AGENDA
REGULAR MEETING BOARD OF DIRECTORS
ORANGE COUNTY WATER DISTRICT
18700 Ward Street, Fountain Valley, CA (714) 378-3200
Wednesday, February 17, 2016 – 5:30 p.m.

***Teleconference Site:**
6151 Kimberly Drive, Huntington Beach, CA 92647 (714) 897-2039

*** Members of the public may attend and participate at both locations.**

PLEDGE OF ALLEGIANCE

ROLL CALL

1. **EMPLOYEE OF THE YEAR AWARD TO MAINTENANCE TECHNICIAN 1 PEDRO BARRERA**

ITEMS RECEIVED TOO LATE TO BE AGENDIZED

RECOMMENDATION: Adopt resolution determining 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 two-thirds vote of the Board members present, or, if less than two-thirds of the members are present, a unanimous vote of those members present.)

VISITOR PARTICIPATION

Time has been reserved at this point in the agenda for persons wishing to comment for up to three minutes to the Board of Directors on any item that is not listed on the agenda, but within the subject matter jurisdiction of the District. By law, the Board of Directors is prohibited from taking action on such public comments. As appropriate, matters raised in these public comments will be referred to District staff or placed on the agenda of an upcoming Board meeting.

At this time, members of the public may also offer public comment for up to three minutes on any item on the Consent Calendar. While members of the public may not remove an item from the Consent Calendar for separate discussion, a Director may do so at the request of a member of the public.

CONSENT CALENDAR (ITEMS NOS. 2 - 18)

All matters on the Consent Calendar are to be approved by one motion, without separate discussion on these items, unless a Board member or District staff request that specific items be removed from the Consent Calendar for separate consideration.

2. APPROVAL OF CASH DISBURSEMENTS

RECOMMENDATION: Ratify/authorize payment of bills

3. APPROVAL OF MINUTES OF BOARD OF DIRECTORS MEETING HELD JANUARY 20, 2016

RECOMMENDATION: Approve as presented

4. 2014-2015 ENGINEER'S REPORT ON GROUNDWATER CONDITIONS, WATER SUPPLY AND BASIN UTILIZATION

RECOMMENDATION: Receive and file the draft 2014-15 Engineer's Report and schedule a public hearing on March 16, 2016 to present the Report's findings and on April 20, 2016 to consider establishing the Replenishment Assessment, Basin Equity Assessment and Basin Production Percentage for the 2016-17 water year

5. RATIFICATION OF JOB CLASSIFICATION CHANGE

RECOMMENDATION: Ratify the following job classification and salary grade modification: Change the Records Management Coordinator job classification to non-represented, confidential and place in salary grade N-10

CONSENT CALENDAR ITEMS RECOMMENDED FOR APPROVAL AT COMMUNICATIONS AND LEGISLATIVE LIAISON MEETING HELD FEBRUARY 4 (ITEMS NO. 6)

6. PURCHASE OF TOUR SOUND SYSTEM

RECOMMENDATION: Authorize issuance of Purchase Order to Integrated Media Systems in the amount of $25,000 for a sound system to support the tour program

CONSENT CALENDAR ITEMS RECOMMENDED FOR APPROVAL AT WATER ISSUES COMMITTEE MEETING HELD FEBRUARY 10 (ITEMS NO. 7 - 12)

7. CONTRACT NO. FB-2012-1, FLETCHER BASIN PROJECT: AMENDMENT TO AGREEMENT WITH BUTIER FOR CONSTRUCTION PHASE SERVICES

RECOMMENDATION: Authorize issuance of Amendment No. 7 to Agreement No. 0370 with Butier Construction Managers for $109,924 for construction phase services

8. ALAMITOS SEAWATER BARRIER 2016-17 OPERATIONS AND MAINTENANCE BUDGET

RECOMMENDATION:

1) Approve the Alamitos Barrier 2016-17 total O&M budget in the amount of $1,791,000, and authorize payment of the District's share not to exceed $597,870 payable to the Los Angeles County Department of Public Works after receipt and review of invoices; and

2) Appoint Ryan Bouley to replace Chris Olsen on the Alamitos Barrier Joint Management Committee

9. PAYMENT TO SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT FOR OCWD COST SHARE OF DECISION SUPPORT MODEL

RECOMMENDATION: Authorize payment of $49,983 to San Bernardino Valley Municipal Water District for the District's cost share to develop a decision support model for the Santa Ana River Conservation and Conjunctive Use Program

10. CONTRACT NO. GA-2015-1: PERIMETER SITE IMPROVEMENT OF THE SANTA ANA RESERVOIRS – RATIFY CHANGE ORDERS 1 & 2, ISSUE CHANGE ORDER NO. 3 TO PARSAM CONSTRUCTION, INC. AND INCREASE PROJECT BUDGET

RECOMMENDATION:

1) Ratify execution of Change Order No. 1 and No. 2 to Parsam Construction, Inc. for a total amount of $22,198; and

2) Authorize issuance of Change Order No 3. to Parsam Construction, Inc. in the amount of $74,335; and

3) Approve increasing the project budget to $576,850

11. CONTRACT NO. TAL-2015-2: TALBERT BARRIER WELL REDEVELOPMENT PROJECT-AWARD CONTRACT TO BOART LONGYEAR COMPANY

RECOMMENDATION:

1) Receive and file Affidavit of Publication of Notice Inviting Bids for Contract No. TAL-2015-2: Talbert Barrier Well Redevelopment Project; and

2) Accept bid and award contract to Boart Longyear Company, Inc. for $152,452

12. ENGINEERING DESIGN SERVICES AND PROCURMENT FOR THE FIVE COVES RUBBER DAM REPLACEMENT PROJECT

RECOMMENDATION:

1) Authorize solicitation of proposals for engineering design services and material fabrication for the Five Coves Rubber Dam Replacement Project;

2) Authorize execution by the General Manager of an Agreement in an amount not to exceed $1,600,000 for engineering design services and material fabrication for the Five Coves Rubber Dam Replacement Project; and

3) Agendize the procurement results for ratification at a future Board meeting

CONSENT CALENDAR ITEMS RECOMMENDED FOR APPROVAL AT ADMINISTRATION AND FINANCE ISSUES COMMITTEE MEETING HELD FEBRUARY 11 (ITEMS NO. 13 - 18)

13. MONTHLY CASH CONTROL REPORT

RECOMMENDATION: Receive and file Summary Cash and Cash Equivalents Control Report dated January 31, 2016

14. AGREEMENT TO JL LANDSCAPE SERVICES FOR LANDSCAPE MAINTENANCE SERVICES AT SANTIAGO BASIN BIKE TRAIL

RECOMMENDATION: Authorize issuance of Agreement with JL Landscape Services for an amount not to exceed $30,600 per year for a three-year period for landscape services

15. STATE REVOLVING FUND LOAN - REIMBURSEMENT RESOLUTION FOR ALAMITOS BARRIER IMPROVEMENT PROJECT

RECOMMENDATION: Adopt Reimbursement Resolution for the State Revolving Fund Loan Application for Alamitos Barrier Improvement Project

16. INVESTMENT PORTFOLIO HOLDINGS REPORTS

RECOMMENDATION: Receive and file the Investment Portfolio Holdings Reports dated January 31, 2016

17. RATIO ANALYSIS - SECOND QUARTER - FY 2015-2016

RECOMMENDATION: Receive and file the Ratio Analysis Report for FY 2015-16 Second Quarter ending December 31, 2015

18. BUDGET TO ACTUAL REPORT FOR SECOND QUARTER FY 2015–16

RECOMMENDATION: Receive and file the Budget to Actual Report for Second Quarter of Fiscal Year 2015-16 ending December 31, 2015

MATTERS FOR CONSIDERATION

19. PUBLIC MEETING ON OCWD'S PROPOSED BULLETIN 118 BASIN BOUNDARY MODIFICATIONS

RECOMMENDATION:

1) Conduct public meeting and receive public comments on proposed boundary modification.

2) Adopt resolution to approve the following:

   a) The Orange County Water District is authorized to act as a Requesting Agency for the boundary modification process for some or all of the OC Basin
   b) The General Manager or his designee is authorized to be the Revision Request Manager for some or all of the OC Basin
   c) The Revision Request Manager is authorized to submit to DWR a request to modify the boundaries of the OC Basin and to submit other required information to DWR in support of said boundary modification request
   e) District staff is authorized and directed to file a notice of exemption in accordance with the California Environmental Quality Act on the requested OC Basin boundary modification

20. FUTURE PROJECED TOTAL WATER DEMANDS

RECOMMENDATION: Provide comments and feedback to staff

INFORMATIONAL ITEMS

21. WATER RESOURCES REPORT

22. SANTA ANA WATERSHED PROJECT AUTHORITY ACTIVITIES

23. GROUNDWATER PRODUCER MEETING MINUTES – FEBRUARY 10, 2016

24. COMMITTEE/CONFERENCE/MEETING REPORTS

A. February 04 – Communication/Legislative Liaison Committee (Chair Anthony)
February 10 – Water Issues Committee (Vice Chair Anthony)
February 11 – Administration/Finance Issues Committee (Chair Dewane)

B. Reports on Conferences/Meetings Attended at District Expense (at which a quorum of the Board was present)

25. **VERBAL REPORTS**

- PRESIDENT'S REPORT
- GENERAL MANAGER'S REPORT
- DIRECTORS' REPORTS
- GENERAL COUNSEL REPORT

26. **ADJOURNMENT TO CLOSED SESSION**

- **CONFERENCE WITH LABOR NEGOTIATORS**
  [Government Code Section 54957.6]
  OCWD designated representative: Stephanie Dosier
  ⊙ Employee Organization: Orange County Employee Association

- **CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION**
  [Government Code Section 54956.9(D)(1): One Case:
  Western Riverside County Regional Wastewater Authority Wastewater Change Petition before State Water Resources Control Board (Petition No. WW-0067)

- **CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION**
  [Government Code Section 54956.9(a)] – One Case:
  OCWD v. Northrop Corporation*, et al* (North Basin VOC Litigation) Superior Court Case No. 04CC00715

RECONVENE IN OPEN SESSION

ADJOURNMENT

Agenda Posting: In accordance with the requirements of California Government Code Section 54954.2, this agenda has been posted in the main lobby of the Orange County Water District, 18700 Ward Street, Fountain Valley, CA and on the OCWD website: www.ocwd.com not less than 72 hours prior to the meeting date and time above. All written materials relating to each agenda item are available for public inspection in the office of the Assistant District Secretary. Backup material for the Agenda is available at the District offices for public review and can be viewed online at the District's website: www.ocwd.com.

Accommodations to the Disabled: Pursuant to the Americans with Disabilities Act, persons with a disability who require a disability-related modification or accommodation in order to participate in a meeting, including auxiliary aids or services, may request such modification or accommodation from the District Secretary at (714)378-3233, by email at jdurant@ocwd.com by fax at (714) 378-3373. Notification 24 hours prior to the meeting will enable District staff to make reasonable arrangements to assure accessibility to the meeting.

Availability of Agenda Material: As a general rule, agenda reports or other written documentation that has been prepared or organized with respect to each item of business listed on the agenda can be reviewed at www.ocwd.com. Copies of these materials and other disclosable public records distributed to all or a majority of the members of the Board of Directors in connection with an open session agenda item are also on file with and available for inspection at the Office of the District Secretary, 18700 Ward Street, Fountain Valley, California, during regular business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday. If such writings are distributed to members of the Board of Directors on the day of a Board meeting, the writings will be available at the entrance to the Board of Directors meeting room at the Orange County Water District office.

AGENDA ITEM SUBMITTAL

Meeting Date: February 17, 2016

To: Board of Directors

From: Mike Markus

Staff Contact: Stephanie Dosier

Budgeted: N/A
Funding Source: N/A
Program/Line Item No.: N/A
Cost Estimate: N/A
General Counsel Approval: N/A
Engineers/Feasibility Report Approved: N/A
CEQA Compliance: N/A

Subject: **2015 EMPLOYEE OF THE YEAR AWARD TO – PEDRO BARRERA, MAINTENANCE TECHNICIAN I**

SUMMARY

OCWD began the Employee of the Month/Quarter/Year program back in April of 2003. The program was established to recognize outstanding OCWD employees and to acknowledge their contributions to OCWD. Employees had the opportunity to vote and elect the Employee of the Year for 2015. The Employee of the Year candidates included all the 2015 Employee of the Quarter participants. Pedro Barrera, Maintenance Technician I was the employee chosen for this honor.

Pedro Barrera sets a positive example for others to follow at the District.

- Pedro's daily task list is long, especially last year when he was the Lone Ranger of Utility Technicians in the Maintenance Department. Even with the extra work load it didn't change his can do attitude. Although he was working solo he was tasked with many duties including meeting setup requests, landscape maintenance and a long list of housekeeping chores.
- Pedro does it all with a professional and courteous attitude.
- Pedro also receives numerous last minute requests such as the need to add more chairs in the boardroom because now there are more attendees or a ceiling light is out over a cubicle, and no matter the circumstance he just gets the job done.
- He never complains or gives you a hard time even when the requests come last minute.
- Pedro received a well-deserved promotion to a Maintenance Technician I.
- His positivity and can do attitude make him a definite recipient for Employee of the Quarter and Employee of the Year.

As Employee of the Year, Pedro receives:

1) Acknowledgement on the OCWD website.
2) Two (2) days off with pay to be used within one calendar year from the date awarded.
3) Recognition at an All Employee Meeting.
4) $25 Amazon Gift Card
5) Letter of commendation from the General Manager presented at the All Employee Meeting.
6) Employee of the Year Crystal Award presented at the OCWD Board meeting.

RECOMMENDATION
Informational.

PRIOR RELEVANT BOARD ACTION(S)

AGENDA ITEM SUBMITTAL

Meeting Date: February 17, 2016

To: Board of Directors

From: Mike Markus

Staff Contact: K. Greene

Budgeted: N/A
Budgeted Amount:
Cost Estimate $10,037,184.91
Funding Source: N/A
Program/Line Item No. N/A
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: APPROVAL OF CASH DISBURSEMENTS

SUMMARY

For the period January 21, 2016 through February 10, 2016 including manual checks and wire transfers, staff is presenting cash disbursements totaling $ 10,037,184.91 disbursed for each period as follows.

Accounts Payable:	
01/21/2016 to 02/03/2016	$ 1,844,479.47
02/04/2016 to 02/10/2016	$ 7,143,048.23
Payroll:	$ 1,049,657.21
Total Disbursements	$10,037,184.91

RECOMMENDATION

Ratify/Authorize payment of bills

PRIOR RELEVANT BOARD ACTION(S)

Semi-monthly

Orange County Water District

Check Register

Begin Date: 01/21/2016 **End Date:** 02/03/2016

Accounts Payable Check Register Presented for Board Ratification and/or Approval

Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
800845	10/27/2015	GRAINGER INC.	Inv# 9843096745		($299.98)		
800845	10/27/2015	GRAINGER INC.	Inv# 9845257444		($77.11)		
800845	10/27/2015	GRAINGER INC.	Inv# 9844174053		($335.88)		
800845	10/27/2015	GRAINGER INC.	Inv# 9844174053		($233.34)		
800845	10/27/2015	GRAINGER INC.	Inv# 9844174053	RECHARGE OPS	($224.55)		
800845	10/27/2015	GRAINGER INC.	Inv# 9844174053		($167.94)		
800845	10/27/2015	GRAINGER INC.	Inv# 9844174046	WATER PRODUCTION	($104.36)		
800845	10/27/2015	GRAINGER INC.	Inv# 9843276602		($835.06)		
800845	10/27/2015	GRAINGER INC.	Inv# 9843276602		($288.25)		
800845	10/27/2015	GRAINGER INC.	Inv# 9843276602		($191.25)		
800845	10/27/2015	GRAINGER INC.	Inv# 9843276602		($171.18)		
800845	10/27/2015	GRAINGER INC.	Inv# 9843276602		($169.45)		
800845	10/27/2015	GRAINGER INC.	Inv# 9843276602		($122.31)		
800845	10/27/2015	GRAINGER INC.	Inv# 9843276602		($122.31)		
800845	10/27/2015	GRAINGER INC.	Inv# 9841373831	WATER PRODUCTION	($833.97)		
800845	10/27/2015	GRAINGER INC.	Inv# 9841894661	WATER PRODUCTION	($25.60)		
800845	10/27/2015	GRAINGER INC.	Inv# 9841703128		($30.89)		
800845	10/27/2015	GRAINGER INC.	Inv# 9841703128		($37.15)		
800845	10/27/2015	GRAINGER INC.	Inv# 9841703128		($51.13)		
800845	10/27/2015	GRAINGER INC.	Inv# 9841703128		($78.19)		
800845	10/27/2015	GRAINGER INC.	Inv# 9841703128		($88.47)		
800845	10/27/2015	GRAINGER INC.	Inv# 9843276602		($60.48)		
800845	10/27/2015	GRAINGER INC.	Inv# 9841703128		($167.94)		
800845	10/27/2015	GRAINGER INC.	Inv# 9843276602		($54.30)		
800845	10/27/2015	GRAINGER INC.	Inv# 9843096745		($34.17)		
800845	10/27/2015	GRAINGER INC.	Inv# 9843096745		($37.84)		
800845	10/27/2015	GRAINGER INC.	Inv# 9843096745		($75.67)		
800845	10/27/2015	GRAINGER INC.	Inv# 9843096745		($99.52)		
800845	10/27/2015	GRAINGER INC.	Inv# 9843096745	INVENTORY	($121.73)		
800845	10/27/2015	GRAINGER INC.	Inv# 9845812966	JANITORIAL/I&E MISC	($96.13)		
800845	10/27/2015	GRAINGER INC.	Inv# 9841703128	RECHARGE OPS	($167.94)		
800845	10/27/2015	GRAINGER INC.	Inv# 9845257444	RISK & SAFETY	($121.50)		

Orange County Water District

Check Register

Begin Date: 01/21/2016 **End Date:** 02/03/2016

Accounts Payable Check Register Presented for Board Ratification and/or Approval

Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
Total for Check:	800845					($5,525.59)	$76,119.33
800936	02/03/2016	EVOQUA WATER TECHNOLOGIES LLC	Inv# 902461750	R&D/WATER PRODUCTION	$193.67		
800936	02/03/2016	EVOQUA WATER TECHNOLOGIES LLC	Inv# 902461752	R&D/WATER PRODUCTION	$90.00		
800936	02/03/2016	EVOQUA WATER TECHNOLOGIES LLC	Inv# 902461755	R&D/WATER PRODUCTION	$180.00		
Total for Check:	800936					$463.67	$1,179,351.20
800937	02/03/2016	FEDERAL EXPRESS CORPORATION	Inv# 5-252-39549	Package Delivery	$323.54		
Total for Check:	800937					$323.54	$7,613.84
800938	02/03/2016	FISHER SCIENTIFIC CO.	Inv# 9817034	LABORATORY SUPPLIES	$59.46		
800938	02/03/2016	FISHER SCIENTIFIC CO.	Inv# 9817034	LABORATORY SUPPLIES	$330.66		
800938	02/03/2016	FISHER SCIENTIFIC CO.	Inv# 9817034	LABORATORY SUPPLIES	$75.64		
Total for Check:	800938					$465.76	$89,713.30
800939	02/03/2016	FOODCRAFT COFFEE SERVICE	Inv# 515101977	GENERAL ADMINISTRATION	$775.07		
800939	02/03/2016	FOODCRAFT COFFEE SERVICE	Inv# 515121917	GENERAL ADMINISTRATION	$1,288.95		
Total for Check:	800939					$2,064.02	$8,389.60
800940	02/03/2016	GOPHER PATROL	Inv# 102680 DEC15	RECHARGE OPERATIONS	$525.00		
800940	02/03/2016	GOPHER PATROL	Inv# 102680 DEC2015	WETLAND OPERATIONS	$185.00		
Total for Check:	800940					$710.00	$5,680.00
800941	02/03/2016	IRON MOUNTAIN	Inv# 200846894	IS/BOARD ADMINISTRATION	$441.48		
800941	02/03/2016	IRON MOUNTAIN	Inv# MDR1346	IS/BOARD ADMINISTRATION	$2,263.41		
Total for Check:	800941					$2,704.89	$23,288.07
800942	02/03/2016	SIGMA-ALDRICH INC.	Inv# 537772283		$12.41		
800942	02/03/2016	SIGMA-ALDRICH INC.	Inv# 537817029		$17.03		
800942	02/03/2016	SIGMA-ALDRICH INC.	Inv# 537772283	LABORATORY SUPPLIES	$99.79		
800942	02/03/2016	SIGMA-ALDRICH INC.	Inv# 537817029	LABORATORY SUPPLIES	$444.81		
800942	02/03/2016	SIGMA-ALDRICH INC.	Inv# 537817029	LABORATORY SUPPLIES	$289.48		
Total for Check:	800942					$863.52	$17,984.57
800943	02/03/2016	SPEX CERTIPREP, LLC	Inv# 313830	LABORATORY CHEMICALS	$536.00		
800943	02/03/2016	SPEX CERTIPREP, LLC	Inv# 313897	LABORATORY CHEMICALS	$656.00		
Total for Check:	800943					$1,192.00	$14,528.00

Orange County Water District

Check Register

Begin Date: 01/21/2016 **End Date:** 02/03/2016

Accounts Payable Check Register Presented for Board Ratification and/or Approval

Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
800944	02/03/2016	THERMO ELECTRON NORTH AMERICAL LLC	Inv# 9020573578	LABORATORY SUPPLIES	$1,767.10		
800944	02/03/2016	THERMO ELECTRON NORTH AMERICAL LLC	Inv# 9020573578	Freight	$10.00		
	Total for Check:	800944				$1,777.10	$119,032.85
800945	02/03/2016	WESTAIR GASES & EQUIPMENT	Inv# 10238251	12/29 Lab-argon	$964.01		
800945	02/03/2016	WESTAIR GASES & EQUIPMENT	Inv# 80065284B	Dec15 cylinder rental-Recharge	$7.13		
800945	02/03/2016	WESTAIR GASES & EQUIPMENT	Inv# 80065284A	Dec15 cylinder rental-Hydrog	$14.26		
800945	02/03/2016	WESTAIR GASES & EQUIPMENT	Inv# 80065284A	Dec15 cylinder rental-Wtr.Prod	$256.32		
800945	02/03/2016	WESTAIR GASES & EQUIPMENT	Inv# 80065284A	Dec15 cylinder rental-Lab	$585.14		
800945	02/03/2016	WESTAIR GASES & EQUIPMENT	Inv# 80065283	Dec15 cylinder rental-Recharge	$235.29		
800945	02/03/2016	WESTAIR GASES & EQUIPMENT	Inv# 10241539	Lab-nitrogen 6pk, HE 300 6pk	$1,802.52		
800945	02/03/2016	WESTAIR GASES & EQUIPMENT	Inv# 80065285	Dec15 cylinder rental-Lab	$231.25		
800945	02/03/2016	WESTAIR GASES & EQUIPMENT	Inv# 80065282	Dec15 cylinder rental-Wtr.Prod	$64.17		
	Total for Check:	800945				$4,160.09	$51,254.29

Run Date: ***2/3/2016*** **$9,199.00**

Orange County Water District

Check Register

Begin Date: 01/28/2016 **End Date:** 02/03/2016

Accounts Payable Check Register Presented for Board Ratification and/or Approval

Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72742	02/03/2016	ABSOLUTE STANDARDS INC.	Inv# 150497	LABORATORY CHEMICALS	$76.50		
	Total for Check:	72742				$76.50	$501.50
72743	02/03/2016	ADVANCED OFFICE	Inv# AR596473	FAX REPAIR	$117.88		
72743	02/03/2016	ADVANCED OFFICE	Inv# AR596473	FAX REPAIR	$36.00		
	Total for Check:	72743				$153.88	$385.78
72744	02/03/2016	AGILENT TECHNOLOGIES, INC.	Inv# 110602936	SUPPLIES	$143.45		
72744	02/03/2016	AGILENT TECHNOLOGIES, INC.	Inv# 110613174	SUPPLIES	$32.40		
72744	02/03/2016	AGILENT TECHNOLOGIES, INC.	Inv# 110602936	SUPPLIES	$107.14		
72744	02/03/2016	AGILENT TECHNOLOGIES, INC.	Inv# 110602936	SUPPLIES	$643.68		
72744	02/03/2016	AGILENT TECHNOLOGIES, INC.	Inv# 110602936	SUPPLIES	$926.21		
72744	02/03/2016	AGILENT TECHNOLOGIES, INC.	Inv# 110602936	SUPPLIES	$1,308.96		
72744	02/03/2016	AGILENT TECHNOLOGIES, INC.	Inv# 110602936	SUPPLIES	$1,831.68		
72744	02/03/2016	AGILENT TECHNOLOGIES, INC.	Inv# 110613174	SUPPLIES	$4,492.80		
	Total for Check:	72744				$9,486.32	$230,968.96
72745	02/03/2016	ALLEN TIRE COMPANY	Inv# 321010	T-122 WORN TIRES REPLACMENT	$538.01		
72745	02/03/2016	ALLEN TIRE COMPANY	Inv# 321010	T-122 WORN TIRES REPLACMENT	$11.88		
72745	02/03/2016	ALLEN TIRE COMPANY	Inv# 321010	T-122 WORN TIRES REPLACMENT	$7.00		
	Total for Check:	72745				$556.89	$8,991.57
72746	02/03/2016	ALLISON MECHANICAL, INC.	Inv# 62552	REF.P.O.33713	$1,569.00		
72746	02/03/2016	ALLISON MECHANICAL, INC.	Inv# 63217	BILL DUNIVIN	$3,975.00		
	Total for Check:	72746				$5,544.00	$47,346.68
72747	02/03/2016	AMERICAN WATER CHEMICAL, INC	Inv# 05-16021/01	1/19 antiscalant 40480 lbs	$63,958.40		
72747	02/03/2016	AMERICAN WATER CHEMICAL, INC	Inv# 05-16021/01	Discount	($1,279.17)		
	Total for Check:	72747				$62,679.23	$1,128,659.73
72748	02/03/2016	AQUILOGIC, INC.	Inv# 002-04-10 (SBGPP NCP) NCP data mgm	11/28-12/25 SBGPP	$1,045.76		
	Total for Check:	72748				$1,045.76	$64,985.04
72749	02/03/2016	ARAMARK UNIFORM SERVICES	Inv# 1447635201	UNIFORM SERVICES	$31.10		
72749	02/03/2016	ARAMARK UNIFORM SERVICES	Inv# 531218259	UNIFORM SERVICES	$169.57		
72749	02/03/2016	ARAMARK UNIFORM SERVICES	Inv# 531218260	UNIFORM SERVICES	$305.18		
72749	02/03/2016	ARAMARK UNIFORM SERVICES	Inv# 531218260	UNIFORM SERVICES	$0.75		
	Total for Check:	72749				$506.60	$28,805.51
72750	02/03/2016	AT & T	Inv# 714 639-9855 405 3FEB16	JAN 26 - FEB 25, 2016	$88.69		

Orange County Water District

Check Register

Begin Date: 01/28/2016 **End Date:** 02/03/2016

Accounts Payable Check Register Presented for Board Ratification and/or Approval

Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
	Total for Check:	72750				$88.69	$13,850.07
72751	02/03/2016	AT & T	Inv# 951 273-9586 726 7FEB16	JAN 20 - FEB 19, 2016	$262.94		
	Total for Check:	72751				$262.94	$13,850.07
72752	02/03/2016	B & H PHOTO-VIDEO	Inv# 105897715	Drone for Photos of Construct.	$799.00		
72752	02/03/2016	B & H PHOTO-VIDEO	Inv# 105897715		$10.01		
72752	02/03/2016	B & H PHOTO-VIDEO	Inv# 105897715	Drone for Photos of Construct.	$46.94		
72752	02/03/2016	B & H PHOTO-VIDEO	Inv# 105897715	Drone for Photos of Construct.	$280.28		
72752	02/03/2016	B & H PHOTO-VIDEO	Inv# 105897715	Drone for Photos of Construct.	$220.40		
	Total for Check:	72752				$1,356.63	$1,581.53
72754	02/03/2016	B & W INDUSTRIAL SALES CO., INC.	Inv# 83233	PARTS CAGE	$23.22		
72754	02/03/2016	B & W INDUSTRIAL SALES CO., INC.	Inv# 83233	PARTS CAGE	$33.75		
72754	02/03/2016	B & W INDUSTRIAL SALES CO., INC.	Inv# 83233	PARTS CAGE	$11.34		
72754	02/03/2016	B & W INDUSTRIAL SALES CO., INC.	Inv# 83233	PARTS CAGE	$12.96		
72754	02/03/2016	B & W INDUSTRIAL SALES CO., INC.	Inv# 83233	PARTS CAGE	$15.12		
72754	02/03/2016	B & W INDUSTRIAL SALES CO., INC.	Inv# 83233	PARTS CAGE	$75.60		
72754	02/03/2016	B & W INDUSTRIAL SALES CO., INC.	Inv# 83233	PARTS CAGE	$19.98		
72754	02/03/2016	B & W INDUSTRIAL SALES CO., INC.	Inv# 83233	PARTS CAGE	$88.56		
72754	02/03/2016	B & W INDUSTRIAL SALES CO., INC.	Inv# 83233	PARTS CAGE	$91.80		
72754	02/03/2016	B & W INDUSTRIAL SALES CO., INC.	Inv# 83233	PARTS CAGE	$93.15		
72754	02/03/2016	B & W INDUSTRIAL SALES CO., INC.	Inv# 83233	PARTS CAGE	$107.46		
72754	02/03/2016	B & W INDUSTRIAL SALES CO., INC.	Inv# 83233	PARTS CAGE	$49.68		
	Total for Check:	72754				$622.62	$2,174.04
72755	02/03/2016	BLACK & VEATCH CORPORATION	Inv# 1215856	Dec15 design/GWRSIE	$8,611.24		
	Total for Check:	72755				$8,611.24	$397,283.52

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Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$38.88		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$19.44		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$19.44		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$21.60		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$23.76		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$23.76		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$29.16		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$36.72		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$19.44		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$37.84		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$18.36		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$38.88		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$43.20		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$48.60		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$48.60		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$37.80		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$9.72		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$136.08		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$54.00		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$5.40		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$5.40		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$5.40		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$18.36		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$9.72		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$19.44		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$10.80		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$10.80		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$16.20		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$18.36		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$18.36		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$18.36		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$9.72		

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Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$110.16		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$758.16		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$220.32		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$194.40		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$192.00		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$174.96		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$174.96		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$171.68		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$142.56		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$142.56		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$136.08		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$128.52		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$128.52		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$116.64		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$55.08		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$75.84		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$58.32		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$58.32		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$58.32		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$58.32		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$71.28		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$73.44		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$116.64		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$75.60		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$110.16		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$77.76		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$77.76		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$86.40		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$91.80		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$106.92		
72762	02/03/2016	BRENDAN SCREENPRINTING	Inv# 29799	POLO SHIRT/JACKETS	$73.44		
Total for Check:	72762					$4,988.52	$16,225.82

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Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72763	02/03/2016	BRENNTAG PACIFIC INC.	Inv# BPI595196	1/20 hydro.peroxide 43060 lbs	$11,583.14		
72763	02/03/2016	BRENNTAG PACIFIC INC.	Inv# BPI596186	1/26 caustic soda 11.9712 ton	$5,947.29		
72763	02/03/2016	BRENNTAG PACIFIC INC.	Inv# BPI596186	Discount	($110.14)		
72763	02/03/2016	BRENNTAG PACIFIC INC.	Inv# BPI595793	1/27 citric acid 23.06 ton	$21,667.18		
72763	02/03/2016	BRENNTAG PACIFIC INC.	Inv# BPI595196	Discount	($231.66)		
72763	02/03/2016	BRENNTAG PACIFIC INC.	Inv# BPI595793	Discount	($601.87)		
	Total for Check:	72763				$38,253.94	$538,361.28
72764	02/03/2016	CALIFORNIA MARKETING GROUP	Inv# 66833	RE-ORDER GWRS TASTING CUPS	$1,620.00		
72764	02/03/2016	CALIFORNIA MARKETING GROUP	Inv# 66833		$135.35		
	Total for Check:	72764				$1,755.35	$5,581.83
72765	02/03/2016	CERIDIAN EMPLOYER SERVICES	Inv# 35912336	P26 VUZ spec.request	$1,055.13		
72765	02/03/2016	CERIDIAN EMPLOYER SERVICES	Inv# 35912647	1/8 self-svc choice/bus.intell	$807.05		
72765	02/03/2016	CERIDIAN EMPLOYER SERVICES	Inv# 35912647	1/8 self-svc choice/bus.intell	$180.21		
	Total for Check:	72765				$2,042.39	$36,786.36
72766	02/03/2016	CGS PLUMBING	Inv# 01994	BACKFLOW TEST	$110.00		
	Total for Check:	72766				$110.00	$1,570.00
72767	02/03/2016	COMMERCIAL DOOR OF ANAHEIM INC	Inv# 9933	EMERGENCY DOOR REPAIR	$1,345.87		
72767	02/03/2016	COMMERCIAL DOOR OF ANAHEIM INC	Inv# 9933	EMERGENCY DOOR REPAIR	$1,000.00		
	Total for Check:	72767				$2,345.87	$2,345.87
72768	02/03/2016	CONSTELLATION NEW ENERGY INC.	Inv# 0030299776	92728-0845	$654.75		
	Total for Check:	72768				$654.75	$4,594,821.63
72769	02/03/2016	CS-AMSCO	Inv# 10875		$18.85		
72769	02/03/2016	CS-AMSCO	Inv# 10875	Imperial Bypass Locking Cover	$635.04		
72769	02/03/2016	CS-AMSCO	Inv# 10875	Imperial Bypass Locking Cover	$45.36		
	Total for Check:	72769				$699.25	$18,228.71
72770	02/03/2016	CWEA	Inv# 0000367401	JAN.2016 RITCHIE N. VALDEZ	$250.00		
	Total for Check:	72770				$250.00	$2,859.00
72771	02/03/2016	DELL MARKETING L.P.	Inv# XJW625T85	Replacement Monitors	$395.58		
72771	02/03/2016	DELL MARKETING L.P.	Inv# XJW625T85	Replacement Monitors	$197.79		
72771	02/03/2016	DELL MARKETING L.P.	Inv# XJW625T85	Replacement Monitors	$47.47		

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Begin Date: 01/28/2016 **End Date:** 02/03/2016

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Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72771	02/03/2016	DELL MARKETING L.P.	Inv# XJW625T85	Replacement Monitors	$12.00		
	Total for Check:	72771				$652.84	$1,958.52
72772	02/03/2016	Dadakis, Jason	Inv# 1/20/16 OCWA TRAVEL	1/20 Irvine OCWA Meeting	$45.01		
72772	02/03/2016	Dadakis, Jason	Inv# 1/25-27/16 AWWA TRAVEL AWWA Pot.Wt	1/25-27 Long Beach	$67.77		
72772	02/03/2016	Dadakis, Jason	Inv# 1/18/16 OCWA MEMBERSHIP Membership	1/18/16 OCWA	$60.00		
72772	02/03/2016	Dadakis, Jason	Inv# 1/11-12/16 STANFORD TRAVE Stanford Mee	1/11-12 Palo Alto	$40.96		
	Total for Check:	72772				$213.74	$479.25
72773	02/03/2016	Dosier, Bruce	Inv# JAN16 DSL REIMBURSEMENT reimbursement	Jan16 DSL	$71.98		
	Total for Check:	72773				$71.98	$728.80
72774	02/03/2016	ENVIRONMENTAL RESOURCE ASSOC.	Inv# 778089	LABORATORY SUPPLIES	$227.45		
72774	02/03/2016	ENVIRONMENTAL RESOURCE ASSOC.	Inv# 778089		$12.52		
72774	02/03/2016	ENVIRONMENTAL RESOURCE ASSOC.	Inv# 778089		$10.80		
	Total for Check:	72774				$250.77	$4,274.70
72775	02/03/2016	FRUIT GROWERS LABORATORY INC	Inv# 513670A	WATER QUALITY	$206.00		
72775	02/03/2016	FRUIT GROWERS LABORATORY INC	Inv# 513681A	WATER QUALITY	$152.00		
72775	02/03/2016	FRUIT GROWERS LABORATORY INC	Inv# 513677A	WATER QUALITY	$49.00		
72775	02/03/2016	FRUIT GROWERS LABORATORY INC	Inv# 513209A	WATER QUALITY	$974.00		
72775	02/03/2016	FRUIT GROWERS LABORATORY INC	Inv# 513206A	WATER QUALITY	$586.00		
72775	02/03/2016	FRUIT GROWERS LABORATORY INC	Inv# 513270A	WATER QUALITY	$487.00		
	Total for Check:	72775				$2,454.00	$21,237.00
72776	02/03/2016	FRY'S ELECTRONICS	Inv# 20529085	IS/RECHARGE/WETLANDS	$69.71		
	Total for Check:	72776				$69.71	$1,571.94
72777	02/03/2016	GE MOBILE WATER, INC.	Inv# 98065429	SERVICE AGREEMENT	$437.40		

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	Total for Check: 72777					$437.40	$4,696.37
72778	02/03/2016	GOVERNMENT FINANCE OFFICERS	Inv# 2809091	Newletter Ad 1/14/16	$150.00		
	Total for Check: 72778					$150.00	$300.00
72782	02/03/2016	GRAINGER INC.	Inv# 9924956395	ELECTRICAL GLOVES	$272.58		
72782	02/03/2016	GRAINGER INC.	Inv# 9844174053	OPERATING SUPPLIES	$233.34		
72782	02/03/2016	GRAINGER INC.	Inv# 9844174053	OPERATING SUPPLIES	$335.88		
72782	02/03/2016	GRAINGER INC.	Inv# 9844174046	WATER PRODUCTION/RECHARGE	$104.36		
72782	02/03/2016	GRAINGER INC.	Inv# 9844174053	OPERATING SUPPLIES	$224.55		
72782	02/03/2016	GRAINGER INC.	Inv# 9843276602	JANITORIAL/I&E MISC	$54.30		
72782	02/03/2016	GRAINGER INC.	Inv# 9845812966	JANITORIAL/I&E MISC	$96.13		
72782	02/03/2016	GRAINGER INC.	Inv# 9843276602	JANITORIAL/I&E MISC	$60.48		
72782	02/03/2016	GRAINGER INC.	Inv# 9843276602	JANITORIAL/I&E MISC	$122.31		
72782	02/03/2016	GRAINGER INC.	Inv# 9843096745	JANITORIAL SUPPLIES	$34.17		
72782	02/03/2016	GRAINGER INC.	Inv# 9844174053	OPERATING SUPPLIES	$167.94		
72782	02/03/2016	GRAINGER INC.	Inv# 9845257444	ERT items	$77.11		
72782	02/03/2016	GRAINGER INC.	Inv# 9920710309	PO 34444 (2)	$272.59		
72782	02/03/2016	GRAINGER INC.	Inv# 9922447652	OPERATING SUPPLIES	$213.36		
72782	02/03/2016	GRAINGER INC.	Inv# 9923245824	WATER PRODUCTION/RECHARGE	$153.36		
72782	02/03/2016	GRAINGER INC.	Inv# 9923245832	WATER PRODUCTION/RECHARGE	$170.51		
72782	02/03/2016	GRAINGER INC.	Inv# 9923245840	WATER PRODUCTION/RECHARGE	$153.36		
72782	02/03/2016	GRAINGER INC.	Inv# 9924516538	PO 34444 (2) CREDIT	($272.59)		
72782	02/03/2016	GRAINGER INC.	Inv# 9843276602	JANITORIAL/I&E MISC	$122.31		
72782	02/03/2016	GRAINGER INC.	Inv# 9845257444	ERT items	$121.50		
72782	02/03/2016	GRAINGER INC.	Inv# 9841703128	ESMER FOR ART TABATA	$37.15		
72782	02/03/2016	GRAINGER INC.	Inv# 9843276602	JANITORIAL/I&E MISC	$288.25		
72782	02/03/2016	GRAINGER INC.	Inv# 9841373831	PUMP	$833.97		
72782	02/03/2016	GRAINGER INC.	Inv# 9841703128	ESMER FOR ART TABATA	$167.94		
72782	02/03/2016	GRAINGER INC.	Inv# 9841703128	ESMER FOR ART TABATA	$167.94		
72782	02/03/2016	GRAINGER INC.	Inv# 9841703128	ESMER FOR ART TABATA	$88.47		
72782	02/03/2016	GRAINGER INC.	Inv# 9843276602	JANITORIAL/I&E MISC	$169.45		
72782	02/03/2016	GRAINGER INC.	Inv# 9841703128	ESMER FOR ART TABATA	$51.13		
72782	02/03/2016	GRAINGER INC.	Inv# 9841703128	ESMER FOR ART TABATA	$30.89		

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72782	02/03/2016	GRAINGER INC.	Inv# 9841894661	WATER PRODUCTION/RECHARGE	$25.60		
72782	02/03/2016	GRAINGER INC.	Inv# 9843096745	JANITORIAL SUPPLIES	$299.98		
72782	02/03/2016	GRAINGER INC.	Inv# 9843096745	JANITORIAL SUPPLIES	$121.73		
72782	02/03/2016	GRAINGER INC.	Inv# 9843096745	JANITORIAL SUPPLIES	$99.52		
72782	02/03/2016	GRAINGER INC.	Inv# 9843096745	JANITORIAL SUPPLIES	$75.67		
72782	02/03/2016	GRAINGER INC.	Inv# 9843096745	JANITORIAL SUPPLIES	$37.84		
72782	02/03/2016	GRAINGER INC.	Inv# 9843276602	JANITORIAL/I&E MISC	$835.06		
72782	02/03/2016	GRAINGER INC.	Inv# 9843276602	JANITORIAL/I&E MISC	$191.25		
72782	02/03/2016	GRAINGER INC.	Inv# 9843276602	JANITORIAL/I&E MISC	$171.18		
72782	02/03/2016	GRAINGER INC.	Inv# 9841703128	ESMER FOR ART TABATA	$78.19		
	Total for Check:	72782				$6,488.76	$76,119.33
72783	02/03/2016	GRAYBAR ELECTRIC CO.	Inv# 983153110	Phoenix Bracket Foot Element S	$46.55		
72783	02/03/2016	GRAYBAR ELECTRIC CO.	Inv# 983153110	Freight	$7.30		
72783	02/03/2016	GRAYBAR ELECTRIC CO.	Inv# 983153110	Handling	$3.24		
72783	02/03/2016	GRAYBAR ELECTRIC CO.	Inv# 983153110	Discount	($0.43)		
	Total for Check:	72783				$56.66	$5,710.58
72784	02/03/2016	HD SUPPLY WATERWORKS	Inv# 50003793149	EMERGENCY PO	$31.32		
	Total for Check:	72784				$31.32	$31.32
72785	02/03/2016	HEWLETT-PACKARD FINANCIAL SERVICES CO	Inv# 600478612	NN	$1,396.52		
	Total for Check:	72785				$1,396.52	$11,495.38
72786	02/03/2016	HILMAN, PAUL	Inv# FEBRUARY 2016	RetireeCashMedical Feb2016	$465.75		
	Total for Check:	72786				$465.75	$3,726.00
72787	02/03/2016	HUNTINGTON BEACH FORD	Inv# 165461	A-68 Repair engine noise (harm	$1,630.95		
72787	02/03/2016	HUNTINGTON BEACH FORD	Inv# 166042	RO: AC CONDENSOR	$730.67		
	Total for Check:	72787				$2,361.62	$2,570.64
72788	02/03/2016	HYDRANAUTICS	Inv# 33281	RO MEMBRANE REPLACEMENT	$385,560.00		
72788	02/03/2016	HYDRANAUTICS	Inv# 33281	RO MEMBRANE REPLACEMENT	$2,100.00		
72788	02/03/2016	HYDRANAUTICS	Inv# 33087	RO MEMBRANE REPLACEMENT	$632.50		
72788	02/03/2016	HYDRANAUTICS	Inv# 33087	RO MEMBRANE REPLACEMENT	$2,100.00		
72788	02/03/2016	HYDRANAUTICS	Inv# 33087	RO MEMBRANE REPLACEMENT	$385,560.00		
72788	02/03/2016	HYDRANAUTICS	Inv# 33281	RO MEMBRANE REPLACEMENT	$632.50		
	Total for Check:	72788				$776,585.00	$776,585.00

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Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72789	02/03/2016	IGOR CARAGODIN	Inv# 656482	NATURAL RESOURCES	$1,779.00		
Total for Check: 72789						$1,779.00	$2,659.00
72790	02/03/2016	INGENIUM	Inv# 36827	HAZ. WASTE REMOVAL	$939.60		
72790	02/03/2016	INGENIUM	Inv# 36827	HAZ. WASTE REMOVAL	$86.40		
72790	02/03/2016	INGENIUM	Inv# 36827	HAZ. WASTE REMOVAL	$47.52		
72790	02/03/2016	INGENIUM	Inv# 36827	HAZ. WASTE REMOVAL	$27.00		
72790	02/03/2016	INGENIUM	Inv# 36827	HAZ. WASTE REMOVAL	$70.20		
72790	02/03/2016	INGENIUM	Inv# 36827	HAZ. WASTE REMOVAL	$129.60		
72790	02/03/2016	INGENIUM	Inv# 36827	HAZ. WASTE REMOVAL	$154.44		
72790	02/03/2016	INGENIUM	Inv# 36827	HAZ. WASTE REMOVAL	$409.54		
72790	02/03/2016	INGENIUM	Inv# 36827	HAZ. WASTE REMOVAL	$270.00		
Total for Check: 72790						$2,134.30	$22,627.25
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 809922	WATER PRODUCTION/WATER QUALITY	$61.13		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 808641	WATER PRODUCTION/WATER QUALITY	$122.26		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 808641	Freight	$13.93		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 809922	Freight	$10.69		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 810610	WATER PRODUCTION/WATER QUALITY	$88.46		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 808641	Discount	($2.72)		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 810791	Discount	($0.14)		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 810610	Discount	($1.77)		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 810357	Discount	($10.35)		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 810357	Freight	$10.35		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 810357	WATER PRODUCTION/WATER QUALITY	$507.29		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 810210	Discount	($6.59)		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 810210	Freight	$9.18		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 810210	INVENTORY RE-ORDER	$320.54		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 810202	Discount	($8.60)		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 810202	WATER PRODUCTION/WATER QUALITY	$430.09		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 809922	Discount	($1.44)		
72792	02/03/2016	IRVINE PIPE & SUPPLY	Inv# 810791	WATER PRODUCTION/WATER QUALITY	$6.87		
Total for Check: 72792						$1,549.18	$118,991.70
72793	02/03/2016	LHOIST NORTH AMERICA	Inv# 1160200286-1	1/5 lime 24.52 ton	$4,740.95		

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72793	02/03/2016	LHOIST NORTH AMERICA	Inv# 1160200286-2	1/3 lime 24.99 ton	$4,831.82		
72793	02/03/2016	LHOIST NORTH AMERICA	Inv# 1160200286-3	1/7 lime 25.61 ton	$4,951.70		
72793	02/03/2016	LHOIST NORTH AMERICA	Inv# 1160200286-4	1/10 lime 25.02 ton	$4,837.62		
	Total for Check:	72793				$19,362.09	$414,712.56
72794	02/03/2016	LOS ANGELES ENGINEERING, INC.	Inv# 2 (LPRB-2015-1)	Prog.Pmt.#2 (LPRB-2015-1)	$628,520.57		
	Total for Check:	72794				$628,520.57	$937,537.71
72795	02/03/2016	LOS ANGELES ENGINEERING, INC.	Inv# ESCROW 1079 RET#2	Ret#2 (LPRB-2015-1)	$33,080.03		
	Total for Check:	72795				$33,080.03	$114,874.56
72796	02/03/2016	LUCCI'S DELI BAKERY	Inv# 12098 BOARD MTG	VARIOUS	$169.00		
72796	02/03/2016	LUCCI'S DELI BAKERY	Inv# 12098 BOARD MTG	Freight	$20.00		
72796	02/03/2016	LUCCI'S DELI BAKERY	Inv# 12096 ADM/FIN	Delivery	$20.00		
72796	02/03/2016	LUCCI'S DELI BAKERY	Inv# 12096 ADM/FIN	VARIOUS	$74.75		
	Total for Check:	72796				$283.75	$7,228.18
72797	02/03/2016	MCDE'S ROCK PUMPS INC	Inv# 45419	Fuel Surcharge	$10.00		
72797	02/03/2016	MCDE'S ROCK PUMPS INC	Inv# 45419	Research center concrete slab	$249.00		
	Total for Check:	72797				$259.00	$259.00
72798	02/03/2016	MCFADDEN-DALE HARDWARE CO.	Inv# 226264/5	VARIOUS	$13.93		
72798	02/03/2016	MCFADDEN-DALE HARDWARE CO.	Inv# 226264/5	Discount	($0.39)		
72798	02/03/2016	MCFADDEN-DALE HARDWARE CO.	Inv# 226266/5	VARIOUS	$227.88		
72798	02/03/2016	MCFADDEN-DALE HARDWARE CO.	Inv# 226266/5	Discount	($6.33)		
72798	02/03/2016	MCFADDEN-DALE HARDWARE CO.	Inv# 226676/5	VARIOUS	$56.00		
72798	02/03/2016	MCFADDEN-DALE HARDWARE CO.	Inv# 226676/5	Discount	($1.56)		
	Total for Check:	72798				$289.53	$4,142.09
72799	02/03/2016	MOBILE INDUSTRIAL SUPPLY	Inv# 304389	RECHARGE OPERATIONS	$59.10		
	Total for Check:	72799				$59.10	$842.04
72800	02/03/2016	MYRON L COMPANY	Inv# 407739	MYRONL pH/ORP PROBE REPLACE	$1,009.81		
72800	02/03/2016	MYRON L COMPANY	Inv# 407739	Freight	$8.79		
72800	02/03/2016	MYRON L COMPANY	Inv# 407739	Discount	($9.35)		
	Total for Check:	72800				$1,009.25	$1,378.50
72801	02/03/2016	McMichael, David	Inv# 1/25/16 SUPPLIES	1/25/16 boots	$259.20		
	Total for Check:	72801				$259.20	$259.20
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249662	SHOP EQUIPMENT	$193.32		

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72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249869	Discount	($1.21)		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249869	WATER PRODUCTION	$60.47		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249662	Discount	($16.88)		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249662	SHOP EQUIPMENT	$44.56		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249477	Discount	($1.97)		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249662	SHOP EQUIPMENT	$175.22		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249662	SHOP EQUIPMENT	$270.00		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249480	Discount	($1.82)		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249480	WATER PRODUCTION	$90.83		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249182	WATER PRODUCTION	$222.15		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 247907	WATER PRODUCTION	$49.66		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 247907	Discount	($0.99)		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249477	WATER PRODUCTION	$98.39		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 248062	Discount	($1.87)		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249182	Discount	($4.44)		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249662	SHOP EQUIPMENT	$160.92		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249391	WATER PRODUCTION	$191.96		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249391	Discount	($3.84)		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249416	WATER PRODUCTION	$244.97		

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72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249416	Discount	($4.90)		
72804	02/03/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 248062	WATER PRODUCTION	$93.57		
	Total for Check:	72804				$1,858.10	$10,243.17
72805	02/03/2016	NEW PIG CORPORATION	Inv# 4703193-00	LABORATORY SUPPLIES	$79.00		
72805	02/03/2016	NEW PIG CORPORATION	Inv# 4703193-00	Freight	$10.64		
	Total for Check:	72805				$89.64	$1,945.45
72806	02/03/2016	NEW WATER RESOURCES	Inv# 1101	PAYMENT OF INV. 1101	$2,800.00		
	Total for Check:	72806				$2,800.00	$2,800.00
72807	02/03/2016	OFFICE SOLUTIONS BUSINESS PRODUCTS	Inv# I-00887713	OFFICE SUPPLIES	$25.17		
72807	02/03/2016	OFFICE SOLUTIONS BUSINESS PRODUCTS	Inv# I-00887713	OFFICE SUPPLIES	$84.18		
72807	02/03/2016	OFFICE SOLUTIONS BUSINESS PRODUCTS	Inv# I-00887713	OFFICE SUPPLIES	$84.52		
72807	02/03/2016	OFFICE SOLUTIONS BUSINESS PRODUCTS	Inv# I-00887713	OFFICE SUPPLIES	$171.66		
72807	02/03/2016	OFFICE SOLUTIONS BUSINESS PRODUCTS	Inv# I-00887713	OFFICE SUPPLIES	$146.77		
	Total for Check:	72807				$512.30	$11,336.79
72808	02/03/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2110841	1/8 sod.hypochlorite 4912 gal	$2,696.69		
72808	02/03/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2108852	1/4 sod.hypochlorite 4880 gal	$2,679.12		
72808	02/03/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2108853	1/4 sod.hypochlorite 4622 gal	$2,537.48		
72808	02/03/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2109524	1/5 sod.hypochlorite 4932 gal	$2,707.67		
72808	02/03/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2109525	1/5 sod.hypochlorite 4914 gal	$2,697.79		
72808	02/03/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2110382	1/7 sod.hypochlorite 4942 gal	$2,713.16		
72808	02/03/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2110383	1/7 sod.hypochlorite 4958 gal	$2,721.94		
72808	02/03/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2110384	1/7 sod.hypochlorite 4892 gal	$2,685.71		
72808	02/03/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2110839	1/8 sod.hypochlorite 4890 gal	$2,684.61		
72808	02/03/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2110840	1/8 sod.hypochlorite 4922 gal	$2,702.18		
	Total for Check:	72808				$26,826.35	$828,952.81
72809	02/03/2016	ONTRAC	Inv# 8353198	PackageDelivery	$13.17		
	Total for Check:	72809				$13.17	$126.55

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72810	02/03/2016	ORANGE COUNTY SANITATION DISTRICT	Inv# DISCHARGEPERMITFEE TalbertBarr.	DischrgePermitFee	$2,390.58		
	Total for Check:	72810				$2,390.58	$2,390.58
72811	02/03/2016	PENDERGRAFT, REX	Inv# FEBRUARY 2016	RetireeCashMedical Feb2016	$465.75		
	Total for Check:	72811				$465.75	$3,726.00
72812	02/03/2016	PERKINELMER HEALTH SCIENCES, INC.	Inv# 5303566313	SUPPLIES	$723.60		
72812	02/03/2016	PERKINELMER HEALTH SCIENCES, INC.	Inv# 5303566313	Freight	$17.00		
	Total for Check:	72812				$740.60	$67,433.40
72813	02/03/2016	PHENOMENEX	Inv# CIUS-16004341	LABORATORY SUPPLIES	$918.00		
72813	02/03/2016	PHENOMENEX	Inv# CIUS-16004341	Discount	($17.00)		
	Total for Check:	72813				$901.00	$15,813.58
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-16	LabSupplies CDF	$3.29		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-9	PhoneStipend BTS	$40.00		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-8	Keys for SafetyDept BH	$6.48		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-7	Cover T97 BDL	$87.46		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-6	SafetyTrain EG	$47.16		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-5	LOTOSafetyTrain. KND	$54.64		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-4	MaskTape KI	$17.25		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-3	AutoPart REP	$34.11		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-17	ConfinedSpaceTrain. KND	$54.72		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-15	MiscMileage JMB	$7.48		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-14	Labels BDL	$39.95		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-13	DistribOperatorCertif. JFS	$80.00		

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72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-12	TreeTrimSupplies KW	$12.16		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-11	CarWashTip A68 ASH	$2.00		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-10	SafetyCte PB	$49.65		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-1	CoffeeCrmr KW	$16.48		
72815	02/03/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# NOVEMBER 2016-2	Park/Permit DMF	$1.50		
	Total for Check:	72815				$554.33	$4,944.51
72816	02/03/2016	POLYDYNE INC.	Inv# 1019381	Clarifloc 275 gallons	$2,384.64		
	Total for Check:	72816				$2,384.64	$16,692.48
72817	02/03/2016	POWER PROS, INC.	Inv# 6241753-399	INVENTORY/UPS UNIT	$1,138.00		
72817	02/03/2016	POWER PROS, INC.	Inv# 6241753-399	Freight	$239.67		
	Total for Check:	72817				$1,377.67	$2,030.36
72818	02/03/2016	PRUDENTIAL RETIREMENT SERVICE	Inv# 820342 OCT-DEC2015 Oct-Dec15	DistributionChrg	$140.00		
	Total for Check:	72818				$140.00	$3,140,886.54
72819	02/03/2016	Patel, Mehul	Inv# 1/25-27/16 AWWA TRAVEL AWWA Int'l	1/25-27 Long Beach	$48.17		
72819	02/03/2016	Patel, Mehul	Inv# 1/24/16 TRAVEL	1/24 Long Beach Watereuse Proj	$11.72		
	Total for Check:	72819				$59.89	$624.43
72820	02/03/2016	REGAL CINEMEDIA	Inv# ONLINE TICKET JAN.2016 EMPLOYEES	FOR RESALE	$2,558.00		
	Total for Check:	72820				$2,558.00	$5,116.00
72821	02/03/2016	ROSEMOUNT ANALYTICAL INC.	Inv# 792583	INVENTORY RE-ORDER/I&E	$596.16		
72821	02/03/2016	ROSEMOUNT ANALYTICAL INC.	Inv# 792583	Freight	$36.00		
72821	02/03/2016	ROSEMOUNT ANALYTICAL INC.	Inv# 792583	Discount	($6.32)		
	Total for Check:	72821				$625.84	$26,243.20
72822	02/03/2016	ROTORK CONTROLS, INC.	Inv# RSI54064	Rotork Foundation Fieldbus PCB	$1,839.25		
72822	02/03/2016	ROTORK CONTROLS, INC.	Inv# RSI54064		$24.11		
72822	02/03/2016	ROTORK CONTROLS, INC.	Inv# RSI54066	POWER MODULE	$1,723.68		
72822	02/03/2016	ROTORK CONTROLS, INC.	Inv# RSI54066		$30.63		
	Total for Check:	72822				$3,617.67	$3,617.67

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72823	02/03/2016	SAN DIEGO FLUID SYSTEM TECHNOLIGIES	Inv# 438988	Swagelok Tubing Fittings 316 S	$66.42		
72823	02/03/2016	SAN DIEGO FLUID SYSTEM TECHNOLIGIES	Inv# 438988	Swagelok Tubing Fittings 316 S	$52.06		
72823	02/03/2016	SAN DIEGO FLUID SYSTEM TECHNOLIGIES	Inv# 438988	Swagelok Tubing Fittings 316 S	$48.60		
72823	02/03/2016	SAN DIEGO FLUID SYSTEM TECHNOLIGIES	Inv# 438988		$9.19		
72823	02/03/2016	SAN DIEGO FLUID SYSTEM TECHNOLIGIES	Inv# 438988		($1.55)		
	Total for Check:	72823				$174.72	$1,748.27
72824	02/03/2016	SEAL BEACH, CITY OF	Inv# TRAFFIC CONTROL PERMIT wells-LACDPW	Alamitos Barrier	$201.38		
	Total for Check:	72824				$201.38	$461.88
72825	02/03/2016	SEPARATION PROCESSES, INC.	Inv# 8161 (2015 MEMBRANE SVC) membrane svc	Dec15 T1	$3,078.50		
	Total for Check:	72825				$3,078.50	$83,357.10
72826	02/03/2016	SERRANO WATER DISTRICT	Inv# REIM. CHECK 7879	DEP. IN ERROR	$2,520.00		
	Total for Check:	72826				$2,520.00	$2,520.00
72827	02/03/2016	SIERRA SPRINGS/DS WATERS	Inv# 507-6-OCWD 1/22/16	WETLAND OPERATIONS	$57.50		
	Total for Check:	72827				$57.50	$891.50
72828	02/03/2016	SOUTHERN CALIFORNIA EDISON CO.	Inv# 3-023-7877-22JAN16	12/29/15-1/28/16 KWH 409	$78.34		
72828	02/03/2016	SOUTHERN CALIFORNIA EDISON CO.	Inv# 3-023-7877-42JAN16	12/29/15-1/28/16 KWH 168	$46.96		
72828	02/03/2016	SOUTHERN CALIFORNIA EDISON CO.	Inv# 3-026-3567-06JAN16	12/29/15-1/28/16 KWH 2663	$294.70		
72828	02/03/2016	SOUTHERN CALIFORNIA EDISON CO.	Inv# 3-027-0770-76DEC15 2950	12/18/15-1/20/16 KWH	$341.36		
72828	02/03/2016	SOUTHERN CALIFORNIA EDISON CO.	Inv# 3-033-3659-92JAN16	12/24/15-1/26/16 KWH 133	$45.14		
	Total for Check:	72828				$806.50	$3,176,785.12
72829	02/03/2016	SPATIAL WAVE, INC.	Inv# INV12095	Renew MapLibrary SW Maint.	$4,500.00		
	Total for Check:	72829				$4,500.00	$4,500.00
72831	02/03/2016	STAPLES	Inv# 3289151654	OFFICE SUPPLIES	$22.53		
72831	02/03/2016	STAPLES	Inv# 3289151654	OFFICE SUPPLIES	$22.53		

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72831	02/03/2016	STAPLES	Inv# 3289151654	OFFICE SUPPLIES	$22.46		
72831	02/03/2016	STAPLES	Inv# 3289151654	OFFICE SUPPLIES	$16.51		
72831	02/03/2016	STAPLES	Inv# 3289151654	OFFICE SUPPLIES	$8.90		
72831	02/03/2016	STAPLES	Inv# 3289151654	OFFICE SUPPLIES	$35.63		
72831	02/03/2016	STAPLES	Inv# 3289151654	OFFICE SUPPLIES	$22.53		
72831	02/03/2016	STAPLES	Inv# 3289529496	FAX MACHINE TONER	$129.46		
72831	02/03/2016	STAPLES	Inv# 3289151654	OFFICE SUPPLIES	$27.98		
72831	02/03/2016	STAPLES	Inv# 3289151654	OFFICE SUPPLIES	$102.16		
72831	02/03/2016	STAPLES	Inv# 3289151654	OFFICE SUPPLIES	$37.79		
72831	02/03/2016	STAPLES	Inv# 3289151654	OFFICE SUPPLIES	$55.52		
72831	02/03/2016	STAPLES	Inv# 3289151654	OFFICE SUPPLIES	$59.18		
72831	02/03/2016	STAPLES	Inv# 3289151654	OFFICE SUPPLIES	$74.80		
72831	02/03/2016	STAPLES	Inv# 3289151654	OFFICE SUPPLIES	$24.84		
Total for Check:	72831					$662.82	$22,000.91
72832	02/03/2016	T & G SCIENTIFIC GLASS FAB.INC	Inv# 17725	LABORATORY SUPPLIES	$3,466.80		
Total for Check:	72832					$3,466.80	$5,952.55
72833	02/03/2016	TELL STEEL	Inv# 16-0063434	I-beam for research center gra	$414.72		
72833	02/03/2016	TELL STEEL	Inv# 16-0063434	Discount	($2.07)		
Total for Check:	72833					$412.65	$691.78
72834	02/03/2016	TRUCPARCO	Inv# 362394	WP/RECH/PRADO/NATRES	$107.22		
72834	02/03/2016	TRUCPARCO	Inv# 362394		$1.08		
Total for Check:	72834					$108.30	$15,141.76
72835	02/03/2016	Tan, Lo	Inv# 1/13/16 TRAVEL Meet	1/13 L.A. GWRS Assessment	$49.68		
72835	02/03/2016	Tan, Lo	Inv# 1/20/16 TRAVEL	1/20 Riverside Drought Grant	$42.12		
72835	02/03/2016	Tan, Lo	Inv# 1/27/16 TRAVEL	1/27 Var.Locations/Water Meeti	$35.64		
Total for Check:	72835					$127.44	$701.35
72836	02/03/2016	U.S. HEALTHWORKS MEDICAL GROUP	Inv# 2838299-CA	HUMAN RESOURCES	$250.00		
72836	02/03/2016	U.S. HEALTHWORKS MEDICAL GROUP	Inv# 2838299-CA	HUMAN RESOURCES	$35.00		
Total for Check:	72836					$285.00	$4,195.00
72837	02/03/2016	U.S. SAFETY & SUPPLY COMPANY	Inv# 320760	GWRS expan - Memsap fall prot	$28,235.52		

Orange County Water District

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Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72837	02/03/2016	U.S. SAFETY & SUPPLY COMPANY	Inv# 320760	GWRS expan - Memsap fall prot	$15,545.52		
72837	02/03/2016	U.S. SAFETY & SUPPLY COMPANY	Inv# 320760	GWRS expan - Memsap fall prot	$838.08		
72837	02/03/2016	U.S. SAFETY & SUPPLY COMPANY	Inv# 320760	Discount	($446.19)		
	Total for Check:	72837				$44,172.93	$45,062.81
72839	02/03/2016	ULTRA SCIENTIFIC INC.	Inv# 365595	LABORATORY CHEMICALS	$444.40		
72839	02/03/2016	ULTRA SCIENTIFIC INC.	Inv# 365357	LABORATORY CHEMICALS	$47.52		
72839	02/03/2016	ULTRA SCIENTIFIC INC.	Inv# C365862 REVESAL	REF. 34274	$800.00		
72839	02/03/2016	ULTRA SCIENTIFIC INC.	Inv# C365862**		($800.00)		
72839	02/03/2016	ULTRA SCIENTIFIC INC.	Inv# C365862 CRD.MEMO	CREDIT MEMO	($800.00)		
72839	02/03/2016	ULTRA SCIENTIFIC INC.	Inv# 366435	LABORATORY CHEMICALS	$355.00		
72839	02/03/2016	ULTRA SCIENTIFIC INC.	Inv# 365357	LABORATORY CHEMICALS	$47.52		
72839	02/03/2016	ULTRA SCIENTIFIC INC.	Inv# 365357	LABORATORY CHEMICALS	$47.52		
72839	02/03/2016	ULTRA SCIENTIFIC INC.	Inv# 365357	LABORATORY CHEMICALS	$47.52		
72839	02/03/2016	ULTRA SCIENTIFIC INC.	Inv# 365357	LABORATORY CHEMICALS	$25.60		
72839	02/03/2016	ULTRA SCIENTIFIC INC.	Inv# 365357	LABORATORY CHEMICALS	$47.52		
	Total for Check:	72839				$262.60	$12,200.57
72840	02/03/2016	UNION BANK OF CALIFORNIA	Inv# 959978	SERV.12/1-12/31/15	$291.67		
	Total for Check:	72840				$291.67	$2,086.02
72841	02/03/2016	UNITED PARCEL SERVICE	Inv# 0000X81601046		$39.57		
	Total for Check:	72841				$39.57	$2,196.81
72842	02/03/2016	UNIVAR USA	Inv# LA204033	Discount	($78.82)		
72842	02/03/2016	UNIVAR USA	Inv# LA204034	2/1 sulfuric acid 25.67 ton	$3,953.18		
72842	02/03/2016	UNIVAR USA	Inv# LA204033	2/1 sulfuric acid 25.59 ton	$3,940.86		
72842	02/03/2016	UNIVAR USA	Inv# LA202305	1/25 sulfuric acid 25.78 ton	$3,970.12		
72842	02/03/2016	UNIVAR USA	Inv# LA204034	Discount	($79.06)		
72842	02/03/2016	UNIVAR USA	Inv# LA202204	Discount	($79.65)		
72842	02/03/2016	UNIVAR USA	Inv# LA202204	1/25 sulfuric acid 25.86 ton	$3,982.44		
72842	02/03/2016	UNIVAR USA	Inv# LA202305	Discount	($79.40)		
	Total for Check:	72842				$15,529.67	$254,816.92
72843	02/03/2016	UTILIQUEST LLC	Inv# 230040-Q 9922	12/27-1/2 screen/mark pipes	$335.28		
72843	02/03/2016	UTILIQUEST LLC	Inv# 230040-Q 9932	12/27-1/2 screen/mark pipes	$6.80		
72843	02/03/2016	UTILIQUEST LLC	Inv# 230040-Q 9911	12/27-1/2 screen/mark pipes	$574.77		

Orange County Water District

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Begin Date: 01/28/2016 **End Date:** 02/03/2016

Accounts Payable Check Register Presented for Board Ratification and/or Approval

Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72843	02/03/2016	UTILIQUEST LLC	Inv# 230040-Q 9908	12/27-1/2 screen/mark pipe	$41.10		
Total for Check:		72843				$957.95	$47,833.13
72844	02/03/2016	VERIZON CALIFORNIA	Inv# 714 167-0596 981223JAN16 012834113873955302	1/16-2/15	$86.27		
Total for Check:		72844				$86.27	$8,788.73
72845	02/03/2016	VERIZON WIRELESS	Inv# 9759015178	CELL PHONES	$3,223.78		
Total for Check:		72845				$3,223.78	$28,867.84
72846	02/03/2016	VWR INTERNATIONAL, INC.	Inv# 8043702078	LABORATORY CHEMICALS	$39.55		
72846	02/03/2016	VWR INTERNATIONAL, INC.	Inv# 8043746175	LAB SUPPLIES	$655.61		
72846	02/03/2016	VWR INTERNATIONAL, INC.	Inv# 8043710751	Discount	($2.08)		
72846	02/03/2016	VWR INTERNATIONAL, INC.	Inv# 8043746175	Discount	($6.56)		
72846	02/03/2016	VWR INTERNATIONAL, INC.	Inv# 8043710751	INVENTORY/LAB SUPPLIES	$207.88		
72846	02/03/2016	VWR INTERNATIONAL, INC.	Inv# 8043692739		($5.17)		
72846	02/03/2016	VWR INTERNATIONAL, INC.	Inv# 8043692739	SUPPLIES	$516.73		
72846	02/03/2016	VWR INTERNATIONAL, INC.	Inv# 8043702078	Freight	$24.29		
72846	02/03/2016	VWR INTERNATIONAL, INC.	Inv# 8043702078	Discount	($0.64)		
Total for Check:		72846				$1,429.61	$119,240.04
72847	02/03/2016	Woodside, Greg	Inv# 1/22/16 S.A.M.E. TRAVEL LA Po	1/22 Montebello S.A.M.E.	$55.00		
72847	02/03/2016	Woodside, Greg	Inv# 1/22/16 SO.CALIF. TRAVEL Water Cte	1/22 Riverside S.C.	$70.00		
72847	02/03/2016	Woodside, Greg	Inv# 1/27/16 PRADO TRAVEL Sedime	1/27 Riverside Prado B.	$52.00		
72847	02/03/2016	Woodside, Greg	Inv# 1/29/16 CELL PHONE STIPEN stipend	1/29/16 cell phone	$40.00		
Total for Check:		72847				$217.00	$1,797.42
72848	02/03/2016	YELLOW JACKET DRILLING SERVICES	Inv# YJD15532CA	Prog.Pmt#9 (SG-2014-1)	$29,298.00		
Total for Check:		72848				$29,298.00	$229,816.90
72849	02/03/2016	Yoshiba, Gary	Inv# WELL FM-25 ENCROACHMENT permit @Placentia	Encroachment	$253.25		
Total for Check:		72849				$253.25	$663.75
72850	02/03/2016	ZCATER	Inv# 46256	VARIOUS	$120.96		
72850	02/03/2016	ZCATER	Inv# 46436		$10.00		
72850	02/03/2016	ZCATER	Inv# 46256		$10.00		

Orange County Water District

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Begin Date: 01/28/2016 **End Date:** 02/03/2016

Accounts Payable Check Register Presented for Board Ratification and/or Approval

Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72850	02/03/2016	ZCATER	Inv# 46436 VARIOUS		$157.25		
	Total for Check:	72850				$298.21	$2,322.62
975826	01/28/2016	BOARD OF EQUALIZATION	Inv# 24792532 Q4 FINAL	SalesUseTax Q4 Final	$1,167.00		
	Total for Check:	975826				$1,167.00	$9,545.00
975827	01/29/2016	WELLS FARGO BANK	Inv# FEBRUARY 1, 2016 DPR#2 WFZBA	Feb.1,16 DPR#2	$7,661.88		
	Total for Check:	975827				$7,661.88	$11,809,848.41
975828	02/01/2016	PRUDENTIAL RETIREMENT SERVICE	Inv# FEBRUARY 1, 2016 DPR#2	Feb.1,16 DPR#2 401a	$3,463.36		
	Total for Check:	975828				$3,463.36	$3,140,886.54
975829	02/01/2016	PRUDENTIAL RETIRMENT	Inv# FEBRUARY 1, 2016 DPR#2	Feb.1,16 DPR#2 457b	$2,034.00		
	Total for Check:	975829				$2,034.00	$830,609.89
975830	02/02/2016	UNION BANK OF CALIFORNIA	Inv# FEBRUARY 2,2016 OCWD2003A Interest Exp	OCWD 2003A	$993.12		
	Total for Check:	975830				$993.12	$5,109,196.77
975831	02/03/2016	CITIBANK NA NEW YORK, ABA	Inv# FEBRUARY 3,2016 2007B 1/6-2/3/16	2007B Swap Pmt	$50,380.26		
	Total for Check:	975831				$50,380.26	$1,474,674.79
975832	02/02/2016	WELLS FARGO BANK	Inv# FEBRUARY 3, 2016 PR#03 WFZBA	FEb. 3, 2016 PR#3	$744,950.96		
	Total for Check:	975832				$744,950.96	$11,809,848.41
975833	02/02/2016	PRUDENTIAL RETIREMENT SERVICE	Inv# FEBRUARY 3, 2016 PF 401a		),813.09		
	Total for Check:	975833				$209,813.09	$3,140,886.54
975834	02/02/2016	PRUDENTIAL RETIRMENT	Inv# FEBRUARY 3, 2016 PF 457b		1,733.92		
	Total for Cl	975834				$81,733.92	$830,609.89
						$2,884,937.68	

Run Date: *2/3/2016*

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744,950.96-
209,813.09-
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1,844,479.47*

Orange County Water District

Check Register

Begin Date: 02/04/2016 **End Date:** 02/10/2016

Accounts Payable Check Register Presented for Board Ratification and/or Approval

ıeck No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72851	02/04/2016	FIRELINE BROADBAND	Inv# 38402	INFORMATION SERVICES	$599.99		
	Total for Check:	72851				$599.99	$4,199.93
72852	02/10/2016	AMERICAN GEOTECHNICAL, INC.	Inv# 75917	11/29-12/26 LaPalma Recharge	$1,027.50		
	Total for Check:	72852				$1,027.50	$1,475.00
72853	02/10/2016	ABSOLUTE STANDARDS INC.	Inv# 151841	SUPPLIES	$127.50		
72853	02/10/2016	ABSOLUTE STANDARDS INC.	Inv# 151841	SUPPLIES	$127.50		
	Total for Check:	72853				$255.00	$756.50
72854	02/10/2016	ACCUSTANDARD, INC.	Inv# 833783	LABORATORY CHEMICALS	$40.00		
72854	02/10/2016	ACCUSTANDARD, INC.	Inv# 833783	LABORATORY CHEMICALS	$40.00		
72854	02/10/2016	ACCUSTANDARD, INC.	Inv# 833783		$9.11		
72854	02/10/2016	ACCUSTANDARD, INC.	Inv# 833783		$7.00		
72854	02/10/2016	ACCUSTANDARD, INC.	Inv# 833929	LABORATORY CHEMICALS	$305.00		
72854	02/10/2016	ACCUSTANDARD, INC.	Inv# 833929		$73.34		
72854	02/10/2016	ACCUSTANDARD, INC.	Inv# 833929		$7.00		
	Total for Check:	72854				$481.45	$12,534.31
72855	02/10/2016	ACWA/JPIA	Inv# PREMIUM REVISED	PROP.PROG.4/1/15-16	$4,282.00		
	Total for Check:	72855				$4,282.00	$597,904.00
72856	02/10/2016	ACWA/JPIA	Inv# 0389501 FEB2016	HealthInsuranceFeb2016	$358,475.23		
	Total for Check:	72856				$358,475.23	$2,794,567.87
72857	02/10/2016	AGILENT TECHNOLOGIES, INC.	Inv# 110660064	INFINITY AUTOSAMPLER	$7,850.90		
	Total for Check:	72857				$7,850.90	$238,819.86
72858	02/10/2016	ALLISON MECHANICAL, INC.	Inv# 63061	CHILLER RPR	$536.00		
	Total for Check:	72858				$536.00	$47,882.68
72859	02/10/2016	ANAHEIM COMMUNITY FOUNDATION	Inv# SILVER SPONSOR2016 FAIR	2016 ANAHEIM HEALTH	$1,000.00		
	Total for Check:	72859				$1,000.00	$1,000.00
72860	02/10/2016	ANALYTICAL WEST, INC.	Inv# 11837-INV	LABORATORY SUPPLIES	$236.84		
72860	02/10/2016	ANALYTICAL WEST, INC.	Inv# 11837-INV		$8.50		
72860	02/10/2016	ANALYTICAL WEST, INC.	Inv# 11837-INV		($4.91)		
	Total for Check:	72860				$240.43	$240.43
72862	02/10/2016	ARAMARK UNIFORM SERVICES	Inv# 531235604	UNIFORM SERVICES	$42.55		
72862	02/10/2016	ARAMARK UNIFORM SERVICES	Inv# 531235608	UNIFORM SERVICES	$0.90		
72862	02/10/2016	ARAMARK UNIFORM SERVICES	Inv# 531235606	UNIFORM SERVICES	$303.18		

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Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72862	02/10/2016	ARAMARK UNIFORM SERVICES	Inv# 531235606	UNIFORM SERVICES	$0.75		
72862	02/10/2016	ARAMARK UNIFORM SERVICES	Inv# 531235604	UNIFORM SERVICES	$0.60		
72862	02/10/2016	ARAMARK UNIFORM SERVICES	Inv# 531235604	UNIFORM SERVICES	$1.50		
72862	02/10/2016	ARAMARK UNIFORM SERVICES	Inv# 531218258	UNIFORM SERVICES	$0.60		
72862	02/10/2016	ARAMARK UNIFORM SERVICES	Inv# 531218258	UNIFORM SERVICES	$1.50		
72862	02/10/2016	ARAMARK UNIFORM SERVICES	Inv# 531235608	UNIFORM SERVICES	$218.66		
72862	02/10/2016	ARAMARK UNIFORM SERVICES	Inv# 531218258	UNIFORM SERVICES	$45.95		
72862	02/10/2016	ARAMARK UNIFORM SERVICES	Inv# 531218258	UNIFORM SERVICES	$238.00		
72862	02/10/2016	ARAMARK UNIFORM SERVICES	Inv# 1447647203	UNIFORM SERVICES	$31.10		
72862	02/10/2016	ARAMARK UNIFORM SERVICES	Inv# 531235604	UNIFORM SERVICES	$238.00		
	Total for Check:	72862				$1,123.29	$29,928.80
72863	02/10/2016	ATLAS COPCO COMPRESSORS LLC	Inv# 607092	Compressor maintenance - Atlas	$13.15		
72863	02/10/2016	ATLAS COPCO COMPRESSORS LLC	Inv# 607092		$9.11		
	Total for Check:	72863				$22.26	$249.13
72864	02/10/2016	BACK SCHOOL OF ATLANTA	Inv# REG. FEE JESSE COTA	REG.FEE	$250.00		
	Total for Check:	72864				$250.00	$250.00
72865	02/10/2016	BATTERY SYSTEMS	Inv# 3394250	E-11 & E-22 NEW BATTERIES	$1,339.67		
	Total for Check:	72865				$1,339.67	$9,810.01
72866	02/10/2016	BELL PIPE & SUPPLY	Inv# 162097-1	INVENTORY RE-ORDER/PLW	$30.15		
72866	02/10/2016	BELL PIPE & SUPPLY	Inv# 162097-1		($0.56)		
72866	02/10/2016	BELL PIPE & SUPPLY	Inv# 162097		($4.93)		
72866	02/10/2016	BELL PIPE & SUPPLY	Inv# 162097	INVENTORY RE-ORDER/PLW	$45.23		
72866	02/10/2016	BELL PIPE & SUPPLY	Inv# 162097	INVENTORY RE-ORDER/PLW	$61.56		
72866	02/10/2016	BELL PIPE & SUPPLY	Inv# 162097	INVENTORY RE-ORDER/PLW	$141.05		
72866	02/10/2016	BELL PIPE & SUPPLY	Inv# 162097	INVENTORY RE-ORDER/PLW	$18.53		
	Total for Check:	72866				$291.03	$6,613.77
72867	02/10/2016	BENRICH SERVICE COMPANY, INC.	Inv# OC14973	EXPANSION TANK REPLACMNT	$4,051.63		
	Total for Check:	72867				$4,051.63	$5,251.63
72868	02/10/2016	BLACK CHAMBER OF COMMERCE	Inv# MEMBERSHIP 2016	BUS. MEMBERSHIP	$300.00		
	Total for Check:	72868				$300.00	$300.00
72869	02/10/2016	BRENNTAG PACIFIC INC.	Inv# BPI598049	Discount	($234.03)		

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Begin Date: 02/04/2016 **End Date:** 02/10/2016

