

**MEETING OF THE**  
**BOARD OF DIRECTORS OF THE**  
**MUNICIPAL WATER DISTRICT OF ORANGE COUNTY**  
Jointly with the  
**PLANNING & OPERATIONS COMMITTEE**  
February 1, 2016, 8:30 a.m.  
MWDOC Conference Room 101

**P&O Committee:**

Director Osborne, Chair  
Director Barbre  
Director Hinman

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

Ex Officio Member: W. Osborne

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

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

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

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

**ACTION ITEM**

1. APPROVAL OF RESOLUTION DESIGNATING AUTHORIZED AGENTS AND 2015 GRANT TRANSFER AGREEMENT WITH THE CITY OF SANTA ANA AS THE LOCAL URBAN AREA SECURITY INITIATIVE (UASI) ADMINISTRATOR
2. APPROVAL OF HOMELAND SECURITY GRANT PROJECT TO PURCHASE FUEL TRAILERS AND GENERATOR QUICK CONNECTIONS
3. AUTHORIZATION OF PHASE 2 SCOPE OF WORK FOR CDM-SMITH

**DISCUSSION ITEMS**

## 4. EXTENDED EMERGENCY DROUGHT REGULATIONS

**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. SCOPE OF WORK FOR SCIENCE ADVISORY PANELS FOR SAN JUAN BASIN AUTHORITY AND DOHENY DESAL PROJECTS BEING CONDUCTED BY NATIONAL WATER RESEARCH INSTITUTE (NWRI)

## 6. STATUS REPORTS

- a. Ongoing MWDOC Reliability and Engineering/Planning Projects
- b. WEROC
- c. Water Use Efficiency Projects
- d. Water Use Efficiency Programs Savings and Implementation Report

## 7. REVIEW OF ISSUES RELATED TO CONSTRUCTION PROGRAMS, WATER USE EFFICIENCY, FACILITY AND EQUIPMENT MAINTENANCE, WATER STORAGE, WATER QUALITY, CONJUNCTIVE USE PROGRAMS, EDUCATION, DISTRICT FACILITIES, and MEMBER-AGENCY RELATIONS

**ADJOURNMENT**

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

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



**ACTION ITEM**

February 17, 2016

**TO:** Board of Directors

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

Robert Hunter  
General Manager

Staff Contact: Kelly Hubbard  
WEROC Manager

**SUBJECT: Approval of Resolution Designating Authorized Agents for 2015-2018 FY Grant Transfer Agreements for Homeland Security Grants**

**STAFF RECOMMENDATION**

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Staff recommends that the Board of Directors approve the execution of the 2015 Grant Transfer Agreement with the City of Santa Ana as the Local Urban Area Security Initiative (UASI) Administrator. Staff also recommends the Board give approval to the WEROC Program Manager and the General Manager as designated Authorized Agents for FY 2015-2018 Homeland Security Grants and authority to execute any subsequent agreements related to the Homeland Security Grants. Staff will come back to the Board for a purchase award in the event the award is greater than \$25,000.

**COMMITTEE RECOMMENDATION**

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Committee recommends (to be determined at Committee Meeting)

**DETAILED REPORT**

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In Orange County all UASI funds are administered through either Santa Ana or Anaheim as part of the Anaheim/Santa Ana Urban Area (ASAUUA) and additional Homeland Security Grants are administered by the County of Orange. The Municipal Water District of Orange County (MWDOC) and the Water Emergency Response Organization of Orange County (WEROC) has been awarded 2015 Homeland Security Grants Funds for two projects at this time. More information is provided about these projects in the subsequent staff report.

<b>Budgeted (Y/N): No</b>	Budgeted amount: \$0	Core ✓	Choice __
<b>Action item amount: \$0</b>		Line item: 8810 (Capital Requisition)	
<b>Fiscal Impact (explain if unbudgeted):</b> This is a request to approve participation in Homeland Security Grant Programs for 3 fiscal years. Actual projects over \$25,000 will be brought back to the Board for review and approval.			

In order to receive the awarded 2015 UASI grant funds and future Homeland Security Grant funds, the District must designate by resolution at least one authorized agent. Authorized agents execute for and on behalf of MWDOC any actions necessary for obtaining UASI or Homeland Security grant funds and implementing projects. Staff recommends that the board approve two authorized agents by title – the General Manager and the WEROC Program Manager. The recommendation to designate two authorized agents by title is to allow the greatest flexibility in the grant funding management.

The Board has taken similar action in regards to Homeland Security Funds and Urban Areas Security Initiative (UASI) funds. Attached is the 2015 UASI grant agreement. Additionally, attached is a resolution approving the authorized agents for a 3 year period for all 3 granting agencies within the county. The provisions of this grant agreement are the same as those grant agreements already signed for in the 2012 Urban Area Security Initiative Grant awarded for the 15 water trailers. By signing this agreement, the district would also be eligible for other grants opportunities throughout the 2015 UASI Grant cycle, should a project present itself as a good opportunity that may meet national homeland security goals.

A summary of Homeland Security related funds received to date and proposed are noted below:

<b>Funds Received</b>	<b>Grant Year</b>	<b>Amount</b>
Hazard Mitigation Plan	2005	\$168,053
EOC Remodel & Mapping	2009	\$76,290
Trainings & Conferences	2010-2014	\$20,279
Water Trailers	2011	\$497,304
<b>TOTAL Received</b>		<b>\$761,926</b>

<b>Funds Approved</b>	<b>Grant Year</b>	<b>Amount</b>
Generator Cabling & Connections	2015	\$20,000
Fuel Delivery Trailers	2015	\$100,000
Training & Conferences*	2014	\$4,567
<b>TOTAL Proposed</b>		<b>\$124,567</b>

\*Already submitted for reimbursement; awaiting payment.

### **Attachments**

1. UASI FY 2015 Transfer Agreement
2. Resolution to designate two authorized agents

AGREEMENT

SUB-RECIPIENT: MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

City Contract Number \_\_\_\_\_

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Exhibit A	Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion Lower Tier Covered Transactions
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Exhibit C	Grant Assurances

AGREEMENT FOR TRANSFER OR PURCHASE OF EQUIPMENT/SERVICES OR FOR  
REIMBURSEMENT OF TRAINING COSTS  
FOR FY2015 URBAN AREAS SECURITY INITIATIVE (UASI)

BETWEEN  
THE CITY OF SANTA ANA  
AND MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

THIS AGREEMENT is made and entered into this 18<sup>th</sup> day of November, 2015, by and between the CITY OF SANTA ANA, a municipal corporation (the "CITY"), and MUNICIPAL WATER DISTRICT OF ORANGE COUNTY (the "SUB-RECIPIENT" or "Contractor").

W I T N E S S E T H

WHEREAS, CITY, acting through the Santa Ana Police Department in its capacity as a Core City for the Anaheim/Santa Ana Urban Area under the FY15 Urban Areas Security Initiative, has applied for, received and accepted a grant entitled "FY 2015 Urban Areas Security Initiative" from the federal Department Of Homeland Security(DHS) Federal Emergency Management Agency (FEMA), through the State of California Governor's Office of Emergency Services (CalOES), to enhance countywide emergency preparedness (the "grant"), as set forth in the grant guidelines and assurances that are incorporated to this Agreement by reference and located at:

"U.S. Department of Homeland Security "Fiscal Year 2015 Homeland Security Grant Program (HSGP) Notice of Funding Opportunity (NOFO)"

[http://www.fema.gov/media-library-data/1429291822887-7f203c9296fde6160b727475532c7796/FY2015HSGP\\_NOFO\\_v3.pdf](http://www.fema.gov/media-library-data/1429291822887-7f203c9296fde6160b727475532c7796/FY2015HSGP_NOFO_v3.pdf)

California Governor's Office of Emergency Services "FY2015 Homeland Security Grant Program: California Supplement to Federal Program Guidance and Application Kit"

<http://www.caloes.ca.gov/GrantsManagementSite/Documents/FY%202015-%20HSGP%20State%20Guidance.pdf>

Copies of the grant guidelines shall be retained in the Anaheim/Santa Ana Grant Office.

WHEREAS, this financial assistance is administered by the CITY OF SANTA ANA ("CITY") and is overseen by the California Governor's Office of Emergency Services ("Cal-OES"); and

WHEREAS, this financial assistance is being provided to address the unique equipment, training, planning, and exercise needs of large urban areas, and to assist them in building an enhanced and sustainable capacity to prevent, respond to, and recover from threats or acts of terrorism; and



WHEREAS, the Anaheim/Santa Ana Urban Area ("ASUA") consists of 34 cities in Orange County, including the City of Santa Ana and the City of Anaheim, the County of Orange, including the unincorporated area of the County of Orange, Santa Ana Unified School District Police, California State University, Fullerton, University of California, Irvine, Municipal Water District of Orange County, and the Orange County Fire Authority; and

WHEREAS, the Office of Grants Management ("OGM") awarded a FY15 UASI Grant of \$4,400,000 ("Grant Funds") to the CITY OF SANTA ANA, as a Core City, for use in the ASUA; and

WHEREAS, the CITY has designated the Chief of Police, or his designee and the Santa Ana Police Department, Homeland Security Division ("UASI Grant Office") to provide for terrorism prevention and emergency preparedness; and

WHEREAS, the UASI Grant Office now wishes to distribute FY15 UASI Grant Funds throughout the ASUA, as further detailed in this Agreement ("Agreement") to MUNICIPAL WATER DISTRICT OF ORANGE COUNTY ("SUB-RECIPIENT") and others;

WHEREAS, the CITY and SUB-RECIPIENT are desirous of executing this Agreement as authorized by the City Council and the City Manager which authorizes the CITY to prepare and execute the Agreement.

NOW, THEREFORE, IT IS MUTUALLY AGREED AS FOLLOWS:

I  
INTRODUCTION

§101. Parties to the Agreement

The parties to this Agreement are:

- A. The CITY, a municipal corporation, having its principal office at 20 Civic Center Plaza, Santa Ana, CA 92702; and
- B. MUNICIPAL WATER DISTRICT OF ORANGE COUNTY, a municipal corporation, P.O. Box 20895, Fountain Valley, CA 92708-4736

§102. Representatives of the Parties and Service of Notices

- A. The representatives of the respective parties who are authorized to administer this Agreement and to whom formal notices, demands and communications shall be given are as follows:

- 1. The representative of the CITY OF SANTA ANA shall be, unless otherwise stated in the Agreement:

Kenneth Gominsky, Jr., Commander  
Santa Ana Police Department  
Homeland Security Division  
60 Civic Center Plaza  
Santa Ana, CA 92702  
Phone: (714) 245-8040  
Fax: (714) 245-8098  
kgominsky@santa-ana.org

- 2. The representative of MUNICIPAL WATER DISTRICT OF ORANGE COUNTY shall be:

Kelly Hubbard, Program Manager  
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY  
P.O. Box 20895, Fountain Valley, CA 92708-4736  
Phone: (714) 593-5010  
E-mail: khubbard@mwdoc.com

- B. Formal notices, demands and communications to be given hereunder by either party shall be made in writing and may be effected by personal delivery or by registered or certified mail, postage prepaid, return receipt requested and shall be deemed communicated as of the date of mailing.
- C. If the name of the person designated to receive the notices, demands or communications or the address of such person is changed, written notice shall be given, in accord with this section, within five (5) business days of said change.

§103. Independent Party

SUB-RECIPIENT is acting hereunder as an independent party, and not as an agent or employee of the CITY OF SANTA ANA. No employee of SUB-RECIPIENT is, or shall be an employee of the CITY OF SANTA ANA by virtue of this Agreement, and SUB-RECIPIENT shall so inform each employee organization and each employee who is hired or retained under this Agreement. SUB-RECIPIENT shall not represent or otherwise hold out itself or any of its directors, officers, partners, employees, or agents to be an agent or employee of the CITY OF SANTA ANA.

§104. Conditions Precedent to Execution of This Agreement

SUB-RECIPIENT shall provide copies of the following documents to the CITY OF SANTA ANA, unless otherwise exempted.

- A. Grant Assurances in accordance with section 415C of this Agreement attached hereto as Exhibit C and made part hereof.
- B. Certifications Regarding Ineligibility, Suspension and Debarment as required by Executive Order 12549 in accordance with Section 415A12 of this Agreement and attached hereto as Exhibit A and made a part hereof.
- C. Certifications and Disclosures Regarding Lobbying in accordance with Section 415C of this Agreement and attached hereto as Exhibit B and made a part hereof. SUB-RECIPIENT shall also file a Disclosure Form at the end of each calendar quarter in which there occurs any event requiring disclosure or which materially affects the accuracy of the information contained in any Disclosure Form previously filed by SUB-RECIPIENT.

## II TERM AND SERVICES TO BE PROVIDED

### §201. Time of Performance

The term of this Agreement shall commence on November, 18, 2015 and end on April 30, 2018 or upon the final disbursement of all of the Grant Amount (as defined in Section 301) and any additional period of time as is required to complete any necessary close out activities. Said term is subject to the provisions herein.

### §202. Use of Grant Funds

- A. CITY may, a) transfer to SUB-RECIPIENT, equipment or services purchased with grant funds and in accordance with grant guidelines set forth above; or, b) reimburse SUB-RECIPIENT for purchase of authorized equipment, exercises, services or training upon receiving prior written approval from CITY or its designee and in accordance with grant guidelines and in full compliance with all of the SUB-RECIPIENT'S purchasing and bidding procedures. SUB-RECIPIENT shall specify the equipment, services, exercises and training to be purchased using the Application for Project Funding. A paper copy of this document will be provided to SUB-RECIPIENT by CITY. In addition, a compact disc with a copy of the document will be provided to SUB-RECIPIENT by CITY. If additional copies of the document are needed, SUB-RECIPIENT may contact the Santa Ana Grant Coordinator and it will be provided.
- B. SUB-RECIPIENT shall provide any reports requested by the CITY regarding the performance of the Agreement. Reports shall be in the form requested by the CITY, and shall be provided in a timely manner.
- C. The Authorized Equipment List (AEL) is a list of the allowable equipment which may be purchased pursuant to this Agreement and is located at [http://www.fema.gov/media-library-data/20130726-1825-25045-7138/fema\\_preparedness\\_grants\\_authorized\\_equipment\\_list.pdf](http://www.fema.gov/media-library-data/20130726-1825-25045-7138/fema_preparedness_grants_authorized_equipment_list.pdf), and incorporated to this Agreement by reference. A copy of the AEL shall be retained in the Anaheim/Santa Ana Grant Office. Unless otherwise stated in program guidance any equipment acquired pursuant to this Agreement shall meet all mandatory regulations and/or DHS-adopted standards to be eligible for purchase using grant funds. SUB-RECIPIENT shall provide the CITY a copy of its most current procurement guidelines and follow its own procurement requirements as long as they meet the minimum federal requirements. Federal procurement requirements for the FY 15 UASI Grant can be found at 2 Code of Federal Regulations (CFR) Part 200 "Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards."

Any equipment acquired or obtained with Grant Funds:

1. Shall be made available under the California Disaster and Civil Defense Master Mutual Aid Agreement in consultation with representatives of the various fire, emergency medical, hazardous materials response services, and law enforcement agencies within the jurisdiction of the applicant;
2. Shall be consistent with needs as identified in the National Priorities and Core Capabilities, the State Homeland Security Strategy and the Anaheim/Santa Ana Urban Area and Orange County Operational Area Homeland Security Grants Strategy; and deployed in conformance with those plans;
3. Shall be made available pursuant to applicable terms of the California Disaster and Civil Defense Master Mutual Aid Agreement and deployed with personnel trained in the use of such equipment in a manner consistent with the California Law Enforcement Mutual Aid Plan or the California Fire Services and Rescue Mutual Aid Plan;
4. Shall be subject to the requirements of Title 2 CFR Part 200.313 and 200.314. For the purposes of this subsection, "Equipment" is defined as nonexpendable property that is not consumed or does not lose its identity by being incorporated into another item of equipment, which costs \$5,000 or more per unit, or is expected to have a useful life of one (1) year or more.;
5. Shall be used by SUB-RECIPIENT in the program or project for which it was acquired as long as needed, whether or not the project or program continues to be supported by Federal funds. When no longer useful for the original program or project, the Equipment may be used in other activities currently or previously supported by a Federal agency.
6. Shall be made available for use on other projects or programs currently or previously supported by the Federal Government, providing such use will not interfere with the work on the projects or program for which it was originally acquired. First preference for other use shall be given to other programs or projects supported by the awarding agency.
7. Shall be recorded on a ledger. This record must be updated bi-annually and forwarded to the City. The record shall include: (a) description of the item of Equipment, (b) a serial number or other identification number, (c) the source of funding for the property (including the FAIN), (d) who holds the title, (e) the acquisition date, (f) the cost of the property, (g) percentage of Federal participation in the project costs for the Federal award under which the property was

acquired, (h) location, (i) use and condition of Equipment, and (j) ultimate disposition data including the date of disposal and sale price of the property. Records must be retained pursuant to 2 CFR Part 200.313.

8. All equipment obtained under this Agreement shall have an ASAUA identification decal affixed to it, and, when practical, shall be affixed where it is readily visible.
  9. A physical inventory of the Equipment shall be taken and the results reconciled with the Equipment records at least once every two years. Inventory shall also be taken prior to any UASI, State or Federal monitor visits.
  10. SUB-RECIPIENT shall exercise due care to preserve and safeguard equipment acquired with grant funds from damage or destruction and shall provide regular maintenance and such repairs for said equipment as necessary, in order to keep said equipment continually in good working order. Such maintenance and servicing shall be the sole responsibility of SUB-RECIPIENT, who shall assume full responsibility for maintenance and repair of the equipment throughout the life of said equipment.
- D. Any training paid pursuant to this Agreement shall conform to the guidelines as listed in FY 2015 Homeland Security Grant Program, as set forth above. All training expenses must be pre-authorized by Cal-OES at <http://www.firstrespondertraining.gov/admin>. A catalogue of Grantor approved and sponsored training courses is available at [http://www.firstrespondertraining.gov/odp\\_webforms](http://www.firstrespondertraining.gov/odp_webforms).
- E. Any exercise paid pursuant to this Agreement shall conform to the guidelines as listed in FY 2015 Homeland Security Grant Program, as set forth above. Detailed Homeland Security Exercise and Evaluation Program Guidance is available at <http://hseep.dhs.gov>.
- F. Any planning paid pursuant to this Agreement shall conform to the guidelines as listed in FY 2015 Homeland Security Grant Program, as set forth above.
- G. Any organizational activities paid pursuant to this Agreement shall conform to the guidelines as listed in FY 2015 Homeland Security Grant Program, as set forth above.

### III PAYMENT

#### §301. Payment of Grant Funds and Method of Payment

- A. CITY may, a) transfer to SUB-RECIPIENT, equipment or services purchased with grant funds; or, b) reimburse SUB-RECIPIENT for the purchase of authorized equipment, exercises, services or training upon receiving prior written approval from CITY or its designee and in accordance with grant guidelines and in full compliance with all of the SUB-RECIPIENT'S purchasing and bidding procedures. SUB-RECIPIENT shall specify the equipment, exercises, services or training to be purchased using the Application for Project Funding. A paper copy of this document will be provided to SUB-RECIPIENT by CITY. In addition, a compact disc with a copy of the document will be provided to SUB-RECIPIENT by CITY. If additional copies of the document are needed, SUB-RECIPIENT may contact the Santa Ana Grant Coordinator and it will be provided. Funds may be used for planning, exercises, organizational and training activities, and the purchase of equipment as described in Section 202 above.
- B. SUB-RECIPIENT shall provide quarterly invoices to the CITY requesting payment and all supporting documentation. Each reimbursement request shall be accompanied by the Reimbursement Request for Grant Expenditures detailing the expenditures made by SUB-RECIPIENT as authorized by Section 202 above. Each reimbursement request shall be submitted to the Santa Ana UASI Grant Office. For equipment for which SUB-RECIPIENT is requesting reimbursement, all appropriate back-up documentation must be attached to the reimbursement form, including invoices, proof of payment, packing slips, and Equipment Reimbursement Worksheet. For training reimbursements, SUB-RECIPIENT must include a copy of any certificates issued or a copy of the class roster verifying training attendees, proof that a CalOES tracking number has been assigned to the course, timesheets and payroll registers for all training attendees, receipts for travel expenses related to the training, and Training Reimbursement Worksheet. For regional project reimbursements, SUB-RECIPIENT must include approval from the lead agency for all submitted invoices.
- C. Payment of final invoice shall be withheld by the CITY until the SUB-RECIPIENT has turned in all supporting documentation and completed the requirements of this Agreement.
- D. It is understood that the CITY makes no commitment to fund this Agreement beyond the terms set forth herein.
- E. Funding for all periods of this Agreement is subject to the continuing availability to the CITY of federal funds for this program. The Agreement may be terminated immediately upon written notice to SUB-RECIPIENT of a loss or reduction of federal grant funds.

#### IV STANDARD PROVISIONS

##### §401. Construction of Provisions and Titles Herein

All titles or subtitles appearing herein have been inserted for convenience and shall not be deemed to affect the meaning or construction of any of the terms or provisions hereof. The language of this Agreement shall be construed according to its fair meaning and not strictly for or against either party. The word "Sub-recipient" herein and in any amendments hereto includes the party or parties identified in this Agreement. The singular shall include the plural. If there is more than one Sub-recipient as identified herein, unless expressly stated otherwise, their obligations and liabilities hereunder shall be joint and several. Use of the feminine, masculine, or neuter genders shall be deemed to include the genders not used.

##### §402. Applicable Law, Interpretation and Enforcement

Each party's performance hereunder shall comply with all applicable laws of the United States of America, the State of California, and the CITY. This Agreement shall be enforced and interpreted under the laws of the State of California and the CITY.

If any part, term or provision of this Agreement shall be held void, illegal, unenforceable, or in conflict with any law of a federal, state or local government having jurisdiction over this Agreement, the validity of the remaining portions of provisions shall not be affected thereby.

##### §403. Integrated Agreement

This Agreement sets forth all of the rights and duties of the parties with respect to the subject matter hereof, and replaces any and all previous agreements or understandings, whether written or oral, relating thereto. This Agreement may be amended only by a written instrument executed by both parties hereto.

##### §404. Excusable Delays

In the event that performance on the part of any party hereto shall be delayed or suspended as a result of circumstances beyond the reasonable control and without the fault and negligence of said party, none of the parties shall incur any liability to the other parties as a result of such delay or suspension.

Circumstances deemed to be beyond the control of the parties hereunder shall include, but not be limited to, acts of God or of the public enemy; insurrection; acts of the Federal Government or any unit of State or Local Government in either sovereign or contractual capacity; fires; floods; epidemics; quarantine



restrictions; strikes, freight embargoes or delays in transportation; to the extent that they are not caused by the party's willful or negligent acts or omissions and to the extent that they are beyond the party's reasonable control.

§405. Breach

Except for excusable delays, if any party fails to perform, in whole or in part, any promise, covenant, or agreement set forth herein, or should any representation made by it be untrue, any aggrieved party may avail itself of all rights and remedies, at law or equity, in the courts of law. Said rights and remedies are cumulative of those provided for herein except that in no event shall any party recover more than once, suffer a penalty or forfeiture, or be unjustly compensated.

§406. Prohibition Against Assignment or Delegation

SUB-RECIPIENT may not, unless it has first obtained the written permission of the CITY:

- A. Assign or otherwise alienate any of its rights hereunder, including the right to payment; or
- B. Delegate, subcontract, or otherwise transfer any of its duties hereunder.

§407. Permits

SUB-RECIPIENT and its officers, agents and employees shall obtain and maintain all permits and licenses necessary for SUB-RECIPIENT performance hereunder and shall pay any fees required therefore. SUB-RECIPIENT further certifies to immediately notify the CITY of any suspension, termination, lapses, non renewals or restrictions of licenses, certificates, or other documents.

§408. Nondiscrimination and Affirmative Action

SUB-RECIPIENT shall comply with the applicable nondiscrimination and affirmative action provisions of the laws of the United States of America, the State of California, and the CITY. In performing this Agreement, SUB-RECIPIENT shall not discriminate in its employment practices against any employee or applicant for employment because of such person's race, color, religion, national origin, ancestry, sex, gender, gender identity, gender expression, sexual orientation, age, physical handicap, mental disability, marital status, domestic partner status, pregnancy, denial of medical and family care leave, pregnancy disability leave, or medical condition. SUB-RECIPIENT shall comply with Executive Order 11246, entitled "Equal Employment Opportunity," as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR Part 60).

SUB-RECIPIENT shall comply with California Public Contract Code §10295.3, which addresses discrimination based on domestic partnerships. If required, SUB-RECIPIENT shall submit an Equal Employment Opportunity

Plan ("EEOP") to the DOJ Office of Civil Rights ("OCR") in accordance with guidelines listed at <http://www.ojp.usdoj.gov/ocr/eeop.htm>,

Any subcontract entered into by the SUB-RECIPIENT relating to this Agreement, to the extent allowed hereunder, shall be subject to the provisions of this § 408.

#### §409. Bonds

SUB-RECIPIENT must purchase a performance bond for any equipment item over \$250,000 or any vehicle (including aircraft or watercraft) financed with homeland security funds. SUB-RECIPIENT must provide a copy of performance bond to CITY no later than the time of reimbursement.

#### §410. Indemnification

Each of the parties to this Agreement is a public entity. In contemplation of the provisions of Section 895.2 of the Government Code of the State of California imposing certain tort liability jointly upon public entities, solely by reason of such entities being parties to an Agreement as defined by Section 895 of said Code, the parties hereto, as between themselves, pursuant to the authorization contained in Section 895.4 and 895.6 of said Code, will each assume the full liability imposed upon it or upon any of its officers, agents, or employees by law, for injury caused by a negligent or wrongful act or omission occurring in the performance of this Agreement, to the same extent that such liability would be imposed in the absence of Section 895.2 of said Code. To achieve the above-stated purpose, each party indemnifies and holds harmless the other party solely by virtue of said Section 895.2. The provision of Section 2778 of the California Civil Code is made a part hereto as if fully set forth herein. SUB-RECIPIENT certifies that it has adequate self-insured retention of funds to meet any obligation arising from this Agreement.

#### §411. Conflict of Interest

- A. SUB-RECIPIENT covenants that none of its directors, officers, employees, or agents shall participate in selecting, or administering any subcontract supported (in whole or in part) by Federal funds where such person is a director, officer, employee or agent of the subcontractor; or where the selection of subcontractors is or has the appearance of being motivated by a desire for personal gain for themselves or others such as family business, etc.; or where such person knows or should have known that:
1. A member of such person's immediate family, or domestic partner or organization has a financial interest in the subcontract;
  2. The subcontractor is someone with whom such person has or is negotiating any prospective employment; or
  3. The participation of such person would be prohibited by the California Political Reform Act, California Government Code §87100 et seq. if such person were a public officer, because such

person would have a "financial or other interest" in the subcontract.

**B. Definitions:**

1. The term "immediate family" includes but is not limited to domestic partner and/or those persons related by blood or marriage, such as husband, wife, father, mother, brother, sister, son, daughter, father in law, mother in law, brother in law, sister in law, son in law, daughter in law.
  2. The term "financial or other interest" includes but is not limited to:
    - a. Any direct or indirect financial interest in the specific contract, including a commission or fee, a share of the proceeds, prospect of a promotion or of future employment, a profit, or any other form of financial reward.
    - b. Any of the following interests in the subcontractor ownership: partnership interest or other beneficial interest of five percent or more; ownership of five percent or more of the stock; employment in a managerial capacity; or membership on the board of directors or governing body.
- C. The SUB-RECIPIENT further covenants that no officer, director, employee, or agent shall solicit or accept gratuities, favors, anything of monetary value from any actual or potential subcontractor, supplier, a party to a sub agreement, (or persons who are otherwise in a position to benefit from the actions of any officer, employee, or agent).
- D. The SUB-RECIPIENT shall not subcontract with a former director, officer, or employee within a one year period following the termination of the relationship between said person and the Contractor.
- E. Prior to obtaining the CITY'S approval of any subcontract, the SUB-RECIPIENT shall disclose to the CITY any relationship, financial or otherwise, direct or indirect, of the SUB-RECIPIENT or any of its officers, directors or employees or their immediate family with the proposed subcontractor and its officers, directors or employees.
- F. For further clarification of the meaning of any of the terms used herein, the parties agree that references shall be made to the guidelines, rules, and laws of the SUB-RECIPIENT, State of California, and Federal regulations regarding conflict of interest.
- G. The SUB-RECIPIENT warrants that it has not paid or given and will not pay or give to any third person any money or other consideration for obtaining this Agreement.
- H. The SUB-RECIPIENT covenants that no member, officer or employee of SUB-RECIPIENT shall have interest, direct or indirect, in any contract or

subcontract or the proceeds thereof for work to be performed in connection with this project during his/her tenure as such employee, member or officer or for one year thereafter.

