

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

Jointly with the
PLANNING & OPERATIONS COMMITTEE

January 14, 2019, 8:30 a.m.

Conference Room 101

Teleconference Site:
Director Tamaribuchi will participate
via teleconference at the following location:
4519 4th Avenue N.E.
Seattle, WA 98105
949/422-2371

P&O Committee:

Director Osborne, Chair
Director Tamaribuchi
Director Yoo Schneider

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

Ex Officio Member: Director Barbre

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

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

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

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

ACTION ITEM

1. CONTINUATION OF WATER LOSS CONTROL TECHNICAL ASSISTANCE PROGRAM
2. OCWD PROPOSED GROUNDWATER STORAGE AGREEMENT STUDY WITH MNWD

3. RECEIVE AND FILE FINAL REPORT: 2018 ORANGE COUNTY WATER RELIABILITY STUDY

DISCUSSION ITEMS

4. CAMP AND WOOLSEY FIRE MUTUAL AID PRESENTATION

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

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

ADJOURNMENT

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

Accommodations for the Disabled. Any person may make a request for a disability-related modification or accommodation needed for that person to be able to participate in the public meeting by telephoning Maribeth Goldsby, District Secretary, at (714) 963-3058, or writing to Municipal Water District of Orange County at P.O. Box 20895, Fountain Valley, CA 92728. Requests must specify the nature of the disability and the type of accommodation requested. A telephone number or other contact information should be included so that District staff may discuss appropriate arrangements. Persons requesting a disability-related accommodation should make the request with adequate time before the meeting for the District to provide the requested accommodation.



ACTION ITEM
January 16, 2019

TO: Board of Directors

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

Robert Hunter, General Manager
Staff Contact: J. Berg, Director of Water Use Efficiency

SUBJECT: **Continuation of Water Loss Control Technical Assistance Program**

STAFF RECOMMENDATION

Staff recommends the Board of Directors authorize the General Manager to:

1. Extend the professional services contract with Water Systems Optimization, Inc. for two additional years in order to:
 - a. Provide Choice-funded one-on-one Technical Assistance to member agencies for water loss control program development as described below, and
 - b. Support the Orange County Water Loss Control Work Group and the development of recommendations for water loss standards setting as a Core-funded effort at an annual cost not to exceed \$55,000.
2. Authorize the General Manager to extend Choice-based Technical Assistance agreements with agencies for two additional years.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

In October 2015, the Board of Directors authorized implementation of a Water Loss Control Technical Assistance Program that included the establishment of a Core-funded Water Loss Control Work Group and Choice-funded one-on-one Technical Assistance from a consultant

Budgeted (Y/N): Yes	Budgeted amount: \$50,000	Core <u> X </u>	Choice <u> </u>
Action item amount: \$55,000		Line item: 35-7040	
Fiscal Impact (explain if unbudgeted): Budgeted funds total \$50,000 for Water Loss Control; an additional \$5,000 in budgeted funds will be reallocated from Landscape Education for a total authorization of \$55,000.			

(Water Systems Optimization, Inc.) specializing in water loss control. The initial three-year authorization has concluded, and many agencies are well on their way to establishing cost effective water loss recovery programs. Several agencies would like to continue accessing technical assistance from Water Systems Optimization, Inc. (WSO) to continue to improve their understanding of cost effective water loss recovery opportunities.

DETAILED REPORT

Over the past three years, water agencies throughout Orange County have made exceptional progress in researching, evaluating, and implementing water loss control strategies to insure compliance with water loss control mandates contained in Senate Bill 555. These efforts set Orange County agencies apart from most other agencies in the state and positions them well to better understand water loss recovery opportunities and comply with evolving water loss mandates.

Staff is proposing to continue the Water Loss Control Technical Assistance Program (WLCTAP) for an additional two years. This will result in a five-year program utilizing the consultants originally approved by the Board in 2015. The WLCTAP includes one-on-one Technical Assistance and Water Loss Control Work Group support as follows:

Technical Assistance

One-on-one Technical Assistance allows agencies to work directly with Water Systems Optimization, Inc. or meter accuracy testing companies on a variety of water loss control related topics. Over the past three years, twenty-two agencies have accessed Choice-based services totaling \$1,069,475. These agencies are identified in Table I, and the breakdown of the services is provided in Table II. Note that Irvine Ranch, Moulton Niguel, and Santa Margarita water districts are accessing technical assistance directly from WSO, and Golden State Water Company is accessing technical assistance through another consultant specializing in water loss control.

Many agencies would like to continue accessing technical assistance to continue to improve their understanding of cost effective water loss recovery opportunities. As a result, staff is proposing to extend the WSO, McCall's Meters, Inc., and Westerly Meter Service Company contracts for an additional two years to allow agencies to access technical assistance for a variety of services. These services continue to evolve as agencies continue to advance their water loss control understanding. These services are Choice-funded by agencies electing to access the services. MWDOC will continue to facilitate the following services from the contractors to participating agencies including:

- Volumetric production meter accuracy testing
- Billing data chain assessment
- Wholesale system mass balance/water audit
- Component Analysis of real and apparent Losses
- Meter population management
- District Metered Area Assessment
- Water loss control program design and assessment
- Reporting and next step recommendations
- Data management plan

- Customer meter accuracy testing

Table I Agencies Accessing One-on-One Technical Assistance	
<ul style="list-style-type: none"> • City of Anaheim • City of Brea • City of Buena Park • East Orange County Water District • El Toro Water District • City of Fountain Valley • City of Fullerton • City of Huntington Beach • City of La Habra • City of La Palma • Laguna Beach County Water District 	<ul style="list-style-type: none"> • Mesa Water • City of Newport Beach • City of Orange • City of San Clemente • City of San Juan Capistrano • City of Santa Ana • City of Seal Beach • Serrano Water District • South Coast Water District • Trabuco Canyon Water District • Yorba Linda Water District

Table II Type of Technical Assistance and Number of Agencies Accessing	
Type of Technical Assistance	Number of Agencies Accessing
<ul style="list-style-type: none"> • Compile Validated Water Balances 	22 agencies
<ul style="list-style-type: none"> • Conduct Component Analysis of Real and Apparent Losses 	15 agencies
<ul style="list-style-type: none"> • Perform and Analyze Sales Meter Accuracy Testing 	10 agencies
<ul style="list-style-type: none"> • Perform Distribution System Leak Detection 	5 agencies

Brief descriptions and fees for each of these services are provided in Exhibit A. Not knowing how many agencies will participate and what services they will access makes it

difficult to estimate the total value of services that will be provided over the next two years. Using an average of the first three years as a proxy, \$715,000 is a reasonable estimate for the next two years of Technical Assistance.

Water Loss Control Work Group

Staff is also proposing to extend the WSO contract for an additional two years to support the Orange County Water Loss Control Work Group as a Core-funded effort at an annual cost not to exceed \$55,000. The Work Group is a well-established forum for agencies to expand their water loss control knowledge by learning from WSO and each other through case studies and data collaboration, updates on evolving state mandates, and a united voice to inform evolving state mandates. Though this effort, WSO has been instrumental in helping staff and member agencies to understand, articulate our local experience, and formulate recommendations for consideration by the State Water Resources Control Board (State Board) staff responsible for recommending a volumetric water loss standard for consideration by the State Board by July 2020. Over the past three years, MWDOC has invested \$120,000 for WSO support of the Work Group and policy development.

Note that none of the proposed services to be provided by WSO will be duplicated in the Water Loss Control Shared Services Business Plan approved by the Board in December for implementation in Fiscal Year 2019-20. Rather, the Technical Assistance provided by WSO will be complementary to those services.

Staff recommends the Board of Directors authorize the General Manager to:

1. Extend the professional services contract with Water Systems Optimization, Inc. for two additional years in order to:
 - a. Provide Choice-funded one-on-one Technical Assistance to member agencies for water loss control program development as described below, and
 - b. Support the Orange County Water Loss Control Work Group and the development of recommendations for water loss standards setting as a Core-funded effort at an annual cost not to exceed \$55,000.
2. Authorize the General Manager to extend Choice-based Technical Assistance agreements with agencies for two additional years.

Year IV & V- Water Loss Control Technical Assistance Tasks

TASKS 1	PROJECT ADMINISTRATION
Project administration: <i>Partner with WSO and the larger MWDOC group (Required)</i> <ul style="list-style-type: none"> • Communication • Systems of data collection and management • Travel expenses • Invoicing 	
\$1,672	<i>Project administration</i>

TASK 2	WATER AUDIT TECHNICAL ASSISTANCE
Task 2a: Water audit compilation: <i>Estimate apparent and real water loss</i> <i>Assess data availability and quality</i> <ul style="list-style-type: none"> • Water audit data collection and review • Raw billing data validation (study of completeness and consistency, pro-rating to reduce lag-time effects) • Water audit compilation • Water audit documentation in preparation for level 1 validation 	
Task 2b: Water audit level 1 validation: <i>Prepare an annual level 1 validated water audit submission to DWR</i> <i>Confirm the integrity of your water audit and accompanying submission narrative</i> <ul style="list-style-type: none"> • Level 1 water audit validation • Composition of water audit validation documentation for submission to DWR for SB555 compliance 	
Task 2c: Source/Production meter volumetric accuracy testing: <i>Design and conduct a volumetric source meter accuracy test</i> <i>Establish a field-validated water-supplied baseline for the water audit</i> <i>Document test procedures for future meter accuracy investigation</i> <ul style="list-style-type: none"> • Site visit and test design • Volumetric accuracy test with comparative meter or reservoir reference volume • Data chain assessment ("loop audit" or SCADA calibration), if relevant • Test results analysis • Test procedure documentation 	
Task 2d: Billing data chain assessment: <ul style="list-style-type: none"> • Mapping of meter read collection and billing process • Comparison of raw data across billing data management platforms (read collection system, billing data system, and reporting system) • Identification of data transmission errors - misreads, zero reads, dropped reads, duplicated reads, etc 	

Task 2e: Field pressure survey - *budget depends on scope of effort and size of system (agencies should consult WSO to establish a budget)*. Potential goals include:

- Average system pressure determination
 - Logging site selection
 - Pressure logger deployment
 - Pressure data analysis and visualization
 - Average system pressure calculation
 - Recommendations for potential targeted pressure reductions
- Pressure transient investigation
 - Logging site selection
 - High-frequency pressure logger deployment
 - Pressure data analysis and visualization
 - Transient analysis and explanation
 - Recommendations for transient mitigation
- DMA (district metered area) potential assessment
 - Identification of pressure zone boundaries and critical infrastructure
 - Study of zonal hydraulic isolation (communication of pressure changes across zone boundaries)
 - Establishment of zonal pressure average and pressure range (with elevation, diurnal patterns)
 - Recommendations for further study toward DMA installation and management

Task 2f: Wholesale system mass balance/water audit:

Same as retail audit, no additional reporting budget necessary

- Identification of wholesale system boundaries and mass balance data sources
- Compilation of a wholesale system mass balance in unique spreadsheet and in AWWA water audit software
- Documentation of the wholesale system water audit analysis and sources of uncertainty
- Inventory of wholesale system master meters, including meter installation conditions, make and type, and maintenance history

\$3,500	<i>Task 2a: Water audit compilation</i>
\$2,500	<i>Task 2b: Water audit level 1 validation</i>
\$4,000 per meter	<i>Task 2c: Volumetric production meter accuracy test, per meter.</i> (_____ meters to be tested X \$4,000/meter = \$ _____)
\$9,500	<i>Task 2d: Billing data chain assessment</i>
Variable	<i>Task 2e: Field pressure survey (Requires custom cost estimate per agency depending on scope and size of system)</i>
\$3,560	<i>Task 2f: Wholesale system mass balance/water audit</i>

TASK 3 COMPONENT ANALYSIS OF REAL AND APPARENT LOSSES	
<p>Task 3a: Component analysis of apparent losses: <i>Assess customer meter inaccuracy</i> <i>Value apparent losses</i> <i>Design an apparent loss management strategy</i></p> <ul style="list-style-type: none"> • Random and representative small customer meter sample design, if relevant • Prioritization of large customer meters for testing • Small and large customer meter testing, as appropriate • Test results analysis • Calculation and valuation of apparent losses due to customer meter inaccuracy • Recommendations for further study and customer meter management <p>Task 3b: Component analysis of real losses: <i>Establish the distribution system's unique leakage profile</i> <i>Determine cost-effective leakage management strategies for the short-, medium-, and long-term</i></p> <ul style="list-style-type: none"> • Collection of leakage repair documentation • Evaluation of repair process documentation • Determination of unique leakage profile (background, unreported, and reported leakage) • Analysis of cost-effective intervention against leakage • Leak management program design 	
\$7,600	Task 3a: Component analysis of apparent losses (meter testing budget in Task 6 also required if testing cannot be conducted in-house)
\$10,000	Task 3b: Component analysis of real losses

TASK 4 COMPREHENSIVE LEAK DETECTION	
<p>Task 4a: Leak detection: <i>Uncover and repair hidden leaks</i> <i>Realize and document leakage savings</i></p> <ul style="list-style-type: none"> • Leak detection survey planning and execution • Estimation of water savings realized through proactive leak detection and repair 	
\$400 / mile	For miles 1-50
\$350 / mile	For miles 51-100
\$300 / mile	For miles 101 and after

TASK 5 REPORTING	
<p>Task 5a: Reporting <i>Record water loss investigation and findings for future reference and stakeholder communication</i> <i>Document next steps for water loss management</i></p> <ul style="list-style-type: none"> • Report documenting all Year III activities • Recommendations for next steps to cost-effectively improve data quality, water loss understanding, and water loss performance • Results contextualized with regional and state datasets 	
\$4,200	Task 5a: Reporting per task

TASK 6	CUSTOMER METER ACCURACY TESTING		
<p>Task 6a: Customer Meter Accuracy Testing</p> <p>Agencies can choose between two customer meter accuracy testing service providers: McCall's Meters, Inc. or Westerly Meter Service Company. These meter accuracy testing firms were selected through a Request for Proposal Process conducted by MWDOC. This RFP process utilized a review panel, including member agency staff, who recommended both meter accuracy service providers be available for agencies to choose from. The review panel concluded both companies are capable of providing the desired services, had similar proposed costs and, together, could complete the work in a timelier manner. Exhibit C below summarizes the fees for each meter accuracy testing service provider. Note the fees are slightly different between providers. As a result, each service provider has its own Exhibit C. Agencies will need to:</p> <ol style="list-style-type: none"> 1. Select the meter accuracy testing company they choose to use, 2. Identify the number and sizes of meters to be tested (green data entry cells), and 3. Estimate the number of meetings (McCall's) or hours and mileage (Westerly) for meetings with the selected company. <p>This worksheet should be used to calculate the total cost for meter accuracy testing services for your agency. The cost estimate calculated in Exhibit C should be entered into Exhibit A under Task 6: Meter Accuracy Testing. WSO is available to assist agencies in quantifying the number and sizes of meters to be tested as part of Task 3: Component Analysis of Apparent Losses.</p> <p>Small meter (5/8 – 2 inch) testing will require agencies to pull the meters from the field and deliver them to the selected meter testing company. Meter testing company locations are provided below. Large meters (3 inch and larger) will be tested in-situ.</p> <table border="0" data-bbox="120 1167 1149 1314"> <tr> <td> <p>McCall's Meters, Inc. 1498 Mesa View Street Hemet, CA. 92543 (951) 654-3799</p> </td><td> <p>Westerly Meter Company 403 East Carlin Street Compton, CA. 90222 (310) 637-9000</p> </td></tr> </table>		<p>McCall's Meters, Inc. 1498 Mesa View Street Hemet, CA. 92543 (951) 654-3799</p>	<p>Westerly Meter Company 403 East Carlin Street Compton, CA. 90222 (310) 637-9000</p>
<p>McCall's Meters, Inc. 1498 Mesa View Street Hemet, CA. 92543 (951) 654-3799</p>	<p>Westerly Meter Company 403 East Carlin Street Compton, CA. 90222 (310) 637-9000</p>		
Varies by agency	Task 6a: Use Exhibit C worksheet below to calculate the cost for your agency.		

EXHIBIT C - McCall's Meters, Inc.

Meter Accuracy Testing Fee Worksheet

Participating Agency: _____

Contact Person: _____

Phone & E-mail: _____

	McCall's Meters, Inc.		
	Rate	Quantity	Total
Small Meter Testing			
5/8 - 1 inch Meters	\$ 35.00		\$ -
1 1/2 - 2 inch Non-Turbine Meters	\$ 50.00		\$ -
1 1/2 - 2 inch Turbine Meters	\$ 55.00		\$ -
3 in. Turbine Meters	\$ 70.00		\$ -
Large Meter Testing (1)			
3 inch and Larger Meters	\$ 250.00		\$ -
Rates for attending meetings (2)	\$ 100.00		\$ -
Total:			\$ -

(1) McCall's Requires a minimum of 4 meter large tests per day; If less than 4 tests, a portal to portal fee of \$125 will be charged.

(2) McCall's will charge a flat rate of \$100 per day for attending meetings.

EXHIBIT C - Westerly Meter Service Company			
Meter Accuracy Testing Fee Worksheet			
Participating Agency: _____			
Contact Person: _____			
Phone & E-mail: _____			
Westerly Meter Service Company			
	Rate	Quantity	Total
Small Meter Testing			
5/8 - 1 in.	\$ 30.00		\$ -
1 1/2 to 2 inch Non-Turbine Meters	\$ 65.00		\$ -
1 1/2 to 2 inch Turbine Meters	\$ 65.00		\$ -
Large Meter Testing			
3 to 10 inch	\$ 175.00		\$ -
Rates for attending meetings (1)	\$ 125.00		\$ -
Mileage	\$ 0.54		\$ -
Total:			\$ -
(1) Westerly will charge \$125 per hour plus mileage.			



ACTION ITEM
January 16, 2019

TO: Board of Directors

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

FROM: Robert Hunter, General Manager
Staff Contact: Karl Seckel/Charles Busslinger

SUBJECT: OCWD Proposed Groundwater Storage Agreement Study with MNWD

STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee discuss the OCWD Water Issues Committee (WIC) Agenda Item for January 9 (also for OCWD Board Action on January 16) regarding a Proposed Groundwater Storage Agreement with MNWD.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

Staff regularly reviews the agenda items of OCWD. The January 9 OCWD Water Issues Committee (WIC) agenda includes an OCWD Board recommendation for January 16 to proceed with a groundwater storage agreement with MNWD. Staff reviewed the item, flagged concerns, and since there were not any MWDOC meetings prior to the OCWD WIC meeting, drafted a letter for signature by MWDOC President Barbre, see attached.

Staff recommends the Committee discuss the MWDOC letter and proposed actions by OCWD.