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72869	02/10/2016	BRENNTAG PACIFIC INC.	Inv# BPI598050	2/4 citric acid 22.92 ton	$21,535.63		
72869	02/10/2016	BRENNTAG PACIFIC INC.	Inv# BPI598049	2/3 hydro.peroxide 43500 lbs	$11,701.50		
72869	02/10/2016	BRENNTAG PACIFIC INC.	Inv# BPI597865	Discount	($114.54)		
72869	02/10/2016	BRENNTAG PACIFIC INC.	Inv# BPI597865	2/3 sod.hydroxide 12.45 ton	$6,185.17		
72869	02/10/2016	BRENNTAG PACIFIC INC.	Inv# BPI598050	Discount	($598.21)		
	Total for Check:	72869				$38,475.52	$576,836.80
72870	02/10/2016	BUTIER ENGINEERING, INC.	Inv# AGMT #0982 #16	Dec15 B.P.St Ph2 const.mgmt	$38,435.50		
	Total for Check:	72870				$38,435.50	$547,873.39
72871	02/10/2016	Brandman, Jordan	Inv# DECEMBER 2015 TRAVEL	Dec15 OCWD Various Meetings	$26.46		
	Total for Check:	72871				$26.46	$26.46
72872	02/10/2016	CAMBRIDGE ISOTOPE LABORATORIES	Inv# 01074653	LABORATORY CHEMICALS	$189.00		
72872	02/10/2016	CAMBRIDGE ISOTOPE LABORATORIES	Inv# 01074653		$15.48		
	Total for Check:	72872				$204.48	$2,845.28
72873	02/10/2016	CCS DISASTER RECOVERY SERVICES	Inv# 5750	CCS HW DisasterRec 1st Qtr2016	$825.00		
	Total for Check:	72873				$825.00	$1,650.00
72874	02/10/2016	CERIDIAN EMPLOYER SERVICES	Inv# 35904077	P1 VVY-wage attachment..	$193.17		
72874	02/10/2016	CERIDIAN EMPLOYER SERVICES	Inv# 35919557	1/15 FSE web security setup	$120.00		
72874	02/10/2016	CERIDIAN EMPLOYER SERVICES	Inv# 35919184	P2 VUZ-wage attachments	$853.14		
72874	02/10/2016	CERIDIAN EMPLOYER SERVICES	Inv# 35914890	P26 VUZ-VVY W2 & handling	$66.23		
72874	02/10/2016	CERIDIAN EMPLOYER SERVICES	Inv# 35906062	P1 VUZ wage attachment	$819.55		
	Total for Check:	72874				$2,052.09	$38,838.45
72875	02/10/2016	CITIGROUP GLOBAL MARKETS	Inv# 01AREMC152920002_20160101	CP REMKT.FEE	$4,652.87		
	Total for Check:	72875				$4,652.87	$87,262.40
72876	02/10/2016	CLEAN ENERGY CAPITAL SECURITIES, LLC	Inv# 1288	10/6-11/20 Poseidon Desal-HB F	$6,210.00		
72876	02/10/2016	CLEAN ENERGY CAPITAL SECURITIES, LLC	Inv# 1289	10/9 Poseidon Desal-HB Fin Ana	$503.43		
	Total for Check:	72876				$6,713.43	$6,713.43
72877	02/10/2016	COMMERCIAL DOOR OF ORANGE COUNTY INC.	Inv# 20243	Various door repairs -	$498.20		
	Total for Check:	72877				$498.20	$3,259.18

Orange County Water District

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Begin Date: 02/04/2016 **End Date:** 02/10/2016

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ıeck No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72878	02/10/2016	CONSTRUCTIVE COMMUNITY RELATIONS, LLC	Inv# OCWD715-15	Dec15 Alamitos outreach	$4,585.93		
	Total for Check:	72878				$4,585.93	$12,966.43
72879	02/10/2016	CORPORATE IMAGE MAINTENANCE	Inv# 35267	JANICE KOVACEVIC	$9,175.00		
72879	02/10/2016	CORPORATE IMAGE MAINTENANCE	Inv# 35267	JANICE KOVACEVIC	$125.00		
	Total for Check:	72879				$9,300.00	$58,047.00
72881	02/10/2016	COSTCO	Inv# 684026	INVENTORY RE-ORDER	$332.32		
72881	02/10/2016	COSTCO	Inv# 690443	INVENTORY RE-ORDER	$6.26		
72881	02/10/2016	COSTCO	Inv# 690443	INVENTORY RE-ORDER	$211.00		
72881	02/10/2016	COSTCO	Inv# 690443	INVENTORY RE-ORDER	$588.38		
72881	02/10/2016	COSTCO	Inv# 690443	INVENTORY RE-ORDER	$602.10		
72881	02/10/2016	COSTCO	Inv# 684026	INVENTORY RE-ORDER	$19.55		
72881	02/10/2016	COSTCO	Inv# 684026	INVENTORY RE-ORDER	$22.90		
72881	02/10/2016	COSTCO	Inv# 684026	INVENTORY RE-ORDER	$199.62		
72881	02/10/2016	COSTCO	Inv# 1809 CRD.MEMO	CRD.MEMO P.O.34582	($19.61)		
72881	02/10/2016	COSTCO	Inv# 100001227 CREDIT	CRD.MEMO P.O.34591	($4.22)		
72881	02/10/2016	COSTCO	Inv# 684026	INVENTORY RE-ORDER	$102.23		
	Total for Check:	72881				$2,060.53	$14,444.57
72883	02/10/2016	DAVID WILSON'S VILLA FORD	Inv# 400648	RECHARGE OPERATIONS/WETLANDS	$227.73		
72883	02/10/2016	DAVID WILSON'S VILLA FORD	Inv# 400813	RECHARGE OPERATIONS/WETLANDS	$247.02		
72883	02/10/2016	DAVID WILSON'S VILLA FORD	Inv# 400653		($0.95)		
72883	02/10/2016	DAVID WILSON'S VILLA FORD	Inv# 400813		($4.94)		
72883	02/10/2016	DAVID WILSON'S VILLA FORD	Inv# 400648		($4.55)		
72883	02/10/2016	DAVID WILSON'S VILLA FORD	Inv# 400647	RECHARGE OPERATIONS/WETLANDS	$229.44		
72883	02/10/2016	DAVID WILSON'S VILLA FORD	Inv# 400646		($4.26)		
72883	02/10/2016	DAVID WILSON'S VILLA FORD	Inv# 400646	RECHARGE OPERATIONS/WETLANDS	$213.24		
72883	02/10/2016	DAVID WILSON'S VILLA FORD	Inv# 400610		($1.20)		
72883	02/10/2016	DAVID WILSON'S VILLA FORD	Inv# 400610	RECHARGE OPERATIONS/WETLANDS	$59.85		
72883	02/10/2016	DAVID WILSON'S VILLA FORD	Inv# 400647		($4.59)		
72883	02/10/2016	DAVID WILSON'S VILLA FORD	Inv# 400653	RECHARGE OPERATIONS/WETLANDS	$47.27		
	Total for Check:	72883				$1,004.06	$3,867.42

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ıeck No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72884	02/10/2016	EARTHCO	Inv# 27472	BILL DUNIVIN	$3,300.00		
	Total for Check:	72884				$3,300.00	$50,200.00
72885	02/10/2016	EMBARCADERO TECHNOLOGIES, INC.	Inv# CUST111885	Renew Embarcadero SW Maintenan	$1,124.00		
	Total for Check:	72885				$1,124.00	$1,124.00
72886	02/10/2016	EMD MILLIPORE CORP	Inv# 7437108		$11.45		
72886	02/10/2016	EMD MILLIPORE CORP	Inv# 7437108	LABORATORY SUPPLIES	$302.40		
	Total for Check:	72886				$313.85	$3,688.99
72887	02/10/2016	ENVIRONMENTAL RESOURCE ASSOC.	Inv# 776710	LJ for JMD	$730.95		
72887	02/10/2016	ENVIRONMENTAL RESOURCE ASSOC.	Inv# 776710		$78.29		
72887	02/10/2016	ENVIRONMENTAL RESOURCE ASSOC.	Inv# 776710		$10.80		
	Total for Check:	72887				$820.04	$5,094.74
72888	02/10/2016	ESRI, INC.	Inv# 93082351	Renew ESRI SW Maintenance	$22,600.00		
	Total for Check:	72888				$22,600.00	$22,600.00
72889	02/10/2016	EVANTEC LAB SUPPLY	Inv# 160023		$20.00		
72889	02/10/2016	EVANTEC LAB SUPPLY	Inv# 160023	LABORATORY CHEMICALS	$51.84		
72889	02/10/2016	EVANTEC LAB SUPPLY	Inv# 160023	LABORATORY CHEMICALS	$49.84		
	Total for Check:	72889				$121.68	$841.35
72890	02/10/2016	FRUIT GROWERS LABORATORY INC	Inv# 513674A	WATER QUALITY	$131.00		
72890	02/10/2016	FRUIT GROWERS LABORATORY INC	Inv# 513679A	WATER QUALITY	$487.00		
	Total for Check:	72890				$618.00	$21,855.00
72891	02/10/2016	FRY'S ELECTRONICS	Inv# 21101692	IS/RECHARGE/WETLANDS	$102.54		
	Total for Check:	72891				$102.54	$1,674.48
72892	02/10/2016	GOLD COAST AWARDS	Inv# 10297	HUMAN RESOURCES	$150.66		
	Total for Check:	72892				$150.66	$944.46
72893	02/10/2016	GOODYEAR TIRE & RUBBER CO.	Inv# 42787248	T-132 Purchase Goodyear Tires	$649.51		
72893	02/10/2016	GOODYEAR TIRE & RUBBER CO.	Inv# 42787248	T-132 Purchase Goodyear Tires	$7.00		
	Total for Check:	72893				$656.51	$3,438.47
72894	02/10/2016	GRAINGER INC.	Inv# 9926620429	9.6V Standard NiCd 3/8" Cordle	$127.44		

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ıeck No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72894	02/10/2016	GRAINGER INC.	Inv# 9928368803	WATER PRODUCTION/RECHARGE	$47.43		
	Total for Check:	72894				$174.87	$76,294.20
72895	02/10/2016	GRAYBAR ELECTRIC CO.	Inv# 983389596	INVENTORY/SWITCHES	$2,185.32		
72895	02/10/2016	GRAYBAR ELECTRIC CO.	Inv# 983389596	Discount	($20.23)		
	Total for Check:	72895				$2,165.09	$7,875.67
72896	02/10/2016	GREAT PACIFIC EQUIPMENT, INC.	Inv# 28482	Stinger crane repair	$404.21		
72896	02/10/2016	GREAT PACIFIC EQUIPMENT, INC.	Inv# 28482	Stinger crane repair	$79.95		
72896	02/10/2016	GREAT PACIFIC EQUIPMENT, INC.	Inv# 28482	Stinger crane repair	$94.18		
72896	02/10/2016	GREAT PACIFIC EQUIPMENT, INC.	Inv# 28482	Handling	$214.06		
	Total for Check:	72896				$792.40	$792.40
72897	02/10/2016	GREEN THUMB, LLC	Inv# 20166644	WATER PRODUCTION/RECHARGE	$265.66		
72897	02/10/2016	GREEN THUMB, LLC	Inv# 20166644	WATER PRODUCTION/RECHARGE	$93.34		
	Total for Check:	72897				$359.00	$2,513.00
72898	02/10/2016	HACH COMPANY	Inv# 9744860	LABORATORY SUPPLIES	$1,094.04		
72898	02/10/2016	HACH COMPANY	Inv# 9744860		$66.39		
	Total for Check:	72898				$1,160.43	$37,070.91
72899	02/10/2016	HARRINGTON INDUSTRIAL PLASTICS	Inv# 002J0791	INVENTORY RE-ORDER	$610.74		
72899	02/10/2016	HARRINGTON INDUSTRIAL PLASTICS	Inv# 002J0791	Discount	($112.16)		
72899	02/10/2016	HARRINGTON INDUSTRIAL PLASTICS	Inv# 002J0791	INVENTORY RE-ORDER	$2,498.54		
72899	02/10/2016	HARRINGTON INDUSTRIAL PLASTICS	Inv# 002J0791	INVENTORY RE-ORDER	$2,498.55		
	Total for Check:	72899				$5,495.67	$12,147.12
72901	02/10/2016	HOME DEPOT, INC.	Inv# 3016108	VARIOUS	$28.54		
72901	02/10/2016	HOME DEPOT, INC.	Inv# 7014660	VARIOUS	$38.88		
72901	02/10/2016	HOME DEPOT, INC.	Inv# 9012488	VARIOUS	$30.10		
72901	02/10/2016	HOME DEPOT, INC.	Inv# 9011122	VARIOUS	$9.11		
72901	02/10/2016	HOME DEPOT, INC.	Inv# 8174577	VARIOUS	$122.50		
72901	02/10/2016	HOME DEPOT, INC.	Inv# 8040279	VARIOUS	$21.49		
72901	02/10/2016	HOME DEPOT, INC.	Inv# 7163723	VARIOUS	$175.48		
72901	02/10/2016	HOME DEPOT, INC.	Inv# 9595224	VARIOUS	$64.74		
72901	02/10/2016	HOME DEPOT, INC.	Inv# 5082091	VARIOUS	$50.50		

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ıeck No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72901	02/10/2016	HOME DEPOT, INC.	Inv# 5015736	VARIOUS	$13.47		
72901	02/10/2016	HOME DEPOT, INC.	Inv# 3190695	VARIOUS	$100.38		
72901	02/10/2016	HOME DEPOT, INC.	Inv# 3021403	VARIOUS	$88.52		
72901	02/10/2016	HOME DEPOT, INC.	Inv# 3010855	VARIOUS	$217.82		
72901	02/10/2016	HOME DEPOT, INC.	Inv# 2150738	VARIOUS	$96.09		
72901	02/10/2016	HOME DEPOT, INC.	Inv# 2054774	VARIOUS	$37.77		
72901	02/10/2016	HOME DEPOT, INC.	Inv# 3100154	VARIOUS	$33.91		
	Total for Check:	72901				$1,129.30	$7,216.72
72902	02/10/2016	HUNTINGTON BEACH FORD	Inv# 167501	T-123 REPLACE SPARK PLUGS	$402.55		
	Total for Check:	72902				$402.55	$2,973.19
72903	02/10/2016	Houlihan, Donald	Inv# DEC15-JAN14,16 STIPEND	CellPhoneStipend DH	$40.00		
72903	02/10/2016	Houlihan, Donald	Inv# NOV15-DEC14,16 STIPEND DH	CellPhoneStipend	$40.00		
	Total for Check:	72903				$80.00	$240.00
72904	02/10/2016	INSTITUTE FOR ENVIRONMENTAL HEALTH INC	Inv# BVL 152074	WATER QUALITY	$104.08		
72904	02/10/2016	INSTITUTE FOR ENVIRONMENTAL HEALTH INC	Inv# BVL 152075	WATER QUALITY	$303.54		
72904	02/10/2016	INSTITUTE FOR ENVIRONMENTAL HEALTH INC	Inv# BVL 152074	WATER QUALITY	$208.16		
	Total for Check:	72904				$615.78	$4,762.48
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 810483	Freight	$20.13		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 810212	Freight	$12.46		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 810212	Discount	($52.02)		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 810483	Shower repair kits	$213.54		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 810483	Shower repair kits	$124.83		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 810483	Shower repair kits	$30.20		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 810212	Acid isolation valves - 470 ac	$302.15		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 810483	FREIGHT	$8.31		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 810483	Discount	($10.10)		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 811287	WATER PRODUCTION/WATER QUALITY	$391.18		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 811287	FREIGHT	$19.33		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 810483	Shower repair kits	$107.94		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 810212	Acid isolation valves - 470 ac	$235.06		

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ıeck No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 810212	Acid isolation valves - 470 ac	$388.69		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 810212	Acid isolation valves - 470 ac	$1,609.92		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 805603	Discount	($12.64)		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 805603	RO ERD repairs	$31.62		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 805603	RO ERD repairs	$40.69		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 805603	RO ERD repairs	$50.94		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 805603	RO ERD repairs	$91.01		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 805603	RO ERD repairs	$160.06		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 805603	RO ERD repairs	$257.88		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 811287	Discount	($8.21)		
72907	02/10/2016	IRVINE PIPE & SUPPLY	Inv# 810212	Freight	$52.90		
	Total for Check:	72907				$4,065.87	$123,057.57
72908	02/10/2016	JAMES EVENT PRODUCTIONS	Inv# 6826-DS	CHILDREN'S FESTIVAL	$10,000.00		
	Total for Check:	72908				$10,000.00	$10,000.00
72909	02/10/2016	KDC SYSTEMS	Inv# 33126	JHAMMERSMITH	$2,898.00		
	Total for Check:	72909				$2,898.00	$16,741.56
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$3.67		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$8.64		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$8.13		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$7.08		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$6.81		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$6.21		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$5.94		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$5.94		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$9.18		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$3.78		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$8.32		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$3.27		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$3.13		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$2.16		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$2.16		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$2.14		

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72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$1.75		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$1.62		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$1.62		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$1.62		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$1.09		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$5.94		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$39.14		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$906.38		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$414.53		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$142.17		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$142.17		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$138.22		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$7.83		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$57.22		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$9.18		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$23.97		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$18.90		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$18.40		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$10.26		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$79.65		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$9.61		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$14.49		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$10.26		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$11.34		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$11.88		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$12.59		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$12.96		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$13.52		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$14.04		
72914	02/10/2016	LAWSON PRODUCTS, INC.	Inv# 9303835446	SMALL HARDWARE /SAFETY	$14.04		
	Total for Check:	72914				$2,232.95	$2,232.95
72915	02/10/2016	LEXISNEXIS A DIV. OF REED ELSEVIER INC.	Inv# 3190005494	ROSE WILKE	$170.00		

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ıeck No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
	Total for Check: 72915					$170.00	$1,190.00
72916	02/10/2016	LHOIST NORTH AMERICA	Inv# 1160200878	1/12 lime 24.38 ton	$4,713.87		
72916	02/10/2016	LHOIST NORTH AMERICA	Inv# 1160200966	1/17 lime 25.73 ton	$4,974.90		
	Total for Check: 72916					$9,688.77	$424,401.33
72917	02/10/2016	LILLESTRAND LEADERSHIP CONSULTING	Inv# 6695	1/6-13 leadership consulting	$5,896.39		
	Total for Check: 72917					$5,896.39	$36,906.75
72918	02/10/2016	LONG BEACH WATER DEPARTMENT	Inv# 40570	Dec15 Alamitos 238.40 af @$928	$248,412.80		
	Total for Check: 72918					$248,412.80	$1,460,188.11
72919	02/10/2016	MAGNOLIA BIRD FARMS	Inv# 16561	NATURAL RESOURCES	$189.00		
	Total for Check: 72919					$189.00	$848.96
72920	02/10/2016	MAIL DISPATCH, LLC	Inv# 144226	MailPickup/Delivery	$330.12		
	Total for Check: 72920					$330.12	$2,640.96
72921	02/10/2016	MCFADDEN-DALE HARDWARE CO.	Inv# 323594/1	VARIOUS	$6.91		
72921	02/10/2016	MCFADDEN-DALE HARDWARE CO.	Inv# 323594/1	Discount	($0.19)		
	Total for Check: 72921					$6.72	$4,148.81
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 49177863	Miscellaneous - McMaster	$101.14		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48836207	VARIOUS	$121.67		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48836207	Freight	$5.65		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48836207	Discount	($2.43)		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 49020229	VARIOUS	$198.45		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 49020229	Freight	$10.55		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48776229	Credit INV#48704099	($25.84)		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 49177863	Miscellaneous - McMaster	$161.20		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 49177863	Discount	($5.25)		

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ıeck No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 49177863	Freight	$5.43		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 49269089	Miscellaneous - McMaster	$256.09		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48480028	Miscellaneous - McMaster	$495.77		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 49269089	Discount	($5.12)		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 49383691	VARIOUS	$196.20		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 49383691	Discount	($3.92)		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 49020229	Discount	($3.97)		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48480028	Miscellaneous - McMaster	$25.92		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 49269089	Freight	$5.34		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48704099	Discount	($3.54)		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48480028	Miscellaneous - McMaster	$360.40		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48480028	Miscellaneous - McMaster	$44.77		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48480028	Freight	$39.23		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48480028	Miscellaneous - McMaster	$13.27		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48480028	Miscellaneous - McMaster	$12.48		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48704099	VARIOUS	$140.69		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48480028	Miscellaneous - McMaster	$10.11		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48704099	Freight	$6.17		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48704099	VARIOUS	$36.50		

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Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48480028	Miscellaneous - McMaster	$8.87		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48480028	Miscellaneous - McMaster	$39.74		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48480028	Discount	($20.46)		
72925	02/10/2016	MCMASTER-CARR SUPPLY COMPANY	Inv# 48480028	Miscellaneous - McMaster	$11.75		
Total for Check:	72925					$2,236.86	$39,608.58
72926	02/10/2016	MD MEDICAL CLINICS	Inv# 20431 02/01/16	HUMAN RESOURCES	$80.00		
Total for Check:	72926					$80.00	$110.00
72927	02/10/2016	Markus, Michael R.	Inv# 1/28/16 TRAVEL	1/28 Irvine Mtg w/Dir.Sheldon	$29.35		
72927	02/10/2016	Markus, Michael R.	Inv# 1/28/16 CEPRD TRAVEL	1/28 Irvine CEPRD	$35.00		
Total for Check:	72927					$64.35	$4,796.10
72929	02/10/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 250367	Discount	($0.31)		
72929	02/10/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 250787	WATER PRODUCTION	$25.90		
72929	02/10/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 250787	Discount	($0.52)		
72929	02/10/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 250563		($0.36)		
72929	02/10/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 250563	WATER PRODUCTION	$17.79		
72929	02/10/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 250367	WATER PRODUCTION	$15.35		
72929	02/10/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 250336	Discount	($0.83)		
72929	02/10/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 250336	WATER PRODUCTION	$41.33		
72929	02/10/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 250332	Discount	($0.30)		
72929	02/10/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 249732	WATER PRODUCTION	$52.39		
72929	02/10/2016	NAPA/ORANGE COUNTY AUTO PARTS	Inv# 250332	WATER PRODUCTION	$15.08		
Total for Check:	72929					$165.52	$10,408.69

Orange County Water District

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Begin Date: 02/04/2016 **End Date:** 02/10/2016

Accounts Payable Check Register Presented for Board Ratification and/or Approval

Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72930	02/10/2016	NORTHERN TOOL & EQUIPMENT CO.	Inv# 34440844	Trailer repair	$369.98		
72930	02/10/2016	NORTHERN TOOL & EQUIPMENT CO.	Inv# 34440844	Trailer repair	$129.99		
72930	02/10/2016	NORTHERN TOOL & EQUIPMENT CO.	Inv# 34440844	Trailer repair	$75.98		
72930	02/10/2016	NORTHERN TOOL & EQUIPMENT CO.	Inv# 34440844	Freight	$31.15		
	Total for Check:	72930				$607.10	$3,955.89
72931	02/10/2016	NORTHWEST MOSQUITO AND VECTOR	Inv# 1298	WETLAND OPERATIONS	$2,598.00		
72931	02/10/2016	NORTHWEST MOSQUITO AND VECTOR	Inv# 1298	WETLAND OPERATIONS	$848.46		
	Total for Check:	72931				$3,446.46	$88,669.44
72932	02/10/2016	Neely, Tyson	Inv# 2/1/16 REIMBURSEMENT	cell phone screen replacement	$117.72		
	Total for Check:	72932				$117.72	$457.72
72933	02/10/2016	Nguyen, Viethuong T.	Inv# INTERNET REIMB FEB16 VTN	InternetReimb Feb16	$35.99		
	Total for Check:	72933				$35.99	$291.65
72934	02/10/2016	OBERMEYER HYDRO, INC.	Inv# 16-5COVES-1	5-Coves Rubber Dam Repair	$7,585.00		
	Total for Check:	72934				$7,585.00	$7,585.00
72935	02/10/2016	OFFICE SOLUTIONS BUSINESS PRODUCTS	Inv# I-00888760	OFFICE SUPPLIES	$75.52		
	Total for Check:	72935				$75.52	$11,412.31
72937	02/10/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2113663	1/14 sod.hypochlorite 4892 gal	$2,685.71		
72937	02/10/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2114307	1/15 sod.hypochlorite 4896 gal	$2,687.90		
72937	02/10/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2114306	1/15 sod.hypochlorite 4946 gal	$2,715.35		
72937	02/10/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2113664	1/14 sod.hypochlorite 4914 gal	$2,697.79		
72937	02/10/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2113662	1/14 sod.hypochlorite 4902 gal	$2,691.20		
72937	02/10/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2113087	1/12 sod.hypochlorite 4948 gal	$2,716.45		
72937	02/10/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2112393	1/12 sod.hypochlorite 4950 gal	$2,717.55		
72937	02/10/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2112392	1/12 sod.hypochlorite 4938 gal	$2,710.96		
72937	02/10/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2112391	1/12 sod.hypochlorite 4902 gal	$2,691.20		
72937	02/10/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2111594	1/11 sod.hypochlorite 4888 gal	$2,683.51		

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Begin Date: 02/04/2016 **End Date:** 02/10/2016

Accounts Payable Check Register Presented for Board Ratification and/or Approval

ıeck No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72937	02/10/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2111593	1/11 sod.hypochlorite 4888 gal	$2,683.51		
72937	02/10/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2111592	1/11 sod.hypochlorite 4914 gal	$2,697.79		
72937	02/10/2016	OLIN CHLOR ALKALI PRODUCTS	Inv# 2114305	1/14 sod.hypochlorite 4940 gal	$2,712.06		
	Total for Check:	72937				$35,090.98	$864,043.79
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S5010850.002	VARIOUS	$82.09		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S4998490.001	GE Contactor & Fuses Warehouse	$30.70		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S5011572.001	MRiopka Purchase new PLC's	$184.16		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S5011572.001	MRiopka Purchase new PLC's	$734.77		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S5010850.002	Discount	($0.76)		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S5011572.001	Discount	($46.79)		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S4998490.001	Discount	($2.41)		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S4998490.001	Freight	$13.53		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S4997575.001	Freight	$9.18		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S4997575.001	VARIOUS	$248.77		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S4973001.001	Discount	($0.42)		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S4973001.001	Freight	$10.63		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S4973001.001	VARIOUS	$45.64		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S4970986.002	Freight	$13.09		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S4970986.002	OCAL Electrical Material Reloc	$63.73		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S5011572.001	MRiopka Purchase new PLC's	$4,134.24		
72939	02/10/2016	ONESOURCE DISTRIBUTORS INC.	Inv# S4998490.001	GE Contactor & Fuses Warehouse	$229.14		
	Total for Check:	72939				$5,749.29	$77,736.74
72940	02/10/2016	OVIVO USA, LLC	Inv# 8467643	Screening Facility A03 Repair	$1,915.92		
72940	02/10/2016	OVIVO USA, LLC	Inv# 8467643	Screening Facility A03 Repair	$1,915.92		
	Total for Check:	72940				$3,831.84	$3,831.84
72941	02/10/2016	PACIFIC CLIPPINGS	Inv# 615	Clippings Dec15	$87.00		
	Total for Check:	72941				$87.00	$573.41
72942	02/10/2016	PDC INTERIORS	Inv# 2322A-15	E TORRES	$4,058.00		
	Total for Check:	72942				$4,058.00	$4,058.00
72943	02/10/2016	PERFORMANCE AIR SYSTEMS, INC.	Inv# 160	RECHARGE OPERATIONS	$112.50		
	Total for Check:	72943				$112.50	$4,878.54

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ıeck No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72944	02/10/2016	PETE'S ROAD SERVICE, INC.	Inv# 001005-00 RECHARGE OPERATIONS/WETLANDS		$12.23		
	Total for Check:	72944				$12.23	$1,121.96
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-14	Sandbags TS	$100.00		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-8	Shredder/Pens EU	$100.42		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-1	CellphStipend Sept MTB	$40.00		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# JAN-16-9	AutoPart T130	$60.47		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-10	Calendar TS	$35.63		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-9	SnakeSupplies BJ	$37.23		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-12	Map DJ	$1.50		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-11	ComputrSpeaker MRS	$14.03		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-15	Sandbags TS	$100.00		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-16	WaterFilter CF	$37.89		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-2	CellphStipend Oct MTB	$40.00		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-3	CellphStipend Nov MTB	$40.00		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-4	OfficeSupplies DOM	$39.40		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-5	Adapter,Paper EU	$19.42		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-7	Frame/Border EU	$40.15		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# JAN-16-8	AEM Mtg PB	$12.94		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-6	Picture EU	$10.78		

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ıeck No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# DEC-15-2	Screws JAS	$1.42		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# JAN-16-7	ArmaMtgTrain. RLP	$20.00		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# DEC-15-1	Keys LBL	$59.40		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# DEC-15-3	Pins RGC	$10.34		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# DEC-15-4	CellPhone Stipend 11/26/16 BTS	$40.00		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# DEC-15-5	11/3/15CellPhStipend AJP	$40.00		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# DEC-15-6	HazMatTraining EOG	$15.35		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# DEC-15-7	Outlets,Cord JLK	$35.82		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# JAN-16-1	XmasGiftsNWRI	$80.40		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# JAN-16-11	SD Card PL	$16.07		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# JAN-16-12	ParkMicrosoftTrain.	$49.00		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# JAN-16-2	InkCartridge RO	$57.23		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# JAN-16-3	Batteries JMD	$30.13		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# JAN-16-4	TruckWashTip T122 BDL	$2.00		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# JAN-16-6	Wrench MLR	$16.07		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# JAN-16-5	MiscMilesSantiago AV	$16.74		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# JAN-16-10	Cut S/S Matl LBL	$50.00		
72948	02/10/2016	PIKE, DONNA R./PETTY CASH CUSTODIAN	Inv# SEPT15-FEB1,16-13	ParkCountyOrange DJ	$1.50		
	Total for Check:	72948				$1,271.33	$6,215.84
72949	02/10/2016	PLATINUM COMPUTER SUPPORT	Inv# 22648	INVENTORY/CARTRIDGES	$531.36		

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ıeck No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72949	02/10/2016	PLATINUM COMPUTER SUPPORT	Inv# 22648	Freight	$3.75		
72949	02/10/2016	PLATINUM COMPUTER SUPPORT	Inv# 22648	INVENTORY/CARTRIDGES	$146.88		
72949	02/10/2016	PLATINUM COMPUTER SUPPORT	Inv# 22648	INVENTORY/CARTRIDGES	$379.08		
72949	02/10/2016	PLATINUM COMPUTER SUPPORT	Inv# 22648	INVENTORY/CARTRIDGES	$379.08		
72949	02/10/2016	PLATINUM COMPUTER SUPPORT	Inv# 22648	INVENTORY/CARTRIDGES	$379.08		
72949	02/10/2016	PLATINUM COMPUTER SUPPORT	Inv# 22648	INVENTORY/CARTRIDGES	$444.96		
72949	02/10/2016	PLATINUM COMPUTER SUPPORT	Inv# 22648	INVENTORY/CARTRIDGES	$1,286.28		
72949	02/10/2016	PLATINUM COMPUTER SUPPORT	Inv# 22648	INVENTORY/CARTRIDGES	$392.04		
	Total for Check:	72949				$3,942.51	$31,335.15
72950	02/10/2016	PREMIER FITNESS SERVICE LLC	Inv# 36224	HUMAN RESOURCES	$352.60		
	Total for Check:	72950				$352.60	$933.97
72951	02/10/2016	PSOMAS	Inv# 114120	11/27-12/31 LaPalma archaeolog	$7,742.50		
	Total for Check:	72951				$7,742.50	$10,092.43
72952	02/10/2016	Patel, Mehul	Inv# 2/1-5/16 AMTA TRAVEL AMTA	2/1-5 San Antonio, TX	$1,249.38		
	Total for Check:	72952				$1,249.38	$1,873.81
72953	02/10/2016	QUINN COMPANY	Inv# PC830328133	RECHARGE OPERATIONS/WETLANDS	$258.05		
72953	02/10/2016	QUINN COMPANY	Inv# PC810728754	RECHARGE OPERATIONS/WETLANDS	$745.34		
72953	02/10/2016	QUINN COMPANY	Inv# PC810728631	RECHARGE OPERATIONS/WETLANDS	$307.38		
	Total for Check:	72953				$1,310.77	$44,324.81
72954	02/10/2016	ROBERTSON'S READY MIX	Inv# 699758	Research center concrete slab	$722.88		
	Total for Check:	72954				$722.88	$722.88
72955	02/10/2016	SAN DIEGO FLUID SYSTEM TECHNOLIGIES	Inv# 439489	Swagelok Tubing Fittings 316 S	$118.58		
72955	02/10/2016	SAN DIEGO FLUID SYSTEM TECHNOLIGIES	Inv# 439489		$9.04		
72955	02/10/2016	SAN DIEGO FLUID SYSTEM TECHNOLIGIES	Inv# 439489		($1.10)		
	Total for Check:	72955				$126.52	$1,874.79
72956	02/10/2016	SANDWOOD ENTERPRISES INC.	Inv# OC 01501809	LABOR 2/18-1/22/16	$1,920.00		
72956	02/10/2016	SANDWOOD ENTERPRISES INC.	Inv# OC 01501809	DISCOUNT	($38.40)		
	Total for Check:	72956				$1,881.60	$49,394.16

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72957	02/10/2016	SANTA ANA WATERSHED ASSOC.	Inv# 2016-01	HB LEAST TERNS REPORT		$20,000.00		
	Total for Check:	72957					$20,000.00	$65,300.62
72959	02/10/2016	SC FUELS	Inv# 1882126	ALL DEPARTMENTS		$77.61		
72959	02/10/2016	SC FUELS	Inv# 1882126	ALL DEPARTMENTS		$1.03		
72959	02/10/2016	SC FUELS	Inv# 1882126	ALL DEPARTMENTS		$49.88		
72959	02/10/2016	SC FUELS	Inv# 1882126	ALL DEPARTMENTS		$77.15		
72959	02/10/2016	SC FUELS	Inv# 1882126	ALL DEPARTMENTS		$87.00		
72959	02/10/2016	SC FUELS	Inv# 1882126	ALL DEPARTMENTS		$144.83		
72959	02/10/2016	SC FUELS	Inv# 1882126	ALL DEPARTMENTS		$181.32		
72959	02/10/2016	SC FUELS	Inv# 1882126	ALL DEPARTMENTS		$295.26		
72959	02/10/2016	SC FUELS	Inv# 1882126	ALL DEPARTMENTS		$361.35		
72959	02/10/2016	SC FUELS	Inv# 1882126	ALL DEPARTMENTS		$627.98		
72959	02/10/2016	SC FUELS	Inv# 1882126	ALL DEPARTMENTS		$88.97		
72959	02/10/2016	SC FUELS	Inv# 1882126	ALL DEPARTMENTS		$62.66		
	Total for Check:	72959					$2,055.04	$40,927.22
72960	02/10/2016	SCOTT A. SOMMER, ESQ.	Inv# TAKATA DEC15 (NBGPP NCP) NCP compliance		Dec15 NBGPP	$1,695.98		
72960	02/10/2016	SCOTT A. SOMMER, ESQ.	Inv# TAKATA DEC15 (SBGPP NCP) NCP compliance		Dec15 SBGPP	$420.00		
	Total for Check:	72960					$2,115.98	$20,794.15
72961	02/10/2016	SOUTHERN CALIFORNIA EDISON CO.	Inv# 3-003-7100-85DEC15	12/4-1/5/16 KWH 1,048,194		$97,395.56		
	Total for Check:	72961					$97,395.56	$3,274,180.68
72962	02/10/2016	SPARKLETTS	Inv# 4076005 011516	WQ/R&D/WATER PRODUCTION		$21.53		
72962	02/10/2016	SPARKLETTS	Inv# 4076005 011516	WQ/R&D/WATER PRODUCTION		$323.48		
72962	02/10/2016	SPARKLETTS	Inv# 4076005 011516	WQ/R&D/WATER PRODUCTION		$127.93		
	Total for Check:	72962					$472.94	$3,019.28
72963	02/10/2016	SPRINT	Inv# 459104313-170	1/2-2/1/16 ACCT#459104313		$219.86		
	Total for Check:	72963					$219.86	$2,119.98
72965	02/10/2016	STAPLES	Inv# 3290026471	OFFICE SUPPLIES		$91.50		
72965	02/10/2016	STAPLES	Inv# 3290184318	OFFICE SUPPLIES		$13.66		
72965	02/10/2016	STAPLES	Inv# 3290741950	CRD.MEMO P.O.34585		($202.51)		
72965	02/10/2016	STAPLES	Inv# 3290026471	OFFICE SUPPLIES		$24.73		

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Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72965	02/10/2016	STAPLES	Inv# 3290026471	OFFICE SUPPLIES	$59.10		
72965	02/10/2016	STAPLES	Inv# 3290026471	OFFICE SUPPLIES	$73.33		
72965	02/10/2016	STAPLES	Inv# 3290026471	OFFICE SUPPLIES	$259.09		
72965	02/10/2016	STAPLES	Inv# 3290026470	OFFICE SUPPLIES	$74.50		
72965	02/10/2016	STAPLES	Inv# 3289833535	OFFICE SUPPLIES	$150.23		
72965	02/10/2016	STAPLES	Inv# 3289698989	File cabinet for office move	$2.86		
72965	02/10/2016	STAPLES	Inv# 3289698989	File cabinet for office move	$202.51		
72965	02/10/2016	STAPLES	Inv# 3289698989	File cabinet for office move	$11.46		
72965	02/10/2016	STAPLES	Inv# 3290026471	OFFICE SUPPLIES	$119.25		
	Total for Check:	72965				$879.71	$22,880.62
72966	02/10/2016	STATE WATER RES. CONTROL BOARD	Inv# LOAN CON#7-802-550-0	WATER RECLAMATION	$290,330.61		
	Total for Check:	72966				$290,330.61	$290,330.61
72967	02/10/2016	SUPERIOR SWEEPING LTD.	Inv# 377-0116	WATER PRODUCTION	$380.00		
	Total for Check:	72967				$380.00	$3,040.00
72968	02/10/2016	Smith, Benjamin	Inv# 1/14/16 SUPPLIES	1/14 card reader/La Palma Proj	$5.39		
72968	02/10/2016	Smith, Benjamin	Inv# 1/26/16 CELL PHONE STIPEN	1/26/16 cell phone stipend	$40.00		
	Total for Check:	72968				$45.39	$402.69
72969	02/10/2016	THE ORANGE COUNTY REGISTER	Inv# 0010128179		$1,848.00		
	Total for Check:	72969				$1,848.00	$1,848.00
72970	02/10/2016	THERMO FISHER SCIENTIFIC (ASHEVILLE)	Inv# SLS24757566	LABORATORY SUPPLIES	$245.43		
72970	02/10/2016	THERMO FISHER SCIENTIFIC (ASHEVILLE)	Inv# SLS24757566		$12.16		
	Total for Check:	72970				$257.59	$257.59
72971	02/10/2016	TIME WARNER COMMUNICATIONS	Inv# 8448 40 0080400190FEB16	CMF FOR IS	$1,625.00		
	Total for Check:	72971				$1,625.00	$13,768.70
72972	02/10/2016	TORONTO RESEARCH CHEMICALS, INC.	Inv# 205954	LABORATORY CHEMICALS	$225.00		
72972	02/10/2016	TORONTO RESEARCH CHEMICALS, INC.	Inv# 205954	LABORATORY CHEMICALS	$175.00		
72972	02/10/2016	TORONTO RESEARCH CHEMICALS, INC.	Inv# 205954	LABORATORY CHEMICALS	$150.00		

Orange County Water District

Check Register

Begin Date: 02/04/2016 **End Date:** 02/10/2016

Accounts Payable Check Register Presented for Board Ratification and/or Approval

Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72972	02/10/2016	TORONTO RESEARCH CHEMICALS, INC.	Inv# 205954	LABORATORY CHEMICALS	$140.00		
72972	02/10/2016	TORONTO RESEARCH CHEMICALS, INC.	Inv# 205954	LABORATORY CHEMICALS	$125.00		
72972	02/10/2016	TORONTO RESEARCH CHEMICALS, INC.	Inv# 205954	LABORATORY CHEMICALS	$100.00		
72972	02/10/2016	TORONTO RESEARCH CHEMICALS, INC.	Inv# 205954	FREIGHT	$63.00		
72972	02/10/2016	TORONTO RESEARCH CHEMICALS, INC.	Inv# 205954	LABORATORY CHEMICALS	$50.00		
	Total for Check:	72972				$1,028.00	$1,215.00
72973	02/10/2016	TOTAL FUNDS BY HASLER	Inv# 7900 0110 0247 2424 JAN16	KAREN WAREN	$3,000.00		
	Total for Check:	72973				$3,000.00	$15,107.70
72974	02/10/2016	TRUCPARCO	Inv# 362624	WP/RECH/PRADO/NATRES	$58.30		
72974	02/10/2016	TRUCPARCO	Inv# 362624		$1.08		
	Total for Check:	72974				$59.38	$15,201.14
72975	02/10/2016	U.S. TELEPACIFIC CORP	Inv# 74519389-0	Internet Services	$344.36		
	Total for Check:	72975				$344.36	$344.36
72976	02/10/2016	UNDERGROUND SERVICE ALERT	Inv# 120160479	NEW TICKETS	$576.00		
	Total for Check:	72976				$576.00	$5,151.00
72977	02/10/2016	UNITED PARCEL SERVICE	Inv# 0000X81601036		$40.30		
	Total for Check:	72977				$40.30	$2,308.29
72978	02/10/2016	UNITED PARCEL SERVICE	Inv# 0000X81601056		$71.18		
	Total for Check:	72978				$71.18	$2,308.29
72979	02/10/2016	UTILIQUEST LLC	Inv# 230267-Q 9908	1/3-9 screen/mark pipes	$40.40		
72979	02/10/2016	UTILIQUEST LLC	Inv# 230267-Q 9911	1/3-9 screen/mark pipes	$565.03		
72979	02/10/2016	UTILIQUEST LLC	Inv# 230267-Q 9922	1/3-9 screen/mark pipes	$329.60		
72979	02/10/2016	UTILIQUEST LLC	Inv# 230267-Q 9932	1/3-9 screen/mark pipes	$6.69		
	Total for Check:	72979				$941.72	$48,774.85
72980	02/10/2016	VERIZON CALIFORNIA	Inv# 714 378-3200 07090FEB16 01283411932359309	1/28-2/27	$2,523.37		
	Total for Check:	72980				$2,523.37	$20,077.47
72981	02/10/2016	VERIZON CALIFORNIA	Inv# 714 964-1492 090306FEB16 012834113156523206	1/28-2/27	$52.00		

Orange County Water District

Check Register

Accounts Payable Check Register Presented for Board Ratification and/or Approval

Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
72981	02/10/2016	VERIZON CALIFORNIA	Inv# 714 965-1308 070823FEB16 012834117636406606	1/22-2/21	$161.42		
	Total for Check:	72981				$213.42	$9,002.15
72983	02/10/2016	VWR INTERNATIONAL, INC.	Inv# 8043861272	INVENTORY RE-ORDER/PLW	$2,687.75		
72983	02/10/2016	VWR INTERNATIONAL, INC.	Inv# 8043861272		$95.59		
72983	02/10/2016	VWR INTERNATIONAL, INC.	Inv# 8043861272	INVENTORY RE-ORDER/PLW	$774.47		
72983	02/10/2016	VWR INTERNATIONAL, INC.	Inv# 8043801689	SUPPLIES	$285.40		
72983	02/10/2016	VWR INTERNATIONAL, INC.	Inv# 8043861272	INVENTORY RE-ORDER/PLW	$1,177.46		
72983	02/10/2016	VWR INTERNATIONAL, INC.	Inv# 8043861272		($47.35)		
72983	02/10/2016	VWR INTERNATIONAL, INC.	Inv# 8043850207		($12.55)		
72983	02/10/2016	VWR INTERNATIONAL, INC.	Inv# 8043850207	LABORATORY SUPPLIES	$1,355.92		
72983	02/10/2016	VWR INTERNATIONAL, INC.	Inv# 8043801689		($2.85)		
72983	02/10/2016	VWR INTERNATIONAL, INC.	Inv# 8043760098		($0.64)		
72983	02/10/2016	VWR INTERNATIONAL, INC.	Inv# 8043760098	SUPPLIES	$63.76		
72983	02/10/2016	VWR INTERNATIONAL, INC.	Inv# 8043849083 CRD.MEMO	REF.P.O.34614	($132.60)		
	Total for Check:	72983				$6,244.36	$125,484.40
72984	02/10/2016	Wehner, Michael P.	Inv# 1/20/16 TRAVEL	1/20 SACTO Assembly Hearing	$113.56		
72984	02/10/2016	Wehner, Michael P.	Inv# 1/25-27/16 AWWA TRAVEL AWWA Potabl	1/25-27 Long Beach	$36.00		
	Total for Check:	72984				$149.56	$750.87
72985	02/10/2016	MUNICIPAL WATER DISTRICT OF OC	Inv# 8749	Dec15 Water Purchases	$1,235,443.17		
	Total for Check:	72985				$1,235,443.17	$10,018,879.43
975835	02/10/2016	UNION BANK OF CALIFORNIA, N.A.	Inv# FEBRUARY 02/10/2016 OCWD TRUST	OCWD 2013A	$1,317,497.84		
	Total for Check:	975835				$1,317,497.84	$9,597,704.81
975836	02/10/2016	UNION BANK OF CALIFORNIA, N.A.	Inv# FEBRUARY 02/10/16OCWD	OCWD 2009A TRUST	$3,171,010.20		
	Total for Check:	97583				$3,171,010.20	$9,597,704.81
						$7,055,758.43	

un Date: *2/10/2016*

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7,055,758.43+
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7,143,048.23*

Orange County Water District

Check Register

Begin Date: 02/04/2016 **End Date:** 02/10/2016

Accounts Payable Check Register Presented for Board Ratification and/or Approval

Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
800946	02/10/2016	EVOQUA WATER TECHNOLOGIES LLC	Inv# 902478465	R&D/WATER PRODUCTION	$129.12		
800946	02/10/2016	EVOQUA WATER TECHNOLOGIES LLC	Inv# 902477909	PLANT CHEMICALS	$8,100.00		
	Total for Check:	800946				$8,229.12	$1,187,580.32
800947	02/10/2016	FISHER SCIENTIFIC CO.	Inv# 0494739	LABORATORY SUPPLIES	$84.71		
800947	02/10/2016	FISHER SCIENTIFIC CO.	Inv# 0494739	LABORATORY SUPPLIES	$73.92		
800947	02/10/2016	FISHER SCIENTIFIC CO.	Inv# 0750187	LAB SUPPLIES	$526.44		
800947	02/10/2016	FISHER SCIENTIFIC CO.	Inv# 0963466	INVENTORY RE-ORDER	$2,538.99		
800947	02/10/2016	FISHER SCIENTIFIC CO.	Inv# 0963466	INVENTORY RE-ORDER	$1,129.37		
800947	02/10/2016	FISHER SCIENTIFIC CO.	Inv# 0963466	INVENTORY RE-ORDER	$41.83		
800947	02/10/2016	FISHER SCIENTIFIC CO.	Inv# 1016113	INVENTORY RE-ORDER	$350.44		
800947	02/10/2016	FISHER SCIENTIFIC CO.	Inv# 1016113	INVENTORY RE-ORDER	$350.44		
	Total for Check:	800947				$5,096.14	$94,809.44
800948	02/10/2016	FOODCRAFT COFFEE SERVICE	Inv# 516010924	GENERAL ADMINISTRATION	$253.22		
	Total for Check:	800948				$253.22	$8,642.82
800949	02/10/2016	RUTAN & TUCKER	Inv# 737215	Dec15 legal/Property Mgmt	$2,057.25		
800949	02/10/2016	RUTAN & TUCKER	Inv# 737214	Dec15 legal/Personnel Issues	$6,033.48		
800949	02/10/2016	RUTAN & TUCKER	Inv# 737216	Dec15 legal/MTBE litig.monitor	$270.80		
800949	02/10/2016	RUTAN & TUCKER	Inv# 737217	Dec15 legal/Admin.Matters	$8,656.00		
800949	02/10/2016	RUTAN & TUCKER	Inv# 737221	Dec15 legal/US Grndwtr.Repleni	$104.50		
800949	02/10/2016	RUTAN & TUCKER	Inv# 737222	Dec15 legal/Ocean Desal	$338.00		
800949	02/10/2016	RUTAN & TUCKER	Inv# 737227	Dec15 legal/Yellow Jacket Cont	$1,400.47		
800949	02/10/2016	RUTAN & TUCKER	Inv# 737261	Dec15 legal/Water Resources	$47,139.03		
800949	02/10/2016	RUTAN & TUCKER	Inv# 737284	Dec15 legal/NBGPP VOC	$1,794.00		
800949	02/10/2016	RUTAN & TUCKER	Inv# 737213	Dec15 legal/General Matters	$3,302.05		
	Total for Check:	800949				$71,095.58	$373,728.50
800950	02/10/2016	SIGMA-ALDRICH INC.	Inv# 537864364	LABORATORY SUPPLIES	$441.18		
800950	02/10/2016	SIGMA-ALDRICH INC.	Inv# 537864364		$12.66		
	Total for Check:	800950				$453.84	$18,438.41
800951	02/10/2016	SPEX CERTIPREP, LLC	Inv# 314294	LABORATORY CHEMICALS	$44.80		
	Total for Check:	800951				$44.80	$14,572.80
800952	02/10/2016	WECK LABORATORIES, INC.	Inv# W6A0424-OCWD	WATER QUALITY	$300.00		

Orange County Water District

Check Register

Accounts Payable Check Register Presented for Board Ratification and/or Approval

Check No.	Date	Vendor Name	Invoice #	Purpose	Invoice Amount	Check Amount	YTD
	Total for Check:	800952				$300.00	$17,767.25
800953	02/10/2016	WESTAIR GASES & EQUIPMENT	Inv# 10245307	Lab-HE 6-pk/CO2/nitrogen 6pk	$1,817.10		
	Total for Check:	800953				$1,817.10	$53,071.39

Run Date: ***2/10/2016*** **$87,289.80**

MINUTES OF MEETING
BOARD OF DIRECTORS, ORANGE COUNTY WATER DISTRICT
January 20, 2016, 5:30 p.m.

President Green called to order the January 20, 2016 regular meeting of the Orange County Water District Board of Directors at 5:30 p.m. in the Boardroom at the District office. Following the Pledge of Allegiance to the Flag, the Secretary called the roll and reported a quorum as follows.

Directors		Staff
Philip Anthony		Michael Markus, General Manager
Denis Bilodeau		Joel Kuperberg, General Counsel
Jordan Brandman		Janice Durant, District Secretary
Shawn Dewane		Gina Ayala, Paula Bouyounes, Jason Dadakis,
Jan Flory		Jeremy Davis, Bruce Dosier, Stephanie Dosier,
Cathy Green		Bill Dunivin, Randy Fick, Mark Greening,
Dina Nguyen		Bill Hunt, John Kennedy, Rae Krause,
Roman Reyna	(arrived 5:35 p.m.)	Brendan Neel, Crystal Nettles, Craig Patterson,
Stephen Sheldon		Megan Plumlee, Christine Pham,
Roger Yoh	(arrived 5:38 p.m.)	Grisel Rodriquez, Jana Safarik, Eleanor Torres,
		Rose Wilke, Greg Woodside, Nira Yamachika

Others:
Jim Atkinson, Paul Schoenberger, Ethan Temianka – Mesa Water District
Andy Kingman – Poseidon
Renae Hinchley, Dave Youngblood – Laguna Beach County Water District
Robert Kiley – Yorba Linda Water District
Richard Eglash - Brady
Ken Vecchiarelli - Golden State Water Company
Jose Diaz – City of Orange
Tim McCarthy – City of Anaheim
Brian Ragland - City of Huntington Beach
Keith Lyon – Municipal Water District of Southern California

EMPLOYEE OF THE QUARTER AWARD

The Board presented the Employee of the Quarter Award to Communication Specialist Crystal Nettles.

VISITOR PARTICIPATION

There were no visitors wishing to address the Board.

CONSENT CALENDAR

Director Dewane removed Item No. 5, *Joint Security Vulnerability Assessment,* and Director Green removed Item No. 18, *BPP and RA Estimates for FY 2016-17,* from the Consent Calendar. The balance of the Consent Calendar was then approved upon motion by Director Anthony, seconded by Director Flory and carried [8-0]
Ayes: Anthony, Bilodeau, Brandman, Dewane, Green, Flory, Nguyen, Sheldon
Absent: Reyna, Yoh

1. Approval of Cash Disbursements

MOTION NO. 16-3
APPROVING CASH DISBURSEMENTS

Payment of bills for the period December 31, 2015 through January 13, 2016 in the total amount of $7,473,635.45 is ratified and approved.

2. Approval of Minutes of Board Meeting

MOTION NO. 16-4
APPROVING MINUTES OF BOARD MEETINGS

The minutes of the Board of Directors meeting held December 16, 2015 are approved as presented.

3. Change Position to Co-Sponsor Proposed Bill to Bottle Advanced Purified Water for Educational Purposes

MOTION NO. 16-5
AUTHORIZING CO-SPONSORSHIP OF PROPOSED BILL TO BOTTLE ADVANCED PURIFIED WATER FOR EDUCATIONAL PURPOSES

OCWD's position on WateReuse Association's proposed legislation to bottle advanced purified water for educational purposes is hereby changed from "support" to "co-sponsor" with WateReuse (and Orange County Sanitation District).

4. OCWD/ OCSD Joint Resolution of Support for MWD Indirect Potable Reuse Project

RESOLUTION NO. 16-1-1
OCWD AND OCSD JOINT RESOLUTION OF SUPPORT FOR THE METROPOLITAN WATER DISTRICT INDIRECT POTABLE REUSE PROJECT SUPPORTING THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA'S EFFORTS TO DEVELOP A GROUNDWATER REPLENISHMENT SYSTEM TYPE PROJECT WITH LOS ANGELES COUNTY SANITATION DISTRICT NO. 2 IN THE CITY OF CARSON

WHEREAS, the Orange County Water District (OCWD) was formed by a special act of the California Legislature in 1933 to sustainably manage and protect the Orange County Groundwater Basin and protect the area's rights to flows in the Santa Ana River; and

WHEREAS, the Orange County Sanitation District (OCSD) is a duly organized County Sanitation District existing pursuant to the County Sanitation District Act of 1923, California Health and Safety Code section 4700, et seq., providing for the ownership, operation, and maintenance of wastewater collection, treatment and disposal facilities within Orange County, California; and

WHEREAS, OCWD and OCSD have worked very closely to recycle all wastewater that is available at OCSD Reclamation Plant Number 1 with the Groundwater Replenishment System (GWRS); and

WHEREAS, the GWRS is the world's largest advanced water purification facility of its kind and is now producing approximately 100 million gallons per day of new water supply and plans are being developed by OCWD and OCSD to expand the facility up to 130 million gallons per day, which is enough water for more than one million residents and businesses in north and central Orange County; and

WHEREAS, OCWD and OCSD have garnered more than 40 awards for the development, construction and operation of the GWRS from organizations around the world, including the 2008 Stockholm Industry Water Prize, the 2014 U.S. Water Prize, and the 2014 Lee Kuan Yu Prize, bestowed upon OCWD by the nation of Singapore for its GWRS, groundwater management and education programs; and

WHEREAS, OCWD has committed to purchase and recharge 650,000 acre-feet of untreated full service imported water supply from the Metropolitan Water District of Southern California (MWD) through MWD's representative, the Municipal Water District of Orange County, over the next ten years; and

WHEREAS, the purified water from the new water reuse project proposed by MWD and the Los Angeles County Sanitation District (LACSD) No.2 could replace a portion of the 650,000 acre-foot commitment or provide additional water to OCWD to recharge the Orange County Groundwater Basin; and

WHEREAS, OCWD and OCSD have acquired significant technical and public engagement expertise in planning, developing, funding, building, and operating the GWRS that could be beneficial to MWD and LACSD No. 2 in building the most efficient and cost effective project in a timely manner; and

WHEREAS, the reliability of imported water supply sources is being challenged as numerous environmental, agricultural and urban interests maneuver to obtain greater shares of these water sources from the Colorado River and State Water Project; and

WHEREAS, the local multi-billion dollar economy requires a reliable and sustainable water source to remain healthy and strong; and

NOW, THEREFORE, the Board of Directors of the Orange County Water District and the Orange County Sanitation District does hereby resolve as follows:

Section 1: OCWD and OCSD will provide technical support as needed to MWD and the LACSD to assist in developing the proposed water reuse project.

Section 2: The types of technical support provided will include, but not be limited to: (1) Permitting, (2) Injection well construction and operation, (3) Treatment plant design, (4) Optimizing plant operations, (5) Public engagement and support, (6) Recharging the water, and (7) Institutional coordination.

Section 3: OCWD and OCSD will work with the MWD and the LACSD to maximize how much of the water being created from this project can be annually recharged into the Orange County Groundwater Basin.

Section 4: OCWD, OCSD, MWD, and LACSD should all work collaboratively to ensure the proposed project is successfully constructed and operated with communitywide support and minimal delays and in the most effective, cost efficient and environmentally sound manner as possible. As such, entering into a memorandum of understanding between the four agencies is strongly encouraged.

5. Joint Security Vulnerability Assessment

This item was removed from the Consent Calendar and considered later in tonight's meeting.

6. Annual Santa Ana River Stream Gauging Joint Funding Agreement with USGS

RESOLUTION NO. 16-1-2
APPROVING CONTINUED JOINT FUNDING AGREEMENT
WITH USGS FOR SANTA ANA RIVER WATER STREAM GAUGING

WHEREAS, pursuant to Resolution No. 799 adopted November 20, 1963, OCWD entered into a cooperative program agreement with the U.S. Department of the Interior Geological Survey (USGS) to conduct stream gauging services along the Santa Ana River; and

WHEREAS, such program has remained in force, with modifications, since its inception pursuant to actions taken by this Board; and

WHEREAS, the District staff has recommended approval of continuance of such cooperative program under the USGS Joint Funding Agreement for Water Resources Investigations to conduct stream gauging of the Santa Ana River below Prado Dam and Santiago Creek at Santa Ana for the period November 1, 2015 to October 31, 2016 at a total cost of $52,800 to be funded jointly as follows: $16,800 by USGS and $36,000 by OCWD;

NOW, THEREFORE, the Board of Directors of the Orange County Water District does hereby approve the aforementioned Joint Funding Agreement with USGS; and, upon approval as to form by District General Counsel, its execution by the District officers is authorized.

7. OCWD Participation in County of Orange Adopt a Channel Program

RESOLUTION NO. 16-1-3
APPROVING OCWD PARTICIPATION IN COUNTY OF ORANGE ADOPT A CHANNEL PROGRAM, AUTHORIZING EXECUTION OF ENCROACHMENT PERMIT APPLICATION WITH ORANGE COUNTY PUBLIC WORKS, AND AUTHORIZING AGREEMENT WITH ORANGE COUNTY CONSERVATION CORPS FOR GRAFFITI AND TRASH REMOVAL

WHEREAS, the Water Issues Committee of this Board has recommended participation in the County of Orange "Adopt A Channel" program in a portion of the Santa Ana River channel owned by OCWD and a portion owned by the Orange County Flood Control District where OCWD conducts its recharge operations; and

WHEREIN, as a participant in the aforementioned Program, OCWD would assume the responsibility and cost for graffiti abatement and trash and debris removal;

NOW, THEREFORE, the Board of Directors of the Orange County Water District does hereby resolve as follows:

Section 1: OCWD participation in the aforementioned Orange County Public Works Adopt A Channel program is authorized.

Section 2: Execution by the District Officers of an Encroachment Permit application and a Certificate of Liability Insurance with Orange County Public Works for such program participation is authorized.

Section 3: An Agreement with the Orange County Conservation Corps to conduct graffiti and trash removal for three years for a total expenditure of up to $55,800 is authorized; and, upon approval as to form by District General Counsel, its execution by the District officers is authorized.

8. Agreements for On-Call Environmental Services

RESOLUTION NO. 16-1-4
APPROVING RENEWAL OF AGREEMENTS FOR
ON-CALL ENVIRONMENTAL SERVICES

RESOLVED, that renewal and execution by the District officers of the Agreements for on-call environmental analysis services with Bonterra Psomas Consulting and Environmental Advisors for an additional term of three years, through August 31, 2019 is authorized.

RESOLVED FURTHER, that renewal and execution by the District officers of an Agreement with Environmental Science Associates for on-call environmental analysis services through August 31, 2019 is authorized.

9. RFP for Conrock-Warner Transfer Tube Design Services

MOTION NO. 16-6
APPROVING RFP FOR CONROCK-WARNER TRANSFER TUBE DESIGN SERVICES

Issuance of a Request for Proposals for the Conrock-Warner Transfer Tube Project Design is hereby authorized.

10. RFP for Center Levee Corrugated Metal Pipe Transfer Pipes Repair Project Design Services

MOTION NO. 16-7
APPROVING RFP FOR CENTER LEVEE CORRUGATED METAL PIPE (CMP) TRANSFER PIPES REPAIR PROJECT DESIGN SERVICES

Issuance of a Request for Proposals for the Center Levee Corrugated Metal Pipe (CMP) Transfer Pipes Repair Project Design Services is hereby authorized.

11. Notification to DWR to Explore Bulletin 118 Basin Boundary Modifications

MOTION NO. 16-8
AUTHORIZING STAFF TO NOTIFY DEPARTMENT OF WATER RESOURCES (DWR) TO EXPLORE BULLETIN 118 BASIN BOUNDARY MODIFICATIONS

Staff is hereby authorized to notify the Department of Water Resources (DWR) and local agencies of its decision to explore scientific boundary modifications to Bulletin 118, Basin 8-1, Coastal Plain of Orange County Groundwater Basin.

CONSENT CALENDAR ITEMS RECOMMENDED FOR APPROVAL AT ADMINISTRATION AND FINANCE ISSUES MEETING HELD JANUARY 14

12. Monthly Cash Control Report

MOTION NO. 16-9
RECEIVING AND FILING CASH CONTROL REPORT

The Summary Cash and Cash Equivalents Control Report dated December 31, 2015 are hereby received and filed.

13. Renewal of License with SCE for GWRS Southeast Barrier Pipeline and Green Acres Project Pipeline

MOTION NO. 16-10
AUTHORIZING RENEWAL OF LICENSE WITH SCE FOR GWRS SOUTHEAST BARRIER PIPELINE AND GREEN ACRES PROJECT PIPELINE

RESOLVED, that renewal of Southern California License (SCE) License Contract No. 9.4068 (formerly Contract No. L2110) required for the Green Acres Project pipeline is authorized for a five-year period commencing February 1, 2016, for a total fee of $99,218.

RESOLVED FURTHER, that renewal of SCE License Contract No. 9.4172 (formerly Contract No. L3272) required for the Southeast Barrier Pipeline is authorized for a five-year period commencing October 1, 2016, for a total fee of $59,835.

14. Limited-Term Employment Agreement for Assistant Hydrogeologist

RESOLUTION NO. 16-1-5
AUTHORIZING LIMITED-TERM EMPLOYMENT AGREEMENT FOR ASSISTANT HYDROGEOLOGIST BRENDAN NEEL

WHEREAS, the Water Issues Committee has recommended issuance of a Limited Term Employment Agreement to Assistant Hydrogeologist Brendan Neel for a one-year period commencing January 21, 2016;

NOW, THEREFORE, the Board of Directors of the Orange County Water District does hereby approve the aforementioned Limited-Term Employment Agreement with Assistant Hydrogeologist Brendan Neel as outlined herein; and upon approval as to form by District General Counsel, its execution by the District officers is authorized.

15. Investment Portfolio Holdings Reports

MOTION NO. 16-11
RECEIVING AND FILING INVESTMENT PORTFOLIO HOLDINGS REPORT

The Investment Portfolio Holdings Reports dated December 31, 2015 is hereby received and filed.

16. Revised District Reserve Policy

RESOLUTION NO. 16-1-6
ADOPTING REVISED DISTRICT RESERVE POLICY

RESOLVED, that the District Reserve Policy is hereby revised as follows:

District Reserve Policy

A key element of prudent financial planning is to ensure that sufficient funding is available for current operating, capital, and debt service needs. Additionally, fiscal responsibility requires anticipating the likelihood of, and preparing for, unforeseen events. The District will at all times strive to have sufficient funding available to meet its operating, capital, and debt service obligations. To preserve its strong credit ratings of AAA/AAA/Aa1, in every fiscal year the District will strive to maintain unrestricted cash and investment balances totaling a minimum of 625 days of budgeted operating expenses comprised of annual budgeted General Fund appropriations and annual budgeted Debt Service and strive to maintain a 3.50x – 4.00x senior lien annual debt service coverage and a 2.75x- 3.25x all-in annual debt service coverage in every fiscal year as defined by the District's bond indenture.

Operating Reserve Fund *- established by the District Act and allocated from the general fund to be used to meet the cash flow needs of the District before the proceeds of taxes or replenishment assessment collections are available to meet emergency expenditures for operations, maintenance and the debt service payments of the District. The level of this general operating reserve as established in the District Act shall not exceed 15% of the total current annual general and water reserve fund operating budget.*

Toxic Cleanup Reserve Fund *- established for toxic spill emergencies and cleanup. The current target level is $ 4 million and is to be replenished annually after the adoption of the annual OCWD budget.*

Contingency Reserve Fund *- established by the District Act to provide for expenditures that have not been anticipated or provided for in the District's annual budget. The money for this fund is to be allocated from the Operating Fund and the Water Reserve Fund at the beginning of each fiscal year. The level of this fund as established by the District Act is not to exceed $ 3 million.*

***Water Replenishment Fund* (to be known as the "Operating Fund")** - *established for funds collected and received from the levy of the District's replenishment assessment. These monies shall be sufficient to enable the District to carry on any of the projects or purposes of the District as deemed by the Board of Directors. It can also include the expenditures necessary for the maintenance, operation and repairs of works and projects of the district as authorized by the board of directors. The funds can also be used for the purchase of supplemental water, and the replenishment of ground water supplies within the District. The District shall maintain a minimum balance equal to fifty percent of the sum of the (i) current annual budgeted General Fund appropriations, plus (ii) current annual budgeted debt service appropriations.*

Basin Equity Assessment Fund - *established for funds received from the levy of the District's Basin Equity Assessment. These funds are to be used only for the purchase of water for the purpose of groundwater replenishment and/or to reimburse producers assigned pumping limitations per the District Act.*

Water Reserve Fund - *established by the District Act to accumulate any excess general assessment, or unexpended funds, other than funds allocated to the operating reserve or operating contingencies by the Board of Directors. These funds can be used for the purchase of supplemental water for groundwater replenishment, acquiring, constructing or developing any groundwater intrusion prevention projects, pipelines, wells or other works necessary for the purposes of the district. Going forward, under the new Reserve Policy, this fund shall be designated only for purchases of supplemental water in order to have funds set aside and available. This will provide accountability and transparency to the Board and Groundwater Producers on funds collected and spent on water purchases. The maximum upper limit is set at enough funds to purchase 50% of water needed to have an accumulated basin overdraft of 125,000 acre-feet.*

Repair and Replacement Fund - *established for replacement or refurbishment of District facilities, to be equal to thirty years of projected Replacement and Refurbishment (R&R) costs as defined in the District's R&R model.*

***Capital Fund (Pay-go)* –** *established for proceeds from Replenishment Assessment revenues earmarked towards the capital improvement program as opposed to financing all the District's capital expenditures and has no legal restrictions such as bond proceeds would.*

Debt Service Reserve Fund – *establish an unrestricted reserve as a condition of the low cost State Revolving Fund loans equal to one year's debt service.*

Capital Fund *– established for proceeds from bond issuances or any other debt financing, and are used for the District's capital projects and capital improvements. These funds are restricted to specific capital projects which are authorized and approved by the Board of Directors.*

Debt Reserve Fund - *established for various bond issues. These funds are not available for the general needs of the District and must be maintained at specific levels, and are restricted by certain bond covenants.*

Debt Service Fund ***("Bond Fund" per District Act)*** *- established to meet the annual debt payments of principal and interest for the Certificates of Participation (COPs). These funds are allocated from property tax revenues and the fiscal replenishment assessment collections. In 1992 and 1993 the Board dedicated the District's ad valorem taxes to the payment of the bond debt. The District funds the annual debt payments from the property taxes received (first priority) and then from replenishment assessments (second priority). Under this policy, this fund shall cease to exist and funds included in this fund shall be incorporated into the Operating Fund.*

Section 2: The fund balances as of January 1, 2016 are adopted, as are the following funding target levels:

ACCOUNT	POLICY FUNDING TARGET
Restricted Funds & Reserves	
Capital Project Funds	No target
Debt Reserve Funds	Bond Covenants
BEA Funds	No Target
Designated Reserves & Funds	
Toxic Cleanup	$4 million
Contingency	$3 million
Capital Fund (pay-go)	No target
Debt Service Reserve Fund	One year's annual debt service on State Revolving Fund loans
Water Reserve Funds	Maximum of enough funds to purchase 50% of water needed to have an accumulated overdraft of 125,000 acre-feet
Operating Reserves	15% Operating & Water Budget
Repair & Replacement Reserves	Detailed R&R Model
Operating Funds (Water Replenishment Fund)	
Operating Cash	
RA & Annual Debt Payments	50% of current annual budgeted General Fund appropriations and 50% of annual budgeted debt service

17. Agreement to Autoscribe Informatics for LIMS Implementation

RESOLUTION NO. 16-1-7
AGREEMENT TO AUTOSCRIBE INFORMATICS FOR LABORATORY INFORMATION MANAGEMENT SYSTEM (LIMS) IMPLEMENTATION

RESOLVED, that issuance of an Agreement to Autoscribe Informatics is authorized for an amount not to exceed $621,494 for the acquisition of the Autoscribe Matrix Gemini Laboratory Information Management System software and related implementation services; and an increase in 2015/2016 Capital Improvement Budget line item C15001 by $221,000 to $721,000 is authorized.

18. Basin Production Percentage and Replenishment Assessment Estimates for FY 2016-17

This item was removed from the Consent Calendar and considered later in tonight's meeting.

Director Reyna arrived at 5:35 p.m. at this point in tonight's meeting.

ITEMS REMOVED FROM CONSENT CALENDAR FOR CONSIDERATION

5. Joint Security Vulnerability Assessment

Director Dewane requested assurance that the budget for this item was sufficient. General Manager Markus responded that OCWD is talking to Orange County Sanitation District regarding jointly cooperating on security matters. The following action was then taken. Upon motion by Director Dewane, seconded by Director Anthony, the following resolution was adopted [9-0].

RESOLUTION NO. 16-1-8
APPROVING AGREEMENT WITH PINKERTON FOR
JOINT SECURITY VULNERABILITY ASSESSMENT WITH OCSD

RESOLVED, that issuance of an Agreement to Pinkerton is authorized for an amount not to exceed $15,000 for a joint security vulnerability assessment of the joint OCWD and OCSD Fountain Valley campus as a cost shared item between both agencies; and, its execution by the District officers is authorized.
Ayes: Anthony, Bilodeau, Brandman, Dewane, Green, Flory, Nguyen, Reyna, Sheldon
Absent: Yoh

Director Yoh arrived at 5:38 p.m. at this point in tonight's meeting.

18. Basin Production Percentage and Replenishment Assessment Estimates for FY 2016-17

Executive Director John Kennedy recalled that each year at this time staff gives a preliminary Basin Production Percentage to assist the Groundwater Producers (GWP) in setting their budgets for the next fiscal year. He reviewed the Basin Production Percentage (BPP) and the

Replenishment Assessments (RA) estimates for Fiscal Year 2016-2017. He reviewed the current groundwater basin water level and stated the BPP is estimated to be 72-80% and the RA may fall within the range of $395 to $431. Mr. Kennedy requested authorization to provide these estimates to the GWP. Director Sheldon left the meeting temporarily prior to the vote on this item.

MOTION NO. 16-12
DIRECTING STAFF TO PROVIDE BASIN PRODUCTION PERCENTAGE AND REPLENISHMENT ASSESSMENT ESTIMATES TO GWP FOR FISCAL YEAR 2016-17

Upon motion by Director Anthony, seconded by Director Green and carried [9-0], staff is directed to provide the Fiscal Year 2016-17 Replenishment Assessment and Basin Production Percentage estimates to the Groundwater Producers.
Ayes: Anthony, Bilodeau, Brandman, Dewane, Green, Flory, Nguyen, Reyna, Yoh
Absent: Sheldon

Director Sheldon returned to the meeting during discussion of the following item.

MATTERS FOR CONSIDERATION

19. Prado Basin Sediment Management Demonstration Project: Certification of EIR and Approval of Project

Executive Director Greg Woodside presented staff's recommendation for a reduced-scale Prado Basin Sediment Management Demonstration Project (SMDP) that would provide key data to determine the sediment removal production rate that can be achieved by dredging in Prado Basin. He stated this data could determine the economic feasibility of removing large quantities of sediment from Prado Basin. Mr. Woodside stated the project is estimated to cost $3.9 million, noting $1.4 million has been expended to date. The Board suggested staff obtain grant funds and Army Corps of Engineers financial participation prior to proceeding. Director Dewane moved to conceptually approve the project but defer expenditure of costs for final design or construction pending a report back to the Board on the status of grant funding and cooperation by the Corps of Engineers. Director Green expressed concern over the length of time it takes for Corps funding and questioned whether the process should be slowed down. Director Flory then suggested the Board support the original staff recommendation and made a substitute motion to approve the staff recommendation. The following action was then taken.

Upon motion by Director Flory, seconded by Director Green, with Directors Anthony and Dewane voting "No," the following resolution was adopted [8-2].
Ayes: Bilodeau, Brandman, Green, Flory, Nguyen, Reyna, Sheldon, Yoh
Noes: Anthony, Dewane

RESOLUTION NO. 16-1-9
CERTIFYING THE FINAL ENVIRONMENTAL IMPACT REPORT
(STATE CLEARINGHOUSE #2013111071) FOR THE
ORANGE COUNTY WATER DISTRICT
PRADO BASIN SEDIMENT MANAGEMENT DEMONSTRATION PROJECT,
AND APPROVING PROJECT AND ASSOCIATED ACTIONS

WHEREAS, the District has proposed a sediment management demonstration project within the Prado Basin to remove sediment from Prado Basin, which is considered a "Project" as defined by the California Environmental Quality Act (CEQA); and

WHEREAS, District staff has evaluated and proposed a Project to remove up to approximately 40,000 cubic yards of sediment through dry excavation of sediment with heavy equipment and remove approximately 80,000 cubic yards of sediment removal through dredging in Prado Basin to collect important data regarding the cost of sediment removal, as described in the January 13, 2016 agenda item submittal to the Water Issues Committee; and

WHEREAS, District staff prepared a Draft Environmental Impact Report (Draft EIR) to evaluate short-term construction related impacts, long-term operational impacts, cumulative impacts and indirect impacts that could result from the construction and operation of the Project; and

WHEREAS, the Draft EIR was circulated to the public, responsible agencies and other interested persons for review and comments from March 12, 2014 to April 25, 2014; and

WHEREAS, the Draft EIR was re-circulated to the public, responsible agencies and other interested persons for review and comments from September 22, 2014 to November 5, 2014.

WHEREAS, the Staff reviewed and considered the recommendation of the Draft EIR and comments on the Draft EIR and responded to and has forwarded responses to comments to all responding agencies.

WHEREAS, the Board of Directors of the Orange County Water District has reviewed and considered the information and recommendations of the Final EIR, at a regularly scheduled board meeting held on January 20, 2016.

NOW, THEREFORE, the Board of Directors of the Orange County Water District DOES HEREBY RESOLVE as follows:

Section 1: The Board of Directors of the Orange County Water District finds that the Final EIR (State Clearinghouse #2013111071) has been completed in compliance with CEQA and the State CEQA Guidelines. The Board of Directors, having final approval authority over the Project, certifies as complete and adequate the Final EIR for the Orange County Water District Prado Basin Sediment Management Demonstration Project.

Section 2: The Final EIR shall consist of the following:

A. The Orange County Water District Prado Basin Sediment Management Demonstration Project Draft EIR and Re-circulated Draft EIR
B. The Technical Appendices to the Draft EIR
C. Comments and Responses to comments to the Draft EIR and Re-circulated Draft EIR
D. Findings of Fact
E. Mitigation Monitoring Reporting Program

Section 3: The Board of Directors finds that the Final EIR reflects the independent judgment and analysis of the District as the lead agency for the Project, that the Final EIR was presented to the Board of Directors, and that the Board of Directors has reviewed and considered the information contained in the Final EIR, and the comments received during the public review process, as well as the responses to the comments, prior to taking any action on the Final EIR or the Project.

Section 4: As documented in the Findings of Fact attached hereto as Exhibit "A" and incorporated herein by this reference, the Final EIR identifies certain significant effects that would potentially result from the construction and operation of the Prado Basin Sediment Management Demonstration Project. The majority of these potentially significant environmental impacts have been mitigated to a less than significant level. However, the Final EIR also identifies that unavoidable significant temporary biological resource and water quality impacts would result from the construction and operation of the Project despite the imposition of all feasible mitigation measures, as described in the Findings of Fact attached hereto as Exhibit “A”. Potential mitigation measures and project alternatives not incorporated into the Project were rejected as infeasible, based upon specific economic, social, or other considerations as set forth in the Findings of Fact.

Section 5: As set forth in the Statement of Overriding Considerations attached hereto as Exhibit “A” and incorporated herein by this reference with respect to the unavoidable significant temporary biological resource and water quality impacts identified in the Final EIR and Findings of Fact which cannot be mitigated to a level of insignificance, specific economic, social or other considerations outweigh the unavoidable adverse environmental effects, and the Board of Directors has balanced the significant public benefits of the Project, against the unavoidable significant temporary biological resource and water quality impacts and has determined that the Project may be approved in spite of such unavoidable significant impacts.

Section 6: The Mitigation Monitoring and Reporting Program for the Project attached hereto as Exhibit "A" and incorporated herein by this reference is hereby adopted.

Section 7: The project as described in the January 13, 2016 agenda item submittal to the Water Issues Committee is approved and duly instituted.

Section 8: A project budget of $3,900,000.00 is hereby established.

Section 9. Staff is hereby authorized to complete the permitting process with the United States Army Corps of Engineers, California Regional Water Quality Control Board, United States Fish and Wildlife Service, and California Department of Fish and Wildlife, execute the permits

received for the Project from the United States Army Corps of Engineers and the resource agencies, and prepare and implement the Habitat Management Program for the Project.

Section 10. Staff is hereby authorized to issue a Notice Inviting Bids for the Project.

Section 11. The Board of Directors hereby authorizes and directs District staff to file a Notice of Determination with respect to the approval of the Project.

20. Laguna Beach County Water District Agreement

Mr. Markus recalled that the District and Laguna Beach County Water District (LBCWD) entered into a Memorandum of Understanding (MOU) in 1993 regarding an issue over groundwater pumping along the coastal portion of the basin in the City of Huntington Beach. He stated that LBCWD is requesting the District consider amending the MOU. Mr. Markus stated that based upon discussions with LBCWD, a new agreement has been developed that allows LBCWD to pump 2,025 acre-feet per year of water from any location within OCWD for which LBCWD will pay the District a total of $3.1 million over five years. LBCWD General Manager Renae Hinchey advised that LBCWD has agreed to the terms and conditions in the MOU, and Mesa Water District Director Jim Atkinson expressed support for the proposed Agreement. The Board then took the following action.

Upon motion by Director Anthony, seconded by Director Flory, the following resolution was unanimously adopted [10-0].
Ayes: Anthony, Bilodeau, Brandman, Dewane, Green, Flory, Nguyen, Reyna, Sheldon, Yoh

RESOLUTION NO. 16-1-10
APPROVING AGREEMENT WITH LAGUNA BEACH COUNTY WATER DISTRICT FOR EXTRACTION OF WATER FROM OCWD BASIN AND AUTHORIZING FILING OF CEQA NOTICE OF EXEMPTION

WHEREAS, pursuant to Resolution No. 93-11-196 adopted November 4, 1993, OCWD entered into a Memorandum of Understanding with Laguna Beach County Water District providing for LBCWD to pump and transport up to 2,025 acre-feet of water annually from land that it owns (Lindsey Well Site) on the seaward side of the Talbert Seawater Barrier in the City of Huntington Beach; and

WHEREAS, due to seawater intrusion, LBCWD abandoned such well and has requested that OCWD modify the aforementioned MOU to allow the 2,025 acre-feet of water to be extracted from any area within OCWD; and

WHEREAS, staff has presented and recommended approval of an Agreement with LBCWD allowing the extraction of 2025 acre-feet of water from the OCWD groundwater basin in exchange for $3.1 million over a period of five years; and has recommended filing of a Notice of Exemption in accordance with California Environmental Quality Act guidelines;

NOW, THEREFORE, the Board of Directors of the Orange County Water District does hereby resolve as follows:

Section 1: The aforementioned Agreement with the LBCWD is approved as outlined herein; and, upon approval as to form by District General Counsel, its execution by the District officers is authorized.

Section 2: Filing of a California Environmental Quality Act Notice of Exemption is authorized.

21. INFORMATIONAL ITEMS

A. Mid-Year Groundwater Basin Conditions Update

Chief Hydrogeologist Roy Herndon updated the Board on mid-year groundwater basin conditions. He stated that through December, rainfall at the District's field headquarters in Anaheim was about two inches below average. He stated rains in January provided about 12,000 acre-feet in the water conservation pool behind Prado Dam, noting that staff estimates it could take up to a month to drain the pool by recharging the water, assuming no intervening storms. Mr. Herndon reported that in response to the state-wide water conservation mandate, total water demands are tracking about 18% below last year through December, and groundwater production is about 15% below that of last year.

B. Water Resources Summary

General Manager Markus reviewed the Water Resources Summary for December.

C. Postdoctoral Research Associate For Research & Development Department

Director of Research Megan Plumlee advised that the Research & Development Department seeks to hire a Postdoctoral Research Associate in FY 2016-17, pending budget approval, as a means to enrich and extend the District's applied research capabilities. She stated the position would be a Limited-Term Contract position with benefits funded in part by the 2014 Lee Kwan Yew Water Prize (US $240,000 award).

D. Santa Ana Watershed Project Authority Activities

Director Anthony advised that the next SAWPA Commission meeting would be held at the Orange County Sanitation District.

E. Groundwater Producer Meeting Minutes – January 13, 2016

There was no discussion of this item.

F. Committee/Conference/Meeting Reports

The Board reported on the following Committee meetings and noted the Minutes/Action Agendas were included in tonight's Board packet.

