Total	Cumulative Water Savings across all Fiscal Years
Brea	0	2	7	43	48	8	0	0	38	9	155	**33.54**
Buena Park	0	1	2	124	176	7	0	0	96	40	446	**94.31**
East Orange CWD RZ	0	0	10	12	1	0	0	0	13	1	37	**8.38**
El Toro WD	0	392	18	75	38	18	0	133	218	48	940	**229.73**
Fountain Valley	0	69	21	262	54	17	0	0	41	10	474	**132.95**
Garden Grove	0	14	39	443	181	24	0	0	63	76	840	**210.54**
Golden State WC	2	16	36	444	716	37	80	2	142	34	1,509	**369.63**
Huntington Beach	2	13	59	607	159	76	0	0	163	114	1,193	**282.25**
Irvine Ranch WD	29	1,055	826	5,088	2,114	325	0	1,449	810	210	11,906	**3,085.32**
Laguna Beach CWD	0	2	17	91	28	11	0	0	45	34	228	**48.43**
La Habra	0	3	18	296	34	20	0	0	37	14	422	**112.14**
La Palma	0	1	10	36	26	13	0	0	21	2	109	**25.79**
Mesa Water District	0	247	19	736	131	7	0	0	174	7	1,321	**370.39**
Moulton Niguel WD	0	20	104	447	188	46	0	0	400	89	1,294	**271.87**
Newport Beach	0	5	19	163	54	13	0	0	49	27	330	**78.82**
Orange	1	20	62	423	79	40	0	1	142	32	800	**197.47**
San Juan Capistrano	0	10	7	76	39	11	0	0	35	7	185	**44.43**
San Clemente	0	7	22	202	66	21	0	0	72	22	412	**98.74**
Santa Margarita WD	0	5	14	304	151	44	0	0	528	167	1,213	**197.22**
Seal Beach	0	678	8	21	12	1	0	2	17	10	749	**274.08**
Serrano WD	2	0	1	13	5	0	0	0	2	4	27	**6.68**
South Coast WD	2	2	29	102	41	12	23	64	102	18	395	**76.44**
Trabuco Canyon WD	0	0	4	23	23	0	0	0	10	9	69	**15.32**
Tustin	0	186	28	387	479	17	0	0	64	20	1,181	**328.30**
Westminster	0	17	25	541	167	23	0	0	35	17	825	**227.44**
Yorba Linda WD	0	14	89	323	96	18	0	0	40	28	608	**164.83**
MWDOC Totals	38	2,779	1,494	11,282	5,106	809	103	1,651	3,357	1,049	27,668	**6,985.05**
Anaheim	0	255	78	2,771	619	114	0	0	156	50	4,043	**1,147.48**
Fullerton	0	4	28	286	60	23	0	0	61	22	484	**122.61**
Santa Ana	0	11	25	925	89	23	0	0	33	9	1,115	**319.11**
Non-MWDOC Totals	0	270	131	3,982	768	160	0	0	250	81	5,642	**1,589.20**
Orange County Totals	38	3,049	1,625	15,264	5,874	969	103	1,651	3,607	1,130	33,310	**8,574.25**

HOME WATER SURVEYS PERFORMED BY AGENCY

through MWDOC and Local Agency Conservation Programs

Agency	FY 13/14		FY 14/15		Total		Cumulative
	Surveys	Cert Homes	Surveys	Cert Homes	Surveys	Cert Homes	Water Savings
Brea	1	0	0	0	1	0	0.02
Buena Park	0	0	0	0	0	0	0.00
East Orange	19	0	0	0	19	0	0.45
El Toro	0	0	0	0	0	0	0.00
Fountain Valley	3	0	0	0	3	0	0.07
Garden Grove	0	0	0	0	0	0	0.00
Golden State	0	0	0	0	0	0	0.00
Huntington Beach	2	0	1	0	3	0	0.05
Irvine Ranch	1	0	0	0	1	0	0.02
La Habra	0	0	0	0	0	0	0.00
La Palma	0	0	0	0	0	0	0.00
Laguna Beach	4	0	0	0	4	0	0.09
Mesa	0	0	0	0	0	0	0.00
Moulton Niguel	4	0	1	0	5	0	0.09
Newport Beach	2	0	1	0	3	0	0.05
Orange	2	0	2	0	4	0	0.05
San Clemente	15	0	3	0	18	0	0.35
San Juan Capistrano	4	0	1	0	5	0	0.09
Santa Margarita	15	0	0	1	15	1	0.35
Serrano	0	0	0	0	0	0	0.00
South Coast	6	0	2	0	8	0	0.14
Trabuco Canyon	0	0	0	0	0	0	0.00
Tustin	0	0	0	0	0	0	0.00
Westminster	0	0	0	0	0	0	0.00
Yorba Linda	0	0	0	0	0	0	0.00
MWDOC Totals	78	0	11	1	89	1	1.83
Anaheim	0	0	0	0	0	0	0.00
Fullerton	0	0	0	0	0	0	0.00
Santa Ana	0	0	0	0	0	0	0.00
Non-MWDOC Totals	0	0	0	0	0	0	0.00
Orange County Totals	78	0	11	1	89	1	1.835

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 District	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 District	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**