- I. The SUB-RECIPIENT shall incorporate the foregoing subsections of this Section into every agreement that it enters into in connection with this project and shall substitute the term "subcontractor" for the term "SUB-RECIPIENT" and "sub subcontractor" for "Subcontractor".

#### §412. Restriction on Disclosures

Any reports, analysis, studies, drawings, information, or data generated as a result of this Agreement are to be governed by the California Public Records Act (California Government Code Sec. 6250, et seq.).

#### §413. Statutes and Regulations Applicable To All Grant Contracts

- A. SUB-RECIPIENT shall comply with all applicable requirements of state, federal, county and SUB-RECIPIENT laws, executive orders, regulations, program and administrative requirements, policies and any other requirements governing this Agreement. SUB-RECIPIENT shall comply with state and federal laws and regulations pertaining to labor, wages, hours, and other conditions of employment. SUB-RECIPIENT shall comply with new, amended, or revised laws, regulations, and/or procedures that apply to the performance of this Agreement. These requirements include, but are not limited to:

1. Office of Management and Budget (OMB)

SUB-RECIPIENT shall comply with 2 Code of Federal Regulation (CFR) Part 200 (Uniform Administrative, Cost Principles, and Audit Requirements for Federal Awards).

2. Single Audit Act

If Federal funds are used in the performance of this Agreement, SUB-RECIPIENT shall adhere to the rules and regulations of the Single Audit Act, 31 USC Sec. 7501 et seq.; Title 2 Code of Federal Regulations, Part 200, Subpart F Audit Requirements; and any administrative regulation or field memos implementing the Act. When reporting under on the FY15 UASI Grant Program under the Single Audit Act, SUB-RECIPIENT shall use Catalog of Federal Domestic Assistance (CFDA) Program Number 97.067 "Homeland Security Grant Program"; Grant Identification Number 2015-00078; and identify the CITY OF SANTA ANA as the Pass-Through.

3. Americans with Disabilities Act

SUB-RECIPIENT hereby certifies that it will comply with the Americans with Disabilities Act, 42 USC §§ 12101, et seq., and its implementing regulations. SUB-RECIPIENT will provide reasonable

accommodations to allow qualified individuals with disabilities to have access to and to participate in its programs, services and activities in accordance with the provisions of the Americans with Disabilities Act. SUB-RECIPIENT will not discriminate against persons with disabilities or against persons due to their relationship to or association with a person with a disability. Any subcontract entered into by the SUB-RECIPIENT, relating to this Agreement, to the extent allowed hereunder, shall be subject to the provisions of this paragraph.

4. Political and Sectarian Activity Prohibited

None of the funds, materials, property or services provided directly or indirectly under this Agreement shall be used for any partisan political activity, or to further the election or defeat of any candidate for public office. Neither shall any funds provided under this Agreement be used for any purpose designed to support or defeat any pending legislation or administrative regulation. None of the funds provided pursuant to this Agreement shall be used for any sectarian purpose or to support or benefit any sectarian activity.

If this Agreement provides for more than \$100,000 in grant funds or more than \$150,000 in loan funds, SUB-RECIPIENT shall submit to the CITY a Certification Regarding Lobbying and a Disclosure Form, if required, in accordance with 31 USC §1352. A copy of the Certificate is attached hereto as Exhibit B. No funds will be released to SUB-RECIPIENT until the Certification is filed.

SUB-RECIPIENT shall file a Disclosure Form at the end of each calendar quarter in which there occurs any event requiring disclosure or which materially affects the accuracy of any of the information contained in any Disclosure Form previously filed by SUB-RECIPIENT. SUB-RECIPIENT shall require that the language of this Certification be included in the award documents for all sub-awards at all tiers and that all subcontractors shall certify and disclose accordingly.

5. Records Inspection

In accordance with 2 CFR §200.336, at any time during normal business hours and as often as the CITY, the U.S. Comptroller General, and/or the Auditor General of the State of California may deem necessary, SUB-RECIPIENT shall make available for examination all of its records with respect to all matters covered by this Agreement. The CITY, the U.S. Comptroller General and/or the Auditor General of the State of California shall have the authority to audit, examine and make excerpts or transcripts from records, including SUB-RECIPIENT'S invoices, materials, payrolls, records of personnel, conditions of employment and other data relating to all matters covered by this Agreement.

SUB-RECIPIENT agrees to provide any reports requested by the CITY regarding performance of the Agreement.

6. Records Maintenance

Records, in their original form, shall be maintained in accordance with requirements prescribed by the CITY with respect to all matters covered on file for all documents specified in this Agreement. Original forms are to be maintained on file for all documents specified in this Agreement. Such records shall be retained for a period of three (3) years after the date of submission of the final expenditure report by the CITY and after final disposition of all pending matters. "Pending matters" include, but are not limited to, an audit, litigation or other actions involving records. The CITY may, at its discretion, take possession of, retain and audit said records. Records, in their original form pertaining to matters covered by this Agreement, shall at all times be retained within the County of Orange unless authorization to remove them is granted in writing by the CITY.

7. Subcontracts and Procurement

SUB-RECIPIENT shall comply with the federal and SUB-RECIPIENT standards in the award of any subcontracts. For purposes of this Agreement, subcontracts shall include but not be limited to purchase agreements, rental or lease agreements, third party agreements, consultant service contracts and construction subcontracts.

SUB-RECIPIENT shall ensure that the terms of this Agreement with the CITY are incorporated into all Subcontractor Agreements. The SUB-RECIPIENT shall submit all Subcontractor Agreements to the CITY for review prior to the release of any funds to the subcontractor. The SUB-RECIPIENT shall withhold funds to any subcontractor agency that fails to comply with the terms and conditions of this Agreement and their respective Subcontractor Agreement.

8. Labor

SUB-RECIPIENT shall comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements, and the Hatch Act (5 USC §§1501-1508 and 7324-7328).

SUB-RECIPIENT shall comply with the Federal Fair Labor Standards Act (29 USC §201) regarding wages and hours of employment. None of the funds shall be used to promote or deter Union/labor organizing

activities. CA Gov't Code Sec. 16645, et seq.

9. Civil Rights

SUB-RECIPIENT shall comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681- 1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) The Age Discrimination act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation act of 1970 (P.L. 91-616) as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601, et seq.), as amended, relating to non-discrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; (j) the requirements of any other nondiscrimination statute(s) which may apply to the application; and (k) P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.

10. Environmental

SUB-RECIPIENT shall comply, or has already complied, with the requirements of Titles II and III of the Uniform relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.

SUB-RECIPIENT shall comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO

11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451, et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401, et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205); and (i) Flood Disaster Protection Act of 1973 §102(a) (P.L. 93-234).

SUB-RECIPIENT shall comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271, et seq.) related to protecting components or potential components of the national wild and scenic rivers system.

SUB-RECIPIENT shall comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801, et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.

SUB-RECIPIENT shall comply with the Federal Water Pollution Control Act (33 U.S.C. 1251-1387) which restores and maintains the chemical, physical and biological integrity of the Nation's waters.

SUB-RECIPIENT shall comply with the Federal Clean Water Act (CWA) (33 U.S.C §1251 et seq.), which establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters.

SUB-RECIPIENT shall ensure that the facilities under its ownership, lease or supervision which shall be utilized in the accomplishment of this project are not listed in the Environmental Protection Agency's (EPA) list of Violating Facilities and that it will notify the Federal Grantor agency of the receipt of any communication from the Director of the EPA Office of Federal Activities indicating that a facility to be used in the project is under consideration for listing by the EPA.

By signing this Agreement, SUB-RECIPIENT ensures that it is in compliance with the California Environmental Quality Act (CEQA), Public Resources Code §21000, et seq. and is not impacting the environment negatively.

SUB-RECIPIENT shall comply with the Energy Policy and Conservation Act (P.L. 94-163, 89 Stat. 871).

11. Preservation



SUB-RECIPIENT shall comply with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1, et seq.).

12. Suspension and Debarment

SUB-RECIPIENT shall comply with Federal Register, Volume 68, Number 228, regarding Suspension and Debarment, and SUB-RECIPIENT shall submit a Certification Regarding Debarment required by Executive Order 12549 and any amendment thereto. Said Certification shall be submitted to the CITY concurrent with the execution of this Agreement and shall certify that neither SUB-RECIPIENT nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any federal department head or agency. SUB-RECIPIENT shall require that the language of this Certification be included in the award documents for all sub-award at all tiers and that all subcontractors shall certify accordingly.

As required by Executive Orders (EO) 12549 and 12689, and 2 CFR §200.212 and codified in 2 CFR Part 180, Debarment and Suspension, SUB-RECIPIENT will provide protection against waste, fraud and abuse by debarring or suspending those persons deemed irresponsible in their dealings with the Federal government.

13. Drug-Free Workplace

SUB-RECIPIENT shall comply with the federal Drug-Free Workplace Act of 1988, 41 USC §701, 44 CFR Part 67; the California Drug-Free Workplace Act of 1990, CA Gov't Code §§ 8350-8357.

14. Financial Management

SUB-RECIPIENT will comply with 31 U.S.C §3729 which sets forth that no subgrantee, recipient or subrecipient shall submit a false claim for payment, reimbursement or advance.

15. Reporting – Accountability

SUB-RECIPIENT agrees to comply with applicable provisions of the Federal Funding Accountability and Transparency Act (FFATA) (2 CFR Chapter 1, Part 170), specifically (a) the reporting of subawards obligating \$25,000 or more in federal funds and (b) executive compensation data for first-tier subawards. This includes the provisions of FFATA, which includes requirements on executive compensation, and also requirements implementing the Act for the non-Federal entity at 2 CFR part 25 Financial Assistance Use of

Universal Identifier and Central Contractor Registration and 2 CFR part 170 Reporting Subaward and Executive Compensation Information.

SUB-RECIPIENT must also comply with statutory requirements for whistleblower protections at 10 U.S.C. §2409, 41 U.S.C. §4712, and 10 U.S.C. §2324, 41 U.S.C. §4304 and §4310 and 31 U.S.C. §6101 et seq.

16. Human Trafficking

SUB-RECIPIENT will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. §7104) which prohibits grant award recipients or a subrecipient from (1) Engaging in severe forms of trafficking in persons during the period of time that the award is in effect (2) Procuring a commercial sex act during the period of time that the award is in effect or (3) Using forced labor in the performance of the award or subawards under the award.

17. Freedom of Information Act

SUB-RECIPIENT acknowledges that all information submitted in the course of applying for funding under this program or provided in the course of an entity's grant management activities which is under Federal control is subject to the Freedom of Information Act (FOIA), 5 U.S.C. §552. SUB-RECIPIENT should also consult State and local laws and regulations regarding the release of information, which should be considered when reporting sensitive matters in the grant application, needs assessment and strategic planning process.

B. Statutes and Regulations Applicable To This Particular Grant

SUB-RECIPIENT shall comply with all applicable requirements of state and federal laws, executive orders, regulations, program and administrative requirements, policies and any other requirements governing this particular grant program. SUB-RECIPIENT shall comply with new, amended, or revised laws, regulations, and/or procedures that apply to the performance of this Agreement. These requirements include, but are not limited to:

1. Title 2 Code of Federal Regulations (CFR) Part 200; EO 12372; Department of Justice (DOJ) Office of Judicial Programs (OJP) Office of the Comptroller, U.S. Department of Homeland Security, Preparedness Directorate Financial Management Guide; U.S. Department of Homeland Security, Office of Grants and Training, FY 2015 Homeland Security Grant Program –Notice of Funding Opportunity; ODP WMD Training Course Catalogue; and DOJ Office

for Civil Rights.

Standardized Emergency Management System (SEMS) requirements as stated in the California Emergency Services Act, Government Code Chapter 7 of Division 1 of Title 2, § 8607.1(e) and CCR Title 19, §§ 2445-2448.

Provisions of 44 CFR applicable to grants and cooperative agreements, including Part 18, Administrative Review Procedures; Part 20, Criminal Justice Information Systems; Part 22, Confidentiality of Identifiable Research and Statistical Information; Part 23, Criminal Intelligence Systems Operating Policies; Part 30, Intergovernmental Review of Department of Justice Programs and Activities; Part 35, Nondiscrimination on the Basis of Disability in State and Local Government Services; Part 38, Equal Treatment of Faith-based Organizations; Part 42, Nondiscrimination/Equal employment Opportunities Policies and Procedures; Part 61, Procedures for Implementing the National Environmental Policy Act; Part 63, Floodplain Management and Wetland Protection Procedures; Part 64, Floodplain Management and Wetland Protection Procedures; Federal laws or regulations applicable to federal Assistance Programs; Part 69, New Restrictions on Lobbying; Part 70, Uniform Administrative Requirements for Grants and Cooperative Agreements (including sub-awards) with Institutions of Higher Learning, Hospitals and other Non-Profit Organizations; and Part 83, Government- Wide Requirements for a Drug Free Workplace (grants).

## 2. Travel Expenses

SUB-RECIPIENT as provided herein may be compensated for SUB-RECIPIENT'S reasonable travel expenses incurred in the performance of this Agreement, to include travel and per diem, unless otherwise expressed. Travel including in-State and out-of-State travel shall not be reimbursed without prior written authorization from the UASI Grant Office.

SUB-RECIPIENT'S travel and per diem reimbursement costs shall be reimbursed based on the SUB-RECIPIENT'S travel policies and procedures. If SUB-RECIPIENT does not have established travel policies and procedures, SUB-RECIPIENT'S reimbursement rates shall not exceed the amounts established under 5 U.S.C 5701-11, ("Travel and Subsistence Expenses; Mileage Allowances"), or by the Administrator of General Services, or by the President (or his or her designee) pursuant to any provisions of such subchapter must apply to travel under federal awards (48 CFR 31.205-46(a)).

3. Personally Identifiable Information

SUB-RECIPIENT collecting Personally Identifiable Information (PII) must have a publically-available policy that describes what PII they collect, how they plan to use the PII, whether they share PII with third parties, and how individuals may have their PII corrected where appropriate

4. Hotel and Motel Fire Safety Act of 1990

SUB-RECIPIENT must ensure that all conference, meeting, convention, or training space funded in whole or in part with Federal funds complies with Section 6 of the fire prevention and control guidelines of the Federal Fire Prevention and Control Act of 1974, 15 U.S.C. §2225a.

5. Terrorist Financing E.O. 13224

SUB-RECIPIENT must comply with U.S. Executive Order 13224 and U.S. law that prohibit transactions with, and the provisions of resources and support to, individuals and organizations associated with terrorism.

6. USA Patriot Act of 2001

SUB-RECIPIENT must comply with the requirements of the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act (USA Patriot Act), which amends 18 U.S.C. §§175-175c.

7. Noncompliance

SUB-RECIPIENT understands that failure to comply with any of the above assurances may result in suspension, termination or reduction of grant funds, and repayment by SUB-RECIPIENT to CITY of any unlawful expenditures.

C. Compliance With Grant Assurances

To obtain the Grant Funds, the Grantor required an authorized representative of the CITY to sign certain promises regarding the way the Grant Funds would be spent ("Grant Assurances"), attached hereto as Exhibit C. By signing these Grant Assurances, the CITY became liable to the Grantor for any funds that are used in violation of the grant requirements. SUB-RECIPIENT shall be liable to the Grantor for any funds the Grantor determines SUB-RECIPIENT used in violation of these Grant Assurances. SUB-RECIPIENT shall indemnify and hold harmless the CITY for any sums the Grantor determines SUB-RECIPIENT used in violation of the Grant Assurances.

#### §414. Federal, State and Local Taxes

Federal, State and local taxes shall be the responsibility of SUB-RECIPIENT as an independent party and not as a CITY employee.

#### §415. Inventions, Patents and Copyrights

##### A. Reporting Procedure for Inventions

If any project produces any invention or discovery (Invention) patentable or otherwise under title 35 of the U.S. Code, including, without limitation, processes and business methods made in the course of work under this Agreement, the SUB-RECIPIENT shall report the fact and disclose the Invention promptly and fully to the CITY. The CITY shall report the fact and disclose the Invention to the Grantor. Unless there is a prior agreement between the CITY and the Grantor, the Grantor shall determine whether to seek protection on the Invention. The Grantor shall determine how the rights in the Invention, including rights under any patent issued thereon, will be allocated and administered in order to protect the public interest consistent with the policy ("Policy") embodied in the Federal Acquisition Regulations System, which is based on Ch. 18 of title 35 U.S.C. Sections 200, et seq. (Pub. L. 95-517, Pub. L. 98-620, 37 CFR part 401); Presidential Memorandum on Government Patent Policy to the Heads of the Executive Departments and Agencies, dated 2/18/1983; and Executive Order 12591, 4/10/87, 52 FR 13414, 3 CFR, 1987 Comp., p. 220 (as amended by Executive Order 12618, 12/22/87, 52 FR 48661, 3 CFR, 1987 Comp., p. 262). SUB-RECIPIENT

hereby agrees to be bound by the Policy, and will contractually require its personnel to be bound by the Policy.

##### B. Rights to Use Inventions

CITY shall have an unencumbered right, and a non-exclusive, irrevocable, royalty- free license, to use, manufacture, improve upon, and allow others to do so for all government purposes, any Invention developed under this Agreement.

##### C. Copyright Policy

1. Unless otherwise provided by the terms of the Grantor or of this Agreement, when copyrightable material ("Material") is developed under this Agreement, the author or the CITY, at the CITY'S discretion, may copyright the Material. If the CITY declines to copyright the Material, the CITY shall have an unencumbered right, and a non-exclusive, irrevocable, royalty- free license, to use, manufacture, improve upon, and allow others to do so for all government purposes, any Material developed under this Agreement.
2. The Grantor shall have an unencumbered right, and a non-exclusive,

irrevocable, royalty-free license, to use, manufacture, improve upon, and allow others to do so for all government purposes, any Material developed under this Agreement or any Copyright purchased under this Agreement.

3. SUB-RECIPIENT shall comply with 24 CFR 85.34.

D. Rights to Data

The Grantor and the CITY shall have unlimited rights or copyright license to any data first produced or delivered under this Agreement. "Unlimited rights" means the right to use, disclose, reproduce, prepare derivative works, distribute copies to the public, and perform and display publicly, or permit others to do so; as required by 48 CFR 27.401. Where the data are not first produced under this Agreement or are published copyrighted data with the notice of 17 U.S.C. Section 401 or 402, the Grantor acquires the data under a copyright license as set forth in 48 CFR 27.404(f)(2) instead of unlimited rights. (48 CFR 27.404(a)).

E. Obligations Binding on Subcontractors

SUB-RECIPIENT shall require all subcontractors to comply with the obligations of this section by incorporating the terms of this section into all subcontracts.

§416. Minority, Women, And Other Business Enterprise Outreach Program

It is the policy of the CITY to provide minority business enterprises (MBEs), women business enterprises (WBEs) and all other business enterprises an equal opportunity to participate in the performance of all SUB-RECIPIENT contracts, including procurement, construction and personal services. This policy applies to all Contractors and Sub-Contractors.

V  
DEFAULTS, SUSPENSION, TERMINATION, AND AMENDMENTS

§501. Defaults

Should SUB-RECIPIENT fail for any reason to comply with the contractual obligations of this Agreement within the time specified by this Agreement, the CITY reserves the right to terminate the Agreement, reserving all rights under state and federal law.

§502. Amendments

Any change in the terms of this Agreement, including changes in the services to be performed by SUB-RECIPIENT and any increase or decrease in the amount of compensation which are agreed to by the CITY and SUB-RECIPIENT shall be incorporated into this Agreement by a written amendment properly executed and signed by the person authorized to bind the parties thereto.

SUB-RECIPIENT agrees to comply with all future CITY Directives, or any rules, amendments or requirements promulgated by the CITY affecting this Agreement.

VI  
ENTIRE AGREEMENT

§601. Complete Agreement

This Agreement contains the full and complete Agreement between the two parties. Neither verbal agreement nor conversation with any officer or employee of either party shall affect or modify any of the terms and conditions of this Agreement.

§602. Number of Pages and Attachments

This Agreement is executed in two (2) duplicate originals, each of which is deemed to be an original. This Agreement includes twenty-five (26) pages and three (3) Exhibits which constitute the entire understanding and agreement of the parties.



IN WITNESS WHEREOF, the City and MUNICIPAL WATER DISTRICT OF ORANGE COUNTY have caused this Agreement to be executed by their duly authorized representatives on the date first set forth above.

ATTEST:

CITY OF SANTA ANA, a municipal Corporation of the State of California

By: \_\_\_\_\_  
Maria D. Huizar  
Clerk of the Council

By: \_\_\_\_\_  
David Cavazos  
City Manager

RECOMMENDED FOR APPROVAL:

By: \_\_\_\_\_  
Carlos Rojas  
Chief of Police

SUB-RECIPIENT  
MUNICIPAL WATER DISTRICT OF  
ORANGE COUNTY

APPROVED AS TO FORM:

By: \_\_\_\_\_

Printed Name \_\_\_\_\_

By: \_\_\_\_\_  
Laura Rossini  
Senior Assistant City Attorney

Title \_\_\_\_\_

APPROVED AS TO FORM

By: \_\_\_\_\_

Printed Name \_\_\_\_\_

Title \_\_\_\_\_

**EXHIBIT A**  
**CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER**  
**RESPONSIBILITY MATTERS**

Applicants should refer to the regulations cited below to determine the certification to which they are required to attest. Applicants should also review the instructions for certification included in the regulations before completing this form. Signature of this form provides for compliance with certification requirements under the applicable CFR covering New Restrictions on Government-wide Debarment and Suspension (Nonprocurement). The certification shall be treated as a material representation of fact upon which reliance will be placed when the Agency determines to award the covered transaction or cooperative agreement.

As required by Executive Order 12549, Debarment and Suspension, and implemented under the applicable CFR, for prospective participants in covered transactions, as defined in the applicable CFR

A. The applicant certifies that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, sentenced to a denial of Federal benefits by a State or Federal court, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three-year period preceding this application been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal State or local) with commission of any of these offenses enumerated in paragraph (1) (b) of this certification; and
- (d) Have not within a three-year period preceding this application had one or more public transactions (Federal, State or local) terminated for cause or default; and

B. Where the applicant is unable to certify to any of the statements in this certification, he or she shall attach an explanation to this application.

\_\_\_\_\_  
Authorized Agent Signature

Address: \_\_\_\_\_

\_\_\_\_\_  
Printed or Typed Name

\_\_\_\_\_  
Title

## **INSTRUCTIONS FOR CERTIFICATION**

1. By signing and submitting this document, the prospective recipient of Federal assistance funds is providing the certification as set out below.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective recipient of Federal assistance funds knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
3. The prospective recipient of Federal assistance funds shall provide immediate written notice to the person to whom this agreement is entered, if at any time the prospective recipient of Federal assistance funds learns that its certification was erroneous, when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549.
5. The prospective recipient of Federal assistance funds agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
6. The prospective recipient of Federal assistance funds further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the List of Parties Excluded from Procurement or Non Procurement Programs.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under Paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

**EXHIBIT B**  
**CERTIFICATION REGARDING LOBBYING**  
**Certification for Contracts, Grants, Loans**  
**and Cooperative Agreements**

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL "Disclosure Form to Report Lobbying" in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.
4. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352 Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

\_\_\_\_\_  
AGREEMENT NUMBER

\_\_\_\_\_  
CONTRACTOR/BORROWER/AGENCY

\_\_\_\_\_  
NAME AND TITLE OF AUTHORIZED REPRESENTATIVE

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
DATE

**EXHIBIT C**  
**California Governor's Office of Emergency Services**  
**FY 2015 Grant Assurances**  
(For All Cal OES Federal Grant Programs)

Name of Applicant: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Telephone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_  
E-Mail Address: \_\_\_\_\_

**As the duly authorized representative of the Applicant, I hereby certify** that the Applicant has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay any non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application, within prescribed timelines.

**I further acknowledge that the Applicant is responsible for reviewing and adhering to all requirements within the:**

- (a) Applicable Federal Regulations (see below);
- (b) Federal Program Notice of Funding Opportunity (NOFO);
- (c) California Supplement to the NOFO; and
- (d) Federal and State Grant Program Guidelines.

**Federal Regulations**

Government cost principles, uniform administrative requirements and audit requirements for federal grant programs are housed in Title 2, Part 200 of the Code of Federal Regulations (CFR) and in updates issued by the Office of Management and Budget (OMB) on <http://www.whitehouse.gov/omb/>.

**Significant state and federal grant award requirements (some of which appear in the documents listed above) are called out below. The Applicant hereby agrees to comply with the following:**

**1. Proof of Authority**

The Applicant will obtain written authorization from the city council, governing board or authorized body in support of this project. This written authorization must specify that the Applicant and the city council, governing board or authorized body agree:

- (a) To provide all matching funds required for said project and that any cash match will be appropriated as required.
- (b) That any liability arising out of the performance of this agreement shall be the responsibility of the Applicant and the city council, governing board or authorized body.
- (c) That grant funds shall not be used to supplant expenditures controlled by the city council, governing board or authorized body.
- (d) That the official executing this agreement is, in fact, authorized to do so.

This Proof of Authority must be maintained on file and readily available upon demand.

**2. Period of Performance**

The Applicant will initiate work after approval of the award and complete all work within the period of performance specified in the grant.

**3. Lobbying and Political Activities**

As required by Section 1352, Title 31 of the U.S. Code (U.S.C.), for persons entering into a contract, grant, loan or cooperative agreement from an agency or requests or receives

from an agency a commitment providing for the United States to insure or guarantee a loan, the Applicant certifies that:

- (a) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions.
- (c) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

The Applicant will also comply with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and §§7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

Finally, the Applicant agrees that Federal funds will not be used, directly or indirectly, to support the enactment, repeal, modification or adoption of any law, regulation or policy without the express written approval from the California Governor's Office of Emergency Services (Cal OES) or the Federal awarding agency.

#### **4. Debarment and Suspension**

As required by Executive Orders (EO) 12549 and 12689, and 2 CFR §200.212 and codified in 2 CFR Part 180, Debarment and Suspension, the Applicant will provide protection against waste, fraud and abuse by debarring or suspending those persons deemed irresponsible in their dealings with the Federal government. The Applicant certifies that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three-year period preceding this application been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (2)(b) of this certification; and
- (d) Have not within a three-year period preceding this application had one or more public transaction (Federal, State, or local) terminated for cause or default.

Where the Applicant is unable to certify to any of the statements in this certification, he or she shall attach an explanation to this application.

#### **5. Non-Discrimination and Equal Employment Opportunity**

The Applicant will comply with all Federal statutes relating to non-discrimination. These include, but are not limited to, the following:

- (a) Title VI of the Civil Rights Act of 1964 (Public Law (P.L.) 88-352 and 42 U.S.C. §2000d et. seq.) which prohibits discrimination on the basis of race, color or national origin and requires that recipients of federal financial assistance take reasonable steps to provide meaningful access to persons with limited English proficiency (LEP) to their programs and services;
- (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex;
- (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps;
- (d) Americans with Disabilities Act (ADA) of 1990, which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to ADA (42 U.S.C. 12101, et seq.);
- (e) Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age;
- (f) Drug Abuse Office and Treatment Act of 1972) (P.L. 92-255), as amended (P.L. 96-181), relating to nondiscrimination on the basis of Treatment or recovery from drug abuse;
- (g) Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism;
- (h) Sections 523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records;
- (i) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing;
- (j) EO 11246, which prohibits federal contractors and federally assisted construction contractors and subcontractors, who do over \$10,000 in Government business in one year from discriminating in employment decisions on the basis of race, color, religion, sex, or national origin;
- (k) EO 11375, which bans discrimination on the basis of sex in hiring and employment in both the United States federal workforce and on the part of government contractors;
- (l) California Public Contract Code §10295.3, which addresses discrimination based on domestic partnerships;
- (m) Any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and
- (n) The requirements of any other nondiscrimination statute(s) which may apply to the application.