1) January 07 – Communication and Legislative Liaison Committee
January 11 – GWRS Steering Committee
January 12 - Water Issues Committee
January 13 – Administration and Finance Issues Committee

22. VERBAL REPORTS

Mr. Markus reported that OCWD and three flood control agencies would meet tomorrow at Prado with General Toy, Major General Jackson, and Congressman Calvert He also reported he has been invited to Washington DC to discuss drought legislation.

ADJOURNMENT TO CLOSED SESSION

The Board adjourned to Closed Session at 7:25 p.m. as follows:

CONFERENCE WITH LABOR NEGOTIATORS
[Government Code Section 54957.6]
OCWD designated representative: Stephanie Dosier
⊙ Employee Organization: Orange County Employee Association

ADJOURNMENT

There being no further business to come before the Board, the meeting was adjourned at 7:38 p.m.

_____
Janice Durant, District Secretary

_____
Cathy Green, President

AGENDA ITEM SUBMITTAL

Meeting Date: February 17, 2016

To: Board of Directors

From: Mike Markus

Staff Contact: Lo Tan

Budgeted: N/A
Budgeted Amount: N/A
Cost Estimate: N/A
Funding Source: N/A
Program/Line Item No.: N/A
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

SUBJECT: 2014-2015 ENGINEER'S REPORT ON GROUNDWATER CONDITIONS, WATER SUPPLY AND BASIN UTILIZATION

SUMMARY

The District Act requires the preparation of an annual Engineer's Report on the groundwater conditions, water supply and basin utilization. The draft Engineer's Report for the 2014-15 water year (from July 1, 2014 to June 30, 2015) will be distributed at the Board meeting. The only action required at this time is to receive and file the draft report. The annual Engineer's Report will be finalized following the public hearing on March 16, 2016.

A subsequent public hearing, to be scheduled for April 20, 2016, is required to set the replenishment assessment, basin equity assessment and basin production percentage for the ensuing 2016-17 water year.

Attachment(s): Draft 2014-15 Engineer's Report

RECOMMENDATION

Receive and file the draft 2014-15 Engineer's Report and schedule a public hearing on March 16, 2016 to present the Report's findings and on April 20, 2016 to consider establishing the Replenishment Assessment, Basin Equity Assessment and Basin Production Percentage for the 2016-17 water year.

PRIOR RELEVANT BOARD ACTION(S)

Annual

DRAFT

2014-2015

ENGINEER'S REPORT ON

GROUNDWATER CONDITIONS,

WATER SUPPLY AND BASIN UTILIZATION

IN THE

ORANGE COUNTY WATER DISTRICT

FEBRUARY 2016

ORANGE COUNTY WATER DISTRICT
BOARD OF DIRECTORS

Philip L. Anthony
Denis R. Bilodeau, P.E.
Jordan Brandman
Shawn Dewane
Jan M. Flory
Cathy Green
Dina Nguyen, Esq.
Vincent F. Sarmiento, Esq.
Stephen R. Sheldon
Roger C. Yoh, P.E.

Michael R. Markus, P.E.
General Manager

DIRECTORS
PHILIP L. ANTHONY
DENIS R. BILODEAU, P.E.
JORDAN BRANDMAN
SHAWN DEWANE
JAN M. FLORY
CATHY GREEN
DINA NGUYEN
ROMAN A. REYNA
STEPHEN R. SHELDON
ROGER C. YOH, P.E.

SINCE 1933

ORANGE COUNTY WATER DISTRICT

ORANGE COUNTY'S GROUNDWATER AUTHORITY

OFFICERS
President
CATHY GREEN

First Vice President
DENIS R. BILODEAU, P.E.

Second Vice President
PHILIP L. ANTHONY

General Manager
MICHAEL R. MARKUS, P.E., D.WRE

February 17, 2016

Michael R. Markus
General Manager
Orange County Water District
Post Office Box 8300
Fountain Valley, CA 92728-8300

Dear Mr. Markus:

In accordance with Section 26 of the District Act, the 2014-2015 Engineer's Report on the Groundwater Conditions, Water Supply and Basin Utilization in the District is hereby submitted.

Precipitation for the water year July 1, 2014 through June 30, 2015 within the District's boundaries averaged 8.2 inches, which was sixty one percent of the long-term average rainfall of 13.4 inches per year. Santa Ana River flow past Prado Dam for the water year totaled 102,090 acre-feet, which was forty five percent of the 30-year average flow. Flow past the District's spreading grounds (including any flow from the Santiago Creek) that was lost to the Pacific Ocean totaled 3,230 acre-feet.

Total water demands within the District for the 2014-2015 water year were 425,349 acre-feet (excluding water used for groundwater replenishment and barrier maintenance). Supplemental water used for groundwater replenishment and barrier maintenance during the water year totaled 60,870 acre-feet (excludes any available In-Lieu Program water). Groundwater production within the basin for the water year totaled 305,259 acre-feet (includes any available In-Lieu Program water) which was an eight percent decrease from the prior water year.

The accumulated basin overdraft increased from 342,000 acre-feet on June 30, 2014 to 381,000 acre-feet on June 30, 2015 using the three-layer approach and new baseline full condition for the basin. Under the provisions of Section 27 of the District Act, a portion of the Replenishment Assessment for the 2016-2017 water year could be equal to an amount necessary to purchase up to 170,000 acre-feet of replenishment water.

Very truly yours,

Chris S. Olsen
Director of Engineering

Lo Tan
Senior Engineer

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EXECUTIVE SUMMARY

Total water demands within Orange County Water District (OCWD) were 425,349 acre-feet (AF) for the 2014-15 water year (beginning on July 1, 2014 and ending on June 30, 2015). Groundwater production for the water year totaled 305,259 AF including any available In-Lieu Program water and excluding MWD Groundwater Storage Program extractions. A total of 60,870 AF of supplemental water was used for the purpose of groundwater replenishment and barrier maintenance.

For the water year which ended on June 30, 2015, the "annual overdraft" (annual basin storage decrease without supplemental replenishment water) was 153,000 AF and the annual basin storage including the use of supplemental replenishment water decreased by 39,000 AF. The accumulated overdraft on June 30, 2015 was 381,000 AF. Precipitation within the basin was 61 percent of normal rainfall during the water year, totaling 8.20 inches.

Based on the groundwater basin conditions for the water year ending on June 30, 2015, OCWD may purchase up to 170,000 AF of water for groundwater replenishment during the ensuing water year, beginning on July 1, 2016, pursuant to the District Act.

ACKNOWLEDGMENTS

A number of public and private entities contributed data used in this report including:

City of Anaheim
City of Buena Park
East Orange County Water District
City of Fountain Valley
City of Fullerton
City of Garden Grove
Golden State Water Company
City of Huntington Beach
Irvine Ranch Water District
City of La Palma
Mesa Water District
Metropolitan Water District of Southern California
Municipal Water District of Orange County
City of Newport Beach
City of Orange
County of Orange, Public Works Department
Orange County Sanitation District
City of Santa Ana
Santa Ana Watershed Project Authority
City of Seal Beach
Serrano Water District
City of Tustin
United States Geological Survey
City of Westminster
Yorba Linda Water District

The cooperation received from all agencies is gratefully acknowledged.

This report is based on the 2013-14 Basic Data Report which is placed on file at the office of OCWD in Fountain Valley.

GLOSSARY OF ACRONYMS

AF	Acre-feet
AWPF	Advanced Water Purification Facility
BEA	Basin Equity Assessment
BPP	Basin Production Percentage
CPTP	Coastal Pumping Transfer Program
CUP	Conjunctive Use Program
DRWF	Dyer Road Well Field
GAP	Green Acres Project
GWRS	Groundwater Replenishment System
HB	Huntington Beach
IDP	Irvine Desalter Project
IRWD	Irvine Ranch Water District
MF	Microfiltration
mg/L	Milligrams per Liter
MBI	Mid-Basin Injection
MGD	Million Gallons per Day
MSL	Mean Sea Level
MWD	Metropolitan Water District of Southern California
MWDOC	Municipal Water District of Orange County
MWRF	Mesa Water Reliability Facility
$N0_3$	Nitrate
O&M	Operation and Maintenance
OCSD	Orange County Sanitation District
OCWD	Orange County Water District
RA	Replenishment Assessment
RO	Reverse Osmosis
RTS	Readiness-to-Serve
SAR	Santa Ana River
SWP	State Water Project
TDS	Total Dissolved Solids
UV	Ultraviolet
WRD	Water Replenishment District of Southern California
WSM	Basin Water Supply Management Program

PART I: GROUNDWATER CONDITIONS

Section 25 of the OCWD Act requires that OCWD order an annual investigation to report on the groundwater conditions within the District's boundaries. A summary of the groundwater conditions for the water year covering July 1, 2014 to June 30, 2015 is as follows.

GROUNDWATER CONDITIONS
2014-15 SUMMARY OF FINDINGS

1. Groundwater production (including the In-Lieu Program) totaled 305,259 acre-feet (AF) for the 2014-15 water year excluding extractions from the Metropolitan Water District of Southern California (MWD) Groundwater Storage Program.

2. Groundwater stored in the basin decreased by 39,000 AF for the 2014-15 water year.

3. Accumulated Overdraft[1] on June 30, 2015 was 381,000 AF.[2]

4. Annual Overdraft was 153,000 AF for the 2014-15 water year.

5. Average Annual Overdraft[3] for the immediate past five water years (2010-11 through 2014-15) was 132,000 AF.

6. Projected Annual Overdraft[3] for the current 2015-16 water year is 134,250 AF.

7. Projected Annual Overdraft[3] for the ensuing 2016-17 water year is 138,000 AF.

8. Projected Accumulated Overdraft[2] on June 30, 2016 is 390,000 AF assuming average hydrological conditions.

9. Under the provisions of Section 27 of the District Act, a portion of the 2016-17 Replenishment Assessment (RA) could be equal to an amount necessary to purchase up to 170,000 AF of replenishment water.[4]

[1] *Accumulated overdraft was calculated using the OCWD's three-layer storage change methodology adopted on March 21, 2007 and the associated new benchmark for full-basin condition. Water year 2005-06 was the first year this methodology was used. Refer to other portions within this section for additional explanation.*

[2] *Water from the Metropolitan Water District of Southern California Long-Term Groundwater Storage Program was included as part of the total stored water in determining the basin's accumulated overdraft.*

[3] *Annual overdraft is defined in the District Act as "annual basin storage decrease without supplemental replenishment water."*

[4] *Determined by adding the five-year annual overdraft (132,000 AF) to one-tenth of the accumulated overdraft (381,000 AF) which results in the following:*
132,000 AF + [(381,000 AF) x 0.10] = 170,100 AF (or 170,000 AF when rounded).

BASIN HYDROLOGY

Groundwater conditions in the Orange County groundwater basin are influenced by the natural hydrologic conditions of rainfall, capture and recharge of Santa Ana River (SAR) and Santiago Creek stream flows, natural infiltration of surface water, and the transmissive capacity of the basin. The basin is also influenced by groundwater extraction and injection through wells, use of imported water for groundwater replenishment, wastewater reclamation and water conservation efforts and activities throughout OCWD's service area.

The water year beginning on July 1, 2014, yielded an average of 8.20 inches of rainfall within OCWD's boundaries, which is approximately 61 percent of the long-term annual average of 13.40 inches. Rainfall data within OCWD's boundaries was provided by the Orange County Public Works for precipitation stations number 5, 61, 96, 121, 163, 165, 173, 219, 222 and 229. The previous year (2013-14) had rainfall equaling 4.52 inches which was also less than the long-term average rainfall. The average seasonal rainfall in the OCWD service area for the five-year period (from July 1, 2010 through June 30, 2015) was 9.47 inches, and below average rainfall in the watershed tends to lead to lower flows in the SAR reaching Orange County. Stream flow in the SAR measured downstream of Prado Dam for water year 2014-15 totaled 102,090 AF which was approximately 45 percent of the 30-year flow average of 225,582 AF.

GROUNDWATER PRODUCTION

Groundwater production from wells within OCWD for the 2014-15 water year totaled 305,259 AF (excluding In-Lieu Program water, MWD Groundwater Storage Program extractions, and any groundwater used for the Talbert Barrier): 302,634 AF for non-irrigation and 2,625 AF for irrigation uses. The term "irrigation" used in the District Act and herein refers to irrigation for agricultural, horticultural or floricultural crops and for pasture grown for commercial purposes.

OCWD's In-Lieu Program replaces groundwater supplies with imported water to reduce groundwater pumping. During the 2014-15 water year, In-Lieu Program water was not available for purchase from MWD. Annual groundwater production and In-Lieu quantities within OCWD for the period 1965-66 through 2014-15 are presented in Figure 1 and Table 1.

Groundwater production for 2014-15 for the major groundwater producers is summarized in Appendix 1. Groundwater production for all producers exceeding 25 AF per year for non-irrigation and irrigation purposes is presented in Appendices 2 and 3, respectively.

FIGURE 1. Groundwater Production

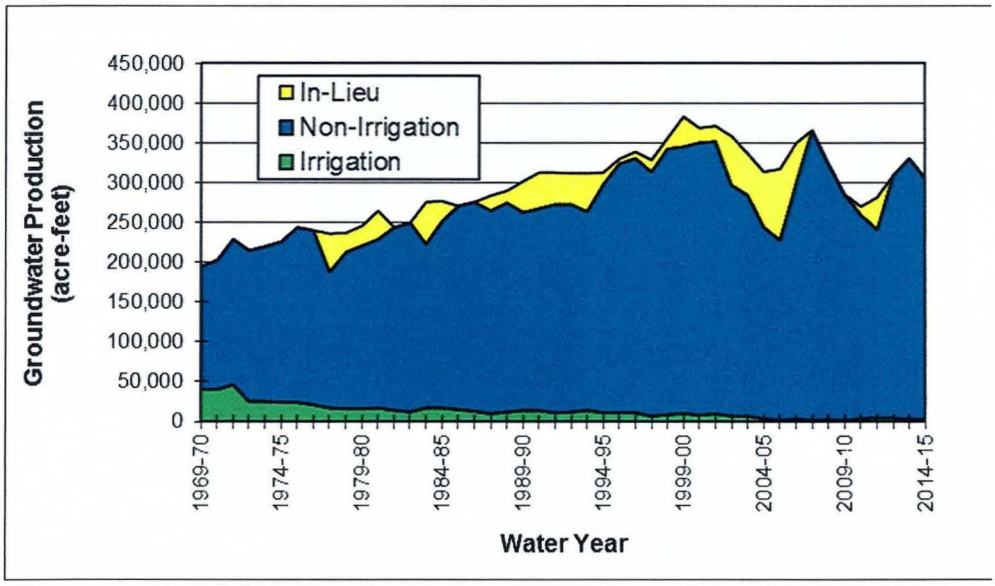


TABLE 1. Historical Groundwater Production Within OCWD

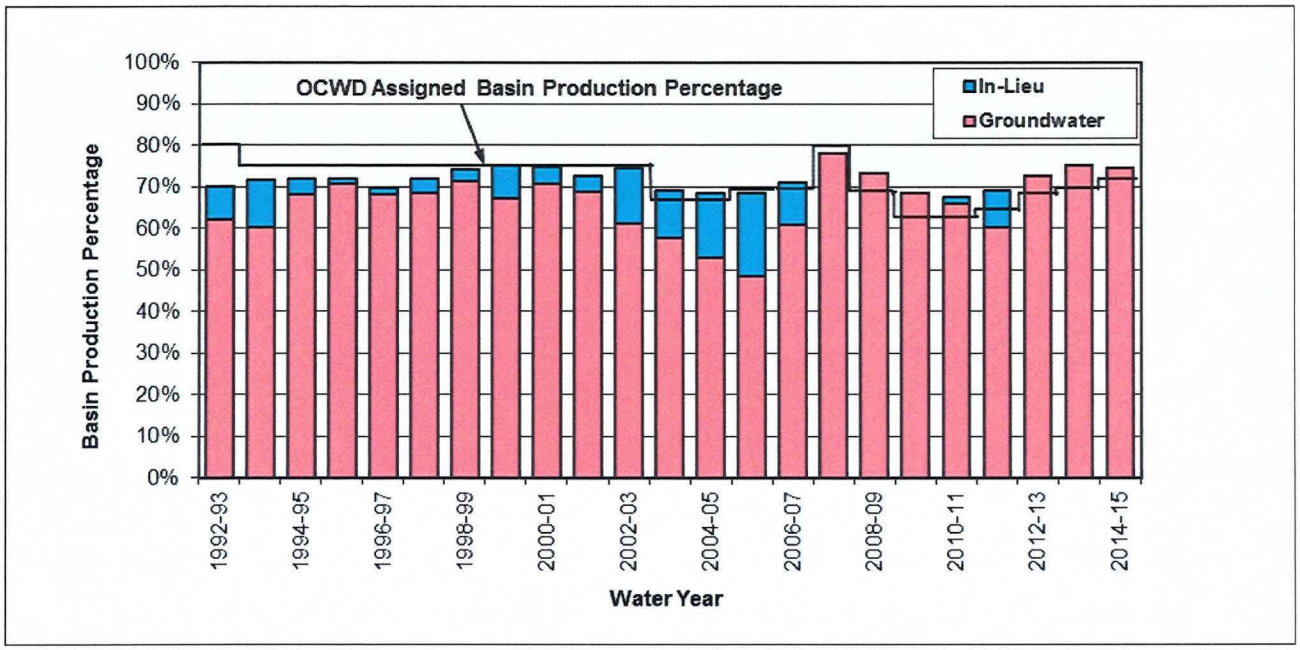
Water Year Jul 1-Jun 30	Groundwater Production (AF)	In-Lieu Program (AF)	Water Year Jul 1-Jun 30	Groundwater Production (AF)	In-Lieu Program (AF)
1965-66	182,172	-	1990-91	266,745	44,588
1966-67	169,375	-	1991-92	271,224	39,789
1967-68	193,656	-	1992-93	273,587	38,900
1968-69	178,798	-	1993-94	264,159	48,134
1969-70	194,379	-	1994-95	298,217	15,622
1970-71	203,923	-	1995-96	324,111	5,542
1971-72	229,048	-	1996-97	331,406	7,883
1972-73	214,983	-	1997-98	313,805	15,096
1973-74	218,863	-	1998-99	342,823	13,352
1974-75	225,597	-	1999-00	345,362	38,007
1975-76	245,456	-	2000-01	350,385	18,640
1976-77	243,511	-	2001-02	352,113	19,473
1977-78	188,407	48,290	2002-03	297,191	61,463
1978-79	213,290	23,792	2003-04	284,621	52,168
1979-80	221,453	24,861	2004-05	244,370	69,617
1980-81	228,943	36,373	2005-06	228,159	89,216
1981-82	244,184	-	2006-07	299,118	50,740
1982-83	249,548	-	2007-08	366,185	-
1983-84	223,207	52,822	2008-09	324,147	-
1984-85	252,070	25,198	2009-10	285,575	-
1985-86	270,932	-	2010-11	259,861	10,435
1986-87	276,354	-	2011-12	241,082	40,564
1987-88	265,226	18,856	2012-13	309,295	-
1988-89	275,077	15,022	2013-14	330,782	-
1989-90	261,190	38,961	2014-15	305,259	-

BASIN PRODUCTION PERCENTAGE

The Basin Production Percentage (BPP) is defined in the District Act as "*...the ratio that all water to be produced from groundwater supplies within the district bears to all water to be produced by persons and operators within the district from supplemental sources as well as from groundwater within the district.*" The BPP applies only to water producers that utilize more than 25 AF of groundwater per water year. Water producers that use 25 AF or less from the groundwater basin are excluded from the production percentage limitation.

The BPP for the 2014-15 water year was established at 72.0 percent by the OCWD Board of Directors. The overall BPP achieved within OCWD for non-irrigation use in the 2014-15 water year was 74.6 percent. The achieved pumping is greater than 72.0 percent primarily due to several water quality projects that are given a Basin Equity Assessment (BEA) exemption to pump groundwater above the BPP. The production percentage achieved by each major producer for non-irrigation use is presented in Appendix 1. Historical assigned and achieved BPPs are illustrated below in Figure 2.

FIGURE 2. Groundwater BPP



GROUNDWATER LEVELS

Groundwater levels in the Orange County groundwater basin are shown on Plate 1. Groundwater level data used to prepare this plate were collected during late June and early July 2015 from over 500 production and monitoring wells screened within the principal aquifer system (approximately 300 to 1,200 feet deep), from which over 90% of

basin pumping occurs. The groundwater elevation contours range from 30 to 90 feet below mean sea level in the coastal area of the basin due to pumping. A general indicator of changing basin levels is the location of the zero (0) mean sea level (MSL) elevation contour line each year (MSL elevations are referenced to Vertical Datum NGVD 29). The zero contour line moved seaward (ranging from 0.05 to 2.66 miles) when compared to its alignment the prior year, indicating an increase in groundwater levels in the principal aquifer system.

Plate 2 shows the change in groundwater levels from June 2014 to June 2015 for the principal aquifer system. Throughout most of the basin, groundwater levels in June 2015 were higher than those in June 2014.

Below is a general overview of the change in groundwater levels from June 2014 to June 2015 for the three primary aquifer systems of the basin.

Shallow Aquifer System :

In the shallow aquifer, groundwater levels declined throughout most of the basin from June 2014 to June 2015. The groundwater level decline was approximately 5 to 10 feet in the Forebay area of the basin (north of the 5 Freeway) due to reduced SAR flows and reduced natural recharge for the fourth consecutive year. The Forebay areas exhibiting this shallow aquifer groundwater level decline included the areas of Anaheim, Fullerton, Orange, Tustin, and Irvine. In addition to reduced natural recharge along the mountainfront areas of the basin, managed or artificial recharge for the OCWD spreading grounds in the Anaheim and Orange Forebay areas was somewhat reduced also at 190,205 AF for water year 2014-15. Although this total managed recharge for water year 2014-15 represented a 10.3% increase from the even drier water year 2013-14, it still was approximately 13% less than the average over the last 20 years.

The groundwater level decline was smaller at approximately 1 to 5 feet in the central portion of the basin and only one foot or less in the west Orange County area and near the boundary with Los Angeles County. Since groundwater levels declined in the Forebay areas but remained stable or had a subtle rise near the county line, this indicates that the gradient was slightly flatter in the shallow aquifer in June 2015 compared to June 2014. Therefore, groundwater outflow to the Central Basin may have been less than the prior water year.

In the greater coastal area away from the Talbert Barrier, shallow aquifer groundwater levels declined 1 to 5 feet similar to the central portion of the basin. However, near the Talbert Barrier, shallow aquifer groundwater levels rose by approximately 5 to 25 feet because the June 2014 comparison period represented an anomalously low temporary condition in this vicinity due to the barrier being offline during June 2014 (GWRS shutdown due to Initial Expansion construction activities). Once the barrier went back

online in July 2014, shallow aquifer groundwater levels recovered quickly and thus protective groundwater elevations were maintained sufficiently above mean sea level for the majority of water year 2014-15 in the Talbert Barrier area to prevent seawater intrusion.

Two other small areas experienced a rise in shallow aquifer groundwater levels from June 2014 to June 2015 and included: 1) a rise of 2 to 5 feet in the immediate vicinity of Anaheim Lake and Kraemer, Miller, and Miraloma basins due to June 2014 groundwater levels being anomalously low (aforementioned GWRS June 2014 shutdown), and 2) a rise of 20 feet along Santiago Creek due to negligible Santiago Creek recharge during May-June 2014 and approximately 400 AF of Santiago Creek recharge during May-June 2015. Both of these shallow aquifer groundwater level rises were localized and not widespread.

Principal Aquifer System :

In the principal aquifer, groundwater levels rose throughout the majority of the basin from June 2014 to June 2015, except in the fringes of the basin in close proximity to the mountain front areas where levels dropped one to 10 feet due to the lack of rainfall and natural recharge.

For the rest of the basin, the rise in principal aquifer groundwater levels was likely due to the reduction in groundwater production during water year 2014-15, especially during the last two months of the water year. As mentioned above, groundwater production was 23% less in May-June 2015 than the same two-month period in 2014.

In the Anaheim/Fullerton Forebay area, the rise in principal aquifer groundwater levels was approximately 5 to 10 feet. In the Orange Forebay area, the rise was larger at approximately 10 to 30 feet, indicating a more pronounced effect of the aforementioned pumping reduction because there is a higher density of production wells in this area as compared to the Anaheim/Fullerton area.

Principal aquifer groundwater levels rose approximately 10 to 15 feet within the central portion of the basin and 15 to 20 feet in the west Orange County area. Across the county line in Long Beach and Lakewood, Principal aquifer groundwater levels rose as much as 20 and 40 feet, respectively. The greater rise in principal aquifer groundwater levels in Los Angeles County relative to Orange County indicates that the gradient towards Los Angeles County was flatter and thus the groundwater outflow was likely less than the prior water year.

In the immediate vicinity of the Talbert Barrier, principal aquifer groundwater levels rose 15 to 40 feet, but this rise was localized and due to the barrier being offline the prior June which caused principal aquifer groundwater levels to be temporarily and anomalously low during June 2014. For the larger coastal area away from the Talbert Barrier, principal

aquifer groundwater levels rose approximately 10 to 15 feet similar to the central portion of the basin, except in the Mesa Water District and Irvine Ranch Water District (IRWD) Dyer Road Well Field (DRWF) areas where the rise was approximately 10 to 30 feet.

In the vicinity area of the Irvine Desalter Project (IDP) wells, the rise in principal aquifer groundwater levels was approximately 1 to 5 feet. The rise was smaller in this area likely because the reduced pumping was partially offset by the lack of natural recharge along the Santa Ana Mountains (fourth consecutive dry year). In the north Irvine area near the Santa Ana mountainfront, principal aquifer groundwater levels declined approximately 8 feet.

Deep Aquifer System :

In the deep aquifer, groundwater levels rose across the majority of the basin similar to but somewhat less than in the principal aquifer. Similar to the principal aquifer, deep aquifer groundwater levels experienced a subtle decline closer to the mountainfront fringe areas of the basin. Deep aquifer groundwater levels declined 1 to 5 feet in the Forebay areas of Anaheim, Orange, Tustin, and Irvine.

Deep aquifer groundwater levels rose approximately 1 to 8 feet in the central portion of the basin and approximately 10 to 13 feet in the west Orange County area. Across the county line in Long Beach and Lakewood, deep aquifer groundwater levels rose approximately 12 to 16 feet. The slightly larger rise in the Long Beach and Lakewood areas indicates that the gradient and groundwater outflow across the county line in the deep aquifer was likely somewhat less than the prior water year.

COASTAL GROUNDWATER CONDITIONS

The coastal portion of the groundwater basin, essentially that area within five miles of the coast, is sensitive to seawater intrusion potential and seasonal effects on production well capacity due to lower groundwater levels. Coastal groundwater levels are affected by groundwater production, overall groundwater storage in the basin, and, to a somewhat lesser extent, injection at the Talbert and Alamitos barriers.

Coastal groundwater production for water year 2014-15 totaled 102,023 AF which includes Fountain Valley, Huntington Beach (HB), IRWD DRWF and Deep Aquifer Treatment System wells, Mesa Water District, Newport Beach, OCWD deep wells in Fountain Valley, Seal Beach, and Westminster. The coastal groundwater production for water year 2014-15 was approximately the same (400 AF less) as the prior water year. The 2% increase in the BPP for water year 2014-15 was thus offset by reduced demand. Also, the Coastal Pumping Transfer Program (CPTP) implemented during water year 2013-14 was repeated in water year 2014-15, although the participating producers and total amount of shifted pumping differed somewhat.

During water year 2014-15, CPTP under-pumping totaled 5,453 AF from only two coastal producers (HB and Mesa Water District), with HB accounting for the majority at 3,455 AF of under-pumping. The CPTP over-pumping during water year 2014-15 was only 3,569 AF and fell short of the goal to balance with the under-pumping primarily because a couple of the large inland over-pumpers (e.g., Anaheim and Buena Park) could not participate due to their MWD CUP pumping during water year 2014-15.

The primary goal of the CPTP over the last two years was to raise coastal water levels and thereby reduce the potential for seawater intrusion, especially in the Sunset Gap area where there currently is no injection barrier. Hence, HB had the largest under-pumping amount during both water year 2013-14 and water year 2014-15. A secondary goal of the CPTP was to reduce underflow to the Central Basin of Los Angeles County.

Talbert Barrier injection totaled 36,489 AF for water year 2014-15, representing an increase of 14% from the prior water year's total of 31,906 AF. The injection increase during water year 2014-15 was necessary to restore protective elevations seaward of the barrier immediately following the planned 26-day shutdown of GWRS Advanced Water Purification Facility (AWPF) at the end of the prior water year (June 2014), especially during low-basin conditions.

At a key OCWD monitoring well M26 located near Adams Avenue seaward of the barrier, shallow aquifer groundwater levels had declined to 12 feet below mean sea level by the start of water year 2014-15 due to the aforementioned shutdown, but then rose sharply during July 2015 when injection commenced. A 9-day shutdown of AWPF in October temporarily caused shallow aquifer groundwater levels at M26 to decline before steadily rising above mean sea level and reaching protective elevations in December 2014 and then remained at those protective elevations for the second half of the water year. The increased injection helped to reach and maintain these protective levels even though the accumulated overdraft increased during water year 2014-15 primarily due to a lack of natural and managed recharge in the Forebay.

Talbert Barrier injection consisted of nearly 100% (99.95%) GWRS recycled water and 0.05% (18 AF) of imported potable water from the MWD OC-44 connection. During normal operating conditions throughout the water year, barrier injection was 100 percent GWRS water. The MWD potable water was only used to keep the barrier pipeline full or to maintain a small amount of injection during brief intermittent plant shutdowns.

At the Alamitos Barrier, the OCWD portion of injection totaled 2,236 AF for water year 2014-15, which was very similar to the prior water year but somewhat higher than past years. The higher injection total over the last two years has been an operational attempt to achieve protective elevations near the barrier under relatively low basin conditions. The injection total included all sources of water (93% imported and 7% recycled for water year

2014-15) but only represents OCWD's share, which is less than half of the total injection based on the location of the barrier wells that lie within both Los Angeles and Orange counties. Typically, Alamitos Barrier injection is an approximately 50/50 blend of imported and recycled water. The recycled portion was much lower the last two years due to two extended shutdowns of the Leo J. Van der Lans treatment plant in water year 2013-14 and frequent shutdowns during water year 2014-15 related to problems encountered during startup testing and commissioning of the plant expansion.

During water year 2014-15, monthly groundwater production in the coastal area generally followed the demand curve even though coastal pumping was reduced due to participation in the CPTP. Coastal production was relatively high at greater than 10,000 AF per month during the summer months July through September of 2014, declined to less than 7,000 AF per month during the winter months, then rose back up during the spring to above 9,000 AF in June 2015. However, pumping from IRWD's Deep Aquifer Treatment System wells did not follow the demand curve and was nearly constant year-round in order to baseload their colored water treatment plant. Also, groundwater pumping from Seal Beach wells was relatively constant year-round during water year 2014-15 and was even slightly reduced during the summer months of July and August of 2014 likely due to under-pumping for the CPTP.

Coastal groundwater levels expressed a typical seasonal pattern during water year 2014-15 that was consistent with the typical seasonal variation in coastal pumping. The seasonal pattern in coastal groundwater levels for water year 2014-15 was as follows: 1) declined during the summer to their lowest point of the year in September 2014, 2) rose during the fall and winter months, reaching a peak in March 2015, and 3) declined during the spring and early summer from April through June 2015.

Coastal groundwater levels in the shallow aquifer followed the general seasonal trend described above, but with a seasonal fluctuation of only 5 feet from winter to summer. This dampened response is typical because of the lack of pumping from the shallow aquifer. The discussion that follows pertains exclusively to the principal aquifer where the majority of coastal pumping occurs.

Coastal groundwater levels in the principal aquifer at the beginning of the water year in July 2014 were relatively low compared to the last few years due to the drought and relatively low basin storage conditions, but the groundwater level decline during the summer months from July to September 2014 was relatively mild. Principal aquifer groundwater levels declined only 5 to 10 feet in the Seal Beach, HB, and Fountain Valley areas and 10 to 20 feet in the Mesa Water District and IRWD DRWF areas. These summer declines were relatively mild due to the aforementioned CPTP in which select coastal producers under-pumped, especially since the majority of the under-pumping was during the summer months. Coastal groundwater levels in the principal aquifer reached their lowest point of the water year in September 2014, ranging from approximately 75 feet

below MSL in the Seal Beach and HB areas to as low as 120 feet below MSL in the Mesa Water District and IRWD DRWF areas where coastal pumping was more concentrated. These lows were approximately 10 to 20 feet lower than the lows from the prior water year.

From October 2014 to March 2015, groundwater levels in the principal aquifer rose sharply by 35 to 40 feet throughout the majority of the coastal area and 45 feet in the IRWD DRWF area. The increase in groundwater levels was primarily due to less groundwater pumping during these winter/fall months when water demand was lower and also because of the CPTP which reduced coastal pumping by over 5,000 AF throughout the course of water year 2014-15 as was described above. The March 2015 coastal groundwater levels in the principal aquifer represented the annual high for water year 2014-15, and ranged from 40 feet below MSL in the Seal Beach and HB areas to approximately 80 feet below MSL in the Mesa Water District and IRWD DRWD areas. These highs were approximately 5 to 15 feet lower than the analogous highs of the prior water year.

From April through June 2015, coastal groundwater levels in the principal aquifer declined only mildly due to significantly reduced pumping during the last two months of the water year. Pumping throughout the basin during May and June of 2015 was 23% lower than those same two months of the prior water year because of late season rain in May 2015 and the state-mandated 25% water cutbacks which were announced in May and officially began in June 2015. The mild decline in coastal groundwater levels in the principal aquifer was only 10 feet throughout most of the coastal area and 15 feet in the IRWD DRWF area.

Because the decline was so mild from April through June 2015, groundwater levels in the principal aquifer ended the year in June 215 approximately 15 to 20 feet higher than at the end of the prior water year throughout the majority of the coastal area. However, near the west end of the Talbert Barrier in Huntington Beach, principal aquifer groundwater levels at the end of June 2015 were as much as 30 to 40 feet higher than in June 2014 due to the aforementioned Talbert Barrier shutdown during June 2014 which caused groundwater levels to be anomalously low that month in that immediate vicinity.

Based on the principal aquifer water level patterns described above for water year 2014-15, the moderate amount of seasonal variation from high to low has become more typical since 2008. Principal aquifer levels varied seasonally by approximately 35 feet in the Seal Beach and HB areas, and 40 to 45 feet in the Mesa Water District and IRWD DRWF areas, respectively. The seasonal fluctuation was slightly greater in the Mesa Water District and IRWD DRWF areas due to the larger number and denser distribution of production wells as compared to the HB and Seal Beach areas. In the Mesa Water District and IRWD DRWF areas, the 40 to 45-foot seasonal fluctuation was similar to last year as well as most years since 2008. Prior to 2008, principal aquifer levels in the Mesa Water District and IRWD

DRWF areas fluctuated seasonally by as much as 80 to 100 feet when IRWD and other producers were participating in the MWD Seasonal Shift Program.

ANNUAL OVERDRAFT

Annual groundwater basin overdraft, as defined in the District Act, is the quantity by which production of groundwater supplies exceeds natural replenishment of groundwater supplies during a water year. This difference between extraction and replenishment can be estimated by determining the change in volume of groundwater in storage that would have occurred had supplemental water not been used for any groundwater recharge purpose, including seawater intrusion protection, advanced water reclamation and the In-Lieu Program.

For the 2014-15 water year, it is estimated that the volume of groundwater in storage decreased by 39,000 AF. Approximately 114,061 AF of water was supplied to the basin as follows: 1) directly from the percolation or injection of purchased imported water from the Colorado River and State Water Project (SWP), 2) use of recycled water to supplement purchased imported water in the Alamitos seawater intrusion barrier, and 3) use of GWRS recycled water. Therefore, the annual overdraft was 153,000 AF for the 2014-15 water year. For the five-year period from July 1, 2010 to June 30, 2015, an annual average of approximately 120,000 AF of supplemental water and recycled water was percolated or injected into the underground basin for replenishment or used directly in place of pumping groundwater (i.e., In-Lieu Program). The average annual overdraft during the same five-year period was approximately 132,000 AF.

GROUNDWATER BASIN ACCUMULATED OVERDRAFT

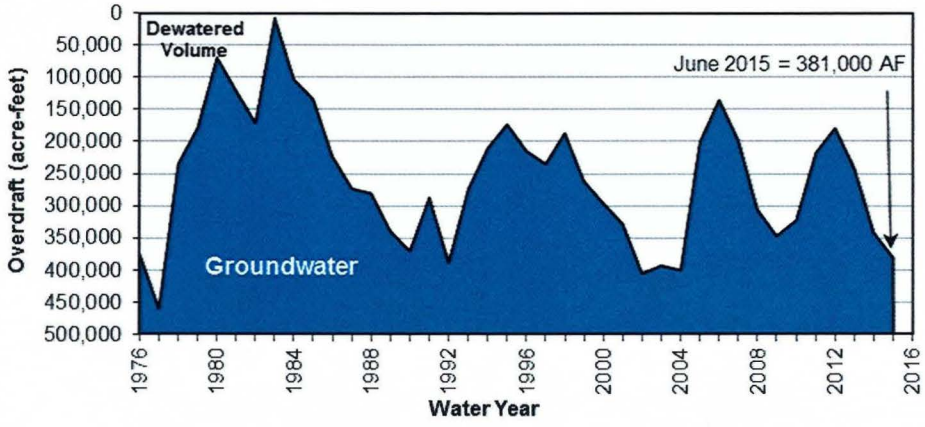
The accumulated overdraft, as defined in the District Act, is the quantity of water needed to be replaced at OCWD's intake area to prevent landward movement of ocean water into the fresh groundwater body. Landward movement of ocean water can be prevented if groundwater levels near the coast are several feet above sea level. Groundwater levels along the coast are related to the volume of water stored in the intake area, water pumped from the entire basin and the pattern or location of pumping. However, the Talbert and Alamitos seawater intrusion control projects have been implemented to prevent landward movement of ocean water into the fresh groundwater body. Due to the operation of seawater intrusion barrier facilities, there is no longer a direct correlation between accumulated overdraft and controlling seawater intrusion. These facilities allow greater utilization of the storage capacity of the groundwater basin. OCWD is also dedicated to maximizing its replenishment capabilities by actively negotiating with the U.S. Army Corps of Engineers to increase its water conservation program behind Prado Dam and implementing a Long-Term Facilities Plan to evaluate cost-effective improvements to its groundwater recharge capabilities.

In February 2007, OCWD staff completed a report entitled "Evaluation of Orange County Groundwater Basin Storage and Operational Strategy." This report presented a new methodology that had been developed, tested, and documented for calculating accumulated overdraft and storage change based on a three aquifer layer approach. Furthermore, the report provided the basis for calculating accumulated overdraft using a new full-basin benchmark that was developed for each of the three aquifer layers, which in effect replaces the traditional single-layer full benchmark of 1969.

The annual analysis of basin storage change and accumulated overdraft for water year 2014-15 has been completed. Based on the three-layer methodology, an accumulated overdraft of 381,000 AF was calculated for the water year ending June 30, 2015. The accumulated overdraft for the prior water year ending June 30, 2014 was 342,000 AF (also calculated using the three-layer storage method). Therefore, an annual decrease of 39,000 AF (reported earlier herein this report) in stored groundwater was calculated as the difference between the June 2014 and June 2015 accumulated overdrafts.

Figure 3 shows the accumulated basin overdraft quantities for the period 1976 through 2015.

FIGURE 3. Accumulated Basin Overdraft



The accumulated overdraft for the current water year ending on June 30, 2016 is projected to be 390,000 AF assuming slightly-below average hydrology. The annual overdraft is estimated to be 134,250 AF. This quantity is based on assumed annual groundwater production of approximately 291,250 AF for the current water year (including groundwater pumping within the BPP, In-Lieu Program water, groundwater pumped above the BPP from water quality improvement projects and MWD Groundwater Storage Program extractions) and that natural replenishment (including captured SAR flows and incidental recharge) is estimated to be approximately 157,000 AF for the basin under slightly-below average rainfall conditions. In addition, GWRS production is assumed to be 103,000 AF due to the Initial Expansion.

Projected annual overdraft for the ensuing water year (2016-17) is estimated to be 138,000 AF. This estimate is based on the assumption that total annual groundwater production for the ensuing water year will be 294,000 AF, a figure that is based upon an assumed BPP of 75 percent and includes 22,000 AF of production above the BPP from water quality improvement projects (discussed further in the subsequent section entitled Recommended Basin Production Percentage). The natural replenishment is estimated to be 156,000 AF (average of last five years) under below-average rainfall conditions, and the GWRS production is assumed to be 103,000 AF due to the Initial Expansion.

OCWD, MWD, the Municipal Water District of Orange County (MWDOC) and participating producers approved the funding agreement for the MWD Long-Term Groundwater Storage Program on June 25, 2003. This conjunctive use program (also informally referred to as MWD CUP) provides for MWD to store up to 66,000 AF in the OCWD groundwater basin to be pumped (less basin losses) by participating producers in place of receiving imported supplies during water shortage events. A compensation package from MWD was included in the agreement to build eight new groundwater production wells, improvements to the seawater intrusion barrier, construction of the Diemer Bypass Pipeline and an annual administrative fee. The preferred means to store water in the MWD storage account has been through the In-Lieu deliveries to participating groundwater producers. Water into the MWD storage account has also been conducted through direct replenishment utilizing OCWD Forebay recharge basins. During water year 2014-15, MWD did not store any water into the MWD CUP storage account. However, OCWD purchased 10,000 AF of stored water from the MWD CUP account. In any event, the water stored or extracted by MWD is considered to be MWD supply and not groundwater production. During water year 2014-15, 12,917 AF were pumped from pumped from the MWD CUP account by the participating groundwater producers. The annual quantities and cumulative totals of MWD water stored since the inception of the program are shown in Appendix 4. It is important to note that the reported quantities do not include pumping extractions from the account or basin losses.

REPLENISHMENT RECOMMENDATION

Section 27(b) of the District Act states the following:

"The total of the replenishment assessment levied in any year shall not exceed an amount of money found to be necessary to purchase sufficient water to replenish the average annual overdraft for the immediate past five water years plus an additional amount of water sufficient to eliminate over a period of not less than 10 years nor more than 20 years, the accumulated overdraft, plus an amount of money to pay the costs of initiating, carrying on, and completing any of the powers, projects and purposes for which this district is organized."

Based upon Section 27(b), that portion of the RA that is used for water purchases for the ensuing water year 2016-17 is limited to the amount needed to purchase 170,000 AF as calculated below:

Five-year (7/1/2010 through 6/30/2015) Average Annual Overdraft* = 132,000 AF
Accumulated Overdraft (End of Water Year 2014-15) = 381,000 AF
Assumed Time Period to Eliminate Accumulated Overdraft = 10 years
Potential Water Purchase Amount: 132,000 AF + (381,000 AF/10 years) = 170,100 AF (use 170,000 AF)

**Referred to as the Average Annual Overdraft in Section 27(b) of the District Act.*

Table 2 presents the proposed 2016-17 budget for water purchases, which shows the proposed quantity of purchased water (67,000 AF) being significantly less than the prescribed limit of 170,000 AF as allowed for under the provisions of Section 27(b) of the District Act.

TABLE 2. 2016-17 Budget for Water Purchases

Water Source	AF	Rate ($/AF)*	Total Cost ($)
Alamitos Barrier	2,000	$1,048.00	$ 2,096,000
MWD Untreated Non-interruptible Water	65,000	$605.00	$39,325,000
Water Purchases Sub-total	67,000	—	$41,421,000
Applicable Charges			**Total Cost ($)**
MWDOC Surcharge (8-year average)	—	—	$ 0
MWD/MWDOC Capacity Charge	—	—	$ 1,000,000
MWD/MWDOC RTS Charge	—	—	$ 700,000
Additional Charges Sub-total	—	—	$ 1,700,000
TOTAL WATER PURCHASES COST	67,000	—	$43,121,000

* Rates include required MWDOC Capacity and Readiness to Serve (RTS) charges where appropriate.

RECOMMENDED BASIN PRODUCTION PERCENTAGE

In December 2002, OCWD approved a basin management approach for determining the BPP for future water years. The management approach is based upon the development of a base amount of groundwater production the basin can annually sustain utilizing dependable water supplies OCWD expects to receive. It is a policy for OCWD to provide an estimate of the BPP each January for the following fiscal year to assist the groundwater producers in the preparation of their annual budgets.

A BPP ranging from 72 percent to 80 percent is currently being proposed for the ensuing water year 2016-17. Analysis of the groundwater basin's projected accumulated overdraft, the available supplies to the basin (assuming below-average hydrology) and the projected pumping demands indicate that this level of pumping could potentially be sustained for 2016-17 without detriment to the basin.

A BPP of 75 percent corresponds to approximately 294,000 AF of groundwater production which includes 22,000 AF of groundwater production above the BPP to account for several groundwater quality enhancement projects (see description below).

In order to achieve water quality objectives in the groundwater basin, it is estimated for the ensuing water year 2016-17 that additional production of approximately 22,000 AF (above the BPP) will be undertaken by the City of Tustin, City of Garden Grove, Mesa Water District and IRWD. These agencies need the additional pumping allowance in order to accommodate groundwater quality improvement projects. As in prior years, production above the BPP from these projects would be partially or fully exempt from the BEA as a result of the benefit provided to the basin by removing poor-quality groundwater and treating it for beneficial use.

In March 2016, staff will review with the OCWD Board of Directors the basis and the assumptions made for the proposed BPP and receive any direction on the matter. In April 2016, staff will again apprise the OCWD Board of Directors on the status of the aforementioned conditions. If the estimates of basin supplies in the current or ensuing year are substantially different than those contained in the respective conditions, a revised BPP may then be recommended.

PART II: WATER SUPPLY AND BASIN UTILIZATION

Section 31.5 of the District Act requires an investigation and annual report setting forth the following information related to water supply and basin utilization within the OCWD service area, together with other information as OCWD may desire:

WATER SUPPLY AND BASIN UTILIZATION
2014-15 SUMMARY OF FINDINGS

1. Water usage from all supplemental sources totaled 159,373 AF for the 2014-15 water year including any available In-Lieu Program water (none for 2014-15).

2. Water usage from recycled water produced from within OCWD including the GWRS totaled 98,057 AF for the 2014-15 water year.

3. Water demands within OCWD totaled 425,349 AF for the 2014-15 water year.

4. Estimated demands for groundwater for the ensuing 2016-17 water year are 294,000 AF.

SUPPLEMENTAL WATER

Supplemental water is used by water agencies within OCWD's boundary to augment groundwater supplies in satisfying their user demands and by OCWD to recharge the groundwater basin. Supplemental water, as defined in Section 31.5 of the District Act, is any water that originates from outside the SAR watershed (comprised of an area of 2,081 square miles) with the exception of water that originates within the portion of the Santiago Creek watershed that lies upstream of Villa Park Dam which is counted as supplemental water. It is important to note that the Santiago Creek watershed lies entirely within the SAR watershed. Sources of supplemental water typically include imported deliveries from MWD and diversions from Irvine Lake/Santiago Reservoir (i.e., Santiago Creek) that are conveyed to users within OCWD boundaries. MWD deliveries originate from either the Colorado River or the SWP. In addition, supplemental water would also include deliveries from within the SAR watershed that involve water exchanges (i.e., releasing a quantity of water that originates from within the SAR watershed while importing an equal quantity of supplemental water to replace it).

Non-local waters are defined, for the purposes of this report, as waters purchased from agencies outside of OCWD's boundary for use within OCWD. Non-local waters include supplemental water and water deliveries purchased by OCWD where the water source is located within the SAR watershed. Water deliveries to OCWD from the Arlington Desalter in Riverside and the San Bernardino Valley Municipal Water District's High Groundwater Mitigation Project are considered non-local waters. Both projects involve pumping (and treatment in Arlington's case) and release of groundwater from the SAR upstream groundwater basins to OCWD via the SAR for groundwater replenishment at OCWD Forebay recharge facilities. For the purpose of being consistent with previous Engineer's Reports and to present information in a concise manner, non-local water deliveries that are purchased and used by OCWD for groundwater replenishment are included in the supplemental water totals in this report.

Recycled wastewater produced and used within OCWD is considered, for the purposes of this report, as neither non-local water nor supplemental water (sometimes referred to as neutral water). Therefore, recycled water that originates from within OCWD is reported separately from supplemental water totals. However, recycled water used in the Alamitos Barrier is supplied by Water Replenishment District of Southern California (WRD) and originated from outside the SAR watershed, and, as such, is categorized as supplemental water.

Water agencies utilizing supplemental water are listed in Appendix 1. As summarized in Table 3, the use of supplemental water in OCWD's service area during 2014-15 water year totaled 159,373 AF of which 98,502 AF resulted from the direct use by water agencies and 60,871 AF (including any available In-Lieu Program water) were used for groundwater

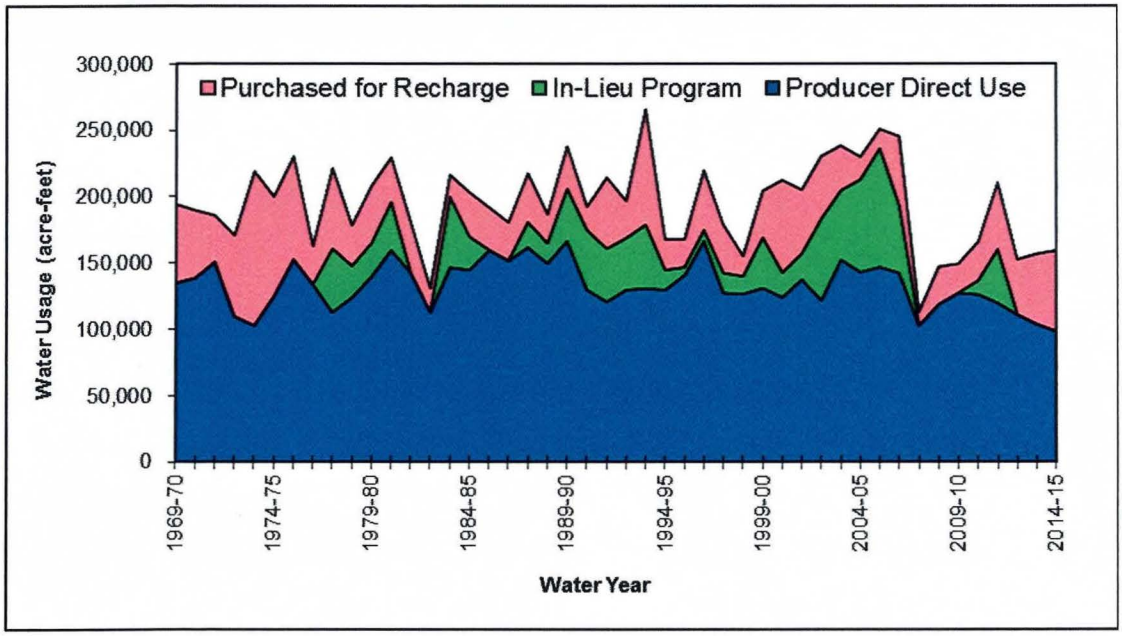
replenishment purposes. The supplemental water used by water agencies included 98,502 AF for municipal and industrial use and zero AF for agricultural purposes. Historical supplemental water usage for the 2014-15 water year and earlier is illustrated in Figure 4. The GWRS delivered recycled water to OCWD Forebay recharge basins and the Talbert seawater intrusion barrier throughout the 2014-15 water year. A breakdown of non-local water purchases by OCWD for 1995-96 through 2014-15 is presented in Appendix 4.

TABLE 3. 2014-15 Supplemental Water Usage

Direct Agency Use	AF
Imported Water[1]	95,973
Santiago Creek Native Water	2,529
Subtotal	**98,502**
Groundwater Replenishment (Purchased)	**AF**
In-Lieu Program[2]	0
Forebay Recharge[3]	48,617
Alamitos Barrier[4]	2,236
Talbert Barrier	18
Stored Water from MWD CUP Storage Account[3]	10,000
Subtotal	**60,871**
TOTAL	**159,373**

[1] *Includes extractions from MWD Groundwater Storage Program.*
[2] *Any amount reported herein includes water received by OCWD's groundwater producers as In-Lieu water.*
[3] *Full service rate untreated water.*
[4] *Total combines imported and recycled water deliveries.*

FIGURE 4. Historical Supplemental Water Usage



Recycled water use within OCWD is presented in Table 4 (excluding WRD-supplied recycled water to the Alamitos Barrier because this water is categorized as supplemental water and already included in the total amount reported in Table 3). The major uses of recycled water are groundwater replenishment (including Kraemer, Miller and Miraloma recharge basins and Talbert Barrier injection wells) and supply water for irrigation and industrial users.

TABLE 4. 2014-15 Recycled Water Usage

Groundwater Replenishment		Water Usage (AF)
GWRS AWPF (for Talbert Barrier)		36,471
GWRS AWPF (for Recharge Basins)[1]		39,688
	Subtotal	**76,159**
GWRS AWPF (for Mid-Basin Injection)		**310**
	Subtotal	**76,469**
Irrigation and Industrial		**Water Usage (AF)**
IRWD[2]		16,957
OCWD (Green Acres Project)[3]		4,631
	Subtotal	**21,588**
	TOTAL	**98,057**

[1]Excludes 64 AF delivered to City of Anaheim Canyon Power Plant and Anaheim Regional Transportation Intermodal Center (ARTIC).
[2]Recycled water used within the portion of OCWD that lies within IRWD's boundaries (excludes OCWD/IRWD intertie water deliveries to the Green Acres Project).
[3]Excludes deliveries to the Orange County Sanitation District and includes IRWD/OCWD Intertie deliveries to the Green Acres Project.

AVAILABILITY OF SUPPLEMENTAL REPLENISHMENT WATER

MWD provided untreated full service water supplies to its groundwater-basin agencies during the water year 2014-15 in spite of a record-low allocation of State Project Water. The availability of supplemental water from MWD to recharge the groundwater basin in the coming water year will be reduced due to the drought conditions.

WATER DEMANDS

During the 2014-15 water year, the total water demands within OCWD's service area were 425,349 AF. Total demands include the use of groundwater, MWD In-Lieu Program water, imported water, Santiago Creek native water and recycled water. Total demands exclude any groundwater, supplemental water and recycled water used by OCWD for groundwater recharge (such as the GWRS recycled water), and water conservation credits given to groundwater producers for their conservation efforts.

Water demands for 2014-15 and projected water demands for 2015-16 and 2016-17 are summarized in Table 5. The water demands for the current year 2015-16 were determined by assessing the data that is presently available and projecting that data to develop the total annual demands for the current year. The water demands for the ensuing year 2016-17 are based on the projections provided by the retail water agencies within OCWD's service area. Long-term projections are presented in Figure 5.

WATER DEMAND FORECAST

OCWD participates with MWDOC and retail groundwater producers to predict future demands in OCWD's service area. Each groundwater producer projected its total water demands to the year 2035. These projections include the effect of local water conservation efforts. Figure 5 illustrates the historical and the projected water demands for OCWD's service area to the year 2035.

Population within OCWD's service area is expected to increase from the current 2.28 million people (based on Census 2010 demographic data) to approximately 2.7 million people by the year 2035. This population growth is expected to increase water demands from the current 425,349 AF per year to 525,000 AF per year in 2035 (a water demand projection that takes into consideration future water conservation savings). In an effort to support increasing water demands, OCWD will look to increase basin production by operating the existing GWRS, maximizing the current AWPF production capacity, capturing more SAR storm flows, expanding the production of GWRS to its ultimate capacity (with the assumption that additional wastewater flows are available), purchasing imported supplies for groundwater recharge whenever supplies are available, developing other local recycled water supplies for replenishment purposes and expanding recharge facilities.

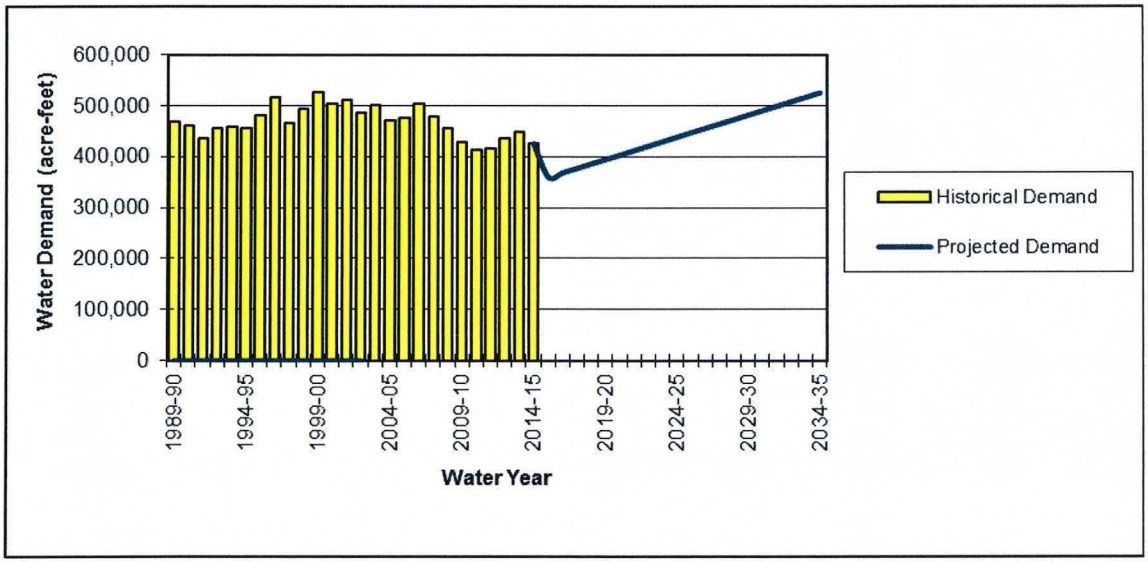
A draft water reliability study conducted by MWDOC is indicating that the total future water demands within OCWD could be as low as 435,000 AF. OCWD will be reviewing this study once it is finalized and discussing the results with the groundwater producers who have collectively provided a higher water demand projection number.

TABLE 5. Water Demands Within OCWD

	Ground-water[1]	Imported Water[2,3]	Santiago Creek Native Water[3]	Recycled Water[4]	Total
2014-15					
Non-Irrigation	302,634	95,973	2,529	-	401,136
Irrigation	2,625	-	-	21,588	24,213
Total	**305,259**	**95,973**	**2,529**	**21,588**	**425,349**
2015-16 (Current Year)[5]					
Non-Irrigation	275,000	60,000	2,500	-	337,500
Irrigation	2,500	-	-	20,000	22,500
Total	**280,000**	**60,000**	**2,500**	**20,000**	**360,000**
2016-17 (Ensuing Year)[5]					
Non-Irrigation	291,500	43,500	2,500	-	337,500
Irrigation	2,500	-	-	20,000	22,500
Total	**294,000**	**43,500**	**2,500**	**20,000**	**360,000**

[1] *Includes In-Lieu Program water, if available.*
[2] *Excludes water conservation credits and imported water used for groundwater replenishment.*
[3] *"Imported Water" and "Santiago Creek Native Water" are both counted as supplemental water.*
[4] *Excludes recycled water injected into the groundwater basin for seawater intrusion protection. Includes recycled water from IRWD and OCWD's Green Acres Project (excluding OCSD's usage).*
[5] *Water demands are estimated by OCWD assuming average hydrology.*

FIGURE 5. Water Demand Projections



ADVANCED WASTEWATER RECLAMATION

Groundwater, supplemental water and local surface water have historically been the primary water sources within OCWD. In recent decades, wastewater reclamation has increasingly become a significant source of additional water. Purified recycled wastewater has been produced by OCWD for use as injection water in the Talbert Barrier and as percolation water in Kraemer, Miller and Miraloma recharge basins. OCWD and IRWD recycle wastewater at their respective treatment plants for irrigation and industrial uses.

The GWRS is an advanced wastewater reclamation project jointly-funded by OCWD and the Orange County Sanitation District (OCSD). The project was operational in January 2008. The advanced treatment processes utilized in the GWRS consist of microfiltration (MF) followed by reverse osmosis (RO) membranes and ultraviolet (UV) light disinfection in combination with hydrogen peroxide. For water year 2014-15, the GWRS treated wastewater from the OCSD to drinking water standards and delivered 76,469 AF of purified water for direct injection into the Talbert seawater intrusion barrier and percolation into the OCWD groundwater basin via recharge basins and Mid-Basin Injection (MBI) well.

For water year 2014-15, OCWD and IRWD recycled water deliveries for landscape irrigation and industrial uses in Fountain Valley, Costa Mesa, HB, Newport Beach, Santa Ana and IRWD's service area totaled 21,588 AF.

WRD placed the 3-MGD Alamitos Barrier Recycled Water Project, known as the Leo J. Vander Lans Water Treatment Facility, into service in October 2005. This project supplies highly treated recycled water to the Alamitos Barrier. The Leo J. Vander Lans advanced wastewater treatment facility located in Long Beach utilizes the treatment processes of MF, RO and UV light disinfection. This project is intended to replace up to 50 percent of the imported water used to supply the Alamitos Barrier with recycled water. The project operated for eight of twelve months during the water year 2014-15. For 2014-15, the project supplied 151 AF of recycled water to the Alamitos Barrier, which represented 7 percent of the barrier's supply that OCWD is responsible for payment. Recycled water deliveries from the Leo J. Vander Lans plant to the Orange County portion of the Alamitos Barrier are classified as supplemental water because this recycled water originates from outside the SAR watershed. It is noteworthy to mention that the Leo J. Vander Lans Water Treatment Facility is presently under expansion in an effort to increase its treatment capacity.

WATER QUALITY

OCWD maintains a comprehensive groundwater protection policy that includes water quality monitoring, removal of contaminants, regulatory agency support, toxic residuals

removal and hazardous waste management. In addition, OCWD provides water quality information to regulatory agencies, other water agencies and the general public. In order to meet the current and future water quality testing requirements, OCWD operates the Advanced Water Quality Assurance Laboratory at the Fountain Valley campus. The laboratory houses approximately 30 chemists and laboratory technicians, 12 water quality monitoring personnel and all the analytical instruments that are needed to perform more than 400,000 analyses of approximately 20,000 water samples taken each water year. The laboratory supports the extensive water quality testing requirements for the GWRS.

When blended together by the major agencies within OCWD's service area, the blended groundwater (without treatment) and treated supplemental water for 2014-15 is determined to have a flow-weighted average of 496 milligrams per liter (mg/L) of total dissolved solids (TDS) which is greater than the average TDS concentration of 482 mg/L reported for the prior year (2013-14). The average groundwater TDS concentration for the basin for 2014-15 is 452 mg/L (compared to 456 mg/L reported for 2013-14), ranging from a low of 220 mg/L in Seal Beach to a high of approximately 660 mg/L in certain inland areas.

Average concentrations of TDS, nitrate (NO_3) and hardness for groundwater and groundwater combined with supplemental water supplied by agencies within OCWD's service area during the 2014-15 water year are summarized in Table 6. These concentrations were determined from groundwater and supplemental water analyses and from production reports submitted to and filed with OCWD by each water agency. The City of Tustin and IRWD have active groundwater treatment projects that help to reduce certain constituents reported in Table 6 in their groundwater supply prior to service to their customers (see note 6 for detailed explanation).

WATER RESOURCES DATA

A summary of water resources data within OCWD for the 2014-15 water year and the previous year (2013-14) is included in Appendix 5.

TABLE 6. 2014-15 Water Quality Summary

City/Agency	Groundwater[1,7]			Delivered Blend[1,2,7]		
	TDS[3]	NO_3-N[4]	Hard-ness[5]	TDS[3]	NO_3-N[4]	Hard-ness[5]
Anaheim	584	2.9	322	597	2.2	315
Buena Park	410	1.4	248	466	1.0	260
East Orange County Water District	606	4.0	342	606	4.0	342
Fountain Valley	410	1.2	240	410	1.2	240
Fullerton	520	2.8	268	554	2.0	276
Garden Grove	564	4.0	340	582	3.0	328
Golden State Water Company	408	1.6	230	466	1.2	246
Huntington Beach	362	0.4	170	472	0.3	221
Irvine Ranch Water District[6]	364*	1.0*	138*	387*	1.0*	151*
La Palma	292	ND[8]	146	292	ND[8]	146
Mesa Water District	342	0.4	106	375	0.4	128
Newport Beach	300	1.4	151	393	1.1	191
Orange	489	2.3	286	532	1.6	289
Santa Ana	405	2.0	232	460	1.6	248
Seal Beach	220	ND[8]	74	309	ND[8]	122
Serrano Water District	642	2.8	346	648	2.0	341
Tustin[6]	518*	4.1*	266*	548*	3.1*	274*
Westminster	358	1.3	226	429	1.0	244
Yorba Linda Water District	652	2.1	338	645	1.4	323
Weighted Average[7]	**452**	**2.0**	**236**	**496**	**1.5**	**251**

[1] *All groundwater results (alone or blend) are for untreated groundwater (see note 6 below). Units are reported in mg/L.*

[2] *Delivered blend includes untreated groundwater and treated imported MWD water (i.e., blend of Colorado River water and State Project water as measured at the MWD Diemer Plant), except Serrano Water District, which blends with treated Santiago Reservoir water. Units are reported in mg/L. Annual average water qualities for MWD and Santiago Reservoir (Irvine Lake) for 2014-15 are as follows:*

MWD Water Quality			*Santiago Reservoir Water Quality*		
TDS	=	*632 mg/L*	*TDS*	=	*662 mg/L*
NO_3-N	=	*0.2 mg/L*	*NO_3-N*	=	*0.0 mg/L*
Hardness (as $CaCO_3$)	=	*295 mg/L*	*Hardness (as $CaCO_3$)*	=	*328 mg/L*

[3] *Secondary Drinking Water Standards for TDS are as follows:*

500 mg/L = recommended limit
1,000 mg/L = upper limit

[4] *Primary Drinking Water Standard for nitrate NO_3-N (i.e., nitrate expressed as nitrogen) is 10 mg/L.*

[5] *Hardness is reported as mg/L of $CaCO_3$. General classifications of hard and soft water are within the following concentration ranges:*

0-75 mg/L	=	*soft*	*150-300 mg/L*	=	*hard*
75-150 mg/L	=	*moderately hard*	*300 and up mg/L*	=	*very hard*

[6] *Agencies with active groundwater quality improvement projects that treat for one or more of the constituents listed in the table. The results shown herein for "groundwater" and "delivered blend" reflect results from untreated groundwater. Water quality constituents that are marked with an asterisk (*) are reduced prior to delivery to customers.*

[7] *All water quality results are flow-weighted averages based on groundwater and imported water delivered to each agency.*

[8] *ND = not detected. Nitrate (expressed as NO_3-N) analytical detection limit for OCWD Advanced Water Quality Assurance Laboratory is 0.1 mg/L.*

PART III: WATER PRODUCTION COSTS FOR ENSUING YEAR (2016-17)

Section 31.5 of the District Act requires that costs of producing groundwater and obtaining supplemental water be evaluated annually. These costs vary for each groundwater producer and depend on many factors. Although these variations in cost are recognized, it is necessary for the purpose of this report to arrive at figures representing the average cost of producing groundwater and purchasing supplemental water.

ENSUING YEAR (2016-17) WATER PRODUCTION COSTS SUMMARY OF FINDINGS

1. Cost for producing water from the groundwater basin within OCWD including a replenishment assessment for 2016-17 is estimated to be $627.00 per acre-foot.

2. Cost of treated, non-interruptible supplemental water for 2016-17 is estimated to be $1,037.00 per acre-foot.

GROUNDWATER PRODUCTION COSTS FOR NON-IRRIGATION USE

Cost for producing an acre-foot of groundwater in the ensuing 2016-17 water year has been estimated for a potable water well for a large groundwater producer (i.e., a city water department, water district) in OCWD's service area. Operations and maintenance (O&M) and energy costs were determined using the cost information provided by nineteen large groundwater producers from a survey conducted by OCWD in fall 2015. The capital cost component was derived using the available actual project cost data for eight production wells constructed in 2008 under the MWD Long-Term Groundwater Storage Program and adjusted to present values using Engineering News-Record Construction Cost Index. Appendix 6 contains several of the key design characteristics for eight wells that were constructed under the MWD's program. The OCWD RA used in the determination of groundwater production cost is the upper limit of the proposed RA for 2016-17.

The estimated cost for groundwater production for a large groundwater producing entity such as a city water department or a water district is presented in Table 7. The total cost to produce an acre-foot of groundwater within OCWD in the ensuing 2016-17 water year is estimated to be $627 per acre-foot. Based on the responses to the aforementioned survey, the flow-weighted average (based upon the quantity of groundwater pumped) for energy cost equaled $71 per AF. Operation and Maintenance (O&M) costs ranged from $7 to $176 per acre-foot with a median cost of approximately $64 per acre-foot. Elements that influence these costs include load factors and variations in groundwater levels. Recently drilled wells are generally deeper than those drilled decades ago. From the aforementioned survey, the average load factor which indicates the percent-of-use of an extraction facility equaled 56 percent.

TABLE 7. Estimated 2016-17 Groundwater Production Costs

Cost Item	Non-Irrigation Use	
	Annual Cost ($)	Cost per AF ($/AF)
Energy	184,600[1]	71[2]
RA	1,120,600[1]	431[3]
Total Production Costs	1,305,200	502
Capital	159,700[4]	61[4]
O&M	166,400[1]	64[2]
Total Other Costs	326,100	125
Total Cost to Producers	1,631,300	627

[1] *Based upon an annual average production of 2,600 AF per production well.*
[2] *Based on survey of major agencies within OCWD's service area, non-irrigation groundwater users.*
[3] *Upper limit of the proposed RA for 2016-17.*
[4] *Based on 2008 average cost for design and construction of a production well (excluding land cost) under the MWD Long-Term Groundwater Storage Program (cost amortized over 30 years at 5 percent interest) and adjusted to 2015 dollars using Engineering News-Record Construction Cost Index for Los Angeles area. Typical design parameters are listed in Appendix 6.*

COST OF SUPPLEMENTAL WATER

Supplemental water is supplied to OCWD's service area by MWD. MWD delivers both treated and untreated water as either a non-interruptible supply or an interruptible supply. As a result, there are several categories of water available from MWD. The categories most applicable for purposes of this report are 1) uninterruptible (i.e., firm) treated water, which is referred to as "full service water," and 2) uninterruptible untreated water. Treated water is used directly by various groundwater producers for municipal and industrial purposes, while untreated water is used by OCWD to support higher groundwater production. Table 8 shows the estimated cost for the MWD uninterruptible treated water (full service water) cost for the ensuing 2016-17 water year. Figure 6 illustrates the historical supplemental water costs along with the historical groundwater production costs. A comparison of estimated costs for groundwater versus supplemental water (non-irrigation use) during the ensuing water year 2016-17 is summarized in Table 9 and also in Figure 6. Values used in Figure 6 are presented in tabular form in Appendix 7.

TABLE 8. Estimated 2016-17 Supplemental Water Cost[1]

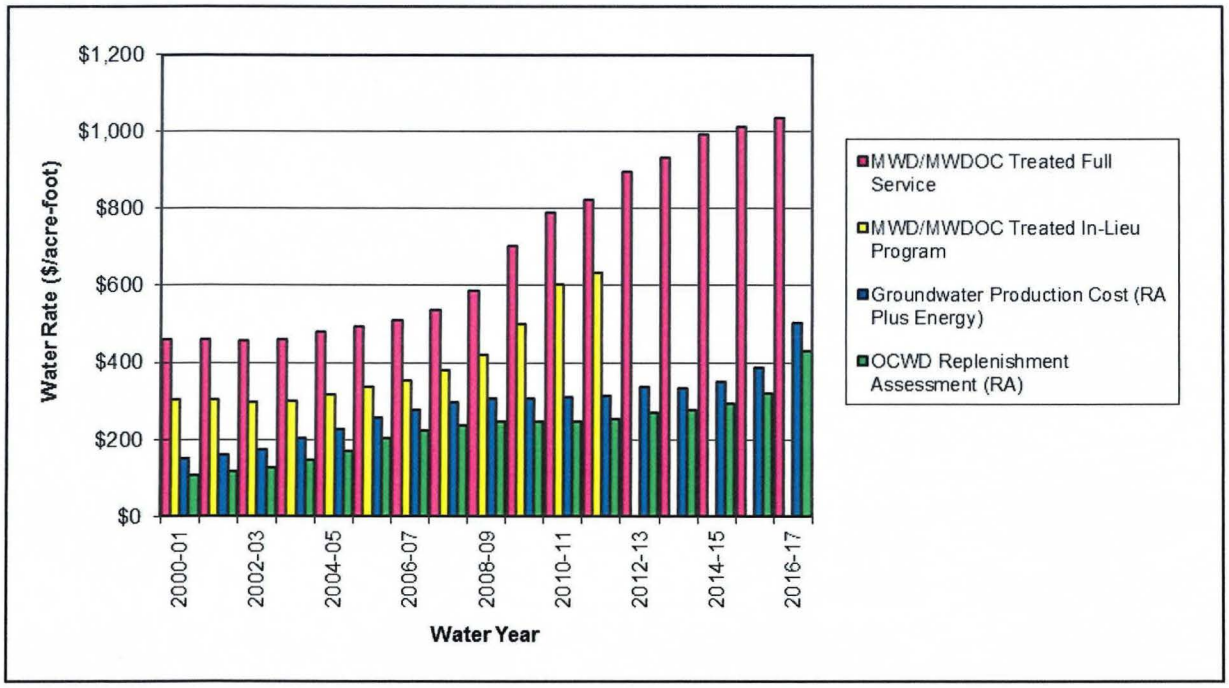
Rate and Charge Components	Treated Water Rate ($/AF)
Firm Deliveries	**Full Service Water**
MWD Supply Rate (MWDOC Melded Rate)	156.00
MWD System Access Rate	263.00
MWD System Power Rate	144.00
MWD Water Stewardship Rate	41.00
MWD Treatment Surcharge	353.00
MWD RTS and Capacity Charges[2]	80.00
Total	**1,037.00**

[1] *Rates are an average of calendar year 2016 and proposed calendar year 2017. Supplemental water costs for MWD's member agencies (i.e., Anaheim, Fullerton and Santa Ana) are not reported herein due to the variability among these agencies on water supply allocations between MWD's Tier 1 and Tier 2.*

[2] *Readiness-to-Serve (RTS) and Capacity Charges have been converted to an approximate cost per acre-foot, but are not normally reported in terms of unit cost.*

Cost components for supplemental treated and untreated water are listed in Table 8. Beyond the normally expected water supply, treatment and power charges, there are several other charges. The System Access charge is for costs associated with the conveyance and distribution system, including capital and O&M costs. The Water Stewardship charge is used to support MWD's financial commitment to conservation,

FIGURE 6. Adopted and Projected Water Rates for Non-Irrigation Use[1]



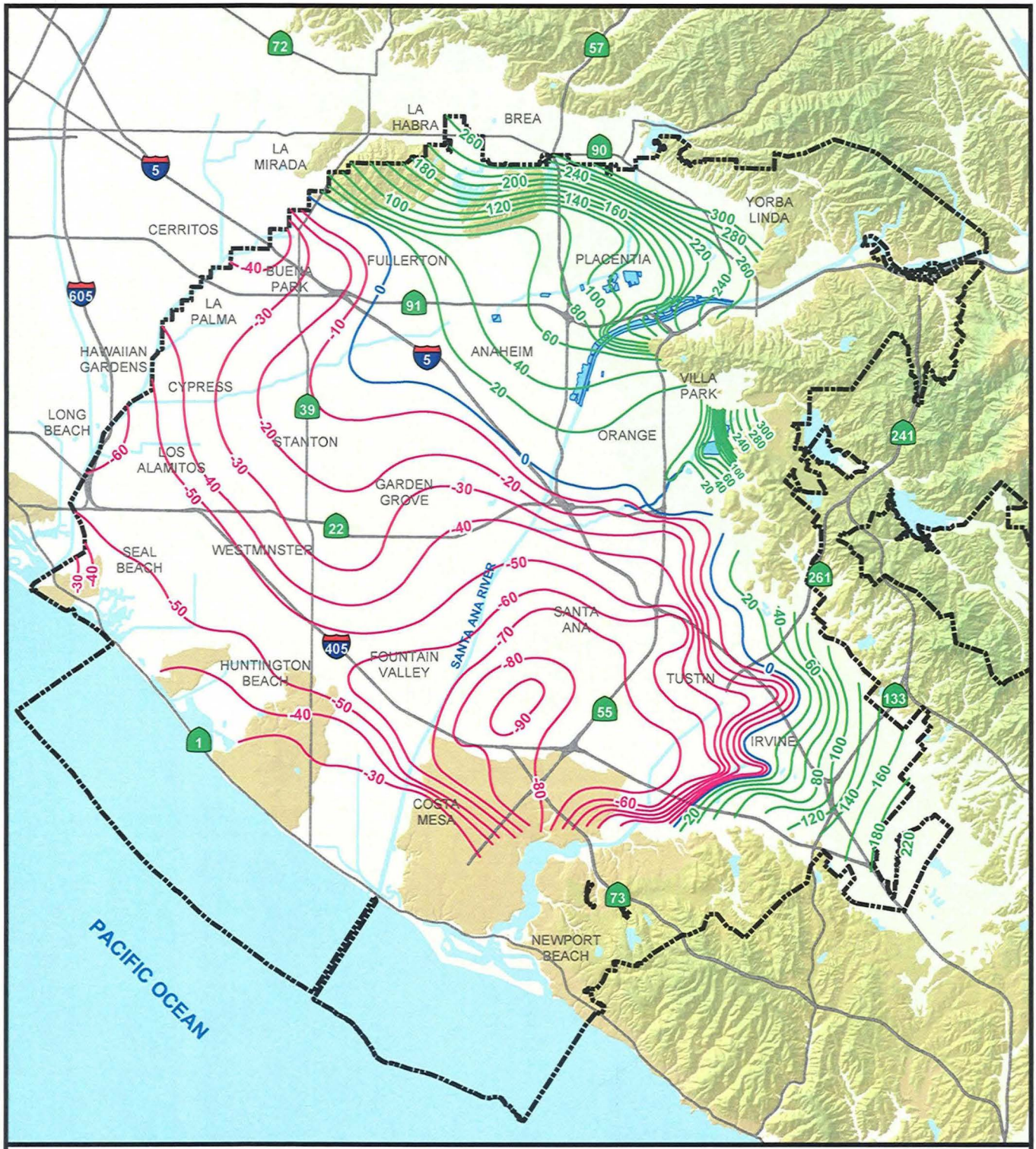
[1] *Refer to Appendix 7 for actual values used in Figure 6.*

TABLE 9. Estimated 2016-17 Water Production Cost Comparison

Non-Irrigation Use	Groundwater Cost ($/AF)	Supplemental Water Cost ($/AF)
Fixed Cost	61.00[1]	1,037.00[3]
Variable Cost	566.00[2]	-[3]
Total	**627.00**	**1,037.00**

[1] *Capital cost.*
[2] *Cost for energy, O&M and proposed RA.*
[3] *Delineation of fixed and variable costs is not available.*

water recycling, groundwater recovery and other water management programs approved by MWD. MWD uses the Capacity Charge to recover its cost for use of peaking capacity within its distribution system. The Readiness-to-Serve (RTS) charge is to recover MWD's cost associated with providing standby and peak conveyance capacity and system emergency storage capacity.