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



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Brett R. Barbre
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Vice President

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Director

Wayne S. Osborne
Director

Megan Yoo Schneider, P.E.
Director

Sat Tamaribuchi
Director

Jeffery M. Thomas
Director

Robert J. Hunter
General Manager

MEMBER AGENCIES

City of Brea
City of Buena Park
East Orange County Water District
El Toro Water District
Emerald Bay Service District
City of Fountain Valley
City of Garden Grove
Golden State Water Co.
City of Huntington Beach
Irvine Ranch Water District
Laguna Beach County Water District
City of La Habra
City of La Palma
Mesa Water District
Moulton Niguel Water District
City of Newport Beach
City of Orange
Orange County Water District
City of San Clemente
City of San Juan Capistrano
Santa Margarita Water District
City of Seal Beach
Serrano Water District
South Coast Water District
Trabuco Canyon Water District
City of Tustin
City of Westminster
Yorba Linda Water District

January 8, 2019

The Honorable Cathy Green
Chair, OCWD Water Issues Committee
18700 Ward Street
Fountain Valley, CA 92708

CONSIDERATION OF GROUNDWATER STORAGE AGREEMENT WITH MOULTON NIGUEL WATER DISTRICT

Dear Chair Green:

Cathy

Your January 9, 2019 Water Issues Committee packet includes an Agenda item entitled CONSIDERATION OF AGREEMENT WITH MOULTON NIGUEL WATER DISTRICT. The item calls for execution of an agreement between OCWD and MNWD and issuance of two requests for proposals to study existing and potential conveyance options for delivery of water from OCWD to MNWD and to study other storage agreements to ascertain a benchmark and market analysis of the costs other water agencies have paid for storage programs. The Municipal Water District of Orange County (MWDOC) offers the following comments:

- Thank you for your interest and offer to work with the South Orange County (SOC) agencies to help them meet their emergency and drought protection needs. We believe this interest is good for all of Orange County. We further note that MWDOC has been working with the SOC agencies on these issues for some time and we believe it appropriate for MWDOC and OCWD to work together on these types of issues. In fact, a related success story is the 2006 Emergency Services Agreement. It was very controversial at the time to consider actions that involved moving groundwater from the OCWD to SOC. To help alleviate concerns, a Working Committee composed of three Basin producers, three SOC agency representatives, and representatives from MWDOC and OCWD convened to discuss, develop and present a recommendation to all involved entities. This 2006 collaborative working relationship worked well to outline and address the various concerns from all parties. The collaborative process used in 2006 helped bring agencies to the table to air differences and provide protections for the basin that allowed the Emergency Services Agreement to move forward.
- The discussions at the October 24, 2018 Joint Planning Committee between MWDOC and OCWD included concerns from staff of both agencies who indicated they were not being fully included in discussions the other agency was having with their member agencies. Both agencies were in agreement that broader and more inclusive communications would be beneficial. We believe this should be applied to the groundwater storage discussions noted in your WIC agenda item. In addition, MWDOC should be invited to participate in any meetings OCWD holds with MNWD, especially since they are one of our member agencies and are outside of the OCWD boundaries.

- In the process of publishing the 2018 OC Water Reliability Study, MWDOC developed quite a bit of information and we are in the midst of additional work that would be beneficial to include in the groundwater storage discussions. MWDOC's prior and current work involves:
 - We have hired Black & Veatch, Hazen and Sawyer, and Means Consulting to work on integration and water quality issues related to combining waters of different qualities in moving water around the county. We believe this information will help us to understand the potential implications of moving water in different directions in different pipelines with various combinations of MET water and other sources of water prior to the start-up of such projects.
 - We believe a hydraulic model of the regional water system in Orange County is necessary to help with the above evaluations. MWDOC has started the process of developing such a model and reviewing water quality modules that can be incorporated. We believe one of the major issues to be evaluated is the swings in demand between summer and winter and the resulting blend changes for various sources of water. The residence time in the pipelines before reaching the retail agencies and the chloramine decay are key considerations.
 - Work on expansion of the 2006 and 2009 Emergency Services Agreements which allows groundwater to be exchanged with MET water and sent to SOC during emergency situations. The current work involves updating studies on the ability to move water to SOC by way of several conveyance options. We will be ready to brief OCWD and the SOC agencies in February 2019 on these efforts.
 - Estimating the conceptual costs involved in a pump-in to the East Orange County Feeder No. 2 (EOCF#2) to move groundwater from OCWD to SOC during emergency situations. The 2016 and 2018 OC Water Reliability Studies included draft terms for review and comment. We believe the information would be valuable in the upcoming discussions with SOC.
 - Work on 'extraordinary supplies' to provide drought protection for SOC. An initial analysis was included in the Reliability Study, but we are proceeding with additional work at this time and should have information available in 3 to 6 months.
 - Lastly, the 2018 OC Water Reliability Study recommended that MWDOC and OCWD work together to fully evaluate the opportunities the MET Carson IPR project provides to OCWD, and that the SARCCUP Project extraordinary supplies be evaluated, and if not entirely needed by OCWD, the utilization of the supplies by others in OC should be evaluated.

The issues being raised by this WIC agenda item are important and significant issues, and work should proceed. Our belief is that the efforts will be improved through wider participation led by MWDOC and OCWD. Our hope is that you will find it possible to include MWDOC into this process and to expand other invitations so that all perspectives can be properly reflected.

Thank you for your consideration of this matter.

Sincerely,



Brett R. Barbre, President
Municipal Water District of Orange County

cc MWDOC and OCWD Board members
MWDOC Member Agencies
Cities of Santa Ana, Anaheim and Fullerton
OCWD Groundwater producers

AGENDA ITEM SUBMITTAL

Meeting Date: January 9, 2019

To: Water Issues Committee.
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: CONSIDERATION OF AGREEMENT WITH MOULTON NIGUEL WATER DISTRICT

SUMMARY

In August 2017 the Board broadened the District's Water Resources Policy to allow the consideration of water storage and exchange programs with South Orange County (SOC) water agencies. In October 2018 the Board President created an ad-hoc committee of Orange County Water District (OCWD or District) and Moulton Niguel Water District (MNWD) board members to discuss the issues of developing a MNWD pilot storage account in the groundwater basin. The committee met in October and November. The attached Agreement was drafted and calls for hiring consultants to formally study the issues related to developing a potential MNWD pilot storage account in the OCWD groundwater basin. MNWD has agreed to fund this work.

Attachments:

- A. Agreement
- B. Request for Proposals
 - a. Review of Existing Storage Programs
 - b. Evaluate Conveyance Options to Distribute Water to MNWD
- C. Presentation Material
- D. Recent Letters
 - a. December 4, 2017 IRWD Letter
 - b. December 11, 2017 City of Anaheim Letter
 - c. January 31, 2018 Letter from Nineteen Groundwater Producers
 - d. February 20, 2018 Letter from Eight South Orange County Water Agencies
 - e. April 6, 2018 Moulton Niguel Water District letter

RECOMMENDATION

Agendize for January 16 Board meeting: Authorize: (1) execution of the attached Agreement with the Moulton Niguel Water District and (2) issuance of the two attached requests for proposals

DISCUSSION/ANALYSIS

History

In 2006 the District approved an Emergency Services Agreement with the Municipal Water District of Orange County, the Irvine Ranch Water District (IRWD), and multiple South Orange County (SOC) water agencies. The agreement calls for IRWD to provide up to 50 cubic feet per second (cfs) for up to 30 days (a total of approximately 3,000 acre-feet of water) to SOC water agencies during emergency events. IRWD's annual groundwater production must still comply with the annual Basin Production Percentage (BPP) and Basin Equity Assessment (BEA) calculations. The amount of water IRWD can provide is slowly diminishing as water demands within IRWD increase. The agreement will expire in 15 years.

In August 2017 the Board broadened the District's Water Resources Policy to allow the consideration of water storage and exchange programs with SOC water agencies. The concept of such a program is to allow one or more SOC water agencies to store relatively small amounts of water in the groundwater basin which would have little impact if any on the District's operations. OCWD would receive compensation from the program which could be used to help offset future expected Replenishment Assessment increases.

In February 2018 the Water Issues Committee considered entering into a Memorandum of Understanding (MOU) with MNWD to study a potential pilot water storage and exchange agreement. The Board eventually delayed any consideration of the MOU and requested staff to: (1) assess the District's storage needs based upon current and expected future conditions; and (2) address the January 31, 2018 Groundwater Producers letter which requested the District to consider four issues. That letter is attached and is summarized below:

1. Evaluate the current and future operating parameters of the Basin;
2. Identify potential measures to optimize the storage of water in the Basin for the benefit of the Producers;
3. Consider if / how storage accounts could be implemented for Producer agencies; then
4. Consider if / how potential storage accounts could be implemented for non-Producer agencies to the primary benefit of the Producer agencies.

In August 2018 staff completed its assessment of the District's storage needs and presented those findings to the Board. Staff concluded the District was in relatively good condition and recommended the Accumulated Overdraft target range could be lowered from 100,000 to 150,000 acre-feet to 150,000 to 200,000 acre-feet. This recommendation was primarily based upon two factors:

1. The Groundwater Replenishment System was recently expanded to 100 mgd and there are active plans to expand the plant up to 130 mgd by 2023. This creates more reliable base supplies for the service territory.
2. Total expected ultimate 2040 water demands of the 19 Groundwater Producers have significantly decreased from 525,000 acre-feet per year to 447,000 acre-feet per year.

With this information, and based upon future modeling by staff, the District does not need to store as much water as previously believed which means the accumulated overdraft target range could be lowered.

The groundwater basin's accumulated overdraft is currently 277,000 acre-feet as of June 30, 2018. Staff will recommend annual budgets over the next three to four years that should decrease the accumulated overdraft to approximately 150,000 acre-feet which will increase available water storage supplies.

With this information, item #1 from the Groundwater Producers January 31, 2018 letter has been completed.

Groundwater Producer January 31, 2018 Letter

Item #2 from the January 31, 2018 Producers letter recommends the District "**Identify potential measures to optimize the storage of water in the Basin for the benefit of the Producers**". Staff in general is always working to increase storage supplies in the groundwater basin. However, this effort can be overshadowed by other Producer desires to maximize the Basin Production Percentage and/or to minimize Replenishment Assessment increases. Staff will work with the Producers to determine if any new measures to optimize water storage can be developed for Board consideration.

Item #3 from the Producers January 31, 2018 letter recommends the District "**Consider if / how storage accounts could be implemented for Producer agencies**". Allowing Producers to have individual storage accounts within the OCWD groundwater basin would be a significant deviation from past District policies and practices. This issue was discussed at previous Groundwater Producers meetings during the spring of 2018. The District could generate additional revenues with this option, just as would occur with a storage program with a South Orange County water agency and as occurred with the Metropolitan Water District (MWD) conjunctive use storage program. However, this option requires more careful consideration regarding the need, the interest and basin management policies and practices.

Staff believes entering into an agreement with MNWD and studying how a small pilot storage program with MNWD could possibly be implemented at the same time OCWD is reviewing these remaining issues from the Producers January 31, 2018 letter is reasonable. With the recommended action, staff would reinstate discussion of these issues at Producers meetings in February and March and provide a report back to the Board in April. The MNWD work effort is expected to take approximately six months and would not be concluded until late summer.

Summary of proposed MNWD Agreement

The goal of the Agreement is to develop a small short-term pilot program that would be considered by the Boards of OCWD and MNWD which would provide a foundational understanding to help determine the feasibility of developing a long-term MNWD storage/exchange program in the OCWD groundwater basin. The key elements of the proposed MNWD Agreement are provided below:

- a. Develop an RFP (attached) and hire a consultant to study existing and potential new conveyance options for delivery of water from OCWD to MNWD.
- b. Develop a second RFP (attached) and hire a second consultant to review existing water industry storage agreements to provide a bench mark and market analysis of what other water agencies have paid for storage programs.

- c. Comply with the OCWD Act.
- d. MNWD agrees to fund the consultants work.
- e. The timeline for completion of the scope of work is estimated at 6 months from execution of the Agreement.
- f. The existing ad-hoc committee created by OCWD and MNWD will work collaboratively to carry out the scope of the Agreement.
- g. OCWD and MNWD will meet and work with other interested stakeholders to share information and seek input on this issue.
- h. OCWD will administer the two consultant RFP and contracts.
- i. OCWD is committing to consider a small pilot storage program once the studies are completed.

Existing Emergency Service and Storage Programs

The District has two existing programs which are summarized below that utilize the groundwater basin. Information regarding a third storage program, the Santa Ana River Conservation and Conjunctive Use Program is also summarized below.

1. South County Phase I Emergency Service Program Agreement

As previously mentioned, the District entered into an agreement in 2006 which allows IRWD to send up to 50 cfs of water for no more than 30 days (maximum of 3,000 af per incident) to South Orange County agencies for emergency events. The agreement is for 25 years and has been used about five times. IRWD is annually subject to the OCWD Basin Production Percentage and Basin Equity Assessment even during years when the agreement is exercised. Water sent to South County is deemed to be imported water. The amount of water IRWD is able to send to South County is slowly decreasing as IRWD experiences growth within its own service area. Any potential new program would be coordinated with this agreement. OCWD received no compensation from this program as: (1) it has no impact to the District's operations; and (2) the District is assisting local water agencies to meet water demands during an emergency.

2. MWD Conjunctive Use Storage Program (CUP)

The CUP agreement allows for MWD to store up to 66,000 af of water in the groundwater basin. Up to 22,000 af can be annually extracted. Up to 16,500 af can be annually stored. The District received approximately \$32 million in compensation from MWD and will receive approximately \$20 million from the Groundwater Producers over the life of the contract. The agreement will expire in 2028. Staff will not recommend creating any new sizeable storage program(s) until this agreement terminates.

3. Santa Ana River Conservation and Conjunctive Use Program (SARCCUP)

The Santa Ana Conservation and Conjunctive Use Program is a new cooperative project 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). SARCCUP is partially funded by a \$55 million Proposition 84 grant and provides multiple regional benefits to the Santa Ana River Watershed and is made up of three elements:

- A large-scale, conjunctive use project (i.e., water bank) that utilizes storage space in the watershed's groundwater basins allowing the banking of wet year supplies for use in dry years, facilitating the augmentation of drought and emergency water supplies;
- Habitat restoration for the Santa Ana Sucker, a threatened fish species and arundo removal, an invasive plant species that consumes large amounts of water; and
- Water use efficiency (WUE) measures to lower water demands in the watershed. The WUE element includes extending the Proposition 84 2014 Drought Round WUE program for technical support for conservation programs and public outreach.

OCWD will be participating in SARCCUP by having up to 36,000 to 45,000 af of water stored in the basin for use during dry years, such as when MWD allocates limited imported water supplies (allocations).

Water removed from the SARCCUP during MWD allocation periods could be considered "extraordinary" which means the water would be added to the local water supplies that are available and the amount of MWD water that was allocated to an agency.

PRIOR RELEVANT BOARD ACTIONS:

10/3/18: OCWD MNWD ad-hoc committee created

8/15/18, M18-104: Directed staff to update the 2007 *Report on Orange County Groundwater Basin Storage and Operational Strategy* to reflect the recommended basin operating changes and to limit any potential future storage agreements to within the 36,000 acre-foot Santa Ana River Conservation and Conjunctive Use Program until the Metropolitan Water District Conjunctive Use Storage Program expires in 2028.

8/2/17, R17-8-107: Broadened the District's Water Resources Policy to allow the consideration of water storage and exchange programs with SOC water agencies.

3/21/07, M07-44: Receive and file staff report titled, "Evaluation of Orange County Groundwater Basin Storage and Operational Strategy;" adopt the three-layer storage change methodology along with the associated new full-basin condition that will serve as a benchmark for calculating the basin accumulated overdraft; and adopt the proposed basin operating

strategy including a basin operating range spanning the new full condition to an accumulated overdraft of 500,000 af, and an optimal range from a target level of 100,000 to 150,000 af of accumulated overdraft, with the understanding that specific operational scenarios will be further developed and evaluated cooperatively by the District and Producers.

INTERAGENCY AGREEMENT

This Interagency Agreement (“**Agreement**”), is entered into between the Orange County Water District (“**OCWD**”) and the Moulton Niguel Water District (“**MNWD**”), collectively herein referred to as the **PARTIES**.

I. PURPOSE

The purpose of this Agreement is to work collaboratively to evaluate the potential joint benefits of developing a storage/exchange program between the PARTIES by:

- a. Exploring existing and potential new conveyance methods for delivery of stored water in the OCWD groundwater basin to MNWD, and;
- b. Evaluating potential revenue and economic benefits to OCWD to offset projected future Replenishment Assessment increases without creating a negative operational impact.

The goal of this Agreement is to develop a short-term pilot program that would be considered by the PARTIES which would provide a foundational understanding to help determine the feasibility of developing a long-term MNWD storage/exchange program in the OCWD groundwater basin.

II. GUIDING PRINCIPLES

The following guiding principles will be adhered to by the PARTIES in completing any work to develop a pilot program:

- a. Comply with the OCWD Act, and;
- b. OCWD will receive a net benefit from any storage or exchange program, and;
- c. OCWD’s ability to store water and operate the groundwater basin will not be harmed, and;
- d. MNWD understands that direct conveyance of stored water from the groundwater basin does not exist at this time, but will evaluate options for conveyance as part of this work, and;
- e. OCWD and its members will not subsidize any work that will solely benefit MNWD as part of the analysis or implementation of any program.

III. SCOPE OF WORK

The scope of work to be performed as a part of the Agreement shall include:

- a. Evaluate potential pumping and conveyance options to deliver water from the OCWD groundwater basin and/or proposed Huntington Beach Poseidon Resources Ocean Desalination Plant to MNWD utilizing existing or new facilities.
- b. Review and analyze various groundwater banking and exchange programs throughout the state that may serve as models for development of a pilot program between the PARTIES.
- c. The PARTIES will collectively develop two Request for Proposals for the work described in paragraphs III.a and III.b above. The PARTIES will review the proposals and develop a joint recommendation for consideration of award of professional service contracts.
- d. MNWD agrees to provide funding to perform the scope of work identified as a part of the Agreement.

IV. DELIVERABLES & SCHEDULE

- a. The deliverables anticipated as a part of the Agreement includes two separate reports for each scope item:
 - i. Infrastructure review of pumping and conveyance alternatives
 - ii. Groundwater banking and exchange program review
- b. The timeline for completion of the scope of work is estimated at 6 months from execution of the Agreement.

V. OVERVIEW

- a. The existing ad-hoc committee created by the PARTIES will work collaboratively to carry out the scope of this Agreement.
- b. The ad-hoc committee will meet to review progress and any draft work product that may be available.
- c. The PARTIES will meet and work with other interested stakeholders to share information and seek input on this issue.

VI. OTHER

- a. The PARTIES understand the scope of work identified in this Agreement is the extent of the agreed upon analysis and acknowledge that any future pilot storage program will require mutual consent of the PARTIES.
- b. This agreement may be terminated by either PARTY with thirty (30) days written notice. Upon termination, the PARTIES will be responsible for any outstanding financial commitments for any contracts entered into at the time of termination.

IN WITNESS WHEREOF, the PARTIES hereby execute this Interagency Agreement.

ORANGE COUNTY WATER DISTRICT

By: _____ Date: _____
Vincente Sarmiento, President
for Orange County Water District

MOULTON NIGUEL WATER DISTRICT

By: _____ Date: _____
Donald R. Froelich, President
for Moulton Niguel Water District

DRAFT REQUEST FOR PROPOSALS

REVIEW OF EXISTING WATER STORAGE PROGRAMS



**ORANGE COUNTY WATER DISTRICT and
MOULTON NIGUEL WATER DISTRICT**

**PROPOSALS DUE:
February 22, 2019
2:00 P.M.**

INTRODUCTION

The Orange County Water District (OCWD; the District) and the Moulton Niguel Water District (MNWD) are seeking proposals from qualified consultants to provide a review, summary and analysis of existing water storage programs in Southern California (Study).

In general, the Study consists of providing a market analysis and/or bench mark of what other water agencies are paying to store water. This information will be used by OCWD and MNWD to assist in the potential development of a pilot storage program whereby MNWD will compensate OCWD to store water in the OCWD groundwater basin.

The selected consultant should have an individual with significant experience, water industry contacts and knowledge in the area of water resources management to provide expert advice to assist both agencies in potentially developing a water storage program.

This Request for Proposals (RFP) describes the Study, the required scope of services, Study milestones, consultant selection process, and the minimum amount of information that must be included in the proposal. Failure to submit information in accordance with these requirements and procedures may be cause for disqualification.

STUDY BACKGROUND

MNWD lies outside of the OCWD groundwater basin in south orange county as shown on the following figure. MNWD is seeking to develop a small storage program to assist in improving the water reliability of its service territory. OCWD manages the Orange County groundwater basin which has a useable volume of approximately 500,000 acre-feet. The OCWD Act Section 2.1 allows for storage programs with agencies outside of the OCWD boundaries. OCWD would provide a relatively small amount of storage space to MNWD and potentially other South Orange County water agencies in exchange for appropriate compensation.