In addition to the items listed in (a) through (n), the Applicant will comply with California's Fair Employment and Housing Act (FEHA). FEHA prohibits harassment and discrimination in employment because of race, color, religion, sex, gender, gender identity, gender expression, sexual orientation, marital status, national origin, ancestry, mental and physical disability, medical condition, age, pregnancy, denial of medical and family care leave, or pregnancy disability leave (California Government Code sections 12940, 12945, 12945.2) and/or retaliation for protesting illegal discrimination related to one of these categories, or for reporting patient abuse in tax supported institutions.

## **6. Drug-Free Workplace**

As required by the Drug-Free Workplace Act of 1988 (41 U.S.C. §701 et seq.), the Applicant certifies that it will or will continue to provide a drug-free workplace and a drug-free awareness program as outlined in the Act.

## **7. Environmental Standards**

The Applicant will comply with State and Federal environmental standards which may be prescribed pursuant to the following, as applicable:

- (a) California Environmental Quality Act (CEQA) (California Public Resources Code §§21000-21177), to include coordination with the city or county planning agency;
- (b) CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, §§15000-15387);
- (c) Federal Clean Water Act (CWA) (33 U.S.C. §1251 et seq.), which establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters.
- (d) Institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Orders (EO) on the Environmental Justice Act (EO 12898) and Environmental Quality (EO 11514);
- (e) Notification of Environmental Protection Agency (EPA) violating facilities pursuant to EO 11738;
- (f) Protection of wetlands pursuant to EO 11990;
- (g) Evaluation of flood hazards in floodplains in accordance with EO 11988;
- (h) Assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §1451 et seq.);
- (i) Conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §7401 et seq.);
- (j) Protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523);
- (k) Protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205);
- (l) Wild and Scenic Rivers Act of 1968 (16 U.S.C. §1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.

Finally, the Applicant shall not be: 1) in violation of any order or resolution promulgated by the State Air Resources Board or an air pollution district; 2) subject to a cease and desist order pursuant to §13301 of the California Water Code for violation of waste discharge requirements or discharge prohibitions; or 3) finally determined to be in violation of federal law relating to air or water pollution.

## **8. Audits**

For subrecipients expending \$750,000 or more in Federal grant funds annually, the Applicant will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and Title 2 of the Code of Federal Regulations, Part 200, Subpart F Audit Requirements.

## **9. Access to Records**

In accordance with 2 CFR §200.336, the Applicant will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award. The Applicant will require any subrecipients,



contractors, successors, transferees and assignees to acknowledge and agree to comply with this provision.

#### **10. Conflict of Interest**

The Applicant will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.

#### **11. Financial Management**

##### **False Claims for Payment**

The Applicant will comply with 31 U.S.C §3729 which sets forth that no subgrantee, recipient or subrecipient shall submit a false claim for payment, reimbursement or advance.

#### **12. Reporting - Accountability**

The Applicant agrees to comply with applicable provisions of the Federal Funding Accountability and Transparency Act (FFATA) (2 CFR Chapter 1, Part 170), specifically (a) the reporting of subawards obligating \$25,000 or more in federal funds and (b) executive compensation data for first-tier subawards. This includes the provisions of FFATA, which includes requirements on executive compensation, and also requirements implementing the Act for the non-Federal entity at 2 CFR part 25 Financial Assistance Use of Universal Identifier and Central Contractor Registration and 2 CFR part 170 Reporting Subaward and Executive Compensation Information.

The Applicant also must comply with statutory requirements for whistleblower protections at 10 U.S.C. §2409, 41 U.S.C. §4712, and 10 U.S.C. §2324, 41 U.S.C. §4304 and §4310 and 31 U.S.C. §6101 et seq.

#### **13. Human Trafficking**

The Applicant will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. §7104) which prohibits grant award recipients or a subrecipient from (1) Engaging in severe forms of trafficking in persons during the period of time that the award is in effect (2) Procuring a commercial sex act during the period of time that the award is in effect or (3) Using forced labor in the performance of the award or subawards under the award.

#### **14. Labor Standards**

The Applicant will comply with the following federal labor standards:

- (a) Comply with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), as applicable, and the Copeland Act (40 U.S.C. §3145 and 18 U.S.C. §874) and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction contracts or subcontracts.
- (b) Comply with the Federal Fair Labor Standards Act (29 U.S.C. §201 et al.) as they apply to employees of institutes of higher learning (IHE), hospitals and other non-profit organizations.

#### **15. Worker's Compensation**

The Applicant must comply with provisions which require every employer to be insured against liability for Worker's Compensation before commencing performance of the work of this Agreement, as per California Labor Code §3700.

## **16. Property-Related**

If applicable to the type of project funded by this Federal award, the Applicant will:

- (a) Comply the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchase.
- (b) Comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires subrecipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
- (c) Assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §469a-1 et seq.).
- (d) Comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §4831 and 24 CFR Part 35) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.

## **17. Certifications Applicable Only to Federally-Funded Construction Projects**

For all construction projects, the Applicant will:

- (a) Not dispose of, modify the use of, or change the terms of the real property title or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal awarding agency directives and will include a covenant in the title of real property acquired in whole or in part with Federal assistance funds to assure nondiscrimination during the useful life of the project.
- (b) Comply with the requirements of the awarding agency with regard to the drafting, review and approval of construction plans and specifications.
- (c) Provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progressive reports and such other information as may be required by the assistance awarding agency or State.

## **18. Freedom of Information Act**

The Applicant acknowledges that all information submitted in the course of applying for funding under this program or provided in the course of an entity's grant management activities which is under Federal control is subject to the Freedom of Information Act (FOIA), 5 U.S.C. §552. The Applicant should also consult its own State and local laws and regulations regarding the release of information, which should be considered when reporting sensitive matters in the grant application, needs assessment and strategic planning process.

## **19. California Public Records Act**

The Applicant acknowledges that all information submitted in the course of applying for funding under this program or provided in the course of an entity's grant management activities may be subject to the California Public Records Act (California Government Code §§6250-6276.48), which requires inspection and/or disclosure of governmental records to the public upon request, unless exempted by law.

## **HOMELAND SECURITY GRANT PROGRAM - PROGRAM SPECIFIC ASSURANCES / CERTIFICATIONS**

### **20. Personally Identifiable Information**

Subrecipients collecting Personally Identifiable Information (PII) must have a publically-available policy that describes what PII they collect, how they plan to use the PII, whether they share PII with third parties, and how individuals may have their PII corrected where appropriate.

### **21. Disposition of Equipment**

When original or replacement equipment acquired under this award is no longer needed for the original project or program or for other activities currently or previously supported by the Department of Homeland Security/Federal Emergency Management Agency, subrecipients must request instructions from Cal OES on proper disposition of equipment.

### **22. Reporting Accusations and Findings of Discrimination**

If, during the past three years, the subrecipient has been accused of discrimination on the grounds of race, color, national origin (including limited English proficiency), sex, age, disability, religion, or familial status, the subrecipient must provide a list of all such proceedings, pending or completed, including outcome and copies of settlement agreements to Cal OES for reporting to the DHS awarding office and the DHS Office of Civil Rights and Civil Liberties.

If any court or administrative agency makes a finding of discrimination on grounds of race, color, national origin (including limited English proficiency), sex, age, disability, religion or familial status against the subrecipient, or the subrecipient settles a case or matter alleging such discrimination, subrecipients must forward a copy of the complaint and findings to Cal OES for forwarding to the DHS Component and/or awarding office.

The United States has the right to seek judicial enforcement of these obligations.

### **23. Acknowledgement of Federal Funding from DHS and Use of DHS Seal, Logo and Flags**

All subrecipients must acknowledge their use of federal funding when issuing statements, press releases, requests for proposal, bid invitations, and other documents describing projects or programs funded in whole or in part with federal funds.

All subrecipients must obtain DHS's approval prior to using DHS seal(s), Logos, crests or reproductions of DHS agency officials, including use of the United States Coast Guard seal, logo, crests or reproductions of flags or likenesses of Coast Guard officials.

### **24. Copyright**

All subrecipients must affix the applicable copyright notices of 17 U.S.C. §§401 or 402 and an acknowledgement of Government sponsorship (including award number) to any work first produced under Federal financial assistance awards, unless the work includes any information that is otherwise controlled by the Government (e.g., classified information or other information subject to national security or export control laws or regulations).

### **25. Energy Policy and Conservation Act**

All subrecipients must comply with the requirements of 42 U.S.C. §6201 which contain policies relating to energy efficiency that are defined in the state energy conservation plan issues in compliance with this Act.

### **26. Hotel and Motel Fire Safety Act of 1990**

All subrecipients must ensure that all conference, meeting, convention, or training space funded in whole or in part with Federal funds complies with Section 6 of the fire prevention

and control guidelines of the Federal Fire Prevention and Control Act of 1974, 15 U.S.C. §2225a.

**27. Terrorist Financing E.O. 13224**

All subrecipients must comply with U.S. Executive Order 13224 and U.S. law that prohibit transactions with, and the provisions of resources and support to, individuals and organizations associated with terrorism. It is the legal responsibility of subrecipients to ensure compliance with the E.O. and laws.

**28. USA Patriot Act of 2001**

All subrecipients must comply with the requirements of the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act (USA Patriot Act), which amends 18 U.S.C. §§175-175c.

**IMPORTANT**

The purpose of the assurance is to obtain federal and state financial assistance, including any and all federal and state grants, loans, reimbursement, contracts, etc. The Applicant recognizes and agrees that state financial assistance will be extended based on the representations made in this assurance. This assurance is binding on the Applicant, its successors, transferees, assignees, etc. Failure to comply with any of the above assurances may result in suspension, termination, or reduction of grant funds.

All appropriate documentation, as outlined above, must be maintained on file by the Applicant and available for Cal OES or public scrutiny upon request. Failure to comply with these requirements may result in suspension of payments under the grant or termination of the grant or both and the subrecipient may be ineligible for award of any future grants if the Cal OES determines that any of the following has occurred: (1) the recipient has made false certification, or (2) violates the certification by failing to carry out the requirements as noted above.

All of the language contained within this document must be included in the award documents for all subawards at all tiers, including contracts under grants and cooperative agreements and subcontracts.

The undersigned represents that he/she is authorized by the above named applicant to enter into this agreement for and on behalf of the said applicant.

Signature of Authorized Agent: \_\_\_\_\_

Printed Name of Authorized Agent: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

**RESOLUTION NO. \_\_\_\_\_**

**MUNICIPAL WATER DISTRICT OF ORANGE COUNTY  
WATER EMERGENCY RESPONSE ORGANIZATION OF ORANGE COUNTY  
(WEROC)  
AUTHORIZATION FOR FEDERAL FINANCIAL ASSISTANCE  
PROVIDED BY THE FEDERAL DEPARTMENT OF HOMELAND SECURITY**

WHEREAS, The Municipal Water District of Orange County (MWDOC) manages the Water Emergency Response Organization of Orange County (WEROC) Program on behalf of the organization's 35 signatories.

WHEREAS, WEROC has been designated by the County of Orange as the water and wastewater Operational Area coordination entity for the purpose of assisting the county's water and wastewater utilities with disaster preparedness, prevention, response, recovery, and mitigation.

WHEREAS, MWDOC desires to keep the WEROC emergency operations centers, communications equipment and other such supplies in good working order and to date with the current technological abilities of the Operational Area.

WHEREAS, MWDOC also desires to keep its program and volunteer staff trained in current emergency management practices and required levels of training according to the National Incident Management System and the California State Emergency Management System.

WHEREAS, MWDOC also desires to ensure eligibility for project and training funding that may become available throughout the year.

WHEREAS, MWDOC has and will continue to submit grant applications to the Homeland Security Grant Program to continue to enhance the capabilities of the WEROC program, its staff and its member agencies.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Municipal Water District of Orange County that the Water Emergency Response Organization of Orange County (WEROC) Program Manager, or the MWDOC General Manager, is hereby authorized to execute for and on behalf of the Municipal Water District of Orange County, a public entity established under the laws of the State of California, any actions necessary for the purpose of obtaining federal financial assistance provided by the federal Department of Homeland Security and sub-granted through the County of Orange or the Cities of Anaheim and Santa Ana as the Administrators for Fiscal Year grants 2015-2018.

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

AYES:

NOES:

ABSENT:

ABSTAIN:

I hereby certify that the foregoing is a true and correct copy of Resolution No. \_\_\_\_ adopted by the Board of Directors of Water District at its meeting held on.

---

MARIBETH GOLDSBY  
District Secretary  
Municipal Water District of Orange County



**ACTION ITEM**

February 17, 2016

**TO:** Board of Directors

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

Robert Hunter  
General Manager

Staff Contact: Kelly Hubbard  
WEROC Manager

**SUBJECT: Approval of Homeland Security Grant Project to Purchase Fuel Trailers and Generator Quick Connections**

**STAFF RECOMMENDATION**

---

Staff recommends that the Board of Directors approve staff to proceed with the Homeland Security Grant projects to purchase fuel trailers and generator quick connections. Staff will come back to the Board for any purchase award greater than \$25,000.

**COMMITTEE RECOMMENDATION**

---

Committee recommends (to be determined at Committee Meeting)

**DETAILED REPORT**

---

Following the 2011 Power Outage affecting large portions of Southern California, WEROC staff facilitated an after action meeting to review what worked well and what improvements or planning was needed to improve future responses to significant power outages. The biggest concerns identified were related to sharing portable generators and the distribution of fuel to equipment (mainly generators) that had been deployed in the field. Through the course of several meetings the concept of purchasing Diesel Fuel Trailers and Generator Quick Connections with grant funds was developed.

The Municipal Water District of Orange County (MWDOC) submitted for these projects in April 2014 and was recently approved for \$120,000 in FY 2015 Urban Area Security Initiative (UASI) grants. MWDOC was approved to purchase 10 fuel trailers (\$100,000) and

Budgeted (Y/N): No	Budgeted amount: \$0	Core ✓	Choice __
Action item amount: \$120,000 (grant reimbursement), Staff Administration & Legal Review		Line item: 8810 (Capital Requisition)	
Fiscal Impact (explain if unbudgeted): Full Grant Reimbursement for the equipment purchase. Staff time and legal review would be funded through the WEROC program.			

35 quick connectors (\$20,000). The fuel trailers are a straight forward competitive purchase process with several vendors having been identified. The generator cabling is a little more complicated because the project requires more background work on what Member Agencies have for emergency electrical connections (there are several varieties and phases), what is needed to facilitate the exchange of mutual aid generators, and how to write the technical specifications for the competitive purchase process.

### **Project Outreach**

In order to complete both projects WEROC staff has conducted a variety of outreach efforts to ensure we are purchasing the appropriate equipment, are aware of the regulations related to each project and that we are purchasing the best option to resolve each issue.

Staff sent a survey to MET Member Agencies, CalWARN (California Water and Wastewater Agency Response Network) signatories, and to Association of Metropolitan Water Agencies (AMWA). The survey asked for agencies who may have completed similar projects to provide input on what equipment specifications they utilized, what lessons they've learned through their project process and for any other insights they have that might assist with the success of our projects. Those survey responses were asked to be sent in by January 29<sup>th</sup> and hopefully will provide staff additional information.

Already, staff has reached out to various experts at our Member Agencies and in various related fields throughout this process for technical assistance and preferences for various aspects of each project. Outreach has included work with the California State Energy Commission, South Coast AQMD, various fuel and trailer providers, generator supply and repair providers, ACWA JPIA and others. As WEROC staff have moved towards the actual purchase process, the staff at South Coast Water District have agreed to assist with identifying fuel trailer regulations and staff at Moulton Niguel Water District have agreed to assist with writing the technical specifications for the generator quick connections. As these concepts are finalized they will be shared with interested Member Agencies for feedback and revision.

### **Fuel Trailer Project Details**

The fuel trailers will be 500 gallon diesel fuel trailers on a chassis that will hold up to off-road conditions and that has its own power source for fueling. Additionally, the trailer will have a suction pump on it in order to fill the fuel trailer from underground fuel tanks even when the power is out. MWDOC will be purchasing the equipment with the intention of the fuel trailers being transferred to WEROC Member Agencies.

The Agreement for Transfer of Equipment for the Fuel Trailers is very similar to the transfer agreement utilized for the Potable Water Trailers. Legal Counsel identified very few changes in the agreement from the Potable Drinking Water Trailer. Please find attached the Agreement for Transfer of Equipment (Diesel Fuel Trailer) for your information.

Key concepts for this agreement are:

- Transfer of ownership and all required costs associated.
- Trailers must be available for mutual aid purposes.
- Agency must track the maintenance and use of equipment; as well as keep the trailer in working order per its original operational intent.
- Agency must store the trailer at a secure site.
- Agency will maintain the following for the legal operation of the fuel trailer:



- California Department of Motor Vehicles Trailer Registration
- Agency will maintain in working order at least 2 vehicles per trailer received capable of towing the trailer when full.
- Agency will have in its employ at least 2 employees with CA Driver's Licenses with Hazmat endorsements in good standing.

Member Agencies were asked to submit an Application of Interest to the WEROC Manager by Friday, February 5<sup>th</sup> for the Fuel Trailers. At the time of this report, the following agencies have indicated that they are interested in receiving trailers:

- City of Huntington Beach
- Irvine Ranch Water District
- Moulton Niguel Water District
- South Coast Water District
- Yorba Linda Water District

Following February 5, Member Agencies will be selected to receive the trailers based on their ability to meet the project and grant requirements and for the purchase of geographic disbursement. Agencies selected will receive the Agreement for Transfer of Equipment and a sample staff report for Board/Counsel approval. It is estimated that all Transfer Agreements will take approximately 4 months to complete.

Staff plans to start the competitive purchase process for the fuel trailers by March 2016 and estimates that the recommended vendor for purchase will be brought back to the Board for approval in May 2016.

### **Generator Quick Connection Project Details**

The generator quick connection project is more complicated because it requires more background work on what Member Agencies have for emergency electrical connections, what they need to facilitate the exchange of mutual aid generators, and how to write the technical specifications for the competitive purchase process. WEROC staff will utilize the information received from the OC Fuel and Generator Reliability Study that was completed by a majority of the WEROC Member Agencies. Staff may need to ask some additional follow-up questions of member agencies. Additionally, Moulton Niguel Water District is working on an emergency power supply project internally and they have offered to assist WEROC staff in developing the technical specifications needed for the competitive purchase process.

Although staff plans to primarily focus on the fuel trailers first and work on the generator project as time allows, both projects will continue to move forward at the same time. Once the Generator Quick Connect technical specifications are clarified a similar purchasing process as the one noted above for the fuel trailers will be conducted.

Attached: Agreement for Transfer of Equipment for Fuel Trailers

AGREEMENT FOR TRANSFER  
OF EQUIPMENT (FUEL TRAILERS AND EQUIPMENT)  
FOR FY2015 URBAN AREAS SECURITY INITIATIVE (UASI)

THIS AGREEMENT is entered into this \_\_\_\_ day of November, 2015 (dated for identification purposes only) by and between the Municipal Water District of Orange County, a municipal water district ("MWDOC") and \_\_\_\_\_, a \_\_\_\_\_ ("RECIPIENT"), also referred to collectively as "Parties" and individually as "Party."

WHEREAS, the City of Santa Ana ("CITY"), acting through its Police Department, in its capacity as a Core City of the MWDOC/Santa Ana Urban Area under the FY2015 Urban Areas Security Initiative, has applied for, received and accepted a grant entitled "FY2015 Urban Areas Security Initiative" ("UASI") from the federal Department of Homeland Security, Federal Emergency Management Agency ("FEMA"), through the State of California Emergency Management Agency ("Cal EMA") to enhance countywide emergency preparedness (the "GRANT"); and

WHEREAS, MWDOC, acting through the Water Emergency Response Organization of Orange County ("WEROC"), is eligible to receive financial assistance under the GRANT in its capacity as the Sub-Recipient under the agreement between MWDOC and the CITY entitled "Agreement for Transfer or Purchase of Equipment/Services or For Reimbursement of Training Costs For FY2015 Urban Areas Security Initiative (UASI)" ("GRANT AGREEMENT"), a copy of which is attached hereto as Attachment A and incorporated herein by this reference; and

WHEREAS, the terms of the GRANT AGREEMENT require that MWDOC use certain GRANT funds to purchase authorized equipment, exercises, services or training that will be

transferred to sub-recipients, including RECIPIENT, to be used for GRANT purposes in a manner consistent with the GRANT, as set forth in the FY 2015 Urban Areas Security Initiative Grant Program City of Santa Ana UASI Sub-Recipient Grant Guide Standard Operating Procedures, Policies and Forms ("GRANT GUIDELINES"), a copy of which is attached hereto as Attachment B and incorporated herein by this reference; and

WHEREAS, RECIPIENT desires to acquire FUEL TRAILERS and EQUIPMENT ("TRAILER") as conditioned herein and authorized by the GRANT.

NOW, THEREFORE, THE PARTIES MUTUALLY AGREE AS FOLLOWS:

1) As more specifically set forth herein, MWDOC shall purchase and transfer to RECIPIENT a TRAILER as specified in Attachment C, attached hereto and incorporated herein by this reference, in accordance with the GRANT GUIDELINES and the Cal EMA Fiscal Year (FY) 2015 Grant Assurances ("GRANT ASSURANCES"), a copy of which are a component of Attachment A and incorporated herein by this reference. When purchasing the TRAILER, MWDOC shall comply with its purchasing and bidding procedures and applicable state laws and shall meet federal procurement requirements for the GRANT as set forth in 2 Code of Federal Regulations ("CFR") Part 225 "Cost principles for State, Local, and Indian Tribal Governments" and 44 CFR Part 13 "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments." Further, as required by FEMA and established by the Office of Federal Procurement Policy in the Office of Management and Budget, this AGREEMENT includes the FEMA Required Provisions specified in Attachment D, attached hereto and incorporated herein by this reference.

2) Within ten (10) days of receiving the TRAILER, RECIPIENT shall initiate action to transfer title, ownership and financial responsibility of the TRAILER from MWDOC to RECIPIENT pursuant to applicable California Department of Motor Vehicles procedures.

3) Throughout its useful life, RECIPIENT shall use the TRAILER acquired with GRANT funds only for those purposes permitted under the terms of the GRANT

AGREEMENT, and shall make the TRAILER available for mutual aid response to other governmental entities to the maximum extent practicable and when not in use by the RECIPIENT.

4) Care of the TRAILER. Once in RECIPIENT's possession and control, RECIPIENT shall exercise due care to preserve and safeguard the TRAILER from undue wear, damage or destruction and shall provide such regular maintenance, service and repairs for the TRAILER as are reasonable and consistent with responsible ownership. These shall include, without limitation, maintenance, service and repairs recommended by any warranty or owner's manual to keep the TRAILER continually in good working order. Such maintenance and servicing shall be the sole responsibility of RECIPIENT, which shall assume full joint and several responsibility for maintenance and repair of the equipment throughout the life of the TRAILER. RECIPIENT's exercise of due care as provided in this section shall include (1) the storage of the TRAILER at a secure facility, and (2) the provision of procedures, facilities and equipment to protect the TRAILER from theft, unauthorized use and vandalism.

a) At all times RECIPIENT has possession and control of the TRAILER as provided herein, it shall procure and maintain insurance against claims for injuries to persons or damage to property which may arise from or in connection with the TRAILER and package. The minimum scope and limits of insurance coverage shall be:

i) CGL coverage (ISO Occurrence Form No. CG 0001, or equivalent);  
\$1,000,000 per occurrence of Bodily Injury, Personal Injury and Property Damage, and \$2,000,000 Aggregate Total Bodily Injury and Property Damage.

ii) Automobile Liability, Any Auto (ISO Form No. CA 0001, or equivalent);  
\$1,000,000 for Bodily Injury and Property Damage, each accident.

b) The cost of such insurance shall be borne by the RECIPIENT. Proof of insurance acceptable to MWDOC shall be provided prior to delivery of TRAILER.

- c) As respects the liability insurance required herein, RECIPIENT may elect to (i) self-insure, (ii) provide coverage through a joint powers insurance authority (JPIA) duly formed under the laws of the State of California, or (iii) utilize a combination of self-insurance and JPIA coverage. Proof of self-insurance and/or JPIA coverage acceptable to MWDOC shall be provided prior to delivery of TRAILER.
- 5) In the event of loss, damage, disposal or theft of equipment, RECIPIENT shall notify WEROC and the CITY in writing as soon as practicable, and no later than 30 calendar days after discovery of same. RECIPIENT shall be responsible for all costs of repair. If the TRAILER is lost, stolen, or damaged beyond repair, the TRAILER shall be replaced by the RECIPIENT, at its sole cost, with equipment of like kind and capability, subject to approval by WEROC and the CITY. The RECIPIENT's liability for repair and replacement costs shall not be limited to insurance proceeds.
- 6) Permits. RECIPIENT shall obtain and maintain all permits, licenses, certificates or other authorizations (collectively PERMITS) necessary for storing, maintaining and operating the TRAILER as provided herein, and RECIPIENT shall pay any and all fees required for such PERMITS. RECIPIENT shall notify MWDOC immediately of any suspension, termination, lapse, non-renewal, or restriction, of PERMITS relative to the TRAILER. Necessary PERMITS include, without limitation:
  - a) California Department of Motor Vehicles TRAILER Registration
  - b) At least 2 California-licensed drivers with hazardous materials (HAZMAT) endorsements per TRAILER received
  - c) At least 2 vehicles of appropriate size and capacity to tow the TRAILER when full, per TRAILER received
  - d) All PERMITS required by State and Federal regulation, as they may change from time to time.
- 7) All equipment acquired or obtained with GRANT funds and transferred to RECIPIENT, including without limitation the TRAILER:

- a) Shall be made available under the California Disaster and Civil Defense Master Mutual Aid Agreement in consultation with representatives of WEROC and the various fire, emergency medical, hazardous materials response services, and law enforcement agencies within the Orange County Operational Area, when not in use by the RECIPIENT;
- b) Shall be made available pursuant to applicable terms of the California Disaster and Civil Defense Master Mutual Aid Agreement and deployed with personnel trained in the use of such equipment in a manner consistent with the California Law Enforcement Mutual Aid Plan or the California Fire Services and Rescue Mutual Aid Plan, when not in use by the RECIPIENT;
- c) Shall be subject to the following provisions in FEMA's "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments": 44 CFR 13.32 ("Equipment") and 13.33 ("Supplies") regarding title to, maintenance and use of, and disposition of equipment and supplies acquired under a federal grant.
- d) Shall be made available for use on other projects or programs currently or previously supported by the Federal Government, providing such use will not interfere with the work on the projects or program for which it was originally acquired. First preference for other use shall be given to other programs or projects supported by Cal EMA as awarding agency under the GRANT.
- e) Shall be added to the WebEOC Resource Manager system as a mutual aid resource that can be tracked, requested and deployed.
- f) Shall be recorded on a ledger maintained by RECIPIENT. The initial ledger shall be prepared by RECIPIENT and provided to MWDOC within 30 days of receiving the TRAILER and then biannually on a schedule set by MWDOC. The ledger, shall include: (a) description of the TRAILER, (b) manufacturer's model(s) and serial number(s), if any, (c) Federal Stock number, national stock number, or other identification number, if any; (d) the source of acquisition of the TRAILER, including the award number, (e) date of acquisition; (f) the per unit acquisition cost of the

TRAILER, (g) records showing maintenance procedures that been undertaken to keep the TRAILER in good running order, and (h) location and condition of TRAILER. Records constituting the ledger must be retained pursuant to 44 C.F.R. Part 13.42, and the Office of Grants & Training.