Estimated Groundwater Elevations Within The Principal Aquifer
Feet above Mean Sea Level* (ft MSL)

- -90 to -10
- 0
- 20 to 300
- Recharge Facility Areas
- Freeways / Highways
- Rivers / Streams
- Orange County Water District
- Water Bodies

PLATE 1
GROUNDWATER CONTOUR MAP
JUNE 2015

0 1 2 4 Miles

N W E S

*NOTE: MSL elevations are referenced to Vertical Datum NGVD 29

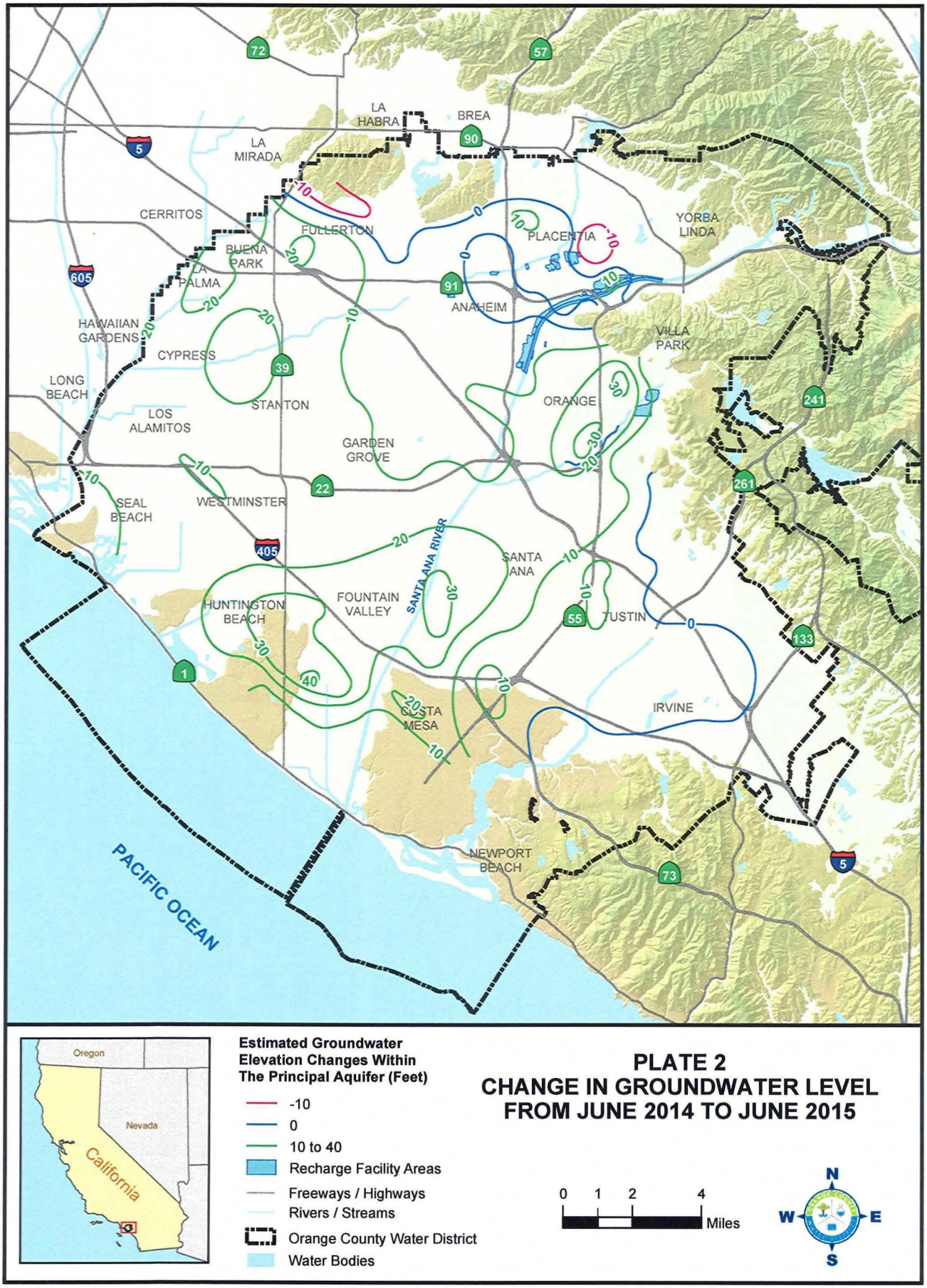
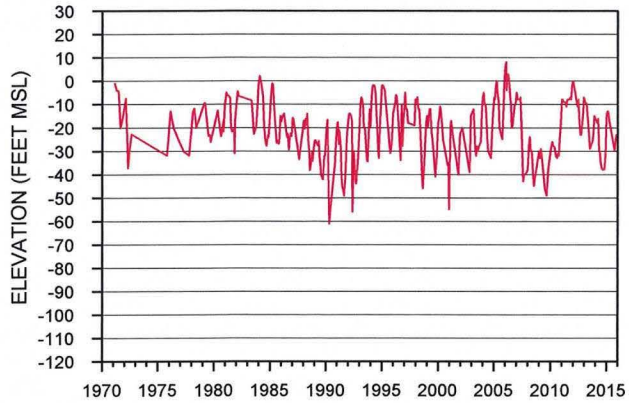

72
57
LA HABRA
BREA
90
5
LA MIRADA
CERRITOS
FULLERTON
PLACENTIA
YORBA LINDA
BUENA PARK
LA PALMA
605
91
ANAHEIM
HAWAIIAN GARDENS
CYPRESS
VILLA PARK
39
LONG BEACH
STANTON
ORANGE
241
LOS ALAMITOS
GARDEN GROVE
261
22
SEAL BEACH
WESTMINSTER
405
SANTA ANA
SANTA ANA RIVER
HUNTINGTON BEACH
FOUNTAIN VALLEY
55
TUSTIN
133
1
COSTA MESA
IRVINE
PACIFIC OCEAN
NEWPORT BEACH
73
5
-10
0
10
20
30
40
Oregon
Nevada
California
Estimated Groundwater Elevation Changes Within The Principal Aquifer (Feet)
-10
0
10 to 40
Recharge Facility Areas
Freeways / Highways
Rivers / Streams
Orange County Water District
Water Bodies
PLATE 2
CHANGE IN GROUNDWATER LEVEL FROM JUNE 2014 TO JUNE 2015
0 1 2 4
Miles
N
W
E
S

PLATE 3
KEY WELL GROUNDWATER ELEVATION TRENDS

Measured water level elevations in feet relative to mean sea level

GG-16
04S/11W-33L01



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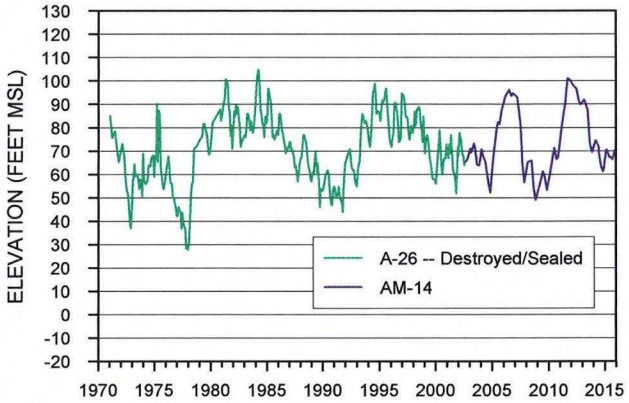

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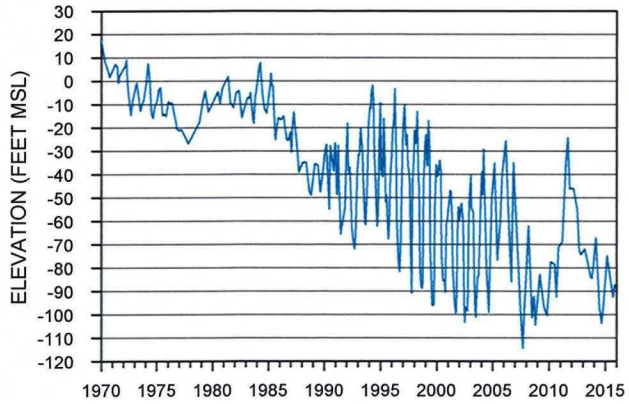
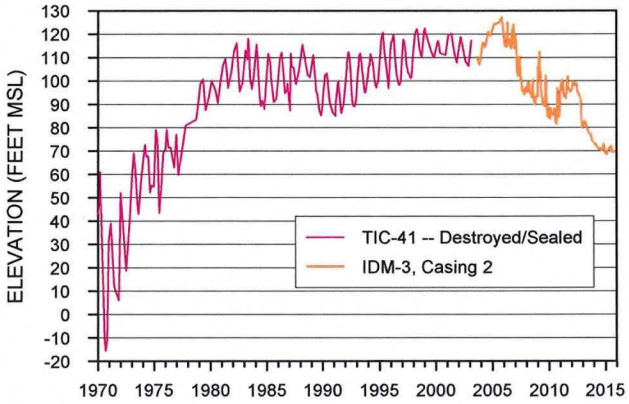
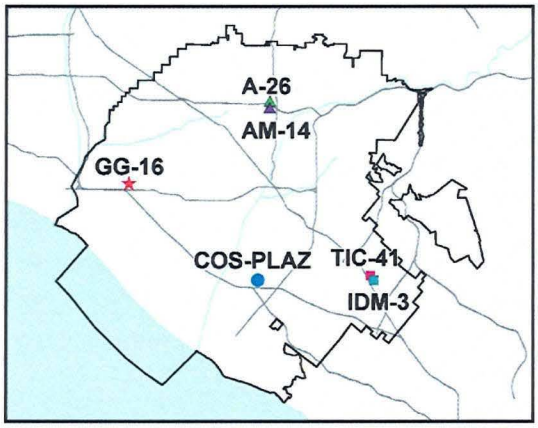
05S/10W-35K01



TIC-41 / IDM-3
05S/09W-36B01 / 05S/09W-36B02





APPENDIX 1. Water Production Data 2014-15

Groundwater Producer	Groundwater (AF)				Supplemental Water (AF)				(AF)	Actual BPP
	Non-Irrigation [1]		Irrigation Pumping	Total	Non-Irrigation [1]		Irrigation Deliveries	Total	Grand Total	Non-Irrigation [1] Only
	Pumping	In-Lieu Program [2]			Deliveries	Conservation Credit [3]				
Anaheim, City of [7]	44,689.5	-	-	44,689.5	16,842.3	237.5	-	17,079.8	61,769.3	72.3%
Buena Park, City of [7]	9,808.8	-	-	9,808.8	3,620.4	25.5	-	3,645.9	13,454.7	72.9%
East Orange County Water District	889.5	-	-	889.5	7.3	3.4	-	10.7	900.2	98.8%
County of Orange	99.6	-	-	99.6	110.8	-	-	110.8	210.4	47.3%
Fountain Valley, City of	9,417.5	-	-	9,417.5	2.1	26.8	-	28.9	9,446.4	99.7%
Fullerton, City of	18,939.4	-	10.8	18,950.2	8,297.8	34.9	-	8,332.7	27,282.9	69.4%
Garden Grove, City of [4,7]	17,421.4	-	-	17,421.4	6,640.2	51.3	-	6,691.5	24,112.9	72.2%
Golden State Water Company [7]	18,027.5	-	-	18,027.5	6,659.8	113.3	-	6,773.1	24,800.6	72.7%
Huntington Beach, City of	16,603.9	-	-	16,603.9	11,147.1	108.6	-	11,255.7	27,859.6	59.6%
Irvine Ranch Water District [4, 5]	49,455.5	-	1,040.3	50,495.8	4,399.5	738.6	-	5,138.1	55,633.9	90.6%
La Palma, City of	1,939.6	-	-	1,939.6	0.2	8.4	-	8.6	1,948.2	99.6%
Mesa Water District [4]	15,653.1	-	-	15,653.1	1,998.4	63.8	-	2,062.2	17,715.3	88.4%
Newport Beach, City of	11,208.1	-	-	11,208.1	4,336.4	22.6	-	4,359.0	15,567.1	72.0%
Orange, City of [5]	20,372.9	-	-	20,372.9	8,784.4	80.3	-	8,864.7	29,237.6	69.7%
Orange County Water District [6]	239.6	-	-	239.6	-	-	-	0.0	239.6	100.0%
Santa Ana, City of [7]	26,343.0	-	-	26,343.0	10,304.8	74.4	-	10,379.2	36,722.2	71.7%
Seal Beach, City of	2,736.8	-	-	2,736.8	752.1	5.2	-	757.3	3,494.1	78.3%
Serrano Water District [5]	2,056.3	-	-	2,056.3	771.1	3.5	-	774.6	2,830.9	72.6%
Tustin, City of [4]	8,202.5	-	-	8,202.5	2,913.5	49.4	-	2,962.9	11,165.4	73.5%
Westminster, City of [7]	8,370.5	-	-	8,370.5	3,250.9	44.8	-	3,295.7	11,666.2	71.8%
Yorba Linda Water District [7]	12,297.3	-	20.4	12,317.7	7,662.8	39.5	-	7,702.3	20,020.0	61.5%
Total Major Groundwater Producers	294,772.3	0.0	1,071.5	295,843.8	98,501.9	1,731.8	0.0	100,233.7	396,077.5	74.6%
Other Producers	6,601.2	-	1,553.1	8,154.3	0.0	0.0	0.0	0.0	8,154.3	
Exempt Well Production	1,261.0	-	-	1,261.0	0.0	0.0	0.0	0.0	1,261.0	
Total Amount	302,634.5	0.0	2,624.6	305,259.1	98,501.9	1,731.8	0.0	100,233.7	405,492.8	
Basin Production Percentage (includes non-irrigation deliveries, but excludes water conservation credits)										75.0%

[1] *Water classed as being used for purposes other than commercial agriculture.*

[2] *Imported MWD water purchased for domestic use to offset groundwater pumping.*

[3] *Accounts for only those credits allowed for under the program initiated on September 20, 1995.*

[4] *Agencies that participate in a groundwater water quality improvement project.*

[5] *Agencies that can receive Santiago Creek native water above Villa Park Dam that are conveyed to users within OCWD. Such water, if delivered, is included within the classification of "Supplemental Water" as defined in the District Act.*

[6] *Groundwater quantity reported herein is that quantity used by OCWD for purposes other than seawater intrusion barrier maintenance.*

[7] *These agencies participated in the MWD Long-Term Groundwater Storage Program for which groundwater was extracted and accounted for as supplemental water.*

APPENDIX 2. 2014-15[1] Groundwater Production — Non-Irrigation Use Production Over 25 Acre-feet

PRODUCER	AF	PRODUCER	AF
Alta Vista Country Club	411.5	Mesa Verde Country Club	350.2
Anaheim Cemetery	47.7	Mesa Water District	15,653.1
Anaheim, City of	44,689.5	Midway City Mutual Water Company	151.7
Buena Park, City of	9,808.8	Mile Square Golf Course	101.6
Canyon RV Park	122.3	Navy Golf Course	490.1
County of Orange	99.6	Newport Beach, City of	11,208.1
Cypress GC LLC/Cypress Golf Club	67.9	Newport Beach Golf Course	119.3
Danone Waters of North America	338.9	Orange, City of	20,372.9
Donovan Golf Course Management	214.9	Orange County Water District	239.6
Eastlake Village HOA	54.7	Page Avenue Mutual Water Company	57.9
East Orange County Water District	889.5	River View Golf	252.9
Eastside Water Association	210.1	Santa Ana, City of	26,343.0
Fairhaven Memorial Park	181.2	Santa Ana Country Club	326.6
Forest Lawn Memorial Park	207.8	Seal Beach, City of	2,736.8
Fountain Valley, City of	9,417.5	Sequoia Management Services, LL	620.5
Fullerton, City of	18,939.4	Serrano Water District	2,056.3
Garden Grove, City of	17,421.4	South Coast Shores HOA	55.9
Golden State Water Company	18,027.5	South Midway City Water Company	76.9
Hargis and Associates, Inc.	36.6	The Boeing Company	199.3
Huntington Beach, City of	16,603.9	The Good Shepherd Cemetery	66.8
Hynes Estates, Inc.	59.8	The Lakes Master Association	54.8
Irvine Ranch Water District	49,455.5	Tustin, City of	8,202.5
Knott's Berry Farm	250.6	Westminster, City of	8,370.5
La Palma, City of	1,939.6	Westminster Memorial Park	278.9
Lockheed Martin Corporation	41.3	Yorba Linda Country Club	435.7
Los Alamitos Race Course	235.5	Yorba Linda Water District	12,297.3
Melrose Abbey Funeral Center	30.5	**Total**	**301,136.9**

[1]*Water year begins on July 1.*

APPENDIX 3. 2014-15[1] Groundwater Production — Irrigation Use Production Over 25 Acre-feet

PRODUCER	AF
Berumen Farms, Inc.	44.2
F.S. Nursery c/o Southern CA Edison	44.5
Irvine Ranch Water District	1,040.3
Orange County Produce	899.4
Roy Pursche	403.8
Village Nurseries	137.3
Total	**2,569.5**

[1] *Water year begins on July 1.*

APPENDIX 4. Non - Local Water Purchased by OCWD for Water Years 1995-96 through 2014-15

	Water Exchange		Talbert Barrier		Forebay Recharge		In-Lieu Program		Basin Water	SAR Upstream GW Projects		TOTAL
	Western	Alamitos	FV[1]	MCWD	Forebay	CUP[2]	CUP[2]		Supply Mgmt.	Arlington	San Bernard.	
	Mun. WD	Barrier	OC32A	OC44B	Recharge	Recharge	In-Lieu	In-Lieu	Program[3]	Desalter	Valley Mun.WD	
Water	Purch.	Purch.	Purch.	Purch.	Purch.	Delivery	Delivery	Purch.	Purch.	Purch.	Purch.	Purch.
Year	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF
1995-96	888.2	1,691.6	-	-	15,278.7	-	-	5,542.4	-	2,770.6	-	26,171.5
1996-97	2958.0	1,885.5	-	-	33,742.7	-	-	7,883.0	-	6,176.2	-	52,645.4
1997-98	701.8	1,613.8	-	-	19,029.4	-	-	-	27,674.9	2,516.9	-	51,536.8
1998-99	996.1	1,493.6	-	-	10,371.5	-	-	-	13,351.9	2,351.3	-	28,564.4
1999-00	-	1,873.6	-	-	28,478.1	-	-	24,726.0	13,280.8	4,994.6	-	73,353.1
2000-01	-	1,672.5	941.7	-	59,138.4	-	-	11,191.0	7,449.0	5,177.9	2,787.6	88,358.1
2001-02	2,990.3	2,282.2	2,673.0	-	30,092.6	-	-	19,472.4	-	5,819.8	4,296.4	67,626.7
2002-03	3,471.4	1,448.7	1,540.1	-	35,755.1	-	-	25,631.0	35,832.0	4,924.7	-	108,603.0
2003-04	3,605.0	1,938.3	1,703.3	3,380.6	14,832.0	2,462.7	2,479.6	49,688.8	-	4,087.3	-	84,177.6
2004-05	-	1,914.9	2,451.8	8,368.6	3,810.8	-	15,021.1	54,596.1	-	567.5	-	86,730.8
2005-06	-	833.0[4]	1,079.9	5,431.1	7,256.7	-	15,452.9	73,763.1[5]	-	-	-	103,816.7
2006-07	1,745.0	534.1[4]	143.9	7,394.7	42,173.0	-	14,427.3	36,313.0	-	227.6	-	102,958.6
2007-08	2,882.4	1,505.7[4]	-	4,581.4	-	-	-	-	-	1,266.6	-	10,236.1
2008-09	3,663.5	2,094.2[4]	-	4,140.3	18,100.0	-	-	-	-	428.2	-	28,426.2
2009-10	-	1,321.9[4]	-	176.9	20,535.7	-	-	-	-	106.2	-	22,140.7
2010-11	-	1,689.1[4]	-	100.5	11,038.6	16,500.0	-	10,435.4	-	-	-	39,763.6
2011-12	-	1,198.7[4]	-	1.9	41,230.8	7,709.6	9,719.9	30,843.6	-	-	-	90,704.5
2012-13	-	1,721.8[4]	-	3.7	24,356.1	15,570.8	-	-	-	-	-	41,652.4
2013-14	-	2,370.2[4]	-	6.2	50,700.5	-	-	-	-	-	-	53,076.9
2014-15	-	2,236.3[4]	-	17.7	48,616.8		-	-	-	-	-	60,870.8[6]
Total	23,901.7	33,319.7	10,533.7	33,603.6	514,537.5	42,243.1	57,100.8	350,085.8	97,588.6	41,415.4	7,084.0	1,221,413.9[6]

[1] Includes only imported water and excludes groundwater deliveries from Fountain Valley to OCWD.

[2] "CUP" is the multi-agency conjunctive use program (known as the MWD Long-Term Groundwater Storage Program or MWD CUP). Basin losses are not taken into account.

[3] Known as Basin Water Supply Management Program (WSM) water. WSM program was terminated on December 31, 2003.

[4] Includes both MWD imported deliveries and supplemental recycled water deliveries.

[5] Includes 16,000 AF of 2005-06 MWD Supplemental Storage Program (i.e., "Super In-Lieu") water that was received as In-Lieu by the groundwater producers.

[6] Includes purchase of 10,000 AF of stored water from MWD CUP storage account at full-service untreated water rate.

APPENDIX 5. 2014-15 Water Resources Summary

	2014-2015 Water Year (AF)	2013-2014 Water Year (AF)	Change from last year to this year
SUMMARY OF BASIN CONDITIONS			
BASIN SUPPLIES			
Water Purchases from MWD (excludes In-Lieu)	48,727	50,701	(1,974)
Water into MWD Storage Account (excludes In-Lieu)	0	0	0
SAR & Santiago Creek Flows	107,506	92,164	15,342
GWRS AWPF Water to Forebay Recharge Basins	39,688	34,263	5,425
GWRS AWPF Water to Mid-Basin Injection	310	0	310
GWRS AWPF Water to Talbert Barrier	36,471	31,906*	4,565
Imported Water to Talbert Barrier (OC-44 & Fountain Valley)	18	6	12
Alamitos Barrier	2,236	2,370	(134)
Incidental Recharge	49,936	31,867*	18,069
Evaporation from Recharge Facilities	(2,904)	(2,407)	(497)
SAR Flow Lost to Pacific Ocean	(3,230)	(500)	(2,730)
Water Storage Change in Recharge Facilities[1]	(418)	1,829	(2,247)
Total Groundwater Recharge	**279,176**	**238,510**	**40,666**
WATER PRODUCTION			
Groundwater Production	305,259	330,782	(25,523)
MWD Storage Program Extractions	12,917	7,730	5,187
Total Groundwater Production	**318,176**	**338,512**	**(20,336)**
BASIN STATUS			
Change in Groundwater Storage	(39,000)	(100,000)*	61,000
Change in Groundwater Storage excluding MWD Stored Water	(26,083)	(92,062)*	65,979
Accumulated Overdraft (AOD)	(381,000)	(342,000)*	(39,000)
AOD without MWD Storage Program Water	(397,440)	(381,958)*	(15,482)
IN-LIEU WATER			
OCWD In-Lieu Purchases	0	0	0
MWD In-Lieu Storage	0	0	0
Total In-Lieu	0	0	0
OTHER KEY INFORMATION			
1. Imported Deliveries to Producers (less MWD withdrawal)[2]	81,212	96,054	(14,842)
2. Total Dissolved Solids of SAR below Prado Dam (mg/L)	640	668	(28)
3. Total Nitrogen of SAR below Prado Dam (mg/L)	3.8	4.3	(0.5)
4. Total GWRS AWPF Production[3]	76,534	66,163	10,371
5. Green Acres Project	4,631	5,071	(440)
6. Base Flow of Santa Ana River	63,756	64,530*	(774)
7. Year-end Storage behind Prado Dam	1	0	1
8. Year-end Storage in Recharge Facilities	9,733	10,151	(418)
9. Total Artificial Recharge (percolation plus barriers)	229,240	206,670*	22,570
10. Rainfall Measured at OCWD Field Headquarters (inches)	9.27	5.14	4.13
11. Annual Mean Temperature at Santa Ana Fire Station (°F)	69.3	67.5	1.8

[1] *A negative value for "Change in Recharge Facilities Storage" translates into a positive value (i.e., increase in basin supply) when performing a summation of "Total Basin Supply" (with the reverse also holding true).*

[2] *Santiago Creek Native and In-Lieu water are included (excludes imported water used for groundwater replenishment).*

[3] *Total includes deliveries to recharge basins, Talbert Barrier, MBI, Anaheim Canyon Power Plant and ARTIC.*

**These values have been revised and were provided to OCWD after the publication of the 2013-2014 Engineer's Report.*

APPENDIX 6. Typical Groundwater Extraction Facility Characteristics

PARAMETER	CHARACTERISTICS
Water System Pressure	62 psi
Load (Use) Factor	63%
Design Flow Rate	2,563 gpm
Annual Production	2,600 AF
Bowl Efficiency (minimum)	84%
Motor Horsepower	325 hp
Type Motor	Electric
Well Casing Diameters	16 – 20 inches
Type of Pump	Vertical Turbine
Depth of Well	1,052 feet
Depth of Bowls	278 feet
Total Dynamic Head	325 feet
Estimated Life	30 years
Annual Cost of Facilities[1]	$159,700

[1] *2015 cost was based on a 2008 cost with an interest rate of 5 percent amortized over a 30-year period and excluding the cost for land. The 2008 cost was adjusted to 2015 dollars using Engineering News-Record Construction Cost Index for Los Angeles area.*

APPENDIX 7. Values Used in Figure 6
For Water Rates for Non-Irrigation Use

Water Year	RA ($/AF)	Estimated Groundwater Production Cost[1,2] ($/AF)	MWD Treated Interruptible Rate (In-Lieu Program)[2,3] ($/AF)	MWD Treated Non-Interruptible Rate (Full Service)[2,3] ($/AF)
1985-86	32	85	181	225
1986-87	32	91	187	231
1987-88	32	91	187	231
1988-89	42	105	187	231
1989-90	45	119	136	231
1990-91	48	91	137	232
1991-92	51	100	156	263
1992-93	60	116	206	325
1993-94	67.5	124	257	389
1994-95	88	145	279	416
1995-96	85	140	294	440
1996-97	88	140	303	448
1997-98	91	141	303	455
1998-99	94	143	303	458
1999-00	100	150	303	459
2000-01	107	150	303	459
2001-02	117	162	303	459
2002-03	127	176	299	455
2003-04	149	203	301	460
2004-05	172	229	318	479
2005-06	205	258	337	494
2006-07	223	278	354	510
2007-08	237	296	382	538
2008-09	249	307	420	586
2009-10	249	308	501[4]	701
2010-11	249	310	602[4]	744
2011-12	254	315	633[4]	794
2012-13	266	330	-[5]	794
2013-14	276	334	-[5]	890
2014-15	294	349	-[5]	923
2015-16	322	386	-[5]	942
2016-17	431[3]	502	-[5]	1,037[4]

[1] *Includes RA plus energy cost to produce groundwater.*
[2] *Rate is rounded.*
[3] *Rate is proposed.*
[4] *Rate is estimated.*
[5] *This rate is no longer available because MWD terminated the Replenishment Program.*

AGENDA ITEM SUBMITTAL

Meeting Date: February 17, 2016

To: Board of Directors

From: Mike Markus

Staff Contact: S. Dosier

Budgeted: N/A
Budgeted Amount: N/A
Cost Estimate: N/A
Funding Source: N/A
Program/Line Item: N/A
General Counsel Approval: N/A
Engineers Report Approved: N/A
CEQA Compliance: N/A

SUBJECT: RATIFICATION OF JOB CLASSIFICATION CHANGE

SUMMARY

Staff met with the Board in closed session on January 20 to review staff's recommendation to adjust the salary grade for one existing job classification, and obtain authorization to meet and confer with the OCEA regarding the proposed changes. The meet and confer process is now complete and staff is requesting final approval of the classification changes discussed.

RECOMMENDATION:

Ratify the following job classification and salary grade modification: Change the Records Management Coordinator job classification to non-represented, confidential and place in salary grade N-10.

DISCUSSION / ANALYSIS:

Staff met with the Board in closed session back on January 20, 2016 to review staff's recommendation to change the existing Records Management Coordinator job classification to non-represented, confidential and adjust the positon to salary grade N-10. Following the meeting with the Board, staff presented the request to OCEA. OCEA had no objections with the change; therefore, staff is requesting ratification of the above listed change.

PRIOR RELEVANT BOARD ACTION(S): N/A

AGENDA ITEM SUBMITTAL

Meeting Date: February 4, 2016

To: Communications/Leg. Liaison Cte.
Board of Directors

From: Mike Markus

Staff Contacts: E. Torres/G. Ayala

Budgeted: No
Budgeted Amount: N/A
Cost Estimate: $25,000
Funding Source:
Program/Line Item No.:
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

POLICY ITEM: PURCHASE OF TOUR SOUND SYSTEM

SUMMARY

Since the Groundwater Replenishment System (GWRS) came online in 2008, more than 32,000 guests have toured the project at the Orange County Water District (OCWD; the District). Hailed as the global model for water recycling, guests come from around the world to learn about this sustainable water supply project and how it can be implemented in their communities. To ensure a valuable learning experience is provided, the District must have an adequate audio system to support the tour program and ensure information is appropriately communicated.

Attachment(s): Integrated Media System quote dated January 12, 2016

RECOMMENDATION

RECOMMENDED BY COMMITTEE

Agendize for February 17 Board meeting: Authorize issuance of Purchase Order to Integrated Media Systems in the amount of $25,000 for a sound system to support the tour program.

RELEVANT STANDARDS

- Maintain a transparent role within the community by educating stakeholders about OCWD's roles, priorities and strategic initiatives.
- Maintain public's confidence in our water supply and OCWD's role in ensuring exceptional water quality.
- Communicate about OCWD's sound planning and appropriate investment in projects to provide a highly reliable water supply.
- Educate stakeholders about where water comes from, the impacts of the drought and the importance of water conservation.
- Develop and maintain long-term and positive relationships with stakeholders.
- Build confidence and support with the community through education and partnerships with other organizations and agencies.
- Demonstrate environmental stewardship.

BACKGROUND/ANALYSIS

Since Water Factory 21, a first-of-its-kind water reuse project, there has been an interest to visit OCWD and learn from and about its projects. Over the years, OCWD has established itself as a leader in water reuse and groundwater management and collaborates with representatives worldwide to share information, data and lessons learned.

Since 2008, the District has hosted more than 32,000 people on tours of the GWRS. When the water education corridor opens in the coming months this number is expected to increase.

Tour guests represent a diverse audience and include members of the general public; high schools; universities; trade schools; water, environment and engineering professionals; elected officials; members of the media; civic organizations and many more.

Although, the size of a tour group varies from a few individuals to 160. Tours are administered every week and, on average, the District conducts about 16 per month.

The GWRS tour starts with a presentation and survey in the boardroom and continues in the plant where visitors see first-hand the three-step advanced purification process consisting of microfiltration, reverse osmosis and ultraviolet light. The tour concludes with tasting GWRS water. As visitors walk through the plant it is difficult to hear because of the noise associated with the 24/7 working plant and because the group size does not allow everyone to adequately hear. These factors reduce the quality of the tour experience as well as the information learned.

To continue to implement a robust tour program for thousands of future guests, OCWD must invest in purchasing audio equipment so it is able to educate stakeholders about the GWRS and important water issues and garner support for water reuse projects.

The District has received feedback from staff who conduct the tours as well as from tour guests that it is often difficult for all members of the group to hear. Possibly the few guests who are closest to the tour guide have a good experience, but the others may not share the same experience.

Staff administered a walkthrough of the tour route with an audio professional and the proposed sound system consists of 100 individual headsets with receivers, portable transmitters, microphones for the tour guides and a charging station. The recommended equipment is from the same vendor who installed the sound system in the board room. Staff recommends this vendor because of the quality and service. OCWD could have one service contract to support all of its audio equipment.

This particular sound system, which can allow guests to hear a tour guide even if he/she whispers, allows tours to be conducted in the hallway without amplification which minimizes disruption of activities taking place in conference rooms, the reception area and the offices that are located near the hallway exhibits.

Integrated Media Systems

Communication Technology Made Simple

200 McCormick Ave. - Costa Mesa, CA 92626
714-579-4100 - www.imsav.com

Quotation

Client:
Frank Simone
Orange County Water District
18700 Ward Street,
Fountain Valley, CA 92708
fsimone@ocwd.com
Phone: (714) 378-3261
Cell:

100 Receiver/2 Microphone Tour Audio System

Date: 01/12/16
QuoteID: OCWD111615
Revision #: V5
Terms: Standard

Prepared By: John Grubin
Phone: 714-579-4100 x241
Fax: 714-876-9355
Email: jgrubin@imsav.com

Equipment

QTY	MNF	ITEM	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
2	Listen	LT-700-072	Portable Display RF Transmitter (72 MHz)	$372.00	$744.00
2	Listen	LA-361	High Capacity AA Alkaline Batteries (2)	$3.00	$6.00
2	Listen	LA-278	Behind-the-Head Microphone	$63.00	$126.00
100	Listen	LR-5200-072	Advanced Intelligent DSP RF Receiver (72MHz)	$199.00	$19,900.00
6	Listen	LA-320	Configurable Carrying Case	$133.00	$798.00
2	Listen	LA-381-01	Intelligent 12-Unit Charging Tray	$253.00	$506.00
				Equipment SUB-TOTAL	**$22,080.00**

Professional Services

QTY	DESCRIPTION	EXTENDED PRICE
1	Initial Set Up Configuration and Training	$600.00
	Labor SUB-TOTAL	**$600.00**

Sales Tax (8.00%)	$1,766.40
Standard Freight	$65.00
TOTAL	**$24,511.40**

IMS Scope Of Work: IMS will provide the equipment above, initial set up and configuration, and provide user training on the operation of the equipment immediately after set up.

Notes: Quotation valid for 30 days.

Terms: 50% Deposit and Purchase Order Net 30 Days required with order.

This agreement is effective immediately upon signing by an officer of the company above and shall remain in effect until the completion of the project. This agreement supersedes any and all previous agreements.

Submitted By: John Grubin
Vice President - Sales & Marketing
Integrate Media Systems

Authorized By:
Name: _____
Title: _____
Signature: _____
Date: _____
P.O.#: _____

RETURN POLICY: Merchandise cannot be returned without IMS' prior authorization and the Client's receipt of a return authorization number. All merchandise returned must be received by IMS within 30 days of Client receipt, return freight prepaid, in new and unused condition and in original packaging with all accessories, manuals and all accompanying materials included. A 30% restocking fee will be applied to all returned merchandise. No returns will be accepted after 30 days.

As your local AV Consultant/Contractor (AVC/C), a relationship with us provides a number of benefits. As a Client, we will know your installation better and be able to troubleshoot issues, make better recommendations and service/repair your equipment. By staying informed of new projects, we can often save significant cost and frustration by anticipating the construction requirements in the programming or DD phase.

AGENDA ITEM SUBMITTAL

Meeting Date: February 10, 2016

To: Water Issues Committee
Board of Directors

From: Mike Markus

Staff Contact: C. Olsen/
S. Scott-Roberts

Budgeted: Yes
Budgeted Amount: $109,924
Cost Estimate: $109,924
Funding Source: CIP
Program/Line Item No. C10002
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: CONTRACT NO. FB-2012-1, FLETCHER BASIN PROJECT: AMENDMENT TO AGREEMENT WITH BUTIER FOR CONSTRUCTION PHASE SERVICES

SUMMARY

The Fletcher Basin Project is currently being constructed by Sukut Contractors. Construction is scheduled to be complete in March 2016. Construction phase services, including construction inspection, management, and testing are being provided by Butier Construction Managers. This work has exceeded the original agreed upon scope of work due to a small amount of lead contamination being discovered during the excavation. Therefore staff is recommending authorization for a contract amendment to complete the project.

Attachment(s): Letter from Butier dated February 2, 2016

RECOMMENDATION

RECOMMENDED BY COMMITTEE

Agendize for February 17 Board meeting: Authorize issuance of Amendment No. 7 to Agreement No. 0370 with Butier Construction Managers for $109,924 for construction phase services.

BACKGROUND/ANALYSIS

Fletcher Basin is owned by Orange County Flood Control District (OCFCD) and is located in the City of Orange near Fletcher Ave. and Batavia Street. Fletcher Basin was formerly used to retard storm water flow prior to discharge into the Santa Ana River. The 4.8 acre site is no longer used as a retardation basin. In the past, OCFCD used the site to dispose of excess soils.

In order for OCWD to use this site as a recharge basin, the following work is being completed at Fletcher Basin:

- Excavation and disposal of the existing fine grained soils
- Backfill the excavated basin with clean sand for slope stabilization
- Construction of a water supply pipeline and sump pump

Figure 1 shows the location of Fletcher Basin as well as the proposed alignment of the water supply pipeline connecting from OCWD's existing Riverview Pipeline.

Figure 1 – Fletcher Basin Project Site Plan

OCWD and OCFCD have an agreement in place which outlines each agency's responsibilities during design, construction, operation and maintenance of the project. In general, OCFCD has agreed to pay for the excavation, cleaning, hauling and disposal of the soil to the original depth of Fletcher Basin upon OCFCD purchase in 1951. OCWD has agreed to pay for all improvements directly related to recharge.

Butier has been providing construction management, inspection and testing services since construction began in February 2015. In April 2015, during the excavation of the existing fine grained soils, lead was discovered in the soil. The leachability index of the lead detected in three samples in the soil being excavated exceeded the toxicity level for disposal in any landfills in Orange County. OCFCD and OC Waste & Recycling were notified of the lead detection and assisted staff in the development of a lead remediation plan. The remediation plan comprised of isolating the lead contaminated areas and disposing of the contaminated material by hauling it to a hazardous waste facility in Yuma, AZ. In order to isolate the contaminated material, staff authorized Butier to work with their subconsultant, Ninyo & Moore, to take samples and isolate the contaminated areas documented in an official report. This work was outside of the scope of Butier and Ninyo & Moore. However, their work expedited the removal process and allowed the contractor to continue work shortly after the lead contaminated soil was completely

removed. The attached letter from Butier describes the extra hours incurred due to the unforeseen circumstance of lead contamination in the excavated soil and the extra costs from Ninyo & Moore for their testing and report documentation services of the contaminated soil. The total amount required in out of scope services for Butier (and their subconsultant, Ninyo & Moore) is $109,924. The original agreement no. 0370 with Butier Construction Managers is an on-call agreement. This on-call agreement has been amended six times previously. Each amendment to this agreement provided support for a different OCWD capital improvement project. Therefore, although this amendment in the amount of $109,924 reflects the 7th amendment on the Butier on-call agreement, this is the first amendment for the Fletcher Basin Project. Therefore, the previous amendments to Butier's agreement are not included in the Fletcher Basin Project Budget Table 1 since they do not apply to this project.

Table 1 below shows the project budget, including the amendment discussed above. The total project budget will not need to be modified for this amendment as it is covered under the project contingency. The table below also reflects the $2,525,000 of OCTA Measure M2 grant money which was received by OCWD/OCFCD for this project.

Table 1
Fletcher Basin Project Budget

Item	Budget	Projected Expenses
Pre-Design		
CEQA (Mitigated Neg. Dec.) Services	$52,145	$52,145
Construction CEQA Services	$19,995	$19,995
Amendment no. 1	$2,860	$2,860
Mitigation Costs	$70,000	$70,000
Design/Consultant Services		
Preliminary Design Report	$59,000	$59,000
Design	$249,000	$249,000
Amendment no. 1	$31,400	$31,400
Amendment no. 2	$36,800	$36,800
Amendment no. 3	$65,900	$65,900
Amendment no. 4	$10,700	$10,700
Construction Management	$218,000	$218,000
Construction Inspection	$87,000	$87,000
Amendment No. 7		*$109,924*
Construction		
OCFCD Basin Improvements, Excavation & Export	$1,262,500	$1,262,500
OCWD Improvements	$3,054,742	$3,054,742
CONSTRUCTION SUBTOTAL	**$4,317,242**	**$4,317,242**
Project Contingency	$426,158	$316,234
Total Budgeted Cost	**$5,646,200**	**$5,646,200**
OCTA Grant Measure M2	($2,525,000)	($2,525,000)
Net Cost with Reimbursements	**$3,121,200**	**$3,121,200**

Construction at the Fletcher Basin Project site continues and is scheduled to be complete end of March 2016.

PRIOR RELEVANT BOARD ACTION(S):

5/22/2013 R13-5-54 - Authorize issuance of Amendment No. 2 to Agreement No. 0771 with Black & Veatch for $36,800 for the design of the Fletcher Basin Project.

9/19/2012 M12-143 - Authorize publication of Notice Inviting Bids for Contract No. FB-2012-1: Fletcher Basin Project

7/20/2011 R11-7-106 - Authorize issuance of Agreement to Black & Veatch in the amount of $249,000 for the final design of the Fletcher Basin Project

5/18/2011 M11-83 - Authorize issuance of a Request for Proposals for the Fletcher Basin Project for final design services

4/20/11 M11-65 - Authorize issuance of Work Order to Michael Brandman Associates for an amount not to exceed $30,000 (under the District's on-call environmental Services Agreement) to complete technical studies for the Fletcher Basin Project

04/21/10 M10-55 - Authorize issuance of RFP for preparation of a Preliminary Design Report for the Fletcher Basin Project

09/16/09 M09-110 - Authorize preparation of Engineer's Report and CEQA documentation for the Fletcher Basin Project

AGENDA ITEM SUBMITTAL

Meeting Date: February 10, 2016

To: Water Issues Committee
Board of Directors

From: Mike Markus

Staff Contact: R. Herndon/D. Mark

Budgeted: Yes
Budgeted Amount: $597,870 (FY16-17)
Cost Estimate: $597,870
Funding Source: General Fund
Program/Line Item No.: 1050.56026.9932
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: **ALAMITOS SEAWATER BARRIER 2016-17 OPERATIONS AND MAINTENANCE BUDGET**

SUMMARY

Staff recommends approval of the 2016-17 Alamitos Barrier operations and maintenance (O&M) budget of $1,791,000, of which $597,870 is the District's share, as proposed by the Alamitos Barrier Joint Management Committee (JMC). In addition, because of his role as project engineer on the Alamitos Barrier Improvement Project, staff recommends appointing Principal Engineer Ryan Bouley to replace Chris Olsen on the Alamitos Barrier Joint Management Committee.

Attachment(s): Alamitos Barrier 2016-17 Operation and Maintenance Budget Table

RECOMMENDATION

RECOMMENDED BY COMMITTEE

Agendize for February 17 Board meeting:

1. Approve the Alamitos Barrier 2016-17 total O&M budget in the amount of $1,791,000, and authorize payment of the District's share not to exceed $597,870 payable to the Los Angeles County Department of Public Works after receipt and review of invoices; and

2. Appoint Ryan Bouley to replace Chris Olsen on the Alamitos Barrier Joint Management Committee.

BACKGROUND/ANALYSIS

In 1964, the District entered into an "Agreement for the Cooperative Implementation of Alamitos Barrier Project," with the Los Angeles County Flood Control District (now part of the Los Angeles County Department of Public Works - LACDPW). Under the terms of the agreement, the LACDPW operates and maintains the Alamitos Seawater Barrier and its physical facilities under the direction of the JMC. The JMC comprises eight members, half appointed by LACDPW and half appointed by the District.

Each year the JMC reviews and recommends for approval an O&M budget for the upcoming fiscal year. The total O&M budget is divided between LACDPW and the

District in proportion to the water injected into the barrier by each agency. Based on historical injection, the District's share of total injection (typically 6,000 AF/year) is approximately one-third or about 2,000 AF/year.

On November 3, 2015, the JMC proposed a total O&M budget of $1,791,000 for 2016-17, of which the District's share is $597,870. There is a lag time in receiving invoices from LACDPW, so one-half of the annual expenses is paid in FY16-17, and the other half is paid in FY17-18. Staff recommends Board approval of the O&M budget and payment of the District's share.

The functions of the JMC include monitoring and directing the operations of the barrier, evaluating barrier performance, developing and recommending barrier improvements, and preparing and recommending the annual O&M budget to the respective governing bodies, OCWD and LACDPW. The current JMC membership is as follows:

OCWD Appointees:

Roy Herndon, OCWD
Dave Mark, OCWD
Chris Olsen, OCWD
Toby Moore, Golden State Water Company

LACDPW Appointees:

Chris Stone, LACDPW
Eric Batman, LACDPW
Ted Johnson, Water Replenishment District of Southern California
Eric Leung, Long Beach Water Department
Everett Ferguson, Water Replenishment District of Southern California (Alternate)

Since being designated the project engineer on the Alamitos Barrier Improvement Project, Principal Engineer Ryan Bouley has become heavily involved with the hydraulic modeling and design/operational considerations of the barrier supply pipeline and injection wells. As such and with the concurrence of Director of Engineering Chris Olsen, staff recommends that the Board appoint Mr. Bouley to replace Mr. Olsen on the Alamitos JMC.

PRIOR RELEVANT BOARD ACTIONS

9/16/15, R15-9-125 - Approve and authorize execution of *Amendment to Agreement for Cooperative Implementation of Alamitos Barrier Project, Supplement No. 8* with the Los Angeles County Department of Public Works (LACDPW) to revise the District's annual payment to LACDPW that incorporates a prorated portion of the actual costs of the Alamitos Barrier maintenance yard.

1/21/15, M15-12 – Approve the FY2015-16 O&M budget for the Alamitos Barrier in the amount of $2,331,000 and authorize the payment of OCWD's share in the amount of $785,120, payable to LACDPW.

9/17/14, R14-9-126 - Approve and authorize execution of the cost-sharing *Agreement for Construction of Additional Facilities for the Alamitos Barrier Project Supplement No. 7* with the LACDPW for the design and construction of injection and monitoring well facilities and payment by LACDPW to OCWD at one-half of the cost of the new facilities located between Points B and C for a total not to exceed $1,253,000; and approve an increase to the Alamitos Barrier Improvement Project budget by $4,693,000 for a revised total capital project budget of $14,752,000.

12/18/13, M13-181 – Authorize general liability insurance policy for the Alamitos Barrier for calendar year 2014 and authorize inclusion of general liability insurance premiums in future Alamitos Barrier annual O&M budgets submitted separately for Board approval.

9/16/98, R98-9-141 - Approve and authorize execution of Supplement No. 6 to Alamitos Barrier Project agreement with LACDPW. Provides for the District to construct additional barrier facilities identified in Geologist's Report on Alamitos Barrier Improvement Project Construction Unit 12, consisting of 5 new injection wells, one new extraction well, and 3 new monitoring wells.

3/17/93, R93-3-44 - Authorize execution of Supplement No. 5 to Alamitos Barrier Project agreement with Los Angeles County Flood Control District (now part of Los Angeles County Department of Public Works). Supplement provides for expansion of Alamitos Barrier Joint Management Committee from six to eight members (LACFCD and the District each to appoint one additional member)

10/4/89, R89-10-201 - Authorize execution of Supplement No. 4 to Alamitos Barrier Project agreement with Los Angeles County Flood Control District providing for joint participation in design, construction, operation and maintenance of the Alamitos Barrier Project. Provides for the District to design and construct required additional Alamitos Barrier facilities identified in the District’s Engineer's Report regarding Seawater Intrusion at the Alamitos Barrier, approved 5/3/89 by Resolution No. 89-5-90.

4/17/85, R85-4-41 - Approve and authorize execution of Alamitos Barrier Hydroelectric Project Site lease and Royalty Agreement with Los Angeles County Flood Control Dist. & Hydro Electric Constr. Inc.; & Supplement No. 3 to Alamitos Barrier Project Agreement to provide for construction of hydroelectric project at Alamitos Barrier.

9/25/69, R69-9-96 - Approve Supplement No. 2, Amending the Agreement for Cooperative Implementation of the Alamitos Barrier Project.

1/20/65, R891 – Authorize Agreement with LACFCD for Geologic Services on Alamitos Barrier Project (Supplement No. 1).

6/17/64, R831 - Approve Agreement for Cooperative Implementation of the Alamitos Barrier Project.

JMC No.	Fiscal Year	LACFCD		OCWD		WRD		TOTAL	
		Budget	Actual	Budget	Actual	Budget	Actual	Budget	Actual
1.					Analysis and direction of injection operation ($)				
	2012-13	58,500	10,818	31,500	4,941			90,000	15,760
	2013-14	52,000	43,588	28,000	24,472			80,000	68,060
	2014-15	48,750	62,054	26,250	28,453			75,000	90,507
	2015-16	48,750		26,250				75,000	
	2016-17	*55,250*		*29,750*				*85,000*	
2.					Maintenance and repair of injection wells ($)				
	2012-13	162,500	285,933	87,500	130,604			250,000	416,538
	2013-14	195,000	163,057	105,000	91,546			300,000	254,603
	2014-15	260,000	304,809	140,000	139,764			400,000	444,573
	2015-16	260,000		140,000				400,000	
	2016-17	*292,500*		*157,500*				*450,000*	
3.					Operations of Injection Well Facilities ($)				
	2012-13	32,500	15,616	17,500	7,133			50,000	22,749
	2013-14	26,000	14,919	14,000	8,376			40,000	23,295
	2014-15	22,750	24,537	12,250	11,251			35,000	35,787
	2015-16	19,500		10,500				30,000	
	2016-17	*26,000*		*14,000*				*40,000*	
4.					Analysis and direction of extraction operation ($)				
	2012-13	0	133					0	133
	2013-14	0	728					0	728
	2014-15	0	693					0	693
	2015-16	0		0				0	
	2016-17	*0*		*0*				*0*	
5.					Redevelopment, maintenance, and repair of extraction wells ($)				
	2012-13	5,000	65,068					5,000	65,068
	2013-14	5,000	0					5,000	0
	2014-15	200,000	8,764					200,000	8,764
	2015-16	15,000		0				15,000	
	2016-17	*10,000*		*0*				*10,000*	
6.					Operations of Extraction Wells ($)				
	2012-13	5,200	5,194					5,200	5,194
	2013-14	5,200	5,584					5,200	5,584
	2014-15	5,200	4,257					5,200	4,257
	2015-16	6,000		0				6,000	
	2016-17	*6,000*		*0*				*6,000*	
7.					Maintenance and repair of ABP ($)				
	2012-13	130,000	315,946	70,000	144,313			200,000	460,259
	2013-14	162,500	179,881	87,500	100,991			250,000	280,872
	2014-15	195,000	226,415	105,000	103,818			300,000	330,232
	2015-16	195,000		105,000				300,000	
	2016-17	*227,500*		*122,500*				*350,000*	
8.					Maintenance of Observation Wells ($)				
	2012-13	32,500	3,535	17,500	1,615			50,000	5,150
	2013-14	97,500	215,433	52,500	120,951			150,000	336,385
	2014-15	32,500	49,901	17,500	22,881			50,000	72,783
	2015-16	195,000		105,000				300,000	
	2016-17	*45,500*		*24,500*				*70,000*	
9.					Collection of groundwater data ($)				
	2012-13	65,000	114,373	35,000	52,241			100,000	166,614
	2013-14	65,000	94,945	35,000	53,305			100,000	148,250
	2014-15	97,500	134,811	52,500	61,815			150,000	196,625
	2015-16	110,500		59,500				170,000	
	2016-17	*130,000*		*70,000*				*200,000*	
10.					Yard Maintenance ($)				
	2012-13	39,625	66,119	375	375			40,000	66,494
	2013-14	44,625	93,239	375	375			45,000	93,614
	2014-15	53,500	54,199	6,500	375			60,000	54,574
	2015-16	75,380		4,620				80,000	
	2016-17	*75,380*		*4,620*				*80,000*	
11.					Injection Well Redevelopment ($)				
	2012-13	292,500	362,626	157,500	165,635			450,000	528,260
	2013-14	325,000	518,753	175,000	291,245			500,000	809,998
	2014-15	325,000	243,344	175,000	111,580			500,000	354,925
	2015-16	520,000		280,000				800,000	
	2016-17	*260,000*		*140,000*				*400,000*	
12.					Processing of data and preparation of reports ($)				
	2012-13	45,500	37,626	24,500	17,186			70,000	54,812
	2013-14	45,500	25,200	24,500	14,148			70,000	39,348
	2014-15	45,500	36,360	24,500	16,672			70,000	53,033
	2015-16	45,500		24,500				70,000	
	2016-17	*39,000*		*21,000*				*60,000*	
13.					Special Programs ($)				
	2012-13	2,100,000	722,862		0			2,100,000	722,862
	2013-14	50,000	1,227,246	0	0	300,000	300,000	50,000	1,227,246
	2014-15	1,000,000	50,022	0	0			1,000,000	50,022
	2015-16	350,000		0				350,000	
	2016-17	*50,000*		*0*				*50,000*	
14.					Oversight of Reclaim Water Program ($)				
	2012-13	5,200	7,171	2,800	3,275			8,000	10,446
	2013-14	7,800	5,744	4,200	3,225			12,000	8,968
	2014-15	7,800	24,057	4,200	11,031			12,000	35,088
	2015-16	9,750		5,250				15,000	
	2016-17	*19,500*		*10,500*				*30,000*	
15.					Projects and Studies ($)				
	2012-13	78,000	708	42,000	323			120,000	1,032
	2013-14	46,800	0	25,200	0			72,000	0
	2014-15	45,500	6,854	24,500	3,143			70,000	9,996
	2015-16	45,500		24,500				70,000	
	2016-17	*6,500*		*3,500*				*10,000*	
16.					ABP Liability Insurance ($)				
	2012-13	0	0	0	0			0	0
	2013-14	0	17,834	0	17,834			0	35,668
	2014-15	37,500	35,955	37,500	35,955			75,000	71,910
	2015-16	37,500		37,500				75,000	
	2016-17	*37,500*		*37,500*				*75,000*	
17.					Joint Pipeline ROW ($)				
	2012-13	0	5,028	0	1,397			0	6,424
	2013-14	0	266,640	0	74,067			0	340,706
	2014-15	0	0	0	0			0	0
	2015-16	0		0				0	
	2016-17	*0*		*0*				*0*	
18.					Total ABP Expenditure ($)				
	2012-13	3,052,025	2,018,757	486,175	529,039			3,538,200	2,547,796
	2013-14	1,127,925	2,872,790	551,275	800,534	300,000		1,679,200	3,673,324
	2014-15	2,376,500	1,267,032	625,700	546,738			3,002,200	1,813,769
	2015-16	1,933,380		822,620				2,756,000	
	2016-17	1,280,630		635,370				1,916,000	
TOTALS					Total ABP Operations and Maintenance ($) [Item 18-Item 13-Item 16]				
	2012-13	952,025	1,295,894	486,175	529,039			1,438,200	1,824,933
	2013-14	1,077,925	1,645,544	551,275	800,534	0		1,629,200	2,446,078
	2014-15	1,376,500	1,217,010	588,200	510,783			2,002,200	1,727,792
	2015-16	1,545,880		785,120				2,331,000	
	2016-17	*1,193,130*		*597,870*				*1,791,000*	
					Volume of Water (ac-ft)				
	2012-13			2,400	1,722	3,600	3,769	6,000	5,490
	2013-14			2,100	2,406	3,900	4,286	6,000	6,692
	2014-15			2,275	2,236	4,225	4,877	6,500	7,113
	2015-16			2,275		4,225		6,500	
	2016-17			*2,450*		4,550		*7,000*	

AGENDA ITEM SUBMITTAL

Meeting Date: February 10, 2016

To: Water Issues Committee
Board of Directors

From: Mike Markus

Staff Contact: G. Woodside

Budgeted: No
Budgeted Amount: N/A
Cost Estimate: $49,983
Funding Source: Reserves
Program/Line Item No. 1044.53001.9900
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: PAYMENT TO SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT FOR OCWD COST SHARE OF DECISION SUPPORT MODEL

SUMMARY

Staff is participating in planning the Santa Ana River Conservation and Conjunctive Use Program (SARCCUP) with the other four member agencies of SAWPA. One of the tools needed for SARCCUP is a computer model of the water bank and the upper watershed facilities in the water bank. The five agencies are proposing to contract with CH2M HILL to develop the model, with each agency paying 20% of the cost.

Attachment(s): CH2M HILL proposal dated December 4, 2015

RECOMMENDATION

RECOMMENDED BY COMMITTEE

Agendize for February 17 Board meeting: Authorize payment of $49,983 to San Bernardino Valley Municipal Water District for the District's cost share to develop a decision support model for the Santa Ana River Conservation and Conjunctive Use Program.

BACKGROUND/ANALYSIS

On May 20, 2015, the Board authorized participation with the San Bernardino Valley Municipal Water District (Valley District), Eastern Municipal Water District (EMWD), Inland Empire Utilities Agency (IEUA), and Western Municipal Water District (WMWD) (collectively "Agencies") in the watershed-scale SARCCUP which is being partially funded by a $55 million Proposition 84 grant. Most of the project funding is for development of a water bank.

The next step in the grant approval process is for the Department of Water Resources to develop the grant-funding contract with SAWPA (anticipated in the spring of 2016) and for SAWPA to develop a corresponding contract with the Agencies. In the meantime, staff from the Agencies have begun to work together to plan the overall implementation of SARCCUP and have started working on developing a Master Plan. Staffs of the agencies are recommending a two-step process to develop the master plan, with the first step being the optimization of the proposed water bank facilities using a decision-support model (model). The overarching goals for this project will be to simulate the anticipated operations of the proposed SARCCUP facilities in the grant application, quantify the

benefits, quantify the costs and identify future phases of SARCCUP. The model would also be used for operational purposes once the water bank facilities are completed.

Valley District agreed to serve as the contracting agency for this project. The Agencies collectively developed a Request for Proposal (RFP) for the *Santa Ana River Conservation and Conjunctive Use Program (SARCCUP) Optimization Using a Decision-Support Model* project. Valley District issued the RFP and received the following two proposals:

Firm	Proposed Fee
CH2M	$249,915
Hydrologics	$215,725

The two proposals were reviewed by a team of representatives from the agencies (review team). The review team recommended CH2M for this work (CH2M recently changed their name – the firm was previously named 'CH2M HILL'). Although the price of the CH2M proposal is slightly higher, the review team selected them because members of the review team had a higher degree of confidence in the CH2M team due to their past experience working with them and because the review team preferred the more polished and intuitive modeling software, GoldSim, proposed by CH2M. The modeling software is an important component of this project because the agencies intend to do future updates and model runs without consulting assistance.

CH2M's proposed fee is $249,915. The total cost would be divided equally among the five Agencies, with each agency paying $49,983. The project would take about 9 months to complete.

Staff recommends that the Board of Directors authorize payment of $49,983 to the San Bernardino Valley Municipal Water District for the District's cost share to develop a decision support model for the Santa Ana River Conservation and Conjunctive Use Program.

PRIOR RELEVANT BOARD ACTION(S)

5/20/2015, R15-5-68 - Approve and authorize execution of Memorandum of Understanding for the Santa Ana River Conjunctive Use Project, subject to approval as to form by District legal counsel; and authorize payment of $17,830 to the San Bernardino Valley Municipal Water District for the District's cost share in the Santa Ana River Watermaster Action Team evaluation of watershed-scale conjunctive use projects and water use efficiency and preparation of Proposition 84 grant funding submittal, bringing the District's total contribution to $67,120.

3/19/2014, M14-49 - Authorize payment of $36,238 to the San Bernardino Valley Municipal Water District for the District's cost share in the Santa Ana River Watermaster Action Team evaluation of watershed-scale conjunctive use projects and water use efficiency

7/24/2013, M13-102 - Authorize payment of $13,052 to the San Bernardino Valley Municipal Water District for the District's cost share in the Santa Ana River Watermaster Action Team evaluation

AGENDA ITEM SUBMITTAL

Meeting Date: February 10, 2016

To: Water Issues Committee
Board of Directors

From: Mike Markus

Staff Contact: B. Smith/C. Olsen

Budgeted: Yes
Budgeted Amount: $350,000
Cost Estimate: $576,850
Funding Source: CIP
Program/Line Item No: C14003
General Counsel Approval: Yes
Engineers Report: N/A
CEQA Compliance: Cat. Exemption

Subject: **CONTRACT NO. GA-2015-1: PERIMETER SITE IMPROVEMENT OF THE SANTA ANA RESERVOIR – RATIFY CHANGE ORDERS 1&2 AND ISSUE CHANGE ORDER NO. 3 TO PARSAM CONSTRUCTION, INC. AND INCREASE PROJECT BUDGET**

SUMMARY

In October 2015, the District awarded contract GA-2015-1 to Parsam Construction, Inc. to construct the Perimeter Site Improvement of the Green Acres Project and City of Santa Ana Reservoirs. This project is a being funded as a cost share between the City of Santa Ana and the District. The City is requesting a change order to the landscaping component of the project and will reimburse the District for the entire change order amount. Two other change orders have been executed under the General Manager's signing authority.

RECOMMENDATION

RECOMMENDED BY COMMITTEE

Agendize for February 17 Board meeting:

1. Ratify execution of Change Order No. 1 and No. 2 to Parsam Construction, Inc. for a total amount of $22,198; and
2. Authorize issuance of Change Order No 3. to Parsam Construction, Inc. in the amount of $74,335; and
3. Approve increasing the project budget to $576,850.

BACKGROUND/ANALYSIS

In 2013, staff from the City of Santa Ana and OCWD met to discuss a project that would improve the perimeter of the shared reservoir site at the corner of Bear Street and Alton Avenue, see Figure 1. The City operates a domestic water reservoir at the site and OCWD operates a recycled water reservoir as part of the Green Acres Project. The two sides of the site facing the streets were surrounded by chain-link fencing. Access to the site is currently through a manual chain-link gate that requires staff to park in the bike path and sidewalk while operating the gate by hand.

The perimeter of the site will be improved by replacing the chain-link fencing with a cement block wall. This will provide a visual improvement to the neighboring area, increase security at the site, and modify the vehicle entry to reduce impact to cyclists and pedestrians. The gate will be automated and allow vehicle access without blocking the bike path and sidewalk. The cement block wall will be covered in ivy to improve its

appearance and guard against vandalism. OCWD has taken the lead on the design, construction, and inspection activities of the project while maintaining communication and mutual approvals of both parties.

The costs for design, construction, and inspection of the project are shared between the two parties according to the amount of perimeter wall on each property. The total length of perimeter to be improved is approximately 970 linear feet. Approximately 350 feet (36 percent) falls on the City property with the remaining 620 feet (64 percent) falling on the OCWD property. The parties joined together in an Agreement in September 2014. The Agreement specifies that each party will pay for a potential change order according to its location within the respective properties.

Change Order No. 1 authorized the contractor to remove 4 additional trees in accordance with guidance from the City Arborist for $12,400. Construction of the new wall's footing would cause the removal of a significant portion of these 4 trees' roots. Two trees were in each property, so the cost is shared equally between the City and District. This change order was executed under the signing authority of the General Manager.

Change Order No. 2 authorized the contractor to remove and replace additional asphalt paving within the OCWD site for $9,798. As a result of removing vegetation an adjusting grades, apportion of the District property required additional paving to ensure property drainage. The additional paving is entirely within District property. This change order was executed under the signing authority of the General Manager.

Change Order No. 3 would authorize the contractor to perform additional landscape improvements consisting of additional irrigation, curb, vegetation, and grading. This change is entirely on City property and the entire amount of $74,335 would be completely reimbursed to the District upon construction completion.

Table 1: Contract No. GA-2015-1 Project Budget

Description	Project Budget	Santa Ana Cost	OCWD Cost
Design & Permitting	$ 18,900	$ 6,804	$ 12,096
Construction	$ 452,120	$ 162,763	$ 289,357
Bid Advertisement	$ 1,941	$ 699	$ 1,242
Change Order No. 1	$ 12,400	$ 6,200	$ 6,200
Change Order No. 2	$ 9,798	-	$ 9,798
Change Order No. 3	$ 74,335	$ 74,335	-
SoCal Gas Line Relocation	$ 1,974	$ 711	$ 1,263
Specialty Inspection	$ 5,382	$ 1,938	$ 3,444
Total	$ 576,850	$ 253,450	$ 323,400

Table 2: Contract No. GA-2015-1 Project Schedule

Description	Date
Execute Agreement with City of Santa Ana	September 2014
Design Proposals Due	November 2014
Design Complete	August 2015
Advertise Construction Bid	August 2015
Award Construction Contract	October 2015
Complete Construction	April 2016

Figure 1: Joint Reservoir Perimeter Improvements Vicinity Map

PRIOR RELEVANT BOARD ACTION(S)

2/3/16, M15-00 : Authorize the General Manager to negotiate the terms of the Easement Deed and execute the Grant of Easement deed to Southern California Gas Company to relocate a gas pipeline at the District's Reservoir site.

10/21/15, R15-10-147 – Award Contract No. GA-2015-1: Perimeter Site Improvement of the Green Acres Project and City of Santa Ana Reservoir to Parsam Construction, Inc.

7/15/15, M15-109 – Authorize Notice Inviting Bids for Contract No. GA-2015-1, Perimeter Site Improvement of the Green Acres Project and City of Santa Ana Reservoirs

9/17/14, R14-9-125 – Approve and authorize execution of Agreement with the City of Santa Ana for perimeter site improvements at joint reservoir site, subject to non-substantive changes approved by the General Manager and District Attorney; Authorize issuance of a Request for Proposals for the Green Acres Project Reservoir and City of Santa Ana Reservoir Perimeter Site Improvement Design; and Authorize the filing of a Categorical Exemption for the project in compliance with California Environmental Quality Act.

AGENDA ITEM SUBMITTAL

Meeting Date: February 10, 2016

To: Water Issues Committee
Board of Directors

From: Mike Markus

Staff Contact: B.Dunivin/ J.Bonsangue/ M. Patel

Budgeted: Yes
Budgeted Amount: $225,000
Cost Estimate: $152,452
Funding Source: General Fund
Program/ Line Item No. 1050.57036.9908
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: CONTRACT NO. TAL-2015-2: TALBERT BARRIER WELL REDEVELOPMENT PROJECT- AWARD CONTRACT TO BOART LONGYEAR COMPANY, INC

SUMMARY

Legacy injection wells (I-1 through I-23) are the oldest wells in the Talbert Seawater Barrier and inject up to 50% of the barriers overall flow. Unlike the recently constructed modern injection wells (I-24 through I-36) the legacy wells are in public right-of-way and were not designed to be easily accessed for maintenance activities. Several of the legacy wells are experiencing reduced injection rates and are in need of rehabilitation.

Attachment(s):
- Affidavit of Publication for Notice Inviting Bids
- Presentation

RECOMMENDATION

RECOMMENDED BY COMMITTEE

Agendize for the February 17 Board meeting:

1) Receive and file Affidavit of Publication of Notice Inviting Bids for Contract No. TAL-2015-2: Talbert Barrier Well Redevelopment Project; and

2) Accept bid and award contract to Boart Longyear Company, Inc. for $152,452.

BACKGROUND/ANALYSIS

All injection wells require regular rehabilitation to maintain and maximize individual well injection rates. The annual operations budget includes funds to rehabilitate up to 30% of the legacy injection well system each year. Legacy wells are those injection wells originally constructed with Water Factory 21 and are over 35 years old. These wells were never designed to be easily accessed for maintenance activities. The high water quality of the GWRS effluent has eliminated the need to redevelop legacy injection wells the past two years. Although GWRS effluent is of high purity, suspended solids from the stabilization process and the distribution pipeline accumulate slowly and form a clogging layer at the well bore interface with the aquifer formation with injection rates eventually reduced to less than 30% of their “clean” rate over a period of years. If the

clogging material is not removed periodically, the particles will travel further into the formation causing irreparable damage to the well.

The legacy wells design requires specialized well rehab equipment and significant traffic closers along Ellis Ave. Unlike modern well rehab, the legacy rehab is contracted out to a company that can mobilize equipment and staff for this type of work. This work can take can take up to 4 month to complete. Rehabilitation is conducted by air-lift pumping and high-volume airlift purging to agitate the well bore and disturb, dislodge and remove mineral scale and fine, loose sediment. This year up to 8 Legacy Wells (32 well points) are expected to be rehabilitated. Based on results of the last rehabilitation, staff estimates that 6 to 8 million gallons per day (mgd) of lost injection capacity will be regained, representing approximately 25% of the current total barrier injection of 30 mgd.

A public works bid was advertised for the project January 16, 2016. The OCWD Engineer's estimate was $250,000. A total of 7 bids were received on February 2, 2016. The apparent low bidder for the project was Boart Longyear Company in an amount of $152,452. The bid results are summarized in the Table below.

Table 1
Talbert Barrier Well Redevelopment Project
Bid Results

Contractor	**Bid Amount**
Boart Longyear Company, Inc.	$152,452
General Pump Company, Inc.	$181,722
Tri-County Drilling	$190,837
Layne Christensen Company	$242,685
Weber Water Resources, CA, LLC	$250,619
Cascade Drilling, LP	$264,853
Best Drilling and Pump Inc.	$278,072

The District has worked with Boart Longyear Company on a very similar project in the past and performed at a high level. Based on the pervious project and a visit to the Boart Longyear Company facility in Salt Lake City, UT, staff believes that Boart Longyear Company has the proper equipment and personnel to perform this scope of work in a successful manner. Staff recommends accepting Boart Longyear Company's bid and issuing Contract No. TAL-2015-2, 2015-16 Talbert Barrier Well Redevelopment Project to Boart Longyear Company in an amount not to exceed $152,452.00. OCWD staff will perform the field oversight and administration of this contract.

PRIOR RELEVANT BOARD ACTION(S) N/A

9/16/16, M15-140 Authorize Issuance of Notice Inviting Bids for Contract No. TAL-2015-2: Talbert Barrier Well Redevelopment Project

Water Issues Committee meeting held February 10, 2016

ENGINEERING DESIGN SERVICES AND PROCURMENT FOR THE FIVE COVES RUBBER DAM REPLACEMENT PROJECT

Committee Recommendation

1) Authorize solicitation of proposals for engineering design services and material fabrication for the Five Coves Rubber Dam Replacement Project;

2) Authorize execution by the General Manager of an Agreement in an amount not to exceed $1,600,000 for engineering design services and material fabrication for the Five Coves Rubber Dam Replacement Project; and

3) Agendize the procurement results for ratification at a future Board meeting.

AGENDA ITEM SUBMITTAL

Meeting Date: February 10, 2016

To: Water Issues Committee
Board of Directors

From: Mike Markus

Staff Contact: C. Olsen/R. Bouley

Budgeted: No
Budgeted Amount: 0
Cost Estimate: $1.6 million
Funding Source: R&R
Program/Line Item No.: N/A
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: Complete

Subject: ENGINEERING DESIGN SERVICES AND PROCURMENT FOR THE FIVE COVES RUBBER DAM REPLACEMENT PROJECT

SUMMARY

The Five Coves Rubber Dam is one of the primary facilities used to divert flow out of the Santa Ana River and into the OCWD's recharge facilities. In December 2015, staff discovered damage to the Five Coves Rubber Dam related to the age of the dam material. Staff recommends initiating the design and procurement process to replace the rubber dam.

Attachment(s): Presentation

RECOMMENDATION

Agendize for February 17 Board meeting:

1) Authorize staff to obtain proposals for engineering design services and material fabrication for the Five Coves Rubber Dam Replacement Project; and

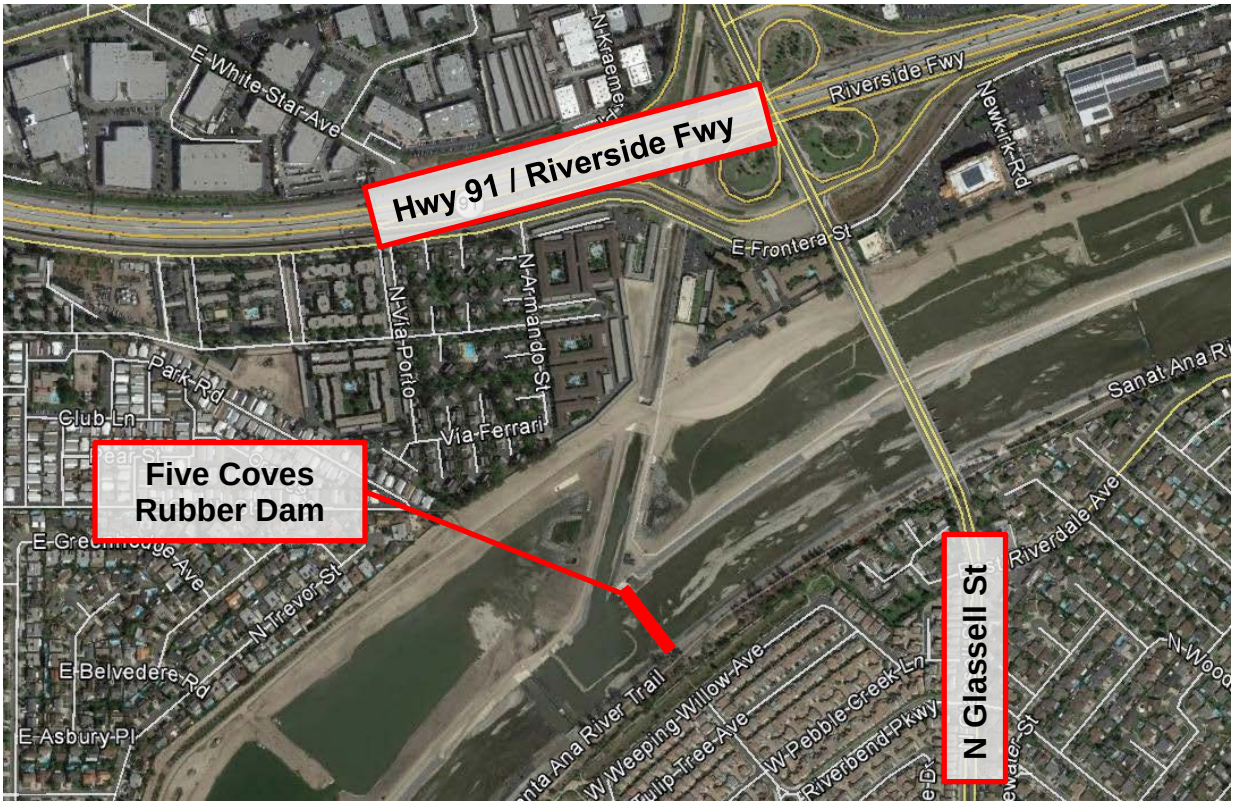
2) Authorize General Manager to execute an Agreement for an amount not to exceed $1,600,000 for engineering design services and material fabrication for the Five Coves Rubber Dam Replacement Project

BACKGROUND/ANALYSIS

The Five Coves Rubber Dam was installed in 1993 and has been in operation for the past 22 years without major repair or replacement. The life expectancy of rubber dams in similar applications is approximately 10-20 years. The main component of the existing rubber dam consists of an inflatable rubber bladder approximately 7' in diameter and 320' in length. The bladder is anchored to a concrete foundation in the bottom of the Santa Ana River and located approximately 0.3 miles to the west of the N. Glassell St. / Santa Ana River crossing in the City of Anaheim.

In December 2015, staff discovered a six-foot long bubble that had formed along the outside of the rubber dam. In addition, staff noticed a crack at the base of the fin in the same area. With rain in the forecast and facing the potential of the bubble on the dam rupturing, staff contacted Obermeyer Hydro, Inc., to repair the damage.

Five Coves Rubber Dam Location



Obermeyer engineered and fabricated the recent replacement of the Imperial Rubber Dam and is familiar with OCWD and the District's rubber dams. Obermeyer's technicians inspected the bubble on the Five Coves dam and noted that the rubber has become brittle and the outer protective skin of the dam separated from the internal liner allowing a bubble to form between the layers. Photos of the damage and repairs to the dam can be seen below:

Blister and Crack in Outer Protective Layer of the Dam

Repairs to Outer Layer of Dam

According to Obermeyer, this type of damage is typical and has been seen on other dams of this age, material, and method of construction. Obermeyer also stated that due to the age of the dam, other similar bubbles are more likely form.

Obermeyer engineered and fabricated the Imperial Rubber Dam in 2011 for a guaranteed fixed price. OCWD bid the dam installation separately through a public works contract bid and guaranteed the purchase price from Obermeyer to all bidders. Engineering and fabrication for the Imperial Dam took approximately eight months and installation was complete in the summer of 2012. Staff has had initial discussions with Obermeyer who has indicated that the lead time for a new Five Coves dam would also be approximately six to eight months. In order to take delivery of the new dam and complete installation prior to the next rainy season, engineering and fabrication need to start soon. Shown below is a project schedule to have the new dam engineered, fabricated and installed prior to the next storm season:

Project Schedule

Milestone	Date
Authorize Engineering and Material Purchase	February 17, 2016
Award Construction Contract	August 17, 2016
Issue Notice to Proceed	September 6, 2016
Take Delivery of Dam	September 30, 2016
Construction	October 1, 2016 – November 16, 2016

Staff is requesting authorization to obtain proposals for the engineering design and material fabrication of a replacement Five Coves Rubber Dam. Staff is also requesting the General Manager be authorized to execute an Agreement for the Five Coves Rubber Dam Replacement Project that includes design and fabrication services for a cost not to exceed $1,600,000. This amount is based on the previous costs of the Imperial Dam and is adjusted for inflation.

PRIOR RELEVANT BOARD ACTION(S) None

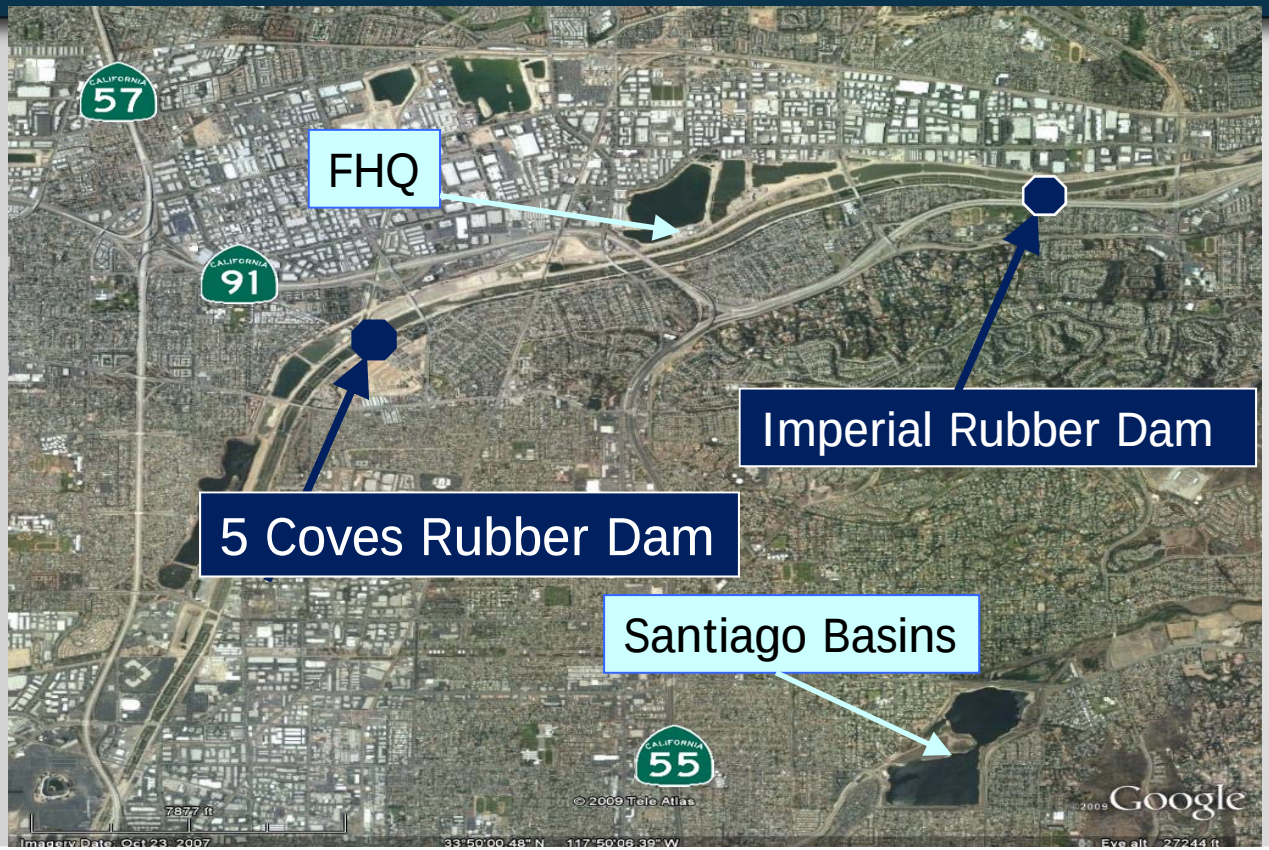
ORANGE COUNTY WATER DISTRICT

FIVE COVES RUBBER DAM REPLACEMENT PROJECT

Water Issues Committee Meeting
February 10, 2016

ORANGE COUNTY WATER DISTRICT

Recharge Facilities Overview



- OCWD operates two rubber dams in Santa Ana River
- Used to divert flow into recharge basins
- Allows staff to partially inflate and divert storm flows that are otherwise unattainable (1,000 – 2,000 cfs)

ORANGE COUNTY WATER DISTRICT

Imperial Rubber Dam

- Located in the Santa Ana River ½ mile west of Imperial Highway
- Used to divert flow into the off-river and deep basin systems
- Original Dam constructed in 1992, replaced in 2012

ORANGE COUNTY WATER DISTRICT

Five Coves Rubber Dam

- Located in the Santa Ana River ~1 mile northeast of Lincoln Avenue
- Used to divert flow into Upper 5 Coves through to Burris Basin and ultimately Santiago Basins
- Original Dam constructed in 1993

Off-River
SAR
Carbon Creek Diversion Channel
Upper 5 Coves
Rubber Dam

ORANGE COUNTY WATER DISTRICT

Five Coves Rubber Dam

- In December 2015, staff discovered a large bubble and a crack at the base of the fin
- The rubber has become brittle and the outer protective layer of the dam separated from the internal liner

ORANGE COUNTY WATER DISTRICT

Five Coves Rubber Dam

- With rain in the forecast and facing the potential of the bubble on the dam rupturing, staff contacted Obermeyer Hydro, Inc., to repair the damage
- Dam was repaired and put back into service prior to January storm event

ORANGE COUNTY WATER DISTRICT

Five Coves Rubber Dam

- Five Coves rubber dam is 23 years old
- Similar failures likely to happen at other locations
- Replacement is recommended

ORANGE COUNTY WATER DISTRICT

Recommendation

Agendize for February 17 Board meeting:

1) Authorize staff to obtain proposals for engineering design services and material fabrication for the Five Coves Rubber Dam Replacement Project; and
2) Authorize General Manager to execute an Agreement for an amount not to exceed $1,600,000 for engineering design services and material fabrication for the Five Coves Rubber Dam Replacement Project

AGENDA ITEM SUBMITTAL

Meeting Date: February 11, 2016

To: Administration/Finance Issues Cte.
Board of Directors

From: Mike Markus

Staff Contact: R. Fick/V. Sharma

Budgeted: N/A
Budgeted Amount: N/A
Cost Estimate: N/A
Funding Source: N/A
Program/Line Item No.: N/A
General Counsel Approval: N/A
Engineers Report: N/A
CEQA Compliance: N/A

Subject: **MONTHLY CASH CONTROL REPORT**

SUMMARY

The following monthly financial information is provided in the staff report.

Attachment(s):
- Summary Cash and Cash Equivalent Control Report
- Summary of Cash Reserves
- Summary Sources and Disbursements
- Sources of Funds
- Disbursement of Funds

RECOMMENDATION

RECOMMENDED BY COMMITTEE

Agendize for February 17 Board meeting: Receive and file Summary Cash and Cash Equivalents Control Reports dated January 31, 2016.