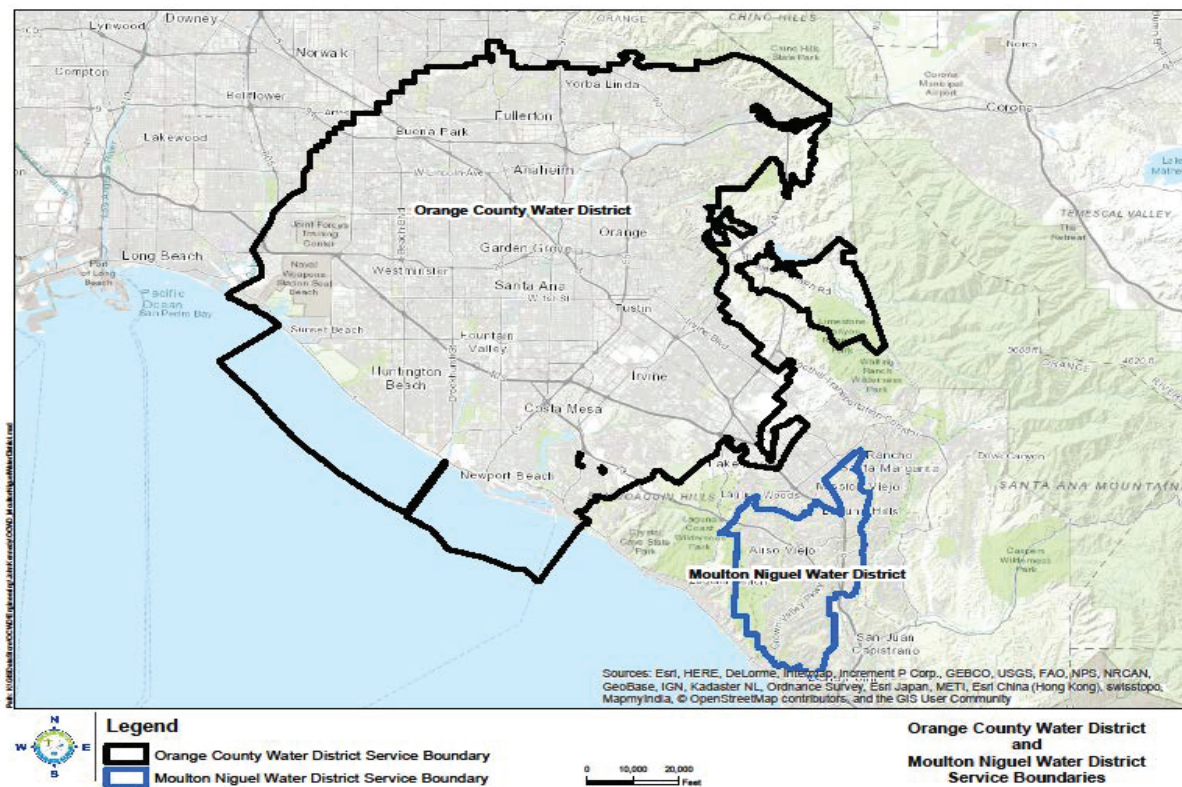
OCWD and MNWD first wish to develop and consider a small short-term 5,000 acre-feet pilot storage program which if implemented, would be used to determine if a long-term storage arrangement can be consummated.

STUDY DESCRIPTION

Many storage programs have been developed in Southern California and the western United States over the past 30 years. The selected consultant will evaluate all storage programs listed below. Consultants should also propose other storage programs they believe are comparable to the likely exchange arrangement being contemplated by OCWD and MNWD.

- Metropolitan Water District (MWD) Arvin Edison
- MWD Semi Tropic
- Santa Margarita Water District Upper Chiquita Reservoir
- Antelope Valley East Kern Water Agency
- OCWD MWD Conjunctive Use Storage Program.

- Irvine Ranch Water District Strand Ranch and Stockdale
- Pixley Water District



These storage programs are generally developed to provide water during dry hydrologic periods and/or for emergency purposes. It will be important to differentiate the purpose of the storage program to allow for accurate comparisons. The consultant should also determine if there is any significant difference between storage programs for retail water agency versus wholesale agency. Additionally, other material terms of these storage programs such as “put” or “take” restrictions along with any hydrology and/or water quality constraints should be noted.

OCWD and MNWD water district's wish to develop a fee that MNWD will pay to store water in the OCWD groundwater basin that is fair and reasonable to both agencies. The fee can be in the form of money or water left behind (a storage exchange program) to OCWD or both. At this time the compensation to the District is likely to be in the form of water purchased by MNWD but left behind in the OCWD groundwater basin.

The possible 5,000 acre-feet of water to be stored by OCWD for MNWD in the initial pilot program being contemplated could be MWD untreated imported water that is purchased and recharged by OCWD at its field headquarters in the city of Anaheim. This water currently cost \$695/acre-foot and will increase in cost to \$731/acre-foot on January 1, 2019. Alternatively, to avoid any impact to its groundwater recharge operations, OCWD may implement an in-lieu type arrangement with one or more Groundwater Producer(s) to not pump up to the Basin Production Percentage (BPP) by a total of 5,000 acre-feet to indirectly store water in the groundwater basin. OCWD

would pay the Basin Equity Assessment which averages \$539/acre-foot as compensation to a Producer not pumping up to the BPP to store water in this manner.

SCOPE OF WORK

The Consultant shall perform the Scope of Work as described below:

- Review existing water industry storage programs and interview the appropriate staff of the agencies involved.
- Perform a literature review. Obtain and coordinate the Study with other similar reports that have been prepared and/or are being prepared by other agencies.
- Develop a summary table whereby the key elements of each storage program can be summarized for comparison with other programs.
- Develop a generic, generally accepted and appropriate financial methodology to calculate the unit cost (\$/af) of each storage program to allow it to be compared with other programs. This methodology should take into account exchange programs whereby agencies storing water leave behind a percentage of water as compensation for storing water.
- When comparing storage programs, determine if and how programs for water retailers should be differentiated from programs for water whole sellers.
- When comparing storage programs, determine if and how programs that provide emergency water system supplies should be differentiated from programs providing water during dry hydrologic cycles (dry year yield).
- Summarize the purpose of each storage program. For example, is water being stored for emergency purposes? Is water being stored for drought periods?
- Document the parameters for storing and calling upon water.
- Provide an outline of the technical paper, an approximate 50% draft and a final draft of the Study paper for review and comment by OCWD and MNWD.
- Determine what existing storage programs provide a representative and comparable match to the storage program being contemplated by OCWD and MNWD.
- Provide a final technical paper and a presentation summarizing the results of the study.
- Coordinate this work with other surveys and reports that have been completed by other water agencies to avoid any duplication of effort.
- Plan on three meetings with OCWD and MNWD staff. Plan on providing separate presentations to the MNWD and OCWD Boards

SCHEDULE

The proposed project schedule is as follows:

Task	Date
Study RFP Issued	January 18, 2019
Optional meeting with OCWD & MNWD	February 11, 2019 - 2:00 p.m. @ OCWD
Proposals Due, 2:00 P.M.	February 22, 2019
Interviews, if necessary	March 4 – 6, 2019
Award Study Contract	March 20, 2019
Study Kick-off Meeting	April 8, 2019 – 2:00 p.m. @ OCWD
Consultant Provides Study Outline	April 26, 2019
Consultant Provides draft Study	June 28, 2019
Consultant Provides final draft Study	August 2, 2019
Consultant Provides final Study	August 30, 2019

ELEMENTS OF PROPOSAL

Please include the following in your proposal:

1. Cover letter.
2. Study approach, expanding or revising the scope of work provided herein if necessary. Any deviations from the scope herein shall be clearly designated in the proposal, including associated man-hours.
3. Project team description (with resumes at the back of the proposal), emphasizing experience and capabilities of designated project manager, and support staff related to the outlined scope of work. Indicate the percentage of time each member will contribute to the project. The Study consultant shall also include the home office and location of each project team member.
4. A matrix table of the estimated man-hours for the Study broken down by individual staff and any sub-Consultants.
5. Description of the Study team's past record of performance on similar study's for which your firm has provided services. Also include client references that may be contacted by OCWD.
6. Project schedule with milestones and completion deadlines, modifying the proposed schedule herein, based on your project approach and experience.
7. A statement that the Consultant has read and can execute the District's standard professional services contract and can comply with the insurance requirements.
8. Fee proposal submitted in a separate sealed envelope. The fee proposal shall show estimated hours and cost for each task and subtask, including meeting obligations. The fee proposal shall be based on services provided on an hourly-rate basis, with a total not-to-exceed fee. Provide a rate schedule for proposed services. On a separate sheet, please provide a fee proposal for the study.

The proposal is limited to 7 pages, exclusive of cover letter, resumes, and preprinted materials. Interested firms shall deliver four paper copies of the proposal, one

electronic PDF file, and one sealed fee proposal on or before February 22, 2019 at 2:00 pm. Proposals shall be mailed or delivered to:

Orange County Water District
Attention: John Kennedy
18700 Ward Street
Fountain Valley, CA 92708

SELECTION PROCESS

Selection of the Consultant will be based upon the proposal contents, prior experience of the firm, and specific experience and capabilities of the designated project manager and support staff. The firm, and in particular the project manager, must be fully capable in all areas outlined under the scope of work above. The nature of this study includes working with and obtaining information from numerous water agencies. The selected firm and project manager will have good working relations with many agencies in the water community.

Based upon this information, OCWD staff will recommend a firm to OCWD's Board of Directors for award of contract. The selected firm must be able to begin work immediately upon award of contract and must be able to maintain the required level of effort to meet the proposed schedule.

The evaluation criteria listed in the OCWD Proposal Evaluation Form (Exhibit A) will be used to evaluate each Consultant. Depending on the response to the RFP, oral interviews may or may not be a part of the selection process.

PRE-SUBMITTAL ACTIVITIES

Questions Concerning Request for Proposals

All questions regarding the RFP should be presented in writing to:

Orange County Water District
Attn: John Kennedy
18700 Ward Street, Fountain Valley, CA 92708
Phone: (714) 378-3304
JKennedy@ocwd.com

Pre-Proposal Meeting

The February 11, 2019 meeting at 2:00 p.m. will be held at the OCWD headquarters in Fountain Valley. This meeting is optional.

SPECIAL CONDITIONS

Revision to the Request for Proposals

The District reserves the right to revise the RFP prior to the date the Proposals are due. The District reserves the right to extend the date by which the Proposals are due.

Reservations

This RFP does not commit the District to award a contract, to defray any costs incurred in the preparation of a Proposal pursuant to this RFP or to procure or contract for work.

Public Records

All Proposals submitted in response to this RFP become the property of OCWD and are public records and as such may be subject to public review.

Right to Cancel

The District reserves the right to cancel, for any or no reason, in part or in its entirety, this RFP including but not limited to: selection schedule, submittal date, and submittal requirements. If the District cancels or revises the RFP, the District will notify all the known Proposers in writing.

Additional Information

The District reserves the right to request additional information and/or clarifications from any or all Proposers.

Public Information

Release of Public Information selection announcements, contract awards, and all data provided by the District shall be protected from public disclosure. Proposers desiring to release information to the public must receive prior written approval from the District.

Professional Services Agreement

The selected Consultant will be required to sign the attached Professional Services Agreement (Exhibit B) and to provide the Insurance Certificates and all other required documentation within 10 calendar days of notice of award.

Insurance Requirements

The minimum insurance requirements are: \$2 million (\$4 million aggregate) for Commercial General Liability insurance, \$1 million for Automobile Liability insurance (including Additional Insured endorsement for both General Liability and Automobile Liability insurance), \$1 million for Workers' Compensation insurance (including Waiver of Subrogation endorsement for Workers' Comp), and \$1 million for Professional Liability (Errors and Omissions) insurance.

Equal Employment Opportunity and Affirmative Action Requirements

The Proposers shall provide a Statement of Equal Employment Opportunity/Affirmative Action. The Consultant and each subcontractor shall not discriminate in the employment of persons on the work because of race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, sexual preference or sex of such persons except as permitted by Section 12940 of the California government Code. The Consultant is expected to maintain policies similar to those of the District regarding equal employment opportunities and affirmative action as set forth in the OCWD's Administrative Policies.

EXHIBIT A

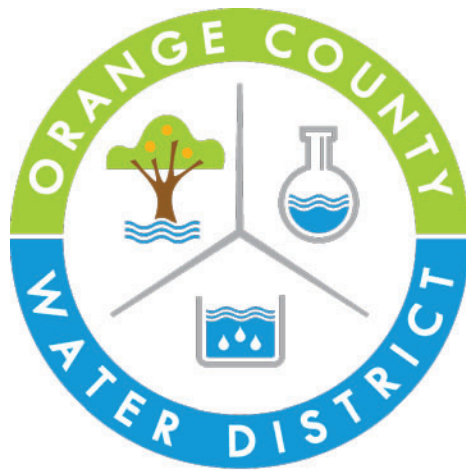
PROPOSAL EVALUATION FORM

EXHIBIT B

SAMPLE PROFESIONAL SERVICES AGREEMENT

DRAFT REQUEST FOR PROPOSALS

EVALUATION OF GROUNDWATER CONVEYANCE OPTIONS



SINCE 1933



moulton niguel water district

**ORANGE COUNTY WATER DISTRICT and
MOULTON NIGUEL WATER DISTRICT**

**PROPOSALS DUE:
February 22, 2019
2:00 P.M.**

INTRODUCTION

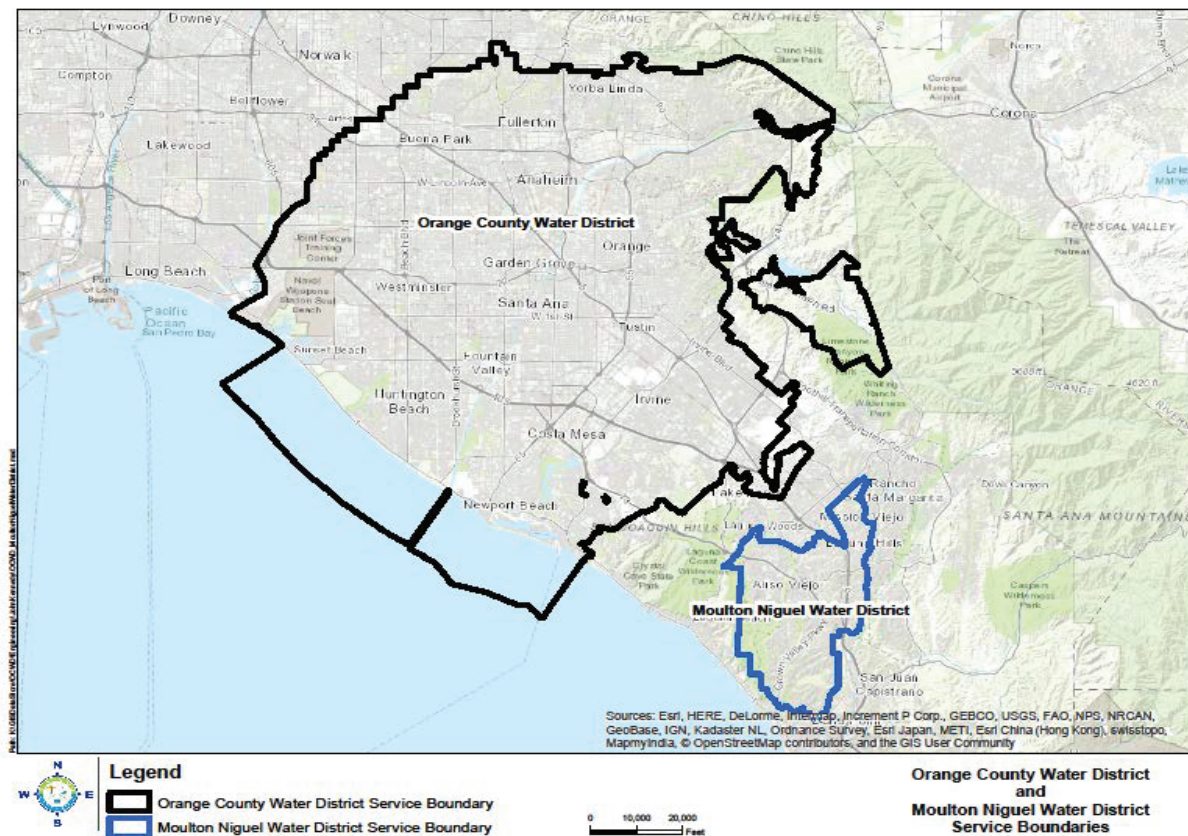
The Orange County Water District (OCWD; the District) and the Moulton Niguel Water District (MNWD) are seeking proposals from qualified consultants to provide a review, summary and analysis of conveyance options from the Orange County Groundwater basin to South Orange County and in particular, MNWD.

In general, the goal of this project is to evaluate the potential infrastructure and property acquisition required to convey water from the Orange County Groundwater Basin to Moulton Niguel Water District's system. This information will be used by OCWD and MNWD to assist in the potential development of a pilot storage program whereby MNWD will compensate OCWD to store water in the OCWD groundwater basin and ultimately convey stored water to MNWD during emergencies or water shortage conditions.

This Request for Proposals (RFP) describes the Study, the required scope of services, Study milestones, consultant selection process, and the minimum amount of information that must be included in the proposal. Failure to submit information in accordance with these requirements and procedures may be cause for disqualification.

STUDY BACKGROUND

MNWD lies outside of the OCWD groundwater basin in south orange county as shown on the following figure.

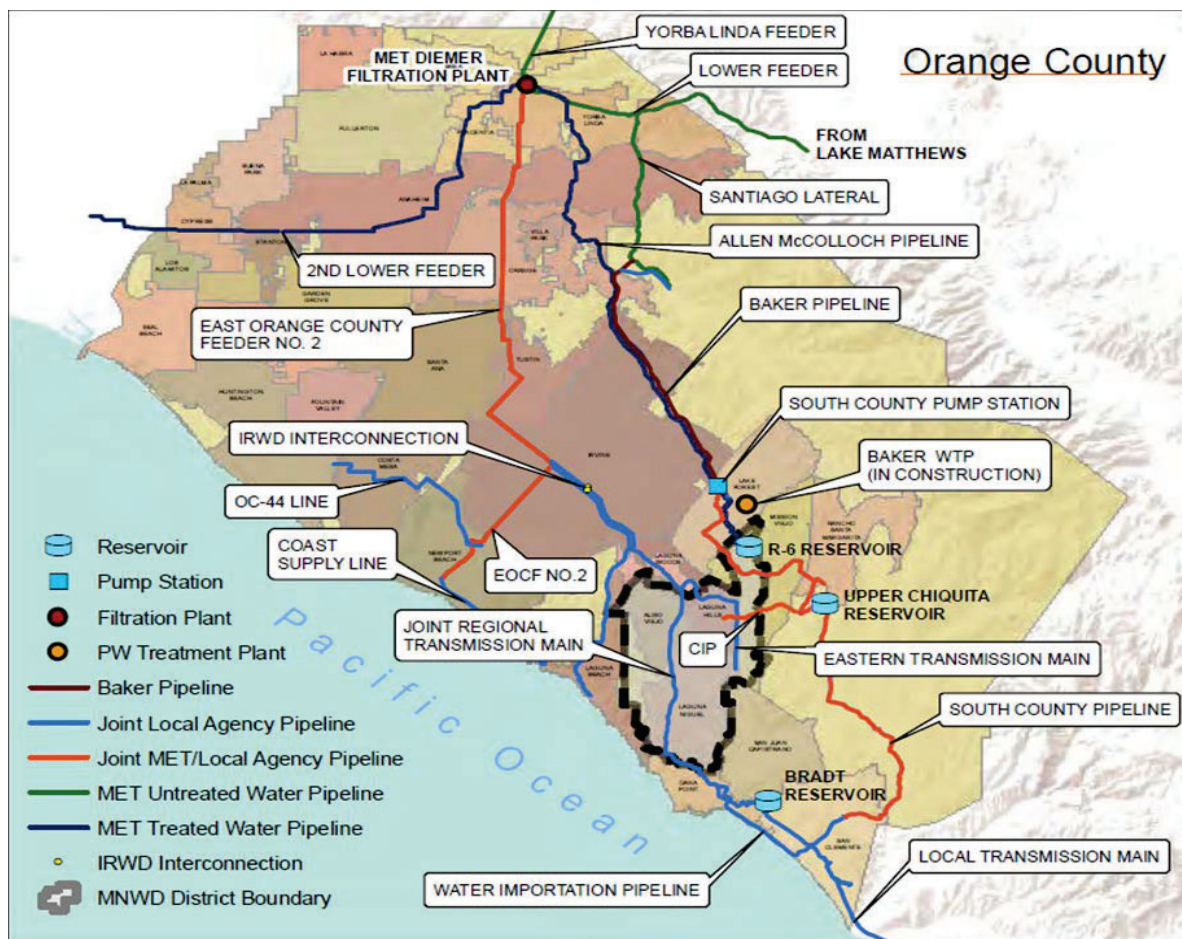


MNWD is seeking to develop a small storage program to assist in improving the water reliability of its service territory. OCWD manages the Orange County groundwater basin which has a useable volume of approximately 500,000 acre-feet. The OCWD Act Section 2.1 allows for storage programs with agencies outside of the OCWD boundaries. OCWD would provide a relatively small amount of storage space to MNWD and potentially other South Orange County water agencies in exchange for appropriate compensation.