- g) Shall have an UASI Grant identification decal affixed to it in a location where, whenever practicable, it is readily visible, and RECIPIENT shall not remove or obscure the decal.
- 8) Shall have a physical inventory taken of the equipment, including the TRAILER, by RECIPIENT at least once every year, and the inventory results shall be reconciled by RECIPIENT against its equipment records. In addition, inventory shall be taken prior to any UASI, State or Federal monitor visits.
- 9) If the TRAILER acquired with GRANT funds becomes obsolete or unusable, RECIPIENT shall notify MWDOC of such condition. RECIPIENT shall transfer or dispose of the GRANT-funded TRAILER only in accordance with the instructions of MWDOC or the CITY in its capacity as the agency from which MWDOC received the GRANT funds.
- 10) RECIPIENT agrees to comply with and be fully bound by all applicable provisions of the GRANT and Attachments A through D to this Agreement.
- 11) In the event MWDOC, as the result of a grant audit or other occurrence, becomes responsible for reimbursing the CITY or FEMA some portion of the funding provided for the TRAILER, MWDOC will make every effort to minimize the amount of the TRAILER purchase for which funding will be disallowed. If TRAILER purchase costs remain unfunded despite their efforts MWDOC will look to the receiving agencies to cover these costs for the TRAILER(s) they receive.
- 12) Indemnification. Each of the Parties to this Agreement is a public entity. In contemplation of the provisions of Section 895.2 of the Government Code of the State of California imposing certain tort liability jointly upon public entities, solely by reason of such entities being parties to an Agreement as defined by Section 895 of said Code, the Parties hereto, as between themselves, pursuant to the authorization contained in Section 895.4 and 895.6

of said Code, will each assume the full liability imposed upon it or upon any of its directors, officers, agents, or employees by law, for injury caused by a negligent or wrongful act or omission occurring in the performance of this Agreement, to the same extent that such liability would be imposed in the absence of Section 895.2 of said Code. To achieve this above-stated purpose, each Party indemnifies and holds harmless the other Party for liability that may be imposed on the other Party solely by virtue of Section 895.2. The provision of Section 2778 of the California Civil Code is made a part hereto as if fully set forth herein.

- 13) Public Records Act. MWDOC and RECIPIENT are public agencies subject to the California Public Records Act (Ca. Gov. Code, § 6250 et seq.) (Act). All requests for records related to this Agreement will be handled pursuant to the Act.
- 14) Conflict Of Interest. Under the provisions of the GRANT AGREEMENT, MWDOC and RECIPIENT are required to include the following Conflict of Interest provisions in this Agreement.
  - a) The RECIPIENT covenants that none of its directors, officers, employees, or agents shall participate in selecting, or administrating any subcontract supported (in whole or in part) by Federal funds where such person is a director, officer, employee or agent of the subcontractor; or where the selection of subcontractors is or has the appearance of being motivated by a desire for personal gain for themselves or others such as family business, etc.; or where such person knows or should have known that:
    - i) A member of such person's immediate family, or domestic partner or organization has a financial interest in the subcontract;
    - ii) The subcontractor is someone with whom such person has or is negotiating any prospective employment; or
    - iii) The participation of such person would be prohibited by the California Political Reform Act, California Government Code §87100 et seq. if such person were a



public officer, because such person would have a "financial or other interest" in the subcontract.

b) Definitions:

- i) The term "immediate family" includes but is not limited to domestic partner and/or those persons related by blood or marriage, such as husband, wife, father, mother, brother, sister, son, daughter, father in law, mother in law, brother in law, sister in law, son in law, daughter in law.
- ii) The term "financial or other interest" includes but is not limited to:
  - (1) Any direct or indirect financial interest in the specific contract, including a commission or fee, a share of the proceeds, prospect of a promotion or of future employment, a profit, or any other form of financial reward.
  - (2) Any of the following interests in the subcontractor ownership: partnership interest or other beneficial interest of five percent or more; ownership of five percent or more of the stock; employment in a managerial capacity; or membership on the board of directors or governing body.
- c) The RECIPIENT further covenants that no officer, director, employee, or agent shall solicit or accept gratuities, favors, anything of monetary value from any actual or potential subcontractor, supplier, a party to a sub agreement, (or persons who are otherwise in a position to benefit from the actions of any officer, employee, or agent).
- d) The RECIPIENT shall not subcontract with a former director, officer, or employee within a one year period following the termination of the relationship between said person and the RECIPIENT.
- e) Prior to obtaining MWDOC'S Approval of any subcontract, the RECIPIENT shall disclose to MWDOC any relationship, financial or otherwise, direct or indirect, of the RECIPIENT or any of its officers, directors or employees or their immediate family with the proposed subcontractor and its officers, directors or employees.

- f) For further clarification of the meaning of any of the terms used herein, the parties agree that references shall be made to the guidelines, rules, and laws of the RECIPIENT, State of California, and Federal regulations regarding conflict of interest.
  - g) The RECIPIENT warrants that it has not paid or given and will not pay or give to any third person any money or other consideration for obtaining this Agreement.
  - h) The RECIPIENT covenants that no member, officer or employee of RECIPIENT shall have interest, direct or indirect, in any contract or subcontract or the proceeds thereof for work to be performed in connection with the TRAILER during his/her tenure as such employee, member or officer or for one year thereafter.
- 15) Incorporation by Reference Of GRANT AGREEMENT. Pursuant to Section 7 of the GRANT AGREEMENT (Attachment A hereto), the terms of the GRANT AGREEMENT are hereby incorporated by reference and binding on the RECIPIENT.
- 16) Nondiscrimination and Affirmative Action. RECIPIENT shall comply with the applicable nondiscrimination and affirmative action provisions of the laws of the United States of America, the State of California, and the CITY. In performing this Agreement, RECIPIENT shall not discriminate in its employment practices against any employee or applicant for employment because of such person's race, religion, national origin, ancestry, sex, sexual orientation, age, physical handicap, mental disability, marital status, domestic partner status or medical condition. RECIPIENT shall comply with Executive Order 11246, entitled "Equal Employment Opportunity," as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 C.F.R. Part 60).
- a) If required, RECIPIENT shall submit an Equal Employment Opportunity Plan ("EEOP") to the DOJ Office of Civil Rights ("OCR") in accordance with guidelines listed at <http://www.ojp.usdoj.gov/ocr/eeop.htm>.
  - b) Any subcontract entered into by RECIPIENT relating to this Agreement, to the extent allowed hereunder, shall be subject to the provisions of this section.

- 17) No alteration or variation of the terms of this Agreement shall be valid unless made in writing and signed by duly authorized representatives of MWDOC and RECIPIENT, and no oral understanding or agreement not incorporated herein shall be binding on any of the Parties hereto.
- 18) RECIPIENT may not assign this Agreement in whole or in part without the express written consent of MWDOC.
- 19) For a period of three years after final delivery hereunder or until all claims related to this Agreement are finally settled, whichever is later, RECIPIENT shall preserve and maintain all documents, papers and records relevant to the TRAILER acquired in accordance with this Agreement. For the same period of time, RECIPIENT shall make said documents, papers and records available to MWDOC and the agency from which MWDOC received GRANT funds or their duly authorized representative(s), for examination, copying, or mechanical reproduction on or off the premises of RECIPIENT, upon request during usual working hours.
- 20) RECIPIENT shall provide to MWDOC all records and information requested by MWDOC for inclusion in quarterly reports and such other reports or records as MWDOC may be required to provide to the agency from which MWDOC received GRANT funds or other persons or agencies.
- 21) MWDOC may terminate this Agreement and be relieved of the delivery of any consideration to RECIPIENT if (a) RECIPIENT fails to perform any of the covenants contained in this Agreement, at the time and in the matter herein provided, or (b) MWDOC loses funding under the GRANT. If at any point WEROC/MWDOC or the CITY reasonably believes that RECIPIENT is in breach of this Agreement, MWDOC may send a Corrective Action Notification Letter to RECIPIENT identifying the breach and the corrective actions that are needed. If corrective actions are not taken within the time frame stated in the letter, further actions by MWDOC or the CITY may include repossession and reassignment of the TRAILER in cooperation with the City of Santa Ana UASI grant office, invoicing of the

CITY for costs attributable to breach of the Agreement, and denial of participation in future UASI grant projects.

22) RECIPIENT and its agents and employees and independent contractors shall act in an independent capacity in the performance of this Agreement, and shall not be considered officers, agents or employees of MWDOC or of the agency from which MWDOC received GRANT funds.

23) In the performance of this Agreement, RECIPIENT and its governing body, officers, agents and employees shall comply with by all applicable federal, state and local laws, including all applicable statutes, regulations, executive orders and ordinances.

IN WITNESS HEREOF, the MUNICIPAL WATER DISTRICT OF ORANGE COUNTY and [INSERT AGENCY NAME] have executed this Agreement through their authorized representatives on the date first set forth above.

MUNICIPAL WATER DISTRICT  
OF ORANGE COUNTY

RECIPIENT  
[INSERT AGENCY NAME]

By: \_\_\_\_\_  
Rob Hunter  
General Manager

By: \_\_\_\_\_  
[INSERT NAME]  
[INSERT TITLE]



**ACTION ITEM**  
February 17, 2016

**TO:** Board of Directors

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

Robert Hunter  
General Manager

Staff Contact: Karl Seckel

**SUBJECT:** **Authorization of Phase 2 Scope of Work for CDM-Smith**

**STAFF RECOMMENDATION**

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Staff recommends the Board of Directors authorizes the General Manager to increase the CDM-Smith Scope of Work by \$131,080, as outlined in the attached DRAFT Scope of Work. This would bring the CDM Authorization to \$425,275 since the beginning of this effort.

**COMMITTEE RECOMMENDATION**

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Committee recommends (To be determined at Committee Meeting)

**SUMMARY**


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MWDOC, CDM-Smith and the water agencies in Orange County have been working through the OC Water Reliability Study issues and are ready to proceed to Phase 2. As a reminder, the Phase 1 Analyses were complete in November, the Technical Memoranda from CDM-Smith were distributed in December and the following meetings have taken place to get ready for Phase 2:

- Nov 30 – Workshop Recap of Supply Reliability Phase 1 Analyses
- Dec 14 – Workshop on System Emergency Planning Issues
- Jan 4 – Workshop on Supply Reliability GAPS, Illustration of Strategies to Reduce the GAPS and Economic Methods for Understanding Strategies

<b>Budgeted (Y/N): Yes</b>	Budgeted amount: \$160,000	Core ✓	Choice __
<b>Action item amount: \$131,080</b>		Line item: Programs 21 & 23	
<b>Fiscal Impact (explain if unbudgeted):</b>			

- Jan 21 – Review and Input on Phase 2 Scope of Work – Decisions made at the January 4 meeting were incorporated into the CDM Scope of Work which was discussed in detail at this meeting.
- Upcoming meetings have been set for January 28 and February 18 to discuss the construct for how to structure the MET and MET Member Agency Project success for developing NEW projects under various MET IRP assumptions 1 through 5. These will then be run through the OC Model to estimate remaining GAPS. OC Project portfolios will be structured to fill the GAPS. At the Jan 28 meeting, discussions will be held on the approach to structure the left hand side of the chart below. The Feb 18 meeting will focus on filling the GAPS with portfolios of OC Projects.

Conceptual Scenarios for Development of Phase 2		
	January 28 Meeting Topic	February 18 Meeting Topic
	MET IRP & MET Member Agency Projects	OC Portfolio of Projects
1	<u>Fewer</u> MET & MET MA Projects	<u>Fewer</u> OC Projects to Fill GAP
2		
3		
4		
5	<u>More</u> MET & MET MA Projects	<u>More</u> OC Projects to Fill GAP

The meetings noted above have had very good attendance and participation from our agencies, averaging around 21 agencies in each meeting, including the Three Cities participation.

Remaining work to be completed in March and April will include updating the GAP analyses under the five scenarios above, using the local project information to evaluate the reliability improvement and costs. The Technical work on Phase 2 will be wrapped up in April with a “report” in May. The attached Scope of Work is listed as DRAFT; it was discussed with our agencies last week and we gave agencies until the end of this week to get comments submitted on the Scope. Staff will update the Scope and include any revisions with the submittal to the Board. Issues were discussed at the last Workgroup meeting regarding the type of “report” to be issued at the conclusion of Phase 2. At issue is the local decision-making and how it might be influenced by what a “report” may include as part of a finding or conclusion. The local agencies want to ensure their positions and decisions do not get compromised by such a publication. We will have to work on the form and format of any “reports” issued, probably by using the various analyses as examples of how decisions in

OC are influenced by what is going on elsewhere, thus demonstrating the implications of the work completed. A cornerstone of our process has been to bring the information forward in a form that is both relevant and useful for all agencies in the County. We would like to continue in that same manner in Phase 2.

Beginning in May and continuing for some time our expectations are that on-going discussions will occur regarding project evaluations and decisions in Orange County. The CDM-Smith Scope of Work includes time and effort for assistance with outreach and on-going workshop type of meetings, including any potential additional modeling runs or evaluations that may need to be made. Staff intentions are to remain engaged in this process to assist with local agency decisions.

Attached is the CDM-Smith DRAFT Scope of Work.



*To: Karl Seckel, MWDOC*

*From: Dan Rodrigo, CDM Smith*

*Date: January 26, 2016*

## **Proposed Scope of Work for Phase 2 of Orange County Reliability Study**

The Orange County Reliability Study (OC Study) was initiated by the Municipal Water District of Orange County (MWDOC) to evaluate existing and future water supply and system reliability for Orange County water agencies and to understand the Metropolitan Water District of Southern California's (MET's) influence on reliability in OC. The intent of the study is to provide information on costs and benefits of increasing supply reliability through a combination of Orange County local projects and advocacy for MET improvements in imported water supply reliability.

### **Phase 1 Overview**

Phase 1 of the OC Study was completed in November 2015, and provided the following:

- Access to information and suggestions from all agencies during 13 Workgroup Meetings held over the past year.
- Development of three planning scenarios, developed by the Workgroup, (both with and without the California WaterFix, yielding six scenarios in total).
- Forecast of water demands and conservation (passive, historical active and future potential active) for Brea/La Habra, OCWD Basin, South County, and total OC County areas.
- Assessment of MET supply reliability under various planning scenarios, including two climate scenarios for the Colorado River and State Water Project watersheds.
- Assessment of existing Orange County water supplies, including OCWD basin supplies and impacts of two climate scenarios for the Santa Ana River watershed.
- Developed a range of "gaps" between projected water demands and existing imported and local water supplies for Orange County, Brea/La Habra, OCWD Basin and South County areas under six Scenarios assuming NO NEW projects at the MET level and only assuming expansion of recycled water projects in OC, including the GWRS Phase 3 start up in 2022 for NEW OC Projects.

**DRAFT**



- Developed a summary of NEW local water supply options for Orange County.
- Summary of MWDOC evaluations on emergency needs for outages and seismic risks.

Two technical memorandums were prepared by CDM Smith: Technical Memorandum #1 (TM#1) summarizing the results of the demand forecast and supply GAP; and Technical Memorandum #2 (TM#2) detailing the development of the OC Reliability Model. Phase 1 was developed with input and direction from an OC Water Agency Workgroup that met 13 times in the course of the study.

A Phase 1 Extension was initiated in November 2015 and will end in January 2016 to communicate the results of Phase 1 to a wider audience of Orange County water agencies and to allow a greater discussion of the results and implications of the Phase 1 work before scoping and starting on Phase 2. Four workshops were held during this extension phase, with the last workshop occurring on January 21, 2016. The purpose of the last workshop was to address comments on the Phase 1 Technical Memoranda and to provide review and input on the proposed Scope of Work for Phase 2.

Funding was also allocated to the Phase 1 Extension to begin building the financial model for the Phase 2 evaluation of portfolios to address the supply and system gaps.

## **Phase 2 Scope of Work**

The purpose of Phase 2 is to demonstrate how the supply and system gaps (estimated during Phase 1) could be met with new supply projects, either implemented by MET, the MET member agencies or OC. Instead of evaluating individual projects, several portfolios of projects will be tested. In addition, the cost-effectiveness of the portfolios will be assessed. The outcome of Phase 2 will not be to recommend a specific portfolio for implementation, but rather to present a range of possible portfolios, a range of portfolio cost-effectiveness, and a range of supply risks that OC agencies can use for their own, local decision-making. The Phase 2 results may also facilitate partnerships and mutual agreements between OC agencies to improve supply and system reliability.

### ***Task 1. Develop Finalized List of OC Supply Projects***

During Phase 1, a list of OC water supply/system improvement projects were drafted. For each project, the list includes location of project, supply yield, attributes of the project, and in some cases capital and O&M costs. However, many of these projects still need cost estimates. MWDOC will take the lead in working with OC agencies to get as much cost information as possible for these projects. CDM Smith will then use professional engineering judgement, along with existing studies and reports, to develop cost estimates for those projects that do not have agency-specified costs. The cost estimates developed by CDM Smith will be very high-level, relative cost estimates. OC agencies will then review CDM Smith's cost estimates for their projects before they are used.

One of the projects to be included is additional, more aggressive, active Water Use Efficiency (WUE) implementation by OC agencies. The demand projections developed in Phase 1 included WUE levels consistent with 2013 levels by each agency in the county via a model calibration process based on data submitted by each agency. Further levels of WUE were estimated based on (1) future

compliance with the State Mandatory Water Efficiency Landscape Ordinance (MWEL0) for future commercial and residential development, (2) continued WUE at historical levels as has occurred under the joint programs carried out in the county between MWDOC and the retail agencies, and (3) more aggressive landscape irrigation efficiency by targeting 20% of existing turf removal countywide. The third portion of the WUE projections will be carried forth as a part of a number of the portfolios in the Phase 2 evaluation.

Another issue identified with development of WUE projects, is the potential impact on revenue for any of the retail agencies. This will vary in accordance with the rate structure in place at the retail agency and will range significantly from agency to agency from zero impact to a very severe impact on operating revenue needed for the retail operations. It was suggested that this impact be EXCLUDED from the portfolio analyses. This would serve appropriate for agencies who have fixed costs covered by fixed revenue and variable costs covered by variable revenue. At least two additional cost levels of cost implications will be identified based on two representative mixes of the % of fixed costs supported by variable revenue exhibited by retail agencies in OC. This will be developed in conjunction with the Workgroup.

### *Task 2. Develop Portfolios of Options*

During the third Phase 1 Extension Workshop, it was agreed that Planning Scenario 2 (moderate climate scenario) would be used as the basis for developing an assessment of portfolios. Working closely with the OC Agency Workgroup, approximately 5 portfolios of different combinations of new OC supply options will be defined. The portfolios will be assembled around assumptions regarding MET reliability.

At one extreme, a portfolio will be developed assuming that MET is successful in its IRP recommended path for improving imported water reliability. For this portfolio, it is not expected that there would be a significant amount of OC supply projects needed as the supply gap estimated in Phase 1 for this scenario was relatively small. However, there may be a need for some moderate/larger investments for South County for system reliability needs.

At the other extreme, a portfolio will be developed assuming that MET is not successful in its IRP recommended path for improving imported water reliability. For this portfolio, it is expected that there would be a significant need for new OC water supply and system reliability projects.

In the middle of these extremes, two to three portfolios would be developed assuming a range of MET reliability improvements will be implemented, with OC water supply and system reliability projects filling in any remaining needs.

### *Task 3. Test Reliability of Portfolios*

The portfolios will be tested in terms of supply and system reliability using the OC WEAP model that was developed and utilized in Phase 1. The supply reliability assessment will be presented in

terms of how the portfolios reduce water potential shortages both in terms of magnitude and frequency.

System reliability will be assessed using a simple spreadsheet tool comparing max day water demands under selected demand scenarios (in CFS) and 60 day outages of imported water supplies (also in CFS) combined with 7 day outages of the electrical grid. Assessment of groundwater well system reliability will also be compared.

#### ***Task 4. Evaluate Relative Cost and Benefits of Portfolios***

A spreadsheet tool will be created to estimate the overall lifecycle costs from 2015-2040 for the portfolios using several well-established financial metrics:

- **Levelized Unit Cost** – which is the present value of all capital and O&M costs for the portfolios, divided by the present value of water supply that is beneficially used. Beneficially used water supply is that which is tied to reducing a specific frequency and magnitude of water shortages. This metric will be vital in evaluating base-loaded vs. storage/or call-when-needed water supplies. Base-loaded supplies produce water each and every year, regardless of need; whereas storage/call-when-needed water supplies produce water only during times of need.
- **Net Present Value Cost** – representing the difference between total lifecycle cost of the portfolios and the cost of status quo. The status quo will be evaluated in terms of projected MET costs plus the cost of water shortages. The cost of shortages will be assessed using the cost of emergency supplies from MET under their Water Supply Allocation Plan (WSAP), which results in imported water costs of approximately three times the cost of MET water for water needed if an agency cannot meet demands within the allocation provided by MET.

In addition, under this evaluation, the cost of MET imported water will be developed under two scenarios, one assuming the California WaterFix will proceed forward and another set of projections assuming it will NOT proceed forward, but that MET's reliability will have to be secured via higher priced local supplies, ocean desalination or transfers from the Central Valley.

The "order of timing implementation" for projects within a portfolio can influence how cost-effective the portfolio will be in the analysis. The Phase 2 analysis will assume that project implementation order within a portfolio, will first be by the time necessary for development of the project (if it is long), next by the overall cost per AF of the project (includes capital and O&M; lower costs are brought on sooner) and then once decisions on projects have been made, they will be operated in accordance with the magnitude of the O&M costs, excluding the capital cost (lowest operating expense projects will be sooner).

In addition to evaluating the relative cost of the portfolios, a qualitative assessment of the benefits of the portfolios will be made. This qualitative benefit assessment will include the benefit of being highly reliable under both supply shortage and system outage conditions, having adequate supplies for planned growth, and maintaining quality of life for residents.

Finally, the implications of various policy implications on cost and benefits of the portfolios will be assessed qualitatively to assist agencies in making decisions. These policy implications are divided into local, regional and state policy issues, as summarized below:

**Local Policy Issues:**

- Initially, OCWD basin investments are considered for the benefit of only the basin agencies as a baseline condition. In this manner, the use of storage in OC Basin for non-basin agencies must measure impacts from this baseline (meaning that no financial impacts will accrue to the basin agencies from any sharing concepts)
- Sharing of the basin benefits for development of “Extraordinary Supplies” under MET’s WSAP will be evaluated, for both the basin and non-basin areas
- Sharing of the basin benefits for emergency supplies and drought supplies will also be considered under this framework
- Sharing unused MET allocation with OCWD for increased replenishment during periods of water allocations will also be evaluated
- What level of reliability should be incorporated into our planning process (this can vary by agency and by region of the county)?
- What is the cost of being fully reliable compared to allowing infrequent periods of demand curtailment during water shortage situations?
- What is our level of comfort with MET and the MET member agencies being successful in implementation of their projects, specifically the California WaterFix and MET’s Indirect Potable Reuse Project at the Carson Plant?

**Regional (MET) Policy Issues:**

- Drought allocation formula revisions to encourage local supply development
- Groundwater replenishment strategy/incentives to maximize local groundwater during normal, wet and dry years
- What will MET’s NEW Goals be for the Local Resource Program solicitation of projects?
- What changes will MET propose for its role in the development of local projects?
- How much funding will MET put forth towards on-going WUE programs?

- Will MET be successful in seeking additional transfers and exchanges along the CRA and the SWP?
- Will MET be changing its rate structure to incentive certain elements of supply development and management?

**State Policy Issues:**

- Long-term Statewide policies regarding management of water during extreme droughts must not penalize agencies for locally supported water supply investments (e.g., statewide water restriction targets not crediting indirect potable reuse, desal and other investments)

***Task 5. Prepare TM#3 and Executive Report***

A Phase 2 Technical Memorandum (TM#3) will be prepared documenting Tasks 1-4. Following TM#3, a high-level Executive Report (approximately 10-12 pages) will be developed summarizing both Phase 1 and the initial findings of Phase 2. This Executive Report will be developed to communicate the results to a wide range of audiences, both technical and non-technical.

***Task 6. Prepare Presentations***

To support the dissemination of information for the OC Agency Workshops and other groups, CDM Smith will prepare PowerPoint presentations working closely with MWDOC.

***Task 7. Attend Meetings and Provide On-Going Support***

The following meetings have been identified for this effort:

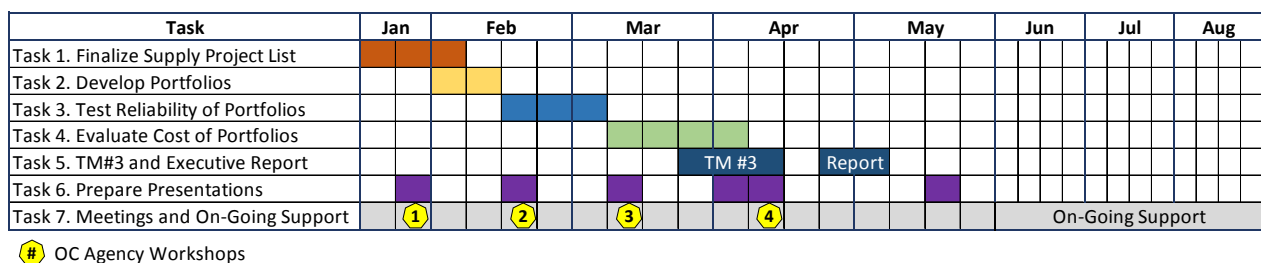
- OC Agency Workshop #1 – Develop assumptions for MET reliability that will feed into the portfolio development
- OC Agency Workshop #2 – Review cost assumptions for projects and provide input on draft portfolios
- OC Agency Workshop #3 – Review reliability performance of portfolios and review assumptions for cost-effectiveness evaluations
- OC Agency Workshop #4 – Review cost-effectiveness performance of portfolios and provide input on communication of OC Study results (Phases 1 and 2)

In addition to these four identified meetings, four working meetings with MWDOC/OCWD staff, attendance at two Board/Committee meetings, and time for up to four additional workshops have been budgeted for this Phase 2, if needed. Also, to support additional meetings, time has been added to provide additional modeling support if needed.

## Schedule and Budget

It is anticipated that the technical portions of this effort will essentially take 3 months to complete Phase 2 (see Figure 1), with the recognition that on-going discussions and policy issues locally and at MET may take substantially longer to complete and may require additional modeling runs and discussions at key updated points for the various on-going activities in the future.

**Figure 1. Schedule for Phase 2 of OC Reliability Study**



The budget for Phase 2 is \$131,080 (see Table 1), which includes as-needed services to support the project through the end of summer.

**Table 1. Budget for Phase 2 of OC Reliability Study**

Tasks	Labor Hours					Labor Dollars	Other Costs	Total Fee
	Project Manager	Senior Planner	Engineers	Admin	Total			
Task 1. Finalize Supply Project List	10	22	60	-	92	\$ 15,860	\$ -	\$ 15,860
Task 2. Develop Portfolios	16	8	12	-	36	\$ 7,460	\$ -	\$ 7,460
Task 3. Test Reliability of Portfolios	24	4	60	-	88	\$ 16,260	\$ -	\$ 16,260
Task 4. Evaluate Cost of Portfolios	32	16	40	-	88	\$ 17,400	\$ -	\$ 17,400
Task 5. Prepare TM#3 and Report	36	5	40	24	105	\$ 19,220	\$ 100	\$ 19,320
Task 6. Prepare Presentations	16	4	8	-	28	\$ 6,120	\$ -	\$ 6,120
Task 7. Meetings and On-Going Support	100	20	110	14	244	\$ 48,260	\$ 400	\$ 48,660
<b>Total</b>	<b>234</b>	<b>79</b>	<b>330</b>	<b>38</b>	<b>681</b>	<b>\$ 130,580</b>	<b>\$ 500</b>	<b>\$ 131,080</b>
<i>Billing Rate (\$/Hour)</i>	<i>\$260</i>	<i>\$180</i>	<i>\$155</i>	<i>\$115</i>				

Number of Meetings	
Technical (MWDOC & OCWD Staff)	4
OC Agency Workshops	4
Additional OC Agency Workshops (if need)	4
MWDOC/OCWD Board Meetings	2
<b>Total</b>	<b>14</b>

cc: Lanaya Voelz, CDM Smith

DRAFT



**DISCUSSION ITEM**

February 1, 2016

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

**FROM: Robert Hunter  
General Manager**

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

**SUBJECT: Extended Emergency Drought Regulations**

**STAFF RECOMMENDATION**

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Staff recommends the Planning & Operations Committee discuss the Extended Emergency Drought Regulations.

**COMMITTEE RECOMMENDATION**

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Committee recommends (To be determined at Committee Meeting)

**SUMMARY**

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On November 13, 2015, Governor Brown issued Executive Order B-36-15 calling for an extension of urban water use restrictions until October 31, 2016 should drought conditions persist. This Executive Order directed the State Water Resources Control Board to consider modifying the restrictions on water use and incorporate insights gained from the existing restrictions.