PRIOR RELEVANT BOARD ACTION(S) Monthly

ORANGE COUNTY WATER DISTRICT
SUMMARY CASH AND CASH EQUIVALENTS CONTROL REPORT
FOR THE PERIOD ENDED
JANUARY 31, 2016

TAB NO.	CASH AND CASH EQUIVALENTS		UNRESTRICTED	RESTRICTED	TOTAL
A	CASH ON HAND		2,700	-	2,700
B	CASH IN BANKS	Wells Fargo Checking	(3,713,203)	6,586,550	2,873,348
		Union Bank Checking	4,930	-	4,930
		East West Bank (Collaterized CD)	5,012,181	-	5,012,181
C	LAIF (Local Agency Investment Fund)		49,983,067	-	49,983,067
	Orange County Investment Pool		19,736,006	-	19,736,006
D	Revenue COP's - Payment/Interest Funds		-	11,357,459	11,357,459
E	INVESTMENTS (UBOC)		115,768,411	-	115,768,411
		Swap Value Collateral	-	5,326,008	5,326,008
	GRAND TOTALS →		186,794,093	23,270,017	210,064,110

Note: Total cash and cash equivalent includes custodial funds of NWRI worth $42,027.

A Petty Cash - held at the District's office (Fountain Valley)
B District's Checking Accounts
C District's Money Market Accounts
D Trust Debt service Accounts
E Custodial Investment Accounts - Managed in house

ORANGE COUNTY WATER DISTRICT

RESERVES

For the Year to Date Period Ended January 31, 2016

(Unaudited/Preliminary)

	Beginning Year Balance	Ending Balance As of 1/31/2016	Reserve Policy	
Operating Reserves				
Replacement and Refurbishment Fund	70,457,911	67,687,450	78,175,000	(1)
Toxic Cleanup Reserve	4,000,000	1,748,135	4,000,000	(2)
Contingency Reserve	3,000,000	3,000,000	3,000,000	(3)
Water Reserve Fund	2,254,162	6,391,456	97,121,250	(4)
Paygo Fund	13,792,454	17,292,454	17,292,454	(5)
SRF Loan Reserve	9,000,000	9,000,000	9,000,000	(6)
Operating Reserve (15% of Op. Budget)	19,738,474	22,826,351	22,826,351	(7)
Operating Fund	29,749,497	58,848,247	43,990,958	(8)
Total - Operating Reserves	**151,992,498**	**186,794,093**	**275,406,013**	
Restricted Reserves				
CIP Reserve	5,214,221	6,544,524	6,544,524	
SWAP - Collateral Pledged	5,070,839	5,326,008	7,521,531	(9)
NWRI Deposits	5,577	42,027	42,027	
Debt Reserve Fund	11,242,052	11,357,459	11,261,963	(10)
Total Restricted Reserves	21,532,689	23,270,017	25,370,044	
Total Reserves	**173,525,187**	**210,064,110**	**300,776,057**	

(1) Per Reserve Policy, projected Replacement & Refurbishment (R&R) cost as defined by District's R&R model.

(2) Established for toxic spills and cleanup with a target of $4 million per Reserve Policy.

(3) Set by the District Act to provide for expenditures that have not been anticipated in the annual budget.

(4) The maximum upper limit is enough funds to purchase 50% of water needed to have an accumulated basin overdraft of 125,000 a.f. currently projected at $97,121,250 ($667.5/a.f. x 50% x (416,000/a.f. projected overdraft as of June 30, 2015 - 125,000/a.f. optimum overdraft)

(5) Per Paygo budget transfer.

(6) Debt service reserve of $9,000,000 or one years payment a requirement for the GWRSIE SRF loan.

(7) The Operating Reserve Fund is established by the District Act and set at 15% of the operating budget.

(8) Per the Reserve Policy, the District shall maintain a minimum of six months of annual General Fund and Debt Service budgeted appropriations currently $60,255,971 General Fund and $27,725,945 Debt Service.

(9) The District is required to post collateral should the Swap value exceed the $15 million threshold.

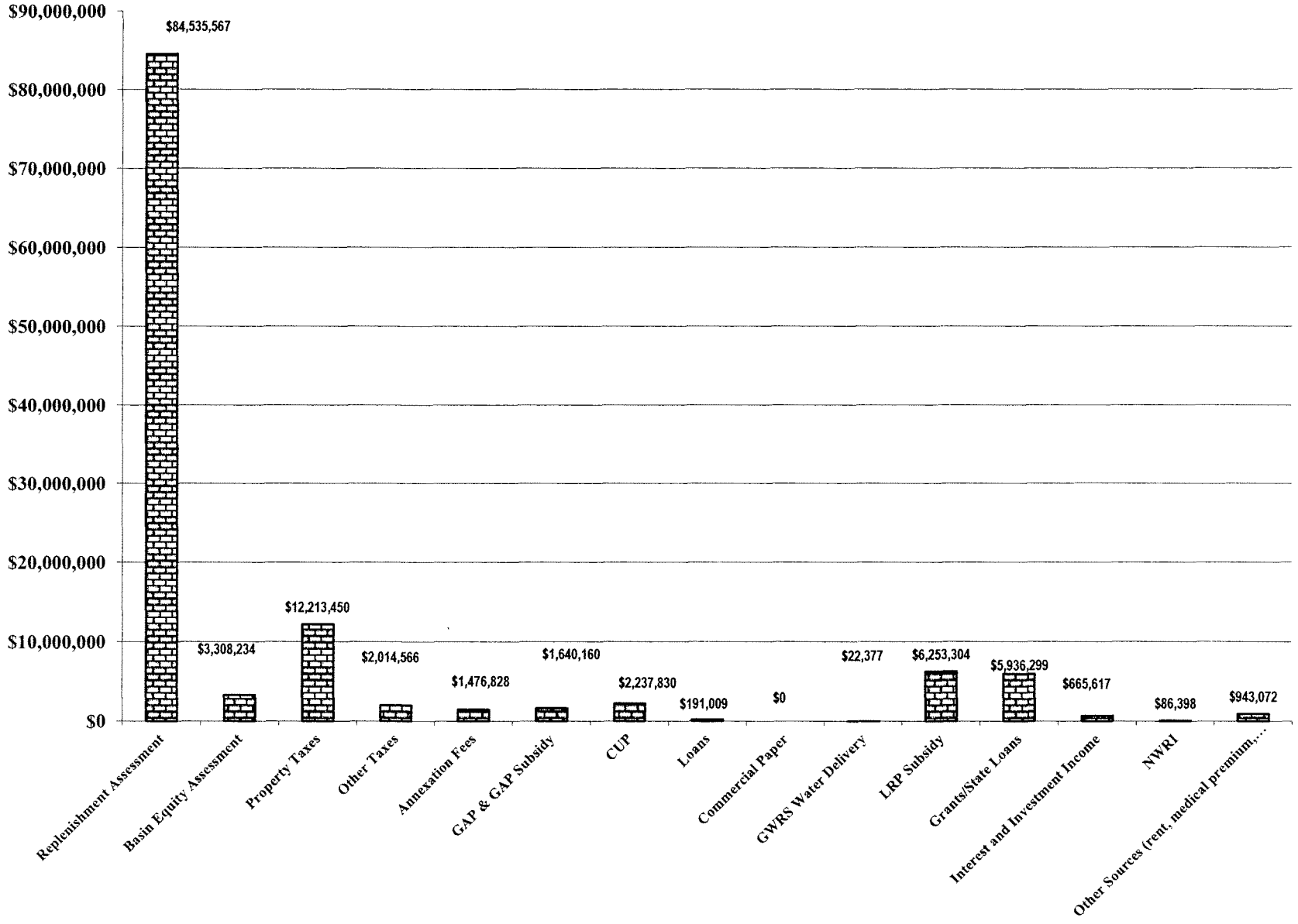
(10) Per Series 2009A Trust Agreement, the District is required to maintain a Reserve Fund of $11,261,962.99.

ORANGE COUNTY WATER DISTRICT
SUMMARY SOURCES AND DISBURSEMENTS
YEAR TO DATE AS OF JANUARY 31, 2016

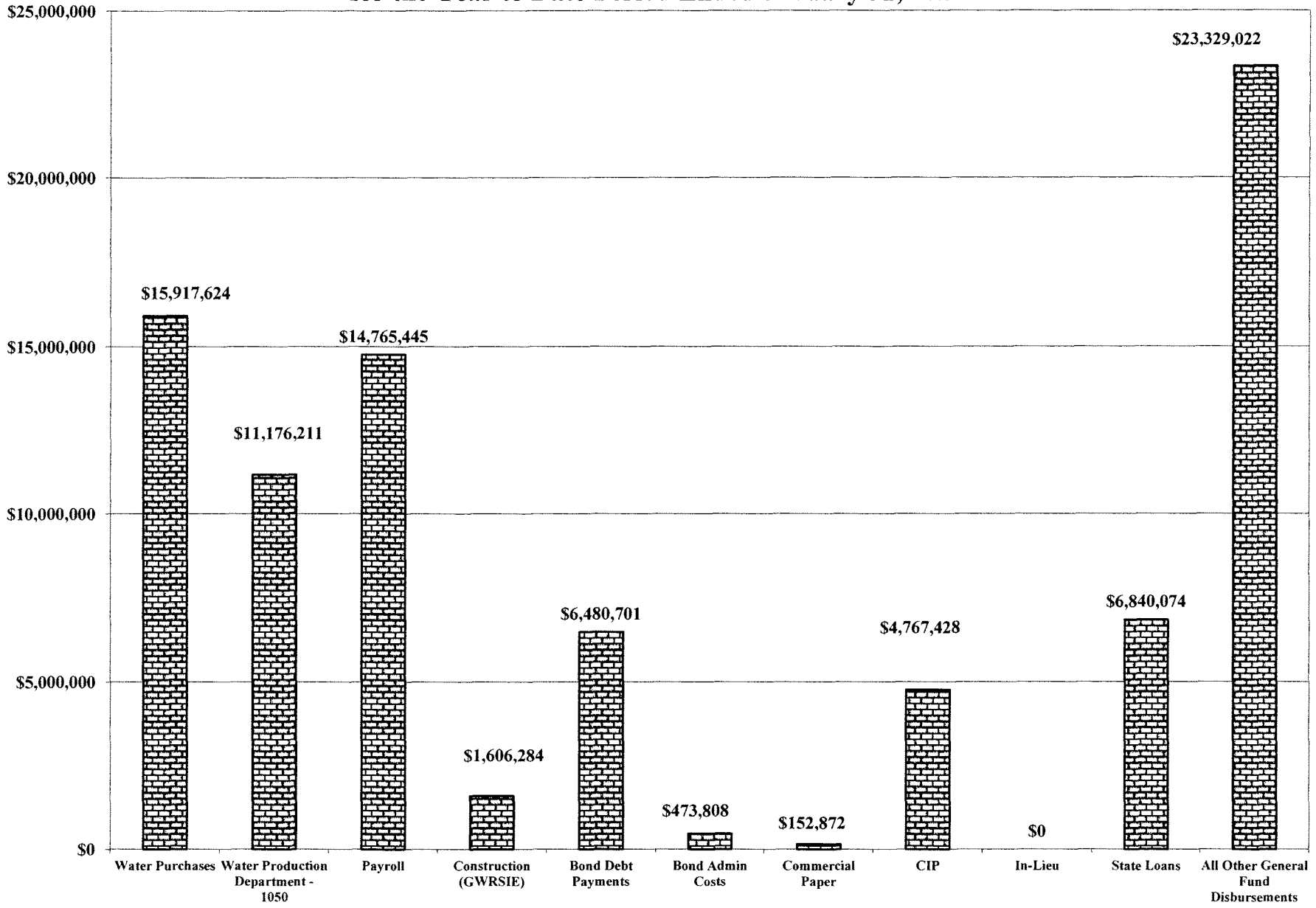
F	Sources (Cash basis)	July	August	September	October	November	December	January	February	March	April	May	June	YTD
	Replenishment Assessment	41,368,842	(47,623)	95,554	87,910	-	5,506	43,025,377						84,535,567
	Basin Equity Assessment	18,545	645,980	2,322,325	278,792	23,024	9,225	10,342						3,308,234
	Property Taxes	200,275	34,611	483,314	85,220	1,961,215	8,685,916	762,899						12,213,450
	Other Taxes	-	-	-	-	-	891,792	1,122,774						2,014,566
	Annexation Fees	-	-	-	-	911,086	424,778	140,965						1,476,828
	GAP & GAP Subsidy	73,709	250,973	307,395	211,973	360,535	151,731	283,843						1,640,160
	CUP	-	-	-	-	-	2,237,830	-						2,237,830
	Loans	14,249	99,935	-	-	-	-	76,825						191,009
	Commercial Paper	-	-	-	-	-	-	-						-
	GWRS Water Delivery	1,411	2,509	3,427	5,058	3,413	4,238	2,321						22,377
	LRP Subsidy	897,130	807,796	340,300	1,057,395	1,062,549	1,058,532	1,029,601						6,253,304
	Grants/State Loans	948,774	1,533,881	2,005,676	838,062	480,526	129,380	-						5,936,299
	Interest and Investment Income	168,240	43,279	116,685	138,131	79,140	93,731	26,413						665,617
	NWRI	-	60,000	-	1,000	12,000	2,500	10,898						86,398
	Other Sources (rent, medical premium, misc.)	207,352	88,205	124,413	58,146	73,414	295,426	96,117						943,072
	Total Sources	43,898,528	3,519,546	5,799,089	2,761,687	4,966,901	13,990,586	46,588,374	-	-	-	-	-	121,524,711
F-1	Disbursements (Cash basis)													
	Water Purchases	2,354,729	2,528,327	2,453,711	1,900,529	236,927	1,750,657	4,692,744						15,917,624
	Water Production Department - 1050	2,009,228	1,650,706	1,770,482	1,704,528	1,063,589	1,404,490	1,573,188						11,176,211
	Payroll	1,963,711	1,946,590	2,956,420	1,976,927	1,965,387	1,970,922	1,986,388						14,765,445
	Construction (GWRSIE)	819,747	114,993	429,623	88,382	47,028	82,133	24,379						1,606,284
	Bond Debt Payments	320,805	5,304,857	198,707	220,480	194,106	55,856	185,889						6,480,701
	Bond Admin Costs	34,564	-	111,241	26,765	-	276,698	24,540						473,808
	Commercial Paper	10,449	23,066	18,042	6,681	63,772	27,979	2,882						152,872
	CIP	767,956	95,380	598,110	565,781	272,323	521,972	1,945,906						4,767,428
	In-Lieu	-	-	-	-	-	-	-						-
	State Loans	-	-	-	-	-	6,840,074	-						6,840,074
	All Other General Fund Disbursements	2,436,671	1,929,379	3,819,880	3,851,618	3,695,722	3,356,803	4,238,949						23,329,022
	Total Disbursements	10,717,860	13,593,297	12,356,216	10,340,791	7,538,854	16,287,585	14,674,865	-	-	-	-	-	85,509,468

Note: Sources and Uses of district funds reflect both operating and capital funds. Operating funds consist of annual operating revenues or cash reserves.

Orange County Water District
Sources of Funds
for the Year to Date Period Ended January 31, 2016



Orange County Water District
Disbursement of Funds
for the Year to Date Period Ended January 31, 2016



AGENDA ITEM SUBMITTAL

Meeting Date: February 11, 2016

To: Administration/Finance Issues Cte.
Board of Directors

From: Mike Markus

Staff Contact: B. Dunivin / S. Nygren

Budgeted: Yes
Budgeted Amount: $40,000/yr.
Cost Estimate: $30,600/yr.

Funding Source: General Fund
Program/ Line Item No. 1060.57016
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: AGREEMENT WITH JL LANDSCAPE SERVICES FOR LANDSCAPE MAINTENANCE SERVICES AT SANTIAGO BASIN BIKE TRAIL

SUMMARY

The District is responsible for maintaining a pedestrian and bike trail surrounding OCWD property at Santiago Basin. With the pending expiration of an existing contract, the District solicited bids from four local landscape firms to provide maintenance service. Based on a review of proposals and references, staff recommends issuance of an Agreement to JL Landscape Service for $2,550 per month ($30,600/year) for three years.

RECOMMENDATION

RECOMMENDED BY COMMITTEE

Agendize for February 17 Board meeting: Authorize issuance of Agreement with JL Landscape Services for an amount not to exceed $30,600 per year for a three-year period for landscape services.

BACKGROUND/ANALYSIS

The property surrounding Santiago Basin is highly visible and provides residents with a pedestrian and bike trail landscaped with native plantings. Quotes were received from four local vendors to provide landscape maintenance for the trail surrounding Santiago Basin, see table below. The low bidder was removed from consideration due to poor performance on prior work for the District. The second lowest bidder is JL Landscape Services with a proposed fee of $2,550 per month ($30,600 /year), Additionally, JL Landscape Services has guaranteed the monthly rate of $2,550 for three years for a total contract value of $91,800.

Landscape Service Companies	
Company	**Monthly Fee**
Tropical Plaza Nursery	$2,085
JL Landscape Services	**$2,550**
Earthco Commercial Landscape	$3,250
Johnson Landscape	$4,748

The Santiago bike trail is approximately two miles along the Bond and Blue Diamond Basin.

LOCATION MAP

AGENDA ITEM SUBMITTAL

Meeting Date: February 11, 2016

To: Administration/Finance Issues Cte.
Board of Directors

From: Mike Markus

Staff Contact: R. Fick/L. Tan

Budgeted: Yes
Budgeted Amount: N/A
Cost Estimate: $10,623,910
Funding Source: CIP/SRF Loan
Program/Line Item No.: C12003
General Counsel Approval: N/A
Engineers/Feasibility Report: Complete
CEQA Compliance: EIR Adopted

Subject: STATE REVOLVING FUND LOAN - REIMBURSEMENT RESOLUTION FOR ALAMITOS BARRIER IMPROVEMENT PROJECT

SUMMARY

The State Revolving Fund (SRF) loan application for Alamitos Barrier Improvement Project was approved by the State Water Resources Control Board (SWRCB) Division of Financial Assistance in October 2013 based on the Engineer's cost estimate of $7,755,000 available at that time. The bid opening took place on September 15, 2015 and the actual total project cost eligible for SRF funding is $10,623,910. The SWRCB is asking that the District adopt a revised Reimbursement Resolution to reflect the new total project cost of $10,623,910.

Attachment(s): Reimbursement Resolution

RECOMMENDATION

RECOMMENDED BY COMMITTEE

Agendize for February 17 Board meeting: Adopt Reimbursement Resolution for the State Revolving Fund Loan Application for the Alamitos Barrier Improvement Project.

BACKGROUND/ANALYSIS

Staff applied for a low-interest rate SRF loan from the SWRCB for the Alamitos Barrier Improvement Project in August 2013 and the SWRCB Division of Financial Assistance approved the Facility Plan Approval of SRF loan in October 2013.

Due to various permitting and technical specification reasons, this project was not ready for advertisement of inviting bids until November 2014. No bids were received in January 2015 and the project approach was modified in early 2015 in order to receive bids from drilling contractors. Based on the lowest bid proposal received on September 15, 2015, the total project cost eligible for SRF funding is $10,623,910 which is higher than the previous total project cost estimate of $7,755,000. Therefore, the SWRCB is requesting that the District revise the Reimbursement Resolution for the new project cost of $10,623,910.

The OCWD Board must adopt the Reimbursement Resolution in order to reflect the new SRF Loan amount requested by the District.

PRIOR RELEVANT BOARD ACTION(S)

8/21/13 R13-8-109: Adopt SRF Reimbursement Resolution for Alamitos Barrier Improvement Project

6/19/13 R13-6-73: Adopt Resolutions to Establish a Designee to Authorize Execution of the Financing Agreements with the State Water Resources Control Board, and to Establish Dedicated Source of Revenue for Repayment of the SRF Loan for Board Approved Capital Improvement Projects

RESOLUTION OF THE BOARD OF DIRECTORS OF
THE ORANGE COUNTY WATER DISTRICT
STATING OCWD INTENTION TO REIMBURSE ITSELF FOR EXPENDITURES PAID
PRIOR TO ISSUANCE OF OBLIGATIONS OR APPROVAL BY
STATE WATER BOARD OF THE PROJECT FUNDS
FOR THE ALAMITOS BARRIER IMPROVEMENT PROJECT

WHEREAS, the Orange County Water District (the "Agency") desires to finance the costs of constructing and/or reconstructing certain public facilities and improvements relating to its water and wastewater system, including certain treatment facilities, pipelines and other infrastructure (the "Project"); and

WHEREAS, the Agency intends to finance the construction and/or reconstruction of the Project or portions of the Project with moneys ("Project Funds") provided by the State of California, acting by and through the State Water Resources Control Board (State Water Board); and

WHEREAS, the State Water Board may fund the Project Funds with proceeds from the sale of obligations the interest upon which is excluded from gross income for federal income tax purposes (the "Obligations"), and

WHEREAS, prior to either the issuance of the Obligations or the approval by the State Water Board of the Project Funds the Agency desires to incur certain capital expenditures (the "Expenditures") with respect to the Project from available moneys of the Agency; and

WHEREAS, the Agency has determined that those moneys to be advanced on and after the date hereof to pay the Expenditures are available only for a temporary period and it is necessary to reimburse the Agency for the Expenditures from the proceeds of the Obligations.

NOW, THEREFORE, THE AGENCY DOES HEREBY RESOLVE, ORDER AND DETERMINE AS FOLLOWS:

Section 1: The Agency hereby states its intention and reasonably expects to reimburse Expenditures paid prior to the issuance of the Obligations or the approval by the State Water Board of the Project Funds.

Section 2: The reasonably expected maximum principal amount of the Project Funds is $10,623,910.

Section 3: This resolution is being adopted no later than 60 days after the date on which the Agency will expend moneys for the portion of the Project costs to be reimbursed with Project Funds.

Section 4: Each Agency expenditure will be of a type properly chargeable to a capital account under general federal income tax principles.

Section 5: To the best of our knowledge, this Agency is not aware of the previous adoption of official intents by the Agency that have been made as a matter of course for the purpose of reimbursing expenditures and for which tax-exempt obligations have not been issued.

Section 6: This resolution is adopted as official intent of the Agency in order to comply with Treasury Regulation §1.150-2 and any other regulations of the Internal Revenue Service relating to the qualification for reimbursement of Project costs.

Section 7: All the recitals in this Resolution are true and correct and this Agency so finds, determines and represents.

CERTIFICATION

I do hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the Orange County Water District held on February 17, 2016.

_____

Janice Durant
District Secretary

AGENDA ITEM SUBMITTAL

Meeting Date: February 11, 2016

To: Administration/Finance Issues Cte.
Board of Directors

From: Mike Markus

Staff Contact: R. Fick/V. Sharma

Budgeted: N/A
Budgeted Amount: N/A
Cost Estimate: N/A
Funding Source: N/A
Program/Line Item No: N/A
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: INVESTMENT PORTFOLIO HOLDINGS REPORTS

SUMMARY

The District's monthly Investment Portfolio Holdings Report will be discussed with the Committee.

Attachment(s): Investment Portfolio Holdings Reports dated January 31, 2016.

RECOMMENDATION

RECOMMENDED BY COMMITTEE

Agendize for February 17 Board meeting: Receive and file the Investment Portfolio Holdings Reports dated January 31, 2016.

BACKGROUND/ANALYSIS

The Investment Portfolio Holdings Report is a list of each of the District's fixed income investments and provides the market value at the end of each month. All securities within the District's Investment Portfolio are in compliance with the District's Statement of Investment Policy. The District's portfolio maturities provide cash liquidity sufficient to meet the District's projected six-month expenditures (as required by Government Code Section 53646).

Highlights since the previous report include:

- The yield on the one-year Treasury note as of the month end is at 0.47%; two-year at 0.76% and the five-year at 1.38%

- The last Federal Open Market Committee (FOMC) meeting was held on January 26-27, 2016. The FOMC kept the Federal funds rate to a range of 0.25% to 0.50% This is the rate prime banks lend to each other.

- The District's total rate of return on investments for January 2016 is 0.991%

Orange County Water District
Investment Portfolio Holdings Report

01/31/16

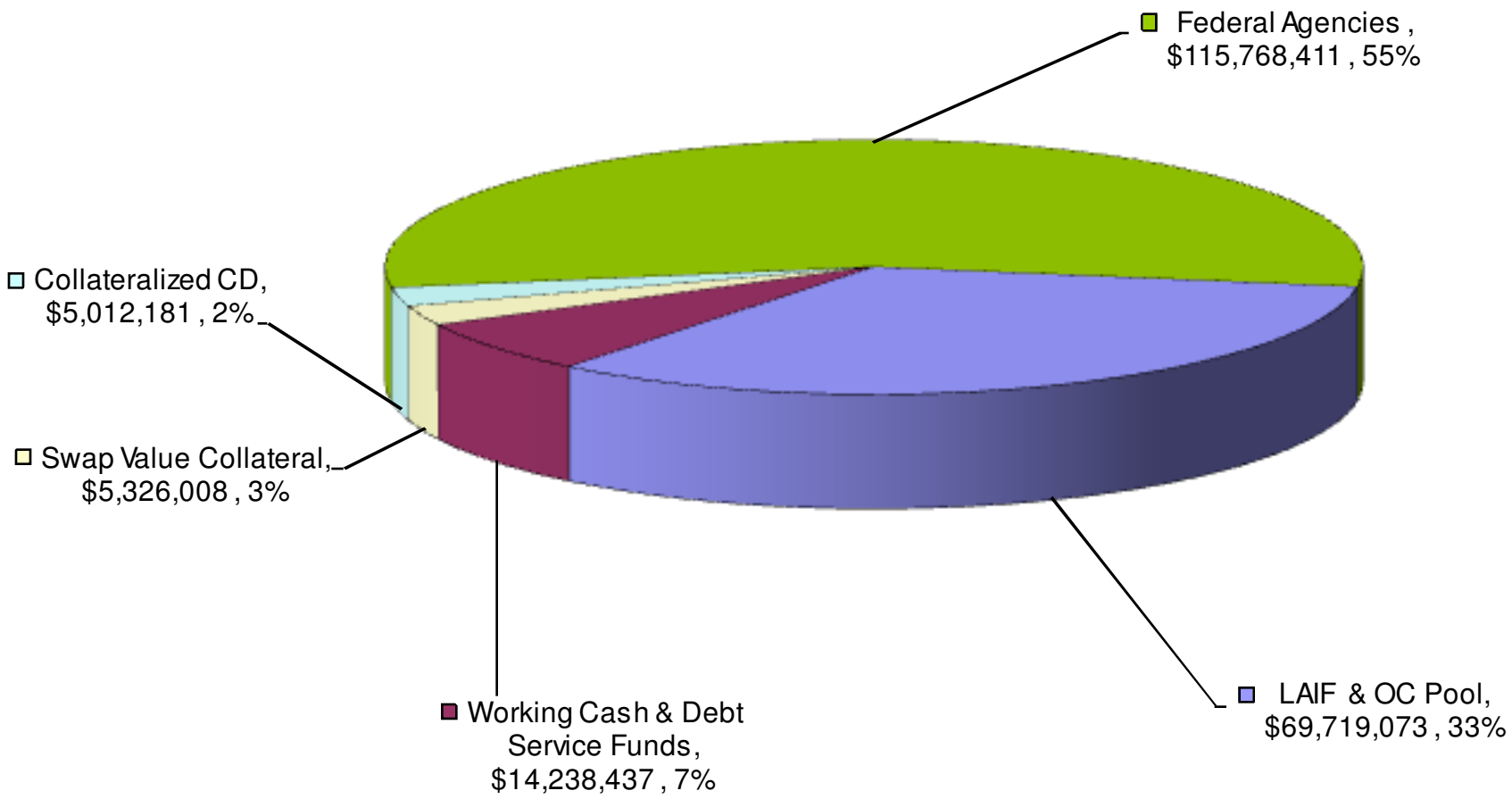
TRADE DATE	PURCHASE DATE	NEXT CALL	MATURITY DATE	RATING	INVESTMENT TYPE	INSTITUTION OR ISSUER	PAR AMOUNT	DISC RATE or COUPON	YIELD TO MATURITY		ORIGINAL COST	MARKET VALUE (1) 1/31/2016	Portfolio %	CUSIP NUMBER
				Investment Pools										
					Local Agency Invest Fund (LAIF)	State of California Treasury	$49,983,067	(DEC rate)	0.400%	(1)	$49,983,067	$49,983,067	***24.14%***	
					Orange County Invest Pool (OCIP)	County of Orange	$19,736,006	(DEC rate)	0.499%	(1)	$19,736,006	$19,736,006	***9.53%***	
				Swap Value Collateral										
04/15/13	04/30/13	04/30/16	04/30/18	AA+/Aaa	FHLMC - qtrly call on/after 10/30/13	Freddie Mac	$1,800,000	1.020%	1.030%		$1,799,100	$1,802,700		3134G43F3
04/23/13	05/15/13	02/15/16	05/15/18	AA+/Aaa	FHLMC - qtrly call on/after 11/15/13	Freddie Mac	$3,528,000	1.050%	1.050%		$3,528,000	$3,523,308		3134G43V8
					Total Swap Value Collateral		$5,328,000				$5,327,100	$5,326,008	**2.57%**	
				Collateralized Certificate of Deposit										
10/25/15	10/25/15		04/25/16		Collateralized Certificate of Deposit	East West Bank	$2,006,760	0.500%	0.500%		$2,006,760	$2,006,760		178923410
09/24/15	09/24/15		03/22/16		Collateralized Certificate of Deposit	East West Bank	$3,005,420	0.500%	0.500%		$3,005,420	$3,005,420		178833589
					Total Collateralized Cert of Deposit		$5,012,181				$5,012,181	$5,012,181	***2.42%***	
				Federal Agencies										
04/15/13	04/30/13	04/30/16	04/30/18	AA+/Aaa	FHLMC - qtrly call on/after 10/30/13	Freddie Mac	$1,200,000	1.020%	1.030%		$1,199,400	$1,201,800		3134G43F3
04/16/13	04/30/13	04/30/16	04/30/18	AA+/Aaa	FHLMC - qtrly call on/after 10/30/13	Freddie Mac	$5,000,000	1.060%	1.060%		$5,000,000	$4,998,450		3134G43H9
04/23/13	05/15/13	02/15/16	05/15/18	AA+/Aaa	FHLMC - qtrly call on/after 11/15/13	Freddie Mac	$1,472,000	1.050%	1.050%		$1,472,000	$1,470,042		3134G43V8
05/13/13	05/30/13	02/25/16	05/25/18	AA+/Aaa	FHLMC - qtrly call on/after 11/25/13	Freddie Mac	$3,000,000	1.125%	1.125%		$3,000,000	$3,000,030		3134G45D6
05/22/13	06/12/13	03/12/16	06/12/18	AA+/Aaa	FHLMC - qtrly call on/after 9/12/13	Freddie Mac	$3,000,000	1.200%	1.200%		$3,000,000	$3,000,330		3134G46D5
09/21/15	09/30/13	03/30/16	09/30/20	AA+/Aaa	FHLMC - qtrly call on/after 12/30/15	Freddie Mac - Step	$1,688,000	1.500%	2.218%		$1,688,000	$1,688,709		3134G7VB4
10/09/15	10/13/15	03/14/16	09/14/20	AA+/Aaa	FHLMC - qtrly call on/after 3/14/16	Freddie Mac	$2,000,000	2.000%	1.871%		$2,012,060	$2,003,900		3134G7SX0
10/15/15	10/26/15	04/26/16	07/26/18	AA+/Aaa	FHLMC - qtrly call on/after 4/26/16	Freddie Mac - Step (2009A)	$1,000,000	0.500%	1.177%		$1,000,000	$999,650		3134G7X63
10/09/15	10/29/15	04/29/16	10/29/19	AA+/Aaa	FHLMC - qtrly call on/after 1/29/16	Freddie Mac - Step	$3,000,000	0.750%	1.917%		$3,000,000	$3,000,090		3134G7Y88
10/15/15	10/29/15	04/29/16	10/29/20	AA+/Aaa	FHLMC - qtrly call on/after 1/29/16	Freddie Mac - Step (2009A)	$4,000,000	1.500%	1.766%		$4,000,000	$4,001,440		3134G72N0
10/15/15	10/29/15	04/29/16	10/29/18	AA+/Aaa	FHLMC - qtrly call on/after 1/29/16	Freddie Mac - Step (2009A)	$2,262,000	0.500%	1.448%		$2,262,000	$2,261,140		3134G7T92
10/27/15	10/30/15	04/28/16	10/28/20	AA+/Aaa	FHLMC - qtrly call on/after 1/28/16	Freddie Mac - Step	$2,300,000	1.250%	2.092%		$2,300,000	$2,300,299		3134G75L1
01/19/16	01/29/16	04/29/16	01/29/18	AA+/Aaa	FHLMC - qtrly call on/after 4/29/16	Freddie Mac - Step	$4,000,000	0.500%	1.371%		$4,000,000	$3,998,800		3134G8HS1
1/19 & 1/20	01/29/16	04/29/16	01/29/21	AA+/Aaa	FHLMC - qtrly call on/after 4/29/16	Freddie Mac - Step	$5,000,000	1.500%	2.459%		$5,000,000	$5,001,250		3134G8GV5
01/07/16	01/29/16	04/29/16	01/29/21	AA+/Aaa	FHLMC - qtrly call on/after 4/29/16	Freddie Mac - Step	$2,000,000	1.000%	2.579%		$2,000,000	$2,000,780	19.76%	3134G8GS2
09/17/12	09/21/12	02/23/16	08/23/17	AA+/Aaa	FNMA - qtrly call on/after 8/23/13	Fannie Mae	$5,300,000	0.950%	0.966%		$5,296,025	$5,291,520		3135G0NH2
04/25/13	04/26/13	02/07/16	11/07/17	AA+/Aaa	FNMA - qtrly call on/after 5/07/13	Fannie Mae	$1,000,000	0.900%	0.900%		$1,000,000	$1,000,060		3135G0RK1
11/26/12	12/12/12	03/12/16	12/12/17	AA+/Aaa	FNMA - qtrly call on/after 06/12/13	Fannie Mae	$3,000,000	1.000%	1.000%		$3,000,000	$3,002,910		3135G0SH7
11/26/12	12/26/12	03/26/16	12/26/17	AA+/Aaa	FNMA - qtrly call on/after 12/26/13	Fannie Mae	$3,000,000	1.000%	1.000%		$3,000,000	$3,003,150		3135G0SJ3
01/17/13	01/30/13	04/30/16	01/30/18	AA+/Aaa	FNMA - qtrly call on/after 1/30/14	Fannie Mae	$3,000,000	1.030%	1.030%		$3,000,000	$3,000,360		3135G0TV5
01/09/13	01/30/13	04/30/16	01/30/18	AA+/Aaa	FNMA - qtrly call on/after 7/30/13	Fannie Mae	$3,000,000	1.020%	1.020%		$3,000,000	$3,005,760		3135G0TM5
02/14/13	02/28/13	02/28/16	02/28/18	AA+/Aaa	FNMA - qtrly call on/after 8/28/13	Fannie Mae	$3,000,000	1.200%	1.200%		$3,000,000	$3,000,330		3135G0UX9
03/04/13	03/20/13	03/20/16	03/20/18	AA+/Aaa	FNMA - qtrly call on/after 9/20/13	Fannie Mae	$3,000,000	1.125%	1.125%		$3,000,000	$3,000,240		3135G0VL4
5/07 & 5/10	05/30/13	02/25/16	05/25/18	AA+/Aaa	FNMA - qtrly call on/after 11/25/13	Fannie Mae	$6,000,000	1.050%	1.050%		$5,997,900	$5,992,320		3135G0XK4
10/21/15	10/29/15	04/29/16	10/29/18	AA+/Aaa	FNMA - qtrly call on/after 4/29/16	Fannie Mae - Step	$3,000,000	0.500%	1.327%		$3,000,000	$2,998,410	16.08%	3136G2QY6
10/09/12	10/11/12	cont.	07/11/17	AA+/Aaa	FFCB - call on/after 1/11/13	Federal Farm Credit Bank	$3,000,000	0.842%	0.842%		$2,997,000	$3,000,000		3133EA4H8
10/12/12	10/15/12	cont.	04/11/17	AA+/Aaa	FFCB - call on/after 1/11/13	Federal Farm Credit Bank	$3,000,000	0.700%	0.728%		$2,996,250	$2,998,440		3133EA4G0
12/12/12	12/18/12	cont.	09/18/17	AA+/Aaa	FFCB - call on/after 3/18/13	Federal Farm Credit Bank	$3,000,000	0.790%	0.807%		$2,997,600	$2,996,790		3133ECA95
10/16/12	10/18/12	cont.	10/18/17	AA+/Aaa	FFCB - call on/after 10/18/13	Federal Farm Credit Bank	$3,000,000	0.870%	0.876%		$2,999,100	$2,997,600		3133EA5A2
01/30/13	01/31/13	cont.	01/22/18	AA+/Aaa	FFCB - call on/after 1/22/14	Federal Farm Credit Bank	$3,000,000	0.940%	1.043%		$2,985,000	$2,995,320		3133ECDE1
10/15/15	10/22/15	cont.	10/22/19	AA+/Aaa	FFCB - call on/after 1/22/16	Federal Farm Credit Bank (2009A)	$4,000,000	1.420%	1.420%		$4,000,000	$4,000,000	9.17%	3133EFLB1
10/24/12	10/26/12	cont.	10/23/17	AA+/Aaa	FHLB - call on/after 1/23/13	Federal Home Loan Bank	$3,000,000	0.900%	0.931%		$2,995,500	$2,999,880		313380Z34
02/28/13	02/28/13	cont.	01/30/18	AA+/Aaa	FHLB - call on/after 4/30/13	Federal Home Loan Bank	$2,050,000	0.950%	0.992%		$2,045,900	$2,043,420		313381VM4
05/15/13	06/13/13	03/13/16	06/13/18	AA+/Aaa	FHLB - qtrly call on/after 9/13/13	Federal Home Loan Bank	$3,000,000	1.150%	1.150%		$3,000,000	$3,000,780		313383AW1
10/06/15	10/9 & 10/13	03/28/16	09/28/18	AA+/Aaa	FHLB - qtrly call on/after 12/28/15	Federal Home Loan Bank - Step	$4,000,000	0.500%	1.354%		$4,000,000	$3,999,280		3130A6K55
10/06/15	10/13/15	03/30/16	09/30/20	AA+/Aaa	FHLB - qtrly call on/after 12/30/15	Federal Home Loan Bank - Step	$2,000,000	1.250%	2.114%		$1,999,400	$1,997,160		3130A6HL4
10/06/15	10/19/15	04/19/16	10/19/20	AA+/Aaa	FHLB - qtrly call on/after 1/19/16	Federal Home Loan Bank - Step	$3,000,000	1.200%	2.118%		$3,000,000	$3,000,030		3130A6JX6
01/05/16	01/29/16	04/29/16	01/29/19	AA+/Aaa	FHLB - qtrly call on/after 4/29/16	Federal Home Loan Bank	$5,000,000	1.600%	1.600%		$5,000,000	$5,008,850		3130A6YH4
01/11/16	01/29/16	04/29/16	01/29/21	AA+/Aaa	FHLB - qtrly call on/after 4/29/16	Federal Home Loan Bank - Step	$3,000,000	1.000%	2.376%		$3,000,000	$3,001,740		3130A6YT8
01/07/16	01/29/16	07/29/16	01/29/21	AA+/Aaa	FHLB - qtrly call on/after 7/29/16	Federal Home Loan Bank - Step	$2,000,000	1.250%	2.318%		$2,000,000	$2,000,800		3130A72C8
01/29/16	01/29/16	02/26/16	02/26/16	AA+/Aaa	FHLB - matures on 2/26/16	Federal Home Loan Bank - Disc	$6,770,000	0.260%	0.264%		$6,768,631	$6,768,781	16.33%	313384TP4
					Total Federal Agencies		*$127,042,000*				*$127,011,766*	*$127,030,642*	***61.34%***	
						Sub Totals	**$207,101,254**		**0.991%**		**$207,070,120**	**$207,087,903**	***100%***	
				Restricted / Debt Service Funds:										
					Certificate Payment Fund	Series 2003A/2005B/2009A	$7		0.000%			$7		
					Reserve Fund	Series 2009A	$95,219		0.010%			$95,219		
					Interest Fund	Series 2013A	$2		0.000%			$2		
					Escrow Fund	Series 2005B Defeasance	$0		0.000%			$0		
							$207,196,482					$207,183,132		
					OCWD - Petty Cash							$2,700		
					Bank Balance (unreconciled)	Union Bank Gen - Interest			0.020%			$4,930		
					Bank Balance (unreconciled)	Wells Fargo - Checking			0.000%			$2,873,348		
											Total	$210,064,110		

Investment Revenue	FYTD
Fair Market Value Adj.	
Unrestricted	**223,082**
Restricted	**52,989**
Investment Income	
Unrestricted	**775,668**
Restricted	**79,891**
Total per G/L	**1,131,630**

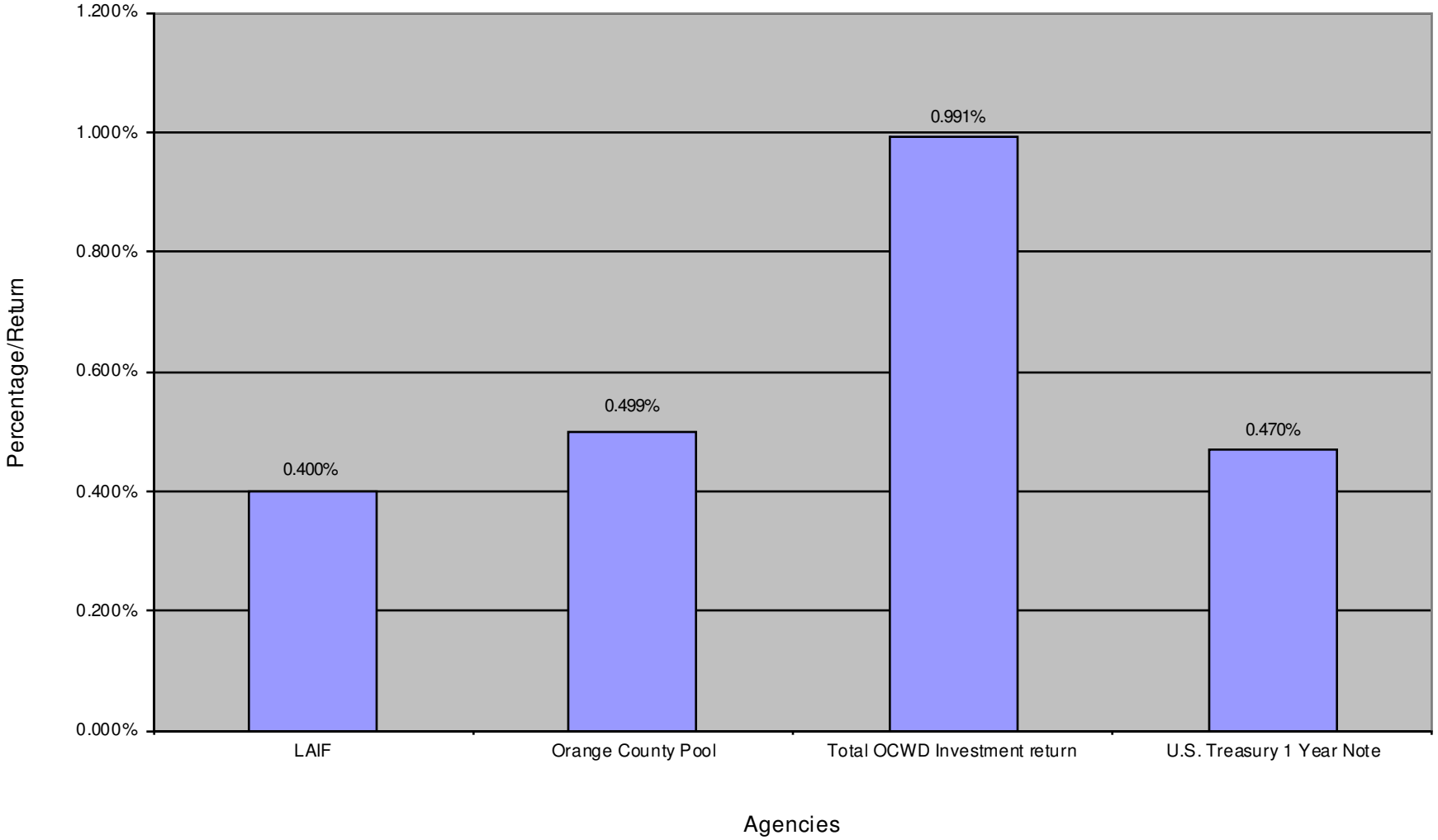
(1) Market value is as of the most recent quarter-end/month-end as reported by LAIF/OCIP/FCB. Security values are provided by Bloomberg Financial Markets and/or Union Bank Investment Services.

Note: This Investment Summary Report is in conformity with OCWD's Investment Policy and provides sufficient liquidity to meet the next six months estimated expenditures.

OCWD - Investment Portfolio
as of January 31, 2016

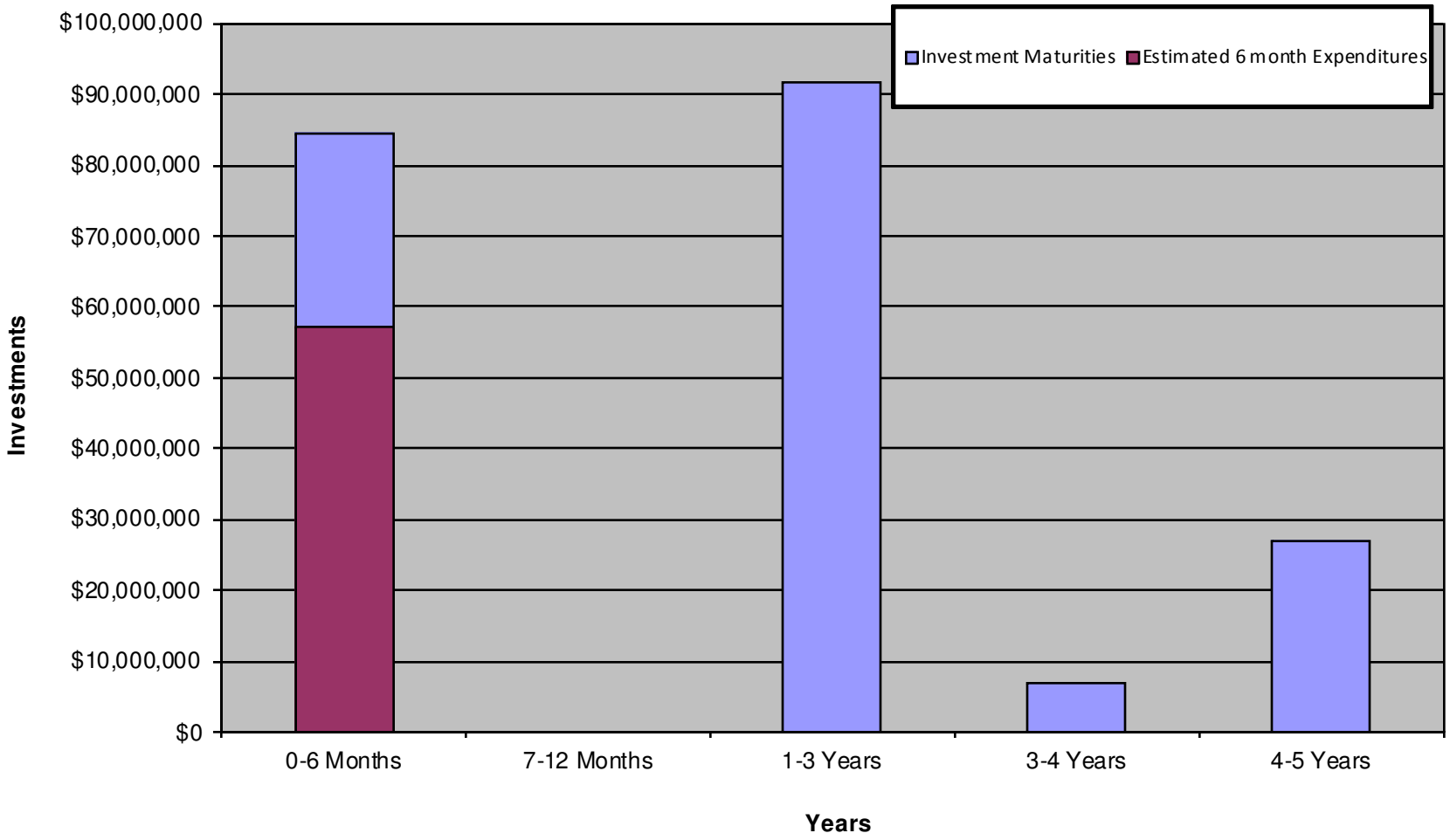


OCWD - Investment Return Comparision for the Month Ended 1/31/16



Note: LAIF and Orange County Pool Rates are as of December 31, 2015.

OCWD - Investment Maturities
as of January 31, 2016



AGENDA ITEM SUBMITTAL

Meeting Date: February 11, 2016

To: Administration/Finance Issues Cte.
Board of Directors

From: Mike Markus

Staff Contact: R. Fick

Budgeted: N/A
Budgeted Amount: N/A
Cost Estimate: N/A
Funding Source: N/A
Program/Line Item No.: N/A
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: RATIO ANALYSIS - SECOND QUARTER FY 2015-2016

SUMMARY

The Administration and Finance Issues Committee recommended at its October 11, 2012 meeting that staff present a ratio analysis of the District's financial results. The Committee recommended the analysis be presented on a semiannual basis. Attached is the Ratio Analysis report of the District's financial results for the fiscal year ended 2016 (projected) with three prior years actual results.

Attachment(s):
- Ratios for Financial Analysis [June 30, 2013 – June 30, 2016]
- Presentation

RECOMMENDATION

RECOMMENDED BY COMMITTEE

Agendize for February 17 Board meeting: Receive and file the Ratio Analysis Report for FY 2015-16 Second Quarter ending December 31, 2015.

BACKGROUND/ANALYSIS

The District tracks the following six performance metrics that provide a look into the Districts financial health and its ability to run its operation and pay its annual debt service payments.

Current Ratio

The current ratio, also called the working capital ratio, is a measure of an organization's ability to meet current obligations from current assets. The higher the ratio the more liquid the organization is. The current ratio is calculated by taking current assets divided by current liabilities. The Fitch 2016 current ratio median for AAA rated water and sewer agencies is 5.9. The District current ratio for the 2nd quarter ended December 31, 2015, is 4.5.

Quick Ratio

Quick ratio, also called the acid-test ratio, is an indicator of the District's short-term liquidity. The quick ratio measures the District's ability to meet its short-term obligations with its most liquid assets usually convertible to cash within 30 days.
The quick ratio is equal to cash plus investments plus current receivables divided by current liabilities. The Quick ratio indicates financial flexibility to pay near-term obligations.

The higher the quick ratio is, the better the financial position of the District. The Fitch 2016 quick ratio median for AAA rated water and sewer agencies is 5.6. The District quick ratio for the 2nd quarter ended December 31, 2015, is 4.3.

Debt to Equity Ratio

The debt to equity ratio measures the District's financial leverage calculated by dividing its total long term debt by total unrestricted net assets. It indicates existing debt leverage relative to system equity. The lower the ratio is the better. The Fitch 2016 debt to equity ratio median for AAA rated water and sewer agencies is 1.4. The District debt to equity ratio for the 2nd quarter ended December 31, 2015, is 3.0.

Operating Margin (%)

Operating margin indicates financial margin to pay operating expenses. A healthy operating margin is required for the District to be able to pay for its operating expenses, such as interest on debt. This metric is calculated by taking operating revenues minus operating expenditures plus depreciation, divided by operating revenues. A higher margin means less financial risk. The Fitch 2016 operating margin median for AAA rated water and sewer agencies is 40%. The District operating margin for the 2nd quarter ended December 31, 2015, is 52%.

Days Cash on Hand

Days cash on hand indicates financial flexibility to pay near-term obligations with its unrestricted cash and investments. Days cash on hand is calculated by taking current unrestricted cash and investments plus any restricted cash and investments (if available for general system purposes), divided by operating expenditures plus annual debt service minus depreciation. Generally, a higher number of days represents stronger a financial position. The Fitch 2016 days cash on hand median for AAA rated water and sewer agencies are 764 days. The District days cash on hand for the 2nd quarter ended December 31, 2015, is 656.

Debt Coverage Ratio

Debt coverage ratio measures the District's ability to pay debt payments from the income generated from the District's operating and non operating activities. Debt coverage ratio is calculated by taking operating and non-operating revenues minus basin equity assessment, less operating expenses net of depreciation divided by annual debt service costs. Rating agencies use this ratio as a guide to help them understand whether the District will generate enough cash to pay its debt service costs. The Fitch 2016 debt coverage ratio

median for AAA rated water and sewer agencies is 2.6. The District debt coverage ratio for the 2nd quarter ended December 31, 2015, is 3.1.

PRIOR RELEVANT BOARD ACTION(S)
None

ORANGE COUNTY WATER DISTRICT

RATIOS FOR FINANCIAL ANALYSIS

JUNE 30, 2013 THROUGH JUNE 30, 2016

	2013	2014	2015	2016 (Annualized)
RATIO # 1				
UNRESTRICTED CURRENT ASSETS	$ 238,085,135	$ 244,411,429	$ 209,429,624	$ 206,881,693
UNRESTRICTED CURRENT LIABILITIES	19,607,785	52,893,368	48,091,126	46,436,421
CURRENT RATIO	***12.1***	***4.6***	***4.4***	***4.5***

Current assets divided by current liabilities. Indicates financial flexibility to pay near-term obligations.

RATIO # 2				
UNRESTRICTED CASH & CASH EQUIVALENTS PLUS	$ 20,693,965	$ 37,918,851	$ 35,548,414	$ 59,832,493
UNRESTRICTED INVESTMENTS PLUS	135,374,001	141,719,949	116,444,084	91,905,227
UNRESTRICTED RECEIVABLES DUE WITHIN 30 DAYS	63,009,850	60,679,358	52,385,095	49,650,209
UNRESTRICTED CURRENT LIABILITIES	19,607,785	52,893,368	48,091,126	46,436,421
QUICK RATIO	***11.2***	***4.5***	***4.2***	***4.3***

Current cash plus current receivables divided by current liabilities. Indicates financial flexibility to pay near-term obligations.

RATIO # 3				
TOTAL LONG-TERM DEBT	$ 524,214,162	$ 590,352,880	$ 572,557,414	$ 568,612,313
TOTAL UNRESTRICTED NET ASSETS	224,686,841	226,680,734	188,235,626	189,661,558
DEBT TO EQUITY RATIO	***2.3***	***2.6***	***3.0***	***3.0***

Total amount of utility long-term debt divided by unrestricted net assets. Indicates existing debt leverage relative to system equity.

RATIO # 4				
OPERATING REVENUES PLUS TAX REVENUE	$ 114,171,043	$ 123,835,859	$ 126,058,332	$ 126,331,619
OPERATING EXPENSES LESS DEPRECIATION	58,743,251	55,930,379	62,260,205	60,603,867
OPERATING MARGIN %	***49%***	***55%***	***51%***	***52%***

Operating revenues minus operating expenditure less depreication, divided by operating revenue. Indicates financial margin to pay operating expenses. (For purposes of this calculation, the District considers property tax revenues as operating revenues and water purchases to be a nonoperating expense)

RATIO # 5				
TOTAL CASH AND INVESTMENTS (UNRESTRICTED)	$ 156,067,966	$ 179,638,800	$ 151,992,498	$ 151,737,719
TOTAL OPERATING EXP. AND DEBT SVE FROM BELOW	84,178,169	79,003,909	86,525,901	84,439,812
DAYS CASH RATIO	***677***	***830***	***641***	***656***

Current unrestricted cash and investments plus any restricted cash and investments (if available for general system purposes), divided by operating expenditures minus depreciation.

ORANGE COUNTY WATER DISTRICT

RATIOS FOR FINANCIAL ANALYSIS

JUNE 30, 2013 THROUGH JUNE 30, 2016

	2013	2014	2015	2016 (Annualized)
RATIO # 6				
Replenishment assessments	$ 80,694,951	$ 90,550,510	$ 89,137,337	$ 45,033,246
CUP revenue	-	2,295,127	3,340,270	2,109,201
Reclaimed water revenue	10,978,979	9,714,520	10,656,131	5,872,763
Property tax	22,497,113	21,275,702	22,924,595	12,121,659
Legal settlement revenue	3,111,594	2,510,000	4,222,585	700,000
Rental income, net of expenses	1,628,627	2,744,295	1,214,630	469,964
Investment revenue	1,982,990	1,668,280	1,745,947	760,316
Other revenues	1,571,566	1,781,697	1,442,484	2,169,517
Total YTD revenues	122,465,820	132,540,132	134,683,978	69,236,667
Budgeted annual revenue less YTD revenue	-	-	-	66,299,904
Operating expenses including litigation expenses	58,743,251	55,930,379	$ 62,260,205	30,457,150
Operating expenses budgeted for the rest of the FY	-	-	-	30,146,717
Total Expenditures	58,743,251	55,930,379	62,260,205	60,603,867
Net revenues	63,722,569	76,609,753	72,423,773	74,932,704
Annual debt service	25,434,918	23,073,530	24,265,696	23,835,945
ALL-IN ADS COVERAGE RATIO	***2.5***	***3.3***	***3.0***	***3.1***

Current year revenues available for debt service divided by cureent-year total debt service. Indicates the financial margin to meet current total ADS with current revenues available for debt service.

AGENDA ITEM SUBMITTAL

Meeting Date: February 11, 2016

To: Administration/Finance Issues Cte.
Board of Directors

From: Mike Markus

Staff Contact: R. Fick /K. Greene

Budgeted: N/A
Budgeted Amount: N/A
Cost Estimate: N/A
Funding Source: N/A
Program/Line Item No.: N/A
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: BUDGET TO ACTUAL REPORT FOR SECOND QUARTER FY 2015–16

SUMMARY

Attached is a copy of the Budget to Actual Report for the second quarter of fiscal year 2015–16. General Fund operations are $1,452,122 below budget. Refurbishment and Replacement costs are $3.4 million less than planned and Water Purchases are less than expected by $4.5 million.

Attachment(s):

- Attachment A – Operating Costs Budget to Actual
- Attachment B – Cost Center Budget to Actual Summary
- Attachment C – Cost Center Budget to Actual Details

RECOMMENDATION

RECOMMENDED BY COMMITTEE

Agendize for the February 17 Board meeting: Receive and file the Budget to Actual Report for Second Quarter of Fiscal Year 2015-16 ending December 31, 2015

BACKGROUND/ANALYSIS

Attachment A provides an overall summary of the District's various operating costs for the first quarter. Attachment B provides a budget to actual summary of the 21 cost centers that comprise the general fund and attachment C provides the details of these 21 cost centers.

General Fund

General Fund costs are $1,452,122 under budget due primarily to lower costs for Property Management consulting and Forebay Operations. Specific details on the expense categories that make up this variance can be found in the footnotes to the reports in Attachments B & C.

Water Purchases Budget

Water purchases are tracking under budget. MWD/MWDOC made 20,000 af of water

available to the District during the first half of the fiscal year. All of this was purchased. However, the District budgeted to purchase 55,000 acre feet (af) of water for the year or 27,500 af in the first half of the fiscal year.

Debt Service

Debt service is under budget by $1,261,508 due to lower than expected interest rates on variable rate debt.

Refurbishment and Replacement Fund

These items are tracking low primarily due to the pending billing for the pumps at Burris Basin pump station. Additionally, a Purchase Order for $3.2 million for replacement membranes is pending delivery and payment.

PRIOR RELEVANT BOARD ACTION(S): Quarterly

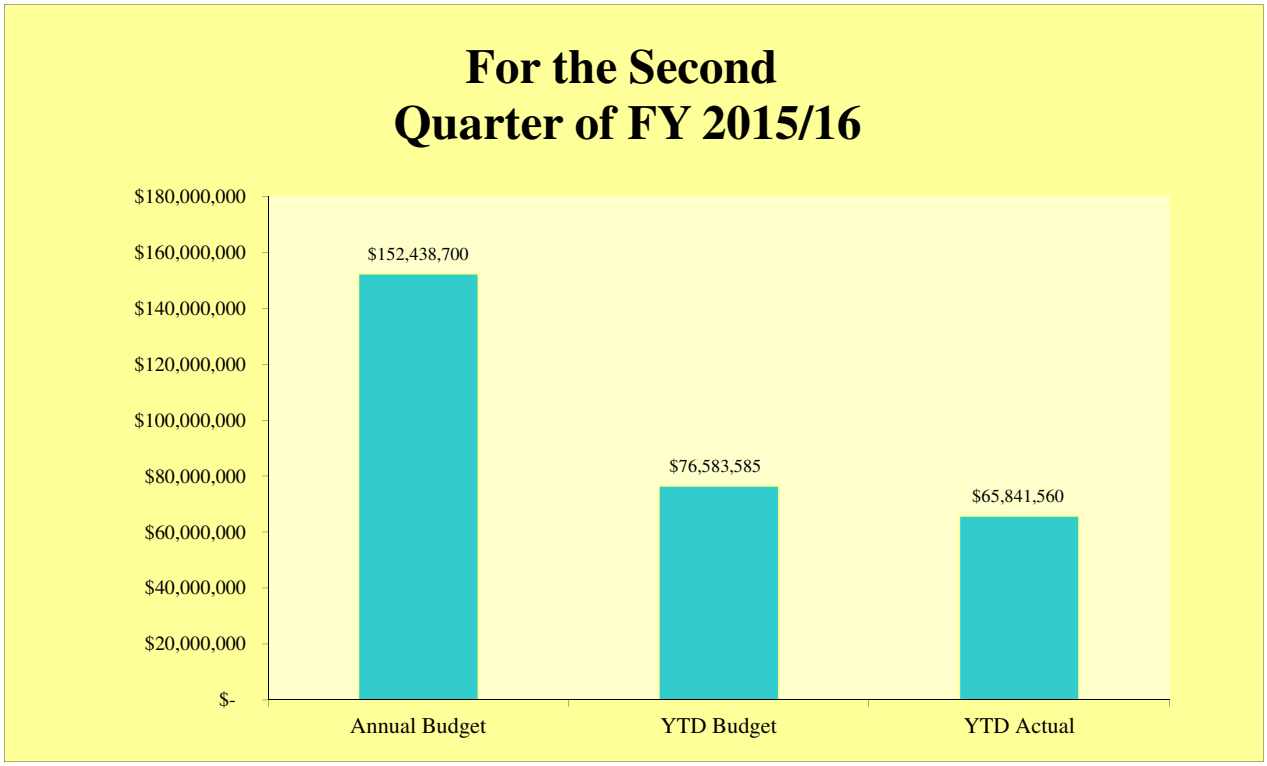
ORANGE COUNTY WATER DISTRICT

Operations Budget to Actual Report

For the Second Quarter Ending December 31, 2015

Attachment A

Budget Items	Annual Budget	YTD Budget	YTD Actual	Difference	
General Fund	61,786,269	30,893,135	29,441,013	1,452,122	1
Small Equipment	954,284	477,142	330,221	146,921	
Debt Service	27,725,945	14,227,207	12,965,699	1,261,508	2
Replacement & Refurb.	26,336,202	13,168,101	9,789,720	3,378,381	3
Water Purchases	35,636,000	17,818,000	13,314,907	4,503,093	4
Totals	**$ 152,438,700**	**$ 76,583,585**	**$ 65,841,560**	**$ 10,742,025**	



1. Lower spending in Forebay, Property Management and Public Affairs are the principle cause of this variance.

2. Lower than expected variable rate interest costs have caused this difference.

3. The pending purchase of Burris Basin pumps and GWRS membranes are responsible for this lower year to date spending.

4. We 've received 20,000 af which is short of one half the year's total 55,000 af budget.

ORANGE COUNTY WATER DISTRICT

For the Second Quarter Ending December 31, 2015
Attachment B

Description	Original YTD Budget A	Revised YTD Budget B	YTD Actual C	YTD Variance (Over)/Under D = B-C	Variance % E		Revised Total Annual Budget F	Department Budget % of Total Budget G	Projected Annualized Actual H	Annualized Variance (Over)/Under I = F-H
GENERAL MANAGER'S OFFICE	1,029,412	1,049,383	1,088,523	(39,140)	-4%	1	2,098,766	3.4%	2,177,045	(78,280)
PUBLIC AFFAIRS	839,631	842,131	701,586	140,545	17%		1,684,262	2.7%	1,403,172	281,090
INFORMATION SERVICES	953,941	953,942	919,774	34,167	4%		1,907,883	3.1%	1,839,549	68,334
BOARD ADMINISTRATION	542,327	543,769	410,830	132,940	24%		1,087,539	1.8%	821,659	265,880
PURCHASING	406,046	406,046	422,355	(16,309)	-4%		812,091	1.3%	844,710	(32,619)
FINANCE	959,266	966,016	962,161	3,856	0%		1,932,032	3.1%	1,924,321	7,711
HUMAN RESOURCES	436,289	436,289	392,071	44,218	10%		872,577	1.4%	784,141	88,436
SAFETY & RISK MANAGEMENT	560,768	560,767	462,697	98,070	17%		1,121,535	1.8%	925,395	196,140
WATER QUALITY	912,114	912,114	877,185	34,929	4%		1,824,228	3.0%	1,754,371	69,857
LABORATORY	2,473,525	2,473,525	2,398,219	75,306	3%		4,947,050	8.0%	4,796,438	150,612
RESEARCH & DEVELOPMENT	537,381	537,381	441,383	95,997	18%		1,074,762	1.7%	882,767	191,995
PLANNING & WATERSHED MGMT	585,449	635,347	801,903	(166,556)	-26%	2	1,270,693	2.1%	1,603,806	(333,112)
LOCAL RESOURCES	125,681	205,321	148,872	56,449	27%		410,642	0.7%	297,744	112,898
HEALTH & REGULATORY	377,853	377,853	338,731	39,123	10%		755,706	1.2%	677,461	78,245
WATER PRODUCTION	14,389,630	14,389,630	14,525,842	(136,212)	-1%	3	28,779,259	46.6%	29,051,683	(272,424)
FOREBAY OPERATIONS	1,910,336	2,020,335	1,539,016	481,320	24%	4	4,040,670	6.5%	3,078,031	962,639
PRADO	301,397	412,866	300,049	112,817	27%		825,732	1.3%	600,098	225,634
PROPERTY MANAGEMENT	134,183	323,184	130,664	192,520	60%	5	646,367	1.0%	261,327	385,040
ENGINEERING	419,596	419,597	453,913	(34,317)	-8%		839,193	1.4%	907,827	(68,633)
HYDROGEOLOGY	1,741,471	1,802,948	1,599,799	203,148	11%	6	3,605,895	5.8%	3,199,598	406,297
NATURAL RESOURCES	491,694	624,693	525,441	99,252	16%		1,249,387	2.0%	1,050,882	198,505
	$ 30,127,986	$ 30,893,135	$ 29,441,013	$ 1,452,122			$ 61,786,269	100%	$ 58,882,026	$ 2,904,243

1. Legal services.

2. Payments to the Army Corps of Engineers for the revised Prado Basin storage plan.

3. Larger than expexcted chemicals expenses for GWRS expanded volume.

4. Lower fuel and electricity due to limited rainfall.

5. Lower consulting fees due to the pending shooting range contamination study.

6. Accelerated spending for legal appeals costs and NCP support consulting.

ORANGE COUNTY WATER DISTRICT

General Fund (Cost Center) Budgets

For the Second Quarter Ending December 31, 2015

Attachment C

GENERAL MANAGER'S OFFICE	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C	
ACTUAL REG WAGES	521,648	260,824	279,235	(18,411)	1
ACTUAL REG OT WAGES	1,000	500	550	(50)	
RETIREMENT	108,367	54,183	36,647	17,537	
HEALTH INSURANCE	54,946	27,473	25,158	2,315	
WORKERS COMP	2,886	1,443	2,387	(944)	
PAYROLL TAXES	8,368	4,184	4,056	128	
MEMBERSHIP	279,150	139,575	140,925	(1,350)	
SUBSCRIPTIONS	700	350	168	182	
SPECIAL DEPARTMENT EXPENSE	8,500	4,250	11,675	(7,425)	
TECH TRAINING	750	375	21	354	
EXPENSE CONTRA	0	0	(2,911)	2,911	
TRVL/MILEAGE/CONFERNC	14,250	7,125	7,787	(662)	
OFF EXP-GENERAL	100,000	50,000	38,549	11,451	
LOGO SHIRTS	200	100	0	100	
RENT EQP-GEN	50,000	25,000	9,771	15,229	
PRF SRVCS-GEN	39,500	19,750	29,339	(9,589)	2
PRF SRVCS-LEGAL	360,000	180,000	243,892	(63,892)	
INTER-AGENCY AGREEMENT	548,000	274,000	261,312	12,688	
MAINT EQ-GEN	500	250	(38)	288	
	$ 2,098,766	$ 1,049,383	$ 1,088,523	$ (39,140)	

1. Board approved one time lump sum non base building payment to the General Manager.

2. Accelerated work on the Lillestrand contract.

ORANGE COUNTY WATER DISTRICT

General Fund (Cost Center) Budgets

For the Second Quarter Ending December 31, 2015

Attachment C

PUBLIC AFFAIRS	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C	
ACTUAL REG WAGES	688,796	344,398	345,646	(1,248)	
ACTUAL REG OT WAGES	1,500	750	0	750	
RETIREMENT	107,056	53,528	52,790	738	
HEALTH INSURANCE	83,954	41,977	44,385	(2,408)	
WORKERS COMP	4,013	2,007	3,007	(1,000)	
PAYROLL TAXES	12,943	6,472	5,612	860	
MEMBERSHIP	1,000	500	255	245	
SUBSCRIPTIONS	1,500	750	0	750	
SPECIAL DEPT EXPENSE	54,000	27,000	21,823	5,177	
CHILDREN WTR FESTIVAL	198,000	99,000	22,394	76,606	1
CHILDREN WTR FESTIVAL-REIMBURSEMENT	(70,000)	(35,000)	(25,500)	(9,500)	1
SPECIAL DEPT EXPENSE-O.C. WTR SUMMIT	80,000	40,000	603	39,397	1
O.C. WTR SUMMIT-MWDOC COST SHARE	(5,000)	(2,500)	1,989	(4,489)	1
O.C. WTR SUMMIT-SPONSER REIMBURSEMENT	(70,000)	(35,000)	0	(35,000)	1
TECH TRAINING	3,000	1,500	0	1,500	
MISC. EXPENSES	5,500	2,750	68	2,682	
EXPENSE CONTRA	0	0	(913)	913	
TRVL/MILEAGE/CONFERNC	22,000	11,000	5,418	5,582	
PUB INFO TOUR	29,000	14,500	188	14,312	
OFF EXP-GENERAL	54,300	27,150	17,838	9,312	
PRF SRVCS-GEN	428,700	214,350	185,520	28,830	
INTR-AGNCY AGRMNT-GWRS	54,000	27,000	20,463	6,537	
	$ 1,684,262	$ 842,131	$ 701,586	$ 140,545	

1. Billing activity on the Children's Water Festival and the O C Water Summit will not take place until the spring of 2016

ORANGE COUNTY WATER DISTRICT

General Fund (Cost Center) Budgets

For the Second Quarter Ending December 31, 2015

Attachment C

INFORMATION SERVICES	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C
ACTUAL REG WAGES	898,699	449,350	459,512	(10,162)
CAPITALIZED SALARIES	(101,845)	(50,923)	0	(50,923)
RETIREMENT	149,633	74,816	76,509	(1,693)
HEALTH INSURANCE	118,815	59,407	59,969	(561)
WORKERS COMP	5,123	2,562	3,896	(1,335)
PAYROLL TAXES	13,031	6,516	6,568	(52)
CAPITALIZED BENEFITS	(34,573)	(17,287)	0	(17,287)
MEMBERSHIP	500	250	160	90
TECH TRAINING	34,000	17,000	3,241	13,759
EXPENSE CONTRA	0	0	(880)	880
TRVL/MILEAGE/CONFERNC	5,500	2,750	15	2,735
OFF EXP-GENERAL	2,000	1,000	625	375
HARDWARE/SOFTWARE	177,000	88,500	63,722	24,778
VOICE COMM	160,000	80,000	64,340	15,660
PRO SERVICE - GEN	80,000	40,000	750	39,250
MAINT EQ-GEN	400,000	200,000	181,349	18,651
	$ 1,907,883	$ 953,942	$ 919,774	$ 34,167

BOARD ADMINISTRATION	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C
ACTUAL REG WAGES	297,250	148,625	152,574	(3,948)
DIRECTOR FEES	254,973	127,486	95,891	31,595
RETIREMENT	91,465	45,732	40,736	4,996
HEALTH INSURANCE	175,014	87,507	82,221	5,286
WORKERS COMP	3,131	1,566	2,170	(604)
PAYROLL TAXES	7,965	3,983	3,203	779
LEGAL ADVERTISING	3,000	1,500	1,974	(474)
ELECTION	133,000	66,500	0	66,500
MEMBERSHIP	940	470	0	470
SPECIAL DEPT EXPENSE	77,000	38,500	9,291	29,209
TECH TRAINING	300	150	20	130
TRVL/MILEAGE/CONFERNC	26,300	13,150	12,903	247
OFF EXP-GENERAL	17,200	8,600	9,846	(1,246)
	$ 1,087,539	$ 543,769	$ 410,830	$ 132,940

ORANGE COUNTY WATER DISTRICT

General Fund (Cost Center) Budgets

For the Second Quarter Ending December 31, 2015

Attachment C

PURCHASING	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C
ACTUAL REG WAGES	565,331	282,666	289,699	(7,033)
RETIREMENT	94,128	47,064	48,235	(1,171)
HEALTH INSURANCE	104,494	52,247	52,809	(562)
WORKERS COMP	8,011	4,006	6,056	(2,051)
PAYROLL TAXES	8,197	4,099	3,468	631
MEMBERSHIP	230	115	0	115
TECH TRAINING	600	300	0	300
OFF EXP-GENERAL	10,600	5,300	4,936	364
GAS & DIESEL	300	150	679	(529)
LOGO SHIRTS	100	50	0	50
SMALL TOOLS	100	50	0	50
INVENTORY ITEM ADJ	0	0	1,177	(1,177)
INVENTORY COST ADJ	0	0	(93)	93
INVENTORY FREIGHT	16,000	8,000	15,267	(7,267)
MAINT EQ-GEN	0	0	123	(123)
MAIN-S&I-GEN	4,000	2,000	0	2,000
	$ 812,091	$ 406,046	$ 422,355	$ (16,309)

ORANGE COUNTY WATER DISTRICT

General Fund (Cost Center) Budgets

For the Second Quarter Ending December 31, 2015

Attachment C

FINANCE	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C
ACTUAL REG WAGES	1,327,813	663,907	685,665	(21,759)
ACTUAL REG OT WAGES	1,815	907	1,107	(200)
RETIREMENT	219,002	109,501	113,180	(3,679)
HEALTH INSURANCE	193,746	96,873	97,787	(914)
WORKERS COMP	7,640	3,820	5,882	(2,062)
PAYROLL TAXES	20,166	10,083	10,129	(45)
MEMBERSHIP	2,300	1,150	555	595
SUBSCRIPTIONS	500	250	0	250
SPECIAL DEPT EXPENSE	0	0	219	(219)
TECH TRAINING	3,500	1,750	1,219	531
TRVL/MILEAGE/CONFERNC	750	375	250	125
OFF EXP-GENERAL	11,500	5,750	5,707	43
GAS & DIESEL	4,200	2,100	1,454	646
UNIFORM & SAFETY	200	100	(3)	103
PRF SRVCS-GEN	172,400	86,200	75,932	10,268
PURCHASE DISCOUNTS	(60,500)	(30,250)	(44,605)	14,355
REBATES-PURCHASING CARD	(10,000)	(5,000)	(10,260)	5,260
BANK CHRGS	36,000	18,000	17,943	57
MAINT EQ-GEN	1,000	500	0	500
	$ 1,932,032	$ 966,016	$ 962,161	$ 3,856

ORANGE COUNTY WATER DISTRICT

General Fund (Cost Center) Budgets

For the Second Quarter Ending December 31, 2015

Attachment C

HUMAN RESOURCES	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C
ACTUAL REG WAGES	407,957	203,978	208,890	(4,912)
RETIREMENT	65,427	32,714	33,787	(1,073)
HEALTH INSURANCE	71,512	35,756	36,169	(414)
HEALTH INS. - RETIREE PREMIUMS	15,500	7,750	5,589	2,161
WORKERS COMP	2,325	1,163	1,774	(612)
TUITION REIMBURSEMENT	25,000	12,500	4,260	8,240
PAYROLL TAXES	6,845	3,423	3,316	107
MEMBERSHIP	4,410	2,205	4,730	(2,525)
SUBSCRIPTIONS	200	100	88	12
SPECIAL DEPT EXPENSE	18,500	9,250	8,135	1,115
TECH TRAINING	8,000	4,000	1,740	2,260
TRVL/MILEAGE/CONFERNC	4,650	2,325	2,673	(348)
OFF EXP-GENERAL	24,300	12,150	11,069	1,081
PRF SRVCS-GEN	52,950	26,475	25,147	1,328
TEMP WORKERS	165,000	82,500	44,704	37,796
	$ 872,577	$ 436,289	$ 392,071	$ 44,218

SAFETY & RISK MANAGEMENT	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C	
ACTUAL REG WAGES	277,912	138,956	114,454	24,502	1
RETIREMENT	43,026	21,513	16,749	4,764	
HEALTH INSURANCE	44,098	22,049	18,235	3,814	
WORKERS COMP	1,920	960	1,195	(235)	
PAYROLL TAXES	5,239	2,619	2,075	545	
MEMBERSHIP	240	120	0	120	
SUBSCRIPTION	1,400	700	1,395	(695)	
SPECIAL DEPT EXPENSE	6,900	3,450	1,960	1,490	
TECH TRAINING	57,700	28,850	6,863	21,987	
SECURITY PROGRAM	11,800	5,900	13,912	(8,012)	
TRVL/MILEAGE/CONFERNC	5,400	2,700	128	2,572	
OFF EXP-GENERAL	5,900	2,950	2,263	687	
GAS & DIESEL	1,000	500	0	500	
UNIFORM & SAFETY	27,000	13,500	13,093	407	
SAFETY SUPPLIES	10,700	5,350	(152)	5,502	
INSURANCE	601,800	300,900	269,044	31,856	
CLAIMS	5,000	2,500	0	2,500	
PRF SRVCS-GEN	13,500	6,750	1,170	5,580	
MAINT EQ-GEN	1,000	500	315	185	
	$ 1,121,535	$ 560,767	$ 462,697	$ 98,070	

1. There was an open / unfilled position in this cost center for part of the first half of the fiscal year.

ORANGE COUNTY WATER DISTRICT

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WATER QUALITY	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C
ACTUAL REG WAGES	1,123,052	561,526	586,839	(25,313)
ACTUAL REG OT WAGES	10,322	5,161	1,229	3,932
RETIREMENT	188,706	94,353	96,755	(2,402)
HEALTH INSURANCE	152,565	76,283	79,543	(3,260)
WORKERS COMP	25,082	12,541	19,311	(6,770)
PAYROLL TAXES	16,434	8,217	8,416	(199)
SPECIAL DEPT EXPENSE	9,000	4,500	3,004	1,496
TECH TRAINING	1,000	500	260	240
TRVL/MILEAGE/CONFERNC	1,500	750	9	741
OFF EXP-GENERAL	13,400	6,700	4,410	2,290
GAS & DIESEL	15,000	7,500	6,551	949
UNIFORM & SAFETY	1,500	750	409	341
SMALL TOOLS	45,000	22,500	21,273	1,227
LAB SUPPLIES	3,000	1,500	2,115	(615)
LAB SAMPLE ANALYSIS	181,667	90,833	37,935	52,898
MAINT EQ-GEN	37,000	18,500	9,125	9,375
	$ 1,824,228	$ 912,114	$ 877,185	$ 34,929

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LABORATORY	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C
ACTUAL REG WAGES	2,614,678	1,307,339	1,332,017	(24,678)
ACTUAL REG OT WAGES	51,244	25,622	13,150	12,471
RETIREMENT	429,807	214,904	213,895	1,008
HEALTH INSURANCE	380,758	190,379	192,984	(2,605)
WORKERS COMP	29,667	14,834	22,403	(7,569)
PAYROLL TAXES	43,895	21,947	18,957	2,990
SUBSCRIPTIONS	200	100	0	100
SPECIAL DEPT EXPENSE	32,000	16,000	11,411	4,589
TECH TRAINING	4,000	2,000	0	2,000
TRVL/MILEAGE/CONFERNC	6,000	3,000	4,326	(1,326)
OFF EXP-GENERAL	15,300	7,650	10,045	(2,395)
OL DATA SERVER	500	250	0	250
UNIFORM & SAFETY	4,000	2,000	1,054	946
SMALL TOOLS	3,000	1,500	0	1,500
LAB SUPPLIES	850,000	425,000	393,791	31,209
LAB SAMPLE ANALYSIS	2,000	1,000	0	1,000
RENT EQP-GEN	2,000	1,000	476	524
MAINT EQ-GEN	478,000	239,000	183,709	55,291
	$ 4,947,050	$ 2,473,525	$ 2,398,219	$ 75,306

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RESEARCH & DEVELOPMENT	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C	
ACTUAL REG WAGES	712,557	356,279	318,967	37,312	1
ACTUAL REG OT WAGES	0	0	325	(325)	
RETIREMENT	110,199	55,100	48,416	6,684	
HEALTH INSURANCE	64,639	32,319	26,669	5,650	
WORKERS COMP	7,981	3,990	5,375	(1,385)	
PAYROLL TAXES	13,475	6,738	4,979	1,759	
MEMBERSHIP	170	85	0	85	
SPECIAL DEPT EXPENSE	500	250	0	250	
TRVL/MILEAGE/CONFERNC	3,000	1,500	427	1,073	
OFF EXP-GENERAL	2,000	1,000	2,049	(1,049)	
GAS & DIESEL	1,000	500	408	92	
UNIFORM & SAFETY	900	450	79	371	
LAB SUPPLIES	31,750	15,875	8,739	7,136	
LAB SAMPLE ANALYSIS	8,000	4,000	4,123	(122)	
RENT EQP-GEN	1,500	750	897	(147)	
PRF SRVCS-GEN	80,000	40,000	8,088	31,912	
MAINT EQ-GEN	36,690	18,345	11,843	6,502	
MAINT S&I-GEN	400	200	0	200	
	$ 1,074,762	$ 537,381	$ 441,383	$ 95,997	

1. The newly filled R & D Director's position was unfilled during most of the first half of the fiscal year.

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PLANNING & WATERSHED MGMT	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C	
ACTUAL REG WAGES	588,813	294,407	303,454	(9,048)	
RETIREMENT	98,037	49,019	50,525	(1,506)	
HEALTH INSURANCE	61,854	30,927	31,186	(259)	
WORKERS COMP	3,356	1,678	2,569	(891)	
PAYROLL TAXES	8,538	4,269	4,369	(100)	
MEMBERSHIP	400	200	150	50	
SPECIAL DEPT EXPENSE	83,000	41,500	81,146	(39,646)	1
TRVL/MILEAGE/CONFERNC	8,500	4,250	7,273	(3,023)	
OFF EXP-GENERAL	2,200	1,100	1,595	(495)	
GAS & DIESEL	4,000	2,000	735	1,265	
UNIFORM & SAFETY	200	100	0	100	
SMALL TOOLS	0	0	153	(153)	
PRF SERVCS-GEN	411,795	205,898	318,747	(112,850)	2
	$ 1,270,693	$ 635,347	$ 801,903	$ (166,556)	

1. The Board approved additional payments for the S A River Watermaster Action Team for Prop 84 grant review.
2. The Army Corps of Engineers was paid a Board approved $200,000 for the Prado water conservation initiative.