OCWD and MNWD first wish to develop and consider a small short-term 5,000 acre-feet pilot storage program which if implemented, would be used to determine if a long-term storage arrangement can be consummated.

STUDY DESCRIPTION

Moulton Niguel Water District currently has an emergency interconnection through Irvine Ranch Water District which can move up to 50 cfs of water to serve South Orange County. Moulton Niguel Water District owns 58.93 percent of the capacity of the interconnection. Due to growth in Irvine Ranch Water District, expiration of the capacity rights in the interconnection facilities, and uncertainty in the ability to convey water into the future, Moulton Niguel Water District is interested in alternative conveyance options to move water from the groundwater basin to MNWD through a potential exchange program. MNWD currently receives imported water from the East Orange County Feeder #2 and/ or the Allen-McCulloch Pipeline as shown on the following figure.



The study should evaluate potential costs of land acquisition, building new transmission mains and/or pumping plants, utilization of existing available groundwater well capacity or construction of new wells, and connecting transmission mains to the East Orange County Feeder #2 and/or the Allen-McCulloch Pipeline.

AVAILABLE DATA

Moulton Niguel Water District will provide GIS shapefiles with the regional pipeline infrastructure including Metropolitan Water District pipelines, the Joint Regional Water Supply System, South County Pipeline and Eastern Transmission Main.

Orange County Water District will provide GIS files with the location of existing groundwater pumping wells. Historical production amounts from the wells will also be provide.

SCOPE OF WORK

The Consultant shall perform the Scope of Work as described below:

- Review and meet with staff of the agencies involved to discuss existing conveyance facilities, well production facilities, and desired capacity and conveyance goals.
- Develop alternative conveyance approaches of groundwater which shall include:
 - Identification of 3-4 alternative locations for developing the desired pumping capacity utilizing either existing available well capacity or developing new well capacity;
 - Evaluation of existing infrastructure to convey stored water from the identified pumping locations to either the East Orange County Feeder #2, Allen-McColloch Pipeline, or the Joint Transmission Main;
 - Identification of any new infrastructure necessary to convey stored water to either the East Orange County Feeder #2, Allen-McColloch Pipeline or the Joint Transmission Main.
- Evaluation of potential property needed to build any additional infrastructure, i.e. well facilities, pumping plants.
- Evaluation of probable construction costs for each of the proposed conveyance alternatives.
- Provide a final technical paper and a presentation summarizing the results of the study.
- Plan on three meetings with OCWD and MNWD staff. Plan on providing separate presentations to the MNWD and OCWD Board of Directors.
- Review similar work the Municipal Water District of Orange County is performing regarding pumping groundwater into the EOCFD#2.
- Coordinate this work with the possible transmission of Poseidon Resources Ocean Desalination water to South Orange County via the EOCFD#2. OCWD will provide relevant information to the consultant.

Future work will need to be completed to evaluate the hydraulic constraints of regional infrastructure as well as water quality impacts. This initial work does not contemplate those work products.

SCHEDULE

The proposed project schedule is as follows:

Task	Date
Study RFP Issued	January 18, 2019
Optional meeting with OCWD & MNWD	February 4, 2019 - 2:00 p.m. @ OCWD
Proposals Due, 2:00 P.M.	February 22, 2019
Interviews, if necessary	March 4 – 6, 2019

Award Study Contract	March 20, 2019
Study Kick-off Meeting	April 1, 2019 – 2:00 p.m. @ OCWD
Consultant Provides Study Outline	May 10, 2019
Consultant Provides draft Study	July 26, 2019
Consultant Provides final draft Study	September 6, 2019
Consultant Provides final Study	October 4, 2019

ELEMENTS OF PROPOSAL

Please include the following in your proposal:

1. Cover letter.
2. Study approach, expanding or revising the scope of work provided herein if necessary. Any deviations from the scope herein shall be clearly designated in the proposal, including associated man-hours. Project team description (with resumes at the back of the proposal), emphasizing experience and capabilities of designated project manager, and support staff related to the outlined scope of work. Indicate the percentage of time each member will contribute to the project. The Study consultant shall also include the home office and location of each project team member.
3. A matrix table of the estimated man-hours for the Study broken down by individual staff and any sub-Consultants.
4. Description of the Study team's past record of performance on similar study's for which your firm has provided services. Also include client references that may be contacted by OCWD.
5. Project schedule with milestones and completion deadlines, modifying the proposed schedule herein, based on your project approach and experience.
6. A statement that the Consultant has read and can execute the District's standard professional services contract and can comply with the insurance requirements.
7. Fee proposal submitted in a separate sealed envelope. The fee proposal shall show estimated hours and cost for each task and subtask, including meeting obligations. The fee proposal shall be based on services provided on an hourly-rate basis, with a total not-to-exceed fee. Provide a rate schedule for proposed services. On a separate sheet, please provide a fee proposal for the study.

The proposal is limited to 7 pages, exclusive of cover letter, resumes, and preprinted materials. Interested firms shall deliver four paper copies of the proposal, one electronic PDF file, and one sealed fee proposal on or before February 22, 2019 at 2:00 pm. Proposals shall be mailed or delivered to:

Orange County Water District
Attention: John Kennedy
18700 Ward Street

SELECTION PROCESS

Selection of the Consultant will be based upon the proposal contents, prior experience of the firm, and specific experience and capabilities of the designated project manager and support staff. The firm, and in particular the project manager, must be fully capable in all areas outlined under the scope of work above. Based upon this information, OCWD staff will recommend a firm to OCWD's Board of Directors for award of contract. The selected firm must be able to begin work immediately upon award of contract and must be able to maintain the required level of effort to meet the proposed schedule.

The evaluation criteria listed in the OCWD Proposal Evaluation Form (Exhibit A) will be used to evaluate each Consultant. Depending on the response to the RFP, oral interviews may or may not be a part of the selection process.

PRE-SUBMITTAL ACTIVITIES

Questions Concerning Request for Proposals

All questions regarding the RFP should be presented in writing to:

Orange County Water District
Attn: John Kennedy
18700 Ward Street, Fountain Valley, CA 92708
Phone: (714) 378-3304
JKennedy@ocwd.com

Pre-Proposal Meeting

The February 4, 2019 meeting at 2:00 p.m. will be held at the OCWD headquarters in Fountain Valley. This meeting is optional.

SPECIAL CONDITIONS

Revision to the Request for Proposals

The District reserves the right to revise the RFP prior to the date the Proposals are due. The District reserves the right to extend the date by which the Proposals are due.

Reservations

This RFP does not commit the District to award a contract, to defray any costs incurred in the preparation of a Proposal pursuant to this RFP or to procure or contract for work.

Public Records

All Proposals submitted in response to this RFP become the property of OCWD and are public records and as such may be subject to public review.

Right to Cancel

The District reserves the right to cancel, for any or no reason, in part or in its entirety, this RFP including but not limited to: selection schedule, submittal date, and submittal requirements. If the District cancels or revises the RFP, the District will notify all the known Proposers in writing.

Additional Information

The District reserves the right to request additional information and/or clarifications from any or all Proposers.

Public Information

Release of Public Information selection announcements, contract awards, and all data provided by the District shall be protected from public disclosure. Proposers desiring to release information to the public must receive prior written approval from the District.

Professional Services Agreement

The selected Consultant will be required to sign the attached Professional Services Agreement (Exhibit B) and to provide the Insurance Certificates and all other required documentation within 10 calendar days of notice of award.

Insurance Requirements

The minimum insurance requirements are: \$2 million (\$4 million aggregate) for Commercial General Liability insurance, \$1 million for Automobile Liability insurance (including Additional Insured endorsement for both General Liability and Automobile Liability insurance), \$1 million for Workers' Compensation insurance (including Waiver of Subrogation endorsement for Workers' Comp), and \$1 million for Professional Liability (Errors and Omissions) insurance.

Equal Employment Opportunity and Affirmative Action Requirements

The Proposers shall provide a Statement of Equal Employment Opportunity/Affirmative Action. The Consultant and each subcontractor shall not discriminate in the employment of persons on the work because of race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, sexual preference or sex of such persons except as permitted by Section 12940 of the California government Code. The Consultant is expected to maintain policies similar to those of the District regarding equal employment opportunities and affirmative action as set forth in the OCWD's Administrative Policies.

EXHIBIT A

PROPOSAL EVALUATION FORM

EXHIBIT B

SAMPLE PROFESIONAL SERVICES AGREEMENT



Proposed Agreement with Moulton Niguel Water District

Water Issues Committee
January 9, 2019



History

- August 2017 Board - Broadened the District's Water Resources Policy to allow the consideration of water storage and exchange programs with South Orange County (SOC) agencies
- February 2018 Water Issues Committee
 - Reviewed draft MOU with Moulton Niguel Water District (MNWD) to study issue
 - Staff directed to review the storage needs of OCWD and consider a letter from the Groundwater Producers



History

- August 2018 WIC
 - Reviewed OCWD storage needs provided
 - Recommended lowering the Accumulated Overdraft target range
- October 2018 Board – Established OCWD MNWD ad-hoc Committee
- October/November 2018
 - Two meetings of ad-hoc Committee
 - Developed attached agreement



MNWD Agreement Terms

- Develop an RFP (attached) and hire a consultant to study existing and potential new conveyance options for delivery of water from OCWD to MNWD.
- Develop a second RFP (attached) and hire a second consultant to review existing water industry storage agreements to provide a bench mark and market analysis of what other water agencies have paid for storage programs.
- OCWD would administer the two consultant RFP and contracts.
- MNWD agrees to fund the consultants work.



MNWD Agreement Terms

- The timeline for completion of the scope of work is estimated at 6 months from execution of the Agreement.
- The existing ad-hoc committee created by OCWD and MNWD would work collaboratively to carry out the scope of the Agreement.
- OCWD and MNWD would meet and work with other interested stakeholders to share information and seek input on this issue.
- OCWD is committing to consider a small short-term pilot water storage program once the studies are completed.



Potential Pilot Storage Program

- ~ 5,000 afy
- ~ Five year duration
- Store imported water supplies from the Metropolitan Water District
- Water available for MNWD use during drought periods/emergencies



Why Consider South Orange County (SOC) Water Agency Storage Accounts?

- OCWD can generate additional income to offset future expected Replenishment Assessment increases
- Relatively small amount of storage space - No impact to OCWD Operations
- Cost effective way for SOC agencies to secure their water supply reliability needs



Summary of Existing Storage/Emergency Programs

1. MWD CUP Storage Program

- 66,000 af
- OCWD received
 - ~ \$32 M from MWD
 - ~ \$20 M from Producers
- Expires in 2028

2. SOC Emergency Service Agreement

- 50 cfs for up to 30 days (~3,000 af)
- No compensation
- Expires in 2033

3. Santa Ana River Conservation & Conjunctive Use Program

- 36,000 to 45,000 af
- To Be Determined



Producers Summary

- Discussed issue at several meetings in spring of 2018 and fall of 2019
- January 2018 letter from the Groundwater Producers attached
 1. ~~Evaluate the current and future operating parameters of the basin;~~
 2. Identify potential measures to optimize the storage of water in the basin for the benefit of the Producers;
 3. Consider if / how storage accounts could be implemented for Producer agencies; then
 4. Consider if / how potential storage accounts could be implemented for non-Producer agencies to the primary benefit of the Producer agencies.
- Continue Producer discussions - report back to Board in March or April 2019
- Previous separate letters from IRWD and City of Anaheim



Recommendation

Agendize for January 16 Board meeting:

Authorize:

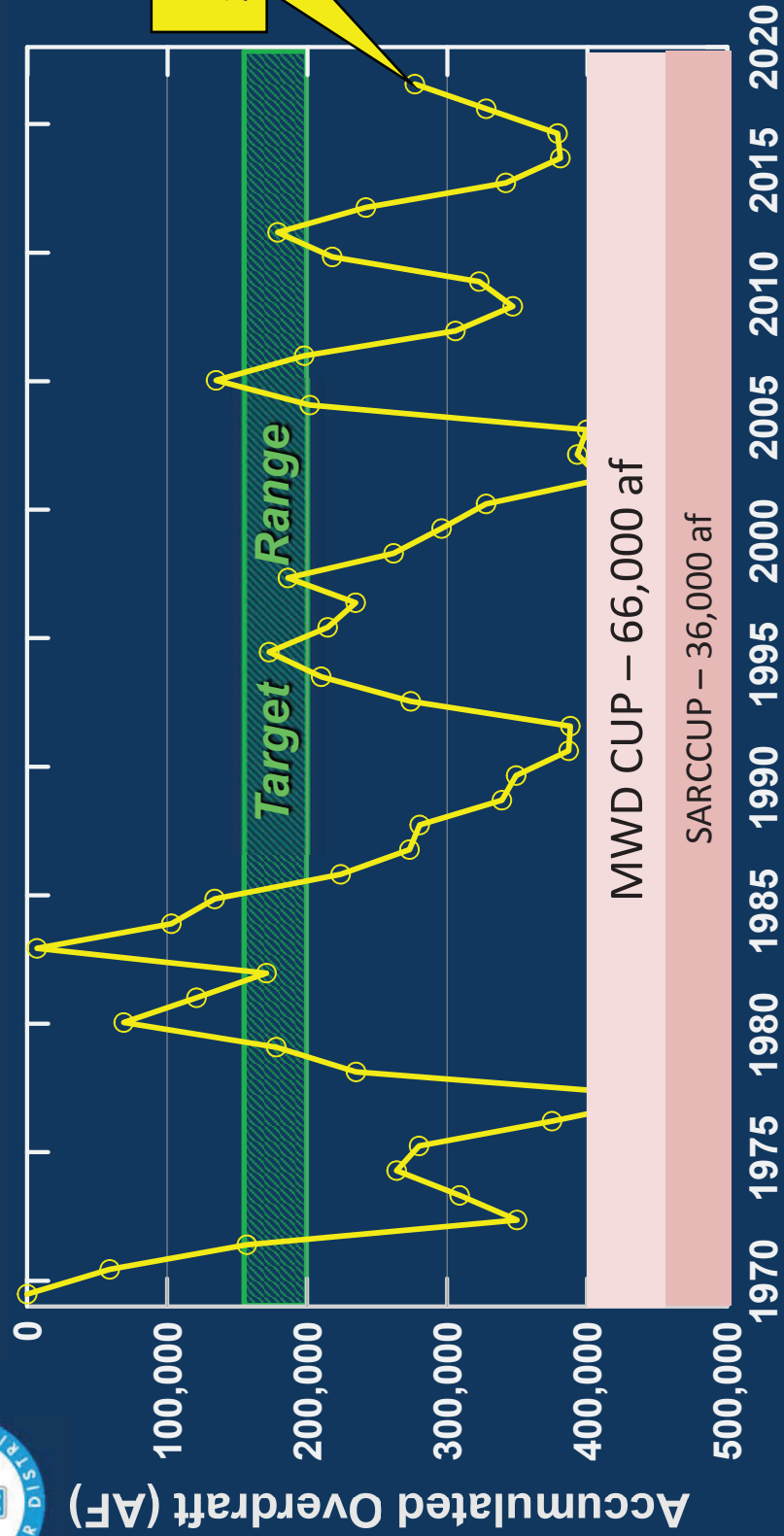
- (1) execution of the attached Agreement with the Moulton Niguel Water District and
- (2) issuance of the two attached requests for proposals



End of Presentation



Accumulated Overdraft Since 1969





General Schedule/Potential Board Actions

Task	Date
Consider Agreement/Issue RFP	January 2019
Hire Consultants to Study Issues	March 2019
Consider Small Pilot Storage Program	~November 2019



Metropolitan Water District Conjunctive Use Program (CUP)

- 25 year program approved in 2003
- Terminates in 2028
- MWD can store 66,000 af of water
- Store 16,500 afy / Extract 22,000 afy
- MWD able to cycle the program ~ 3 times
- OCWD compensation from MWD - \$32 million
- Total OCWD compensation ~ \$53 million



Santa Ana River Conservation & Conjunctive Use Program (SARCCUP)

- 180,000 af storage program in the SAR Watershed
- OCWD, EMWD, SBVMWD, WMWD, IEUA
- OCWD portion - 36,000 af
- \$100 million total cost / \$50 million state grant received
- Store excess SBVMWD water supplies
- Provide “Extraordinary Supplies” during a MWD allocation
- Expect formal consideration to approve in spring 2019
- 25? Year program



South Orange County (SOC) Emergency Services Agreement

- Approved in 2006 - Terminates in 2033
- Provide water supplies to SOC agencies via IRWD water system during emergency events
- Up to 50 cfs for 30 days (3,000 af) – small program
- IRWD still needs to comply with annual BPP/BEA
- IRWD ability to provide SOC water decreasing as demands within their system increase
- Water sent to SOC considered imported water
- No OCWD compensation – SOC agencies reimbursed IRWD for necessary improvements to send water south



District Act – Section 2.1

- **Groundwater storage; agreement between entity and district; use priorities; limitation of parties; waivers of replenishment and basin quality assessments; allocation consideration written finding**
- (a.) All groundwater storage by entity other than the district shall be conducted pursuant to a groundwater storage agreement between that entity and the district.
- (b.) Use of the groundwater basin within the district for the purpose of replenishing and managing the groundwater supplies of the district shall have priority over the use of the groundwater basin for storage of water.
- (c.) The groundwater storage agreement shall be limited to public and private entities distributing water to consumers for domestic, municipal, industrial, and agricultural use within their boundaries, which are located wholly or partially within the district, except that, where the primary benefits accrue to persons or property within the District, the agreement may include other public and private entities, including, but not limited to, the Metropolitan Water District of Southern California and the Department of Water Resources.
- (d.) The groundwater storage agreements may include provisions that provide for the waiver of replenishment assessments or basin equity assessments, or both, on stored water that is extracted pursuant to the agreement.
- (e.) In allocating the use of the groundwater basin storage space, the district shall consider and protect the quality of the groundwater and the reasonable water supply needs of the district. The district shall impose such limitation on the quality of the water to be stored as shall be necessary to protect the quality of the groundwater in the district.
- (f.) The district shall include written findings supporting its conclusions in its record of consideration of a proposed groundwater storage agreement.



District Act Section 2.1 – Groundwater Storage Agreements - Paragraph C

- The groundwater storage agreement shall be limited to public and private entities distributing water to consumers for domestic, municipal, industrial, and agricultural use within their boundaries, which are located wholly or partially within the district, except that, where the primary benefits accrue to persons or property within the District, the agreement may include other public and private entities, including, but not limited to, the Metropolitan Water District of Southern California and the Department of Water Resources.