Attachment A is a Fact Sheet titled "Extending the Emergency Water Conservation Regulation: Proposed Regulatory Changes to Achieve Statewide Reductions in Urban Potable Water Use." This document summarizes the staff recommendations that will be considered by the State Water Resources Control Board at its February 2, 2016 meeting. The staff proposal was developed through a workgroup process that began August 26, 2015 and included one public workshop on December 7, 2015.

Staff has submitted a comment letter by the January 28 noon deadline and will attend the Board meeting on February 2, 2016 to provide further testimony.

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



## Extending the Emergency Water Conservation Regulation

### Proposed Regulatory Changes to Achieve Statewide Reductions in Urban Potable Water Usage

On November 13, 2015, Governor Edmund G. Brown Jr. issued [Executive Order B-36-15](#) calling for an extension of urban water use restrictions until October 31, 2016, should drought conditions persist. Given the severity of the water deficits over the past four years many of California's reservoirs and groundwater basins remain depleted and the need for continued water conservation persists. The November executive order directs the State Water Resources Control Board (State Water Board) to consider modifying the restrictions on water use and incorporate insights gained from the existing restrictions.

The State Water Board's adoption of [Resolution No. 2015-0032](#) and its May 2015 Emergency Regulation addressed specific provisions of [Executive Order B-29-15](#), including mandating a 25 percent statewide reduction in potable urban water use between June 2015 and February 2016. To reach the statewide 25 percent reduction mandate and consistent with Executive Order B-29-15, the Emergency Regulation identified a conservation tier for each urban water supplier, between four percent and 36 percent, based on residential per capita water use for the months of July - September 2014. As directed under Resolution No. 2015-0032, State Water Board staff worked with stakeholders to develop and consider a range of factors that contribute to water use, including climate, growth and investment in drought-resilient supplies, to devise options for refining the proposed extended emergency regulation.

The proposed Emergency Regulation extends the requirements of the existing May 2015 Emergency Regulation and offers modest adjustments to help to respond to some of the reasonable concerns suppliers have raised to the State Water Board since it first considered the May 2015 Emergency Regulation.

Executive Order B-36-15 directs the State Water Board to extend restrictions to achieve a statewide reduction in urban potable water usage through October 2016, based on drought conditions known through January 2016. While the state has experienced some much-needed snow and rainfall in December and January, surface storage remains at or near historic lows, precipitation has been inconsistent, and snowpack is about average.



It is too early to tell whether or not additional rain and snowfall will put the State in the position where the existing restrictions are no longer necessary, or could be further tempered. State Water Board staff is committed to monitoring and evaluating available data on snowpack, reservoir storage levels and groundwater basin levels, and intends report back to the State Water Board in March and April 2016. If conditions warrant, State Water Board staff will promptly bring a proposal before the State Water Board to adjust or eliminate the Emergency Regulation.

## Stakeholder Involvement

In the summer and fall of 2015, State Water Board staff convened a small workgroup, comprised of representatives from the water community, to receive preliminary input on issues to be considered should the emergency conservation regulation be extended due to continuing drought conditions into 2016. The State Water Board subsequently conducted a public workshop on December 7, 2015, and used the input it received from that workshop, the workgroup, and other available stakeholder input and insights gained since the May 2015 Emergency Regulation was adopted, to release a proposed regulatory framework for extending and adjusting the Emergency Regulation on December 21, 2015. The State Water Board solicited and received further public input on that framework; stakeholders - including water suppliers, local government, businesses, individuals, and non-governmental organizations - submitted more than 200 comments on the framework. The text of the proposed Emergency Regulation released on January 15, 2016, is part of a Notice of Proposed Emergency Regulation that will be released on January 22, 2016, which initiates the formal emergency rulemaking process. Formal public comments are due by January 28 and may be submitted as explained below. If approved, the State Water Board expects suppliers and their customers will save more than one million acre-feet of water, or about as much water as is currently in Lake Oroville, in response to the regulation. This savings will be in addition to the 1.2 million acre-feet the State is on track to have saved from June 2015 through February 2016.

## What's Next

Release of the Notice of Proposed Emergency Rulemaking begins a formal comment period that will conclude just prior to the State Water Board's consideration of adoption of the proposed Emergency Regulation at its February 2, 2016, public meeting. During this formal notice period, all **comments must be received by 12 p.m. on Thursday, January, 28, 2016, and will not be accepted after that time.** Submittals are to be sent via e-mail to the Clerk to the State Water Board at [commentletters@waterboards.ca.gov](mailto:commentletters@waterboards.ca.gov). Please indicate in the subject line, "*2/2/16 BOARD MEETING (Conservation Extended Emergency Regulation)*." All received comments will be immediately provided to the Board Members and posted on the State Water Board's [webpage](#).

## **Proposed Emergency Regulation - Key Provisions**

The proposed Emergency Regulation will essentially extend the existing May 2015 Emergency Regulation and maintain many of the same requirements that apply now.

***Proposed changes to the May 2015 Emergency Regulation include, but are not limited to:***

- Credits and adjustments to urban water suppliers' conservation standards that consider the differences in climate affecting different parts of the state; growth experienced by urban areas; and significant investments that have been made by some suppliers toward creating new, local, drought-resilient sources of potable water supply;
- Penalties for homeowners' associations or community service organizations impeding homeowners from reducing or eliminating the watering of vegetation or lawns during a declared drought emergency, as described in existing Civil Code provisions;
- Further defining what agricultural uses may be subtracted from a supplier's potable water production total; and
- Updates to compliance and reporting timelines.

## **Conservation Standard for Urban Water Suppliers**

As drought conditions persist, all water suppliers will need to continue to meet their individual conservation standards. Since June 2015, cumulative statewide conservation has eclipsed the 25 percent target. Everyone must continue to conserve, and the greatest opportunities to meet the conservation standards are in the warmer months when outdoor landscape irrigation typically increases. Often, but not always, water suppliers with higher per capita users are located in areas where the majority of water use is directed to outdoor irrigation due to lot size, climate and other factors; thus outdoor irrigation will continue to present the greatest opportunity for the highest reductions. The proposed Emergency Regulation maintains the current tiers of required water reductions, though with additional adjustments in response to stakeholders' concerns.

## **Overview of Conservation Tiers**

The conservation standards for all urban water suppliers continue to be allocated across nine tiers of increasing levels of residential gallons per capita per day (R-GPCD) water use. This approach considers the relative per capita water usage of each water suppliers' service area and requires that those areas with high per capita use achieve proportionally greater reductions than those with low use, while lessening the disparities in reduction requirements between agencies that have similar levels of water consumption but fall on different sides of dividing lines between tiers. Suppliers have been assigned a conservation standard that ranges between eight percent and 36 percent based on their R-GPCD for the months of July - September, 2014. These three months reflect the amount of water used for summer outdoor irrigation, which provides the greatest opportunity for conservation savings. The proposed Emergency Regulation continues the reserved

four percent conservation tier for those suppliers meeting specific criteria relating to not experiencing drought conditions.

The larger urban water suppliers (serving more than 3,000 customers or delivering more than 3,000 acre feet of water per year), which account for more than 90 percent of urban water use, have previously been assigned a conservation standard, as shown in the following table:

Tier	R-GPCD Range		# of Suppliers in Range	Conservation Standard
	From	To		
1	reserved		4	4%
2	0	64.9	27	8%
3	65	79.9	22	12%
4	80	94.9	42	16%
5	95	109.9	61	20%
6	110	129.9	45	24%
7	130	169.9	81	28%
8	170	214.9	62	32%
9	215	612.0	67	36%

## Adjustments to the Conservation Standards

The proposed Emergency Regulation allows urban water suppliers to update their conservation standards under certain situations, as explained below.

### 1. Climate Adjustment

The proposed Emergency Regulation allows a climate adjustment that, where applicable, will reduce a water supplier's conservation standard by up to four percentage points for those water suppliers located in the warmer regions of the State. The climate adjustment will be based on each urban water supplier's average service area evapotranspiration (ET<sub>o</sub>) for the months of July through September, as compared to the statewide average for the same months. Statewide average ET<sub>o</sub> will be calculated as the arithmetic mean of all urban water suppliers' service area ET<sub>o</sub> for those months. The adjustment will range from a two to four percentage point decrease in an urban water supplier's conservation standard as follows:

Deviation of Urban Water Supplier Service Area's ET <sub>o</sub> from the Statewide Average ET <sub>o</sub>	Reduction in Conservation Standard
>20%	4%
10 to 20%	3%
5 to <10%	2%

Default service area average ETos are based on the California Irrigation Management Information System (CIMIS) [Mapped ETo Zone](#) for which the supplier's service area has the greatest overlap. In lieu of using the default service area ETo, each urban water supplier will have the opportunity to refine its service area ETo by using data from CIMIS stations within its service area, provided that each station used has a continuous period of record of at least five years. To qualify for the in-lieu climate adjustment, the supplier will be required to submit the following data for each CIMIS station used to the State Water Board by March 15, 2016: CIMIS station ID, CIMIS station location, and monthly ETo in inches per month for July, August and September, for the five-year continuous period of record. The table below provides an example of the climate adjustment calculation, using the default service area average ETo.

Example Calculation of Climate Adjustment	
Original Conservation Standard	32%
Statewide Average ETo July-September	6.33 inches
Service Area Average ETo July-September (Zone 17)	8.4 inches
Service Area % Deviation from Average ETo = $(8.4 - 6.33) / 6.33$	0.33 or 33%
Climate Adjustment	-4%
<b>Adjusted Conservation Standard</b>	<b>28%</b>

## 2. Growth Adjustment

The proposed Emergency Regulation provides a mechanism to adjust urban water supplier conservation standards to account for water efficient growth since 2013. The adjustment is calculated as the product of the supplier's conservation standard and the supplier's reasonable percentage change in total potable water production since 2013, using a specific formula to calculate the percentage change, rounded to the nearest whole percentage point. To qualify for the growth adjustment a supplier will have to provide, at a minimum, the following data to the State Water Board by March 15, 2016: the number of new permanent residents added since January 1, 2013; the area of new residential landscaping, in square feet, served since January 1, 2013; the number of new commercial, industrial and institutional (CII) connections added since January 1, 2013; and the average volume of water served to each CII account from February 1, 2015 to October 31, 2015.

The volume of water added due to growth is calculated as the sum of:

1. Number of new permanent residents added since 2013 multiplied by 55 (the currently-identified per-person reasonable indoor water use standard) multiplied by 270 days; (the duration of the regulation);
2. Area of new residential landscaped area (square feet) served by new residents since 2013 multiplied by 55 percent of total service area Eto (inches) for the months of February through October multiplied by a conversion factor of 0.623 (converting inches to gallons); and

3. Number of new CII connections added since 2013 multiplied by the average CII water use per connection during February through October 2015.

The table below provides an example of the growth adjustment calculation.

Example Calculation of Growth Adjustment	
<b>Step 1: Gather information needed for calculation</b>	
a. Number of new permanent residents added since January 1, 2013	1,300
b. Residential landscaped area served by new residents since January 1, 2013	10,000,000 sq. feet
c. Total ETo February 2015 through October 2015	44 inches
d. Number of new CII connections added since January 1, 2013	700
e. Average use per CII connection February-October 2015	900,000 gallons
<b>Step 2: Calculate volume of water attributable to new permanent residents</b>	
= [1,300 * 55 * 270] + [10,000,000 * 44 * 0.55 * 0.623]	170,071,000 gallons
<b>Step 3: Calculate volume of water from new CII connections</b>	
= 700 * 900,000	630,000,000 gallons
<b>Step 4: Calculate total volume of water attributable to growth since 2013</b>	
Add together results from steps 2 + 3: = 170,071,000 + 630,000,000	800,071,000 gallons
<b>Step 5: Percentage of water attributable to growth since 2013</b>	
Baseline 2013 total water production February-October	16,000,000,000 gallons
Gallons of water attributable to growth	800,071,000 gallons
Percentage change in potable water production due to growth	5%
<b>Step 6: Adjust conservation standard</b>	
Original Conservation Standard	36%
<b>Adjusted Conservation Standard = 0.36 * [1 - 0.05]</b>	<b>34%</b>

### 3. New Local Drought-Resilient Supply Credit

Under the proposed Emergency Regulation, any urban water supplier that obtains at least four percent of its total potable water production from a qualifying new local, drought-resilient water supply will be eligible for a four to eight percent reduction to its conservation standard. This credit will be equal to the urban water supplier's actual percentage of total potable water production that comes from a qualifying new local, drought-resilient water supply up to a maximum of eight percent.

The State Water Board continues to encourage every effort by suppliers to ensure a safe and reliable water supply for their customers, especially through improving security of local water supply sources. However, under the proposed Emergency Regulation, the credit will apply only to urban water suppliers that certify the percentage of their total potable water production comes from a local, drought-resilient source of supply developed after 2013, and that the use of that supply does



not reduce the water available to another legal user of water or the environment (e.g., indirect potable reuse of wastewater in coastal regions where the water would not have otherwise been discharged into a water body that others use as a source of supply). To qualify for the drought-resilient source credit a supplier will have to submit its certification to the State Water Board by March 15, 2016. The table below provides an example of the local drought-resilient supply credit calculation.

Example Local Drought-Resilient Supply Credit	
Original Conservation Standard	32%
Baseline 2013 total water production February-October	16,000,000,000 gallons
Total potable water production comes from a drought resilient-source of supply (developed after January 1, 2013)	1,120,000,000 gallons
Percent of total potable water production from a drought-resilient source of supply	7%
<b>Adjusted Conservation Standard</b>	<b>25%</b>

The maximum reduction in a water supplier's conservation standard through combined climate, growth and new resilient drought supplies adjustments described above is proposed to be capped at an eight percentage point reduction from any one supplier's otherwise applicable conservation standard, with no suppliers dropping below an eight percent conservation standard.

Total monthly water production and specific reporting on residential use and enforcement as laid out in the May 2015 Emergency Regulation will remain in effect.

## Commercial Agriculture Exclusion

Under the May 2015 Emergency Regulation, urban water suppliers are allowed to subtract water delivered for commercial agriculture from total potable water production if the supplier meets certain conditions and submits the agricultural water use certification to the State Water Board. The proposed Emergency Regulation extends and modifies the eligibility requirements for the commercial agricultural exclusion. Suppliers will be allowed to subtract the water delivered for commercial agriculture from total potable water production only for those users that produced at least \$1,000 of revenue in the previous year, or who would have but for circumstances beyond their control.

## Self-Supplied Commercial, Industrial and Institutional (CII) Users

The proposed Emergency Regulation continues to require self-supplied CII users to either reduce their usage by 25 percent or restrict outdoor irrigation to no more than two days per week. CII facilities with an independent source of supply (i.e., not served by a water supplier) are still not required to submit a report. However, these facilities should be prepared to demonstrate their compliance with the two day per week watering restriction, or the 25 percent reduction in water use if requested to do so by the State Water Board.

## Conservation Standard for All Other Water Suppliers

The proposed Emergency Regulation continues to require small water suppliers (serving 3,000 or fewer customers) to either achieve a 25 percent conservation standard, or restrict outdoor irrigation to no more than two days per week through October 2016. These suppliers will again be required to submit a small water supplier report that either (a) identifies total potable water production, by month, from December 2015 through August 2016, or (b) confirms compliance with the maximum two day per week outdoor irrigation restriction. The small water supplier report will be due to the State Water Board by September 15, 2016.

## End-User Requirements

The proposed Emergency Regulation maintains the current prohibitions on water use. These include:

- Irrigation with potable water of ornamental turf on public street medians is prohibited; and
- Irrigation with potable water outside of newly-constructed homes and buildings not in accordance with emergency regulations or other requirements established in the California Building Standards Code is prohibited.
- Using potable water to wash sidewalks and driveways;
- Allowing runoff when irrigating with potable water;
- Using hoses with no shutoff nozzles to wash cars;
- Using potable water in decorative water features that do not recirculate the water;
- Irrigating outdoors during and within 48 hours following measureable rainfall; and
- Restaurants from serving water to their customers unless the customer requests it.

Additionally, hotels and motels must offer their guests the option to not have their linens and towels laundered daily, and prominently display this option in each guest room.

It continues to be very important that while these provisions are in effect existing trees remain healthy and do not present a public safety hazard. Trees and other non-turf vegetation within street medians may continue to be watered. Information on how to maintain trees while reducing outdoor water use is available at:

[www.saveourwater.com/trees](http://www.saveourwater.com/trees).

## Compliance Assessment

The State Water Board will continue to assess compliance on a cumulative basis, using suppliers' monthly reported data. Each month, State Water Board staff will reassess compliance based on the supplier's cumulative savings since June 2015. Cumulative tracking means that conservation savings will be added together from one month to the next and compared to the amount of water used during the same months in 2013.

The State Water Board will continue to use informational orders to request information from suppliers not meeting their conservation standards and, as appropriate, conservation orders that direct specific actions to correct non-compliance. Both tools are tailored to the

emergency circumstances that the State finds itself in as a result of continuing drought conditions. Violation of an informational order or conservation order carries a penalty of up to \$500 per day.

The State Water Board will continue to work with water suppliers along the way that are not meeting their targets to implement actions to get them back on track. These actions could include changes to rates and pricing, restrictions on outdoor irrigation, public outreach, rebates and audit programs, leak detection and repair and other measures. The State Water Board may use its enforcement tools to ensure that water suppliers are on track to meet their conservation standards at any point during the 270 days that the emergency regulation is in effect.

The alternative compliance process the State Water Board identified in Resolution No. 2015-0032 is not proposed to be modified.

## **Conclusion**

No one knows how the future will unfold. While the State may return to “normal,” or even to above average hydrologic water conditions in 2016 or 2017, such an outcome is far from certain, nor is it certain that one year of average or above-average water conditions will relieve the State from these historic drought conditions. Continued water conservation is imperative. Moving forward, the State Water Board is committed to working with water suppliers on implementing the Emergency Regulation, assessing water conditions throughout the spring, and adapting requirements as appropriate based on water supply conditions in April.

The State is meeting the Governor’s 25 percent cumulative statewide conservation goal because Californians have risen to the occasion. As the State Water Board acts on the Governor’s Executive Order B-36-15, it will consider the lessons learned from the implementation of the current executive order and make adjustments to the Emergency Regulation as needed. The State Water Board will also begin to work with other agencies and stakeholders to develop longer term measures to ensure water continues to be used efficiently.

*(This fact sheet was last updated on January 15, 2016)*





## INFORMATION ITEM

February 1, 2016

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

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

Staff Contact: Karl Seckel

**SUBJECT:**   **Scope of Work for Science Advisory Panels for San Juan Basin Authority and Doheny Desal Projects being conducted by National Water Research Institute (NWRI)**

### STAFF RECOMMENDATION

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Staff recommends the Planning & Operations Committee receives and files the report.

### COMMITTEE RECOMMENDATION

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Committee recommends (To be determined at Committee Meeting)

### OVERVIEW

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MWDOC has been working on Foundational Action Program Projects with the San Juan Basin Authority (SJBA) and the Doheny Desal Project (with South Coast Water District and Laguna Beach County Water District). One of the items in the scope of work for each project is to conduct a Science Advisory Panel to review and comment on work completed. We are quickly approaching the due date for the final reports for these projects; the due date is February 1, but MWDOC has requested a two month extension. The two month extension will provide time to complete the Science Advisory Panels.

MWDOC, NWRI, SJBA and South Coast Water District have been working on the scopes for two Science Advisory Panels. Attached are the DRAFT scopes being prepared by NWRI. These efforts will be started in February and completed in March to meet the time deadlines. No action is required from the Board at this time as these efforts were approved

<b>Budgeted (Y/N): No</b>	Budgeted amount: \$0	Core ✓	Choice __
<b>Action item amount: \$0</b>		Line item:	
<b>Fiscal Impact (explain if unbudgeted):</b> Funding for these efforts is being provided by previously approved Foundational Action Funding Agreements, not from MWDOC.			

by the Board when the Foundational Action Program Agreements were approved with funding for these panels coming from the local agencies or MET, not from MWDOC. MWDOC's involvement in these efforts relates only to staff time.

Attached are the two proposals.

***DRAFT***

# **National Water Research Institute**

## **Scientific Review Panel to Review:**

### **Study on Overcoming Barriers to Slant Well Seawater Desalination: Siting, Groundwater, Water Quality, and Treatment**

#### ***Prepared for:***

Municipal Water District of Orange County  
18700 Ward Street  
Fountain Valley, CA 92708

and

South Coast Water District  
31592 West Street  
Laguna Beach, CA 92651-6907

#### ***Prepared by:***

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**January 12, 2016**

## Abstract

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The National Water Research Institute (NWRI), a 501c3 nonprofit based in Fountain Valley, California, is pleased to submit this proposal to the Municipal Water District of Orange County (MWDOC), based in Fountain Valley, California, to form and coordinate the activities of a Scientific Review Panel (“Panel”) to provide scientific and technical review of the study on “Overcoming Barriers to Slant Well Seawater Desalination: Siting, Groundwater, Water Quality, and Treatment,” with particular focus on groundwater modeling. The goal of this Panel review is to ensure that the best science and technology are used in the study and that water management decisions are protective of public health and the environment.

The Panel will consist of four (4) individuals with expertise in a range of disciplines relevant to the review of the study, such as hydrogeology, groundwater modeling, geochemistry, chemical oceanography, and treatment technologies, among other. The Panel review will be conducted through two (2) in-person meetings and supplemented by conference calls (if needed). At the conclusion of each in-person meeting, the Panel will prepare a report summarizing the Panel’s findings and recommendations based on the discussions and outcomes of the meeting.

This proposal provides background information on NWRI’s Panel process and details on the proposed approach for the Panel review (including a timeline). The proposed budget for this effort is \$43,992.40.

## **1. Description of the Study**

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With funding from the Metropolitan Water District of Southern California (MWD), the Municipal Water District of Orange County (MWDOC) has undertaken a study titled “Overcoming Barriers to Slant Well Seawater Desalination: Siting, Groundwater, Water Quality, and Treatment.” The goal is to further the understanding and utilization of subsurface slant beach well intakes for the development of ocean desalination projects. As an alternative to open ocean intakes, slant wells have the potential to lower the cost of water supply and protect local groundwater basins from seawater intrusion.

### **1.1 Need for the Study**

In May 2015, the California State Water Resources Control Board (“State Board”) approved an amendment to the Water Quality Control Plan for the Ocean Waters of California (“Ocean Plan”) to address effects associated with the construction and operation of seawater desalination facilities. The Desalination Amendment requires new or expanded seawater desalination plants to use the best available site, design, technology, and mitigation measures feasible to minimize the intake and mortality of marine life. The amendment identifies preferred technologies; however, alternative intake and brine disposal methods can be used if demonstrated to be as protective of marine life as the preferred technologies.<sup>1</sup>

Traditionally, open ocean intakes are used to draw seawater through a meshed screen and convey it to a desalination plant. But these intakes can have negative impacts upon the local marine environment. In addition, due to the Desalination Amendment, the costs associated with installing and operating open ocean intakes are likely to increase.

As an alternative, a slant well is a type of subsurface intake that is installed at a diagonal angle beneath the beach and extends under the ocean floor. These wells draw ocean water through layers of sand, which has the benefit of (1) avoiding impacts to marine life and (2) filtering constituents as a first step in the desalination purification process. But additional study is needed to help overcome barriers and pave the way for the use of subsurface slant beach well intakes.

### **1.2 Study History**

Since 2003, MWDOC has investigated undertaking a seawater desalination project sited on South Coast Water District’s property in San Juan Creek and along Doheny State Beach in Dana Point, CA. It may include a subsurface slant well intake system.

In 2006, a Test Slant Well was constructed on Doheny Beach and used for various studies. In 2010, a test facility was installed to conduct the Phase 3 Extended Pumping and Pilot Plant Test Project (“Phase 3”), which evaluated feedwater quality and aquifer pretreatment filtration capabilities, among others. Testing was completed in 2012. Reports from the Phase 3 project are available at <http://www.mwdoc.com/services/dohenydesalhome>.

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<sup>1</sup> [http://www.swrcb.ca.gov/water\\_issues/programs/ocean/desalination/](http://www.swrcb.ca.gov/water_issues/programs/ocean/desalination/) (accessed 12/23/2015).

Concurrently, MWDOC developed a regional groundwater flow model to study the sustainable yield of the San Juan Basin, potential for seawater intrusion, and potential impacts to the basin due to the seawater desalination project's slant well field being sited along Doheny State Beach. Notably, this work was used by the San Juan Basin Authority (SJBA)<sup>2</sup> to develop the 2013 San Juan Basin Groundwater and Facilities Master Plan, which lists an approach to increase basin production through the use of a seawater extraction barrier, stormwater recharge, and groundwater recharge with recycled water.

### 1.3 Current Status

In 2014, MWDOC and MWD entered into an agreement (MWD Agreement No. 139834) to fund and undertake the study on "Overcoming Barriers to Slant Well Seawater Desalination: Siting, Groundwater, Water Quality, and Treatment." Specifically, it focused on (1) overcoming identified barriers to the use of slant wells in San Juan Basin with similar issues expected in other locations and (2) understanding long-term pumped water quality, slant well performance, and institutional and physical mitigation measures (such as injection wells to minimize drawdown impacts).

The five areas of investigation included:

- Advancement of Slant Well Technology
- Geologic, Seismic, and Ocean Risk Analysis for Siting Slant Wells
- Prediction of Coastal/Ocean Groundwater Flow and Water Quality
- Modeling of Slant Well Feedwater Supply, Impacts, and Mitigation Approaches
- Coastal Environment Drawdown Issues and Regulatory Strategies

As part of the study, a feasibility assessment of advanced groundwater modeling tools was conducted to evaluate the effectiveness of using a fine grid/ocean flow and water quality model capable of predicting time variations for:

- Source water flows to slant wells.
- Water quality using an array of modeling software for solute transport, variable density flows, natural isotopes, and geochemistry reactions.
- Analysis of seawater intrusion through multiple layered aquifer systems.

In addition, as required by MWD Agreement No. 139834, a Scientific Review Panel will be convened by NWRI to (1) address scientific and technical concerns or questions and (2) review information in the final report, focusing specifically on groundwater modeling.

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<sup>2</sup> The San Juan Basin is a 26 square mile groundwater basin located in southern Orange County. Since the basin is categorized as a subterranean flowing stream, the State Board issues water rights permits for diversion and extraction of water from the basin. The San Juan Basin Authority (SJBA) conducts the monitoring activities that are needed to comply with its permits and also pursues the development of projects within the basin. <http://www.sjbaauthority.com/about/> (accessed 12/23/15)

#### **1.4 Complementary Scientific Review Panel**

It should be noted that source water quality studies for injection alternatives and regulatory requirements for recycled water will be concurrently reviewed by another Scientific Review Panel under a project titled “San Juan Basin Groundwater and Desalinization Optimization Program” (MWD Agreement No. 139835).

As these two Panel review processes will overlap and pertain to each other, Panel members may need to interact. A process will be determined as to how to effectively integrate the two Panels (such as selecting liaisons to attend all Panel meetings, holding a joint-meeting, etc.).

## 2. Description of the Scientific Review Panel

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NWRI will form the Panel to provide expert peer review of the study on “Overcoming Barriers to Slant Well Seawater Desalination: Siting, Groundwater, Water Quality, and Treatment.” The Panel will meet three times in person with MWDOC and the project team. At the conclusion of each meeting, the Panel will prepare a report summarizing the Panel’s findings and recommendations based on the discussions and outcomes of the meeting. Panel members and NWRI staff will be available for project-related meetings and/or workshops.

### 2.1 Panel Charge

Specifically, MWDOC has asked that the Panel review focus on groundwater modeling to investigate the effectiveness of extraction barriers to provide groundwater protection, sustainable production rates, and projected water quality, particularly the marine geochemistry/chemistry background and what will happen to the existing marine groundwater when it is replaced with ocean water (i.e., Will it stay anoxic? Will more Fe/Mn be leached into the recharging water? What will be the conditions at steady state?).

Areas of review may include:

- Model design (i.e., selected modules for the modeling analysis).
- Model calibration.
- Geochemical model design.
- Determination of Phase 3 pumping data for splits between ocean water and old marine groundwater (of ocean origin).
- Adequacy of the model to estimate or bracket time intervals for pumping out old marine groundwater.
- Evaluation of seawater intrusion control efficacy.
- Evaluation of drawdown impacts on coastal lagoons.
- Evaluation of steady-state pumped water quality using Phase 3 information and new, refined models.
- Estimation of steady-state ferro-manganese (Fe/Mn) concentrations and the need for treatment.