ORANGE COUNTY WATER DISTRICT

General Fund (Cost Center) Budgets

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LOCAL RESOURCES	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C
ACTUAL REG WAGES	193,031	96,516	103,065	(6,550)
RETIREMENT	32,140	16,070	17,160	(1,090)
HEALTH INSURANCE	19,541	9,771	9,831	(61)
WORKERS COMP	1,100	550	861	(310)
PAYROLL TAXES	2,799	1,400	1,452	(52)
MEMBERSHIP	200	100	0	100
TRVL/MILEAGE/CONFERNC	1,450	725	2,603	(1,878)
OFF EXP-GENERAL	1,100	550	55	495
PRF SERVCS-GEN	159,280	79,640	13,845	65,795
	$ 410,642	$ 205,321	$ 148,872	$ 56,449

HEALTH & REGULATORY	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C
ACTUAL REG WAGES	429,095	214,547	227,656	(13,108)
RETIREMENT	68,630	34,315	37,905	(3,590)
HEALTH INSURANCE	46,103	23,051	20,725	2,326
WORKERS COMP	2,446	1,223	1,930	(707)
PAYROLL TAXES	7,784	3,892	3,214	678
MEMBERSHIP	800	400	85	315
SUBSCRIPTION	400	200	468	(268)
SPECIAL DEPT EXPENSE	26,000	13,000	2,398	10,602
TRVL/MILEAGE/CONFERNC	11,250	5,625	3,464	2,161
OFF EXP-GENERAL	4,000	2,000	137	1,863
PRF SRVCS-GEN	159,200	79,600	40,749	38,851
	$ 755,706	$ 377,853	$ 338,731	$ 39,123

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WATER PRODUCTION	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C	
ACTUAL REG WAGES	6,153,997	3,076,998	3,187,951	(110,953)	
ACTUAL REG OT WAGES	306,848	153,424	160,320	(6,896)	
CAPITALIZED SALARIES	0	0	(35,142)	35,142	
RETIREMENT	1,072,484	536,242	548,467	(12,226)	
HEALTH INSURANCE	1,011,706	505,853	505,236	617	
WORKERS COMP	172,900	86,450	134,398	(47,948)	
PAYROLL TAXES	94,891	47,446	42,844	4,602	
CAPITALIZED BENEFITS	0	0	(11,922)	11,922	
MEMBERSHIP	8,000	4,000	3,838	162	
SPECIAL DEPT EXPENSE	17,421	8,711	30,359	(21,648)	
TECH TRAINING	21,600	10,800	3,040	7,760	
TRVL/MILEAGE/CONFERNC	18,750	9,375	13,316	(3,941)	
OFF EXP-GENERAL	17,900	8,950	4,967	3,983	
HARDWARE/SOFTWARE	63,700	31,850	2,759	29,091	
GAS & DIESEL	21,500	10,750	8,600	2,150	
FUEL - OFF ROAD	0	0	811	(811)	
UNIFORM & SAFETY	46,000	23,000	18,825	4,175	
CARTRIDGE FILTERS	50,000	25,000	28,333	(3,333)	
SMALL TOOLS	20,000	10,000	6,641	3,359	
SAFETY SUPPLIES	16,500	8,250	4,866	3,384	
LAB SUPPLIES	29,500	14,750	13,997	753	
LAB SAMPLE ANALYSIS	9,200	4,600	2,120	2,480	
RENT EQP-GEN	3,000	1,500	0	1,500	
PRF SRVCS - GEN	75,000	37,500	50,704	(13,204)	
CHEM-CHLORINE	1,142,000	571,000	664,679	(93,679)	1
CHEM-PLYMR	20,000	10,000	9,539	461	
CHEM-SLFRC ACID	321,500	160,750	234,162	(73,412)	1
CHEM-ANTISCALENT	1,720,000	860,000	896,366	(36,366)	
CHEM-MF CLN CHEM	750,000	375,000	374,896	104	
CHEM - GWRS RO CLEANING	282,500	141,250	0	141,250	
CHEM-ALUM	12,000	6,000	0	6,000	
CHEM-PST TREATMT HYDRATED LIME	400,000	200,000	337,061	(137,061)	1
CHEM-HYDROGEN PEROXIDE UV	425,000	212,500	237,803	(25,303)	
CHEM-SODIUM BISULFITE	4,500	2,250	987	1,263	

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	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C	
CHEM - ANHYDROUS AMMONIA(TAX)	30,000	15,000	0	15,000	
UTIL-ELEC	257,000	128,500	147,234	(18,734)	
UTIL-POWER	12,099,163	6,049,581	6,346,168	(296,587)	
UTIL-POWER-DEMAND CREDIT	(1,000,000)	(500,000)	(849,762)	349,762	2
UTIL-GAS	45,000	22,500	10,413	12,087	
UTIL-WATER	48,000	24,000	7,391	16,609	
LADPW CURRENT EXP	850,000	425,000	528,897	(103,897)	
MAINT-SUPPLS&MATRL-ELECTRICL	38,200	19,100	5,347	13,753	
MAINT - SUPPLS&MATERIAL	187,200	93,600	100,784	(7,184)	
MAINT EQ-COMM	5,550	2,775	1,764	1,011	
MAINT EQ-CARTS	8,000	4,000	11,187	(7,187)	
MAINT EQ-VEH	34,000	17,000	23,918	(6,918)	
MAINT EQ-HEAVY	5,000	2,500	2,484	16	
MAINT S&I-OUTSIDE SVC	558,850	279,425	224,718	54,707	
MAINT S&I-MICROFILTRATION	138,800	69,400	55,593	13,806	
MAINT S&I-REV OSMOS	149,000	74,500	102,254	(27,754)	
MAINT S&I-GAP	38,500	19,250	22,355	(3,105)	
MAINT S&I- INJECT	332,100	166,050	30,594	135,456	
MAINT S&I-UV	569,500	284,750	222,901	61,849	
MAINT-INFLNT PMP STN	4,000	2,000	66	1,934	
MAINT-SNT ANA RES	7,500	3,750	1,200	2,550	
MAIN-S&I-SCREENINGS	18,000	9,000	7,803	1,197	
MAIN-S&I-LIME SYSTEM	29,000	14,500	24,433	(9,933)	
MAIN-S&I-PRODUCT WATR PUMP STN	18,500	9,250	17,276	(8,026)	
	$ 28,779,259	$ 14,389,630	$ 14,525,842	$ (136,212)	

1. There has been an unanticipated change in Sanitation District product quality due to higher quantities to support the GWRS expansion

   Also, new dosing variables resulting from the plant expansion are requiring more chemicals..

2. Demand response seasonal credits are hard to estimate as they are dependent on summer weather conditions.

ORANGE COUNTY WATER DISTRICT

General Fund (Cost Center) Budgets

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FOREBAY OPERATIONS	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C	
ACTUAL REG WAGES	1,670,388	835,194	800,321	34,873	
ACTUAL REG OT WAGES	39,508	19,754	24,581	(4,828)	
CAPITALIZED SALARIES	(38,987)	(19,494)	(13,049)	(6,444)	
RETIREMENT	284,697	142,349	137,498	4,851	
HEALTH INSURANCE	289,771	144,885	138,100	6,785	
WORKERS COMP	50,308	25,154	35,481	(10,327)	
PAYROLL TAXES	24,793	12,397	11,712	685	
CAPITALIZED BENEFITS	(12,932)	(6,466)	(5,160)	(1,306)	
MEMBERSHIP	1,145	573	240	333	
SPECIAL DEPT EXPENSE	5,000	2,500	6,530	(4,030)	
TECH TRAINING	6,480	3,240	666	2,574	
OFF EXP-GENERAL	9,100	4,550	4,604	(54)	
GAS & DIESEL	20,000	10,000	16,340	(6,340)	
FUEL - OFF ROAD	120,000	60,000	12,762	47,238	1
UNIFORM & SAFETY	15,000	7,500	5,119	2,381	
LOGO SHIRTS	500	250	0	250	
SMALL TOOLS	16,000	8,000	5,968	2,032	
SAFETY SUPPLIES	7,500	3,750	1,319	2,431	
RENT EQP-GEN	2,000	1,000	0	1,000	
RENT EQP-HEAVY	10,000	5,000	2,982	2,018	
PRO SERVICE-GEN	280,000	140,000	0	140,000	
CHEM-PESTI	1,000	500	410	90	
UTIL-ELEC	660,000	330,000	111,147	218,853	1
UTIL-WATER	35,000	17,500	10,972	6,528	
MAINT EQ-GEN	6,000	3,000	462	2,538	
MAINT EQ-COMM	30,000	15,000	17,010	(2,010)	
MAINT EQ-VEH	30,000	15,000	12,331	2,669	
MAINT EQ-HEAVY	105,000	52,500	43,401	9,099	
MAINT S&I-GEN	373,400	186,700	157,270	29,430	
	$ 4,040,670	$ 2,020,335	$ 1,539,016	$ 481,320	

1. These are seasonal costs dependent on winter rains - bulldozer fuel for riverbed maintenance and electric pump consumption of electric power for water transfer between basins.

ORANGE COUNTY WATER DISTRICT

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PRADO	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C	
ACTUAL REG WAGES	270,477	135,238	144,123	(8,885)	
ACTUAL REG OT WAGES	19,876	9,938	245	9,693	
RETIREMENT	48,344	24,172	24,037	134	
HEALTH INSURANCE	48,924	24,462	25,090	(628)	
WORKERS COMP	8,264	4,132	6,552	(2,420)	
PAYROLL TAXES	4,210	2,105	2,067	38	
TECH TRAINING	250	125	0	125	
MISC EXPENSE	500	250	0	250	
TRVL/MILEAGE/CONFERNC	2,000	1,000	839	161	
OFF EXP-GENERAL	3,000	1,500	1,525	(25)	
GAS & DIESEL	7,000	3,500	2,020	1,480	
FUEL - OFF ROAD	40,000	20,000	8,613	11,387	
UNIFORM & SAFETY	3,500	1,750	1,558	192	
LOGO SHIRTS	200	100	0	100	
SMALL TOOLS	500	250	244	6	
SAFETY SUPPLIES	500	250	0	250	
RENT EQP-GEN	1,500	750	0	750	
RENT EQP-HEAVY	32,500	16,250	22,500	(6,250)	
PRF SRVCES - GEN	222,938	111,469	0	111,469	1
SECURITY	2,500	1,250	5,361	(4,111)	
CHEM-FLOC	2,500	1,250	0	1,250	
UTIL-ELEC	10,000	5,000	5,661	(661)	
MAINT EQ-GEN	2,000	1,000	113	887	
MAINT EQ-VEH	4,000	2,000	3,993	(1,993)	
MAINT EQ-HEAVY	30,000	15,000	10,967	4,033	
MAINT S&I-GEN	60,250	30,125	34,542	(4,417)	
	$ 825,732	$ 412,866	$ 300,049	$ 112,817	

1. The Board Approved AECOM engineering contract hasn't begun billing yet.

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PROPERTY MANAGEMENT	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C	
ACTUAL REG WAGES	95,548	47,774	48,509	(735)	
RETIREMENT	15,909	7,954	8,077	(122)	
HEALTH INSURANCE	20,080	10,040	10,173	(133)	
WORKERS COMP	545	272	414	(142)	
PAYROLL TAXES	1,385	693	681	12	
MEMBERSHIP	270	135	260	(125)	
SPECIAL DEPT EXPENSE	73,957	36,978	0	36,978	
LICENSES & PERMITS	73,828	36,914	34,844	2,070	
OFF EXP-GENERAL	500	250	227	23	
GAS & DIESEL	1,000	500	376	124	
PRF SRVCS-GEN	307,995	153,997	500	153,497	1
TAXES & ASSESMENTS	50,350	25,175	27,192	(2,017)	
MAINT S&I-GEN	5,000	2,500	(589)	3,089	
	$ 646,367	$ 323,184	$ 130,664	$ 192,520	

1. The Board approved Rauhage shooting range lead cleanup study has not begun billing yet.

ENGINEERING	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C
ACTUAL REG WAGES	834,414	417,207	437,803	(20,596)
ACTUAL REG OT WAGES	4,000	2,000	4,032	(2,032)
CAPITALIZED SALARIES	(273,379)	(136,690)	(110,709)	(25,981)
RETIREMENT	136,349	68,175	71,671	(3,497)
HEALTH INSURANCE	122,781	61,391	62,473	(1,082)
WORKERS COMP	7,793	3,896	6,223	(2,326)
PAYROLL TAXES	13,366	6,683	6,330	353
CAPITALIZED BENEFITS	(95,081)	(47,541)	(37,343)	(10,197)
MEMBERSHIP	750	375	115	260
SUBSCRIPTIONS	2,400	1,200	625	575
TECH TRAINING	5,000	2,500	0	2,500
TRVL/MILEAGE/CONFERNC	3,500	1,750	2,918	(1,168)
OFF EXP-GENERAL	12,300	6,150	2,120	4,030
GAS & DIESEL	5,000	2,500	1,792	708
PRF SRVCS-ENG	60,000	30,000	5,865	24,135
	$ 839,193	$ 419,597	$ 453,913	$ (34,317)

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HYDROGEOLOGY	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C	
ACTUAL REG WAGES	1,455,370	727,685	741,872	(14,187)	
ACTUAL REG OT WAGES	30,580	15,290	3,598	11,692	
CAPITALIZED SALARIES	(115,399)	(57,700)	(43,802)	(13,897)	
RETIREMENT	237,021	118,511	121,659	(3,149)	
HEALTH INSURANCE	172,539	86,270	88,425	(2,155)	
WORKERS COMP	11,053	5,526	8,630	(3,104)	
PAYROLL TAXES	25,415	12,708	11,755	953	
CAPITALIZED BENEFITS	(39,137)	(19,569)	(15,901)	(3,668)	
MEMBERSHIP	2,000	1,000	1,483	(482)	
SPECIAL DEPT EXPENSE	71,000	35,500	5,806	29,694	
TECH TRAINING	3,000	1,500	2,500	(1,000)	
TRVL/MILEAGE/CONFERNC	46,048	23,024	2,453	20,571	
OFF EXP-GENERAL	15,000	7,500	6,131	1,369	
GAS & DIESEL	6,000	3,000	2,744	256	
UNIFORM & SAFETY	300	150	49	101	
LOGO SHIRTS	100	50	0	50	
SMALL TOOLS	9,000	4,500	4,122	378	
LAB SUPPLIES	100	50	0	50	
PRF SRVCS-LEGAL	409,000	204,500	429,705	(225,205)	1
PRF SRVCS-ENG	1,230,906	615,453	190,680	424,773	2
MAINT EQ-GEN	24,000	12,000	15,707	(3,707)	
MAINT S&I-GEN	12,000	6,000	22,184	(16,184)	
DEPARTMENT GRAND TOTAL	$ 3,605,895	$ 1,802,948	$ 1,599,799	$ 203,148	

1. This represents accelerated spending on Connor, Fletcher legal costs for north and south basin appeals cases.

2. This represents billings from Hargis, Intera and Kennedy Jenks for NCP support work.

ORANGE COUNTY WATER DISTRICT

General Fund (Cost Center) Budgets

For the Second Quarter Ending December 31, 2015

Attachment C

NATURAL RESOURCES	Annual Budget A	YTD Budget B	YTD Actual C	Difference B - C
ACTUAL REG WAGES	432,482	216,241	219,014	(2,773)
RETIREMENT	66,381	33,190	32,649	541
HEALTH INSURANCE	63,596	31,798	36,160	(4,362)
WORKERS COMP	3,027	1,514	2,277	(764)
PAYROLL TAXES	8,367	4,183	3,781	403
MEMBER	0	0	496	(496)
SUBSCRIPTIONS	750	375	50	325
SPECIAL DEPT EXPENSE	7,000	3,500	566	2,934
TECH TRAINING	0	0	1,070	(1,070)
TRVL/MILEAGE/CONFERNC	3,500	1,750	713	1,037
OFF EXP-GENERAL	5,000	2,500	957	1,543
GAS & DIESEL	13,000	6,500	4,022	2,478
UNIFORM & SAFETY	900	450	0	450
LOGO SHIRTS	500	250	0	250
SMALL TOOLS	15,000	7,500	1,843	5,657
SAFETY SUPPLIES	500	250	0	250
RENT EQP-GEN	1,000	500	0	500
PRF SRVCS-GEN	245,000	122,500	28,231	94,269
SAWA REIMBURSEMENT	(102,116)	(51,058)	(29,925)	(21,133)
CHEM-FLOC	5,000	2,500	2,609	(109)
INTER-AGENCY AGREEMENT	15,000	7,500	0	7,500
MAINT EQ-GEN	2,500	1,250	146	1,104
MAINT EQ-VEH	4,000	2,000	614	1,386
MAINT EQ-HEAVY	4,000	2,000	698	1,302
MAINT S&I-GEN	455,000	227,500	219,469	8,031
	$ 1,249,387	$ 624,693	$ 525,441	$ 99,252
Grand Totals	**$ 61,786,269**	**$ 30,893,135**	**$ 29,441,013**	**$ 1,452,122**

AGENDA ITEM SUBMITTAL

Meeting Date: February 17, 2016

To: Board of Directors

From: Mike Markus

Staff Contact: G. Woodside/A. Hutchinson

Budgeted: N/A
Budgeted Amount: N/A
Cost Estimate: N/A
Funding Source: N/A
Program/Line Item No. N/A
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: Notice of Exemption

Subject: PUBLIC MEETING ON OCWD'S PROPOSED BULLETIN 118 BASIN BOUNDARY MODIFICATIONS

SUMMARY

On January 1, 2015, the Sustainable Groundwater Management Act (Act) took effect. In accordance with the Act, the Department of Water Resources (DWR) adopted emergency regulations that allow agencies to propose modifications to groundwater basin boundaries described in DWR's Bulletin 118. On January 21, OCWD notified DWR and stakeholders that it is exploring a scientific boundary modification to Basin 8-1, Coastal Plain of Orange County Groundwater Basin (OC Basin). The public meeting is to receive any comments from the public and affected agencies and to adopt a resolution to formally initiate the boundary modification request.

Attachment(s):

- Presentation
- Resolution to Designate the OCWD as a Requesting Agency to Conduct the Boundary Modification Process Pursuant to Emergency Basin Boundary Regulations (CCR, Title 23, Division 2, Chapter 1.5, Subchapter 1)

RECOMMENDATIONS

1. Conduct public meeting and receive public comments on proposed boundary modification.
2. Adopt resolution to approve the following:
    a. The Orange County Water District is authorized to act as a Requesting Agency for the boundary modification process for some or all of the OC Basin.
    b. The General Manager or his designee is authorized to be the Revision Request Manager for some or all of the OC Basin.
    c. The Revision Request Manager is authorized to submit to DWR a request to modify the boundaries of the OC Basin and to submit other required information to DWR in support of said boundary modification request.

d. District staff is authorized and directed to file a notice of exemption in accordance with the California Environmental Quality Act on the requested OC Basin boundary modification.

BACKGROUND/ANALYSIS

On September 16, 2014 Governor Brown signed three bills (SB1168, AB1739, and SB1319), which comprise the Sustainable Groundwater Management Act (Act). The Act was subsequently amended by SB13 which was signed into law on Sept 3, 2015

The Act requires that all high- and medium- priority basins designated by the Department of Water Resources (DWR) be sustainably managed by 2020 or 2022 depending on basin conditions. In June 2014, DWR published a report on basin prioritization and designated the Coastal Plain of Orange County Groundwater Basin (OC Basin) as a medium-priority basin. This was primarily due to heavy reliance on groundwater within the basin and how this was accounted for in the ranking system. It is not an indication that the basin needs to be managed differently.

The Act directed DWR to develop regulations to allow agencies to propose modifications to the boundaries of groundwater basins described in DWR's Bulletin 118. The regulations, which became effective on November 16, 2015, can be found in the California Code of Regulations (CCR), Title 23, Division 2, Chapter 1.5, Subchapter 1.

Two basic types of basin boundary modifications are identified in the regulation:

- Scientific
- Jurisdictional

A scientific modification to a basin or subbasin boundary involves the addition, deletion, or relocation of a boundary based on the geologic or hydrologic conditions that define a groundwater basin or subbasin. Jurisdictional modifications involve the addition, deletion, or relocation of a basin or subbasin boundary that is not a scientific modification but promotes sustainable groundwater management.

The emergency regulation defines a process for public notification and input on boundary modification requests. Table 1 summarizes the steps and timing included in the boundary modification process for the OC Basin.

As shown on Table 1, OCWD notified DWR of its intent to explore modifications to the boundary of the OC Basin on January 21, 2016. At the same time, information about the proposed boundary modification was made available on OCWD's website. On January 26, 2016 all OCWD water supply agencies as well as agencies that could be affected were notified by registered mail. Table 2 lists the agencies contacted by mail.

Public comments on the proposed OC Basin boundary modification will be received by OCWD until the conclusion of the public meeting. Following the public meeting, OCWD will submit the required information to DWR, including the required board resolution and public comments. Once DWR deems the request complete, OCWD will notify the stakeholders previously contacted as well as any other interested parties within the

required 5 working days to let them know how they can provide public comment directly to DWR. DWR will provide a 30 day window for the public to provide comment on the OCWD's request.

Table 1
Basin 8-1 Boundary Modification Process and Timing

Step	Process	Time
1	OCWD notifies DWR that it is exploring basin boundary modifications.	Jan. 21, 2016
2	OCWD posts proposed boundary modification on OCWD website	Jan. 21, 2016
3	OCWD notifies local agencies affected by the proposed boundary modification by registered mail.	Jan. 26, 2016
4	OCWD holds public meeting to receive public input and comments.	Feb. 17, 2016
5	OCWD adopts resolution formally requesting the boundary modification.	Feb. 17, 2016
6	File notice of exemption per CEQA guidelines.	February 2016
7	Submit required information to DWR to support boundary modification	By March 31, 2016
8	DWR assesses boundary modification request for completeness	Spring 2016*
9	DWR deems boundary modification request complete	Spring/Summer 2016*
10	OCWD notifies all stakeholders that request is complete and how to provide public input to DWR regarding request. Public has 30 days to provide written comments to DWR.	Summer/Fall 2016*

*Estimated

Proposed Modifications to Basin 8-1 Boundaries

The first Bulletin 118 was published in 1975. The boundaries established for Basin 8-1, the Coastal Plain of Orange County Groundwater Basin (OC Basin), have significant off-sets in some areas from current geographic information system (GIS) data. This off-set could be due to distortions caused by digitizing maps created in the 1970s and then projecting them onto current GIS base maps.

To improve the accuracy of the OC Basin boundary, staff reviewed available geologic information and modified the boundary as shown on Figure 1. The proposed modifications are consistent with the written description of the basin in Bulletin 118. Since these modifications are based on geologic and hydrogeologic data, the proposed change is classified as a scientific boundary modification.

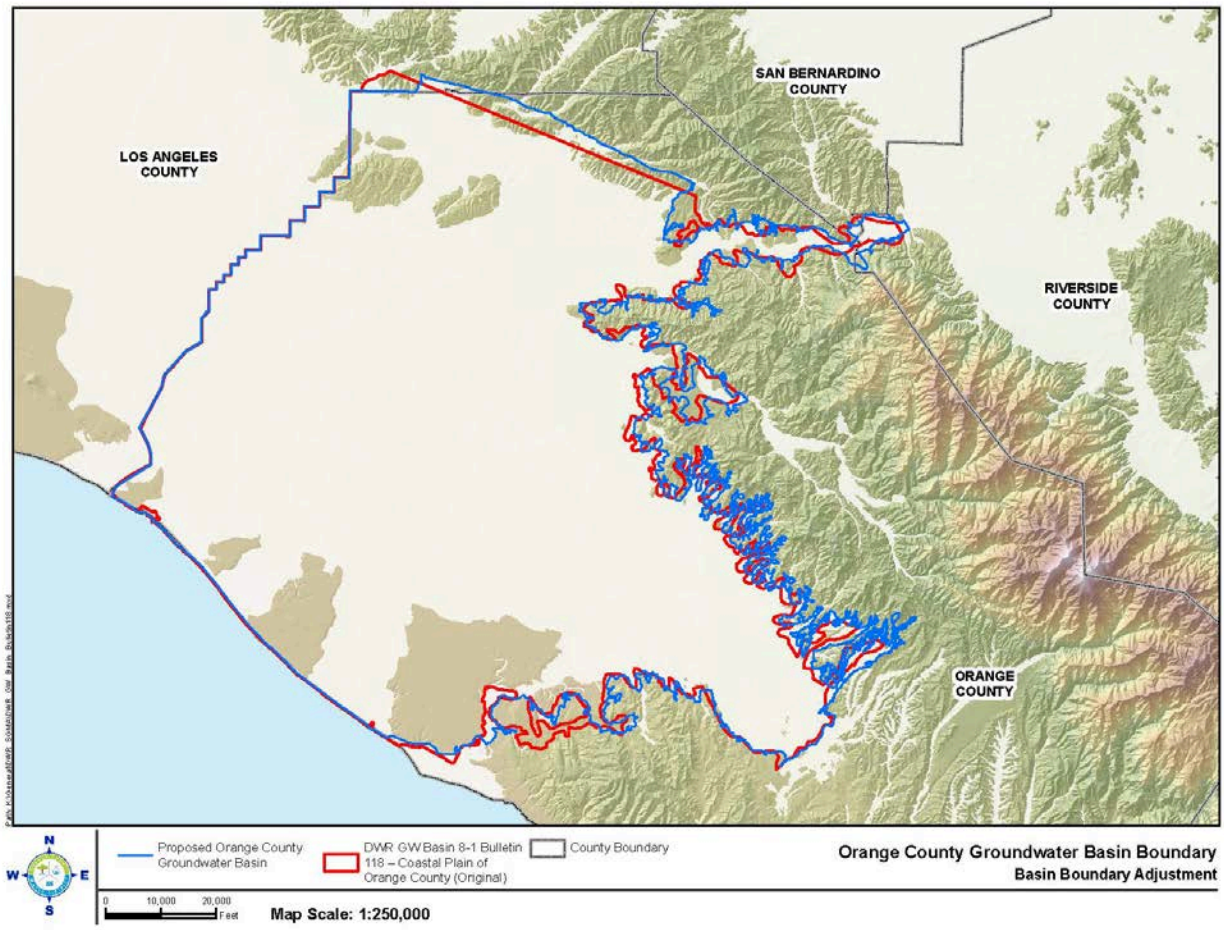


Figure 1
Current (Red) and Proposed (Blue) Bulletin 118 Boundary, Coastal Plain of Orange County Groundwater Basin (Basin 8-1)

Proposed Boundary Change by City of La Habra

The City of La Habra is also proposing to modify the basin boundaries to create a new La Habra Basin as a separate basin or as a subbasin of the OC Basin. Figure 2 shows the approximate extent of the proposed La Habra Basin/Subbasin. The proposed La Habra Basin/Subbasin would include the city limits of La Habra and Brea. This proposed boundary change is considered a jurisdictional modification. To achieve a jurisdictional boundary modification, La Habra must obtain the support of at least 75 percent of the local agencies and public water systems within the OC Basin. To this end, it is anticipated that La Habra will approach OCWD and other local agencies within the OC Basin to obtain support for their proposed jurisdictional boundary modification.

OCWD, Fullerton, Brea and La Habra have discussed OCWD's proposed OC Basin boundary modification. La Habra has expressed interest in further modifying the northernmost portion of the boundary that follows the approximate trace of the Whittier Fault zone. Fullerton and OCWD expressed interest in excluding the small portion of Fullerton that is outside of OCWD's boundary from the proposed La Habra Basin/Subbasin. OCWD, Fullerton, Brea and La Habra will continue discussing potential

adjustments to OCWD's OC Basin boundary modification request before it is finally submitted to DWR.

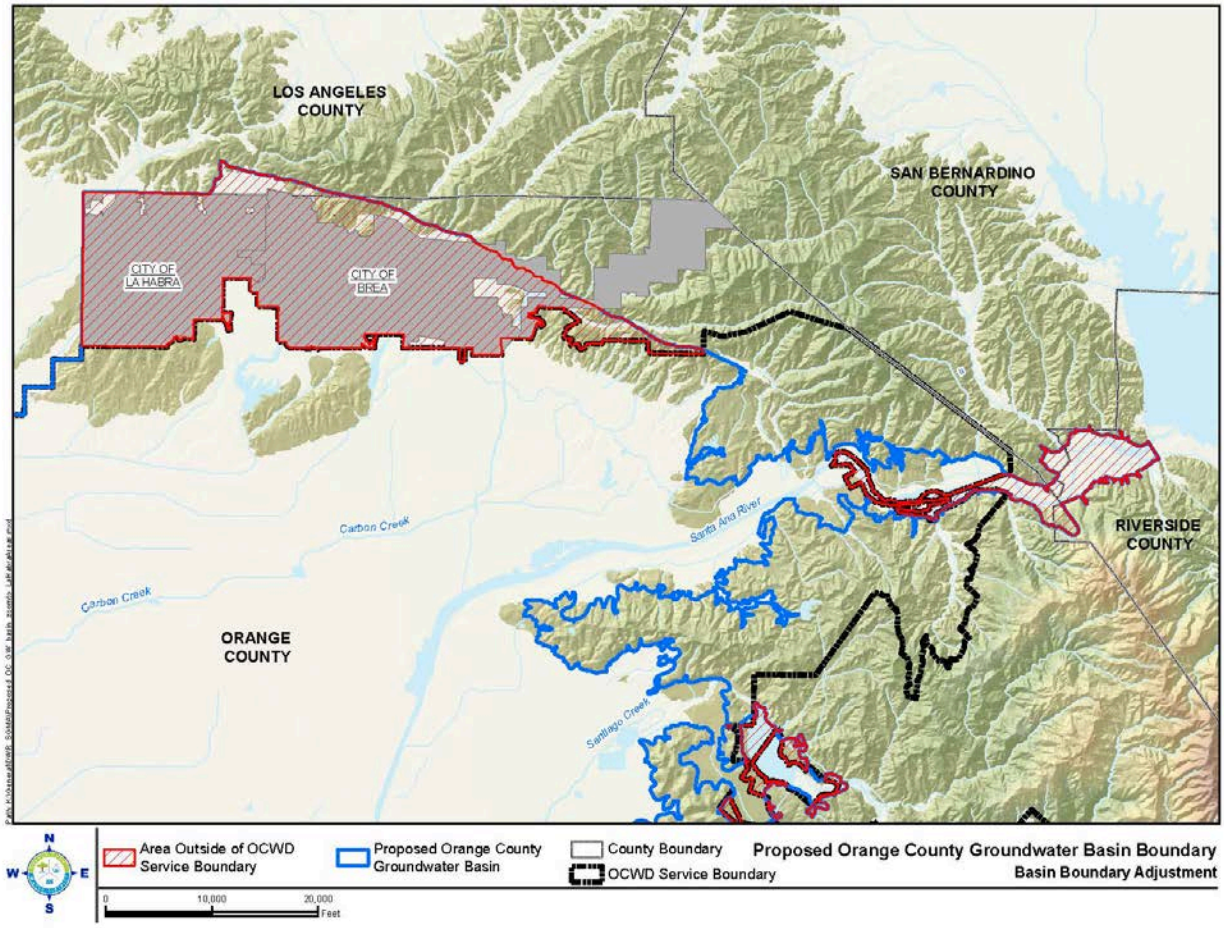


Figure 2
Approximate Extent of Proposed La Habra Basin/Subbasin

PRIOR RELEVANT BOARD ACTION(S)

1-20-16, M16-XXX. Authorize staff to notify DWR and local agencies of its decision to explore scientific boundary modifications to Bulletin 118, Basin 8-1, Coastal Plain of Orange County Groundwater Basin.

10-15-14, M14-160 Direct staff to Identify Steps for Managing Groundwater Outside of District Boundaries (Sustainable Groundwater Management Act)

8-20-14, M14-119 Adopt Support if Amended Position on State Legislation - SB1168/ AB1739 (Groundwater Management Legislation)

7-16-14, R14-7-104 Adopt Groundwater Management Legislation Policy Principles

Table 2
List of Agencies Contacted Re. Proposed Modification to Bulletin 118 Basin 8-1 (OC Basin)*
Requesting Agency: Orange County Water District Agency

City of Anaheim
City of Brea
City of Buena Park
City of Corona
City of Fountain Valley
City of Fullerton
City of Garden Grove
City of Huntington Beach
City of La Habra
City of La Palma
City of Newport Beach
City of Orange
City of Santa Ana
City of Seal Beach
City of Tustin
City of Westminster
County of Orange
East Orange County Water District
El Toro Water District
Golden State Water Company
Irvine Ranch Water District
Mesa Water District
Municipal Water District of Orange County
Orange County Water District
County of Riverside
San Bernardino County
Serrano Water District
Water Replenishment District of Southern California (Central Basin Watermaster)
Yorba Linda Water District

* Agencies/Water Systems listed are either entirely within the OC Basin or have part of their jurisdiction within or adjacent to the OC Basin.

Public Meeting on OCWD's Proposed Bulletin 118 Basin Boundary Modifications

Board of Directors Meeting

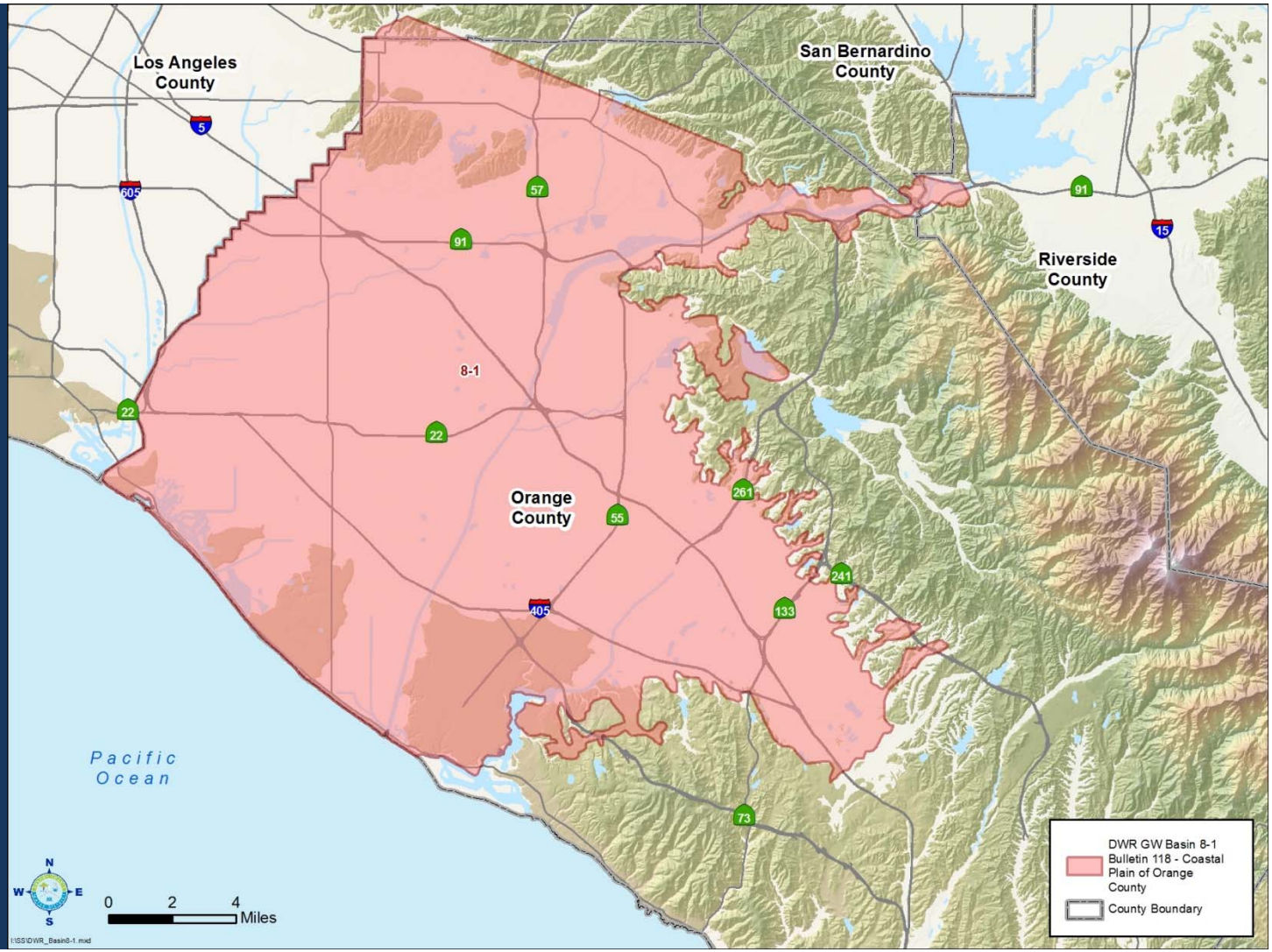
February 17, 2016

SGMA directed DWR to develop emergency regulations to allow Bulletin 118 boundaries to be modified

- SGMA recognized need for some agencies to modify basin boundaries prior to GSA formation
- Two types of boundary modifications:
  - Scientific
  - Jurisdictional
- Window to submit boundary modifications: Jan. 1-March 31, 2016

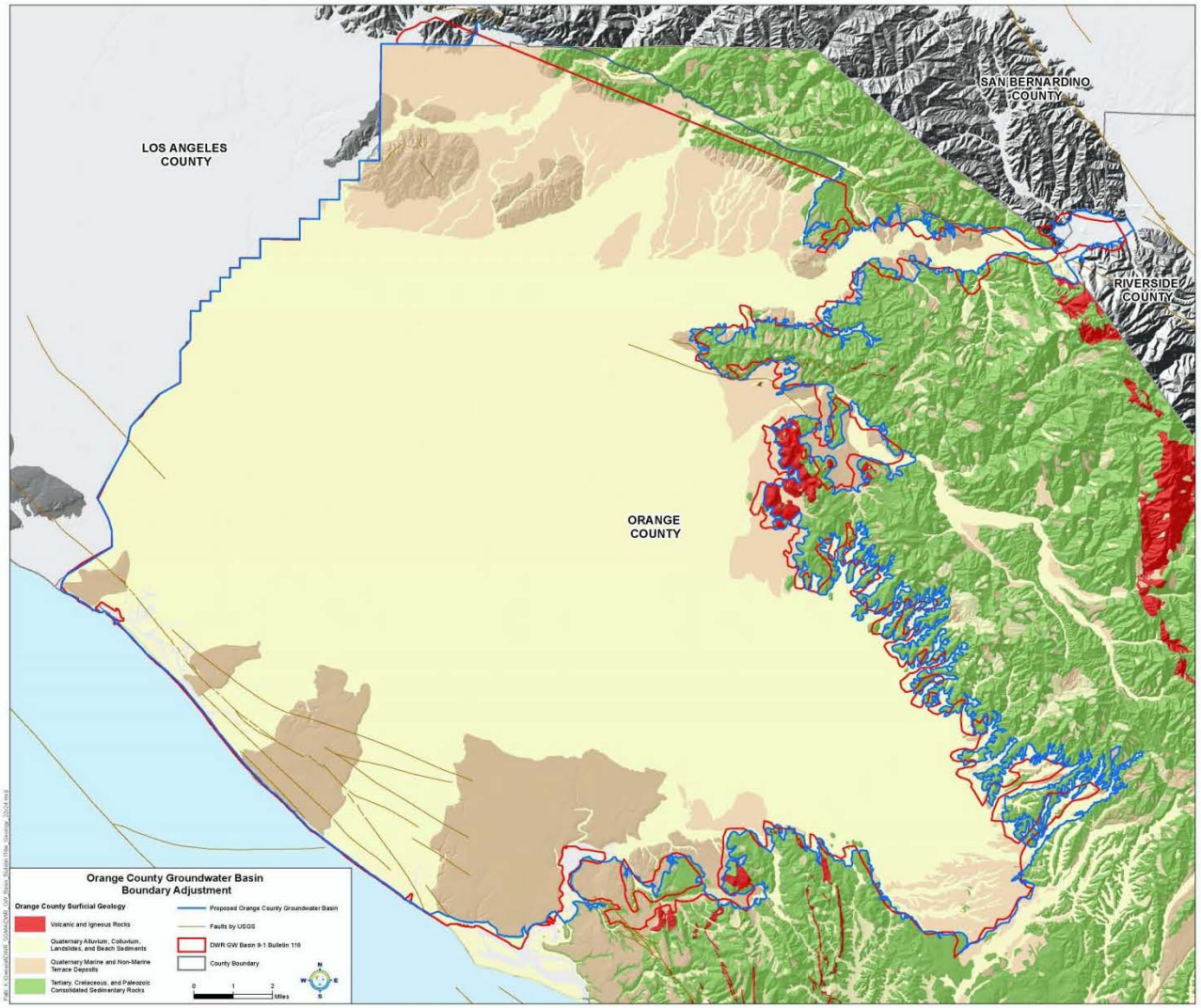
First Bulletin 118 published in 1975. Boundaries modified from 1952 DWR report.

Basin 8-1 (OC Basin) includes portions of Orange, Riverside and San Bernardino Counties.

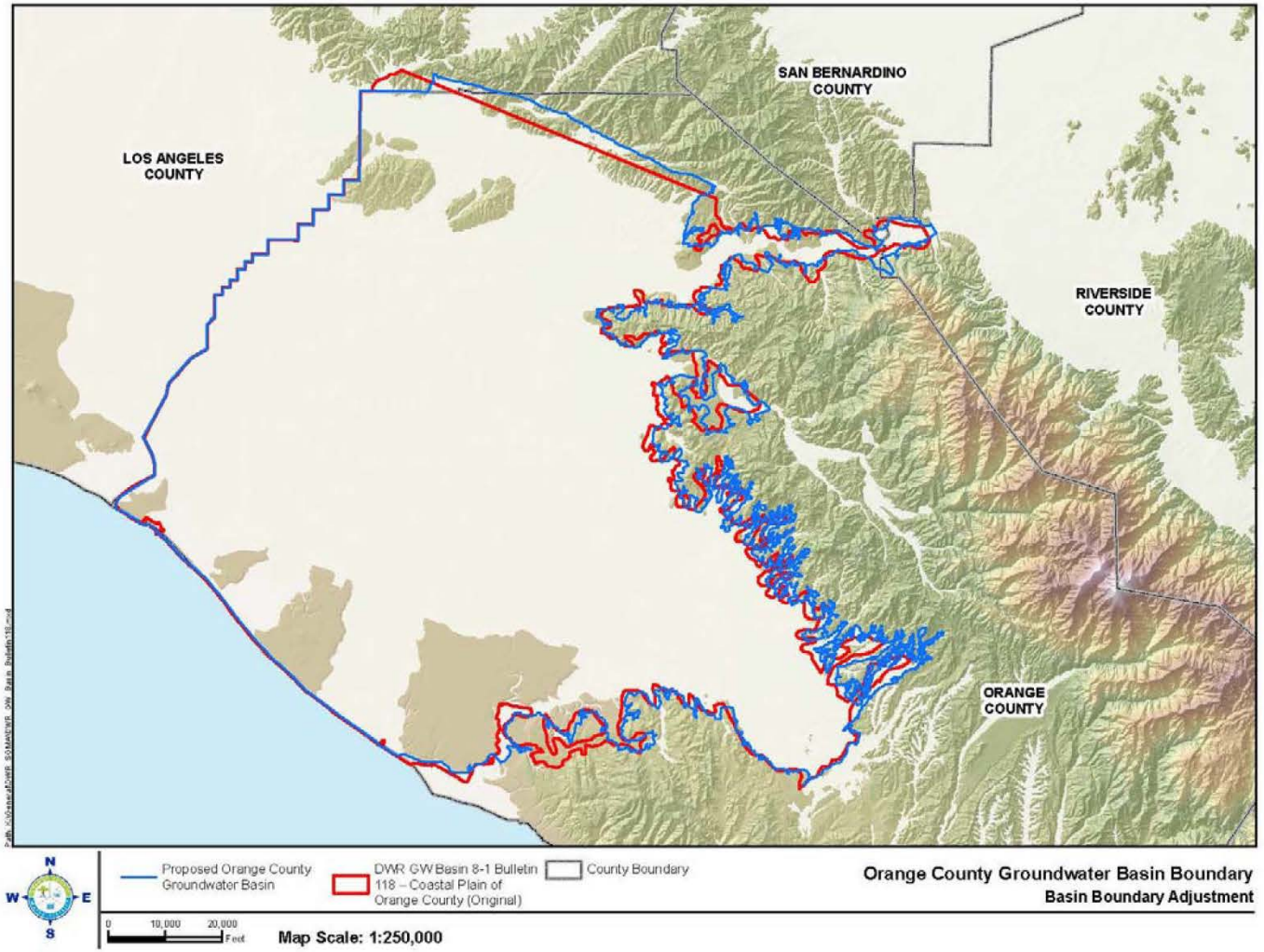


OCWD staff compared OC Basin boundary with existing geologic maps.

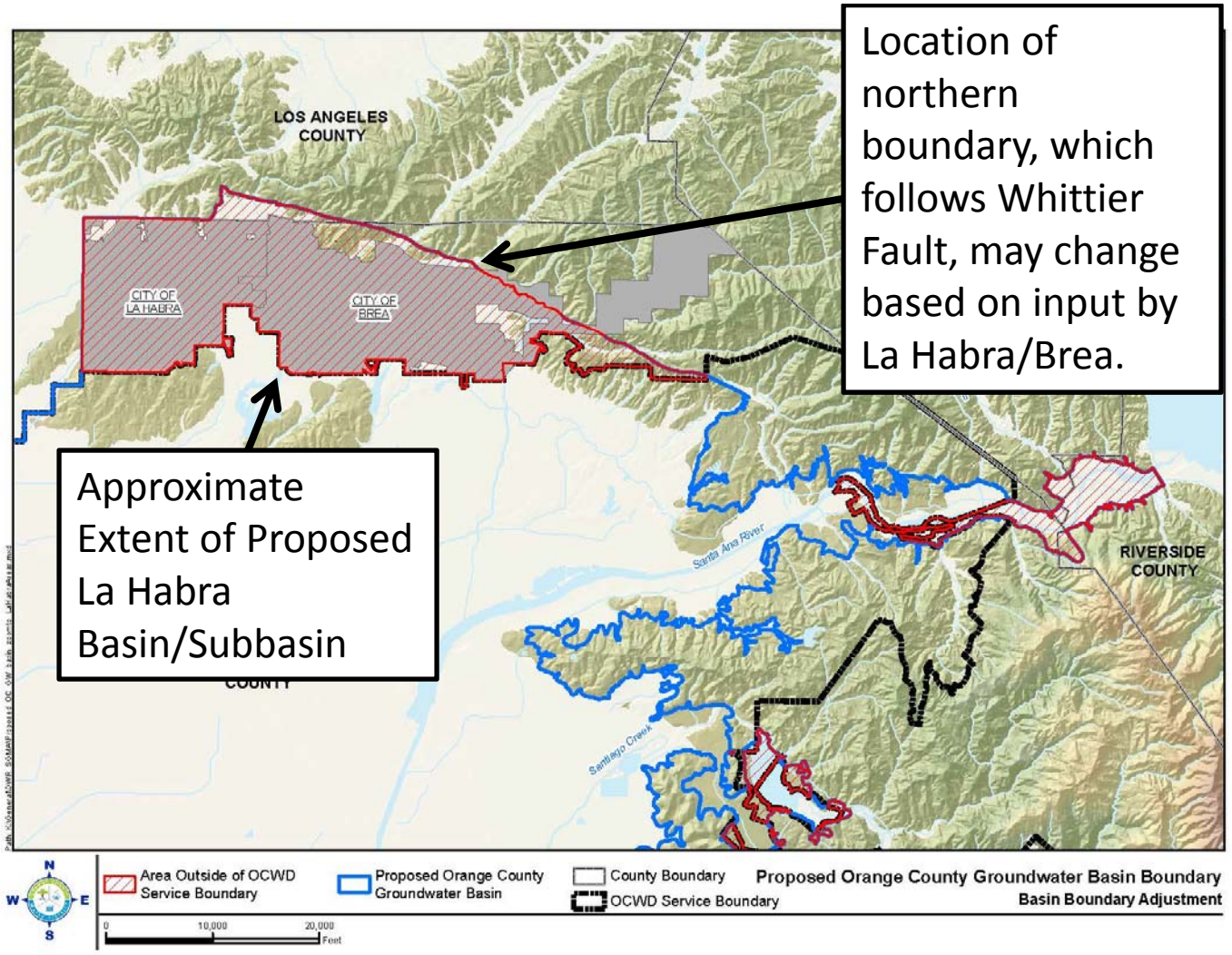
Modifications were made to be consistent with the written description in Bulletin 118 and existing geologic maps.



Proposed boundary modification has been presented for public review and comment.



The City of La Habra is also exploring modifying the basin boundaries to create the "La Habra Basin/ Sub-basin."



Modification Process/Timeline

Date	Actions
January 21, 2016	• Notify DWR of pending boundary modification request • Post proposed modification on OCWD website
January 26, 2016	• Notify by mail groundwater producers, other agencies, and interested stakeholders
February 17, 2016	• Public meeting on proposed boundary modification • Adopt resolution formally requesting boundary modification
February-March 2016	Submit required information to DWR
Spring/Summer 2016	DWR makes notifies application is complete, OCWD has 5 working days to notify stakeholders
Spring/Summer 2016	30 day comment period by DWR is opened

Letters were sent to all OCWD groundwater producers and other potentially affected agencies.

City of Anaheim
City of Brea
City of Buena Park
City of Corona
City of Fountain Valley
City of Fullerton
City of Garden Grove
City of Huntington Beach
City of La Habra
City of La Palma
City of Newport Beach
City of Orange
City of Santa Ana
City of Seal Beach
City of Tustin

City of Westminster
County of Orange
East Orange County Water District
El Toro Water District
Golden State Water Company
Irvine Ranch Water District
Mesa Water District
Municipal Water Disrict of Orange County
Orange County Water District
County of Riverside
San Bernardino County
Serrano Water District
Water Replenishment District of Southern California (Central Basin Watermaster)
Yorba Linda Water District

Regulation requires submission of a resolution from the requesting agency.

- Resolution authorizes the following:

1. The Orange County Water District is authorized to act as a Requesting Agency for the boundary modification process for some or all of the OC Basin.

2. The General Manager or his designee is authorized to be the Revision Request Manager for some or all of the OC Basin.

3. The Revision Request Manager is authorized to submit to DWR a request to modify the boundaries of the OC Basin and to submit other required information to DWR in support of said boundary modification request.

4. District staff is authorized and directed to file a notice of exemption in accordance with the California Environmental Quality Act on the requested OC Basin boundary modification.

Recommendations

1. Conduct public meeting and receive comments on proposed boundary modification.
2. Adopt Resolution to Designate the OCWD as a Requesting Agency to Conduct the Boundary Modification Process Pursuant to Emergency Basin Boundary Regulations.

RESOLUTION OF THE
BOARD OF DIRECTORS OF THE ORANGE COUNTY WATER DISTRICT
STATE OF CALIFORNIA
RESOLUTION TO DESIGNATE THE ORANGE COUNTY WATER DISTRICT AS A REQUESTING AGENCY TO CONDUCT THE BOUNDARY MODIFICATION PROCESS PURSUANT TO EMERGENCY BASIN BOUNDARY REGULATIONS
(CCR, Title 23, Division 2, Chapter 1.5, Subchapter 1)
RESOLUTION NO._____

WHEREAS, Governor Jerry Brown signed into law Senate Bills 1168 and 1319 and Assembly Bill 1739, collectively comprising the Sustainable Groundwater Management Act (SGMA), which took effect on January 1, 2015; and,

WHEREAS, the SGMA requires all high and medium priority groundwater basins as designated by the Department of Water Resources (DWR) to undergo a process leading to sustainable management; and,

WHEREAS, the SGMA has designated the Orange County Water District as the exclusive local agency within their statutory boundaries to comply with SGMA (Water Code Section 10723 (c)); and,

WHEREAS, the SGMA requires DWR to develop emergency regulations describing the process for requesting changes to Bulletin 118 groundwater basin boundaries; and,

WHEREAS, the emergency regulations were adopted and incorporated into the CCR in Title 23, Division 2, Chapter 1.5, Subchapter 1; and,

WHEREAS, DWR has provided a 90-day window beginning January 1, 2016 for Requesting Agencies to apply for modifications to Bulletin 118 groundwater basin boundaries; and,

WHEREAS, the Orange County Water District has consulted with and has been working with other affected Counties, local agencies, public water systems, and stakeholders that are within or adjacent to the Coastal Plain of Orange County Groundwater Basin, designated in DWR Bulletin 118 as Basin 8-1 (OC Basin); and,

WHEREAS, a resolution by the Requesting Agency will be required by DWR to formally initiate the boundary modification process; and,

WHEREAS, a Revision Request Manager will be required by DWR to represent the Requesting Agency and serve as the point of contact between the Requesting Agency and DWR; and

WHEREAS, District staff have determined that the proposed request to modify the boundaries of the OC Basin is exempt from the requirements of the California Environmental Quality Act (CEQA) pursuant to State CEQA Guideline §15378 (b)(5) because the actions authorized herein are organizational or administrative activities that will not result in direct or indirect physical changes in the environment; and,

WHEREAS, on February 17, 2016, the Board of Directors of the District conducted a public meeting and considered the testimony and evidence presented at that public meeting.

NOW, THEREFORE, BE IT RESOLVED AND HEREBY ORDERED that the Orange County Water District Board of Directors approves the following:

1. The Orange County Water District is authorized to act as a Requesting Agency for the boundary modification process for some or all of the OC Basin.

2. The General Manager or his designee is authorized to be the Revision Request Manager for some or all of the OC Basin.

3. The Revision Request Manager is authorized to submit to DWR a request to modify the boundaries of the OC Basin and to submit other required information to DWR in support of said boundary modification request.

4. District staff is authorized and directed to file a notice of exemption in accordance with the California Environmental Quality Act on the requested OC Basin boundary modification.

PASSED, APPROVED, AND ADOPTED by the Board of Directors of the Orange County Water District, State of California, on this _____day of _____, 2016 by the following vote:

AYES:
NAYS:
ABSENT:
ABSTAIN:

ATTEST: ACCEPTED AND AGREED:
JANICE DURANT, DISTRICT SECRETARY OF THE ORANGE COUNTY WATER DISTRICT

By:

By:
President Cathy Green, Board of Directors

APPROVED AS TO FORM:
JOEL KUPERBERG
GENERAL COUNSEL

By:

AGENDA ITEM SUBMITTAL

Meeting Date: February 17, 2016

To: Board of Directors

From: Mike Markus

Staff Contact: J. Kennedy

Budgeted: N/A
Budgeted Amount: N/A
Cost Estimate: N/A
Funding Source: N/A
Program/ Line Item No. N/A
General Counsel Approval: N/A
Engineers/Feasibility Report: N/A
CEQA Compliance: N/A

Subject: FUTURE PROJECED TOTAL WATER DEMANDS

SUMMARY

The Municipal Water District of Orange County (MWDOC) has a contract with CDM Smith to assist in preparing an Orange County Water Reliability Report. Part of this work is to predict future water demands. The CDM Smith study has been completed in a manner that allows future expected water demands within the OCWD service territory to be separately extracted. Dan Rodrigo, the CDM Smith principle in charge of this work, has been invited to present that information to the Board.

Attachment(s):

- CDM Smith Draft Technical Memorandum #1
- Presentation material

RECOMMENDATION

Provide comments and feedback to staff

BACKGROUND/ANALYSIS

The Draft CDM Smith Technical Memorandum #1 is attached for review. The memorandum describes the methodology for predicting future water demands.

PRIOR RELEVANT BOARD ACTION(S) N/A

Draft Technical Memorandum #1

To: *Karl Seckel, Assistant Manager/District Engineer*
Municipal Water District of Orange County

From: *Dan Rodrigo, Senior Vice President, CDM Smith*

Date: *December 23, 2015*

Subject: Orange County Reliability Study, Water Demand Forecast and Supply Gap Analysis

Introduction

In December 2014, the Municipal Water District of Orange County (MWDOC) initiated the Orange County Reliability Study (OC Study) to comprehensively evaluate current and future water supply and system reliability for all of Orange County. To estimate the range of potential water supply gap (difference between forecasted water demands and all available water supplies), CDM Smith developed an OC Water Supply Simulation Model (OC Model) using the commercially available Water Evaluation and Planning (WEAP) software. WEAP is a simulation model maintained by the Stockholm Environment Institute (http://www.sei-us.org/weap) that is used by water agencies around the globe for water supply planning, including the California Department of Water Resources.

The OC Model uses indexed-sequential simulation to compare water demands and supplies now and into the future. For all components of the simulation (e.g., water demands, regional and local supplies) the OC Model maintains a given index (e.g., the year 1990 is the same for regional water demands, as well as supply from Northern California and Colorado River) and the sequence of historical hydrology. The planning horizon of the model is from 2015 to 2040 (25 years). Using the historical hydrology from 1922 to 2014, 93 separate 25-year sequences are used to generate data on reliability and ending period storage/overdraft. For example, sequence one of the simulation maps historical hydrologic year 1922 to forecast year 2015, then 1923 maps to 2016 … and 1947 maps to 2040. Sequence two shifts this one year, so 1923 maps to 2015 … and 1948 maps to 2040.

The OC Model estimates overall supply reliability for MET using a similar approach that MET has utilized in its 2015 Draft Integrated Resources Plan (MET IRP). The model then allocates available imported water to Orange County for direct and replenishment needs. Within Orange County, the OC Model simulates water demands and local supplies for three areas: (1) Brea/La Habra; (2) Orange County Basin; (3) South County; plus a Total OC summary. The OC Model also simulates operations of the Orange County Groundwater Basin (OC Basin) managed by the Orange County Water District (OCWD). Figure 1 presents the overall model schematic for the OC Model, while Figure 2 presents the inflows and pumping variables included in the OC Basin component of the OC

Model. A detailed description of the OC Model, its inputs, and all technical calculations is documented in Technical Memorandum #2: Development of OC Supply Simulation Model.

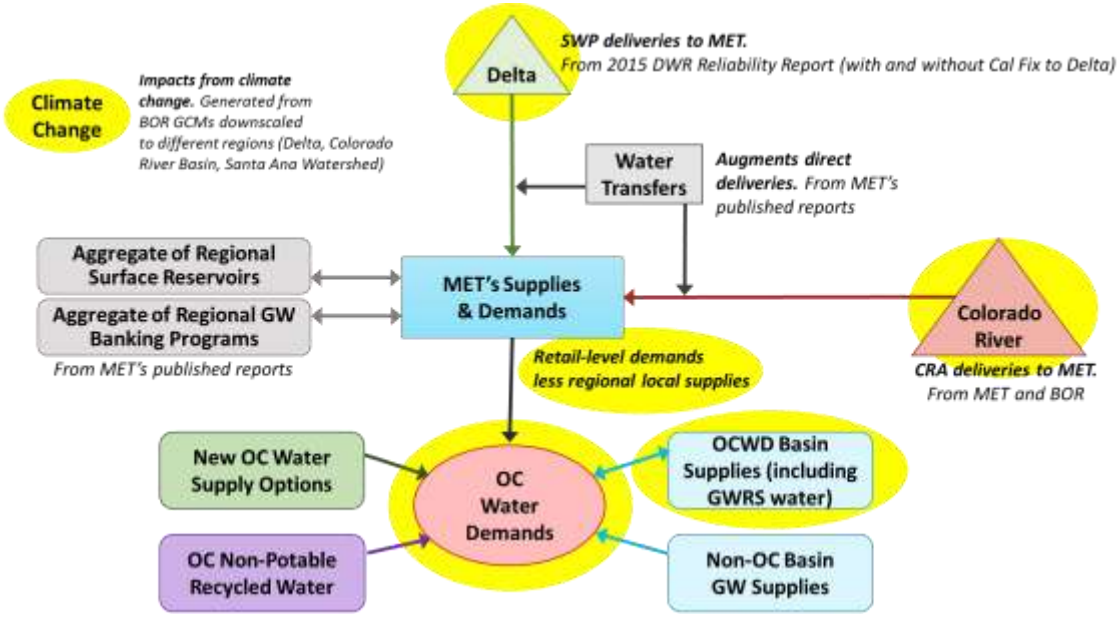


Figure 1. Overall Schematic for OC Model

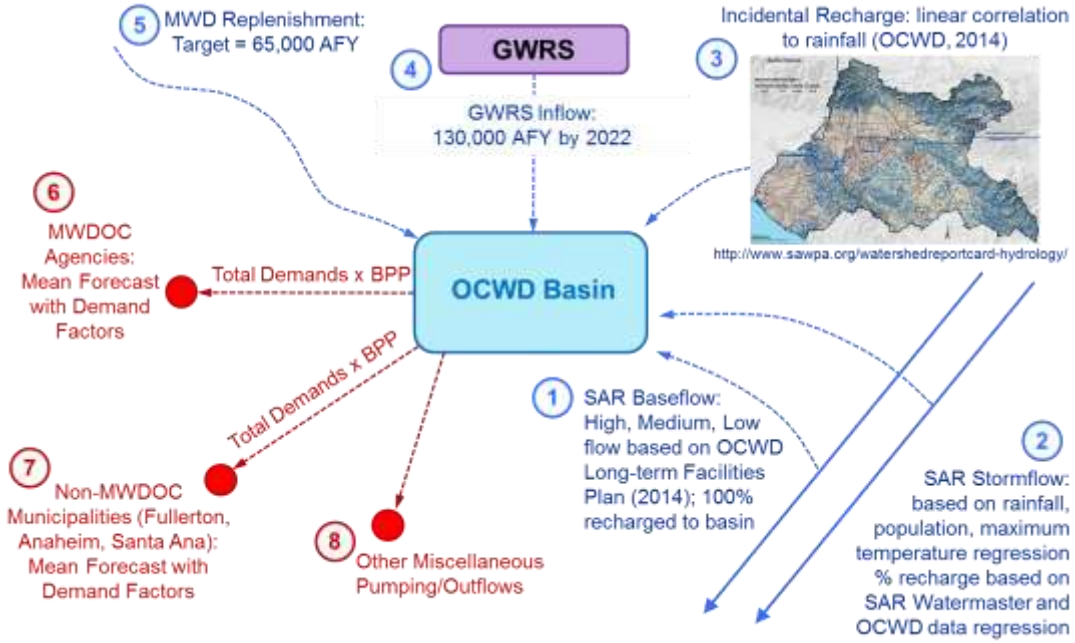


Figure 2. Inflows and Pumping Variables for OC Basin Component of OC Model

This technical memorandum summarizes the water demand forecast for Orange County and the water supply gap analysis that was generated using the OC Model. The outline for this technical memorandum is as follows:

- Section 1: Water Demand Forecast for Orange County
- Section 2: Planning Scenarios
- Section 3: Water Supply Gap
- Section 4: Conclusions
- Section 5: References

Section 1.0 Water Demand Forecast for Orange County

The methodology for the water demand forecast uses a modified water unit use approach. In this approach, water unit use factors are derived from a baseline condition using a sample of water agency billing data and demographic data. In early 2015, a survey was sent by MWDOC to all water agencies in Orange County requesting Fiscal Year (FY) 2013-14 water use by billing category (e.g., single-family residential, multifamily residential, and non-residential). In parallel, the Center for Demographic Research (CDR) in Orange County provided current and projected demographics for each water agency in Orange County using GIS shape files of agency service areas. Water agencies were then placed into their respective areas (Brea/La Habra, OC Basin, South County), and water use by billing category were summed and divided by the relevant demographic (e.g., single-family water use ÷ single-family households) in order to get a water unit use factor (expressed as gallons per day/demographic unit).

In addition, the water agency survey collected information on total water production. Where provided, the difference between total water production and billed water use is considered non-revenue water. Table 1 summarizes the results of the water agency survey information and calculates the water unit use factors for the three areas within Orange County.

To understand the historical variation in water use and to isolate the impacts that weather and future climate has on water demand, a statistical model of monthly water production was developed. The explanatory variables used for this statistical model included population, temperature, precipitation, unemployment rate, presence of mandatory drought restrictions on water use, and a cumulative measure of passive and active conservation. Figure 3 presents the results of the statistical model for the three areas and the total county. All models had relatively high correlations and good significance in explanatory variables. Figure 4 shows how certain variables impact water use for the three areas and the total county.

Table 1. Water Use Factors from Survey of Water Agencies in Orange County (FY 2013-14)

	SF Res		MF Res		Com/Instit.		Indust.		Non Revenue	
	Units[1]	Unit Use[2]	Units	Unit Use	Units	Unit Use	Units	Unit Use	total acc	%
Basin Area										
ANAHEIM	50,030	441	58,618	193	169,902	90	19,260	160	63,004	7%
BUENA PARK	16,455	346	8,600	224	31,566	137	4,837	39	19,004	11%
FOUNTAIN VALLEY	12,713	336	6,964	141	30,282	124	2,093	134	17,149	13%
FULLERTON	26,274	454	22,575	176	60,839	115	6,251	398	31,557	5%
GARDEN GROVE	31,400	422	17,580	295	48,394	134	7,221	163	No data	
GSWC	38,038	383	17,218	215	58,901	122	6,857	68		
HUNTINGTON BEACH	44,605	297	35,964	154	69,266	99	10,355	58	52,855	6%
IRVINE RANCH WATER DISTRICT	39,182	444	80,854	196	263,393	80	39,484	207	85,508	9%
MESA WATER DISTRICT	16,585	320	23,173	215	80,999	97	4,832	87	No data	
NEWPORT BEACH	19,455	329	15,517	177	59,754	86			26,517	5%
ORANGE	28,545	470	15,483	246	96,606	97	No data		35,363	9%
SANTA ANA	35,547	461	42,027	288	151,008	96			No data	
TUSTIN	11,788	505	9,435	253	25,265	79	1,293	92	14,178	3%
WESTMINSTER	17,648	318	10,973	215	24,148	109	976	84	20,379	5%
YORBA LINDA WATER DISTRICT	22,046	586	3,746	249	22,164	120	2,745	230	No data	
Weighted Average		**411**		**211**		**97**		**167**		**7.3%**
South County										
IRVINE RANCH WATER DISTRICT	16,581	444	12,864	196	32,554	80			22,730	9%
MOULTON NIGUEL WATER DISTRICT	47,673	345	17,077	189	70,067	156	Included in		55,149	10%
SAN CLEMENTE	12,047	361	9,045	186	22,921	119	commerical/		No data	
SAN JUAN CAPISTRANO	7,176	502	6,146	206	16,483	158	institutional		11,277	3%
SANTA MARGARITA WATER DISTRICT	36,022	436	19,885	268	37,241	254	category		54,129	2%
Weighted Average		**397**		**216**		**158**				**65%**
Brea/La Habra										
BREA	9,094	425	6,898	160	42,654	93	5,931	140	No data	
LA HABRA	11,995	436	8,051	177	17,331	90	680	135	13,674	6%
Weighted Average		**431.06**		**169.31**		**92.13**		**139.49**		**6%**

[1]Units represent:
SF Res = SF accounts or SF housing (CDR) if SF account data looks questionable.
MF Res = total housing (CDR) minus SF units.
Com/Instit = total employment (CDR) minus industrial employment (CDR).
Industrial = industrial employment (CDR).

[2]Unit Use represents billed water consumption (gallons/day) divided by units.

Regression Parameters	Basin Area	South Orange County	Brea / La Habra	OC Total
Adjusted R^2 *	0.90	0.91	0.89	0.91
Standard Error **	0.07	0.09	0.09	0.07
Explanatory Variable Significance***	All at <0.0001	All at <0.0001	All at <0.0001	All at <0.0001

* Adjusted R^2 greater than 0.70 considered good overall correlation.
** Standard Errors less than 0.10 considered good overall predictive models.
*** Explanatory Variables are considered statistically significant (valid) at the 0.05 level or less.

Figure 3. Results of Statistical Regression of Monthly Water Production

Impacts (% impact on per capita use)	Basin Area	South Orange County	Brea / La Habra	OC Total
Hot/Dry Weather*	+6%	+9%	+6%	+6%
Cool/Wet Weather**	-4%	-7%	-5%	-5%
Economic Recession***	-13%	-12%	-13%	-13%
Drought Conservation	-6%	-5%	-5%	-6%
Passive/Active Cons. (Since 1990)	-20%	-17%	-7%	-19%

*FY 2013-14 for Hot/Dry Weather, relative to average (1990-2014).
**FY 1997-98 for Cool/Wet Weather, relative to average (1990-2014).
*** Comparing unemployment for FY 2009-10 to average (1990-2014).

Figure 4. Impacts of Key Variables on Water Use

1.1 Base Demand Forecast (No Additional Conservation)

For the purposes of this analysis three types of water conservation were defined. The first type is passive conservation, which results from codes and ordinances, such plumbing codes or model landscape water efficient ordinances. This type of conservation requires no financial incentives and grows over time based on new housing stock and remodeling of existing homes. The second type is active conservation, which requires incentives for participation. The SoCal Water$mart grant that is administered by MET, through its member agencies, provides financial incentives for approved active water conservation programs such as high efficiency toilets and clothes washer retrofits. The third type is extraordinary conservation that results from mandatory restrictions on water use during extreme droughts. This type of conservation is mainly behavioral, in that water customers change how and when they use water in response to the mandatory restrictions. In droughts past, this type of extraordinary conservation has completely dissipated once water use restrictions were lifted—in other words curtailed water demands fully bounced back to pre-curtailment use levels.

The great California Drought, which started around 2010, has been one of the worst droughts on record. It has been unique in that for the last two years most of the state has been classified as extreme drought conditions. In response to this epic drought, Governor Jerry Brown instituted the first-ever statewide call for mandatory water use restrictions in April 2015, with a target reduction of 25 percent. Water customers across the state responded to this mandate, with most water agencies seeing water demands reduced by 15 to 30 percent during the summer of 2015. Water agencies in Southern California also ramped up incentives for turf removal during this time. Because of the unprecedented nature of the drought, the statewide call for mandatory water use restrictions, and the success of turf removal incentives it was assumed that the bounce back in water use after water use restrictions are lifted would take longer and not fully recover. For this study, it was assumed that unit use rates would take 10 years to get to 90 percent of pre-drought

water use levels. After 10 years, it was assumed that water unit use rates would remain at 90 percent of pre-drought use levels throughout the planning period—reflecting a long-term shift in water demands. Table 2 presents the assumed bounce back in water unit use rates (derived from Table 1) for this drought.

Table 2. Bounce Back in Water Unit Use from Great California Drought

Water Billing Sector	Time Period	Brea/La Habra Unit Use (gal/day)	OC Basin Unit Use (gal/day)	South County Unit Use (gal/day)
Single-Family Residential	2015	431	411	397
	2020	366	349	337
	2025 to 2040	388	369	357
Multifamily Residential	2015	169	211	216
	2020	144	179	183
	2025 to 2040	152	190	194
Commercial *(or combined commercial/ industrial for South County)*	2015	92	97	158
	2020	78	83	134
	2025 to 2040	83	87	142
Industrial	2015	139	167	NA
	2020	119	142	NA
	2025 to 2040	126	150	NA

* Units for single-family and multifamily are households, units for commercial and industrial are employment.

Table 3 presents the demographic projections from CDR for the three areas. These projections were made right after the most severe economic recession in the United States and might be considered low given that fact. In fact, *draft* 2015 demographic forecasts do show higher numbers for 2040.

Table 3. Demographic Projections

Demographic	Time Period	Brea/La Habra	OC Basin	South County	Total Orange County
Single-Family Housing	2020	20,463	386,324	133,989	540,776
	2030	20,470	389,734	138,709	548,913
	2040	20,512	392,387	142,008	554,907
Multifamily Housing	2020	18,561	453,758	118,306	590,625
	2030	19,113	468,972	125,030	613,115
	2040	19,585	478,362	126,736	624,683
Commercial Employment *(or combined commercial/ industrial employment for South County)*	2020	63,909	1,254,415	255,050	1,573,374
	2030	64,961	1,304,353	266,553	1,635,867
	2040	65,743	1,343,509	271,808	1,681,060
Industrial Employment	2020	6,583	138,474	NA	145,057
	2030	6,552	137,763	NA	144,315
	2040	6,523	137,066	NA	143,589

To determine the water demand forecast with no additional (post 2014) water conservation, the water unit use factors in Table 2 are multiplied by the demographic projections in Table 3; then a non-revenue percentage is added to account for total water use (see Table 1 for non-revenue water percentage). These should be considered normal weather water demands. Using the statistical results shown back in Figure 4, demands during dry years would be 6 to 9 percent greater; while during wet years demands would be 4 to 7 percent lower. Table 4 summarizes the demand forecast with no additional conservation. In year 2040, the water demand with no additional conservation for the total county is forecasted to be 617,466 acre-feet per year (afy). In 2015, the actual county water demand was 613,476. This represents a water demand growth of 0.65 percent from 2015 to 2040. In contrast, total number of households for the county is projected to increase 4.24 percent for the same period; while county employment is projected to increase by 6.22 percent.

Table 4. Normal Weather Water Demand Forecast with No Additional Conservation

Brea / La Habra

	Baseline Demand Forecast (no new conservation)					
	SF AFY	MF AFY	COM AFY	IND AFY	Non Rev AFY	Total AFY
2015	9,404	3,140	6,190	1,033	1,186	20,953
2020	8,397	2,992	5,605	874	1,072	18,941
2025	8,894	3,262	6,033	921	1,147	20,257
2030	8,913	3,342	6,105	917	1,157	20,434
2035	8,913	3,501	6,163	913	1,169	20,659
2040	8,919	3,513	6,205	909	1,173	20,719

South County

	Baseline Demand Forecast (no new conservation)					
	SF AFY	MF AFY	COM AFY	IND AFY	Non Rev AFY	Total AFY
2015	56,181	26,940	41,990		7,507	132,616
2020	50,644	24,300	38,355		6,798	120,097
2025	55,512	27,191	42,443		7,509	132,655
2030	56,832	27,562	43,280		7,660	135,335
2035	57,350	27,884	43,970		7,752	136,956
2040	57,635	28,047	44,459		7,809	137,950

OC Basin

	Baseline Demand Forecast (no new conservation)					
	SF AFY	MF AFY	COM AFY	IND AFY	Non Rev AFY	Total AFY
2015	175,544	100,997	127,252	26,027	30,087	459,907
2020	150,978	91,182	116,082	22,015	26,618	406,874
2025	161,270	99,782	127,803	23,190	28,843	440,889
2030	162,368	101,780	131,640	23,073	29,320	448,181
2035	162,772	103,766	134,543	22,958	29,683	453,722
2040	162,969	105,890	137,083	22,840	30,015	458,797

Total Orange County

	Baseline Demand Forecast (no new conservation)					
	SF AFY	MF AFY	COM AFY	IND AFY	Non Rev AFY	Total AFY
2015	241,129	131,076	175,431	27,059	38,780	613,476
2020	210,019	118,473	160,042	22,889	34,488	545,911
2025	225,676	130,236	176,279	24,111	37,499	593,801
2030	228,113	132,685	181,025	23,990	38,137	603,950
2035	229,034	135,151	184,676	23,871	38,604	611,338
2040	229,524	137,450	187,747	23,750	38,996	617,466

1.2 Future Passive and Baseline Active Water Conservation

1.2.1 Future Passive Water Conservation

The following future passive water conservation estimates were made:

- High efficiency toilets – affecting new homes and businesses (post 2015) and remodels
- High efficiency clothes washers – affecting new homes (post 2015)
- Model Water Efficient Landscape Ordinance – affecting new homes and businesses (post 2015)

High Efficiency Toilets

A toilet stock model was built tracking different flush rates over time. All new homes (post 2015) are assumed to have one gallon per flush toilets. This model also assumes a certain amount of turn-over of older toilets due to life of toilet and remodeling rates. This analyses was done for single-family, multifamily and non-residential sectors. The following assumptions were made:

- Number of toilet flushes is 5.5 per person per day for single-family and multifamily homes.
- Household size is calculated from CDR data on persons per home. In single-family, household size decreases over time.
- Number of toilet flushes is 2.5 per employee per day for non-residential.
- Replacement/remodeling rates are 7% per year for 5 gal/flush toilet; 6% per year for 3.5 gal/flush toilets; and 5% per year for 1.6 gal/flush toilets.

Table 5 shows this toilet stock model for the OC Basin for single-family and non-residential sectors as an example.

Table 5. Toilet Stock Model for OC Basin (example)

OC Basin Single-Family										
#		Total	Portion of Homes with Gal/Flush Toilets						Savings	Savings
Flushes	Year	Housing	7	5	3.5	1.6	1	Av Flush	(GPD/H)	(AFY)
17.40	2000	348,114	3,133	53,261	123,232	168,487	-	2.84		
17.40	2013	379,999	-	4,794	27,111	348,094	-	1.78		
17.40	2015	381,806	-	4,122	23,858	313,285	40,541	1.69		
17.37	2020	386,324	-	2,680	16,700	234,964	131,980	1.50	3.32	1,435
17.31	2025	389,734	-	-	11,690	176,223	201,821	1.35	5.98	2,610
17.23	2030	392,387	-	-	8,183	132,167	252,037	1.25	7.54	3,312
17.14	2035	393,363	-	-	5,728	99,125	288,509	1.19	8.64	3,806
17.05	2040	393,840	-	-	4,010	74,344	315,486	1.14	9.43	4,159

OC Basin Non-Residential										
#			Portion of Emp with Gal/Flush Toilets						Savings	Savings
Flushes	Year	Empl	7	5	3.5	1.6	1	Av Flush	(GPD/E)	(AFY)
3,298,440	2015	1,319,376	-	13,194	131,938	461,782	712,463	1.50		
3,510,508	2020	1,404,203	-	8,576	92,356	346,336	956,935	1.34	0.41	641
3,633,438	2025	1,453,375	-	5,574	64,649	259,752	1,123,399	1.23	0.67	1,083
3,729,448	2030	1,491,779	-	3,623	45,255	194,814	1,248,087	1.16	0.84	1,404
3,801,693	2035	1,520,677	-	2,355	31,678	146,111	1,340,533	1.12	0.96	1,635
3,864,600	2040	1,545,840	-	1,531	22,175	109,583	1,412,551	1.08	1.04	1,808

High Efficiency Clothes Washers

It was assumed that all new clothes washers sold after 2015 would be high efficiency and roughly save 0.033 afy per washer[1]. These savings would only apply to new homes (post 2015), and only for the single-family sector.

Model Water Efficient Landscape Ordinance (2015)

The new California Model Water Efficient Landscape Ordinance (MWELO) will take place in 2016. For single-family and multifamily homes it will require that 75 percent of the irrigable area be California Friendly landscaping with high efficiency irrigation systems, with the remaining 25 percent being turf. For non-residential establishments it will require 100 percent of the irrigable area to be California Friendly landscaping with high efficiency irrigation systems. There are exemptions for non-potable recycled water systems and for parks and open space. To calculate the savings from this ordinance a parcel database provided by MWDOC was analyzed. This database had the total irrigable area and turf area delineated for current parcels. For each parcel, a target water savings was set depending on the sector. For residential parcels, 25 percent of the total irrigable area was assumed to be turf and the savings from a non-compliant parcel was estimated. For each square feet of turf conversion the estimate savings is 0.00013 afy[1]. Table 6 summarizes the per parcel savings for the total county using this method.

Table 6. Estimated Parcel Savings from MWELO for Total Orange County

Parcel Type	Number of Parcels	Total Irrigable Area (sq. feet)	Current Turf Area (sq. feet)	Turf Conversion (sq. feet)*	Turf Conversion (sq. ft / parcel)	Conservation Savings (afy/parcel)
Single-Family Residential	527,627	2,114,679,368	897,177,779	368,507,937	698	0.091
Multifamily Residential	555,255	155,315,983	51,697,361	12,868,365	23	0.003
Businesses (Non-Residential)	1,623,307	499,127,269	212,043,667	212,043,667	131	0.017

* Assumes 25% turf conversion for single-family and multifamily, and 100% for businesses.