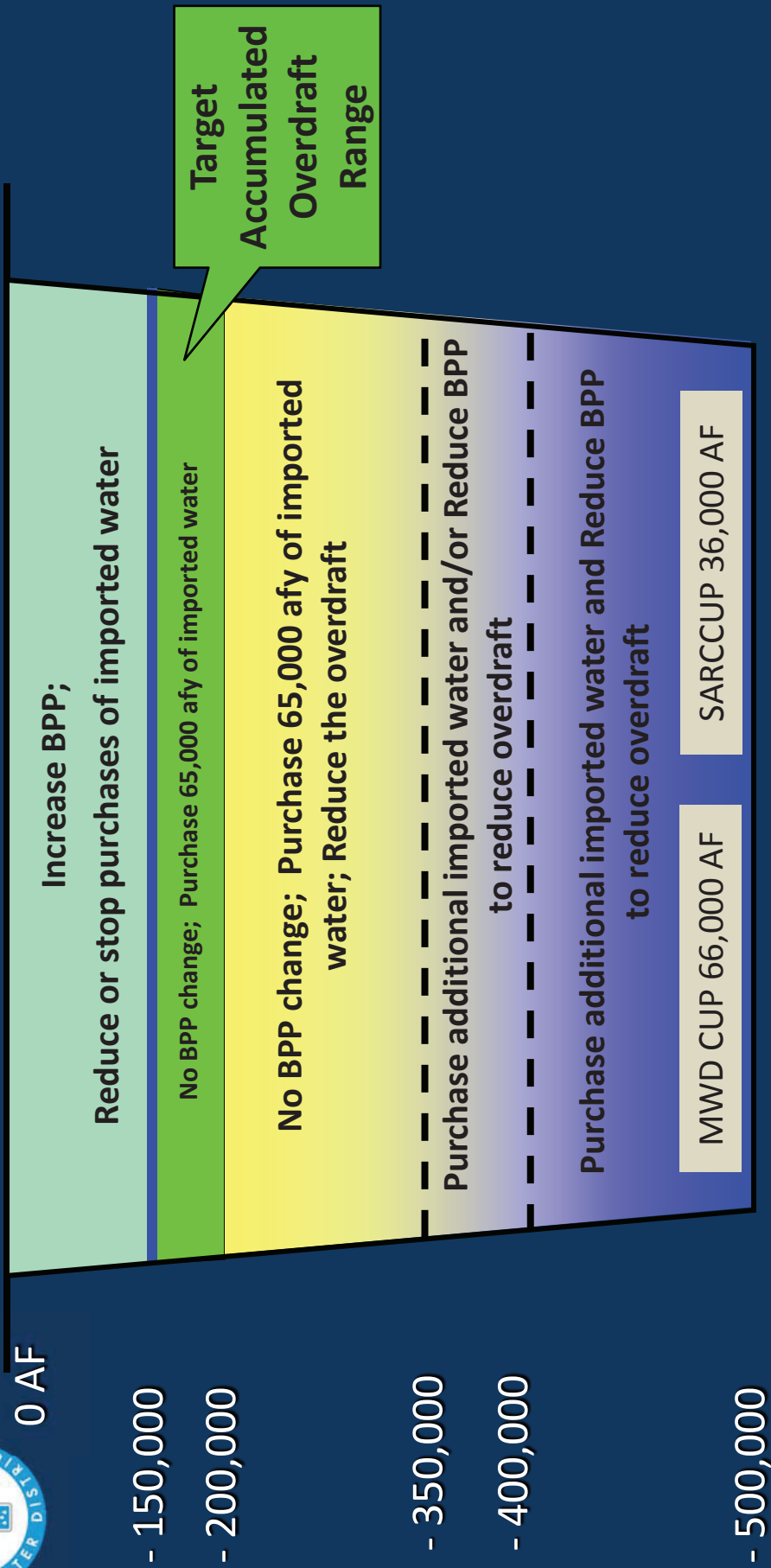


Extraordinary Supplies

- Imported Water Supplies become scarce
- MWD decides to allocate imported water - Complicated formula
- Allocation is based upon a water agencies need for water
- Accounts for local water supplies – the more local supplies you have reduces your need for imported water
- With the MWD water provided and the available local water supplies, an agency may only have 80 to 90% of water supplies needed to serve its customers
- “Extraordinary” water supplies are additional



Proposed Basin Management Policies





December 4, 2017

Mr. Michael Markus, P.E.
General Manager
Orange County Water District
18700 Ward Street
Fountain Valley, CA 92708

Subject: Proposed Pilot Water Storage and Exchange Program in Orange County

Mike:

We have received a draft agreement describing a proposed Pilot Water Storage and Exchange Agreement between Orange County Water District (OCWD), Moulton Niguel Water District (MNWD) and Irvine Ranch Water District (IRWD) sent on November 16, 2017. While IRWD has been and remains an advocate for storage accounts and exchange programs within the Orange County Groundwater Basin (the Basin) to improve local water supply reliability, we do not believe that an initial pilot program with one non-groundwater producer agency is an appropriate approach.

IRWD's recommended approach to developing a Pilot Water Storage and Exchange Program within the Basin is as follows:

1. Concepts, policies, terms, and processes for implementing any water storage and exchange programs must first be vetted with the Groundwater Producer Agencies;
2. Before developing a program to benefit water agencies outside of the Basin, a storage and exchange program should first be developed for potential participation by interested Producer Agencies, recognizing that each of these agencies has a vested interest in maximizing the use of storage in the Basin;
3. A water storage and exchange program to benefit South County (non-Basin) agencies can be developed after the needs of the Producer Agencies have been met; and
4. The implementation of any storage and exchange programs must be consistent with the OCWD District Act, the requirements of the California Environmental Quality Act and should not infringe upon the jurisdiction of other Orange County agencies.

When developing terms for a potential water storage and exchange program, an In-lieu Exchange Program, as described in IRWD's August 10, 2016 letter on this topic (attached) should be considered as an option.

Mr. Mike Markus, General Manger
Orange County Water District
December 4, 2017
Page 2

Furthermore, to the extent a water storage and exchange program would require the use of IRWD facilities, the following considerations must be addressed while developing such a program:

1. Existing contractual arrangements, such as the Dyer Road Well Field Agreement and the South County Interconnection Agreement, would take priority over any subsequent arrangements;
2. Use of IRWD's infrastructure should provide for the recovery of a proportional share of IRWD capital, operations, maintenance and replacement costs; and
3. Use of IRWD infrastructure by other agencies is subject to current and future availability, with the needs of IRWD's customers taking top priority.

Finally, with the current legal dispute between IRWD and OCWD still pending resolution, I recommend that IRWD and OCWD staff and legal counsel work to identify issues associated with the legal action that could have a bearing on the development of terms for storage and exchange program(s).

IRWD supports efforts to improve the water supply reliability of all agencies in Orange County. In addition to the meeting described above, I also believe that an Ad Hoc meeting with a few members from the OCWD Board and two members of the IRWD Board to discuss concepts of water supply reliability could be beneficial as well. Feel free to give me a call at (949) 453-5590 if you wish to pursue this matter further at this time.

Sincerely,



Paul A. Cook, P.E.
General Manager

Attachment



IRVINE RANCH WATER DISTRICT

15600 Sand Canyon Avenue • P.O. Box 57000 • Irvine, California 92619-7000 • (949) 453-5300 • www.irwd.com

August 10, 2016

Mr. Mike Markus, P.E.
General Manager
Orange County Water District
18700 Ward Street
Fountain Valley, CA 92708

Subject: Methods to Restore Groundwater Levels in the Orange County Basin

Mike:

At the July 2016 Joint Planning Committee meeting of the Board of Directors of Orange County Water District (OCWD) and Municipal Water District of Orange County (MWDOC), IRWD was requested to prepare an overview of how groundwater levels in the Orange County Basin could be restored to traditional (much higher) levels. The purpose of this letter is to share concepts for expanding on the list of approaches to refilling the Basin as follows:

1. Lower the Basin Production Percentage (BPP), in accordance with the OCWD Board-approved Groundwater Management Plan.
2. Purchase the maximum amount of imported water available to benefit the basin *directly* through recharge and *indirectly* through a traditional in-lieu program.
3. Establish a new In-lieu Exchange Program through which groundwater producer agencies can voluntarily store water without financially impacting OCWD.

Management of the Basin Production Percentage (BPP):

In 2013, the OCWD Board of Directors adopted a policy to establish a stable BPP with the goal of achieving an average BPP of 75%. For the purpose of sustainably managing the Basin for current and future generations, OCWD has established within its Groundwater Management Plan the Storage Management Actions presented in the following table:

Orange County Water District
Groundwater Basin Storage Management Actions*

Accumulated Overdraft	Basin Management Actions to Consider
Less than 100,000 acre-feet	Raise the BPP.
100,000 to 300,000 acre-feet	Maintain and/or raise BPP towards 75% goal.
300,000 to 350,000 acre-feet	Seek additional supplies to refill Basin and/or lower the BPP.
Greater than 350,000 acre-feet	Seek additional supplies to refill Basin and lower the BPP.

* OCWD Board-adopted Policy

The current estimated accumulated overdraft of the Basin is 370,000 acre-feet (AF). By June 30, 2017, OCWD staff predicts that the accumulated overdraft will be reduced to 353,000 AF in part due to purchases of 50,000 AF of water from Metropolitan Water District of Southern California (Metropolitan). These purchases are included in OCWD's Fiscal Year 2016-17 Operating Budget.

Taking Action Now:

In accordance with OCWD's Groundwater Management Plan, actions should have already been taken to reduce the BPP and to seek additional supplies of water to fill the basin. We understand that OCWD is currently taking water from Metropolitan at full direct recharge capacity. OCWD could be taking full advantage of additional existing supplies that are currently available from Metropolitan through the implementation of a multi-year in-lieu recharge program. Under such a program, the Producers that volunteer to participate would pay OCWD the Replenishment Assessment (RA) (\$402 per acre-foot) and the avoided cost of pumping (\$97 per acre-foot) while OCWD would pay the cost of the Full Service Treated Tier-1 water and associated costs to Metropolitan (\$1,044 per acre-foot). Since the Producer would have paid to OCWD the RA for the same amount of water had it been produced from the Basin, the payments to the OCWD by each participating producer would not offset OCWD costs of the full-service water from Metropolitan. This would result in a net cost to OCWD of \$947 per acre-foot (\$1,044 – \$97) that would need to be budgeted for and recovered through corresponding increases in the Replenishment Assessment (RA).

To implement an in-lieu recharge program in a way that is cost neutral to OCWD, it is recommended that OCWD consider implementing an In-lieu Exchange Program as described below.

Conceptual In-lieu Exchange Program:

The OCWD Act allows for the execution of exchanges in the Basin. A hybrid in-lieu recharge program could be created that incorporates exchange concepts for the purpose of allowing individual producers to improve reliability by storing water in the Basin. Conceptual principles associated with the implementation of such an In-lieu Exchange Program are described in the following:

- The Producers would have the option to voluntarily purchase Full-Service Tier-1 treated water from Metropolitan in-lieu of pumping groundwater.
- The reduction in pumping by the participating Producers would result in additional water in storage in the aquifer that would be received by OCWD in exchange for the Producers' right to recover an equivalent amount of water in the future to offset future pumping above the BPP.
- The participating Producers would pay Metropolitan the cost of the Full-Service Tier-1 treated water and associated costs (\$1,044 per acre-foot).
- The participating Producers would also pre-pay the RA to OCWD for the future recovery of the water at the current OCWD Board adopted rate (\$402 per acre-foot).

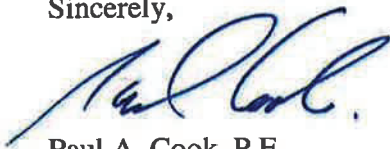
Mr. Mike Markus, P.E., General Manager
Orange County Water District
August 10, 2016
Page 3

- OCWD would provide the participating producers a credit for the future recovery of the water for use in-lieu of paying RA and Basin Equity Assessments on future pumping above the BPP.
- OCWD could extinguish the credits by reimbursing a participating Producer for the Full-Service Tier-1 treated rate that was previously paid by the Producer (\$1,044 per acre-foot).
- Under this program, OCWD would be cost-neutral.

An overview of the how such an In-lieu Exchange Program would work financially is provided in Exhibits "A" and "B". This concept would provide a creative solution to increasing the amount of water stored in the Basin, improving water supply reliability to the producing agencies, while ensuring that OCWD remains cost-neutral.

We hope that the concepts described above will assist you in your discussion with the OCWD Board of Directors Administration / Finance Issues Committee meeting on August 11, 2016 where you will be presenting options to refill the Basin. We look forward to working with you and your staff as well as the interested producer agencies in refining the In-Lieu Exchange Program concepts presented above. Please contact me at (949) 453-5590 or cook@irwd.com so that we can schedule a meeting to discuss these concepts.

Sincerely,

A handwritten signature in blue ink, appearing to read "Paul Cook", with a stylized flourish at the end.

Paul A. Cook, P.E.
General Manager

EXHIBIT "A"

Example of Recharge of Water Through In-Lieu Exchange

- Costs of Recharge -

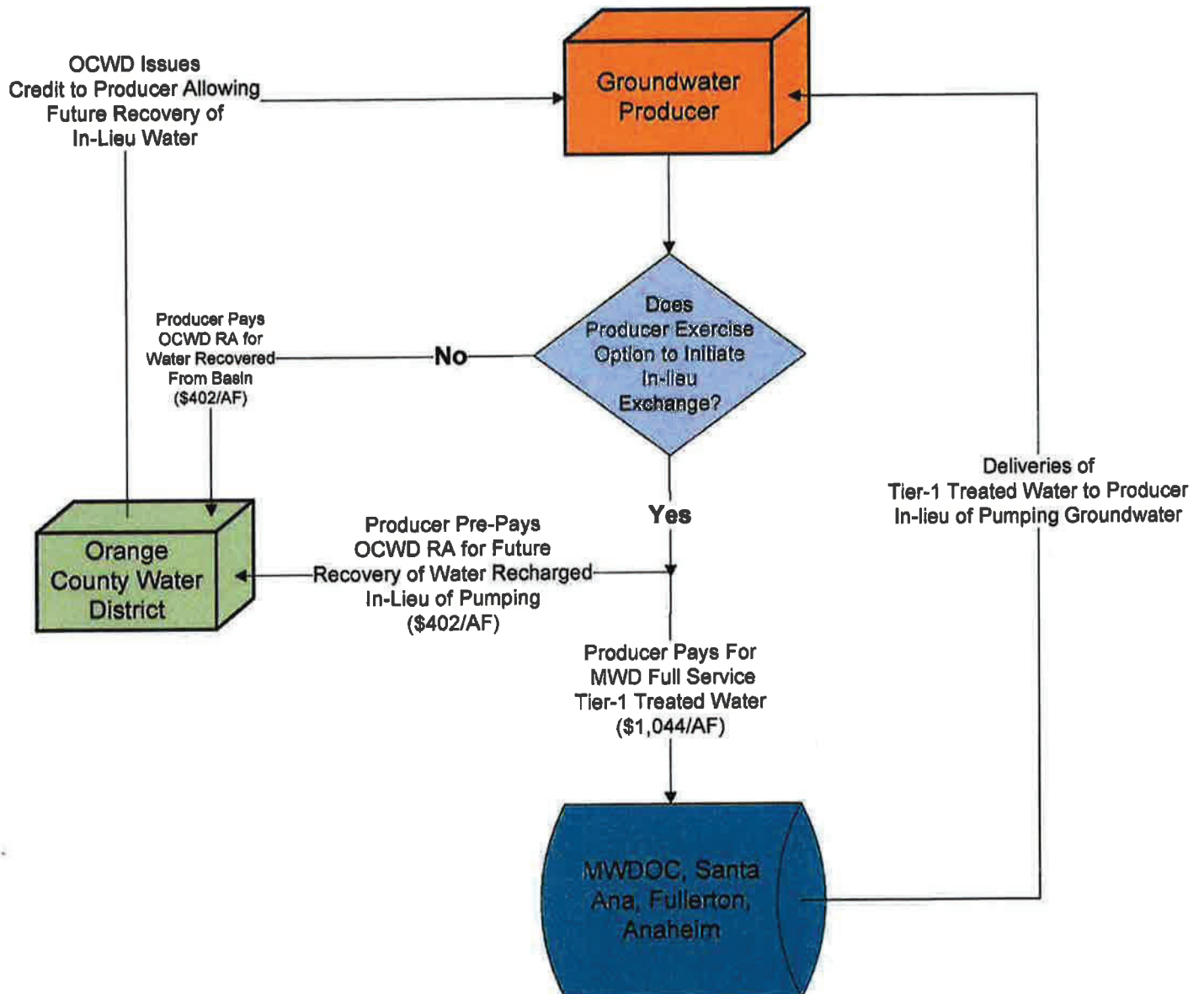
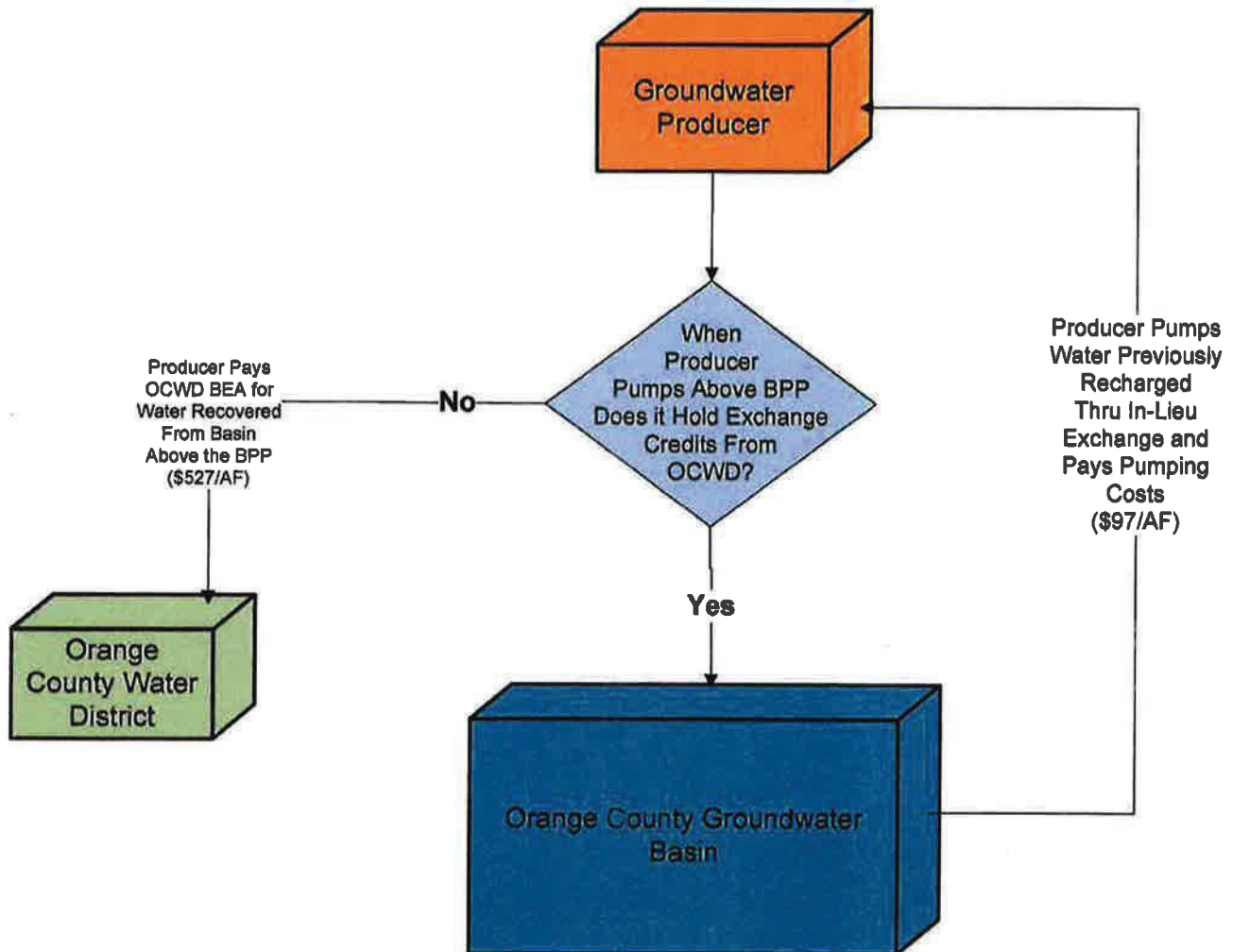


EXHIBIT "B"

Example of Recovery of Water Recharged Through In-Lieu Exchange

- *Costs of Recovery* -





City of Anaheim
PUBLIC UTILITIES DEPARTMENT
Administration

December 11, 2017

Mr. Michael Markus, P.E.
General Manager
Orange County Water District (OCWD)
18700 Ward Street
Fountain Valley, CA 92708

Subject: Proposed South Orange County Pilot Water Storage and Exchange Programs

Mr. Markus,

This letter addresses the upcoming Water Issues Committee agenda item for consideration of proposed South Orange County Pilot Water Storage and Exchange Programs.