Specifically, MWDOC would like guidance from the Panel on the following:

- Validation of groundwater model design or recommendations for refinement.
- How well do we think the modeling work has developed a reasonable bracket for the time to pump out the old marine groundwater?
- How good is the geochemical module, or what additional type of work is needed to improve its predictability?
- What is the efficacy of the seawater protection barrier provided by the slant well pumping?



- What additional hydrogeology data is required for the project design to ascertain ocean recharge (seafloor permeability data, ocean corings, etc.) and to better evaluate coastal lagoon drawdown impacts?
- What are the potential impacts of recycled water percolation upstream to the project treatment process?

## 2.2. Proposed Panel Members

Included in this section is a list of proposed Panel members and their short biographies. The Panel will be guided by a Chair, who will be involved in facilitating the meetings and overseeing the preparation of Panel reports.

### 2.2.1 List of Proposed Panel Members

Four potential Panel members have been identified in Table 1. Members of the Panel will have expertise in a range of disciplines relevant to the review of the study, such as hydrogeology, groundwater modeling, geochemistry, chemical oceanography, and treatment technologies, among other. After receiving input and feedback from MWDOC, NWRI will develop a final list of Panel members.

**Table 1. Proposed Panel Members and Their Disciplines**

Name	Affiliation	Discipline
M. Lee Davisson, P.G.	ML Davisson & Associates, Inc and Lawrence Livermore National Laboratory	Geochemistry
Scott Fendorf, Ph.D.	Stanford University	Soil and Environmental Biogeochemistry
Martin Feeney, P.G., CHG	Consulting Hydrogeologist	Hydrogeology and well design
Thomas Missimer, Ph.D., P.G.	Missimer Hydrological Services, Inc. and Florida Gulf Coast University	Hydrogeology, well design, and artificial recharge/aquifer storage and recovery
Gordon Thrupp , PhD, PG, CHG	Geosyntec	Groundwater modeling in coastal stream and ocean systems

### 2.2.2 Short Biographies of the Proposed Panel Members

Included below are short biographies of the individuals who have been proposed as Panel members (see Table 1). The biographies are listed below.

- **M. Lee Davisson, P.G., Research Geochemist, ML Davisson & Associates, Inc. (Livermore, CA).** Lee Davisson is a water resource and water quality consultant. He has also been with the Lawrence Livermore National Laboratory since 1992, and currently serves as a Research Geochemist for the Chemical Science Division. In this capacity, he supports Department of Energy and Department of Homeland Security programs, and has been involved in activities such as planning operations and training scientists for a water quality analytical laboratory in Libya, providing training for water quality analysis and environmental contamination characterization and clean-up for scientists in Iraq, and developing transport and exposure models of chemical weapons

releases to mitigate impacts. He has also served as a subcontractor to the Department of Water Resources Water Quality Investigations Group, and assisted the Orange County Water District in the finalization of water quality documents used in the environmental impact report for the Groundwater Replenishment System. Davisson received a B.S. in Geology and M.S. in Isotope Geochemistry from the University of California, Davis.

- **Scott Fendorf, Ph.D., Stanford University (Stanford, CA).** Dr. Fendorf is Huffington Family Professor in Earth Sciences at Stanford University. His research interests include chemical and biological processes that govern the fate and transport (and thus cycling) of contaminants (such as arsenic) and nutrients (such as phosphate) within soils, sediments, and surface waters. His research group examines the chemical environments that develop as a result of both biotic and abiotic processes, and we strive to account for the physical complexity, inclusive of solute transport, within natural settings. Our particular emphasis is on reactions that change the oxidation state (redox reactions) and associated speciation of contaminants and nutrients, or solids that control their partitioning, within soils and sediments. He has taught a range of courses on soils and soil processes that encompass their rates of development, unique features for plant growth, ability to filter contaminants, management for sustained agricultural productivity, and their sensitivity to human disturbance.
- **Martin B. Feeney, P.G., CHG, Consulting Hydrogeologist (Santa Barbara, California).** Martin Feeney has been a consulting hydrogeologist since 1997, providing hydrogeologic consulting services to water agencies, private industry, and engineering firms. Prior to this, he served as hydrogeologist at various consulting firms such as Balanced Hydrologics, Inc. and Fugro West, Inc., where he provided analysis of groundwater basins, developed groundwater flow and transport, and developed saline groundwater source for desalination plants, injection wells/artificial recharge programs, and underground storage tank site assessment and remediation. He has also been involved in numerous groundwater resources and water well projects throughout California, working for groups such as Monterey County, Salinas Valley, Santa Clara Valley Water District, Ventura County, and various others. Feeney received a B.S. in Earth Sciences from the University of California, Santa Cruz and an M.S. in Environmental Planning (Groundwater) from California State University.
- **Thomas Missimer, Ph.D., P.G., Missimer Hydrological Services, Inc., and Florida Gulf Coast University (Fort Myers, FL).** Thomas Missimer has more than 40 years of experience in the field of hydrogeology and is a recognized expert in artificial recharge and aquifer storage and recovery. He has managed more than 250 technical projects and is the author of nine books, 80 peer-reviewed articles, and 300 technical consulting reports. He is an editor of a newly released book on SWRO intakes and outfall published by Springer. He currently serves as Executive Editor of *Groundwater*, a technical journal for groundwater hydrogeologists. Missimer co-founded the consulting firm Missimer & Associates, Inc., and helped grow the company's revenues to exceed \$25 million per year. After that, he founded another company that was purchased by CDM and was Vice President and national practice leader in artificial recharge/aquifer storage and recovery technology for CDM. He currently holds a courtesy faculty appointment at Florida Gulf

Coast University. Missimer's education includes degrees in Geology from Franklin and Marshall College (BA), Florida State University (MS), and University of Miami (PhD). He is a registered Professional Geologist in the states of Florida, Georgia, and Virginia, and holds certifications from the American Institute of Professional Geologists and the National Groundwater Association. He was a past member on a science advisory panel co-convened by the California Coastal Commission and Poseidon Resources that evaluated the technical feasibility of subsurface intakes at Huntington Beach, California (Phase 1) and is currently on a follow-up panel on the same site (Phase 2).

- **Gordon Thrupp, PhD, PG, CHG (San Francisco, CA).** Dr. Thrupp is a senior hydrogeologist based in northern California with more than 25 years of experience evaluating geological and hydrogeological conditions. He has focused on quantitative analysis of flow of groundwater and soil-gas. He has developed groundwater flow models as tools for assessing water resources, engineering design alternatives, and remedial options for numerous projects throughout the United States. Additionally, Dr. Thrupp has conducted testing for design and performance assessments of numerous soil vapor extraction systems. Considered a leading groundwater modeler, Dr. Thrupp has applied models to conduct water resource evaluations; evaluate the hydraulic connection between surface water and groundwater; investigate the potential for contaminant migration and sea water intrusion; evaluate hydraulic containment alternatives; locate and design municipal supply wells; design sewage and groundwater infiltration basins; assess impact of open-pit mines on groundwater systems; and predict seepage rates into excavations for dewatering feasibility studies. He has consulted on a number of assignments involving groundwater resources evaluations, sea water intrusion, and groundwater production. Dr. Thrupp has conducted water needs assessments and characterized hydrogeologic regimes, and evaluated potential groundwater mounding associated with operation of infiltration basins. He has overseen the design and installation of groundwater extraction wells at depths of up to 550 feet; evaluated potential groundwater mounding associated with infiltration basins, and developed and refined groundwater models to evaluate remediation alternatives for containment of chlorinated solvents and perchlorate impacts to groundwater.

### 2.2.3 Panel Chair

The Panel will be led a Chair, who will be involved in the following activities:

- Developing meeting materials.
- Facilitating meetings.
- Facilitating preparation of the reports.
- Engaging in additional project activities or meetings with MWDOC and project team members.

### 3. Panel Review Process

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The Panel process will be designed to provide a consistent, thorough, and transparent review of the study on “Overcoming Barriers to Slant Well Seawater Desalination: Siting, Groundwater, Water Quality, and Treatment.” The following tasks are included in the review process:

#### *Task 1: Assemble the Panel*

As soon as feasible, NWRI will work with MWDOC to finalize the Panel members listed in Section 3. This collaborative process will include:

- Select the Chair based on overall expertise and leadership.
- Finalize the list of candidates based on experience and recommendations (including recommendations from the Chair) to be reviewed by MWDOC.
- Determine the availability and commitment of candidates.
- Compile resumes of candidates and submit to MWDOC for review.
- Finalize the selection of Panel members.

#### *Task 2: Develop the Scope of the Review*

NWRI will work with MWDOC and the Panel Chair to develop a scope and approach for the review of the study. This collaborative process will include:

- Gather background materials relevant to developing the Panel scope and approach for the Panel review.
- Meet in-person or over the phone to discuss the Panel process, charge, objectives, and possible outcomes.
- Develop the scope.
- Distribute the scope document to the Panel, along with relevant background materials.

#### *Task 3: Plan, Schedule, and Facilitate Panel Meetings*

Two (2) in-person Panel meetings will be held as part of this review process. The Panel will produce a report after each meeting. The meeting agendas will include presentations on relevant topics, as well as discussions with MWDOC, and the project team. In addition, representatives of local and state agencies with interest in study may be invited to attend these meetings.

##### *Task 3(a): Provide Background Materials to the Panel*

NWRI will work with MWDOC and the project team to compile and provide background materials for Panel members to review prior to each planned meeting. This process will include:

- Collect appropriate background materials relevant to the study. Background materials may be developed by MWDOC and/or the project team.
- Organize materials into binders and/or prepare electronic files (such as PDFs).
- Distribute materials to Panel members through mail or email approximately two (2) weeks prior to each planned Panel meeting to ensure adequate review time.

*Task 3(b): Coordinate Panel Meeting Logistics and Attendance*

In collaboration with MWDOC, NWRI will coordinate logistics for Panel meetings. Specifically, this process will include:

- Coordinating schedules to select meeting dates.
- Holding meetings at MWDOC facilities and/or locations relevant to the study. The venue should have adequate seating and accommodate audio/visual set-up, internet access, and web-enabled conference calls.
- Arranging transportation and lodging at a nearby hotel for out-of-town members of the Panel. *Note: NWRI will coordinate and make payment arrangements for all Panel members' travel and hotel needs.*
- Inviting additional attendees and/or observers, such as local stakeholders, regulators, and others, if needed.
- Managing logistics during the course of the meeting, including meals, audio/visual needs, and web-enabled conference calls.
- Providing supplies for the meeting, such as photocopies, name badges, name tents, writing tablets, pens, and other items.
- Coordinating a site tour of relevant facilities, if needed.

Attendance may be in-person or, if needed, via conference call or web-enabled conference call. Meeting participants may include Panel members, NWRI staff, MWDOC staff, project team members, staff at partnering or nearby agencies, regulators, and others as needed.

*Task 3(c): Develop Meeting Materials*

Meeting materials consist of (a) the agenda, (b) presentations, and (c) supporting documents, as needed. Specifically:

- NWRI and MWDOC will develop an agenda for each meeting in collaboration with the Chair to determine the appropriate topics.
- MWDOC and the project team will prepare presentations addressing topics identified in the agenda. Visual aids, handouts, and other materials used to augment the presentations will be provided to the Panel in advance of or during the meeting.

- Additional materials prepared by the project team and/or reference materials may be assembled, as needed, for the Panel to review.

#### *Task 3(d): Facilitate Panel Meetings*

Panel meetings would be held over a one (1) or two (2) day period. The timing and length of the meeting will vary depending on the scope of the meeting. In terms of responsibilities:

- NWRI, in coordination with the Panel Chair, will administer the meeting. Duties include:
  - Room set up
  - Welcome and introduction
  - Overview of the Panel process
  - Attendance (recorded on attendance sheet)
  - Note taking/meeting minutes
  - Administering logistics for Panel members (air travel, local transportation, hotel reservations, meals, etc.)
  - Administrative support (photocopying, etc.)
  - Report development, editing, formatting, etc.
  - Other meeting facilitation services, as needed.
- The Panel Chair will serve as the meeting moderator. Duties will include adhering to the agenda schedule, facilitating questions and answers, and preparing an outline for the follow-up Panel report.
- MWDOC and the project team will prepare presentations relevant to the study.

#### *Task 4: Prepare Panel Reports*

After each meeting, NWRI and the Panel Chair will facilitate the preparation of a Panel report summarizing the Panel's findings and recommendations based on the discussions and outcomes of the meeting. Notably, the Panel will consider relevant findings by concurrent efforts, if any, to develop the most informed recommendations. The report process includes:

- The Panel prepares a rough draft of the report outline at the meeting.
- NWRI and the Panel Chair develop a first rough draft of the report.
- Panel members review the draft and submit edits and comments.
- The Panel Chair modifies the report based on Panel comments and provides a draft final report to the Panel for approval.
- NWRI provides the approved draft final report to MWDOC for review prior to finalization. The purpose is to eliminate any unintended inconsistencies and errors, or to request clarification; the findings and recommendations of the Panel are not intended to be negotiated to ensure that the Panel maintains its independence and credibility.

- MWDOC provides comments, which the Panel will need to address prior to finalizing the report. If there are no comments from MWDOC, the report will be finalized immediately
- Depending upon scheduling, it may take several weeks to finalize the report. Reports are typically completed within three weeks of the meeting.



## 4. Deliverables

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The Panel process is designed to provide a consistent, thorough, and transparent review of project. As part of this process, the following deliverables will be provided by NWRI to address the tasks listed in Section 4:

### *Deliverable 1: Panel Member Proposal*

This deliverable will address “Task 1: Assemble Scientific Review Panel.” As soon as feasible, NWRI will finalize the Panel members. Background information about each candidate will be provided to assist in the selection process.

### *Deliverable 2: Panel Scope Document*

This deliverable will address “Task 2: Develop Panel Scope.” NWRI will work with MWDOC to develop a scope describing the Panel’s charge, objectives, and approach for the review.

### *Deliverable 3: Panel Meeting Materials and Facilitation*

This deliverable will address “Task 3: Plan, Schedule, and Facilitate Panel Meetings.”

#### *Deliverable 3.1: Meeting Materials*

NWRI, in collaboration with MWDOC and the Panel Chair, will develop and provide background materials, agendas, handouts, and other resources for each meeting.

#### *Deliverable 3.2: Meeting Facilitation*

NWRI, in collaboration with MWDOC, will coordinate meeting logistics. NWRI will administer the meetings, and the Chair will serve as the meeting facilitator.

### *Deliverable 4: Panel Reports*

These deliverables will address “Task 4: Prepare Panel Reports.” After each meeting, NWRI and the Panel Chair will facilitate the preparation of a Panel report summarizing the Panel’s findings and recommendations based on the discussions and outcomes of the meeting. NWRI will provide a draft version of the report to MWDOC to review prior to being finalized to eliminate any unintended inconsistencies/errors or request clarification. Depending upon scheduling, the report may take 2-3 weeks to finalize.

## 5. Schedule

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A proposed schedule for the study review effort is provided in Table 2. The first meeting may be scheduled immediately after the notice to proceed.

**Table 2. Proposed Schedule for the Contracted Tasks**

<b>Task</b>	<b>Description</b>	<b>Schedule</b>
1	Assemble Panel	Within 2 weeks after notice to proceed
2	Develop Panel Scope	Within 1 month after notice to proceed
3	Plan, Schedule, and Facilitate Panel Meetings (Repeat for each of the two panel meetings)	
3(a)	Provide Background Material to Panel Members	Approximately 2 weeks before each meeting
3(b)	Coordinate Panel Meeting Logistics	First meeting: within 4 weeks of notice to proceed Second meeting: within 4 weeks of March 2016 panel meeting
3(c)	Develop Panel Meeting Materials	One week prior to Panel meetings
3(d)	Facilitate Panel Meetings	First meeting: within 4 weeks of notice to proceed Second meeting: March 2016
4	Prepare Panel Reports	Within 2-3 weeks after each meeting

## 6. Budget

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NWRI proposes a budget of \$43,992.40 for this Panel review process. This cost reflects two (2) in-person meetings of a five-member Panel. The cost breakdown is attached.

The budget represents the following:

NWRI staff and Panel members' time to prepare for and attend meetings, develop reports, and participate in additional project activities, such as attending board meetings or participating in teleconference calls (if needed). These costs are based on the following assumptions:

- Panel members will be paid honoraria of \$750 per day (these honoraria are intended to cover preparation for and attendance at meetings, pre-meeting reviews, and post-meeting report development).
- Up to four NWRI staff members, as needed, will work on this effort. For example, typically, two NWRI staff members attend these meetings.

Logistical expenses for meetings are based on the following assumptions:

- No cost for meeting space or audio/visual, as the Panel will meet at MWDOC facilities.
- Two NWRI staff member(s) needed onsite during meetings.
- Miscellaneous meeting expenses and other costs related to administering the Panel.

Other expenses include:

- Conference calls, as needed.
- Copying and printing.
- Supplies (e.g., table tent cards, binders, etc.).
- Mailing/shipping.

## **7. Background of the Firm**

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### **7.1 Description of NWRI**

For more than 20 years, NWRI – a science-based 501c3 nonprofit located in Fountain Valley, California – has sponsored projects and programs to improve water quality, protect public health and the environment, and create safe, new sources of water. NWRI specializes in working with researchers across the country, such as laboratories at universities and water agencies, and are guided by a Research Advisory Board (representing national expertise in water, wastewater, and water reuse) and a six-member Board of Directors (representing water and wastewater agencies in Southern California).

Through NWRI's research program, NWRI supports multi-disciplinary research projects with partners and collaborators that pertain to treatment and monitoring, water quality assessment, knowledge management, and exploratory research. Altogether, NWRI's research program has produced over 300 publications and conference presentations.

NWRI also promotes better science and technology through extensive outreach and educational activities, which includes facilitating workshops and conferences and publishing White Papers, guidance manuals, and other informational material.

More information on NWRI can be found online at [www.nwri-usa.org](http://www.nwri-usa.org).

### **7.2 Description of the Panel Program**

NWRI also specializes in facilitating Independent Advisory Panels on behalf of water and wastewater utilities, as well as local, county, and state government agencies, to provide credible, objective review of scientific studies and projects in the water industry. NWRI Panels consist of academics, industry professionals, government representatives, and independent consultants who are experts in their fields.

The NWRI Panel process provides numerous benefits, including:

- Third-party review and evaluation.
- Scientific and technical advice by leading experts.
- Assistance with challenging scientific questions and regulatory requirements.
- Validation of proposed project objectives.
- Increased credibility with stakeholders and the public.
- Support of sound public-policy decisions.

NWRI has extensive experience in developing, coordinating, facilitating, and managing expert Panels. Efforts include:

- Selecting individuals with the appropriate expertise, background, credibility, and level of commitment to serve as Panel members.

- Facilitating hands-on Panel meetings held at the project's site or location.
- Providing written report(s) prepared by the Panel that focus on findings and comments of various technical, scientific, and public health aspects of the project or study.

For more than 15 years, NWRI has coordinated the efforts of more than 40 individual Panels for water and wastewater utilities, city and state agencies, and consulting firms. Many of these Panels have dealt with projects or policies involving groundwater replenishment and potable (indirect and direct) reuse. Specifically, these Panels have provided peer review of a wide range of scientific and technical areas related water quality and monitoring, constituents of emerging concern, treatment technologies and operations, public health, hydrogeology, water reuse criteria and regulatory requirements, and outreach, among others.

### 7.3 NWRI Staff

NWRI is experienced in planning and facilitating Panel efforts and meetings. On average, NWRI facilitates 10 to 12 Panel meetings per year.

In cooperation with MWDOC, NWRI staff will be responsible for identifying Panel members, planning meetings/ logistics, preparing meeting agendas, facilitating presentations, inviting outside speakers (if needed), developing and editing reports, and related activities. NWRI also will prepare, print, and disseminate meeting materials. The names, titles, and responsibilities of NWRI staff are included in Table 4.

**Table 4. NWRI Staff Members and Duties, as Pertaining to the Panel Program**

Name	Title	Duties
Jeff Mosher	Executive Director	Provides overall project management for all Panel efforts. Organizes and plans Panel activities.
Brandi Caskey	Administrative Manager	Assists Panel members with travel arrangements. Coordinates with meeting venue to provide A/V services, meals, and other event-related services. Tracks finances.
Gina Melin Vartanian	Communications and Outreach Manager	In coordination with Panel Chair, prepares reports based on Panel meetings.
Suzanne Faubl	Water Resources Scientist	Coordinates with Panel on administrative tasks.

#### 7.3.1 Staff Biographies

Brief biographies for NWRI staff are provided below:

**Jeff Mosher, Executive Director, NWRI.** Mr. Mosher is an accomplished and experienced water professional and executive manager with a broad background in the operational management of non-profit organizations and private sector firms. He has an extensive background in association and research foundation management. He is experienced in project management, strategic planning, and conference and meeting planning. He has demonstrated ability to plan, direct, and manage the operations and staff on multifaceted programs. He previously was the Director of Technical Services for the WateReuse Association and the Direction of Research Programs for the WateReuse Foundation. He also was the Director of Technical Services for the Association of Metropolitan Water Agencies (AMWA). Mr. Mosher is the Administrative Director for the Southern California Salinity Coalition. He serves on the Board of Directors for the American Membrane Technology Association (AMTA) and the Multi-State Salinity Coalition. He served on the Board of Directors for the Southwest Membrane Operators Association (SWMOA) from 2006-2008. Mr. Mosher has B.S. in chemistry from the College of William and Mary and a M.S. in Environmental Engineering from the George Washington University.

**Brandi Caskey, Administrative Manager, NWRI.** Mrs. Caskey is responsible for coordinating and planning events, as well as managing research projects, accounting, and office administration for NWRI. She received a BA in Liberal Studies from the California State University Long Beach, Long Beach, CA

**Gina Melin Vartanian, Communications and Outreach Manager, NWRI.** Mrs. Vartanian has served as editor, writer, and project manager for NWRI since 1998, focusing on publications, website development, grants, and national awards such as the NWRI Athalie Richardson Irvine Clarke Prize and NWRI Fellowship. She received a B.A. in English Literature and an M.P.W. (Masters of Professional Writing) from the University of Southern California.

**Suzanne Faubl, Water Resources Scientist and Project manager, NWRI.** Ms. Faubl is a water resources scientist at NWRI. Suzanne completed her graduate studies in earth and hydrologic science at the University of Rhode Island. Previously she worked as a water resources specialist and data analyst for an environmental consulting firm, where she focused on coastal water resources projects related to stormwater management, salt marsh restoration, and innovative groundwater remediation techniques.

### **7.3.2 Staff Resumes**

Resumes for NWRI are included in the following pages.

**Jeffrey J. Mosher**  
Executive Director  
National Water Research Institute  
18700 Ward Street  
Fountain Valley, CA 92708  
714-378-3278 / [jmosher@nwri-usa.org](mailto:jmosher@nwri-usa.org)

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#### **SUMMARY:**

- Highly accomplished and experienced water professional and executive manager with a broad background in the operational management of non-profit organizations and private sector firms.
- Broad and extensive background in association and research foundation management including executive management, board support, project management, strategic planning, membership services and development, conference and meeting planning, fundraising, and publications.
- Demonstrated ability to plan, direct, and manage the operations and staff on multifaceted programs. Accomplished administrator with extensive executive and project management experience for multi-million dollar programs.
- Skilled executive manager, capable of building, leading, and mentoring a dedicated staff.
- Proven ability to provide regulatory, legislative, technical, and policy support on a programmatic basis.
- Effective executive manager of financial resources including revenue streams, expenses, and budgeting processes. Demonstrated fundraising experience for association and research foundation through grants, federal and state agency cooperative agreements, and partnerships.
- Strong leadership, communication, and interpersonal skills. Ability to build and maintain organizational relationships and partnerships on a national basis.

#### **PROFESSIONAL EXPERIENCE:**

<b>2005-Present</b>	<b>National Water Research Institute (Fountain Valley, CA)</b>
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<i>Executive Director</i>	
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Provides the leadership, direction, and vision for achieving non-profit institute's goals and objectives. Responsible for developing priorities for organization, creating and implementing strategic plans, and coordinating programmatic initiatives in the water industry.

Provides executive management in developing program, organizational, and financial plans with the Board of Directors and staff, and implements plans and policies authorized by the board. Oversees staff and acts as the primary spokesperson for the organization, leads fund development efforts, and administers the organization.

Manages contractual obligations, administration, and finances. Responsible for developing and maintaining sound financial practices. Represents the organization before policymakers, stakeholders, the public, and the news media.

**Key Achievements:**

- Lead strategic planning process resulting in strategic objectives and targeted goals.
- Developed effective partnerships with other industry organizations.
- Restructured financial accounting and reporting to support Board review.
- Instituted grant program to increase revenues.

<b>2002 to 2005</b>	<b>WaterReuse Foundation and WaterReuse Association (Alexandria, VA)</b>
<i>Director of Research Programs (Foundation)</i>	<p>Directed a \$3-million a year research program dedicated to conducting applied research in the areas of water reuse and desalination. Responsible for all aspects of research program including research agenda, project management, and oversight of budgetary, administrative, and contractual matters. Managed project manager staff.</p> <p>Provided board support and managed volunteer efforts including project advisory committees and Research Advisory Committee of national experts. Managed the publication of research reports and the planning of conferences and workshops.</p>
<i>Director of Technical Services (Association)</i>	<p>Directed membership-driven initiatives for association. Provided strategic planning and technical support to board members, officers, and committees on association activities and programs. Planned and implemented the development of technical services, publications, newsletters, and website.</p> <p>Supported all aspects of membership activities including volunteer committees, conferences, and related functions. Tracked regulatory, legislative, and industry issues.</p>
	<p><b>Key Achievements:</b></p> <ul style="list-style-type: none"> <li>• Grew research program from 8 projects and \$1.1 million to 45 projects and over \$5 million in two years.</li> <li>• Directed the development of a comprehensive Research Plan to guide research program activities.</li> <li>• Organized national and international research needs workshops to identify research partnership opportunities.</li> </ul>
<b>1999 to 2002</b>	<b>Association of Metropolitan Water Agencies (Washington, DC)</b>
<i>Director of Technical Services</i>	<p>Directed technical support for association of large municipally-owned drinking water systems. Managed technical efforts on federal government and Congressional water initiatives including regulatory, legislative, and policy matters. Represented member interests on Capitol Hill and with federal agencies. Provided strategic planning support.</p> <p>Organized and implemented coalition building activities with industry associations and groups. Supported association conference activities. Involved in membership services including planning and developing newsletters, bulletins, and websites.</p>
	<p><b>Key Achievements:</b></p> <ul style="list-style-type: none"> <li>• Established and coordinated a national advisory committee on water utility security.</li> <li>• Wrote testimony and coached water utility executive for Congressional committee appearance on water security research legislation.</li> <li>• Planned and implemented submittal of successful \$500,000 grant proposal to U.S. EPA for water security information sharing project.</li> </ul>
<b>1996 to 1999</b>	<b>Science Applications International Corp. – SAIC (McLean, VA)</b>
<i>Senior Project Manager</i>	<p>Directed multi-year, multi-million dollar federal contract with U.S. EPA's Office of Water. Responsible for overall project and contract management, client interaction, strategic analysis, marketing, and financial management and reporting. Managed projects involving engineering and technical support, policy and regulatory analysis, and outreach activities including training and development of guidance.</p> <p>Responsible for staffing, subcontractors, budgets, and schedule. Planned and administered business development activities for technical area.</p>



**Key Achievements:**

- Independently developed and implemented plan to address aggressive client schedule to meet Congressionally-defined national regulatory development goals.
- Successfully recruited, trained, and managed project staff including technical and contract personnel for new business area.

**1990 to 1996**

**Cadmus Environmental Consultants/WMA (Arlington, VA)**

*Senior  
Environmental  
Engineer and  
Project Manager*

Directed multi-year, multi-million dollar federal government contracts providing scientific, technical, and regulatory support services to U.S. EPA's Office of Water. Responsible for staffing, financial reporting, quality control, and overall project management.

Managed multiple projects encompassing broad technical areas including: human risk assessments; chemical and microbial occurrence in water; fate and transport of contaminants; water treatment technology evaluations; and cost and benefit analyses. Experienced analyst in evaluating regulatory and policy options.