The conservation savings in afy/parcel where then multiplied by new homes and businesses (post 2015), assuming a 75 percent compliance rate.

1.2.2 Future Baseline Active Water Conservation

To estimate a baseline water savings from future active water conservation measures, the actual average annual water savings for the last seven years for the SoCal Water$mart program within Orange County were analyzed. A continuation of this program through 2040 at similar annual implementation rates was assumed to be representative of a baseline estimate for active water conservation into the future.

[1] Per MET's SoCal Water$mart conservation estimates, table provided by MWDOC (2015).

New active conservation measures or more aggressive implementation of existing active conservation will be evaluated as part of a portfolio analysis of water demand and supply options in Phase 2 of the Orange County Water Reliability Study.

1.2.3 Total Future Water Conservation Savings

Combing future passive and active water conservation results in a total estimated water savings, which is summarized in Table 7.

Table 7. Future Passive and Baseline Active Water Conservation Savings

Brea/La Habra Area

	Single-Family Savings (AFY)					Multifamily Savings (AFY)				Non-Residential Savings (AFY)			
	MWELO	HEC Pass	Toilets	Active	Total	MWELO	Toilets	Active	Total	MWELO	Toilets	Active	Total
2020	186	32	78	8	304	11	51	5	67	63	32	17	112
2025	169	33	131	15	348	13	85	10	108	79	52	34	166
2030	166	34	163	30	394	16	106	20	142	91	67	68	226
2035	156	34	186	61	437	21	127	40	188	101	77	136	314
2040	149	34	203	79	465	21	137	53	211	108	85	177	370

OC Basin

	Single-Family Savings (AFY)					Multifamily Savings (AFY)				Non-Residential Savings (AFY)			
	MWELO	HEC Pass	Toilets	Active	Total	MWELO	Toilets	Active	Total	MWELO	Toilets	Active	Total
2020	272	148	1,435	221	2,076	61	1,217	171	1,449	759	641	556	1,956
2025	430	260	2,610	441	3,742	96	2,165	342	2,603	1,199	1,083	1,112	3,394
2030	542	347	3,312	883	5,084	118	2,738	684	3,540	1,542	1,404	2,224	5,170
2035	557	379	3,806	1,766	6,509	139	3,182	1,369	4,690	1,801	1,635	4,447	7,883
2040	544	395	4,159	2,472	7,570	162	3,537	1,916	5,615	2,026	1,808	6,226	10,059

South County

	Single-Family Savings (AFY)					Multifamily Savings (AFY)				Non-Residential Savings (AFY)			
	MWELO	HEC Pass	Toilets	Active	Total	MWELO	Toilets	Active	Total	MWELO	Toilets	Active	Total
2020	558	251	507	116	1,432	11	335	160	506	582	119	329	1,029
2025	812	406	877	232	2,326	22	599	321	942	960	202	657	1,819
2030	972	514	1,148	463	3,097	25	761	642	1,428	1,133	257	1,314	2,704
2035	990	556	1,332	927	3,805	27	876	1,283	2,187	1,275	298	2,628	4,201
2040	967	580	1,480	1,112	4,139	29	969	1,540	2,537	1,376	327	3,154	4,857

Total County

	Single-Family Savings (AFY)					Multifamily Savings (AFY)				Non-Residential Savings (AFY)			
	MWELO	HEC Pass	Toilets	Active	Total	MWELO	Toilets	Active	Total	MWELO	Toilets	Active	Total
2020	1,017	431	2,020	344	3,812	83	1,602	337	2,022	1,404	792	901	3,097
2025	1,411	698	3,618	688	6,416	132	2,848	673	3,653	2,238	1,337	1,803	5,378
2030	1,680	895	4,624	1,377	8,575	159	3,606	1,346	5,111	2,766	1,728	3,606	8,100
2035	1,704	969	5,325	2,754	10,752	188	4,185	2,692	7,065	3,177	2,010	7,212	12,399
2040	1,660	1,009	5,842	3,663	12,175	212	4,643	3,509	8,363	3,510	2,219	9,557	15,286

1.3 With Conservation Demand Forecast

Subtracting the future water conservation savings shown in Table 7 from the base water demand forecast shown in Table 4 results in the water demand forecast with conservation that is used to

model potential water supply gaps for the Orange County Water Reliability Study. Figure 5 presents the historical and forecasted water demands for the total Orange County.

Table 7. Water Demand Forecast with Conservation

Brea / La Habra

	With Conservation Demand				
	SF AFY	MF AFY	CII AFY	Non Rev AFY	Total AFY
2020	8,094	2,925	6,368	1,043	18,429
2025	8,546	3,154	6,789	1,109	19,598
2030	8,519	3,200	6,796	1,111	19,626
2035	8,475	3,313	6,762	1,113	19,663
2040	8,454	3,302	6,745	1,110	19,611

OC Basin

	With Conservation Demand				
	SF AFY	MF AFY	CII AFY	Non Rev AFY	Total AFY
2020	148,902	89,733	136,077	26,230	400,941
2025	157,528	97,180	147,532	28,157	430,396
2030	157,284	98,240	149,476	28,350	433,350
2035	156,263	99,076	149,552	28,342	433,233
2040	155,399	100,275	149,797	28,383	433,854

South County

	With Conservation Demand				
	SF AFY	MF AFY	CII AFY	Non Rev AFY	Total AFY
2020	49,212	23,793	37,326	6,620	116,951
2025	53,186	26,250	40,624	7,204	127,263
2030	53,735	26,135	40,575	7,227	127,672
2035	53,545	25,697	39,769	7,141	126,151
2040	53,496	25,509	39,602	7,116	125,725

Total Orange County

	With Conservation Demand				
	SF AFY	MF AFY	CII AFY	Non Rev AFY	Total AFY
2020	206,207	116,451	179,770	33,893	536,321
2025	219,260	126,583	194,945	36,470	577,257
2030	219,537	127,575	196,848	36,688	580,647
2035	218,283	128,086	196,082	36,596	579,047
2040	217,349	129,087	196,144	36,610	579,189

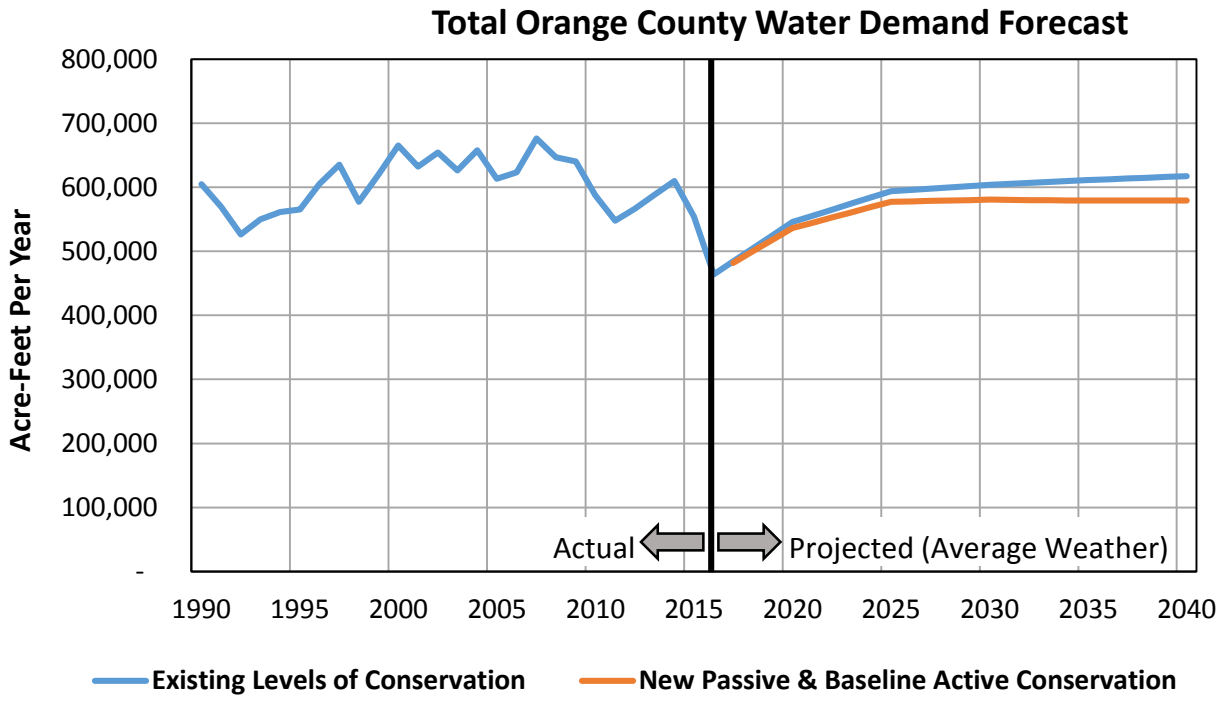


Figure 5. Water Demand Forecast for Total Orange County

2.0 Planning Scenarios

At the start of the Orange County Water Reliability Study, a workgroup was formed made up of representatives from Orange County water agencies. This OC Workgroup met 13 times during the 12-month Phase 1 of the study. During the first four meetings of the OC Workgroup, three basic planning scenarios emerged, each with and without a California WaterFix to the Delta—thus resulting in six scenarios in total. While there was discussion on assigning probabilities or weights to these planning scenarios, consensus was not reached on which scenario was more probable than the others. Assignment of the likelihood that one scenario is more probable than the others will be revisited in Phase 2 of the Orange County Reliability Study. There was, however, general agreement that all of the scenarios represent plausible future outcomes and thus all scenarios should be evaluated in terms of assessing potential water supply gaps (difference between forecasted water demands and existing water supplies). It is important to note that the purpose of estimating the water supply gaps for Orange County is to determine what additional MET and OC water supply investments are needed for future reliability planning. Thus, other than the California WaterFix to the Delta, all planning scenarios assume no new additional regional or OC water supply investments.

To develop the planning scenarios, the OC Workgroup considered the following parameters:

- California WaterFix to Sacramento-San Joaquin Delta (Cal Fix), which impacts the reliability of the State Water Project.
- Regional MET water demands and supplies, which impacts the availability of water from MET and supply reliability for Orange County.
- Orange County water demands, which impacts the supply reliability for Orange County.
- Santa Ana River baseflows, which impacts the replenishment of the OC Basin and the supply reliability for the water agencies within the OC Basin.
- Climate change impacts on regional and local water demands and supplies, which impacts the availability of water from MET and the supply reliability for Orange County.

The definition of the six scenarios are:

- **Scenario 1a - Planned Conditions, No Cal Fix:** Essentially represents MET's IRP planning assumptions, with very little climate change impacts (only impacting Delta supplies and not through 2040), no California Fix to the Delta, and no new regional or OC water supply investments.
- **Scenario 1b - Planned Conditions, with Cal Fix:** Same as Scenario 1a, but with new supply from the California Fix to the Delta beginning in 2030.

- **Scenario 2a - Moderately Stressed Conditions, No Cal Fix:** Moderate levels of climate change impacts (affecting Delta, Colorado River, and Santa Ana watershed), slightly lower regional local supplies than MET assumes in IRP, 4% higher demand growth reflecting climate change and higher demographic growth, no California Fix to the Delta, and no new regional or OC water supply investments.

- **Scenario 2b - Moderately Stressed Conditions, with Cal Fix:** Same as 2a, but with new supply from California Fix to the Delta beginning in 2030.

- **Scenario 3a - Significantly Stressed Conditions, No Cal Fix:** Significant levels of climate change impacts (affecting Delta, Colorado River, and Santa Ana watershed), 8% higher demand growth reflecting climate change and higher demographic growth, no California Fix to the Delta, and no new regional or OC water supply investments.

- **Scenario 3b - Significantly Stressed Conditions, with Cal Fix:** Same as 3a, but with new supply from California Fix to the Delta beginning in 2030.

3.0 Water Supply Gap

The OC Model, described fully in TM #2: Development of OC Supply Simulation Model, uses indexed-sequential simulation to evaluated regional water demands and supplies, and Orange County water demands and supplies. All model variables are tied to the same hydrologic index—meaning that if a repeat of the year 1991 occurred, the OC model would represent the availability of Delta water supplies in 1991, the availability of Colorado River water supplies in 1991, and the local Santa Ana watershed conditions in 1991. The OC model also preserves the historical sequence of the hydrologic years. This is necessary because the source of availability of Delta and Colorado River water supplies are hydrologic models run by California DWR and BOR. These hydrologic models incorporate water rights (or contract rights) and storage conditions that are run using a specific sequence of hydrologic conditions. Both MET IRP and OC modeling of water supply maintain these sequences in order to preserve the accuracy of the DWR and BOR model inputs. The hydrologic period used by the OC model is 1922 to 2014 (which differs from MET's IRP which is 1922 to 2012). The forecast period is 2015 to 2040. Thus, in the OC Model there are 93 25-year sequences that are mapped to the forecast period. When the year 2014 is reached in any of the sequences, the next year wraps back around starting in 1922. Table 8 illustrates how the indexed-sequential method works.

Table 8. Illustration of Indexed-Sequential Supply Simulation

Forecast Year	Hydrologic Simulation Year – Sequence 1	Hydrologic Simulation Year – Sequence 2	. . .	Hydrologic Simulation Year – Sequence 93
2015	1922	1923		2014
2016	1923	1924		1922
⋮	⋮	⋮		⋮
2040	1947	1948		1946

Using the SWP system as an index, approximately 12 of the 93 historical hydrologic years (13 percent) are considered critically dry; 20 years (22 percent) are considered very wet; and the remaining 61 years (65 percent) are along the below-normal, normal, and above-normal spectrum.

3.1 Assumptions for Supply Gap Analysis

Figure 6 presents the overall assumptions for the water supply gap analysis. Figure 7 presents more specific assumptions regarding groundwater in the OC Basin.

Water Demands (AFY)	FY 2014 Actual	FY 2015 Actual	2025 Projected	2040 Projected
MET Demands*	2,300,000	1,850,000	1,920,000	2,028,000
OCWD Basin Demands**	453,000	410,000	425,000	434,000
OC Total Demands**	610,000	554,000	565,000	579,000

* With future passive conservation only ** With future passive and baseline new active conservation

OC Groundwater (AFY)	Brea/La Habra	Net OC Basin	South County	Total
Groundwater Supply	15,000*	188,500**	10,000	213,500

* Based on firm yield from La Habra Basin and groundwater purchases from Main San Gabriel Basin.
** Includes GWRS, SAR baseflows, SAR stormflows, incidental recharge, MET replenishment, and miscellaneous pumping.

OC Non-Potable Recycled Water (AFY)	2015	2040
OC Basin Recycled Water	22,000	27,700
South County Recycled Water	23,900	41,800
Total	45,900	69,500

Figure 6. Overall Assumptions for Water Supply Gap Analysis

OC Basin Groundwater (AFY)	Near-Term	Long-Term	Range Within Model
Groundwater Replenishment System (GWRS)	100,000	130,000	100,000 to 130,000
SAR Baseflow (mid level assumption)	53,000	53,000	34,000 to 53,000
SAR Stormflow (average of all hydrologies)	53,000	53,000	6,000 to 150,000
SAR Incidental Recharge (average of all hydrologies)	59,000	59,000	20,000 to 140,000
MET Replenishment (average of all hydrologies)*	54,000	34,000	0 to 65,000
BEA Outflows	-22,000	-9,000	-22,000 to -9,000
Misc. Pumping (golf courses, etc.)	-8,500	-8,500	-8,500
Net Groundwater for OC Basin Agencies	**288,500**	**311,500**	**168,000 to 455,000**

* While OCWD replenishment target is 65,000 AFY, replenishment water is not assumed to be taken during very wet years when SAR stormflows are high, and only a portion of replenishment water is available during years in which MET is in allocation of imported water.

Figure 7. Assumptions for Groundwater in OC Basin

In addition to these assumptions, the following summarizes some of the differences between the MET IRP and the supply gap analysis for the OC Study:

- **Simulation Period:** MET IRP uses a historical hydrology from 1922 to 2012; while the OC Study uses a historical hydrology from 1922 to 2014—capturing the recent California drought.
- **Cal Fix:** When the Cal Fix is included, MET IRP assumes that new supply from Cal Fix begins in 2020; while the OC Study assumes that new supply begins when project is fully operational in 2030.
- **Water Conservation:** MET IRP only includes new passive conservation in their demand forecast (with new active conservation being reserved as a new supply option); while the OC Study assumes new passive and baseline new active conservation for water demands in Orange County (additional new active conservation will be evaluated in Phase 2 of the OC Study).
- **Climate Change:** MET IRP only includes minimal impacts of climate change for Delta water supplies through 2030; while the OC Study includes a range of climate change impacts on water supplies from Delta, Colorado River and Santa Ana Watershed through 2040.

3.2 Availability of Water from MET

Key to the assessment of water reliability for Orange County is estimating the availability of imported water from MET under a wide range of scenarios. Availability of MET water to Orange County is a function of the water demands on MET and the reliability of imported water from the Colorado River and Delta to MET.

3.2.1 Demands on MET

MET water demands represent that difference between regional retail water demands (inclusive of groundwater replenishment) and regional local supplies (which includes groundwater, Los Angeles Aqueducts, surface reservoirs, groundwater recovery, recycled water, and seawater desalination). Table 9 presents the MET demand forecast under normal/average weather conditions.

A significant challenge for MET in terms of reliability planning is it represents the "swing" water supply for the region. This compounds the variability on demands on MET due to weather and hydrology. For retail water demands, variations in weather can cause water use to change ± 5 to 9 percent in any given year due to varying demands for irrigation and cooling. In addition to retail water demand variability, local supplies can vary ± 80 percent for the Los Angeles Aqueducts and ± 55 percent for surface reservoirs. Thus, the variability for demands on MET in any given year can be ± 15 to 25 percent. This fact alone makes storage so key in assuring supply reliability for MET and the region.

Table 9. Demands on MET

Total Demand (AFY)	2020	2030	2040
Retail M&I	3,707,546	3,865,200	3,954,814
Retail Agricultural	169,822	163,121	159,537
Seawater Barrier	66,500	66,500	66,500
Replenishment	292,777	272,829	272,847
Total Demand	**4,236,645**	**4,367,650**	**4,453,698**
Local Supplies (AFY)			
Groundwater Production	1,308,101	1,321,220	1,322,197
Surface Production	113,705	113,705	113,705
Los Angeles Aqueduct	261,100	264,296	267,637
Seawater Desalination	50,637	50,637	50,637
Groundwater Recovery	142,286	158,816	162,688
Recycled Water	425,131	468,862	495,698
Other Non-Metropolitan Imports	13,100	13,100	13,100
Total Local Supplies	**2,314,061**	**2,390,637**	**2,425,663**
Demand On MET (AFY)			
Consumptive Use	1,743,866	1,826,245	1,880,131
Seawater Barrier	11,635	8,708	5,877
Replenishment	167,083	142,060	142,027
Total Net Demand on Metropolitan	**1,922,584**	**1,977,013**	**2,028,035**

3.2.2 Supplies from Colorado River and Delta

MET's water supply from the Colorado River, via the Colorado River Aqueduct (CRA), has historically been the backbone to MET's supply reliability. Before the settlement agreement between lower Colorado River Basin states and water agencies that use Colorado River water within California, MET kept the CRA full at 1.2 million acre-feet (maf) per year. The settlement agreement requires California to live within its 4.4 maf apportionment, and dictates how Colorado River water within California is prioritized. This eliminated most of the surplus water that MET was using to keep the CRA full. To deal with this challenge, MET has developed a number of water transfers and land fallowing programs to mitigate the impacts of the settlement agreement. The 2015 MET IRP is assuming that it will maintain minimum CRA supply of 0.90 maf, with a goal of a full CRA during dry years (although it is not specified exactly how that will occur).

For the OC Study, we have assumed similar baseline assumptions as the MET IRP, but have added some uncertainties with regard to climate change. Under significant climate change impacts, where the BOR simulates that Lake Mead elevation would fall below 1,000 feet about 80 percent of the

time, the OC Study assumed MET would get a proportionate share of shortages that are allocated by BOR. Exactly how BOR would manage water shortages when Lake Mead elevation falls below 1,000 is uncharted territory, but assuming some proportional allocation of Colorado River water among the Lower Basin states and within California is a plausible scenario. Figure 8 presents the assumed CRA water supplies to MET for the OC Study with and without significant climate change impacts. Under the significant climate change scenario, there is a 50 percent probability that CRA deliveries would be below 815,000 afy and a 20 percent probability that CRA deliveries would be below 620,000 afy.

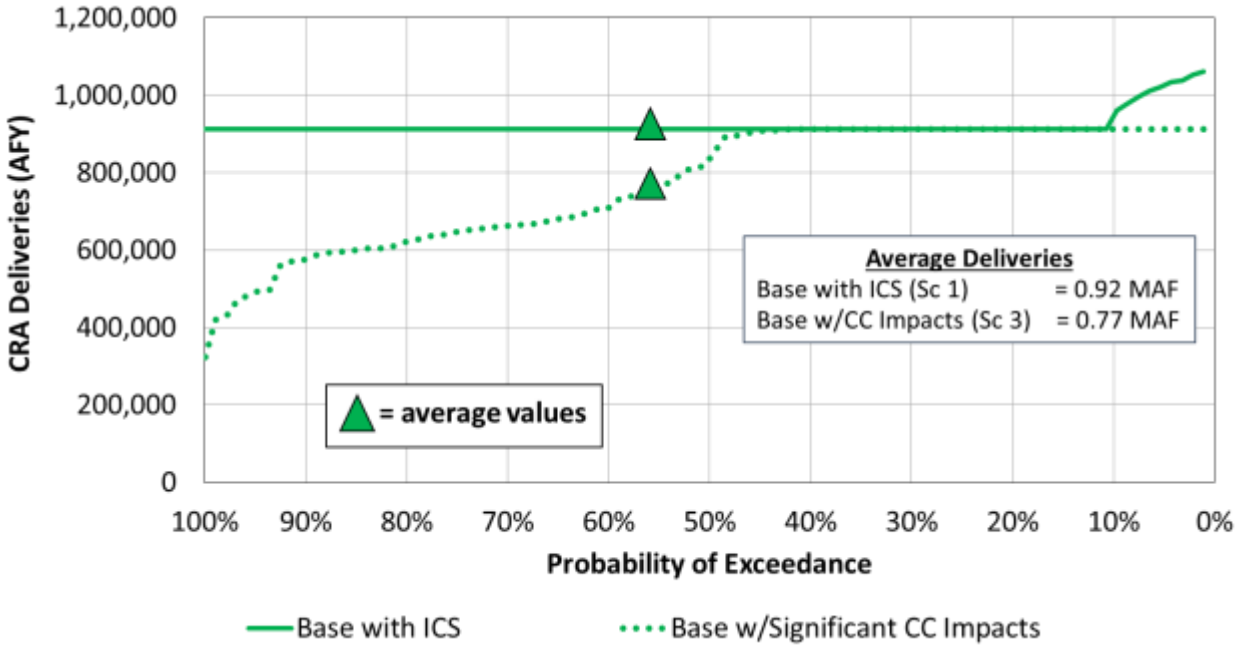


Figure 8. Colorado River Aqueduct Deliveries to MET

The other main source of imported water available to MET is from the Delta and is delivered to Southern California via the State Water Project (SWP). Although MET's contract for SWP water is 2.0 maf, it has never received that amount. In the mid 1980's during wet years MET was able to take 1.8 maf, but in years following SWP water deliveries to contractors has been significantly reduced. Droughts and environmental regulatory restrictions in the Delta have greatly impacted the reliability of this water supply. New biological opinions regarding endangered species not only limit Delta exports during dry years, but have greatly impacted exports during more normal years when water agencies such as MET are counting on such water for storage replenishment.

To stabilize the decline in SWP deliveries, California has committed to the California WaterFix (Cal Fix) and California EcoRestore. In the long-term, the preferred alternative identified in Cal Fix is expected to increase SWP deliveries by providing more flexible water diversions through improved conveyance and operations. This project would also provide much needed redundancy during seismic events in the Delta. The new conveyance and diversion facilities will allow for increased

water supply reliability and a more permanent solution for flow-based environmental standards. The anticipated implementation of the Cal Fix is expected to be around 2030. Assuming a more flexible, adaptive management strategy, MET is assuming that if Cal Fix moves forward that regulatory relief from further biological opinions in the Delta would occur and SWP deliveries would return to pre-biological opinion deliveries as soon as 2020. However, some might argue this is speculative and there is no certainty that such relief would occur until the project is operational. Therefore, the OC Study assumed that improved SWP deliveries from Cal Fix would begin in 2030.

Climate change can further reduce the reliability of SWP deliveries. The source of water that is pumped from the Delta originates in the Sierra Nevada Mountains as snowpack. It is widely accepted by climate and hydrology experts that climate change impacts on snowpack-driven water supplies is even more significant because even a fraction of a degree increase leads to early snowmelt which reduces the ability to capture river flows in surface reservoirs. Using methods described in TM#1, CDM Smith and its climate change expert Dr. David Yates estimated the potential impacts to the SWP under significant climate change. These estimates are similar to earlier work that California DWR did on climate change impacts on SWP reliability. Figure 9 presents the full range of SWP deliveries to MET with and without Cal Fix and with and without significant climate change impacts. As shown, the Cal Fix greatly improves the reliability of SWP supplies to MET—with an average increase in supply of over 400,000 afy. Significant climate change reduces SWP deliveries by an average of 200,000 afy, even with the Cal Fix.

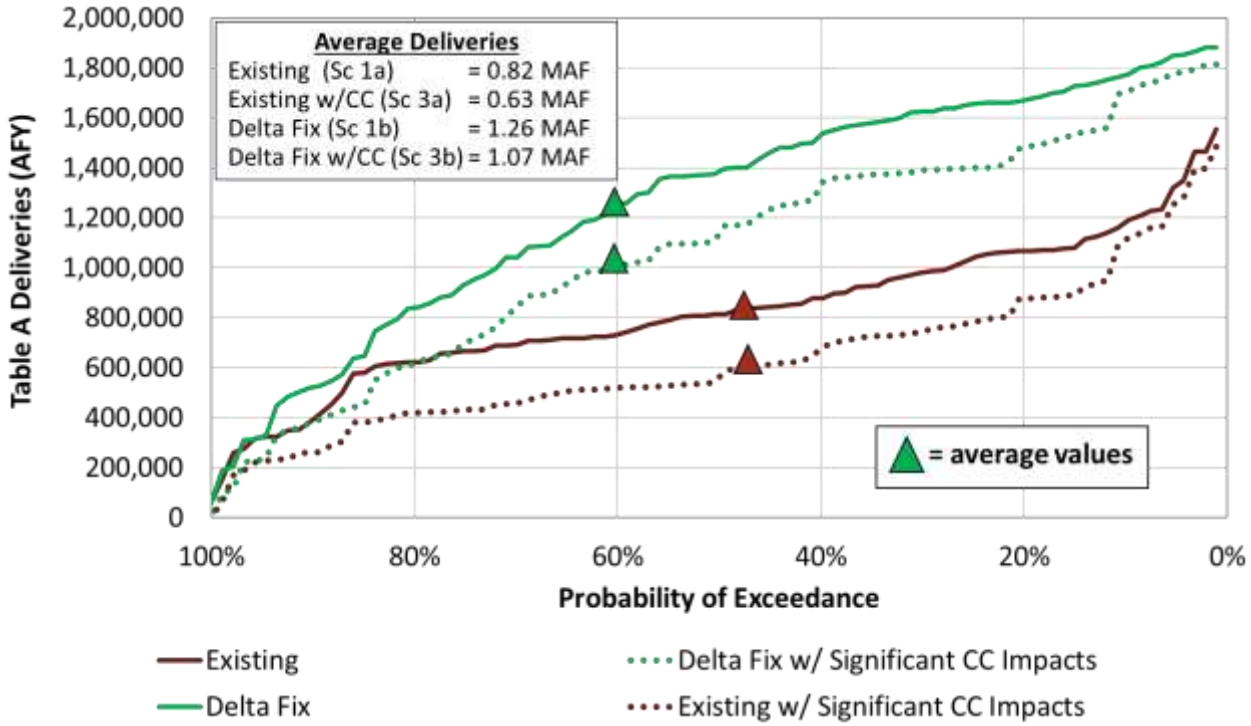


Figure 9. State Water Project Deliveries to MET

In addition to CRA and SWP water, MET has significant surface storage and groundwater storage programs. MET also has a number of water transfers in the Central Valley. These investments have been critical for the region's supply reliability during droughts. However, since the first MET IRP in 1996 MET has had to allocate its imported water to its member agencies three in the last seven years.

Using the indexed-sequential simulation method described in TM#1, MET water reliability can be illustrated for several hydrologic sequences. Figure 10 shows the MET demands and supplies without a Cal Fix for the forecast period 2015 to 2040 with the last 25-year hydrologic sequence of 1989 to 2014 imposed. In other words, forecast year 2015 is 1989, 2016 is 1990 … and 2040 is 2014. Of all the 93 possible 25-year hydrologic sequences, this one is the worst in terms of cumulative supply shortages.

Figure 11 shows Met demands and supplies without a Cal Fix for a more normal hydrology sequence imposed on the forecast period (this sequence begins with 1950 and ends in 1975). Even with a normal hydrology, there are still some water shortages in the later years. Figure 12, shows this same hydrology (1950 to 1975) but with a Cal Fix. Under this scenario, regional storage replenishes greatly and shortages in the later years are eliminated.

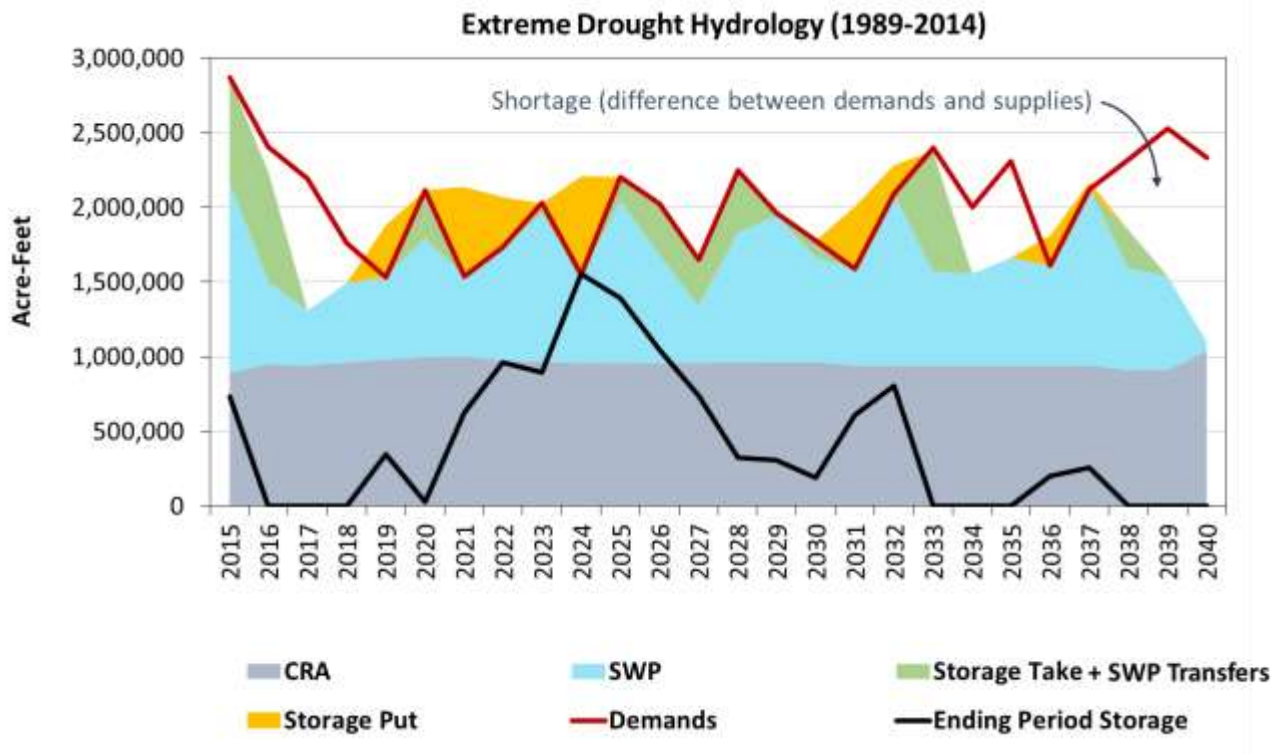


Figure 10. MET Reliability under Drought, for Scenario 1a (no Climate Change, no Cal Fix)

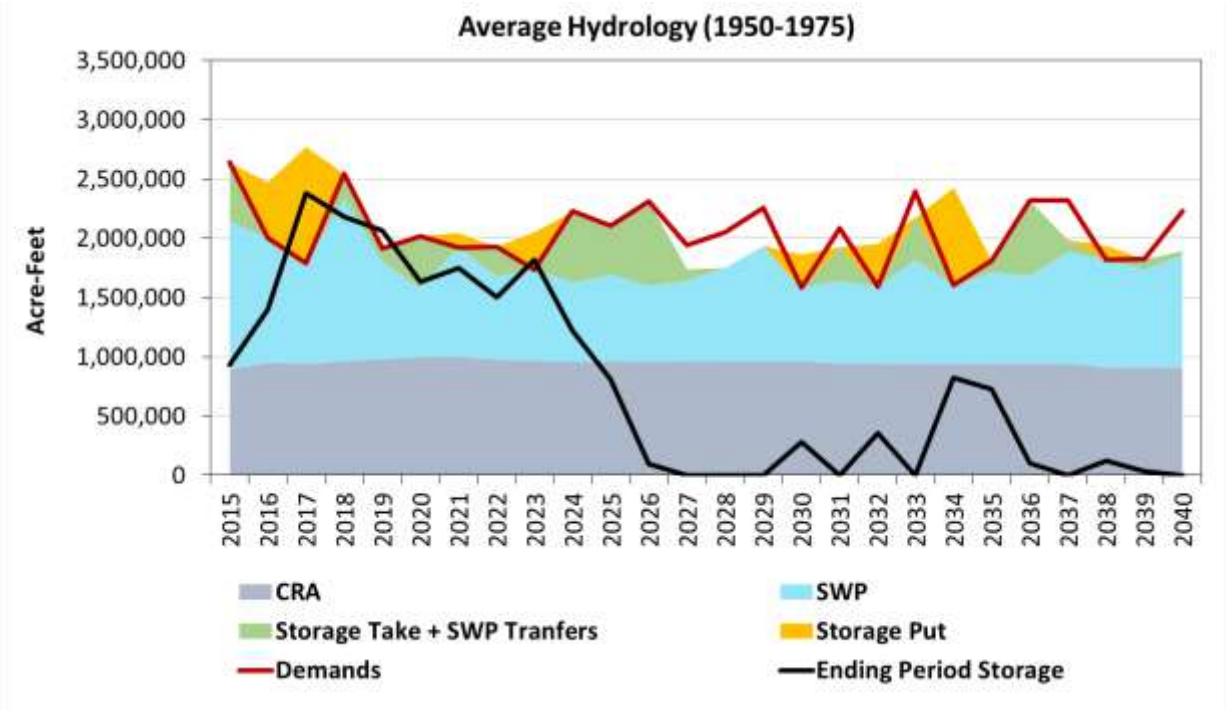


Figure 11. MET Reliability under Average Hydrology, for Scenario 1a (no Climate Change, no Cal Fix)

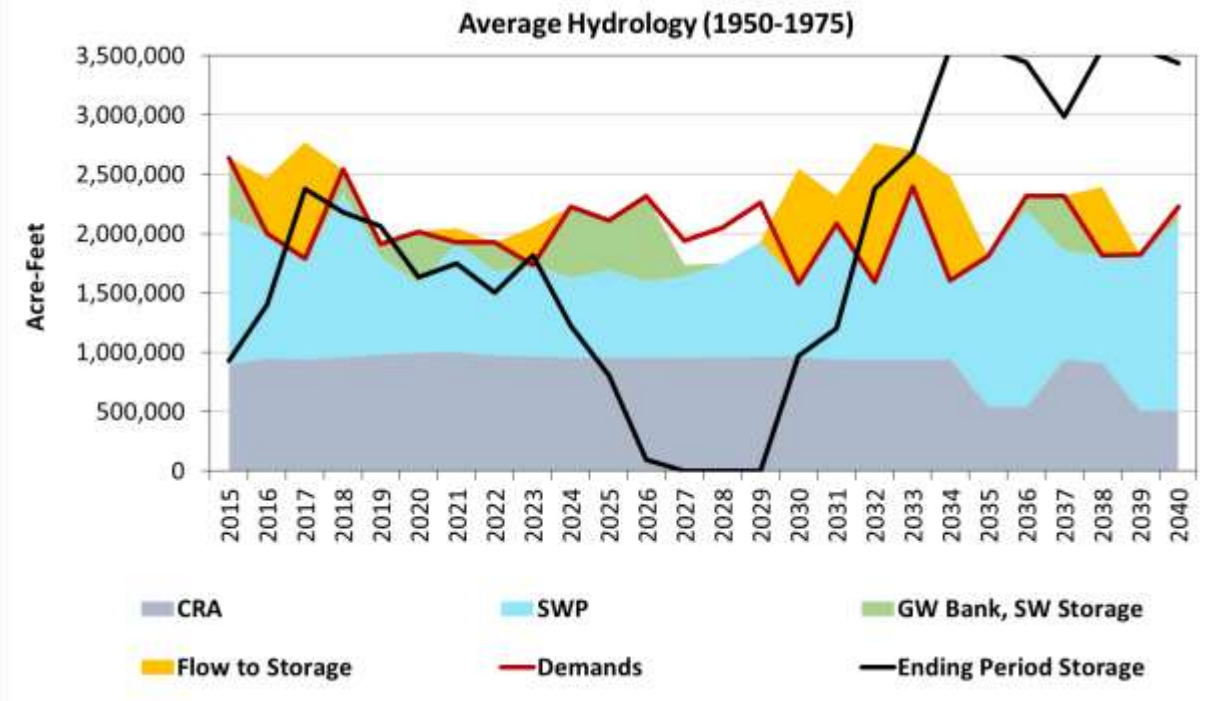


Figure 12. MET Reliability under Average Hydrology, for Scenario 1b (no Climate Change, with Cal Fix)

When all 93 hydrologic sequences are simulated, and under all six scenarios representing various climate change and Cal Fix assumptions, the probability of MET shortages exceeding 15 percent can be derived. A regional 15 percent shortage is similar to the allocation MET imposed in 2015. Figure 13 presents this probability of MET shortage. The results presented here for Scenario 1 with and without Cal Fix are similar to those presented in MET's Draft IRP.

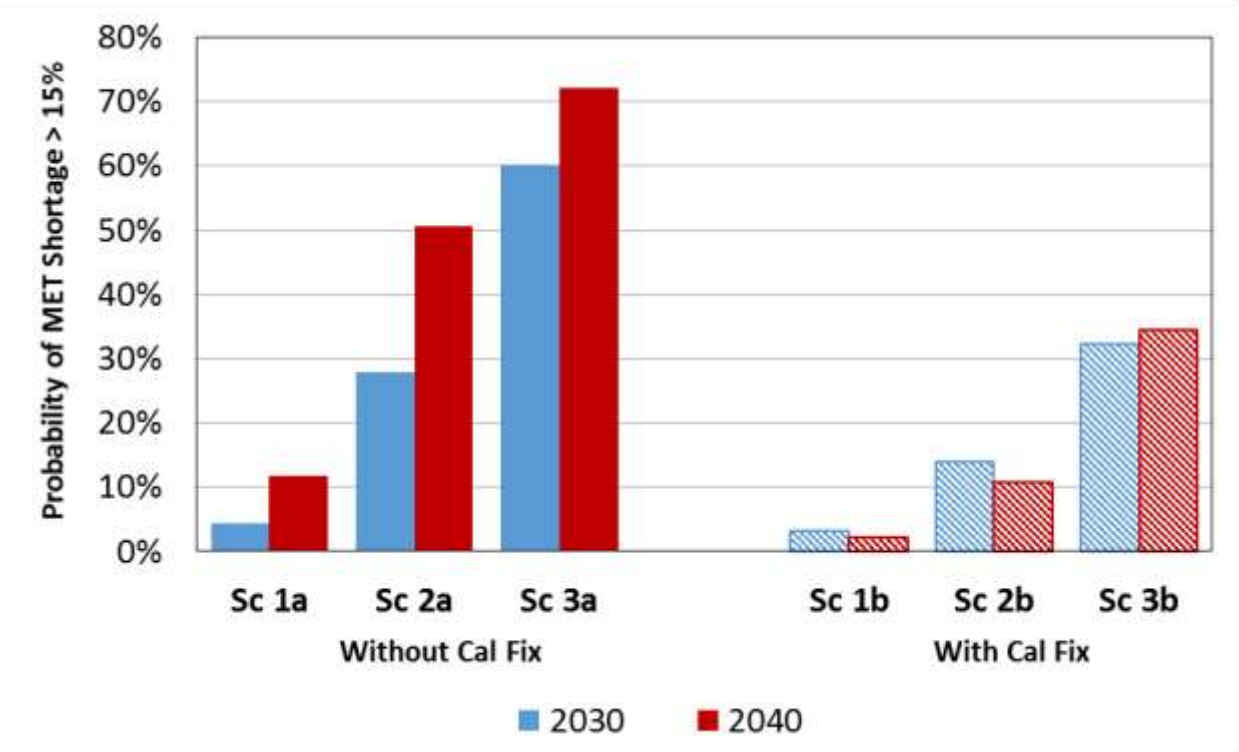


Figure 13. MET Supply Reliability (Percent of Time MET Supply Shortage Greater than 15%)

As shown in Figure 13, the impacts of climate change (Scenarios 2 and 3) can be significant in increasing the probability of MET shortages. In 2040, significant climate change (Scenario 3) can increase the probability of shortage by 60 percent without Cal Fix. The analysis also shows the enormous benefit that Cal Fix can have on MET reliability, decreasing the probability of shortage from 50 percent in 2040 to 10 percent under Scenario 2.

3.3 Orange County Water Supply Gap

When MET shortages occur, imported water is allocated to Orange County based on MET's current drought allocation formula. For the OC Basin, the estimation of the water supply gap required that the OC Model be able to simulate the way OCWD manages the OC Basin. The OC Basin's Basin Production Percentage (BPP) was set in the model to look forward each year and estimate all inflows to the basin, then set the BPP so that the cumulative overdraft in the basin would not exceed 500,000 af. In addition, the model does not allow the change in overdraft to exceed certain thresholds—essentially trying to keep some managed overdraft in the basin.

Figure 14 presents a simulation of the OC Basin for the forecast period of 2015 to 2040, under an extreme drought hydrology of 1989 to 2014. Under Scenario 1, with no climate change and no Cal Fix, Figure 14 shows the pumping from the basin (blue line), the sources of inflows to the basin (shaded color areas), the cumulative basin overdraft (red line), and the BPP (dashed black line read on right-hand axis).

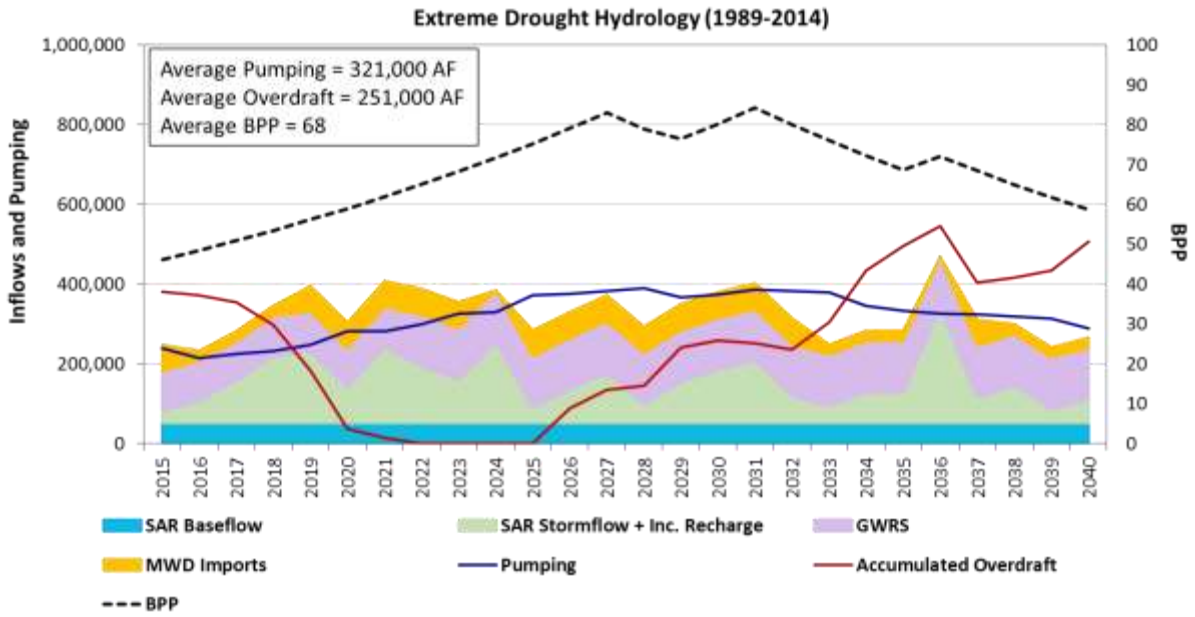


Figure 14. Simulation of OC Basin under Drought, for Scenario 1a (no Climate Change, no Cal Fix)

When the other local Orange County water supplies from the Brea/La Habra and South County areas are added to the simulation, the OC Model estimates the overall supply reliability for the OC County total. Using all 93 hydrologic sequences, a probability chart can be created. The probability chart shows the percent time that any water shortage occurs and to what magnitude. Figure 15 shows the overall reliability for OC County total for Scenarios 1a, 2a and 3a (no Cal Fix) for the year 2040. As shown on this chart, there is a 50 percent chance that some level of shortage occurs for Scenario 1a. This probability of some shortage occurring increases to 80 percent for Scenario 2a and 98 percent for Scenario 3a. The average shortages are 32,000 afy, 74,000 afy, and 126,000 afy for Scenarios 1a, 2a, and 3a respectively.

Figure 16 compares Scenarios 1, 2, and 3 with and without the Cal Fix. As shown in Figure 14, the Cal Fix dramatically reduces the probability of shortages and thus the average shortages. The average shortages under the Cal Fix are 5,000 afy, 17,000 afy, and 64,000 afy for Scenarios 1b, 2b, and 3b respectively. The one thing to note, however, is that the maximum shortages (which occur about 1 to 3 percent of the time) are not reduced substantially with the Cal Fix. These maximum shortages may require a multipronged strategy to minimize or eliminate, such as new base-loaded supplies, storage, water transfers and mandatory restrictions on some water uses.

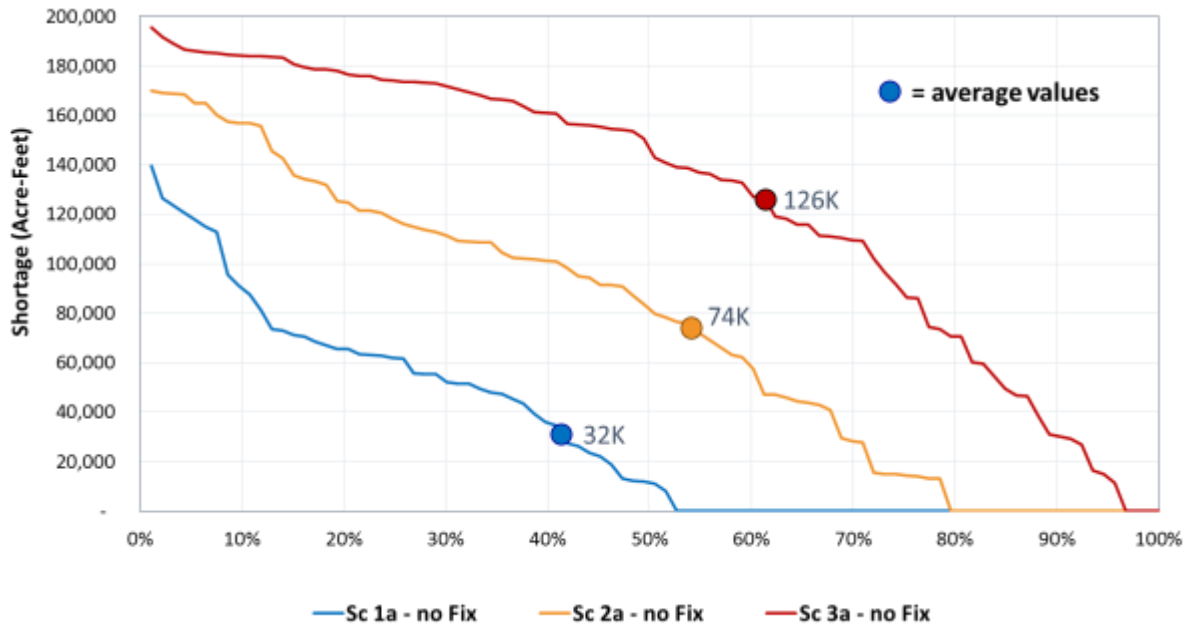


Figure 15. Probability of Water Shortages (Gap) for Orange County Total, No Cal Fix

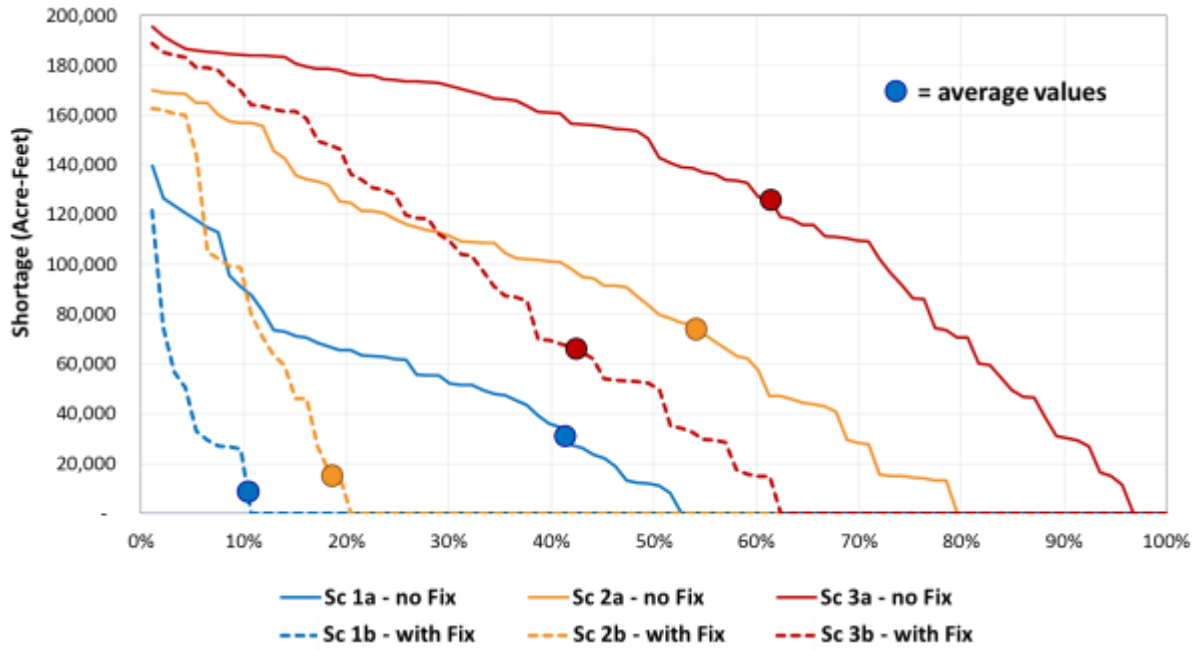


Figure 16. Probability of Water Shortages (Gap) for Orange County Total, with Cal Fix

This supply reliability analysis was done for all three areas of the Orange County, Brea/La Habra, OC Basin, and South County. The average water shortages (averaged for all 93 hydrologic sequences) are shown in Table 10 for all six scenarios.

Table 10. Summary of Average Water Supply Gap for Orange County Areas (acre-feet year)

Area	Scenario 1		Scenario 2		Scenario 3	
Brea / La Habra	**a – no Fix**	**b – with Fix**	**a – no Fix**	**b – with Fix**	**a – no Fix**	**b – with Fix**
2020	110 (1%)	110 (1%)	160 (1%)	160 (1%)	250 (1%)	250 (1%)
2040	820 (4%)	130 (1%)	1,800 (9%)	430 (2%)	3,100 (15%)	1,600 (8%)
OC Basin	**a – no Fix**	**b – with Fix**	**a – no Fix**	**b – with Fix**	**a – no Fix**	**b – with Fix**
2020	3,800 (1%)	3,800 (1%)	5,300 (1%)	5,300 (1%)	9,300 (2%)	9,300 (2%)
2040	19,000 (5%)	2,800 (1%)	49,000 (12%)	11,000 (3%)	85,000 (20%)	42,000 (10%)
South County	**a – no Fix**	**b – with Fix**	**a – no Fix**	**b – with Fix**	**a – no Fix**	**b – with Fix**
2020	2,100 (2%)	2,100 (2%)	3,000 (3%)	3,000 (3%)	4,800 (4%)	4,800 (4%)
2040	12,000 (9%)	1,900 (2%)	23,000 (18%)	5,600 (4%)	38,000 (28%)	20,000 (15%)
OC Total	**a – no Fix**	**b – with Fix**	**a – no Fix**	**b – with Fix**	**a – no Fix**	**b – with Fix**
2020	6,000 (1%)	6,000 (1%)	8,500 (2%)	8,500 (2%)	14,000 (3%)	14,000 (3%)
2040	32,000 (6%)	4,800 (1%)	74,000 (13%)	17,000 (3%)	126,000 (21%)	64,000 (11%)

* Numbers in parentheses ( ) represent % of water demand.

4.0 Conclusions

While no attempt was made during Phase 1 of the OC Study to assign the likelihood of any one of the six scenarios occurring over the others, some might postulate that Scenario 2 might be the most likely to occur given that most climate experts believe we are already seeing evidence of climate change impacts today. But even with this postulation, assigning a probability to the success of the Cal Fix would be difficult at this time. This all said, a number of observations can be made from this study, which are:

1. The most sensitive model parameters are:
    - Whether or not the Cal Fix is implemented, and by when
    - The extent that climate change impacts our supply reliability, which can take many forms:
        - Loss of the snowpack in the Sierras and Rocky's affecting imported water
        - Higher reservoir evapotranspiration
        - Reduced groundwater recharge statewide and locally
        - Increased water demands for irrigation and cooling from higher temperatures

2. The range in water supply gaps carry different implications, namely:
    - Under Scenario 1a (no climate change, no Cal Fix), supply shortages are fairly manageable, with average shortages in 2040 being about 6% of demand with an occurrence of about 4 in 10 years.
    - Under Scenario 2a (moderate climate change, no Cal Fix), supply shortages require moderate levels of new investments, with average shortages in 2040 being about 13% of demands with an occurrence of about 5 in 10 years.
    - Under Scenario 3a (significant climate change, no Cal Fix), supply shortages require significant levels of new investments, with average shortages in 2040 being about 21% of demands with an occurrence of about 6 in 10 years.
    - Scenarios with Cal Fix significantly reduce average shortages by 85% for Scenario 1, by 77% for Scenario 2, and by 50% for Scenario 3 in 2040.
3. Decisions made by Orange County water agencies to improve water supply reliability with local water supply investments should consider the following:
    - The large influence of the Cal Fix. MET and Orange County are much more reliable with the Cal Fix; however, the following questions are posed:
        - What is the implication for triggering Orange County supply investments as long as the Cal Fix is an uncertainty?
        - How long should Orange County wait to see where the Cal Fix is headed? 3, 5 or 10 years?
        - What types of Orange County supply investment decisions would be beneficial whether or not the Cal Fix proceeds ahead?
    - MET is potentially undertaking a NEW Indirect Potable Reuse project.
        - What are the implications of this project for decision-making in Orange County?
    - Other MET investments in its recommended 2015 IRP.
        - What success rate does Orange County attribute to these planned MET water supply investments?
        - Will the success rate be influenced by the Cal Fix? (e.g., additional storage without Cal Fix may not provide much benefit if there is no replenishment water during normal hydrologic years)

Phase 2 of the OC Study seeks to address these observations in a collaborative way by providing insights as to the various cost of different portfolios made up from MET and Orange County water supply options and to discuss policy implications for MET and Orange County. The combined information from Phases 1 and 2 would give local decision makers both an idea of the risk of water supply shortages under a wide range of plausible scenarios, and the range of costs for mitigating

the shortages. The intent of the OC Study, however, is to not to make any specific recommendations as to which supply options should be implemented, but rather present common information in an objective manner for local decision making.

5.0 References

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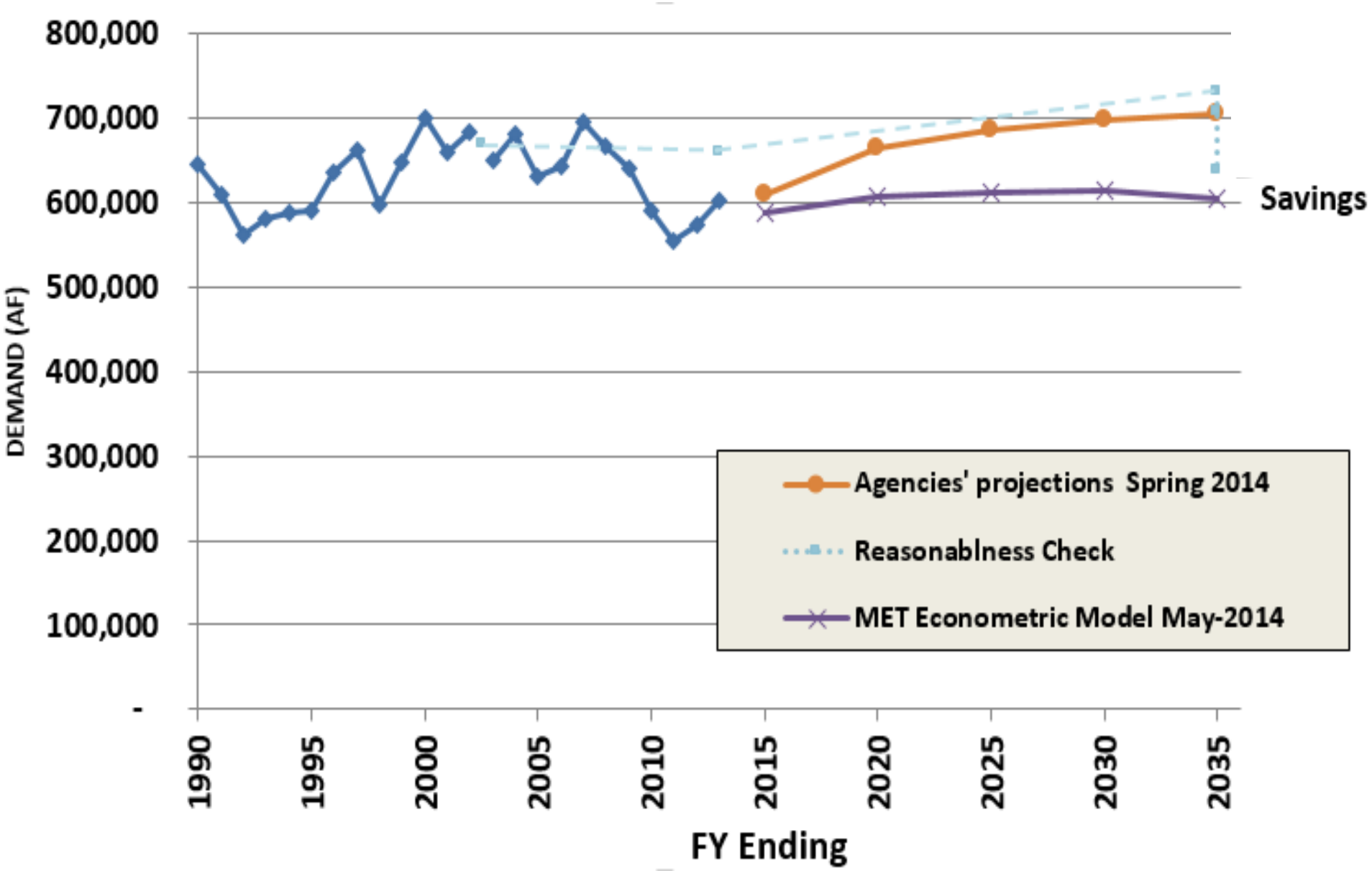
Orange County Water Reliability Study
Water Demand Forecast

Dan Rodrigo
Sr. Vice President
CDM Smith

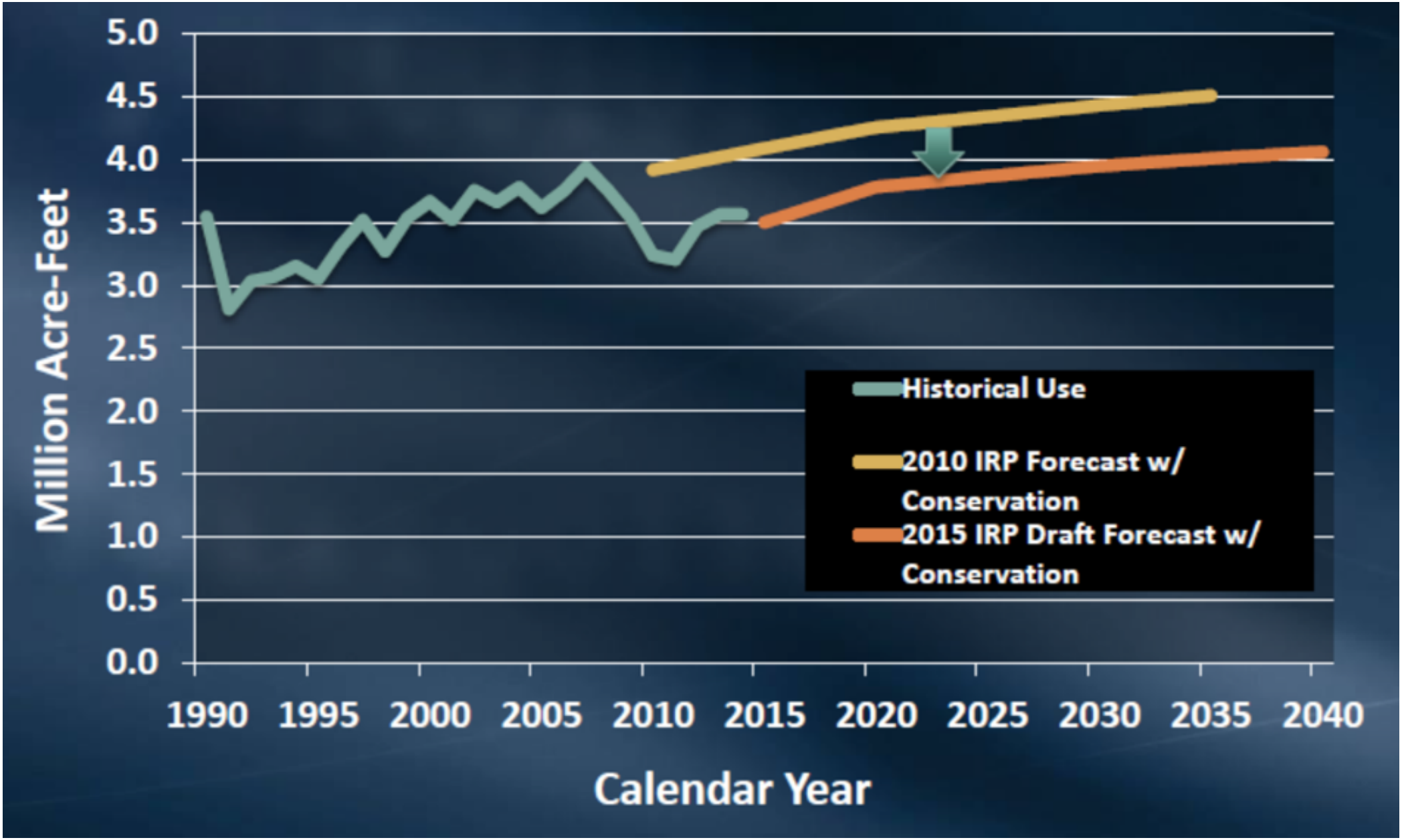
Presentation:
Orange County Water District Board

February 17, 2016

Driver 1 – MET forecast of OC demands differed greatly from OC agencies' forecast



Driver 2 – MET Demand Forecast for 2015 IRP Significantly Lower than 2010 IRP



CDM Smith Demand Forecasting Experience in Southern California

- Los Angeles Department of Water and Power (since 2005)
- San Diego Public Utilities Department (since 1995)
- Upper San Gabriel Valley MWD (since 2012)
- Moulton Niguel Water District (2013)
- Rancho California Water District (2010)
- Pasadena Water and Power (2010)
- Otay Water District (2005)
- Castaic Lake Water Agency (2008)
- MET (1985-2000)
- MWDOC (for this study)

Orange County Reliability Study
Water Demand Forecast Methodology

For each sector (e.g., single-family), historical water sales (based on utility sample) are divided by a historical driver (e.g., homes). This represents a normal weather, normal economy, non-drought unit use.

Future projections of demographics (single-family homes, multifamily homes, and total employment) that are provide by CDR for OC reliability areas: Brea/La Habra, Basin, South County.

Estimates of new passive and active conservation based on plumbing codes, model water efficient landscape codes, and continuation of rebates from MET.

Sectors include Single Family, Multi Family, Employment & Non-Revenue water

CDM Smith

Sector Water Use Factors

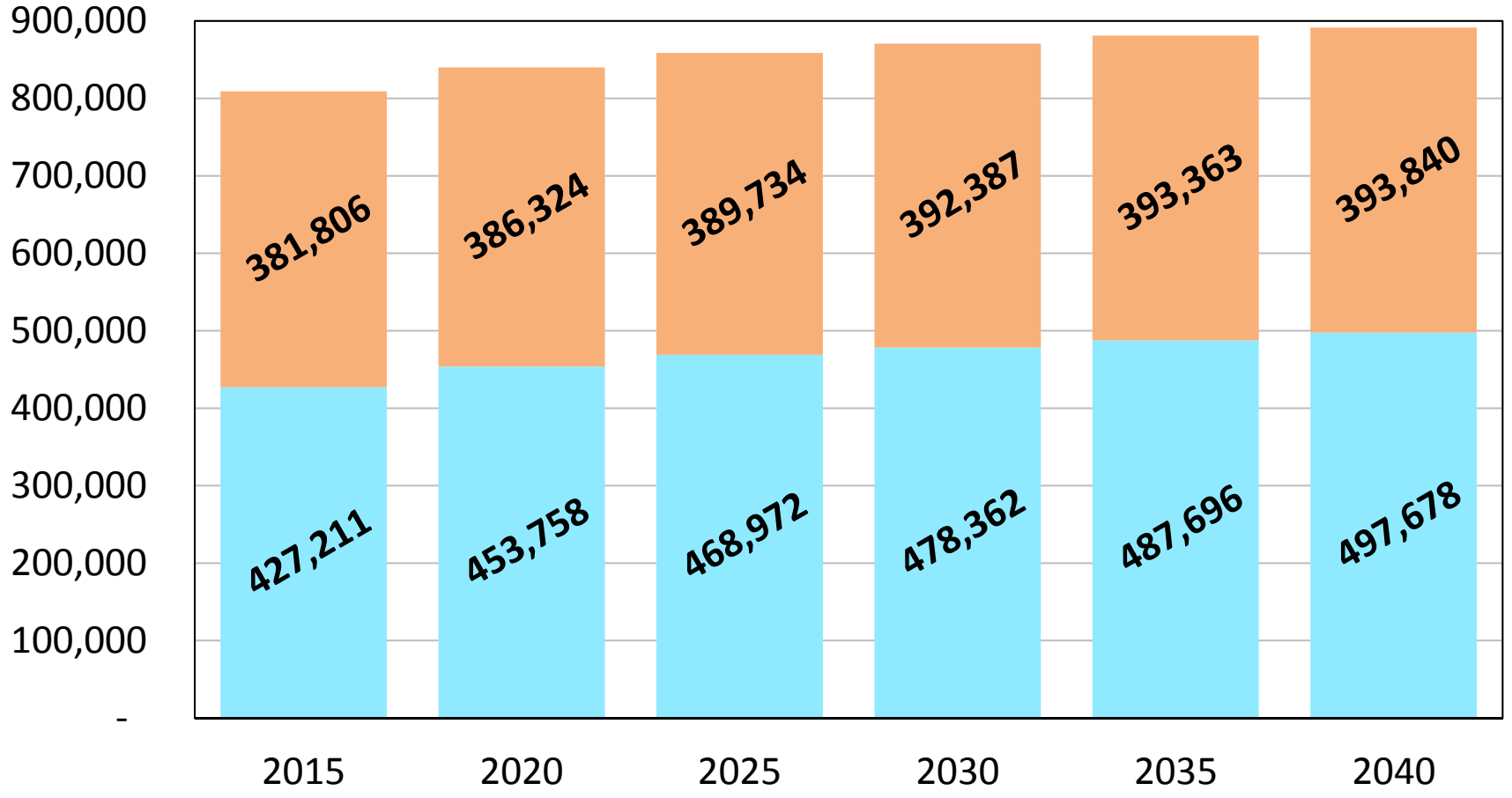
Unit Use Factor/ % Non-Revenue	Unit	Basin Area	South Orange County	Brea / La Habra
Single-Family (gal/day/unit)	SF Accounts	411	382	425
Multifamily (gal/day/unit)	MF Housing	211	199	165
Commercial/Gov. (gal/day/unit)	Commercial Employment	97	153 (combined)	90
Industrial (gal/day/unit)	Industrial Employment	167		128
Non-Revenue (%)	% of Total Production	7%	6%	6%

- Data obtained from survey of OC Agencies for FY 2013-14 (pre-drought restrictions)
- These water use factors are pre-drought, but reflect water use efficiency investments through 2014.

CDM Smith

Housing Projections for Basin Area

(Center for Demographic Research)



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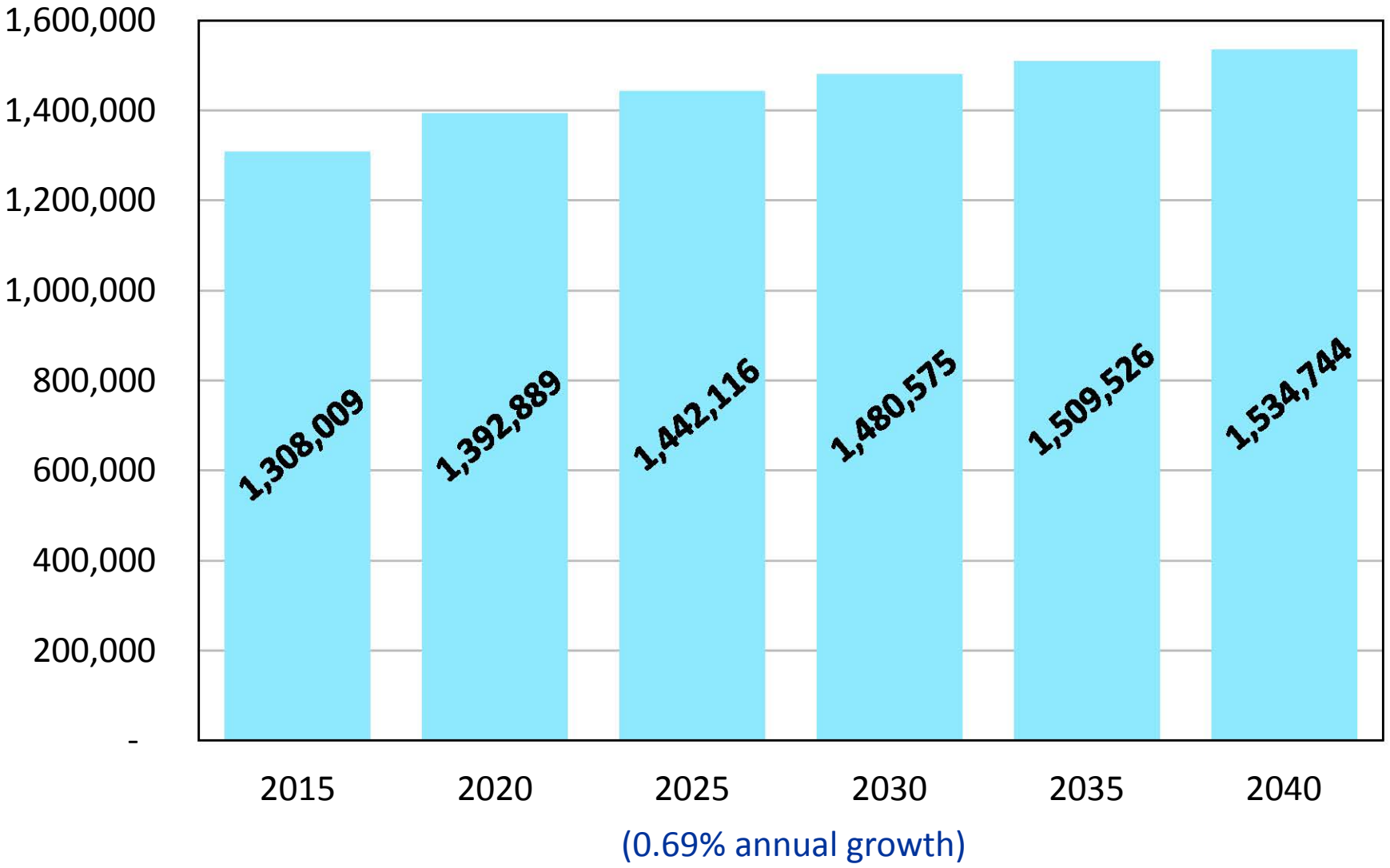
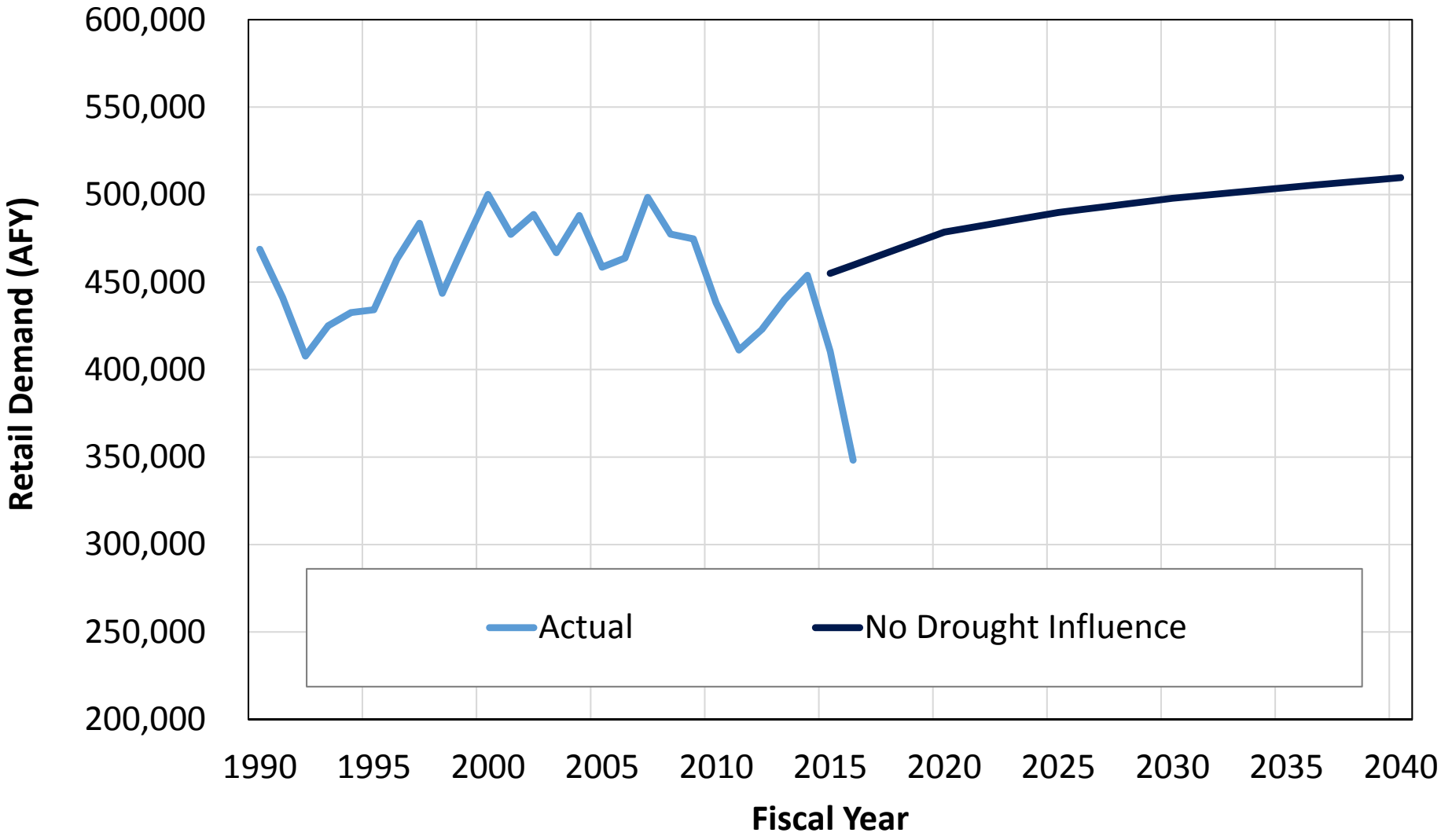
Employment Projections for Basin Area

(Center for Demographic Research)



Water Demand Forecast with No Drought Influence



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Drought-Related Demand Curtailment Bounce Back

- The current drought is unprecedented in many ways:
  - Most of the CA was in exceptional drought in 2014, plus Colorado River system is still in a decades-long drought
  - First time CA SWRCB issued mandatory water use restrictions statewide
  - Water customers became more accepting of turf removal
- In OC, water demands in FY 2016 are almost 25% lower than FY 2014
- How much of this drought-related conservation will continue into the future? Will there be a bounce back in demand after water use restrictions are lifted?