I recommend the Committee defer action on this agenda item at this time. While OCWD staff's recommendation may have merit at some point, OCWD should first consider allowing water storage and exchange programs with its member agencies before considering such programs for agencies outside the basin.

I understand several of the Groundwater Producers would be interested in discussing the potential merits of water storage and/or exchange programs with the District. These types of programs would improve local supply reliability and potentially provide OCWD with additional resources for the benefit of the basin and all its member agencies.

While the Producers fully support the OCWD Board's prior establishment of the emergency program for South County, I believe expanding or supplementing it to provide additional storage or exchange provisions would be premature. Instead, I recommend OCWD first engage with the Groundwater Producers to discuss the potential merits of such programs with your member agencies.

Sincerely,

Michael Moore, P.E.
Assistant General Manager, Water

Orange County Groundwater Producers

January 31, 2018

AGENCIES

City of Anaheim
City of Buena Park
East Orange County WD
City of Fountain Valley
City of Fullerton
City of Garden Grove
Golden State Water Co.
City of Huntington Beach
Irvine Ranch WD
City of La Palma
Mesa Water District
City of Newport Beach
City of Orange
City of Santa Ana
City of Seal Beach
Serrano Water District
City of Tustin
City of Westminster
Yorba Linda Water District

Mr. Michael Markus, P.E.
General Manager
Orange County Water District
18700 Ward Street
Fountain Valley, CA 92708

Subject: Proposed Memorandum of Understanding for a Water Storage and Exchange Program between OCWD and Moulton Niguel Water District

Mike:

On January 25, 2018, your staff sent a reminder notice for the next meeting of the Orange County Groundwater Producer Agencies to discuss the concept of storage accounts in the Orange County Groundwater Basin. This notice included a draft of a potential Memorandum of Understanding (MOU) between OCWD and Moulton Niguel Water District (MNWD). As was clearly articulated at the first meeting of the Producers regarding this topic on January 10, 2018, the Producers strongly believed that executing an MOU with MNWD at this time is not appropriate. In this letter, all 19 Producer Agencies are unanimously requesting that OCWD table this proposed MOU with MNWD from further consideration. We also recommend that OCWD undertake a process for evaluating the potential for storage accounts using the following process:

- 1) Evaluate the current and future operating parameters of the Basin;
- 2) Identify potential measures to optimize the storage of water in the Basin for the benefit of the Producers;
- 3) Consider if / how storage accounts could be implemented for Producer agencies; then
- 4) Consider if / how potential storage accounts could be implemented for non-Producer agencies to the primary benefit of the Producer Agencies.

Concepts for water storage accounts in the Orange County Groundwater Basin have been discussed for many years, including the “MWD CUP” with Metropolitan Water District of Southern California and a potential “SARRCUP” program. Other storage programs could be considered in the future, but only after considering all relevant factors. This analysis, which we believe can be completed by the very knowledgeable OCWD staff, should evaluate the operating parameters of the Basin including seasonal fluctuations, current and future sources of water, demands, recharge capacity, and current and future facilities, just to name a few considerations. The Producers are ready, willing, and able to assist in this effort, providing data and other information as requested.

The Groundwater Producer Agencies of Orange County support efforts to improve the water supply reliability of all agencies in Orange County. We look forward to working in conjunction with OCWD staff to maximize the use of the tremendous water resource asset known as the Orange County Groundwater Basin.

Mr. Mike Markus, General Manager
Orange County Water District
January 31, 2018
Page 2

Staff from the following agencies have each provided concurrence with the statements and recommendations contained in this letter:

**Concurrence Provided at the
January 31, 2018 Producer Meeting**

City of Anaheim
East Orange County Water District
City of Fountain Valley
City of Fullerton
Golden State Water Company
City of Huntington Beach
Irvine Ranch Water District
Mesa Water District
City of Newport Beach
City of Orange
City of Santa Ana
City of Seal Beach
Serrano Water District
City of Westminster
Yorba Linda Water District

**Concurrence provided after the
January 31, 2018 Producer Meeting**

City of Buena Park
City of Garden Grove
City of La Palma
City of Tustin

cc: OCWD Board of Directors

SOUTH ORANGE COUNTY AGENCIES' GROUP

February 20, 2018

Mr. Michael Markus, P.E.
General Manager
Orange County Water District
18700 Ward Street
Fountain Valley, CA 92708

Subject: Support for Proposed Analysis for Potential Storage Accounts in the Orange County Groundwater Basin

Dear Mr. Markus:

The undersigned agencies are very appreciative of the recent discussion among the Groundwater Producer Agencies about water supply reliability and emergency supplies. As you know, by agreement with Orange County Water District (OCWD), Municipal Water District of Orange County, and Irvine Ranch Water District, many agencies in South Orange County have the ability to exchange water in an emergency through the Dyer Road Wellfield for up to 30 days. Over the years, OCWD and the South County agencies have discussed various alternatives for storage or exchange agreements and emergency supplies utilization of the groundwater basin as a potential alternative delivery of emergency water and the storage or exchange of longer term emergency supplies.

Recently the OCWD Producer Agencies suggested storage programs could be considered in the future, but only after considering several factors and issues. The proposed analysis would evaluate the operating parameters of the Basin including seasonal fluctuations, current and future sources of water, demands, recharge capacity, and current and future facilities using the following process:

- 1) Evaluate the current and future operating parameters of the Basin;
- 2) Identify potential measures to optimize the storage of water in the Basin for the benefit of the Producers;
- 3) Consider if / how storage accounts could be implemented for Producer agencies; then
- 4) Consider if / how potential storage accounts could be implemented for non-Producer agencies to the primary benefit of the Producer Agencies.

We believe this is a prudent approach and would all be willing participants in the discussions on future sources of water and non-producer storage accounts, when the time is appropriate. We appreciate your periodic attendance and participation in discussions at the South County Agencies' Group and welcome the opportunity to have further discussions.

SOUTH ORANGE COUNTY AGENCIES' GROUP CONSISTS OF MEMBERS AND REPRESENTATIVES FROM

City of San Clemente • City of San Juan Capistrano • El Toro Water District • Emerald Bay Service District •
Irvine Ranch Water District • Laguna Beach County Water District • Moulton Niguel Water District •
Santa Margarita Water District • South Coast Water District • Trabuco Canyon Water District

SOUTH ORANGE COUNTY AGENCIES' GROUP

We support efforts to improve the water supply reliability of all agencies in Orange County. We look forward to working with OCWD staff to maximize the use of the tremendous water resource asset known as the Orange County Groundwater Basin.

Staff from the following agencies have each provided concurrence with the statements and recommendations contained in this letter:

City of San Juan Capistrano

El Toro Water District

Emerald Bay Service District •

Irvine Ranch Water District

Laguna Beach County Water District

Santa Margarita Water District

South Coast Water District

Trabuco Canyon Water District

cc: OCWD Board of Directors

SOUTH ORANGE COUNTY AGENCIES' GROUP CONSISTS OF MEMBERS AND REPRESENTATIVES FROM

*City of San Clemente • City of San Juan Capistrano • El Toro Water District • Emerald Bay Service District •
Irvine Ranch Water District • Laguna Beach County Water District • Moulton Niguel Water District •
Santa Margarita Water District • South Coast Water District • Trabuco Canyon Water District*

April 6, 2018

Mr. Michael Markus, P.E.
General Manager
Orange County Water District
18700 Ward Street
Fountain Valley, CA 92708

Subject: Support for Proposed Analysis for a Potential Pilot Exchange Agreement in the
Orange County Groundwater Basin

Dear Mr. Markus:

Moulton Niguel Water District (MNWD) appreciates the visionary leadership by Orange County Water District's (OCWD) Board of Directors to amend its policy on local water supplies and begin discussions for a potential pilot groundwater exchange program. Over the years, OCWD has been a key partner of South Orange County in jointly signing on to the Emergency Services Agreement in 2006 to provide South Orange County including MNWD with the ability to exchange water in an emergency, at no compensation to OCWD.

As a follow up to the policy amendment, MNWD has been working with your staff to develop a memorandum of understanding to jointly study opportunities in the basin for both OCWD members and non-OCWD members, where MNWD would help fund the cost of these studies to gain information and evaluate the feasibility of future opportunities. Understandably, these matters take time, and we appreciate the willingness of the OCWD Board and its member agencies to engage with MNWD in discussing the potential for opportunities within the groundwater basin that could provide county-wide benefits, including economic benefits to all of the OCWD member agencies.

Recently, several agencies in South Orange County sent a joint letter expressing their similar appreciation for your efforts. The concept of an exchange agreement is not new; however with Metropolitan Water District recently noting that over 1.2 million acre feet have been depleted from groundwater basins over the past decade in Southern California, the time is ripe to work towards optimization of local resources like the Orange County Basin. MNWD acknowledges the historical investment that OCWD and its member agencies have paid in their proactive management of the basin and applauds the past work such as the Groundwater Replenishment System.

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Any program would need to ensure that OCWD members receive an appropriate benefit and that it improves the overall health of the basin.

In recent discussions, a number of key factors were suggested to be evaluated as part of the development of a pilot exchange agreement. MNWD supports the process and following analysis for consideration by OCWD Board and staff, if appropriate:

- 1) Evaluate the current and future operating parameters of the Basin;
- 2) Identify potential measures to optimize the storage of water in the Basin for mutual county-wide benefit;
- 3) Consider if / how exchange agreements could be implemented

We appreciate the ongoing discussions as well as OCWD's willingness to consider further analysis and support the evaluation of future sources of water as well as exchange agreements. MNWD supports your efforts to work collaboratively across the county to increase the water reliability for all Orange County agencies. We look forward to working with your staff and further discussions on the potential opportunities towards county-wide benefit.

Sincerely,



Joone Lopez
General Manager

cc: OCWD Board of Directors





Item No. 3

ACTION ITEM January 16, 2019

TO: Board of Directors

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

FROM: Robert Hunter, General Manager
Staff Contact: Karl Seckel/Charles Busslinger

SUBJECT: Receive and File Final Report: 2018 Orange County Water Reliability Study

STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee recommends the Board receive and file the FINAL report for the 2018 Orange County Water Reliability Study. Two comments were received over the past month as outlined below. Upon action by the Board, staff will incorporate these and any other non-substantive changes and publish the final report. (Because the changes were deemed minor, the version being considered is the same as was posted in December – copies are available at the District office and are posted on the District website; if individual copies are desired, please let Karl Seckel know). The report link is below:

https://www.dropbox.com/s/0ksjez3sam5hdvz/2018%20OC%20Study%20Report_Final%20Draft%20with%20Appendices_12-12-2018.pdf?dl=0

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

The report was sent to the member agencies in December; the Board took action to receive and file the final DRAFT Report and allow comments until the January 14 P&O Committee. A reminder was sent to the member agencies in early January. Two comments were received; these were:

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

1. Include in the report a list of people that worked on the report.
2. EOCWD requested that their Peters Canyon Treatment Plant Project be noted in the study as “not being included in the evaluations”, in a manner that certain OCWD projects were noted as not being included. Staff has requested EOCWD to provide detailed information on their project prior to the end of the January. Staff agreed to use the information to compare the cost and reliability of the emergency supplies provided by the Peters Canyon Treatment Plant being delivered to SOC with other options. The Peters Canyon Treatment Plant source water is untreated MET water from the Santiago Lateral and the Baker Pipeline. The water would be treated, conveyed to and pumped into the East Orange County Feeder No. 2 by EOCWD, and delivered to agencies in SOC. The cost and reliability of the Peters Canyon emergency supplies would be compared to the emergency supplies from the IRWD South County Regional Interconnection and to a direct pump-in of the EOCF#2 (work currently underway between MWDOC, OCWD and IRWD).

Both of these comments can be easily incorporated into the Final Report and the emergency evaluation can be included in the work underway.



DISCUSSION ITEM

January 14, 2019

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

FROM: Robert Hunter, General Manager

Staff Contact: Kelly Hubbard, WEROC Manager

SUBJECT: Woolsey and Camp Fire: Response, Mutual Aid and Lessons Learned

STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee review the following report, receive the staff presentation and discuss any additional questions.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

DETAILED REPORT

Kelly Hubbard, WEROC Manager, provided support to water utilities impacted by the Woolsey Fire (Ventura/LA County) and the Camp Fire (Butte County). Kelly will provide a presentation to the MWDOC Planning and Operations Committee on the Woolsey and Camp Fires. The presentation will include fire statistics, support provided and lessons learned. Please see attached presentation.

Some additional details regarding the support activities for each fire are provided below.

Woolsey Fire

Kelly assisted water utilities impacted by the Woolsey Fire (started November 8) with the coordination of mutual aid and private resources as the California Water/Wastewater Agency Response Network (CalWARN) Region 1 coordinator. A request for assistance from the Las Virgenes Municipal Water District was received on

Budgeted (Y/N): N	Budgeted amount: \$0	Core __	Choice __
Action item amount: TBD		Line item:	
Fiscal Impact (explain if unbudgeted): Travel and some Salary costs for the Butte County response may be reimbursed. Eligible costs are being calculated and will be provided in a future WEROC GM Report.			

November 9, 2018. Although the coordination need was limited, there were several good lessons to be learned and shared.

Camp Fire

The Town of Paradise and Butte County both asked for Emergency Manager Mutual Aid (EMMA) support. The EMMA program is a special mutual aid program that was created to provide Emergency Operations Center (EOC) assistance by trained professional emergency managers with experience in very specific roles and responsibilities. It is coordinated on a County to County basis with CalOES support. Kelly offered to fulfill several roles in either agency's EOC and was asked to fulfill the position of Public Information Officer in the Butte County Joint Information Center (JIC). The JIC is a separate organizational concept to coordinate the communications and outreach of all impacted and responding agencies.

CalOES provides camp living accommodations for EMMA responders to reduce impacts on already limited hotel space due to evacuees of the disaster. The Camp accommodations include heated yurt type structures, cots, bedding, rustic restroom/shower facilities, and meals each day.

Costs for Kelly's deployment are incurred by MWDOC and may be reimbursed by the County of Butte. Mutual Aid costs are typically considered free for the first 24 hours and can sometimes be reimbursed later if the requesting agency receives FEMA reimbursement. Eligible costs for travel and salary are being calculated now for submission to Butte County.

Kelly met with Paradise Irrigation District (PID) on November 26, 2018 to discuss the impacts of the Camp Fire on their services and to provide any recommendations on coordination of their response and recovery efforts. Kelly also provided insight on some of the lessons learned from other utilities in recent fires. During the time Kelly was in Butte, she continued to connect PID to various sources for coordination of information, resources and recovery needs. Kelly has continued to assist PID from Orange County with communications. Kelly has drafted a PID Camp Fire Communications Plan to help guide their staff's efforts. Additionally, she continues to review and provide feedback on press releases, as well as assisting with developing messaging on social media.

Attachment: PowerPoint, "Woolsey and Camp Fire: Response, Mutual Aid and Lessons Learned"

Woolsey & Camp Fire: Response, Mutual Aid & Lessons Learned

1

MWDOC Planning and Operations Committee
Kelly Hubbard
January 14, 2019

Topics

- Woolsey Fire Support
 - Coordination of Mutual Aid
 - Lessons Learned
- Camp Fire Support
 - Mutual Aid Support
 - County of Butte/Town of Paradise
 - Paradise Irrigation District
 - Lessons Learned



Woolsey Fire

3

- Started: November 8, 2018 @ 2:24 pm
 - Note: Hill Canyon Fire in Ventura started the same day burning 4,531 acres
- Acres: 96,949 Acres
- Primary Fire Response Agencies:
 - Ventura County Fire
 - LA County Fire
- Structures: 1643 destroyed - 364 damaged
 - 7th most destructive fire in CA history
- Injuries: 3 firefighter injuries - 3 civilian fatalities
- Cause: Under Investigation
- Recovery Information:
 - <https://www.lacounty.gov/lacountyrecovers/>
 - www.MalibuRebuilds.org



Woolsey Fire - Water System Impacts

4

- Limited Communications
- Loss of Power - proactive and damage related
- Water Notices:
 - Consumer Alert During Water Outages or Periods of Low Pressure
 - Boil Water Notice
- LA County Waterworks District (Malibu)
 - Loss of SCADA to entire system
 - Some tanks were emptied
 - Loss of Power
 - Water usage faster than pumping capability
 - Stopping water loss @ lost properties
- Las Virgenes Municipal Water District
 - Fire burned up to property lines and buildings
 - Operated throughout fire
 - Went to the Incident Command Post



Woolsey Fire - Mutual Aid

5

- Las Virgenes Municipal Water District
 - Two (2) 225 kw or two (2) 250 kw portable generators
 - Can be run in parallel with cable
 - Eight (8) Commercial Industrial HEPA Building Filters
- LA County Waterworks District (Malibu)
 - Requested portable 150kW generators
 - Recommended to Request: Valve Turning Teams
- LVMWD to MET
 - Requested increased flows



Woolsey Fire - Lessons Learned

6

- Water Billing Issues
 - Excessive water use charges
 - Standby or flat monthly fees
 - Expedite the process and minimize the cost for customers to rebuild
- Edison Law Suits
 - For turning off power to water utilities
 - For Not turning off power
- Coordination was difficult
 - Power outages, overwhelmed networks
 - Upper Management in the field
 - Same request being pushed out multiple ways
- Access routes and traffic



Camp Fire

7

- Started: November 8, 2018 @ 6:33 am
- Acres: 153,336 acres
- Primary Fire Response Agencies: CAL FIRE, Butte County Sheriff Department, Paradise Police Department, USFS
- Structures:
 - Single Residences Destroyed/Damaged: 13,696/462
 - Multiple Residences Destroyed/Damaged: 276/25
 - Commercial Structures Destroyed/Damaged: 528/102
 - Other Minor Structures Destroyed: 4,293
- Injuries:
 - 3 firefighter injuries
 - 86 civilian fatalities - **Deadliest Fire in CA History**
- Cause: Under Investigation
- Recovery Info: <https://buttecountyrecovers.org/>



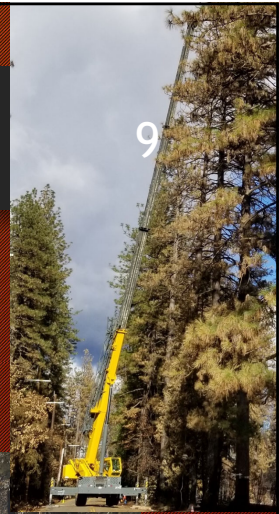
Camp Fire Mutual Aid - Butte County

8

- Public Information Officer
 - Media Relations
 - Community Events
- Joint Information Center
- November 27 - December 4
- Purpose:
 - Coordinate communications between all agency's impacted and responding.
 - To be **ONE voice for the county.**
- Butte County Joint Information Center (JIC)
 - Butte County
 - Town of Paradise
 - Federal EPA
 - CalOES
 - American Red Cross
 - Small Business Association
 - FEMA
- Who's Missing?