**Key Achievements:**

- Managed successful proposal development team resulting in 3-year, \$3 million federal contract for new company client.
- Initiated and launched contract start-up, staffing, and management plans for new federal contract.
- Successfully managed high-visibility, multi-faceted, multi-disciplined federal projects.

**1987 to 1990**

**Milliken & Co. (Spartanburg, SC)**

*Technical  
Support and  
Production  
Manager*

Provided technical support and production management for fabric dyeing and finishing manufacturing facility. Responsible for process design/improvement, quality performance, statistical quality control, and product development.

**Key Achievements:**

- Directed facility efforts in company-wide quality improvement project resulting in the award of the 1989 Malcolm Baldrige National Quality Award.

**EDUCATION:**

M.S. Environmental Engineering, The George Washington University (May 1996)  
B.S. Chemistry, The College of William and Mary (May 1985)

**SELECTED ASSOCIATIONS:**

American Water Works Association  
Water Environment Federation  
American Society of Association Executives

**CURRENT BOARD POSITIONS:**

Multi-State Salinity Coalition, Director (2005 to Present)  
Southwest Membrane Operator Association, Director (2006 to Present)

**PRESENTATIONS AND PUBLICATIONS:**

Active speaker at water industry conferences over the past 5 years, including keynote presentations.

**Brandi Caskey**  
Administrative and Events Manager  
National Water Research Institute  
18700 Ward Street  
Fountain Valley, CA 92708  
714-378-3278 / [bcaskey@nwri-usa.org](mailto:bcaskey@nwri-usa.org)

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#### **SUMMARY:**

- Highly efficient event planner with 14 years experience in organizing and executing meetings, workshops, trainings, and conferences nationally and internationally.
- Experienced in managing project teams to ensure high-quality, on-target, focused events for non-profit and public sector clients, including fortune 500 companies such as WellPoint, Amgen, Southern California Edison, Herbalife, and the American Red Cross.
- Broad experience in multiple industries, planning events in the fields of sales, professional development, research, business development, safety, and policy.
- Strong project management background with the ability to manage multiple initiatives at once from planning to execution, delivering results on-time and under budget.
- Experienced in working with multiple meeting platforms, including online and on-site.

#### **EDUCATION:**

B.A. Liberal Studies, University of California, Long Beach (Dec. 2002)

#### **PROFESSIONAL EXPERIENCE:**

<b>2013-Present</b>	<b>National Water Research Institute (Fountain Valley, CA)</b>
<i>Administrative and Events Manager</i>	<p>Manages dozens of events per year nationwide, including small research consortiums, workshops for 50-100 participants, and conferences for 150+ attendees.</p> <p>Responsible for all planning aspects of events, including contracts, budgets, logistics, travel, and financial reporting.</p> <p>Organizes and plans for the organization's participation in outreach efforts, including fairs, festivals, and student and community education.</p> <p>Manages the organization's finances, including accounts payable and receivable.</p> <p>Maintains the organization's human resources records, and regularly reviews and updates policy and procedures to ensure efficiency within the organization.</p>
<b>2011-2012</b>	<b>Herbalife International (Torrance, CA)</b>
<i>Manager of World Wide Education</i>	<p>Responsible for training workshops and conferences in local markets around the world.</p>

**Gina Melin Vartanian**  
Communications and Outreach Manager  
National Water Research Institute  
18700 Ward Street  
Fountain Valley, CA 92708  
714-378-3278 / [gmelin@nwri-usa.org](mailto:gmelin@nwri-usa.org)

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#### **SUMMARY:**

- Highly accomplished and skilled writer with the ability to translate scientific and technical information into written materials accessible to the general public. Major efforts include grant writing, promotional brochures/flyers, press releases, newsletters, website content, and guidance manuals.
- Experienced editor with excellent proofreading, copy editing, and technical editing skills, and a demonstrated ability to act as liaison between authors, peer reviewers, and design team. Major efforts include panel reports, research project reports, white papers, conference proceedings, lectures, and textbooks.
- Broad background in art and graphic design. Capable of designing and managing the design of artwork for publications, promotional materials, products, or websites.
- Proven ability to develop, coordinate, and manage long-term programs involving multi-agency partners, such as overseeing program committees; organizing, preparing, and running activities; recruiting presenters/support staff; preparing and distributing promotional material; and acquiring funding support.

#### **EDUCATION:**

B.A. English, University of Southern California (Dec. 1997), cum laude  
M.A. Professional Writing, University of Southern California (Dec. 2001)

#### **PROFESSIONAL EXPERIENCE:**

##### **1998-Present      National Water Research Institute (Fountain Valley, CA)**

*Communications and Outreach Manager*      Writes, edits, proofreads, and designs numerous publications and promotional material for the non-profit institute and two other organizations that it manages, the Southern California Salinity Coalition and Utility Branding Network.

Develops website content, and attends workshops and meetings to help prepare group reports, and provide transcripts and/or summaries of meeting discussions.

Manages outreach and educational programs, including the Graduate Fellowship Program, Clarke Prize Program, and O.C. Water Camp Awareness Program.

Supervises student interns to assist with communications and outreach.

##### **Key Achievements:**

- Edited and published over 20 reports/papers and over 12 conference proceedings/extended abstracts.
- Directed the development and establishment of a children's water awareness program in Orange County, CA, with 20 community partners.

**Suzanne Faubl**  
Water Resources Scientist  
National Water Research Institute  
18700 Ward Street  
Fountain Valley, CA 92708  
714-378-3278 / [sfaubl@nwri-usa.org](mailto:sfaubl@nwri-usa.org)

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#### **SUMMARY:**

- Water resources professional with experience in nonprofit and education administration.
- Skilled technical writer and editor with track record of successful outreach campaigns related to water quality, community events, and educational programs.
- Experienced field scientist with knowledge of surface and groundwater monitoring processes.

#### **EDUCATION:**

M.E.S.M. Earth and Hydrologic Science, University of Rhode Island (2011)  
M.S. Technical and Science Communication, Drexel University (1997)  
B.S. Chemistry, The College of New Jersey (1995)

#### **PROFESSIONAL EXPERIENCE:**

##### **2014-Present**

*Water Resources  
Scientist and  
Project Manager*

##### **National Water Research Institute (Fountain Valley, CA)**

Investigates opportunities to work with service providers, government agencies, nonprofits and nongovernment organizations on projects that protect and enhance water supplies. Manages communication with member agencies and corporate associate partners. Assists executive director in providing oversight and administrative support to work groups of water science and policy experts.

##### **2012 to 2014**

*Environmental  
Scientist*

##### **Hart Crowser, Inc. (Seattle, WA)**

Contributed to water resource assessment, monitoring, and remediation projects. Evaluated groundwater, surface water, and soil characteristics and collected samples for chemical analysis. Managed a long-term stormwater monitoring project at a Superfund site on the Lower Duwamish Waterway. Performed research related to geohydrological monitoring protocols and engineering controls.

##### **2012**

*Water Quality  
Program Web  
Editor*

##### **Washington State University Cooperative Extension (Shelton, WA)**

Edited water quality web pages and generated social media content for Mason County and Thurston County Washington State University Cooperative Extension program. Coordinated with county extension officers to promote community events related to protection of coastal and inland water resources.

##### **2010-2011**

*Water Quality  
Outreach  
Specialist and  
Web/Technical  
Document Editor*

##### **University of Rhode Island Cooperative Extension, National Water Program, and Northeast States & Caribbean Islands Regional Water Center (Kingston, RI)**

Managed outreach for 2011 Northeast Private Well Symposium, a biannual regional conference focusing on technical and policy issues related to private drinking water supplies, and maintained select web pages of the National and Northeast Regional Water Quality Programs. Wrote press releases and distributed to appropriate news outlets. Generated content for web pages and social media. Identified target audiences and recruited faculty and student participants. Wrote and edited technical publications including conference abstracts, posters, and reports. Maintained conference abstract submissions and archived all conference proceedings online.

# NATIONAL WATER RESEARCH INSTITUTE

## Independent Advisory Panel for: Study on Overcoming Barriers to Slant Well Seawater Desalination: Siting, Groundwater, Water Quality, and Treatment

Total -- Budget  
January 12, 2016

### Program Expenses

#### 1. Assumptions

Number of Full Panel Mtgs	2
Number of Panel Members	5

#### 2. NWRI Labor

NWRI Salary & Benefits	Hourly Rate	No. of Hours	
Executive Director	\$ 130.00	30.00	\$ 3,900.00
Program and Events Manager	\$ 55.00	20.00	\$ 1,100.00
Communications and Outreach Manager	\$ 65.00	50.00	\$ 3,250.00
Water Resources Manager	\$ 55.00	20.00	\$ 1,100.00

#### 3. Other Direct Costs (ODCs)

Meeting, Logistics (Room, Meals, Audio Visual, etc.)	No. of Individuals	No. of Days	
Meeting Room			\$ -
Food & Beverage (\$75 per day)	10	3	\$ 2,250.00
Audio Visual			\$ -

Honorariums (Panel Members)	No. of Panel Members	No. of Days	
Panel Members Preparation (\$750/day)	5	2	\$ 7,500.00
Panel Members at Meeting (\$750/day)	5	2	\$ 7,500.00
Panel Members Post-Meeting (\$750/day)	5	2	\$ 7,500.00

Travel (Airline, Meals, Mileage, etc.)	Number	Cost	
Airline (Panel members and NWRI staff)	6	400	\$ 2,400.00
		No. of Days	
Meals during travel			\$ -
Lodging (\$140 per night)	7	3	\$ 2,940.00
Mileage/Car Rental			\$ -
Misc Expenses			\$ -

Panel Expenses	
Web-enabled conference calls	\$ 400.00
Copying/Printing	\$ 500.00
Mailings	\$ 20.00

Contingency	\$ -
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Subtotal Expenses	\$ 40,360.00
Administrative Fee (9%)	\$ 3,632.40
Total Expenses	\$ 43,992.40

# **National Water Research Institute**

## **Scientific Review Panel to Review:**

### **San Juan Basin Groundwater and Desalination Optimization Program**

#### ***Prepared for:***

Municipal Water District of Orange County  
18700 Ward Street  
Fountain Valley, CA 92708

and

San Juan Basin Authority  
26111 Antonio Parkway  
Rancho Santa Margarita, CA 92688

#### ***Prepared by:***

National Water Research Institute  
18700 Ward Street  
Fountain Valley, CA 92728  
Phone (714) 378-3278  
[www.nwri-usa.org](http://www.nwri-usa.org)

**January 12, 2015**

## Abstract

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The National Water Research Institute (NWRI), a 501c3 nonprofit based in Fountain Valley, California, is pleased to submit this proposal to the Municipal Water District of Orange County (MWDOC), based in Fountain Valley, California, to form and coordinate the activities of a Scientific Review Panel (“Panel”) to provide scientific and technical review of the project scope and findings of the study titled “San Juan Basin Groundwater and Desalination Optimization Program.” Elements of this program include:

- Groundwater modeling studies for a proposed seawater extraction barrier.
- Hydraulic investigations to increase stormwater recharge.
- Hydraulic investigations to recharge recycled water.
- Adaptive groundwater production management.

The goal of this Panel review is to ensure that the best science and technology are used in the study and that water management decisions are protective of public health and the environment.

The Panel will consist of four (4) individuals with expertise in a range of disciplines relevant to the review of the study, such as hydrogeology, groundwater modeling, water reuse regulations, and advanced treatment technologies, among others. The Panel review will be conducted through two (2) in-person meetings and supplemented by conference calls (if needed). At the conclusion of each in-person meeting, the Panel will prepare a report summarizing the Panel’s findings and recommendations based on the discussions and outcomes of the meeting.

This proposal provides background information on NWRI’s Panel process and details on the proposed approach for the Panel review (including a timeline). The proposed budget for this effort is \$43,104.05.

## 1. Description of the Project

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With funding from the Metropolitan Water District of Southern California (MWD) through Agreement No. 139835, the Municipal Water District of Orange County (MWDOC) has undertaken an effort referred to as “San Juan Basin Groundwater and Desalination Optimization Program.” The purpose is to analyze options for sustainable, long-term use of a small groundwater basin in an impaired watershed, such as adaptive management strategies and expanded recharge of potable water.

### 1.1 Background on the San Juan Basin

The San Juan Basin is a small (26-square mile) groundwater basin in South Orange County with the following attributes:

- Sustains 9,300 acre-feet per year (AFY) of production on average (ranges from 7,700 to about 11,200 AFY).
- Storage capacity of 40,000 acre-feet (AF).
- Groundwater with a total dissolved solid (TDS) concentration of about 2,200 milligrams per liter (mg/L).
- Natural and anthropogenic degradation sources
- High concentrations of iron and manganese.

The near-term production goal of the basin is 11,400 AFY. In its current management scheme, the basin is projected to chronically fail to meet the production needs of local agencies.

The basin is categorized as a subterranean flowing stream, which means the California State Water Resources Control Board issues water rights permits for diversion and extraction of water from the basin. In addition, the San Juan Basin Authority (SJBA) conducts the monitoring activities that are needed to comply with permits and also pursues the development of projects within the basin.<sup>1</sup>

### 1.2 Production Goals for the San Juan Basin

The SJBA developed the “2013 San Juan Basin Groundwater and Facilities Master Plan” to help meet the water management goals. The plan includes a novel approach to increase basin production by 100 percent through the use of a seawater extraction barrier, stormwater recharge, recycled water recharge, and managed groundwater production and treatment.

Specific elements include:

- Conduct groundwater modeling studies for a proposed seawater extraction barrier (to prevent seawater intrusion and provide 24,000 AFY of potable water).

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<sup>1</sup> <http://www.sjbaauthority.com/about/> (accessed 12/23/15)



- Conduct hydraulic investigations to increase stormwater recharge (the increase could range from 500 to 4,000 AFY, depending upon the use of levees or rubber dams).
- Conduct hydraulic investigations to recharge recycled water (to ultimately recharge up to 10,000 AFY).
- Develop adaptive groundwater production management strategies (which may involve groundwater modeling, treatment requirements, underground residence time, and others).

### **1.3 Project Tasks**

For this project, the project team will engage in the following tasks:

- Develop alternatives for the extraction barrier, stormwater recharge, recycled water recharge, and adaptive production management.
- Evaluate the feasibility of these alternatives.
- Develop an implementation plan.
- Prepare a project report.

As part of this effort (and as listed in MWD Agreement No. 139835), NWRI will organize a Scientific Review Panel to provide scientific and technical review of the scope and findings of the project.

### **1.4 Complementary Scientific Review Panel**

It should be noted that groundwater modeling specific to the San Juan Basin will be concurrently reviewed by another Scientific Review Panel under a project titled “Overcoming Barriers to Slant Well Seawater Desalination: Siting, Groundwater, Water Quality, and Treatment” (MWD Agreement No. 139834).

As these two Panel review processes will overlap and pertain to each other, Panel members may need to interact. A process will be determined as to how to effectively integrate the two Panels (such as selecting liaisons to attend all Panel meetings, holding a joint-meeting, etc.).

## 2. Description of the Scientific Review Panel

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NWRI will form the Panel to provide expert peer review of the scope and findings of the San Juan Basin Groundwater and Desalination Optimization Program.” The Panel will meet three times in person with MWDOC and the project team. At the conclusion of each meeting, the Panel will prepare a report summarizing the Panel’s findings and recommendations based on the discussions and outcomes of the meeting.

In addition, MWDOC and the project team will be able to interact with the Panel outside of scheduled meetings, as needed. Panel members and NWRI staff will also be available for project-related meetings and/or workshops.

### 2.1 Panel Charge

Specifically, MWDOC has asked that the Panel review focus on the permitting and strategy for augmenting the available yield from the San Juan Groundwater Basin, particularly, the use of tertiary treated wastewater for recharging the basin, with emphasis on the treatment coming out of the basin rather than utilizing a high level of treatment going into the basin (the basin already requires desalting and Fe/Mn treatment for potable use).

Areas of review may include:

- Groundwater Model design (i.e., selected modules for the modeling analysis).
- Model calibration.
- Use of a Ranney Well for enhanced extraction purposes
- Use of T-Levees and Rubber Dams for enhanced stormwater capture
- Permitting/Regulatory issues associated with the use of recycled water for groundwater replenishment

Specifically, MWDOC would like guidance from the Panel on the following:

- Impact of the downstream slant wells on the recharge of the groundwater basin (what is the overall steady state relationship between natural recharge, recycled water recharge and the groundwater basin flow at the ocean resulting from the slant wells for ocean water production).
- What is the best approach for the key permitting issues associated with using recycled water for groundwater replenishment?
- If the upstream recharge with recycled water ceases, what is the impact on the slant wells?
- For basin management purposes, at times the basin will be very full and at other times will be substantially drawn down – what are the implications for the seawater barrier and the slant wells at these two extremes?
- What input does the Panel suggest for the overall best collective investment for the groundwater basin?

## 2.2. List of Proposed Panel Members

Four potential Panel members have been identified in Table 1. Members of the Panel will have expertise in a range of disciplines relevant to the review of the study, such as hydrogeology, groundwater modeling, water reuse regulations, and advanced treatment technologies, among others. After receiving input and feedback from MWDOC, NWRI will develop a final list of Panel members.

**Table 1. Proposed Panel Members and Their Disciplines**

<b>Name</b>	<b>Affiliation</b>	<b>Discipline</b>
Martin B. Feeney, P.G., CHG	Consulting Hydrogeologist	Hydrogeology
Jean-François Debroux, Ph.D.	Kennedy/Jenks Consultants	Engineering (advanced treatment technologies)
Robert W. Emerick, Ph.D., P.E.	Consultant	Engineering and regulatory issues
George Tchobanoglous, PH.D., P.E., NAE,	University of California, Davis	Engineering (wastewater and water reuse)

### 2.2.1 Short Biographies of the Proposed Panel Members

Included below are short biographies of the individuals who have been proposed as Panel members (see Table 1). The biographies are listed in alphabetical order by last name.

- Martin B. Feeney, P.G., CHG, Consulting Hydrogeologist (Santa Barbara, California).** Martin Feeney has been a consulting hydrogeologist since 1997, providing hydrogeologic consulting services to water agencies, private industry, and engineering firms. Prior to this, he served as hydrogeologist at various consulting firms such as Balanced Hydrologics, Inc. and Fugro West, Inc., where he provided analysis of groundwater basins, developed groundwater flow and transport, and developed saline groundwater source for desalination plants, injection wells/artificial recharge programs, and underground storage tank site assessment and remediation. He has also been involved in numerous groundwater resources and water well projects throughout California, working for groups such as Monterey County, Salinas Valley, Santa Clara Valley Water District, Ventura County, and various others. Feeney received a B.S. in Earth Sciences from the University of California, Santa Cruz and an M.S. in Environmental Planning (Groundwater) from California State University.
- Jean-François Debroux, Ph.D., Director, Advanced Technologies Group, Kennedy/Jenks Consultants (San Francisco, CA).** At Kennedy/Jenks Consultants, Jean Debroux serves as Director of the Advanced Technologies Group, which was formed to solve technologically challenging problems. Part of this effort includes

performing pilot and field studies for regulated and emerging contaminants and evaluates the cost impacts of complying with Safe Drinking Water Act regulations. A water quality expert, Debroux has extensive experience and expertise working with water utilities and research organizations in water treatment and water reuse issues, and is an active member of the WaterReuse Foundation, where he served on the Research Advisory Committee for 7 years. Debroux received a B.S. in Chemical Engineering from the University of South Florida, and both an M.S. in Environmental Engineering and Ph.D. in Civil Engineering from the University of Colorado, Boulder. In addition, he attended the Environmental Management Institute at Tufts University and has served as a Post-Doctoral Research Fellow and Lecturer at Stanford University and as a Research Fellow at Université de Poitiers, France.

- **Robert W. Emerick, Ph.D., P.E., Consultant (San Francisco, CA).** Bob Emerick is an environmental engineer with experience in wastewater and advanced water treatments, including for water reuse. He has experience in water and wastewater permitting and planning services that allow compliance with environmental regulations. He has developed compliance plans, negotiated discharge permits, and designed treatment facilities. He has experience with site-specific permit requirements that result in facility compliance. He was responsible for the first permitted unfiltered drinking water ultraviolet (UV) disinfection facility in the U.S. and continues to regularly design and troubleshoot reclamation-based UV disinfection systems. Emerick received a B.S., M.S., and Ph.D., all in Environmental Engineering, from the University of California, Davis.
- **George Tchobanoglous, PH.D., P.E., NAE, BCEE, Professor Emeritus, University of California, Davis (Davis, California).** For over 35 years, wastewater expert George Tchobanoglous taught courses on water and wastewater treatment and solid waste management at the University of California, Davis, where he is Professor Emeritus in the Department of Civil and Environmental Engineering. He has authored or coauthored over 550 publications, including 23 textbooks and eight engineering reference books. Along with coauthors, he has written extensively on water reuse including the textbook *Water Reuse: Issues, Technologies, and Applications*, the WaterReuse report *Direct Potable Reuse: A Path Forward*, and the NWRI White Paper *Direct Potable Reuse: Benefits for Public Water Supplies, Agriculture, the Environment, and Energy Conservation*. He has also given more than 550 presentations on a variety of environmental engineering subjects. Tchobanoglous has been past President of the Association of Environmental Engineering and Science Professors. Among his honors, he received the Athalie Richardson Irvine Clarke Prize from NWRI in 2003, was inducted to the National Academy of Engineers in 2004, and received an Honorary Doctor of Engineering degree from the Colorado School of Mines in 2005. In 2012, he received the first Excellence in Engineering Education Award from AAEE and AEESP. In 2013, he was selected as the AAEE and AEESP Kappe Lecturer. Currently, he serves as Chair of numerous expert panels, such as panels for the City of San Diego, Monterey Regional Water Pollution Control Agency, Orange County Sanitation District, and others. He also chaired the effort to develop a “Direct Potable Reuse Framework” document (2015) sponsored by WaterReuse Association, NWRI, and other organizations. Tchobanoglous received a B.S. in Civil Engineering from the University of the Pacific,

an M.S. in Sanitary Engineering from the University of California, Berkeley, and a Ph.D. in Environmental Engineering from Stanford University.

### **2.2.2 Panel Chair**

The Panel will be led a Chair, who will be involved in the following activities:

- Developing meeting materials.
- Facilitating meetings.
- Facilitating preparation of the reports.
- Engaging in additional project activities or meetings with MWDOC and project team members.

The proposed Chair is Dr. George Tchobanoglous.

### 3. Panel Review Process

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The Panel process will be designed to provide a consistent, thorough, and transparent review of the scope and findings of the San Juan Basin Groundwater and Desalination Optimization Program. The following tasks are included in the review process:

#### *Task 1: Assemble the Panel*

As soon as feasible, NWRI will work with MWDOC to finalize the Panel members listed in Section 3. This collaborative process will include:

- Select the Chair based on overall expertise and leadership.
- Finalize the list of candidates based on experience and recommendations (including recommendations from the Chair) to be reviewed by MWDOC.
- Determine the availability and commitment of candidates.
- Compile resumes of candidates and submit to MWDOC for review.
- Finalize the selection of Panel members.

#### *Task 2: Develop the Scope of the Review*

NWRI will work with MWDOC and the Panel Chair to develop a scope and approach for the Panel review. This collaborative process will include:

- Gather background materials relevant to developing the Panel scope and approach for the Panel review.
- Meet in-person or over the phone to discuss the Panel process, charge, objectives, and possible outcomes.
- Develop the scope.
- Distribute the scope document to the Panel, along with relevant background materials.

#### *Task 3: Plan, Schedule, and Facilitate Panel Meetings*

Two (2) in-person Panel meetings will be held as part of this review process. The Panel will produce a report after each meeting. The meeting agendas will include presentations on relevant topics, as well as discussions with MWDOC, and the project team. In addition, representatives of local and state agencies with interest in study may be invited to attend these meetings.

##### *Task 3(a): Provide Background Materials to the Panel*

NWRI will work with MWDOC and the project team to compile and provide background materials for Panel members to review prior to each planned meeting. This process will include:

- Collect appropriate background materials relevant to the Panel review. Background materials may be developed by MWDOC and/or the project team.
- Organize materials into binders and/or prepare electronic files (such as PDFs).
- Distribute materials to Panel members through mail or email approximately two (2) weeks prior to each planned Panel meeting to ensure adequate review time.

*Task 3(b): Coordinate Panel Meeting Logistics and Attendance*

In collaboration with MWDOC, NWRI will coordinate logistics for Panel meetings. Specifically, this process will include:

- Coordinating schedules to select meeting dates.
- Holding meetings at MWDOC facilities and/or locations relevant to the study. The venue should have adequate seating and accommodate audio/visual set-up, internet access, and web-enabled conference calls.
- Arranging transportation and lodging at a nearby hotel for out-of-town members of the Panel. *Note: NWRI will coordinate and make payment arrangements for all Panel members' travel and hotel needs.*
- Inviting additional attendees and/or observers, such as local stakeholders, regulators, and others, if needed.
- Managing logistics during the course of the meeting, including meals, audio/visual needs, and web-enabled conference calls.
- Providing supplies for the meeting, such as photocopies, name badges, name tents, writing tablets, pens, and other items.
- Coordinating a site tour of relevant facilities, if needed.

Attendance may be in-person or, if needed, via conference call or web-enabled conference call. Meeting participants may include Panel members, NWRI staff, MWDOC staff, project team members, staff at partnering or nearby agencies, regulators, and others as needed.

*Task 3(c): Develop Meeting Materials*

Meeting materials consist of (a) the agenda, (b) presentations, and (c) supporting documents, as needed. Specifically:

- NWRI and MWDOC will develop an agenda for each meeting in collaboration with the Chair to determine the appropriate topics.
- MWDOC and the project team will prepare presentations addressing topics identified in the agenda. Visual aids, handouts, and other materials used to augment the presentations will be provided to the Panel in advance of or during the meeting.

- Additional materials prepared by the project team and/or reference materials may be assembled, as needed, for the Panel to review.

*Task 3(d): Facilitate Panel Meetings*

Panel meetings would be held over a one (1) or two (2) day period. The timing and length of the meeting will vary depending on the scope of the meeting. In terms of responsibilities:

- NWRI, in coordination with the Panel Chair, will administer the meeting. Duties include:
  - Room set up
  - Welcome and introduction
  - Overview of the Panel process
  - Attendance (recorded on attendance sheet)
  - Note taking/meeting minutes
  - Administering logistics for Panel members (air travel, local transportation, hotel reservations, meals, etc.)
  - Administrative support (photocopying, etc.)
  - Report development, editing, formatting, etc.
  - Other meeting facilitation services, as needed.
- The Panel Chair will serve as the meeting moderator. Duties will include adhering to the agenda schedule, facilitating questions and answers, and preparing an outline for the follow-up Panel report.
- MWDOC and the project team will prepare presentations relevant to the study.

*Task 4: Prepare Panel Reports*

After each meeting, NWRI and the Panel Chair will facilitate the preparation of a Panel report summarizing the Panel's findings and recommendations based on the discussions and outcomes of the meeting. Notably, the Panel will consider relevant findings by concurrent efforts, if any, to develop the most informed recommendations. The report process includes:

- The Panel prepares a rough draft of the report outline at the meeting.
- NWRI and the Panel Chair develop a first rough draft of the report.
- Panel members review the draft and submit edits and comments.
- The Panel Chair modifies the report based on Panel comments and provides a draft final report to the Panel for approval.
- NWRI provides the approved draft final report to MWDOC for review prior to finalization. The purpose is to eliminate any unintended inconsistencies and errors, or to request clarification; the findings and recommendations of the Panel are not intended to be negotiated to ensure that the Panel maintains its independence and credibility.



- MWDOC provides comments, which the Panel will need to address prior to finalizing the report. If there are no comments from MWDOC, the report will be finalized immediately
- Depending upon scheduling, it may take 2-3 weeks to finalize the report. Reports are typically completed within three weeks of the meeting.

## 4. Deliverables

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As part of the Panel review process, the following deliverables will be provided by NWRI to address the tasks listed in Section 4:

*Deliverable 1: Panel Member Proposal*

This deliverable will address “Task 1: Assemble Scientific Review Panel.” As soon as feasible, NWRI will finalize the Panel members. Background information about each candidate will be provided to assist in the selection process.

*Deliverable 2: Panel Scope Document*

This deliverable will address “Task 2: Develop Panel Scope.” NWRI will work with MWDOC to develop a scope describing the Panel’s charge, objectives, and approach for the review.