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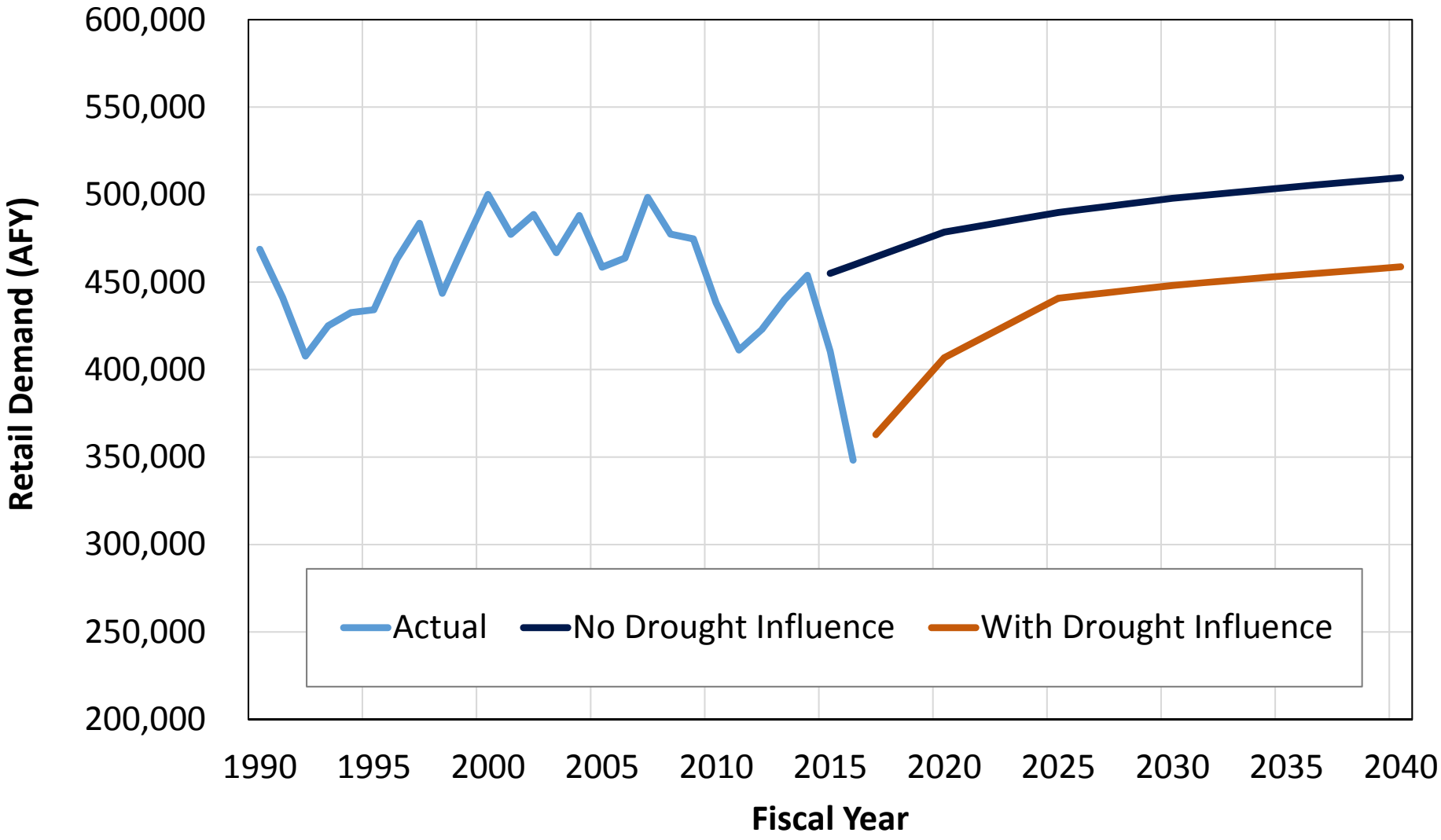
Drought-Related Demand Curtailment Bounce Back

- In past droughts (1987-92), curtailed water demands returned to pre-drought demand levels in 5 years.
- In Australia, where a decades-long drought impacted most of the country, City of Sydney's water demands have only slightly come back up from water restriction levels, but not fully.
- MET's demand forecast for its 2015 IRP assumed water demands would return to 90% of pre-drought levels in 5 years.
- **Consensus of the OC Reliability Study Agency Workgroup was that water demands in OC would return to 90% of pre-drought levels in 10 years.**

Water Demand Forecast with Drought Influence



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Future Water Conservation

- Future passive measures (affects new development):
  - Model Water Efficient Landscape Ordinance (MWELO)
  - Plumbing code efficiencies for toilets (high efficiency)
  - Expected plumbing code for high-efficiency clothes washers
- Future active measures (baseline assumptions):
  - Assumes that historical annual levels seen in Orange County continue into the future, assuming incentives from MWD's Water$mart program continue

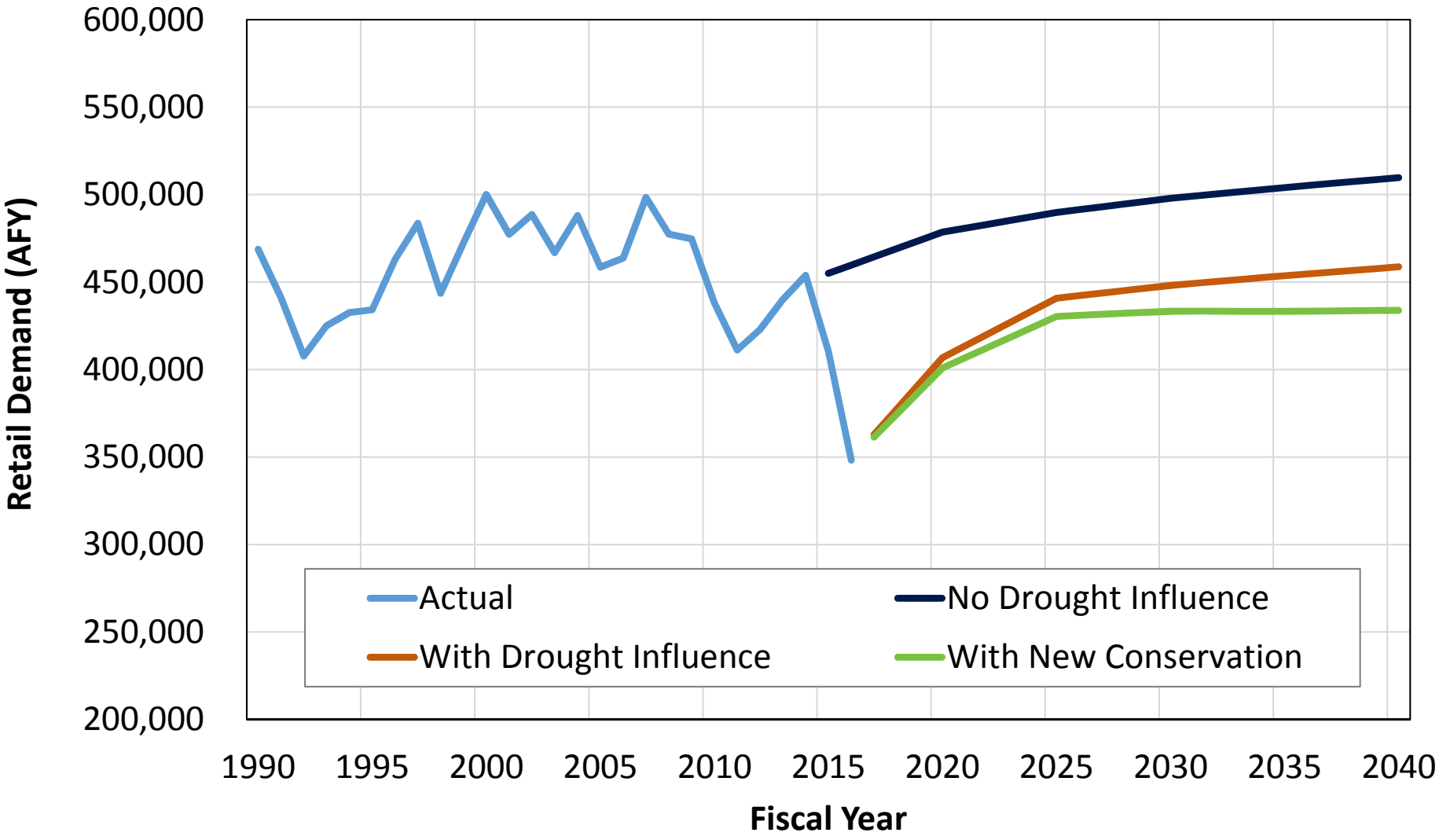
New Model Water Efficient Landscape Ordinance (MWELO)

- Requires combination of irrigation efficiency and California friendly plants for new development above a certain size and only if permits are pulled
- For new residential development, only 25% of total irrigable area can be turf
- For new CII development, no turf is allowed
- Exemptions include: parks, play areas, golf courses, certain open spaces
- **Assumes 75% compliance for OC Reliability Study**

Summary of Conservation for OC Basin

Measure	Conservation Savings Relative to 2014 (AFY)		
	2020	2030	2040
Drought Behavioral	71,800	50,000	50,000
MWELO	1,092	2,022	2,732
Toilet Plumbing Code	3,293	7,592	9,504
High Efficiency Clothes Washers	260	347	395
Future Active Conservation	948	3,791	10,614
Total Savings	77,481	63,794	73,245

Water Demand Forecast with Drought Influence



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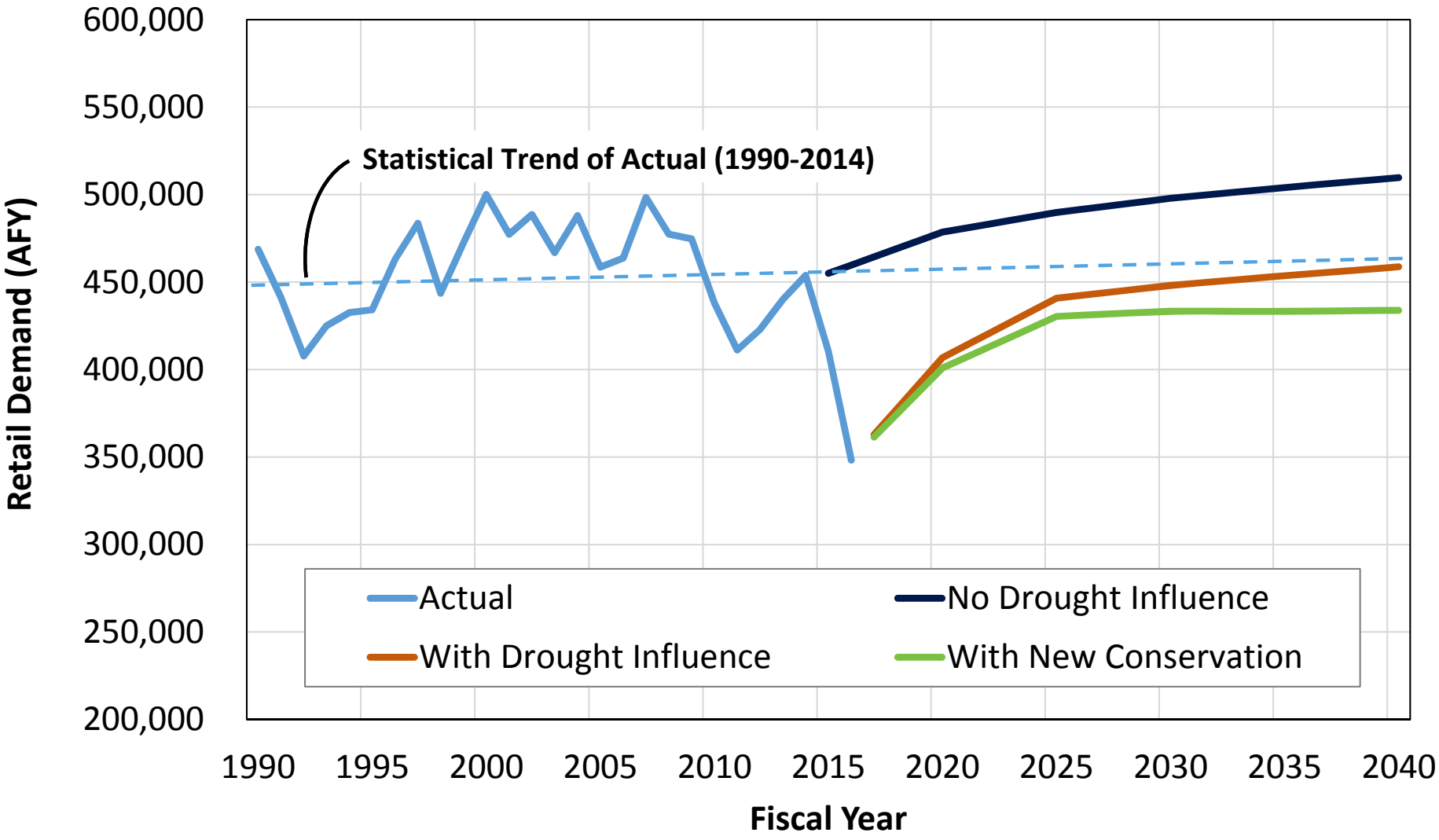
Water Demand Forecast with Drought Influence



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State Water Resources Control Board Emergency Drought Regulations

- Original order – June through February 2016 - State required average of 25% cut to water demands
- Restrictions have been continued through October 2016
- GWRS Initial Expansion credit will reduce 25% cut to ~ 18% for the OCWD Groundwater Producers
- Need to closely monitor State Board's actions
  - When will emergency drought regulations be lifted?
  - Will some restrictions be made permanent?

Details on Water Conservation Calculations

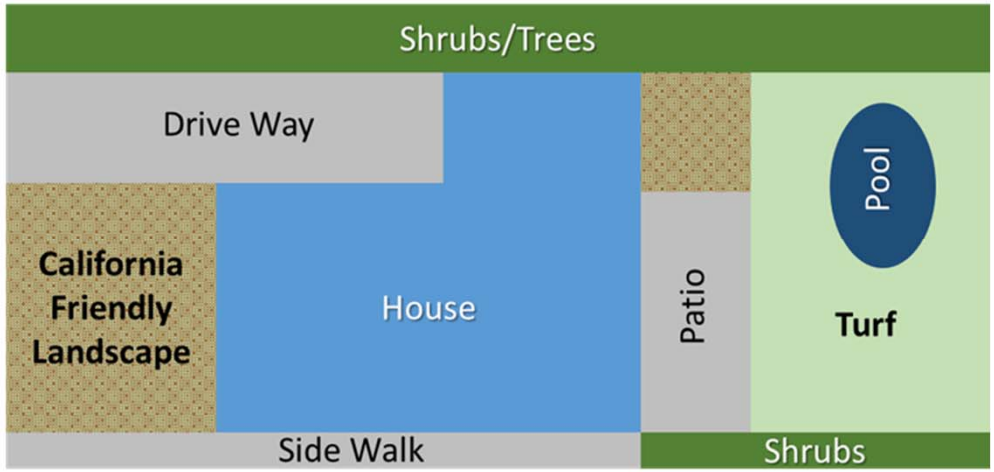
MWELO Example

Existing Typical SF Home

- Lot size = 9,000 SqFt
- House = 3,000 SqFt
- Hardscape/pool = 1,500 SqFt
- Irrigable area = 4,500 SqFt
- Turf area = 3,000 SqFt
- % of Turf to Irrig. Area = 66%

New MWELO SF Home

- Lot size = 9,000 SqFt
- House = 3,000 SqFt
- Hardscape/pool = 1,500 SqFt
- Irrigable area = 4,500 SqFt
- Turf area = 3,000 SqFt
- % of Turf to Irrig. Area = 25%
- Conversion to CFL = 1,875 SqFt



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MWELO Data for OC Basin

Parcel Type	Existing Total Irrig. Area SqFT	Existing Turf Area SqFT	Target Turf Conversion SqFT	Units*	SqFT/ Unit	AFY/ Unit
Single-family	1,207,369,285	537,966,891	236,124,570	381,806	618	0.080
Multifamily	105,041,403	36,358,364	10,098,013	427,211	24	0.003
CII (Non Res)	299,508,877	121,040,066	121,040,066	1,319,376	92	0.012

* Housing units for SF and MF, Employment for CII

MWELO Savings by 2040:

SF = 544 AFY

MF = 162 AFY

CII = 2,026 AFY

Total = 2,732 AFY

These savings per unit multiplied by projected new units in OC Basin to get future water savings

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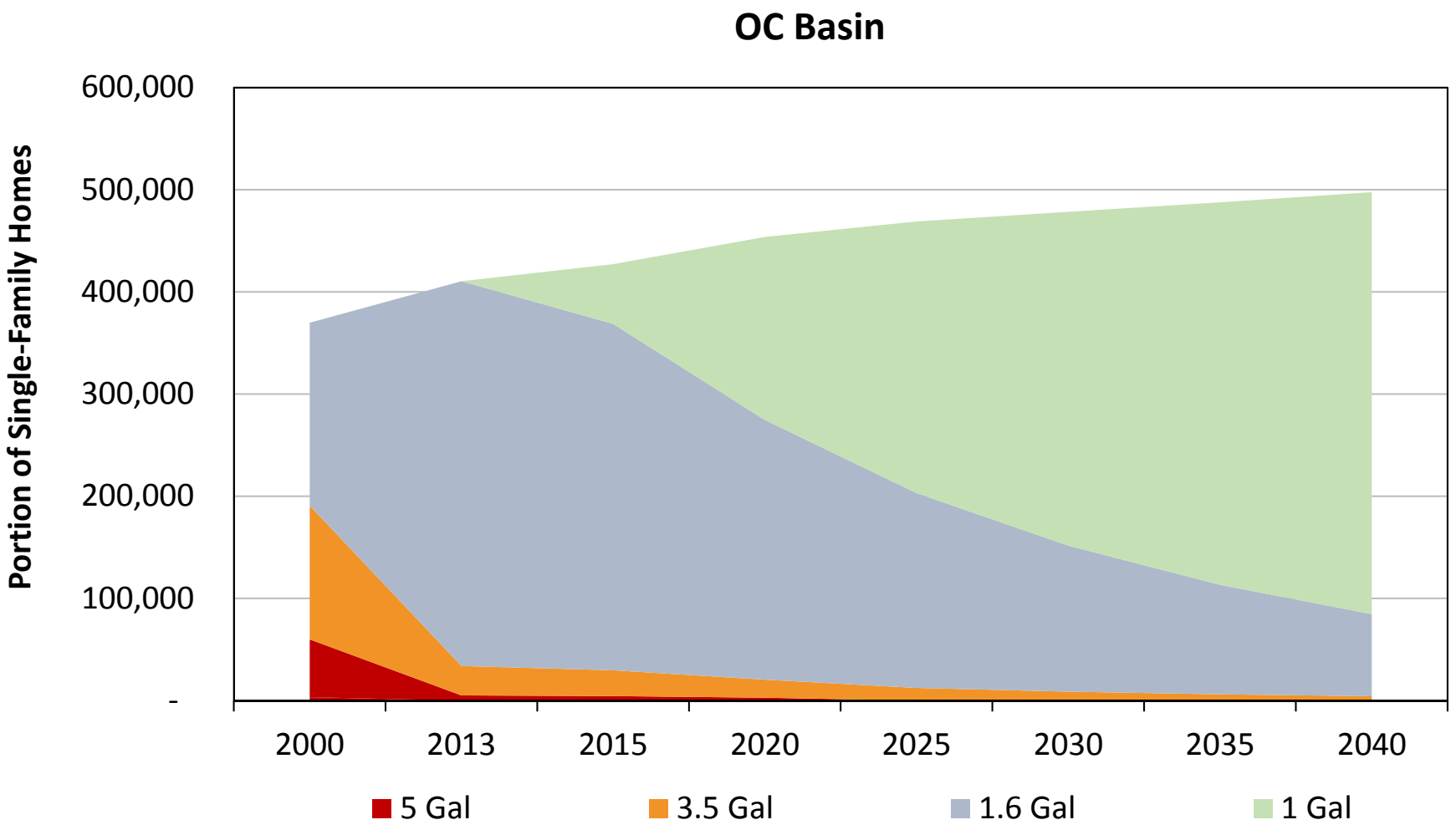
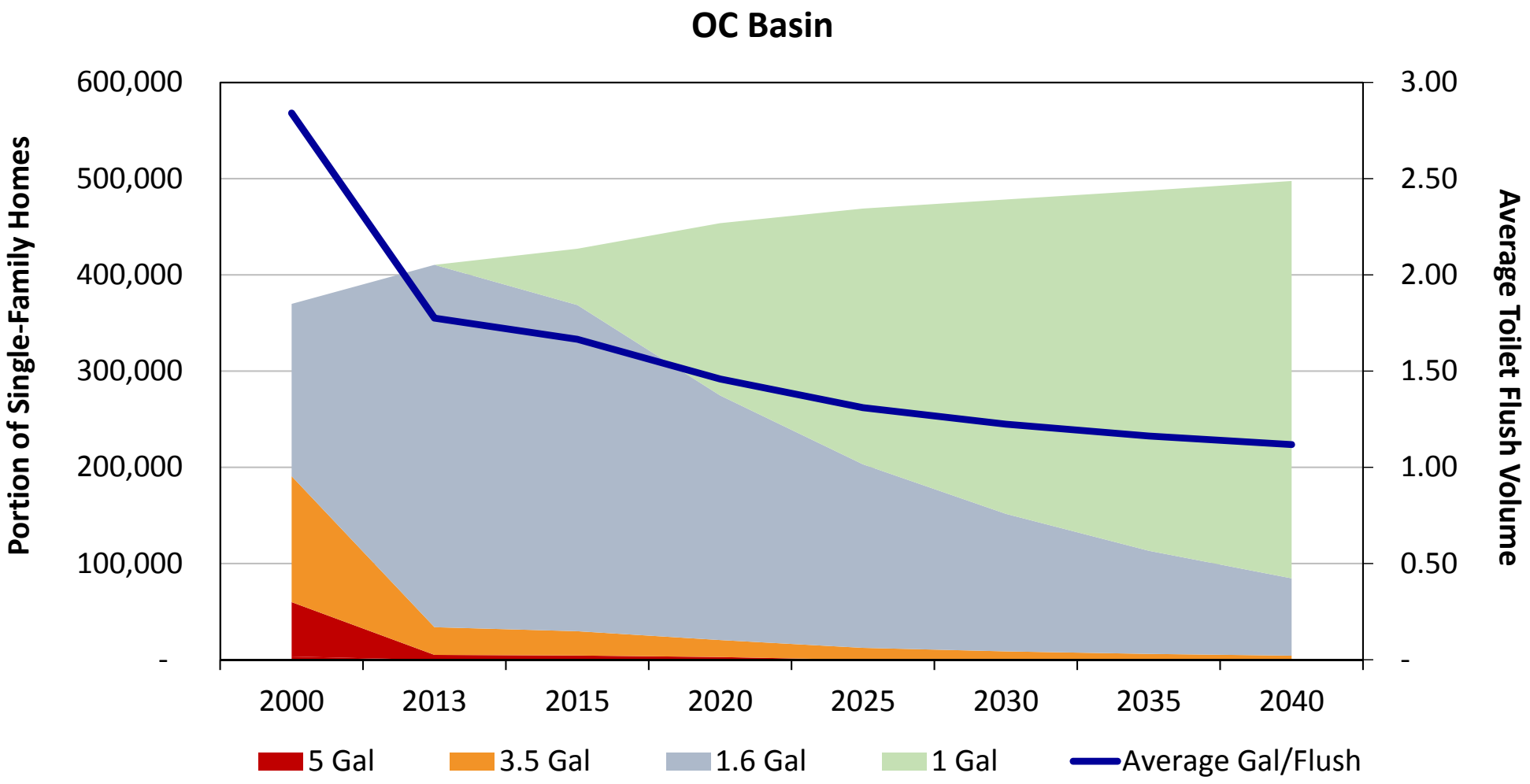
Toilet Plumbing Code Savings



Toilet Plumbing Code Savings



Toilet Plumbing Code Savings

Formula for estimating savings:

Average Flush Volume 2015 – Average Flush Volume 2040 = Savings Per Flush X No. Flushes X New Homes

Example for OC Basin Single-Family:

1.69 gal/flush (2015) – 1.14 gal/flush (2040) = 0.55 gal/flush X 17 flushes (5/person) = 9.4 gal/day X 394,000 homes = 4,159 AFY

Toilet Savings by 2040:

SF	=	4,159 AFY
MF	=	3,537 AFY
CII	=	1,808 AFY
Total	=	9,504 AFY

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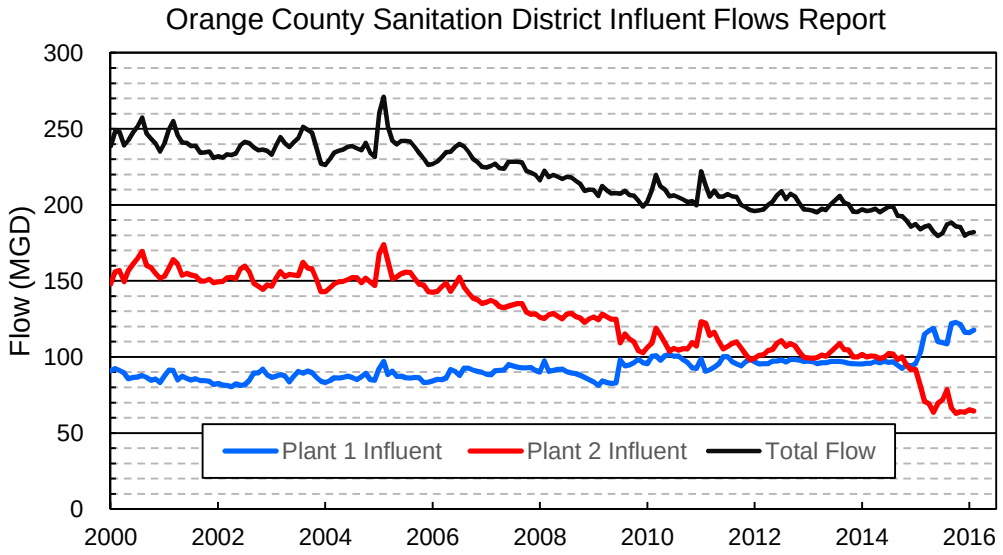
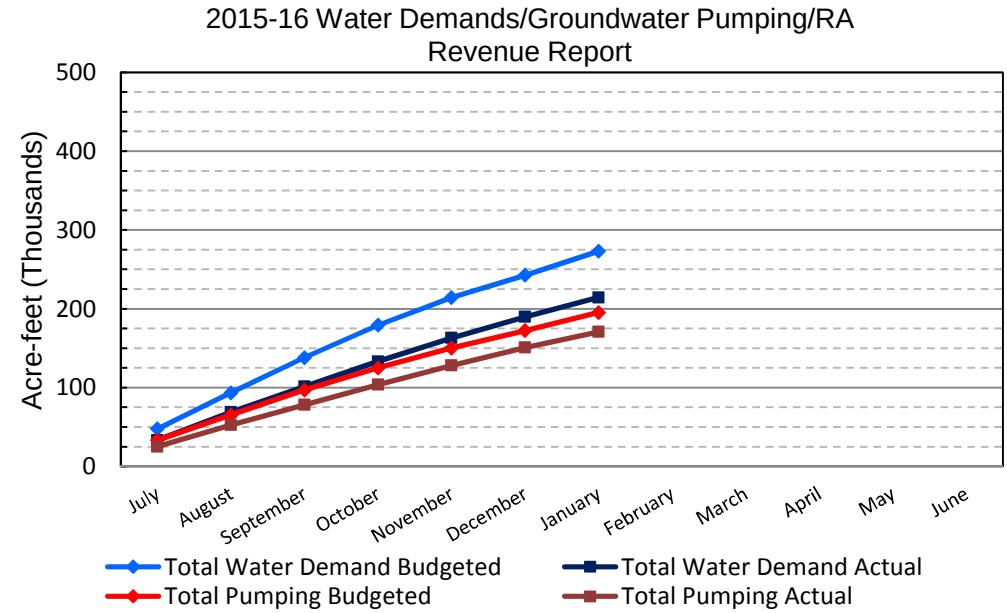
WATER RESOURCES SUMMARY

January 2016

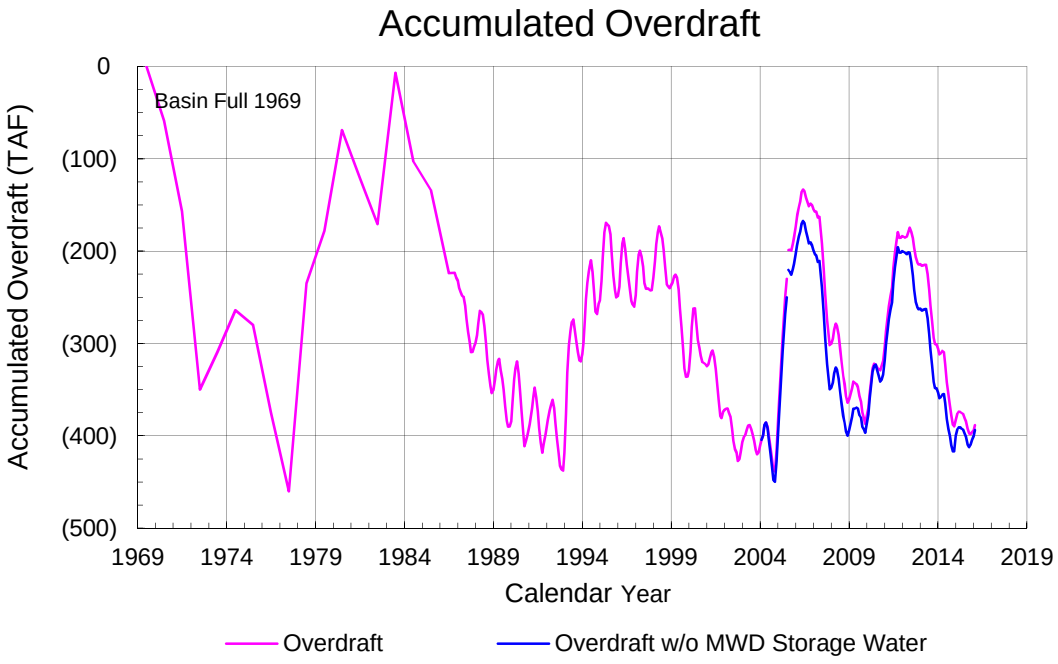
INFLOWS & OUTFLOWS (acre-feet)	Total for Month	Year to Date - This Year	Year to Date - Last Year
BASIN SUPPLIES			
Water Purchases from MWD (excludes In Lieu)	0	19,982	33,103
Water into MWD Storage Account (excludes In Lieu)	0	0	0
SAR & Santiago Creek Flows	14,416	60,245	62,054
(accounts for storage to/from recharge facilities)			
GWRS Water to Forebay	5,465	38,157	20,156
GWRS Water to Mid-Basin Injection Wells	129	975	0
GWRS Water to Talbert Barrier	2,733	21,266	21,655
OC-44 Water to Talbert Barrier	1	5	11
Alamitos Barrier Water	234	1,484	1,653
Incidental Recharge (estimated)	3,500	24,500	29,126
Evaporation from Recharge Basins	(167)	(1,825)	(1,496)
River Flow Lost to Ocean	(500)	(610)	(3,110)
Total Groundwater Recharge	25,810	164,178	163,152
WATER PRODUCTION			
Groundwater Production	19,100	158,909	184,107
MWD Storage Program Withdrawals	962	11,867	12,917
Total Groundwater Production	20,062	170,776	197,023
BASIN BALANCE			
Change in Groundwater Storage	5,748	(6,597)	(33,871)
Change in Groundwater Storage excluding MWD Stored Water	6,710	5,270	(33,871)
Accumulated Overdraft	------	388,571	375,866
Accumulated Overdraft excluding MWD Storage	------	393,463	392,761
IN LIEU WATER			
OCWD In Lieu Purchases	0	0	0
MWD In Lieu Storage	0	0	0
Total In Lieu	0	0	0
OTHER KEY INFORMATION			
1. MWD Water Deliveries to Producers	3,374	33,914	50,431
2. Basin Production Percentage	81.5%	77.6%	74.4%
3. Total Water Demand	24,589	214,369	257,231
4. Total GWRS Production	8,326	60,398	41,812
5. Green Acres Project Water	144	2,427	2,422
6. SAR Water Quality			
- Total Dissolved Solids (TDS) of SAR below Prado Dam (ppm)	334	------	542
- Total Nitrogen of SAR below Prado Dam (ppm)	3.2	------	2.2
7. Month-End Water Storage Behind Prado Dam	3,226	------	306
8. Month-End Water Storage in Recharge Facilities	18,598	------	16,596
9. Water Storage Change in Recharge Facilities	9,451	8,865	6,445
10. Total Artificial Recharge	22,182	138,705	134,032
11. Monthly Mean Temperature at Santa Ana Fire Station (°F)	58.6	------	62.1
12. Rainfall at FHQ (inches)	2.46	5.93	6.48

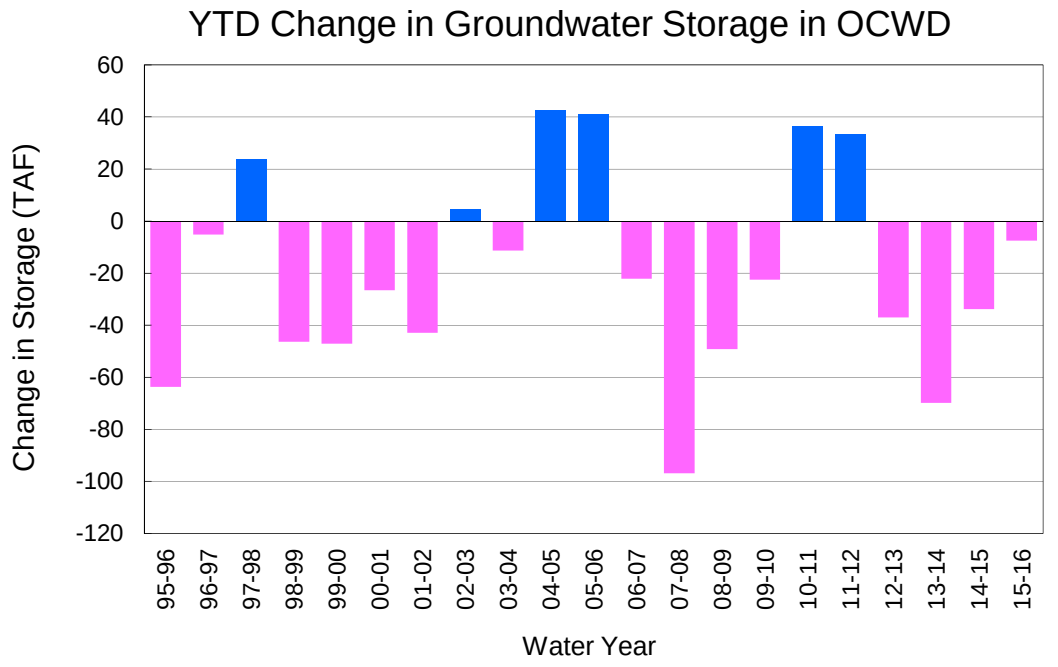
2/11/2016





	Monthly		Accumulated Total for the Year			
	Budget	Actual	Budget	Actual	Difference	Percent
Total Water Demand	**30,400**	**24,589**	**273,000**	**214,369**	**-58,631**	**78.52%**
Total Pumping	**22,800**	**19,100**	**195,200**	**170,776**	**-24,424**	**87.49%**
RA Revenue	**$7,341,600**	**$6,150,063**	**$62,854,400**	**$54,989,833**	**-$7,864,567**	**87.49%**


Accumulated Overdraft
Basin Full 1969
Accumulated Overdraft (TAF)
0
(100)
(200)
(300)
(400)
(500)
1969
1974
1979
1984
1989
1994
1999
2004
2009
2014
2019
Calendar Year
Overdraft
Overdraft w/o MWD Storage Water


YTD Change in Groundwater Storage in OCWD
Change in Storage (TAF)
60
40
20
0
-20
-40
-60
-80
-100
-120
95-96
96-97
97-98
98-99
99-00
00-01
01-02
02-03
03-04
04-05
05-06
06-07
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
Water Year

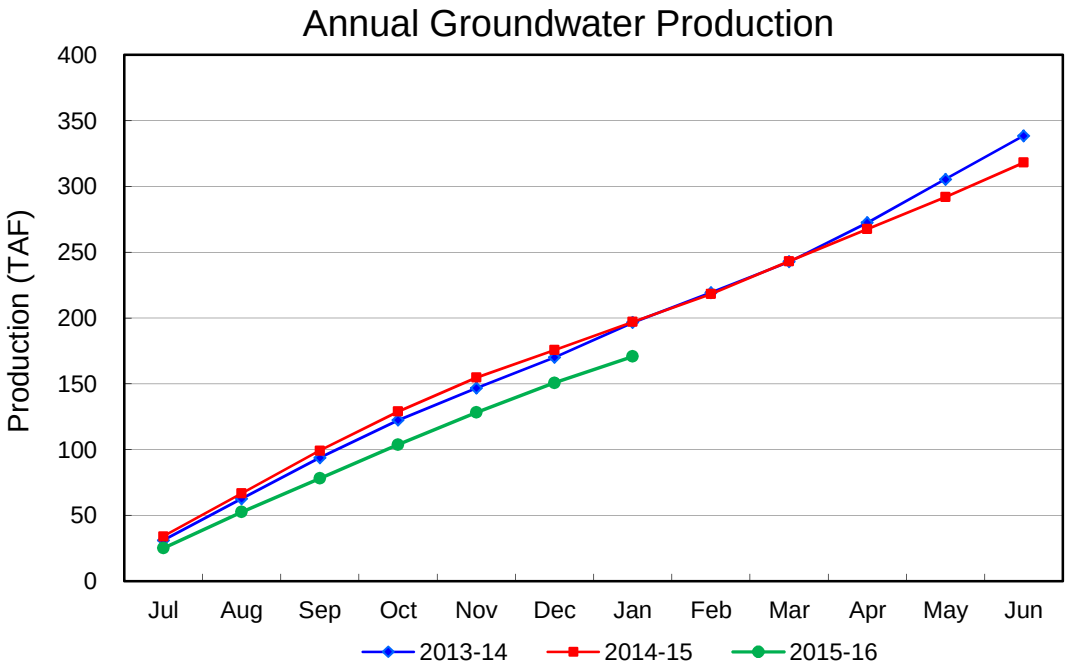
PRODUCERS WATER USAGE SUMMARY
January 2016
(AF except BPP)

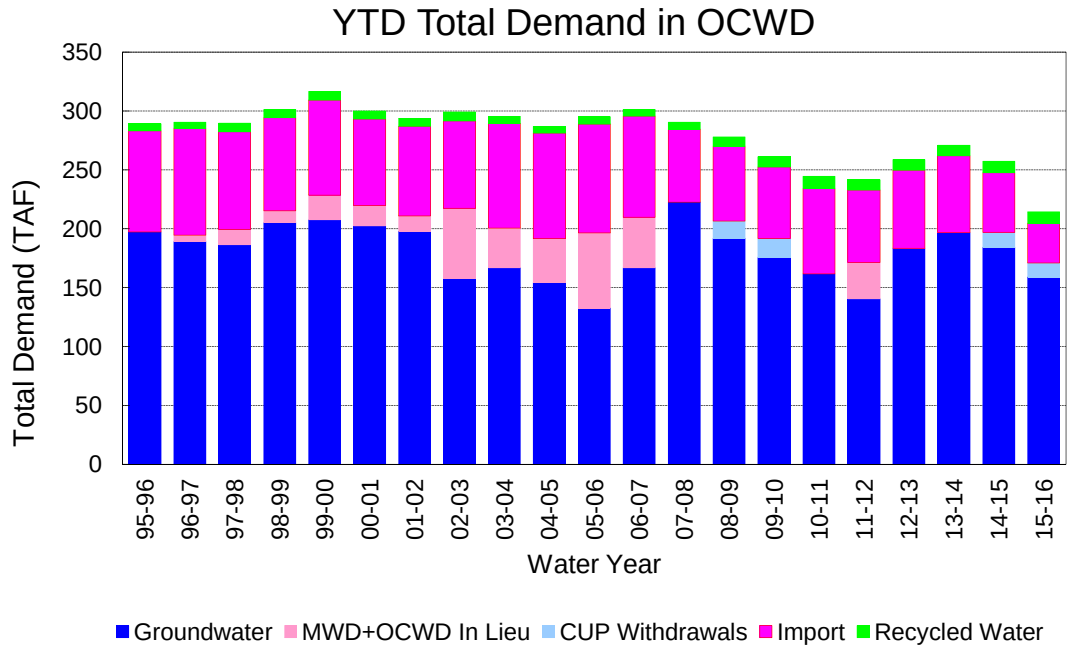
WATER AGENCY	Ground-water (1)	MWD CUP Withdrawals	Reclaimed Water	Total Import (2)	Total Demand	2015-16 YTD Demand	2014-15 YTD Demand	YTD % Diff Demand	JAN 2015 BPP	2015-16 YTD BPP	2014-15 YTD BPP
Anaheim	2,577	0	0	1,023	3,600	30,502	38,980	78%	71.6%	76.5%	73.0%
Buena Park	566	180	0	180	746	6,982	8,221	85%	75.8%	76.3%	71.8%
East Orange County	29	0	0	0	29	364	573	64%	100.0%	75.7%	98.7%
Fountain Valley	327	0	29	203	558	5,513	6,633	83%	61.7%	72.8%	100.0%
Fullerton	1,069	0	0	404	1,474	13,981	16,719	84%	72.6%	74.3%	69.1%
Garden Grove	1,156	53	0	288	1,444	12,582	14,667	86%	80.0%	72.3%	64.6%
Golden State	934	250	0	442	1,377	12,351	15,352	80%	67.9%	74.9%	68.4%
West OC System	881	0	0	1	882	7,639	9,154	83%	99.9%	99.8%	98.6%
East OC System	303	0	0	191	495	4,712	6,198	76%	61.3%	56.7%	38.9%
Huntington Beach	1,452	0	0	220	1,672	14,374	17,018	84%	86.9%	76.7%	57.8%
Irvine Ranch	3,744	0	1,087	17	4,847	37,033	39,578	94%	99.6%	99.5%	99.1%
DRWF Clear	1,623	0	0	-	1,623	17,240	17,600	98%	0.0%	na	na
DRWF Color	732	0	0	-	732	4,920	4,997	98%	0.0%	na	na
La Palma	117	0	0	0	117	1,013	1,192	85%	100.0%	72.0%	100.0%
Mesa Water (MW)	963	0	24	0	987	9,419	11,444	82%	100.0%	99.7%	87.0%
MW Clear	946	0	0	-	946	6,512	6,067	107%	0.0%	na	na
MW Color	17	0	0	-	17	2,262	3,305	68%	0.0%	na	na
Newport Beach	0	0	7	764	771	7,863	9,744	81%	0.0%	65.3%	69.7%
Orange	1,291	0	0	197	1,489	13,645	17,566	78%	86.7%	67.2%	70.5%
OCWD (GAP)	0	0	0	0	0	42	108	39%	100.0%	100.0%	100.0%
Santa Ana	2,375	0	7	0	2,382	19,567	22,650	86%	100.0%	64.2%	67.2%
Seal Beach	199	0	0	0	199	1,919	2,169	88%	100.0%	54.1%	63.0%
Serrano	26	0	0	62	87	1,196	1,836	65%	29.3%	41.5%	65.1%
Tustin	577	0	0	21	598	5,328	6,919	77%	96.4%	83.6%	72.6%
Westminster	490	222	0	222	711	6,034	7,055	86%	68.9%	74.2%	73.3%
Yorba Linda	579	258	0	289	867	9,245	12,615	73%	66.7%	62.2%	54.6%
SUBTOTAL:	18,469	962	1,154	4,332	23,954	208,955	251,039	83%	81.5%	77.6%	74.4%
Other Producers (Est ~3% of Subtotal)	631	na	0	4	635	5,414	6,193	87%			
TOTAL:	**19,100**	**962**	**1,154**	**4,336**	**24,589**	**214,369**	**257,231**		**81.5%**	**77.6%**	**74.4%**
OCWD (Talbert Barrier)	0	na	2,733	1	2,733	21,271	21,666				
OCSD (GAP)	na	na	77	na	77	568	447				

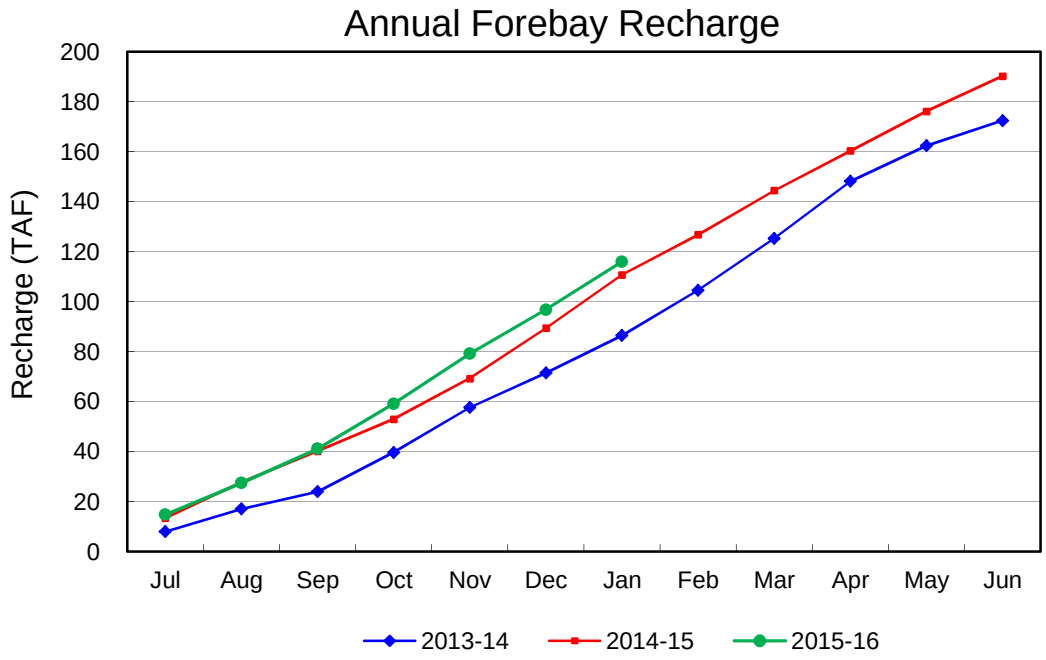
Estimated

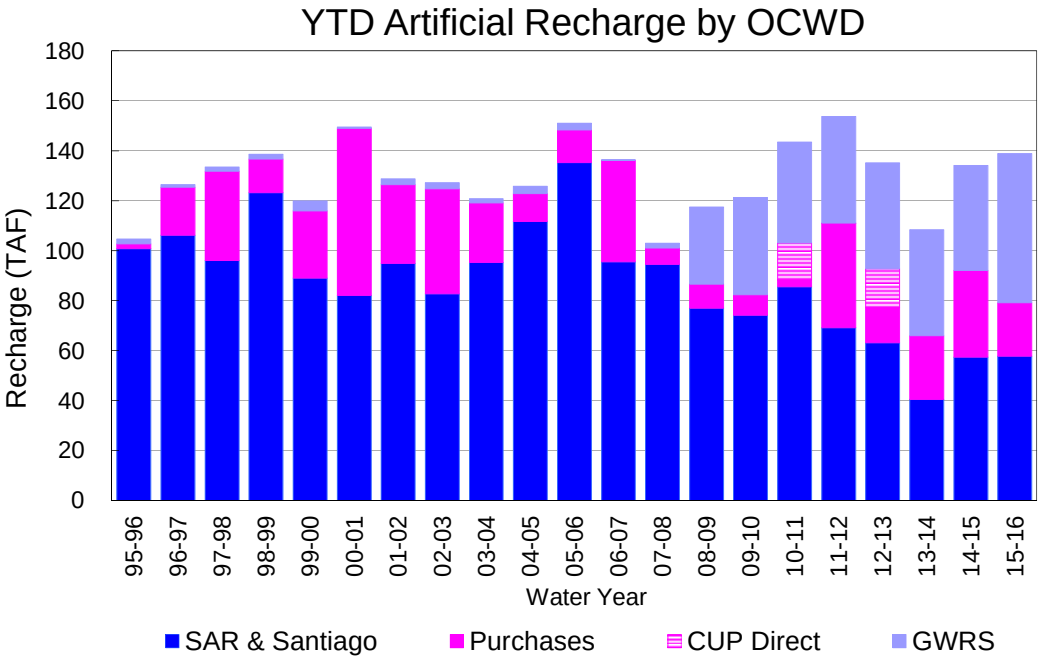
(1) Excludes MWD CUP Withdrawals

(2) Includes MWD CUP Withdrawals


Annual Groundwater Production
Production (TAF)
400
350
300
250
200
150
100
50
0
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2013-14
2014-15
2015-16


YTD Total Demand in OCWD
Total Demand (TAF)
350
300
250
200
150
100
50
0
95-96
96-97
97-98
98-99
99-00
00-01
01-02
02-03
03-04
04-05
05-06
06-07
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
Water Year
Groundwater
MWD+OCWD In Lieu
CUP Withdrawals
Import
Recycled Water


Annual Forebay Recharge
Recharge (TAF)
200
180
160
140
120
100
80
60
40
20
0
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
2013-14
2014-15
2015-16


YTD Artificial Recharge by OCWD
Recharge (TAF)
180
160
140
120
100
80
60
40
20
0
95-96
96-97
97-98
98-99
99-00
00-01
01-02
02-03
03-04
04-05
05-06
06-07
07-08
08-09
09-10
10-11
11-12
12-13
13-14
14-15
15-16
Water Year
SAR & Santiago
Purchases
CUP Direct
GWRS

RECHARGE AREAS REPORT
January 2016

	Percolation (AF)	Remarks
RIVER SYSTEM	2,595	42 cfs avg perc
DESILTING SYSTEM	298	
OFF-RIVER SYSTEM	2,324	Includes Olive and 5Coves
WARNER SYSTEM	704	Includes Foster and Conrock basins
OLIVE BASIN	na	see off river system
ANAHEIM LAKE	2,922	0
MINI-ANA LAKE	20	0
MILLER BASIN	936	0
KRAEMER BASIN	2,262	GWR inflow
MIRA LOMA	3,019	GWR inflow
LA JOLLA BASIN	67	
PLACENTIA BASIN	0	
RAYMOND BASIN	30	
FIVE COVES BASIN	na	see off river system
BURRIS BASIN	702	
RIVER VIEW BASIN	10	
SANTIAGO BASINS	3,106	
SANTIAGO CREEK	220	
TOTALS	**19,215**	
5-YR AVERAGE	**19,296**	

FLOWS TO RECHARGE AREAS (AF)		
Imperial Headgates (estimated)		22,573
GWRS		5,467
OC-28 (MWD)		0
OC-28a (MWD)		0
CB-11		0
CB-18		0
Est'd local Forebay inflow below Imperial		600
Est'd local Santiago inflow (estimated)		550
Irvine lake releases (OC-13 MWD)		0
Villa Park Dam releases (estimated)		0
Precip at Warner Basin (inches)	2.46	
Precip direct to open water surfaces		144
TOTAL INFLOW		29,334

LOSSES FROM RECHARGE AREAS (AF)		
Est'd SAR flow past Chapman Ave.		500
Est'd Santiago Cr. flow to SAR		0
Est'd flows past Raymond Basin		0
Calc'd evap (inches) Estimated	2.87	
Est'd evaporative losses		167
TOTAL LOSSES		**667**

STORAGE CHANGES (AF)			
Facility	*Begin*	*End*	*Net*
Deep basins	5,331	8,410	3,079
Santiago Pits	3,816	10,188	6,372
River			0
Off-river			0
Irvine Lake			
TOTAL	9,147	18,598	9,451

SUMMARY (AF)	
TOTAL INFLOW	29,334
TOTAL LOSSES	667
STORAGE CHANGE	9,451
CALC'D PERCOLATION	19,215

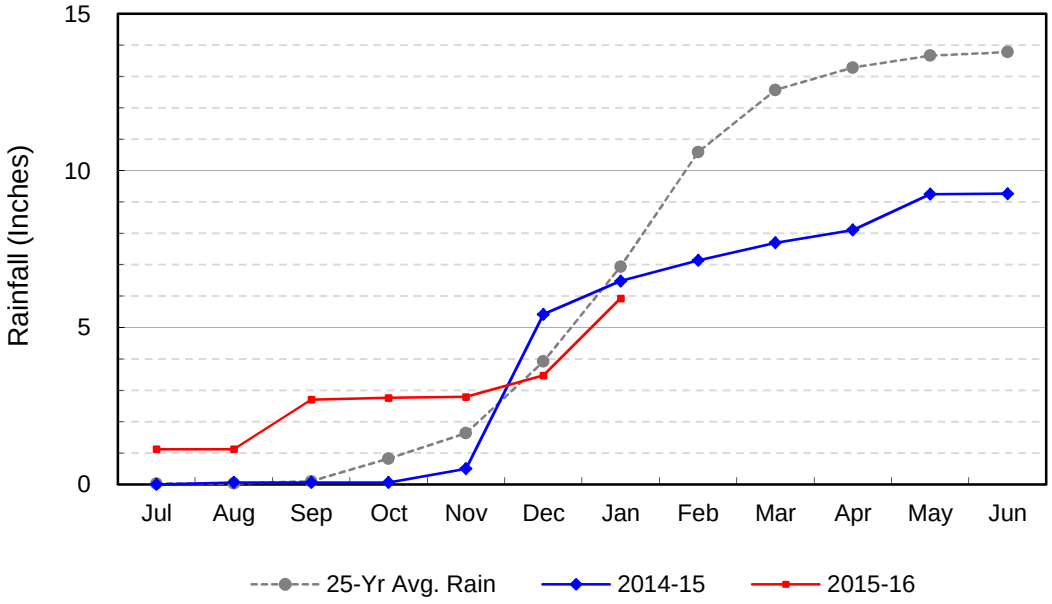
DEEP BASINS MONTHLY STATUS

January 2016

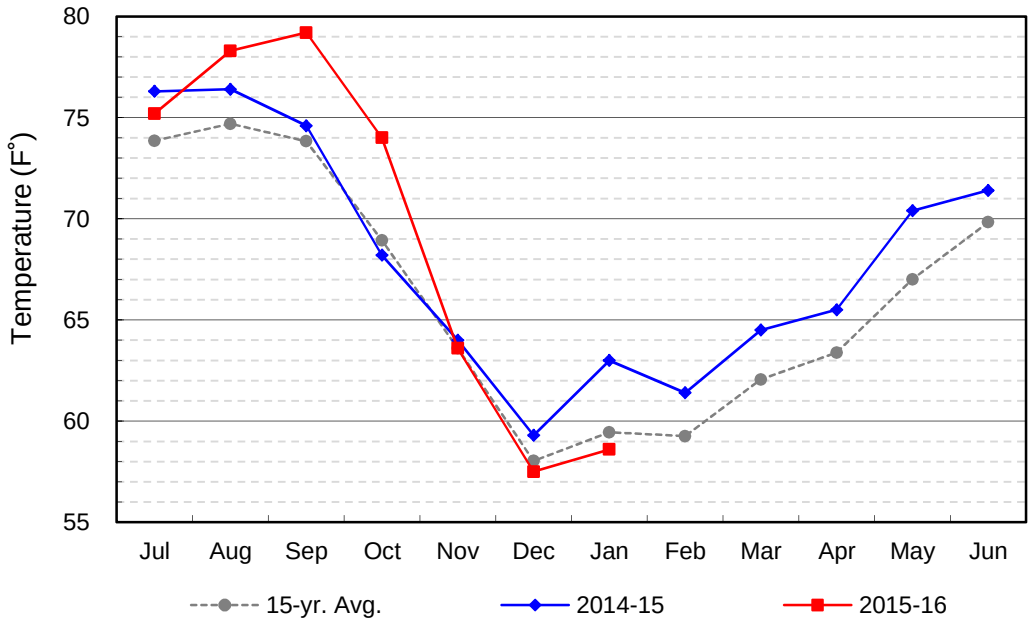
(values in acre-feet)

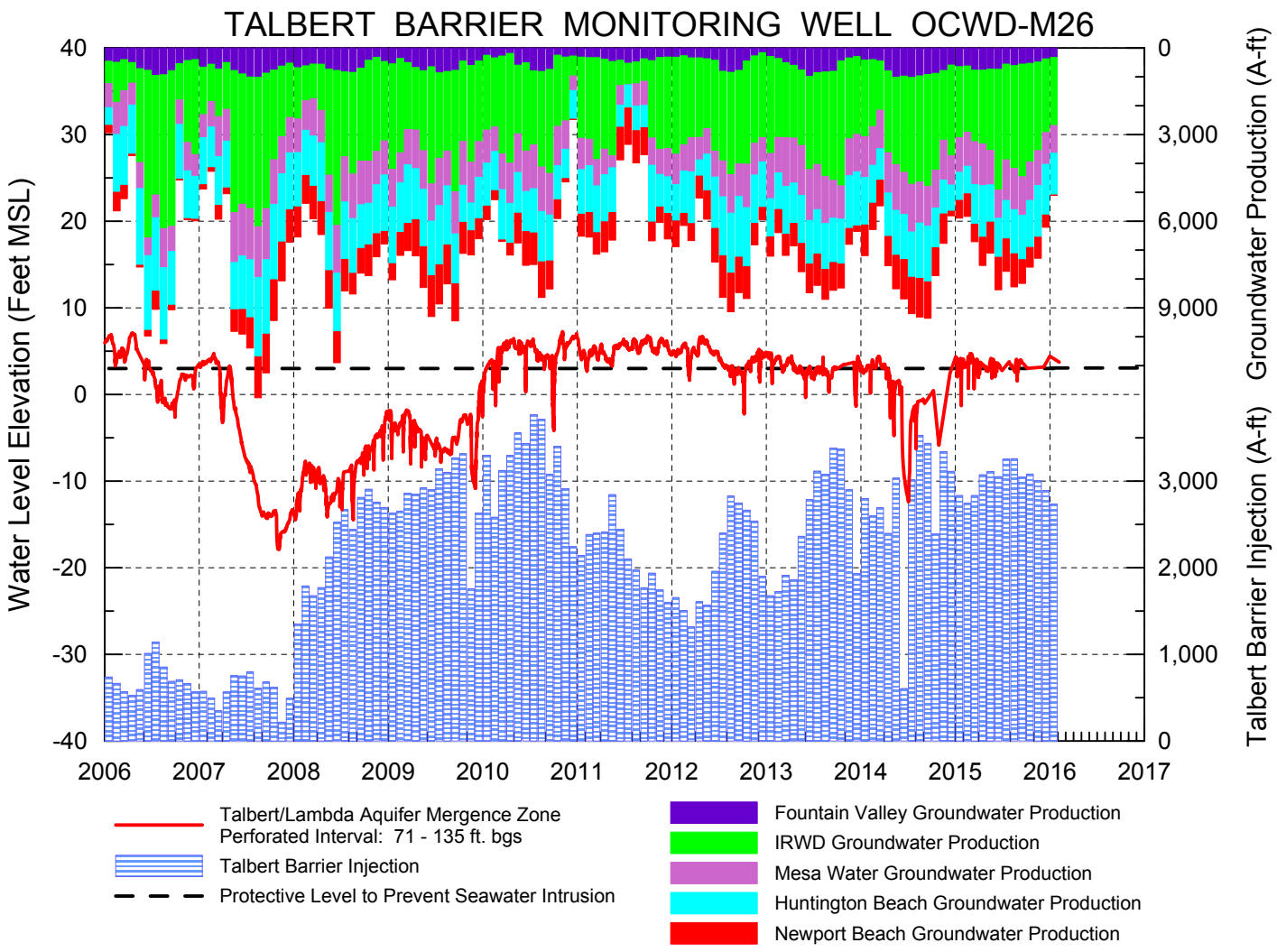
Facility	*Storage Start*	*Storage End*	*Maximum Storage*	*Total Perc*	*Max Perc*	*Avg Perc*	*Avg W.S. Elev*
Desilting Ponds	230	230	230	298	na	na	na
Fos-Huckleberry	529	549	630	na	na	na	na
Conrock Basin	557	579	660	na	na	na	na
Warner Basins	2,689	2,648	2,810	704	na	na	236
Olive Pit	0	0	183	na	na	na	na
Anaheim Lake	12	2,063	2,300	2,922	162	99	202
Mini-Anaheim Lk	3	1	21	20	na	na	na
Miller Basin	38	107	340	936	58	30	209
Kraemer Basin	178	343	1,050	2,262	96	73	185
Mira Loma	20	33	62	3,019	121	97	216
La Jolla Basin	7	0	36	67	11	2	200
Placentia Basin	0	0	350	0	na	na	na
Raymond Basin	0	0	370	30	na	na	na
Five Coves Basins	179	207	350	na	na	na	na
Burris Pit	890	1,650	2,670	702	40	23	161
River View Basin	0	0	12	10	na	na	na
Santiago (Bond)	2,783	6,664	8,690	3,106	na	na	244
Santiago (Blu Dia)	1,033	3,524	5,240	-	-	-	244
Totals	9,147	18,598	26,004	14,076			
Prado Dam	206	3,226	25,000				

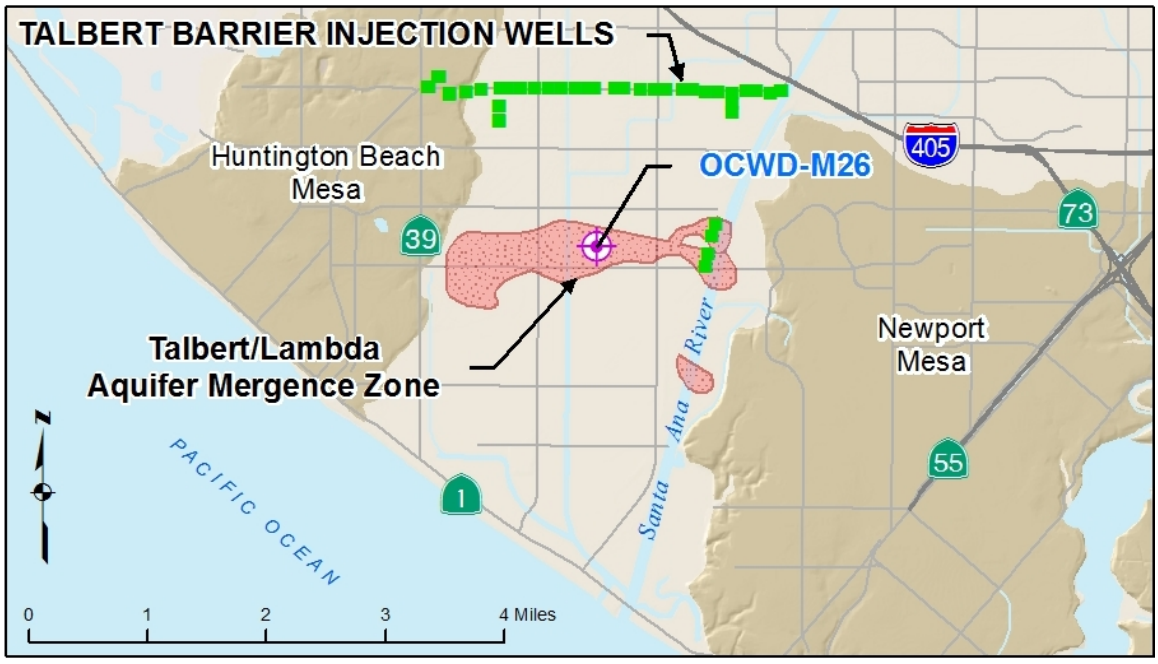
Cumulative Forebay Rainfall



Temperature at Santa Ana Fire Station




TALBERT BARRIER MONITORING WELL OCWD-M26
Water Level Elevation (Feet MSL)
Groundwater Production (A-ft)
Talbert Barrier Injection (A-ft)
40
30
20
10
0
-10
-20
-30
-40
0
3,000
6,000
9,000
3,000
2,000
1,000
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Talbert/Lambda Aquifer Mergence Zone
Perforated Interval: 71 - 135 ft. bgs
Talbert Barrier Injection
Protective Level to Prevent Seawater Intrusion
Fountain Valley Groundwater Production
IRWD Groundwater Production
Mesa Water Groundwater Production
Huntington Beach Groundwater Production
Newport Beach Groundwater Production


TALBERT BARRIER INJECTION WELLS
Huntington Beach
Mesa
OCWD-M26
405
73
39
Talbert/Lambda
Aquifer Mergence Zone
Newport
Mesa
Santa Ana River
55
1
PACIFIC OCEAN
N
0
1
2
3
4 Miles

S A W P A

SANTA ANA WATERSHED PROJECT AUTHORITY
11615 Sterling Avenue, Riverside, California 92503 • (951) 354-4220

REGULAR COMMISSION MEETING
TUESDAY, FEBRUARY 16, 2016 – 9:30 A.M.

AGENDA

1. CALL TO ORDER/PLEDGE OF ALLEGIANCE (Thomas P. Evans, Chair)

2. ROLL CALL

3. PUBLIC COMMENTS

Members of the public may address the Commission on items within the jurisdiction of the Commission; however, no action may be taken on an item not appearing on the agenda unless the action is otherwise authorized by Government Code §54954.2(b).

4. SPECIAL COMMENDATION

A. WELCOME MIKE ANTOS – WATERSHED MANAGER

5. CONSENT CALENDAR

All matters listed on the Consent Calendar are considered routine and non-controversial and will be acted upon by the Commission by one motion as listed below.

A. APPROVAL OF MEETING MINUTES: JANUARY 19, 2016 5
Recommendation: Approve as posted.

B. APPROVAL OF MEETING MINUTES: FEBRUARY 2, 2016 11
Recommendation: Approve as posted.

C. TREASURER'S REPORT – DECEMBER 2015 13
Recommendation: Approve as posted.

D. TREASURER'S REPORT – JANUARY 2016 19
Recommendation: Approve as posted.

6. NEW BUSINESS

A. COMMISSIONERS' COMPENSATION 25
Presenter: Celeste Cantú
Recommendation: It is recommended that the Commission take no action, which would provide for a five percent (5%) increase in Commissioners' compensation, or direct staff to prepare a resolution to defer increased compensation in accordance with Ordinance No. 1997-2.

B. **AUDIT SERVICES CONTRACT EXTENSION (CM#2016.11)** 27
Presenters: Karen Williams
Recommendation: Authorize the issuance of a Task Order with White Nelson Diehl Evans LLP., for audit services and extend the current contract for an additional two (2) years.

C. **INLAND EMPIRE BRINE LINE REACH 5 REHABILITATION AND IMPROVEMENT PROJECT – PHASE 2 (NICHOLS ROAD RELOCATION) (CM#2016.12)** 31
Presenter: David Ruhl
Recommendation: Authorize the General Manager to:

1. Award a contract for public works construction to the lowest, responsive, responsible bidder (Schedule A), Weka Inc., for the Inland Empire Brine Line Reach V Rehabilitation and Improvement Project – Phase 2, in an amount not to exceed $1,941,967, and waive the minor irregularities;
2. Execute Task Order No. VALI326-03 in an amount not-to-exceed $196,380 with Vali Cooper & Associates, Inc. to provide Construction Management Services for the Inland Empire Brine Line Reach V Rehabilitation and Improvement Project – Phase 2; and,
3. Execute Task Order No. DUDK326-04 in an amount not-to-exceed $64,300 with Dudek, to provide Engineering Services during Construction for the Inland Empire Brine Line Reach V Rehabilitation and Improvement Project – Phase 2.

D. **MEMORANDA OF UNDERSTANDING TO ACCEPT LOCAL COST-SHARE FOR THE WATER-ENERGY COMMUNITY ACTION NETWORK PROJECT (CM#2016.13)** 51
Presenter: Ian Achimore
Recommendation: Authorize the General Manager to execute the Memorandum of Understanding (MOU) with the Fontana Water Company, Jurupa Community Services District, City of Santa Ana, West Valley Water District, and Western Municipal Water District to implement the Water-Energy Community Action Network Project.

E. **UPDATE ON OCSD AND SAWPA ORDINANCE REVISIONS (CM#2016.14)** 59
Presenter: Lucas Gilbert
Recommendation: Receive and file an update on the ongoing OCSD and SAWPA Ordinance revisions.

7. INFORMATIONAL REPORTS

Recommendation: Receive and file the following oral/written reports/updates.

A. **UPDATE ON OWOW PROJECT IMPLEMENTATION FOR DROUGHT RESPONSE FUNDED BY THE 2014 PROPOSITION 84 INTEGRATED REGIONAL WATER MANAGEMENT GRANT (CM#2016.8)** 63
Presenter: Mark Norton

B. **UPDATE ON THE DEPARTMENT OF WATER RESOURCES' FINAL FUNDING ANNOUNCEMENT FOR THE 2015 PROPOSITION 84 INTEGRATED REGIONAL WATER MANAGEMENT GRANT SOLICITATION (CM#2016.9)** 67
Presenter: Mark Norton

C. **PROPOSED 2016 WATER BOND (CM#2016.10)** 69
Presenter: Mark Norton

D. **CASH TRANSACTIONS REPORT – DECEMBER 2015** 71
Presenter: Karen Williams

E. **INTER-FUND BORROWING – DECEMBER 2015 (CM#2016.5)** 77
Presenter: Karen Williams

F. **PERFORMANCE INDICATORS/FINANCIAL REPORTING – DECEMBER 2015 (CM#2016.6)** 81
Presenter: Karen Williams

G. **SECOND QUARTER FYE 2016 EXPENSE REPORTS** 103
- Staff
- General Manager

Presenter: Karen Williams

H. **BUDGET VS. ACTUAL VARIANCE REPORT – FYE 2016 SECOND QUARTER – DECEMBER 31, 2015 (CM#2016.7)** 109
Presenter: Karen Williams

I. **FINANCIAL REPORT FOR THE SECOND QUARTER ENDING DECEMBER 31, 2015** 119
- Inland Empire Brine Line (IEBL)
- SAWPA

Presenter: Karen Williams

J. **GENERAL MANAGER'S REPORT** 139

K. **STATE LEGISLATIVE REPORT** 141
Presenter: Celeste Cantú

L. **CHAIR'S COMMENTS/REPORT** 153

M. **COMMISSIONERS' COMMENTS**

N. **COMMISSIONERS' REQUEST FOR FUTURE AGENDA ITEMS**

8. CLOSED SESSION

A. **CONFERENCE WITH LEGAL COUNSEL – EXPOSURE TO LITIGATION – PURSUANT TO GOVERNMENT CODE SECTION 54956.9(d)(2)**
Number of Potential Cases: Two

9. ADJOURNMENT

PLEASE NOTE:
Americans with Disabilities Act: Meeting rooms are wheelchair accessible. If you require any special disability related accommodations to participate in this meeting, please contact (951) 354-4220 or kberry@sawpa.org. 48-hour notification prior to the meeting will enable staff to make reasonable arrangements to ensure accessibility for this meeting. Requests should specify the nature of the disability and the type of accommodation requested.

Materials related to an item on this agenda submitted to the Commission after distribution of the agenda packet are available for public inspection during normal business hours at the SAWPA office, 11615 Sterling Avenue, Riverside, and available at www.sawpa.org, subject to staff's ability to post documents prior to the meeting.

Declaration of Posting

I, Kelly Berry, Clerk of the Board of the Santa Ana Watershed Project Authority declare that on Wednesday, February 10, 2016, a copy of this agenda has been uploaded to the SAWPA website at www.sawpa.org and posted in SAWPA's office at 11615 Sterling Avenue, Riverside, California.

/s/

Kelly Berry, CMC

2016 - SAWPA Commission Meetings/Events

First and Third Tuesday of the Month

(NOTE: Unless otherwise noted, all Commission Workshops/Meetings begin at **9:30 a.m.**, and are held at SAWPA.)

January 1/5/16 Commission Workshop 1/19/16 Regular Commission Meeting	**February** 2/2/16 Commission Workshop–**OCSD Facilities Tour** 2/16/16 Regular Commission Meeting
March 3/1/16 Commission Workshop 3/15/16 Regular Commission Meeting	**April** 4/5/16 Commission Workshop 4/19/16 Regular Commission Meeting
May 5/3/16 Commission Workshop 5/3 – 5/6/16 ACWA Spring Conference, Monterey 5/17/16 Regular Commission Meeting	**June** 6/7/16 Commission Workshop 6/21/16 Regular Commission Meeting
July 7/5/16 Commission Workshop 7/19/16 Regular Commission Meeting	**August** 8/2/16 Commission Workshop 8/16/16 Regular Commission Meeting
September 9/6/16 Commission Workshop 9/20/16 Regular Commission Meeting	**October** 10/4/16 Commission Workshop 10/18/16 Regular Commission Meeting
November 11/1/16 Commission Workshop 11/29 – 12/2/16 ACWA Fall Conference, Anaheim 11/15/16 Regular Commission Meeting	**December** 12/6/16 Commission Workshop 12/20/16 Regular Commission Meeting

Minutes
GROUNDWATER PRODUCERS MEETING
Sponsored by the
ORANGE COUNTY WATER DISTRICT
(714) 378-3200
Wednesday, February 10, 2016, 9:30 a.m.

Meeting held at the 18700 Ward Street Fountain Valley CA

1. County of Orange well discharge permits

   Colby Cataldi the Deputy Public Works director for the County discussed the process they went through to come up with the new charges and encourage participation in future revisions.

2. City of HB Poseidon Water Project – Distribution plan

   OCWD provided the presentation that was discussed at the OCWD February 3rd Board meeting. Comments included: (1) OCWD should provide a scenario of only moving forward with the Poseidon project and no GWRS Final Expansion and no MWD LA County IPR project. This could achieve the 75% BPP goal; (2) OCWD should show the future RA needed to support the GWRS Final Expansion; (3) GWRS infrastructure was constructed to support the 130 mgd Final Expansion project and not to be reallocated to the Poseidon project; (4) What will be the District's future debt coverage ratio with the Poseidon project?; (5) The RA may also need to increase to pay for the North and South Basin remediation projects; (6) How often would Poseidon water be needed in the future and what is the cost of the reliability it would bring as compared with MWD water; (7) The West Orange County Water Board has not taken a position on the project and needs to be engaged; (8) GSWD indicated they were not interested in purchasing any water. The next OCWD workshop on the Distribution options will be on March 2, 2015.

3. State Board emergency drought regulations status

   Mike Markus discussed how the GWRS Initial Expansion 7% credit could be applied to the Producers to assist them in meeting their SWRCB conservation mandates. EOCWD provided a letter that recommended assigning the GWRS Initial Expansion credit based upon wastewater flows being sent to OCSD and previous Replenishment Assessment payments.

4. FY2016-17 Budget Schedule

   OCWD staff indicated that budget numbers along with the RA and BPP would be available for discussion at the next March Producers meeting

5. Future MWD rates

The proposed 2017 cost of untreated full service MWD water was discussed along with the methodology for arriving at the rate. MWDOC will be investigating this issue.

6. OCWD DWR boundary modification request

   Roy Herndon gave a brief update on the DWR boundary change. This is an administrative effort to correct the physical boundaries DWR has for the OCWD basin.

7. Groundwater Remediation Projects Update

   a. North Basin

      Bill Hunt updated everyone on the EPA's recent meeting of "potentially interested parties" in the north basin. In that meeting the OCWD asked that a steering committee be formed to voluntarily comply with the EPA's call for voluntary performance of a North Basin RI/FS. OCWD's recent efforts to work with Northrop were summarized. The status of installing the EW-1 extraction well near State College and Kimberly Drive was given including the three remaining pumped water end-use options which include.

   b. South Basin

   c. MTBE

8. OCSD Monthly Flow report

   The latest chart was distributed

9. Other

   none

10. Smart Utility Systems Presentation

    This item was deferred to March

The Producers' meetings are scheduled the second Wednesday of each month. The next regular monthly meeting is Wednesday, March 9, 2016 at 9:30 a.m.

ACTION AGENDA
COMMUNICATIONS AND LEGISLATIVE LIAISON COMMITTEE MEETING
Thursday, February 4, 2016

ROLL CALL	**ACTIONS**
Philip Anthony Jordan Brandman (arrived 8:27 a.m.) Dina Nguyen Roman Reyna (not present) Steve Sheldon (arrived 8:06 a.m.) **Alternates** Roger Yoh (arrived 8:15 a.m.) Shawn Dewane (not present) Jan Flory (not present) Denis Bilodeau (arrived 8:10 a.m.) Cathy Green	Quorum of Cte: Yes Quorum of Board: Yes
CONSENT CALENDAR (ITEM NO. 1)	
1. MINUTES OF COMMUNICATIONS AND LEGISLATIVE LIAISON COMMITTEE MEETING HELD JANUARY 7, 2016 RECOMMENDATION: Approve minutes as presented	Approved
MATTERS FOR CONSIDERATION	
2. FEDERAL LEGISLATIVE UPDATE RECOMMENDATION: Take action as appropriate	No action taken
3. STATE LEGISLATIVE UPDATE RECOMMENDATION: Take action as appropriate	No action taken
4. PURCHASE OF TOUR SOUND SYSTEM RECOMMENDATION: Agendize for February 17 Board meeting: Authorize issuance of Purchase Order to Integrated Media Systems in the amount of $25,000 for a sound system to support the tour program	Approved
INFORMATIONAL ITEMS	
5. PUBLIC AFFAIRS OUTREACH REPORT [JANUARY 2016]	Information
ITEMS TO BE AGENDIZED ON CONSENT CALENDAR AT THE FEBRUARY 17 BOARD MEETING	
DIRECTOR'S ANNOUNCEMENTS/REPORTS	N/A
GENERAL MANAGER'S ANNOUNCEMENT/REPORT	N/A
ADJOURNMENT	9:05 a.m.

ACTION AGENDA
WATER ISSUES COMMITTEE MEETING
Wednesday, February 10, 2016

ROLL CALL	**ACTIONS**
Denis Bilodeau (not present) Philip Anthony Dina Nguyen (not present) Shawn Dewane Roman Reyna (not present) <u>Alternates</u> Steve Sheldon (not present) Jan Flory Jordan Brandman (arrived 8:05 a.m.) Roger Yoh (not present) Cathy Green	Quorum of Cte: Yes Quorum of Board: No
ITEMS RECEIVED TOO LATE TO BE AGENDIZED	
VISITOR PARTICIPATION	
CONSENT CALENDAR (ITEMS NO. 1 – 5)	
1. MINUTES OF WATER ISSUES COMMITTEE MEETING HELD JANUARY 13, 2016 RECOMMENDATION: Approve minutes as presented	Approved
2. CONTRACT NO. FB-2012-1, FLETCHER BASIN PROJECT: AMENDMENT TO AGREEMENT WITH BUTIER FOR CONSTRUCTION PHASE SERVICES RECOMMENDATION: Agendize for February 17 Board meeting: Authorize issuance of Amendment No. 7 to Agreement No. 0370 with Butier Construction Managers for $109,924 for construction phase services	Approved
3. ALAMITOS SEAWATER BARRIER 2016-17 OPERATIONS AND MAINTENANCE BUDGET RECOMMENDATION: Agendize for February 17 Board meeting: 1. Approve the Alamitos Barrier 2016-17 total O&M budget in the amount of $1,791,000, and authorize payment of the District's share not to exceed $597,870 payable to the Los Angeles County Department of Public Works after receipt and review of invoices; and 2. Appoint Ryan Bouley to replace Chris Olsen on the Alamitos Barrier Joint Management Committee	Approved
4. PAYMENT TO SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT FOR OCWD COST SHARE OF DECISION SUPPORT MODEL RECOMMENDATION: Agendize for February 17 Board meeting: Authorize payment of $49,983 to San Bernardino Valley Municipal Water District for	Approved

the District's cost share to develop a decision support model for the Santa Ana River Conservation and Conjunctive Use Program	
5. CONTRACT NO. GA-2015-1: PERIMETER SITE IMPROVEMENT OF THE SANTA ANA RESERVOIRS – RATIFY CHANGE ORDERS 1 & 2, ISSUE CHANGE ORDER NO. 3 TO PARSAM CONSTRUCTION, INC. AND INCREASE PROJECT BUDGET RECOMMENDATION: Agendize for February 17 Board meeting: 1. Ratify execution of Change Order No. 1 and No. 2 to Parsam Construction, Inc. for a total amount of $22,198; and 2. Authorize issuance of Change Order No 3. to Parsam Construction, Inc. in the amount of $74,335; and 3. Approve increasing the project budget to $576,850	Approved
MATTERS FOR CONSIDERATION	
6. CONTRACT NO. TAL-2015-2:TALBERT BARRIER WELL REDEVELOPMENT PROJECT- AWARD CONTRACT TO BOART LONGYEAR COMPANY RECOMMENDATION: Agendize for February 17 Board meeting: 1) Receive and file Affidavit of Publication of Notice Inviting Bids for Contract No. TAL-2015-2: Talbert Barrier Well Redevelopment Project; and 2) Accept bid and award contract to Boart Longyear Company, Inc. for $152,452	Approved
7. ENGINEERING DESIGN SERVICES AND PROCURMENT FOR THE FIVE COVES RUBBER DAM REPLACEMENT PROJECT RECOMMENDATION: Agendize for February 17 Board meeting: 1) Authorize staff to obtain proposals for engineering design services and material fabrication for the Five Coves Rubber Dam Replacement Project; and 2) Authorize General Manager to execute an Agreement for an amount not to exceed $1,600,000 for engineering design services and material fabrication for the Five Coves Rubber Dam Replacement Project	<u>Committee Recommendation</u> Authorize staff to obtain proposals for engineering design services and material fabrication for the Five Coves Rubber Dam Replacement Project
INFORMATIONAL ITEMS	
8. OCWD PARTICIPATION IN UPPER SANTA ANA RIVER HABITAT CONSERVATION PLAN	Informational
9. METROPOLITAN WATER DISTRICT RATE PROJECTIONS	Informational
ITEMS TO BE AGENDIZED ON CONSENT CALENDAR AT THE FEBRUARY 17 BOARD MEETING	**Items 2-7**
DIRECTORS' ANNOUNCEMENTS/REPORTS	
GENERAL MANAGER'S ANNOUNCEMENTS/REPORTS	
ADJOURNMENT	9:05 a.m.

ACTION AGENDA
ADMINISTRATION/FINANCE ISSUES COMMITTEE MEETING
Thursday, February 11, 2016

ROLL CALL	**ACTION**
Shawn Dewane Jan Flory (not present) Roger Yoh (arrived 8:10 a.m.) Dina Nguyen Denis Bilodeau (not present) Steve Sheldon Philip Anthony Roman Reyna (not present) Jordan Brandman (not present) Cathy Green	Quorum of Cte: Yes Quorum of Board: Yes
ITEMS RECEIVED TOO LATE TO BE AGENDIZED	
VISITOR PARTICIPATION	
CONSENT CALENDAR (ITEMS NOS. 1 – 4)	
1.MINUTES OF ADMINISTRATION/FINANCE ISSUES COMMITTEE MEETING HELD JANUARY 14, 2016 RECOMMENDATION: Approve minutes as presented	Approved
2. MONTHLY CASH CONTROL REPORT RECOMMENDATION: Agendize for February 17 Board meeting: Receive and file Summary Cash and Cash Equivalents Control Report dated January 31, 2016	Approved
3. AGREEMENT TO JL LANDSCAPE SERVICES FOR LANDSCAPE MAINTENANCE SERVICES AT SANTIAGO BASIN BIKE TRAIL RECOMMENDATION: Agendize for February 17 Board meeting: Authorize issuance of Agreement with JL Landscape Services for an amount not to exceed $30,600 per year for a three-year period for landscape services	Approved
4. STATE REVOLVING FUND LOAN - REIMBURSEMENT RESOLUTION FOR ALAMITOS BARRIER IMPROVEMENT PROJECT RECOMMENDATION: Agendize for February 17 Board meeting: Adopt Reimbursement Resolution for the State Revolving Fund Loan Application for Alamitos Barrier Improvement Project	Approved
MATTERS FOR CONSIDERATION	
5. INVESTMENT PORTFOLIO HOLDINGS REPORTS RECOMMENDATION: Agendize for February 17 Board meeting: Receive and file the Investment Portfolio Holdings Reports dated January 31, 2016	Approved

6. RATIO ANALYSIS - SECOND QUARTER - FY 2015-2016 RECOMMENDATION: Agendize for February 17 Board meeting: Receive and file the Ratio Analysis Report for FY 2015-16 Second Quarter ending December 31, 2015	Approved
7. BUDGET TO ACTUAL REPORT FOR SECOND QUARTER FY 2015–16 RECOMMENDATION: Agendize for February 17 Board meeting: Receive and file the Budget to Actual Report for Second Quarter of Fiscal Year 2015-16 ending December 31, 2015	Approved
INFORMATIONAL ITEM	
8. MONTHLY CASH DISBURSEMENTS DETAIL REPORT	Informational
ITEMS IF ANY TO BE AGENDIZED ON THE CONSENT CALENDAR AT THE FEBRUARY 17 BOARD MEETING	Items No. 2-7
DIRECTOR'S ANNOUNCEMENTS/REPORTS	
GENERAL MANAGER'S ANNOUNCEMENT/REPORT	
ADJOURNMENT	8:17 a.m.