Camp Fire Lessons Learned - Joint Information Center (JIC)

- WEROC Joint Information Center Plan
 - Coordinate Member Agency Messaging
 - Advocate for Water/Wastewater @ OA JIC
- JIC Support Concepts
 - Predevelopment of Tools
 - Physical Location
- Lead YOUR Story
- Sharing Info should NOT be feared



Camp Fire Mutual Aid - Paradise Irrigation District

10

- 10,500 connections
 - Est maybe 1000 homes left (11/26)
- 90% of Staff Lost their Homes
 - Living ALL over CA
- Expedited Funding
- Public Outreach
 - <https://pidwater.com/recovery>
 - <https://www.facebook.com/PIDWater/>
 - <https://twitter.com/pidwater>



Camp Fire Lessons Learned - Paradise Irrigation District

- Disaster Finance
 - Fiscal Continuity
 - Tracking of Costs, Mutual Aid, Damages
 - Billing and Fees
- Lead YOUR Story
 - Disaster Communications Plan
 - #RebuildingParadise #OneH2OConnectionataTime #ParadiseStrong
 - Visualize Complexities for Residents
- Water Quality - Benzene
 - “Why were we told to Boil our water, but now we can’t drink it at all?”
 - Water Utilities need a Fire Response Benzene Testing and Restoration Plan
 - SWRCB Division of Drinking Water needs a Fire Response Benzene Testing and Restoration Guidance
- Point of Distribution Plan for Drinking Water

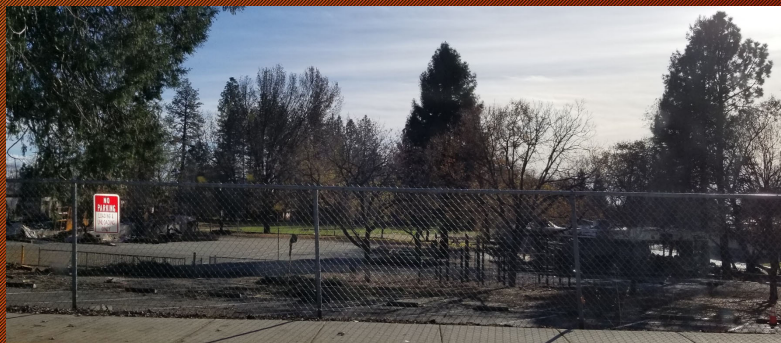


Questions

12

“Why would I want to bring my kids back to this? We won’t come back.” ~ Police Officer, Town of Paradise

(Photo- School in Town of Paradise)



Thank you from Paradise Irrigation District

13

ENGINEERING & PLANNING	
Orange County Reliability Study	<p>Staff and CDM-Smith provided the final Reliability Study report to the Board for a “receive and file” action on December 19th.</p> <p>Spin off work from the Reliability Study to further analyze the Strand Ranch Extraordinary Water Supply program is now in progress.</p>
South Orange County Emergency Service Program	<p>Dudek continues to assist MWDOC and IRWD to determine if the existing IRWD South Orange County Interconnection capacity to provide emergency water to South Orange County can be expanded in capacity or extended beyond its current time horizon of 2030. Modeling and evaluation of a number of options for the IRWD system is required for the study effort. Dudek has forwarded the draft technical memorandum to IRWD and MWDOC and upon incorporation of comments will be looking to share the information with the SOC agencies in January/February.</p>
Strand Ranch Project	<p>MWDOC is using the modeling from the Orange County Reliability Study to evaluate how “extraordinary supplies” from the Strand Ranch Project can be utilized by the MWDOC agencies to provide drought protection over the next 7 to 11 years or longer. The analysis is currently in progress.</p>
MET Evaluation of Regional Storage Portfolio (ERSP)	<p>MET Evaluation of Regional Storage Portfolio (ERSP).</p> <p>Metropolitan’s emergency water storage objective is based on the potential for major earthquake damage to the State Water Project and Colorado River aqueducts that transport imported water supplies to Southern California (following the San Andreas M7.8 ‘Great ShakeOut’ scenario developed by the US Geological Survey).</p> <p>MET has established a Member Agency Workgroup to consider updates to MET’s emergency storage objective, including:</p> <ol style="list-style-type: none"> 1. Updating emergency criteria, 2. Revising the framework for determining emergency storage volume. The new framework would shift from a traditional single equation for determining emergency storage volume, to an updated evaluation that considers various combinations of criteria to determine a storage amount that provides an envelope of alternatives for MET’s emergency storage that could provide reliability during the outage period. 3. Proposed periodic re-evaluation of emergency storage volume to coincide with completion of each new IRP (every 5 years). <p>MET released a White Paper on October 29, 2018 to member agencies for their review and feedback. The paper discusses a methodology for review and update of emergency criteria and re-evaluation of Metropolitan’s emergency storage.</p> <p>Included in the proposed outage period criteria is:</p> <ol style="list-style-type: none"> A. Recognition that an outage on the SWP could exceed previous estimates of six months (now one to two years), and

	<p>B. Incorporation of increased operational flexibility of the MET system which was demonstrated during the last drought. Some areas in the MET's service area that normally receive SWP water from the East Branch could be served by delivering DVL water to Mills through the Inland Feeder/Lakeview Pipeline intertie.</p> <p>These changes modify the Emergency Outage Criteria from a minimum/maximum outage criteria to an 'effective outage' duration which better represents conditions.</p> <p>A third Workgroup meeting was held November 1, 2018 which continued the discussion on updating emergency storage criteria and re-evaluation of Metropolitan's Emergency Storage Requirements. Based on these discussions, it appears as if MET staff will only be making marginal changes in the existing emergency storage recommendations.</p>
Poseidon Resources	<p>(Nothing new to report)</p> <p>Poseidon continues working with the Santa Ana Regional Water Quality Control Board (SARWQCB) to renew and update its existing National Pollution Discharge Elimination System permit and expects to be in front of the Regional Board in 2019.</p>
SMWD Rubber Dams Project	<p>(Nothing New to Report)</p> <p>SMWD continues to work on additional technical studies to complete the response to comments on the Draft Environmental Impact Report (DEIR).</p>
Doheny Ocean Desalination Project	<p>South Coast WD is still working on the response to comments portion of their Doheny Ocean Desalination Project Draft Environmental Impact Report (EIR). Additional modeling work has been required to respond to some of the comments; they anticipate a "spring" completion of the Final EIR. Consultant GHD is also working on an updated Coastal Hazard Technical Study to address comments received.</p> <p>South Coast WD staff also submitted a grant application for up to \$20 million for project construction through Bureau of Reclamation 'Water SMART: Desalination Construction Projects under the WIIN Act'. The Bureau of Reclamation expects to contact potential award recipients and unsuccessful applications any time now (January 2019).</p>
Meetings	
	<p>Charles Busslinger attended the December 13, 2018 Santiago Aqueduct Commission meeting to provide a short update on MWDOC's preliminary efforts with MET to optimize the pending shutdowns of the AMP which will be necessary for the PCCP relining project. These shutdowns are still a few years away.</p>
	<p>Charles Busslinger participated in conference calls with CalDesal on December 21st and January 4, 2019 regarding the pending Triennial Review of the California Ocean Plan. DWR will be holding a public scoping workshop on January 14, 2019 in Costa Mesa to solicit comments about changes to the Ocean Plan. CalDesal is urging DWR to leave the ocean desalination portion of the Plan 'as is' as no permits have been issued for ocean desalination plants since</p>

	the Ocean Plan Amendments came into effect and there is no experiential basis for making changes at this time.
	Charles Busslinger participated in the South OC IRWM Project Review Ad Hoc Committee meeting on January 7, 2019 to discuss project scoring criteria for the Prop 1 IRWM Grant Call for Projects. Small changes to the scoring criteria were made and the deadline for project submission was extended by 1 week.
	Karl Seckel and Charles Busslinger met with Dave Rebensdorf from San Clemente to provide an overview of the OC Water Reliability Study.

**Status of Ongoing WEROC Projects
December 2018**

Description	Comments
Coordination with WEROC Member Agencies	<p><i>Ongoing: WEROC, with Michael Baker as the lead consultant, is facilitating 19 agencies through the process of updating the Orange County Water and Wastewater Multi-Jurisdictional Hazard Mitigation Plan. Update: CalOES has completed their review of the Hazard Mitigation Plan and requested a few minor revisions. Francisco is working with the participating agencies and the consultant to address the revisions and re-submit the plan to CalOES and FEMA by January 18, 2019.</i></p> <p>Francisco and Kelly Hubbard met with the new Security & Emergency Planning Specialist for the Orange County Sanitation District. Staff provided background information on WEROC, how to coordinate during a disaster and worked on the upcoming January 2019 disaster exercise. WEROC offered to continue to help him connect with Orange County agencies and to learn about OC response processes and programs.</p>
Training and Programs	<p>Francisco Soto hosted three (3) 800 MHz Radio Trainings for WEROC EOC staff. The training focused on reviewing the purpose, function, and protocols for using the radio system. Additionally, staff had an opportunity for hands-on training.</p> <p>Kelly facilitated a Disaster Finance Discussion for a CSU Long Beach Government Finance Masters Class hosted at the City of Seal Beach. Kelly, along with the City's Emergency Manager and City Manager were on a panel together. The class is taught by Vikki Beatley, Finance Director for City of Seal Beach.</p> <p>Kelly hosted a WEROC Public Information Officer training with MWDOC Public Affairs Staff and WEROC Staff. The training was structured to provide lessons and tools learned from Kelly's response to the Camp Fire and to have discussion on how to incorporate those concepts into the WEROC program.</p>
Coordination with the County of Orange	<p>Kelly, Francisco, and Janine attended the December OCCEMO meeting at the Knott's Berry Farm Hotel. Presentation topics included OA Managers Report, Grant Updates, CalOES report, Sub-committee Updates and the presentation of the annual OCCEMO Awards to Emergency Manager's in the County that have contributed to the profession or the OC community through a special project or program.</p>

	<p>Francisco attended two meetings to assist the County on the annual Threat and Hazard Identification and Risk Assessment/Stakeholder Preparedness Report (THIRA/SPR) process. The THIRA is a three-step risk assessment process that helps communities assess the threats and hazards that can affect the community, identify the impacts those threats and hazards have on the community, and identify capabilities that should exist to address the threats. Francisco provided water and wastewater specific concepts for incorporation. The THIRA/SPR is used in the Homeland Security Grant process for identification and prioritization of grant projects.</p> <p>Francisco and Kelly participated in various conference calls that took place throughout November and December for the possible activation of the Holy Fire Debris Flow Plan and the Canyon 2 Debris Flow Plan due to various rain events. The calls detail the current rain forecast and each agency's response actions and concerns for possible debris flows. Trabuco Canyon Water District (TCWD) has infrastructure that can be impacted by the Holy Fire Debris Flow area. TCWD participates in the calls and WEROC staff are aware of their concerns and possible need to coordination should a debris flow occur. The most significant storm was on December 6th and had significant flood related damages/impacts in Newport Beach and the Holy Canyon area. There were no significant impacts to water utilities.</p> <p>Kelly attended the County WebEOC/Communications meeting at the OA EOC. The meeting focused on the latest changes made to WebEOC and current/future modifications to the system.</p> <p>Kelly attended the County-wide exercise planning meeting at the City of Huntington Beach Emergency Operations Center. The meeting focused on assisting participating agencies in developing their Master Sequence of Events List (MSEL) and how to enter information onto WebEOC for the January 30th exercise.</p>
EOC Readiness	<p>Janine Schunk successfully participated in the OA and MET Radio Test and WebEOC tests for the month.</p> <p>Janine facilitated the monthly test of the WEROC Radio System.</p>
Fire Response Activities	<p>Kelly will provide a presentation to the MWDOC Planning and Operations Committee on January 14, 2019 on the Woolsey and Camp Fires. The presentation will include fire statistics, support provided and lessons learned. Some additional details regarding these support activities are provided in the accompanying staff report for the presentation.</p>

Status of Water Use Efficiency Projects

January 2019

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
Smart Timer Rebate Program	MWDSC	Ongoing	Ongoing	In November 2018, 167 residential and 86 commercial smart timers were installed in Orange County. For program water savings and implementation information, see MWDOC Water Use Efficiency Program Savings and Implementation Report.
Rotating Nozzles Rebate Program	MWDSC	Ongoing	Ongoing	In November 2018, 520 rotating nozzles were installed in Orange County. For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.
SoCal Water\$mart Residential Indoor Rebate Program	MWDSC	Ongoing	Ongoing	In November 2018, 221 high efficiency clothes washers and 26 premium high efficiency toilets were installed through this program. For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.
SoCal Water\$mart Commercial Rebate Program	MWDSC	Ongoing	Ongoing	In November 2018, 336 commercial premium high efficiency toilets and 2,117 residential premium high efficiency toilets were installed through this program. For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.
Industrial Process/ Water Savings Incentive Program (WSIP)	MWDSC	75%	July 2020	This program is designed for non-residential customers to improve their water efficiency through upgraded equipment or services that do not qualify for standard rebates. Incentives are based on the amount of water customers save and allows for customers to implement

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
				<p>custom water-saving projects. This fiscal year, two projects have been completed, which will save over 28 AFY.</p> <p>Total water savings to date for the entire program is 673 AFY and 3,347 AF cumulatively.</p>
Turf Removal Program	MWDOC	Ongoing	Ongoing	<p>In November 2018, 32 rebates were paid, representing \$337,231 in rebates paid this month in Orange County. To date, the Turf Removal Program has removed approximately 21.8 million square feet of turf.</p> <p>For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.</p>
Spray to Drip Conversion Program	MWDOC	Ongoing	Ongoing	<p>This is a rebate program designed to encourage residential and commercial sites to convert their existing conventional spray heads to low-volume, low-precipitation drip technology.</p> <p>To date, 236 residential sites and 63 commercial sites have completed spray to drip conversion projects.</p>
Recycled Water Retrofit Program	MWDSC	100%	September 2018	<p>This program provides incentives for commercial sites to convert dedicated irrigation meters to recycled water. To date, Metropolitan has provided a total of \$465,881.93 in funding to 29 sites irrigating 90 acres of landscape, and MWDOC has paid a total of \$56,950.00 in grant funding to 20 of those sites. The total potable water savings achieved by these projects is 220 AFY.</p>

Orange County

Water Use Efficiency Programs Savings and Implementation Report

Retrofits and Acre-Feet Water Savings for Program Activity

Program	Program Start Date	Retrofits Installed in	Month Indicated		Current Fiscal Year		Overall Program	
			Interventions	Water Savings	Interventions	Water Savings	Interventions	Cumulative Water Savings[4]
High Efficiency Clothes Washer Program	2001	November-18	221	0.63	1,217	10.11	117,762	30,409
Smart Timer Program - Irrigation Timers	2004	November-18	253	5.38	1,435	82.43	24,159	54,890
Rotating Nozzles Rebate Program	2007	November-18	520	2.08	2,851	34.06	567,158	19,642
Commercial Plumbing Fixture Rebate Program	2002	November-18	2,453	7.56	5,245	24.62	99,018	49,444
Industrial Process/Water Savings Incentive Program (WSIP)	2006	November-18	0	0.00	2	6.09	33	3,347
Turf Removal Program ^[3]	2010	December-18	15,838	0.18	423,773	15.65	22,018,851	13,364
High Efficiency Toilet (HET) Program	2005	November-18	26	0.09	134	5.70	60,237	19,278
Water Smart Landscape Program ^[1]	1997						12,677	72,668
Home Water Certification Program	2013						312	15,266
Synthetic Turf Rebate Program	2007						685,438	469
Ultra-Low-Flush-Toilet Programs ^[2]	1992						363,926	162,561
Home Water Surveys ^[2]	1995						11,867	1,708
Showerhead Replacements ^[2]	1991						270,604	19,083
Total Water Savings All Programs			16	434,657	179	24,232,042	52,250	446,879

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

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

97 Turf Removal Interventions are listed as square feet.

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

05

HIGH EFFICIENCY CLOTHES WASHERS INSTALLED BY AGENCY

through MWDOC and Local Agency Conservation Programs

Agency	FY 12/13	FY13/14	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19	Total	Current FY Water Savings Ac/Ft (Cumulative)	Cumulative Water Savings across all Fiscal Years	15 yr. Lifecycle Savings Ac/Ft
Brea	93	115	114	76	57	56	25	1,948	0.20	503.50	1,008
Buena Park	105	106	91	76	54	50	16	1,584	0.10	397.33	820
East Orange CWD RZ	10	8	8	8	3	1	1	194	0.01	53.75	100
El Toro WD	134	121	111	65	47	50	15	1,586	0.13	398.97	821
Fountain Valley	115	102	110	76	65	49	16	2,465	0.11	664.89	1,275
Garden Grove	190	162	165	251	127	87	31	3,681	0.24	948.22	1,905
Golden State WC	265	283	359	260	138	156	50	5,221	0.43	1,344.33	2,701
Huntington Beach	334	295	319	225	180	141	41	8,428	0.34	2,311.85	4,361
Irvine Ranch WD	1,763	1,664	1,882	1,521	1,373	1,203	394	26,263	3.13	6,416.99	13,589
La Habra	82	114	87	66	53	48	19	1,394	0.16	347.98	721
La Palma	34	25	34	29	10	14	4	476	0.03	120.42	246
Laguna Beach CWD	38	37	39	32	19	20	9	961	0.07	253.75	497
Mesa Water	114	86	89	113	80	54	18	2,590	0.17	708.25	1,340
Moulton Niguel WD	442	421	790	688	575	527	164	10,612	1.42	2,556.01	5,491
Newport Beach	116	92	95	66	61	51	25	2,700	0.19	750.33	1,397
Orange	218	163	160	124	80	74	28	4,000	0.24	1,101.62	2,070
Orange Park Acres					-	-	-	12	0.00	4.09	6
San Juan Capistrano	76	73	92	63	33	33	7	1,499	0.06	392.22	776
San Clemente	140	94	141	75	70	85	32	2,737	0.23	710.74	1,416
Santa Margarita WD	553	662	792	466	367	274	92	9,882	0.88	2,476.69	5,113
Seal Beach	31	29	38	23	9	17	4	623	0.02	163.06	322
Serrano WD	13	10	26	8	11	8	-	365	0.00	100.05	189
South Coast WD	89	79	68	43	44	36	15	1,635	0.10	423.98	846
Trabuco Canyon WD	30	45	47	34	28	22	2	822	0.01	211.97	425
Tustin	78	59	80	66	44	49	14	1,675	0.11	448.14	867
Westminster	121	82	109	149	84	65	17	2,668	0.13	696.36	1,380
Yorba Linda	181	167	156	123	56	67	18	3,837	0.18	1,056.16	1,985
MWDOC Totals	5,365	5,094	6,002	4,726	3,668	3,237	1,057	99,858	8.72	25,561.63	19,292
Anaheim	331	285	295	266	213	173	53	10,908	0.45	3,039.26	5,644
Fullerton	200	186	211	165	107	99	57	3,851	0.51	1,000.39	1,993
Santa Ana	163	131	132	259	141	124	50	3,145	0.43	807.91	1,627
Non-MWDOC Totals	694	602	638	690	461	396	160	17,904	1.39	4,847.56	3,459
Orange County Totals	6,059	5,696	6,640	5,416	4,129	3,633	1,217	117,762	10.11	30,409.20	22,751

SMART TIMERS INSTALLED BY AGENCY through MWDOC and Local Agency Conservation Programs

Agency	FY 12/13		FY 13/14		FY 14/15		FY 15/16		FY16/17		FY17/18		FY18/19		Total Program		Cumulative Water Savings across all Fiscal Years
	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm.	
Brea	9	8	4	0	6	43	20	4	31	4	32	0	17	0	180	80	584.33
Buena Park	3	0	0	0	10	4	7	4	10	7	15	3	12	4	58	48	184.05
East Orange CWD RZ	2	0	0	0	0	2	1	0	11	1	6	0	1	0	32	1	26.81
El Toro WD	7	2	11	0	8	9	9	17	33	8	29	4	19	0	163	359	2,728.64
Fountain Valley	3	2	4	0	7	10	13	1	33	12	28	12	19	1	138	53	228.37
Garden Grove	5	2	9	0	14	13	13	11	28	0	27	2	21	0	149	40	208.43
Golden State WC	9	49	9	25	12	39	35	16	56	37	88	6	43	14	356	212	976.48
Huntington Beach	18	33	20	35	2	19	42	12	88	94	70	30	61	58	403	356	1,300.84
Irvine Ranch WD	414	135	71	59	310	67	239	207	344	420	416	78	209	80	2,394	2,444	13,079.68
La Habra	4	7	2	0	7	4	3	1	12	7	8	0	9	2	53	46	235.19
La Palma	1	0	2	0	0	2	3	2	1	0	5	0	2	0	17	2	8.29
Laguna Beach CWD	76	2	71	0	86	0	86	1	27	0	11	0	3	0	511	20	272.36
Mesa Water	10	2	15	2	17	28	36	12	149	41	49	0	20	55	387	209	855.93
Moulton Niguel WD	51	74	40	45	95	46	163	100	236	129	284	33	157	55	1,355	889	4,261.73
Newport Beach	242	26	168	75	11	11	28	43	30	12	24	0	14	0	1,076	409	2,940.58
Orange	20	24	13	9	31	18	51	13	69	10	61	13	54	26	400	204	1,075.03
San Juan Capistrano	14	18	6	11	6	19	20	8	22	8	23	5	12	0	257	130	745.55
San Clemente	26	7	28	2	28	2	26	3	37	13	38	41	19	0	1,108	415	3,014.29
Santa Margarita WD	53	171	64	93	321	53	189	136	326	221	273	220	127	19	1,554	1,611	6,917.32
Santiago CWD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Seal Beach	1	0	1	36	1	1	2	2,446	2	4	5	0	2	0	14	2,502	6,804.34
Serrano WD	1	0	0	0	0	4	11	2	4	0	8	0	7	0	53	2	17.80
South Coast WD	13	16	8	4	73	104	9	11	7	0	15	2	2	2	295	216	1,307.18
Trabuco Canyon WD	6	0	2	0	6	6	16	50	13	3	20	0	18	0	141	157	1,062.61
Tustin	8	4	9	1	14	18	33	8	33	23	27	1	24	0	194	81	403.52
Westminster	1	1	2	0	13	17	7	1	17	12	22	0	15	0	102	44	231.71
Yorba Linda	20	0	12	5	32	32	61	27	72	71	68	10	43	3	449	196	985.15
MWDOC Totals	1,017	583	571	402	648	1,026	1,123	3,136	1,691	1,137	1,652	460	930	319	11,839	10,726	50,456.22

Anaheim	19	10	9	26	7	52	30	34	87	10	66	0	73	63	383	520	2,930.89
Fullerton	9	29	8	0	40	26	32	12	53	7	45	0	36	0	280	199	1,080.63
Santa Ana	8	19	7	8	9	27	22	26	15	3	16	0	14	0	112	100	422.18
Non-MWDOC Totals	36	58	24	34	56	105	84	72	155	20	127	0	123	63	775	819	4,433.70
Orange County Totals	1,053	641	595	436	704	1,131	1,207	3,208	1,846	1,157	1,779	460	1,053	382	12,614	11,545	54,890

ROTATING NOZZLES INSTALLED BY AGENCY
through MWDOC and Local Agency Conservation Programs

Agency	FY 13/14			FY 14/15			FY 15/16			FY 16/17			FY 17/18			FY 18/19			Total Program			Cumulative Water Savings across all Fiscal Years
	Small	Large	Res	Small	Large	Res	Small	Large	Res	Small	Large	Res	Small	Large	Res	Small	Large	Res	Small	Large	Comm.	
	Comm.	Comm.		Comm.	Comm.		Comm.	Comm.		Comm.	Comm.		Comm.	Comm.		Comm.	Comm.		Comm.	Comm.		
Brea	84	0	0	157	45	0	74	2,484	0	0	0	0	0	0	0	0	0	0	572	2,749	0	61.57
Buena Park	53	0	0	248	0	0	45	98	0	0	0	0	0	0	0	0	0	0	509	173	2,535	815.14
East Orange	30	0	0	221	0	0	0	0	0	0	0	0	30	0	0	0	0	0	781	0	0	20.63
El Toro	56	3,288	0	1,741	28,714	0	730	4,457	0	55	242	0	36	0	0	0	0	0	3,260	43,348	890	1,374.09
Fountain Valley	0	0	0	107	0	0	222	0	0	0	0	0	85	0	0	283	0	0	919	2,874	0	20.48
Garden Grove	80	0	0	88	50	0	110	0	0	55	98	0	52	0	0	0	0	0	855	254	0	35.24
Golden State	192	0	0	583	1,741	0	1,088	0	0	207	6,008	0	161	-495	0	35	259	0	3,480	10,837	0	290.95
Huntington Beach	120	0	0	798	1,419	0	1,345	2,836	0	149	3,362	0	-37	0	0	0	0	0	4,001	9,135	2,681	1,351.83
Irvine Ranch	11,010	4,257	0	1,421	632	0	1,989	5,047	0	335	9,511	0	356	-215	0	0	0	0	46,498	43,325	2,004	4,986.44
La Habra	15	0	0	109	338	0	300	0	0	0	0	0	0	0	0	0	0	0	1,515	55,404	900	369.02
La Palma	0	0	0	0	0	0	46	505	0	0	2,385	0	33	0	0	0	0	0	89	3,163	0	38.08
Laguna Beach	2,948	878	0	2,879	1,971	0	1,390	0	0	0	0	0	0	0	0	0	0	0	11,948	2,896	0	355.81
Mesa Water	361	0	0	229	0	0	166	0	0	113	0	0	36	0	0	0	0	0	2,062	302	343	199.99
Moulton Niguel	361	227	0	1,596	4,587	0	5,492	1,441	0	153	5,872	0	893	0	0	567	38	0	12,728	20,598	2,945	1,784.44
Newport Beach	19,349	6,835	0	460	3,857	0	348	670	0	0	0	0	45	0	0	0	0	0	46,865	16,632	0	1,812.10
Orange	245	120	0	304	668	0	631	91	0	0	0	0	0	0	0	0	0	0	3,133	5,853	0	118.53
San Juan Capistrano	370	0	0	495	737	0	310	593	0	75	123	0	59	0	0	0	0	0	5,027	3,143	0	465.39
San Clemente	415	5,074	0	326	0	0	426	0	0	0	0	0	146	0	0	40	1,400	0	10,062	11,948	1,343	828.92
Santa Margarita	389	0	0	1,207	1,513	0	1,820	837	0	15	0	0	224	0	0	0	0	0	15,387	7,283	611	852.79
Seal Beach	0	0	0	40	5,261	0	0	2,300	0	0	0	0	0	0	0	0	0	0	155	7,561	0	157.83
Serrano	105	0	0	377	0	0	695	0	0	0	0	0	0	0	0	0	0	0	1,907	291	0	98.75
South Coast	70	0	0	4,993	13,717	0	1,421	2,889	0	16	0	0	0	0	0	0	0	0	9,628	18,870	0	566.88
Trabuco Canyon	0	0	0	56	0	0	130	0	0	0	4,339	0	0	0	0	0	0	0	729	4,339	0	149.82
Tustin	329	0	0	408	0	0	317	386	0	65	-341	0	30	0	0	0	0	0	4,444	1,849	0	127.30
Westminster	0	0	0	54	0	0	73	0	0	105	0	0	50	0	0	47	0	0	748	0	0	12.54
Yorba Linda	40	990	0	921	0	0	1,715	0	0	213	0	0	0	0	0	42	0	0	5,790	1,103	500	478.49
MWDOC Totals	36,622	21,669	0	19,818	65,250	0	20,883	24,634	0	1,556	31,599	0	2,199	-710	0	731	1,980	0	194,823	274,867	14,752	17,373.04

Anaheim	338	0	0	498	712	0	794	5,221	0	147	3,953	0	0	0	0	0	0	0	4,020	49,799	105	1,402.16
Fullerton	107	0	0	684	1,196	0	521	7,015	0	65	3,034	0	0	0	0	0	0	0	2,910	11,309	1,484	720.24
Santa Ana	86	2,533	0	310	0	0	0	1,420	0	0	1,106	0	0	0	0	140	0	0	859	5,752	0	146.67
Non-MWDOC Totals	531	2,533	0	1,492	1,908	0	1,315	13,656	0	212	8,093	0	0	0	0	140	0	0	7,789	66,860	1,589	2,269.07
Orange County Totals	37,153	24,202	0	21,310	67,158	0	22,198	38,290	0	1,768	39,692	0	2,199	-710	0	871	1,980	0	202,612	341,727	16,341	19,642.11

COMMERCIAL PLUMBING FIXTURES REBATE PROGRAM^[1]
INSTALLED BY AGENCY
through MWDOC and Local Agency Conservation Programs

Agency	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19	Totals	Cumulative Water Savings across all Fiscal Years
Brea	234	0	10	91	734	242	0	1,607	586
Buena Park	5	23	56	591	133	49	0	2,538	1,363
East Orange CWD RZ	0	0	0	0	0	0	0	0	0
El Toro WD	0	212	6	268	35	737	717	2,516	750
Fountain Valley	0	0	0	1	249	0	895	1,767	755
Garden Grove	4	1	167	676	410	0	0	2,451	1,805
Golden State WC	0	1	0	1,008	53	93	0	2,958	2,278
Huntington Beach	104	144	7	783	641	10	0	2,964	1,942
Irvine Ranch WD	1,090	451	725	11,100	5,958	1,599	993	30,458	9,816
La Habra	0	0	0	340	42	0	0	925	664
La Palma	0	0	0	0	509	0	0	675	159
Laguna Beach CWD	0	27	0	0	0	0	0	446	373
Mesa Water	6	0	79	661	782	0	0	4,254	2,545
Moulton Niguel WD	0	0	3	413	281	506	2,350	4,133	1,119
Newport Beach	0	0	0	566	0	0	0	1,834	1,550
Orange	1	271	81	275	2,851	458	414	5,902	2,280
San Juan Capistrano	0	14	0	0	0	0	0	260	457
San Clemente	0	0	1	0	0	0	0	432	444
Santa Margarita WD	0	0	2	90	743	598	506	2,054	368
Santiago CWD	0	0	0	0	0	0	0	0	0
Seal Beach	0	0	0	0	184	278	0	816	519
Serrano WD	0	0	0	0	0	0	0	0	0
South Coast WD	148	0	382	0	0	0	0	1,320	646
Trabuco Canyon WD	0	0	0	0	0	0	0	11	18
Tustin	0	0	75	358	212	2	264	1,668	1,014
Westminster	1	28	0	146	177	25	0	1,163	1,191
Yorba Linda	1	0	0	226	84	338	0	933	684
MWDOC Totals	1,594	1,172	2,161	17,275	13,829	5,830	5,244	74,085	33,324
Anaheim	165	342	463	3,072	309	1,808	1	15,562	8,468
Fullerton	94	0	178	476	621	274	0	3,052	2,015
Santa Ana	16	17	5	1,293	238	582	0	6,319	5,637
Non-MWDOC Totals	275	359	646	4,841	1,168	2,664	1	24,933	16,120
Orange County Totals	1,869	1,531	2,807	22,116	14,997	8,494	5,245	99,018	49,444

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

INDUSTRIAL PROCESS/WATER SAVINGS INCENTIVE PROGRAM

Number of Projects by Agency

Agency	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17	FY 17/18	FY 18/19	Overall Program Interventions	Annual Water Savings[1]	Cumulative Water Savings across all Fiscal Years[1]
Brea	0	0	0	0	0	0	0	0	0	0	0
Buena Park	0	0	0	0	1	0	0	0	2	54	537
East Orange	0	0	0	0	0	0	0	0	0	0	0
El Toro	0	0	0	0	0	0	1	0	1	9	2
Fountain Valley	0	0	0	0	0	1	0	0	1	23	40
Garden Grove	0	0	0	0	1	0	0	0	1	0	1
Golden State	0	0	0	0	0	0	0	0	1	3	32
Huntington Beach	0	2	0	1	2	0	1	0	6	180	686
Irvine Ranch	1	1	1	0	2	1	1	0	10	119	712
La Habra	0	0	0	0	1	0	0	0	1	0	1
La Palma	0	0	0	0	0	0	0	0	0	0	0
Laguna Beach	0	0	0	0	0	0	0	0	0	0	0
Mesa Water	0	0	0	0	0	0	0	0	0	0	0
Moulton Niguel	0	0	0	0	0	0	0	0	0	0	0
Newport Beach	0	0	0	1	0	0	0	0	1	21	85
Orange	0	0	0	0	1	2	1	0	5	97	561
San Juan Capistrano	0	0	0	0	0	0	0	0	0	0	0
San Clemente	0	0	0	0	0	0	0	0	0	0	0
Santa Margarita	0	0	0	0	0	0	0	0	0	0	0
Seal Beach	0	0	0	0	0	0	0	0	0	0	0
Serrano	0	0	0	0	0	0	0	0	0	0	0
South Coast	0	0	0	0	1	1	0	0	2	134	235
Trabuco Canyon	0	0	0	0	0	0	0	0	0	0	0
Tustin	0	0	0	0	0	0	0	0	0	0	0
Westminster	0	0	0	0	0	0	0	0	0	0	0
Yorba Linda	0	0	0	0	0	0	0	1	1	20	5
MWDOC Totals	1	3	1	2	9	5	4	2	32	662	2897
Anaheim	0	0	0	0	0	0	0	0	0	0	0
Fullerton	0	0	0	0	0	0	0	0	0	0	0
Santa Ana	0	0	0	0	1	0	0	0	1	11	450
OC Totals	1	3	1	2	10	5	4	2	33	673	3347

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

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

Agency	FY 12/13		FY 13/14		FY 14/15		FY 15/16		FY 16/17		FY 17/18		FY 18/19		Total Program		Cumulative Water Savings across all Fiscal Years
	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	
Brea	7,605	0	5,697	0	71,981	30,617	118,930	404,411	8,354	479	9,853	27,234	3,180	0	228,997	472,207	406.07
Buena Park	0	0	0	0	11,670	1,626	77,127	16,490	3,741	0	4,586	0	1,230	0	98,354	18,116	64.76
East Orange	0	0	1,964	0	18,312	0	27,844	0	0	0	0	0	0	0	48,120	0	30.06
El Toro	4,680	72,718	4,582	0	27,046	221,612	63,546	162,548	13,139	48,019	7,273	42,510	5,637	9,895	130,626	557,302	427.45
Fountain Valley	682	7,524	4,252	0	45,583	5,279	65,232	0	3,679	0	8,631	0	2,849	27,679	132,208	40,482	93.44
Garden Grove	4,534	0	8,274	0	67,701	22,000	177,408	49,226	11,504	0	4,487	0	0	0	287,921	117,403	281.06
Golden State	31,813	3,200	32,725	8,424	164,507	190,738	310,264	112,937	0	0	0	0	0	0	581,902	346,272	636.92
Huntington Beach	9,219	12,437	20,642	0	165,600	58,942	305,420	270,303	9,560	21,534	14,236	6,032	7,937	0	561,045	421,737	629.23
Irvine Ranch	32,884	32,384	36,584	76,400	234,905	317,999	782,844	2,675,629	231,483	46,725	86,893	61,037	26,723	130,708	1,444,189	3,355,342	2,694.94
La Habra	0	0	0	0	14,014	1,818	49,691	72,164	0	0	3,003	0	1,504	0	68,212	90,019	99.42
La Palma	0	0	0	0	4,884	0	10,257	59,760	0	0	0	0	0	0	15,141	59,760	42.63
Laguna Beach	2,664	1,712	4,586	226	13,647	46,850	47,614	0	3,059	0	589	0	0	0	75,670	48,788	82.86
Mesa Water	10,667	0	22,246	0	131,675	33,620	220,815	106,896	4,173	77,033	17,373	77,785	1,360	0	415,086	295,334	396.89
Moulton Niguel	11,538	84,123	14,739	40,741	314,250	1,612,845	889,748	1,059,279	220,749	0	98,271	0	65,681	0	1,620,415	2,840,054	2,766.86
Newport Beach	3,548	2,346	894	0	33,995	65,277	76,675	375,404	2,924	0	5,938	6,499	0	35,480	127,428	485,006	342.72
Orange	15,951	8,723	11,244	0	120,093	281,402	289,990	106,487	12,847	2,366	11,956	0	10,320	1,798	485,372	400,776	562.65
San Clemente	16,062	13,165	18,471	13,908	90,349	1,137	215,249	438,963	4,267	0	33,083	7,098	6,500	0	405,483	474,271	524.26
San Juan Capistrano	29,544	27,156	12,106	0	101,195	32,366	197,290	143,315	2,624	40,748	0	0	0	0	365,415	347,277	509.68
Santa Margarita	10,151	11,600	17,778	48,180	211,198	514,198	534,048	550,420	17,010	28,094	62,706	25,000	21,916	23,198	881,254	1,217,651	1,269.21
Santiago	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Seal Beach	3,611	0	0	0	15,178	504	17,349	15,911	1,234	0	752	0	0	0	38,124	16,415	33.87
Serrano	0	0	2,971	0	41,247	0	127,877	4,403	5,450	0	555	0	4,000	0	182,100	4,403	108.45
South Coast	9,429	4,395	15,162	116,719	84,282	191,853	181,102	128,290	14,967	0	13,319	7,806	5,990	0	331,057	465,387	532.10
Trabuco Canyon	1,542	22,440	2,651	0	14,771	0	42,510	88,272	1,465	0	4,788	0	1,536	0	69,535	110,712	111.78
Tustin	9,980	0	1,410	0	71,285	14,137	232,697	33,362	11,173	0	16,926	0	5,941	6,894	349,412	54,393	230.98
Westminster	0	0	0	0	14,040	34,631	71,833	23,902	11,112	0	10,033	0	3,961	0	110,979	58,533	95.71
Yorba Linda	0	0	0	0	112,136	12,702	360,279	116,985	19,420	0	9,529	3,696	11,856	0	524,569	133,383	382.47
MWDOC Totals	216,104	303,923	238,978	304,598	2,195,544	3,692,153	5,493,639	7,015,357	613,934	264,998	424,780	264,697	188,121	235,652	9,578,614	12,431,023	13,356.45

Anaheim	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Fullerton	0	0	0	9,214	0	0	0	0	0	0	0	0	0	0	0	9,214	7.74
Santa Ana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Non-MWDOC Totals	0	0	0	9,214	0	0	0	0	0	0	0	0	0	0	0	9,214	7.74

Orange County Totals	216,104	303,923	238,978	313,812	2,195,544	3,692,153	5,493,639	7,015,357	613,934	264,998	424,780	264,697	188,121	235,652	9,578,614	12,440,237	13,364
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[1] Installed device numbers are listed as square feet

HIGH EFFICIENCY TOILETS (HETs) INSTALLED BY AGENCY

through MWDOC and Local Agency Conservation Programs

Agency	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	Total	Cumulative Water Savings across all Fiscal Years
Brea	0	38	146	154	4	6	0	456	116.31
Buena Park	0	96	153	112	13	3	0	687	215.26
East Orange CWD RZ	0	13	26	24	0	0	0	86	24.09
El Toro WD	133	218	869	264	12	6	6	2,049	611.70
Fountain Valley	0	41	132	220	7	9	1	833	278.76
Garden Grove	0	63	350	363	7	4	0	1,488	474.87
Golden State WC	2	142	794	512	9	11	2	2,803	877.57
Huntington Beach	0	163	1,190	628	4	3	0	2,904	821.99
Invine Ranch WD	1,449	810	1,777	2,798	638	239	81	17,229	6,027.17
Laguna Beach CWD	0	45	112	81	1	4	0	392	118.10
La Habra	0	37	94	83	5	1	0	591	215.86
La Palma	0	21	59	52	4	2	3	227	66.14
Mesa Water	0	147	162	162	7	3	3	1,624	650.22
Moulton Niguel WD	0	400	2,497	1,939	49	40	10	5,740	1,344.74
Newport Beach	0	49	168	243	11	6	0	731	208.28
Orange	1	142	978	416	17	10	3	2,192	608.94
San Juan Capistrano	0	35	140	202	3	9	2	534	139.85
San Clemente	0	72	225	246	11	6	7	885	256.16
Santa Margarita WD	0	528	997	1,152	114	34	1	3,344	793.94
Seal Beach	2	17	50	69	-1	0	0	857	421.72
Serrano WD	0	2	40	55	3	0	0	121	28.68
South Coast WD	64	102	398	235	11	7	0	1,028	266.55
Trabuco Canyon WD	0	10	108	169	2	3	2	344	77.50
Tustin	0	64	132	201	12	10	4	1,520	589.95
Westminster	0	35	161	359	3	4	0	1,335	460.36
Yorba Linda WD	0	40	280	379	12	8	0	1,259	388.69
MWDOC Totals	1,651	3,330	12,038	11,118	958	428	125	51,259	16,083.41

Anaheim	0	156	1,188	614	70	19	5	5,889	2,193.20
Fullerton	0	61	293	286	14	9	4	1,068	314.09
Santa Ana	0	33	602	293	20	0	0	2,021	687.54
Non-MWDOC Totals	0	250	2,083	1,193	104	28	9	8,978	3,194.82

Orange County Totals	1,651	3,580	14,121	12,311	1,062	456	134	60,237	19,278.24
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