*Deliverable 3: Panel Meeting Materials and Facilitation*

This deliverable will address “Task 3: Plan, Schedule, and Facilitate Panel Meetings.”

*Deliverable 3.1: Meeting Materials*

NWRI, in collaboration with MWDOC and the Panel Chair, will develop and provide background materials, agendas, handouts, and other resources for each meeting.

*Deliverable 3.2: Meeting Facilitation*

NWRI, in collaboration with MWDOC, will coordinate meeting logistics. NWRI will administer the meetings, and the Chair will serve as the meeting facilitator.

*Deliverable 4: Panel Reports*

These deliverables will address “Task 4: Prepare Panel Reports.” After each meeting, NWRI and the Panel Chair will facilitate the preparation of a Panel report summarizing the Panel’s findings and recommendations based on the discussions and outcomes of the meeting. NWRI will provide a draft version of the report to MWDOC to review prior to being finalized to eliminate any unintended inconsistencies/errors or request clarification. Depending upon scheduling, the report may take several weeks to finalize.

## 5. Schedule

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A proposed schedule for the Panel review effort is provided in Table 2. The first meeting may be scheduled immediately after the notice to proceed.

**Table 2. Proposed Schedule for the Contracted Tasks**

<b>Task</b>	<b>Description</b>	<b>Schedule</b>
1	Assemble Panel	Within 2 weeks after notice to proceed
2	Develop Panel Scope	Within 1 month after notice to proceed
3	Plan, Schedule, and Facilitate Panel Meetings (Repeat for each of the two Panel meetings)	
3(a)	Provide Background Material to Panel Members	Approximately 2 weeks before each meeting
3(b)	Coordinate Panel Meeting Logistics	First meeting: within 4 weeks of notice to proceed Second meeting: with 4 weeks of March 2016 meeting
3(c)	Develop Panel Meeting Materials	Prior to Panel meetings
3(d)	Facilitate Panel Meetings	First meeting: within 4 weeks of notice to proceed Second meeting: March 2016
4	Prepare Panel Reports	Within 2-3 weeks after each meeting

## 6. Budget

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NWRI proposes a budget of \$43,104.05 for this Panel review process. This cost reflects two (2) in-person meetings of a four-member Panel. The cost breakdown is attached.

The budget represents the following:

NWRI staff and Panel members' time to prepare for and attend meetings, develop reports, and participate in additional project activities, such as attending board meetings or participating in teleconference calls (if needed). These costs are based on the following assumptions:

- Four Panel members will be paid honoraria of \$750 per day (these honoraria are intended to cover preparation for and attendance at meetings, pre-meeting reviews, and post-meeting report development).
- Up to four NWRI staff members, as needed, will work on this effort. For example, typically, two NWRI staff members attend these meetings.

Logistical expenses for meetings are based on the following assumptions:

- No cost for meeting space or audio/visual, as the Panel will meet at MWDOC facilities.
- Two NWRI staff member(s) needed onsite during meetings.
- Miscellaneous meeting expenses and other costs related to administering the Panel.

Other expenses include:

- Conference calls, as needed.
- Copying and printing.
- Supplies (e.g., table tent cards, binders, etc.).
- Mailing/shipping.

## **7. Background of the Firm**

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### **7.1 Description of NWRI**

For more than 20 years, NWRI – a science-based 501c3 nonprofit located in Fountain Valley, California – has sponsored projects and programs to improve water quality, protect public health and the environment, and create safe, new sources of water. NWRI specializes in working with researchers across the country, such as laboratories at universities and water agencies, and are guided by a Research Advisory Board (representing national expertise in water, wastewater, and water reuse) and a six-member Board of Directors (representing water and wastewater agencies in Southern California).

Through NWRI's research program, NWRI supports multi-disciplinary research projects with partners and collaborators that pertain to treatment and monitoring, water quality assessment, knowledge management, and exploratory research. Altogether, NWRI's research program has produced over 300 publications and conference presentations.

NWRI also promotes better science and technology through extensive outreach and educational activities, which includes facilitating workshops and conferences and publishing White Papers, guidance manuals, and other informational material.

More information on NWRI can be found online at [www.nwri-usa.org](http://www.nwri-usa.org).

### **7.2 Description of the Panel Program**

NWRI also specializes in facilitating Independent Advisory Panels on behalf of water and wastewater utilities, as well as local, county, and state government agencies, to provide credible, objective review of scientific studies and projects in the water industry. NWRI Panels consist of academics, industry professionals, government representatives, and independent consultants who are experts in their fields.

The NWRI Panel process provides numerous benefits, including:

- Third-party review and evaluation.
- Scientific and technical advice by leading experts.
- Assistance with challenging scientific questions and regulatory requirements.
- Validation of proposed project objectives.
- Increased credibility with stakeholders and the public.
- Support of sound public-policy decisions.

NWRI has extensive experience in developing, coordinating, facilitating, and managing expert Panels. Efforts include:

- Selecting individuals with the appropriate expertise, background, credibility, and level of commitment to serve as Panel members.

- Facilitating hands-on Panel meetings held at the project's site or location.
- Providing written report(s) prepared by the Panel that focus on findings and comments of various technical, scientific, and public health aspects of the project or study.

For more than 15 years, NWRI has coordinated the efforts of more than 40 individual Panels for water and wastewater utilities, city and state agencies, and consulting firms. Many of these Panels have dealt with projects or policies involving groundwater replenishment and potable (indirect and direct) reuse. Specifically, these Panels have provided peer review of a wide range of scientific and technical areas related water quality and monitoring, constituents of emerging concern, treatment technologies and operations, public health, hydrogeology, water reuse criteria and regulatory requirements, and outreach, among others.

### 7.3 NWRI Staff

NWRI is experienced in planning and facilitating Panel efforts and meetings. On average, NWRI facilitates 10 to 12 Panel meetings per year.

In cooperation with MWDOC, NWRI staff will be responsible for identifying Panel members, planning meetings/ logistics, preparing meeting agendas, facilitating presentations, inviting outside speakers (if needed), developing and editing reports, and related activities. NWRI also will prepare, print, and disseminate meeting materials. The names, titles, and responsibilities of NWRI staff are included in Table 4.

**Table 4. NWRI Staff Members and Duties, as Pertaining to the Panel Program**

Name	Title	Duties
Jeff Mosher	Executive Director	Provides overall project management for all Panel efforts. Organizes and plans Panel activities.
Brandi Caskey	Administrative Manager	Assists Panel members with travel arrangements. Coordinates with meeting venue to provide A/V services, meals, and other event-related services. Tracks finances.
Gina Melin Vartanian	Communications and Outreach Manager	In coordination with Panel Chair, prepares reports based on Panel meetings.
Suzanne Faubl	Water Resources Scientist	Coordinates with Panel on administrative tasks.

#### 7.3.1 Staff Biographies

Brief biographies for NWRI staff are provided below:

**Jeff Mosher, Executive Director, NWRI.** Mr. Mosher is an accomplished and experienced water professional and executive manager with a broad background in the operational management of non-profit organizations and private sector firms. He has an extensive background in association and research foundation management. He is experienced in project management, strategic planning, and conference and meeting planning. He has demonstrated ability to plan, direct, and manage the operations and staff on multifaceted programs. He previously was the Director of Technical Services for the WaterReuse Association and the Director of Research Programs for the WaterReuse Foundation. He also was the Director of Technical Services for the Association of Metropolitan Water Agencies (AMWA). Mr. Mosher is the Administrative Director for the Southern California Salinity Coalition. He serves on the Board of Directors for the American Membrane Technology Association (AMTA) and the Multi-State Salinity Coalition. He served on the Board of Directors for the Southwest Membrane Operators Association (SWMOA) from 2006-2008. Mr. Mosher has B.S. in chemistry from the College of William and Mary and a M.S. in Environmental Engineering from the George Washington University.

**Brandi Caskey, Administrative Manager, NWRI.** Mrs. Caskey is responsible for coordinating and planning events, as well as managing research projects, accounting, and office administration for NWRI. She received a BA in Liberal Studies from the California State University Long Beach, Long Beach, CA

**Gina Melin Vartanian, Communications and Outreach Manager, NWRI.** Mrs. Vartanian has served as editor, writer, and project manager for NWRI since 1998, focusing on publications, website development, grants, and national awards such as the NWRI Athalie Richardson Irvine Clarke Prize and NWRI Fellowship. She received a B.A. in English Literature and an M.P.W. (Masters of Professional Writing) from the University of Southern California.

**Suzanne Faubl, Water Resources Scientist and Project manager, NWRI.** Ms. Faubl is a water resources scientist at NWRI. Suzanne completed her graduate studies in earth and hydrologic science at the University of Rhode Island. Previously she worked as a water resources specialist and data analyst for an environmental consulting firm, where she focused on coastal water resources projects related to stormwater management, salt marsh restoration, and innovative groundwater remediation techniques.

### **7.3.2 Staff Resumes**

Resumes for NWRI are included in the following pages.

**Jeffrey J. Mosher**  
Executive Director  
National Water Research Institute  
18700 Ward Street  
Fountain Valley, CA 92708  
714-378-3278 / [jmosher@nwri-usa.org](mailto:jmosher@nwri-usa.org)

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**SUMMARY:**

- Highly accomplished and experienced water professional and executive manager with a broad background in the operational management of non-profit organizations and private sector firms.
- Broad and extensive background in association and research foundation management including executive management, board support, project management, strategic planning, membership services and development, conference and meeting planning, fundraising, and publications.
- Demonstrated ability to plan, direct, and manage the operations and staff on multifaceted programs. Accomplished administrator with extensive executive and project management experience for multi-million dollar programs.
- Skilled executive manager, capable of building, leading, and mentoring a dedicated staff.
- Proven ability to provide regulatory, legislative, technical, and policy support on a programmatic basis.
- Effective executive manager of financial resources including revenue streams, expenses, and budgeting processes. Demonstrated fundraising experience for association and research foundation through grants, federal and state agency cooperative agreements, and partnerships.
- Strong leadership, communication, and interpersonal skills. Ability to build and maintain organizational relationships and partnerships on a national basis.

**PROFESSIONAL EXPERIENCE:**

**2005-Present      National Water Research Institute (Fountain Valley, CA)**

*Executive  
Director*

Provides the leadership, direction, and vision for achieving non-profit institute's goals and objectives. Responsible for developing priorities for organization, creating and implementing strategic plans, and coordinating programmatic initiatives in the water industry.

Provides executive management in developing program, organizational, and financial plans with the Board of Directors and staff, and implements plans and policies authorized by the board. Oversees staff and acts as the primary spokesperson for the organization, leads fund development efforts, and administers the organization.

Manages contractual obligations, administration, and finances. Responsible for developing and maintaining sound financial practices. Represents the organization before policymakers, stakeholders, the public, and the news media.

**Key Achievements:**

- Lead strategic planning process resulting in strategic objectives and targeted goals.
- Developed effective partnerships with other industry organizations.
- Restructured financial accounting and reporting to support Board review.
- Instituted grant program to increase revenues.



<b>2002 to 2005</b>	<b>WaterReuse Foundation and WaterReuse Association (Alexandria, VA)</b>
<i>Director of Research Programs (Foundation)</i>	<p>Directed a \$3-million a year research program dedicated to conducting applied research in the areas of water reuse and desalination. Responsible for all aspects of research program including research agenda, project management, and oversight of budgetary, administrative, and contractual matters. Managed project manager staff.</p> <p>Provided board support and managed volunteer efforts including project advisory committees and Research Advisory Committee of national experts. Managed the publication of research reports and the planning of conferences and workshops.</p>
<i>Director of Technical Services (Association)</i>	<p>Directed membership-driven initiatives for association. Provided strategic planning and technical support to board members, officers, and committees on association activities and programs. Planned and implemented the development of technical services, publications, newsletters, and website.</p> <p>Supported all aspects of membership activities including volunteer committees, conferences, and related functions. Tracked regulatory, legislative, and industry issues.</p>
	<p><b>Key Achievements:</b></p> <ul style="list-style-type: none"> <li>• Grew research program from 8 projects and \$1.1 million to 45 projects and over \$5 million in two years.</li> <li>• Directed the development of a comprehensive Research Plan to guide research program activities.</li> <li>• Organized national and international research needs workshops to identify research partnership opportunities.</li> </ul>
<b>1999 to 2002</b>	<b>Association of Metropolitan Water Agencies (Washington, DC)</b>
<i>Director of Technical Services</i>	<p>Directed technical support for association of large municipally-owned drinking water systems. Managed technical efforts on federal government and Congressional water initiatives including regulatory, legislative, and policy matters. Represented member interests on Capitol Hill and with federal agencies. Provided strategic planning support.</p> <p>Organized and implemented coalition building activities with industry associations and groups. Supported association conference activities. Involved in membership services including planning and developing newsletters, bulletins, and websites.</p>
	<p><b>Key Achievements:</b></p> <ul style="list-style-type: none"> <li>• Established and coordinated a national advisory committee on water utility security.</li> <li>• Wrote testimony and coached water utility executive for Congressional committee appearance on water security research legislation.</li> <li>• Planned and implemented submittal of successful \$500,000 grant proposal to U.S. EPA for water security information sharing project.</li> </ul>
<b>1996 to 1999</b>	<b>Science Applications International Corp. – SAIC (McLean, VA)</b>
<i>Senior Project Manager</i>	<p>Directed multi-year, multi-million dollar federal contract with U.S. EPA's Office of Water. Responsible for overall project and contract management, client interaction, strategic analysis, marketing, and financial management and reporting. Managed projects involving engineering and technical support, policy and regulatory analysis, and outreach activities including training and development of guidance.</p> <p>Responsible for staffing, subcontractors, budgets, and schedule. Planned and administered business development activities for technical area.</p>

**Key Achievements:**

- Independently developed and implemented plan to address aggressive client schedule to meet Congressionally-defined national regulatory development goals.
- Successfully recruited, trained, and managed project staff including technical and contract personnel for new business area.

**1990 to 1996**

**Cadmus Environmental Consultants/WMA (Arlington, VA)**

*Senior  
Environmental  
Engineer and  
Project Manager*

Directed multi-year, multi-million dollar federal government contracts providing scientific, technical, and regulatory support services to U.S. EPA's Office of Water. Responsible for staffing, financial reporting, quality control, and overall project management.

Managed multiple projects encompassing broad technical areas including: human risk assessments; chemical and microbial occurrence in water; fate and transport of contaminants; water treatment technology evaluations; and cost and benefit analyses. Experienced analyst in evaluating regulatory and policy options.

**Key Achievements:**

- Managed successful proposal development team resulting in 3-year, \$3 million federal contract for new company client.
- Initiated and launched contract start-up, staffing, and management plans for new federal contract.
- Successfully managed high-visibility, multi-faceted, multi-disciplined federal projects.

**1987 to 1990**

**Milliken & Co. (Spartanburg, SC)**

*Technical  
Support and  
Production  
Manager*

Provided technical support and production management for fabric dyeing and finishing manufacturing facility. Responsible for process design/improvement, quality performance, statistical quality control, and product development.

**Key Achievements:**

- Directed facility efforts in company-wide quality improvement project resulting in the award of the 1989 Malcolm Baldrige National Quality Award.

**EDUCATION:**

M.S. Environmental Engineering, The George Washington University (May 1996)  
B.S. Chemistry, The College of William and Mary (May 1985)

**SELECTED ASSOCIATIONS:**

American Water Works Association  
Water Environment Federation  
American Society of Association Executives

**CURRENT BOARD POSITIONS:**

Multi-State Salinity Coalition, Director (2005 to Present)  
Southwest Membrane Operator Association, Director (2006 to Present)

**PRESENTATIONS AND PUBLICATIONS:**

Active speaker at water industry conferences over the past 5 years, including keynote presentations.

**Brandi Caskey**  
Administrative and Events Manager  
National Water Research Institute  
18700 Ward Street  
Fountain Valley, CA 92708  
714-378-3278 / [bcaskey@nwri-usa.org](mailto:bcaskey@nwri-usa.org)

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#### **SUMMARY:**

- Highly efficient event planner with 14 years experience in organizing and executing meetings, workshops, trainings, and conferences nationally and internationally.
- Experienced in managing project teams to ensure high-quality, on-target, focused events for non-profit and public sector clients, including fortune 500 companies such as WellPoint, Amgen, Southern California Edison, Herbalife, and the American Red Cross.
- Broad experience in multiple industries, planning events in the fields of sales, professional development, research, business development, safety, and policy.
- Strong project management background with the ability to manage multiple initiatives at once from planning to execution, delivering results on-time and under budget.
- Experienced in working with multiple meeting platforms, including online and on-site.

#### **EDUCATION:**

B.A. Liberal Studies, University of California, Long Beach (Dec. 2002)

#### **PROFESSIONAL EXPERIENCE:**

##### **2013-Present      National Water Research Institute (Fountain Valley, CA)**

###### *Administrative and Events Manager*

Manages dozens of events per year nationwide, including small research consortiums, workshops for 50-100 participants, and conferences for 150+ attendees.

Responsible for all planning aspects of events, including contracts, budgets, logistics, travel, and financial reporting.

Organizes and plans for the organization's participation in outreach efforts, including fairs, festivals, and student and community education.

Manages the organization's finances, including accounts payable and receivable.

Maintains the organization's human resources records, and regularly reviews and updates policy and procedures to ensure efficiency within the organization.

##### **2011-2012      Herbalife International (Torrance, CA)**

###### *Manager of World Wide Education*

Responsible for training workshops and conferences in local markets around the world.

**Gina Melin Vartanian**  
Communications and Outreach Manager  
National Water Research Institute  
18700 Ward Street  
Fountain Valley, CA 92708  
714-378-3278 / [gmelin@nwri-usa.org](mailto:gmelin@nwri-usa.org)

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**SUMMARY:**

- Highly accomplished and skilled writer with the ability to translate scientific and technical information into written materials accessible to the general public. Major efforts include grant writing, promotional brochures/flyers, press releases, newsletters, website content, and guidance manuals.
- Experienced editor with excellent proofreading, copy editing, and technical editing skills, and a demonstrated ability to act as liaison between authors, peer reviewers, and design team. Major efforts include panel reports, research project reports, white papers, conference proceedings, lectures, and textbooks.
- Broad background in art and graphic design. Capable of designing and managing the design of artwork for publications, promotional materials, products, or websites.
- Proven ability to develop, coordinate, and manage long-term programs involving multi-agency partners, such as overseeing program committees; organizing, preparing, and running activities; recruiting presenters/support staff; preparing and distributing promotional material; and acquiring funding support.

**EDUCATION:**

B.A. English, University of Southern California (Dec. 1997), cum laude  
M.A. Professional Writing, University of Southern California (Dec. 2001)

**PROFESSIONAL EXPERIENCE:**

**1998-Present      National Water Research Institute (Fountain Valley, CA)**

*Communications and Outreach Manager*      Writes, edits, proofreads, and designs numerous publications and promotional material for the non-profit institute and two other organizations that it manages, the Southern California Salinity Coalition and Utility Branding Network.

Develops website content, and attends workshops and meetings to help prepare group reports, and provide transcripts and/or summaries of meeting discussions.

Manages outreach and educational programs, including the Graduate Fellowship Program, Clarke Prize Program, and O.C. Water Camp Awareness Program.

Supervises student interns to assist with communications and outreach.

**Key Achievements:**

- Edited and published over 20 reports/papers and over 12 conference proceedings/extended abstracts.
- Directed the development and establishment of a children's water awareness program in Orange County, CA, with 20 community partners.

**Suzanne Faubl**  
Water Resources Scientist  
National Water Research Institute  
18700 Ward Street  
Fountain Valley, CA 92708  
714-378-3278 / [sfaubl@nwri-usa.org](mailto:sfaubl@nwri-usa.org)

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#### **SUMMARY:**

- Water resources professional with experience in nonprofit and education administration.
- Skilled technical writer and editor with track record of successful outreach campaigns related to water quality, community events, and educational programs.
- Experienced field scientist with knowledge of surface and groundwater monitoring processes.

#### **EDUCATION:**

M.E.S.M. Earth and Hydrologic Science, University of Rhode Island (2011)  
M.S. Technical and Science Communication, Drexel University (1997)  
B.S. Chemistry, The College of New Jersey (1995)

#### **PROFESSIONAL EXPERIENCE:**

##### **2014-Present**

*Water Resources  
Scientist and  
Project Manager*

##### **National Water Research Institute (Fountain Valley, CA)**

Investigates opportunities to work with service providers, government agencies, nonprofits and nongovernment organizations on projects that protect and enhance water supplies. Manages communication with member agencies and corporate associate partners. Assists executive director in providing oversight and administrative support to work groups of water science and policy experts.

##### **2012 to 2014**

*Environmental  
Scientist*

##### **Hart Crowser, Inc. (Seattle, WA)**

Contributed to water resource assessment, monitoring, and remediation projects. Evaluated groundwater, surface water, and soil characteristics and collected samples for chemical analysis. Managed a long-term stormwater monitoring project at a Superfund site on the Lower Duwamish Waterway. Performed research related to geohydrological monitoring protocols and engineering controls.

##### **2012**

*Water Quality  
Program Web  
Editor*

##### **Washington State University Cooperative Extension (Shelton, WA)**

Edited water quality web pages and generated social media content for Mason County and Thurston County Washington State University Cooperative Extension program. Coordinated with county extension officers to promote community events related to protection of coastal and inland water resources.

##### **2010-2011**

*Water Quality  
Outreach  
Specialist and  
Web/Technical  
Document Editor*

##### **University of Rhode Island Cooperative Extension, National Water Program, and Northeast States & Caribbean Islands Regional Water Center (Kingston, RI)**

Managed outreach for 2011 Northeast Private Well Symposium, a biannual regional conference focusing on technical and policy issues related to private drinking water supplies, and maintained select web pages of the National and Northeast Regional Water Quality Programs. Wrote press releases and distributed to appropriate news outlets. Generated content for web pages and social media. Identified target audiences and recruited faculty and student participants. Wrote and edited technical publications including conference abstracts, posters, and reports. Maintained conference abstract submissions and archived all conference proceedings online.

# NATIONAL WATER RESEARCH INSTITUTE

## Independent Advisory Panel for:

### San Juan Basin Groundwater and Desalination Optimization Program

Total -- Budget  
January 12, 2016

#### Program Expenses

##### 1. Assumptions

Number of Full Panel Mtgs	3
Number of Panel Members	4

##### 2. NWRI Labor

NWRI Salary & Benefits	Hourly Rate	No. of Hours	
Executive Director	\$ 130.00	60.00	\$ 7,800.00
Program and Events Manager	\$ 55.00	15.00	\$ 825.00
Communications and Outreach Manager	\$ 65.00	50.00	\$ 3,250.00
Water Resources Manager	\$ 55.00	20.00	\$ 1,100.00

##### 3. Other Direct Costs (ODCs)

Meeting, Logistics (Room, Meals, Audio Visual, etc.)	No. of Individuals	No. of Days	
Meeting Room			\$ -
Food & Beverage (\$75 per day)	10	2	\$ 1,500.00
Audio Visual			\$ -

Honorariums (Panel Members)	No. of Panel Members	No. of Days	
Panel Members Preparation (\$750/day)	4	2	\$ 6,000.00
Panel Members at Meeting (\$750/day)	4	3	\$ 9,000.00
Panel Members Post-Meeting (\$750/day)	4	2	\$ 6,000.00

Travel (Airline, Meals, Mileage, etc.)	Number	Cost	
Airline (Panel members and NWRI staff)	6	300	\$ 1,800.00
		No. of Days	
Meals during travel			\$ -
Lodging (\$140 per night)	5	2	\$ 1,400.00
Mileage/Car Rental			\$ -
Misc Expenses			\$ -

##### Panel Expenses

Web-enabled conference calls	\$ 350.00
Copying/Printing	\$ 500.00
Mailings	\$ 20.00

Contingency	\$ -
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Subtotal Expenses	\$ 39,545.00
Administrative Fee (9%)	\$ 3,559.05
Total Expenses	\$ 43,104.05

# Status of Ongoing MWDOC Reliability and Engineering and Planning Projects

January 26, 2016

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
<b>Baker Treatment Plant or Expansion of Baker Water Treatment Plant</b>	IRWD, MNWD, SMWD, ETWD Trabuco CWD		On line date is summer 2016	No NEW Information; construction is proceeding towards a start-up in 2016
<b>Doheny Desalination Project</b>	South Coast Water District, Laguna Beach CWD			<p>South Coast Water District and its consulting team is continuing to pursue the Doheny Desal Project. Major items scheduled over the next year include:</p> <ul style="list-style-type: none"> <li>• Historical Doc Summary TM1</li> <li>• Environmental &amp; Permitting Roadmap TM2</li> <li>• Brine Outfall Analysis TM3</li> <li>• Preliminary Design Report and Cost Estimate TM5</li> <li>• EIR Process</li> <li>• Environmental Permitting Approvals &amp; Hearings</li> <li>• Public Outreach TM4</li> <li>• Project Funding</li> <li>• Project Delivery Method TM6</li> <li>• Economic Analysis TM7</li> </ul> <p>Key among those, probably for the April/May timeframe will be the updated cost estimate and the economic analysis.</p>

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
				<p>Karl Seckel and Andy Brunhart met with the Doheny State Parks folks to brief them on two items:</p> <ol style="list-style-type: none"> <li>1. Process and schedule for development of the Doheny Desal 5 mgd project. This meeting initiated the process for the start of right-of-way acquisition by South Coast for their project. Within the next two months, Karl and Andy will visit with the State Parks Headquarters in Sacramento to continue the discussions.</li> <li>2. Process and schedule for decommissioning of the existing slant well, associated piping, the mobile test facility and restoration of the site. MWDOC will be in charge of the engineering and construction for the decommissioning work.</li> </ol>
<b>Poseidon Resources Ocean Desalination Project in Huntington Beach</b>				<p>OCWD has continued work on evaluating where the product water produced from the Poseidon Project would be utilized, either for the seawater barrier operations, injection or replenishment in the groundwater basin, for direct delivery to other agencies or some combination thereof. They have set February 3 as their first workshop on this issue.</p> <p>MWDOC, OCWD and Poseidon met with MET staff including Jeff Kightlinger, Debra Man, Deven Upadhyay and Bob Harding. The purpose of the meeting was to provide a briefing to MET Executive Staff on the OCWD integration study and progress being made by Poseidon with the Coastal Commission with an anticipated meeting in May regarding their permit. Poseidon also reported at the meeting that a majority interest in Poseidon had been purchased by</p>



Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
				Brookfield Infrastructure Partners out of Canada. Also included in the discussions were MET concerns over integration issues including stranded assets, peaking on their system, water quality issues, and constraining MET operations.
<b>Other Meetings/Work</b>				
				Rob Hunter, Karl Seckel, Jonathan Volzke, Joe Berg, Director Susan Hinman and MET director Linda Ackerman attended the South County Recycling Summit hosted by SMWD. Rob provided a presentation on regional support issues relative to development of water recycling projects, highlighting the amount of funding brought in for various projects. The purpose of the meeting was to focus on issues associated with developing additional recycling projects in South County (financial, regulatory/permitting, planning, public acceptance, etc). Approximately \$500 M is planned by all agencies combined to extend purple pipe systems, construct storage and to use recycled water for groundwater replenishment purposes. Jeff Mosher from NWRI discussed the upcoming regulations being developed for Direct Potable Reuse. The overall effort was very well received and was attended by OC Supervisor Lisa Bartlett and SWRCB Chair Felicia Marcus, as well as many other elected and staff members.
				Richard Bell attended the San Juan Basin Authority Meeting in

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
				January where various discussions continued on the groundwater monitoring (quality and levels).
				Karl Seckel presented on the Water Reliability Study at the Orange County Water Association in January. Directors Susan Hinman and Sat Tamaribuchi supported Karl in this effort.
				(No NEW Information). Karl Seckel, Keith Lyon and Kevin Hostert continued working with EOCWD staff and MET staff to discuss a flow testing process along with a visual inspection of a check valve and a venturi meter at the OC-70 service connection. The work is intended on locating an apparent flow discrepancy between the EOCWD system and the MET meter. Complicating factors include a check valve that may be malfunctioning and the potential for hydraulic swirls to be causing metering discrepancies at the facility. The work was rescheduled to January to provide time for EOCWD to move an existing meter to improve the accuracy for comparison purposes.
				Rob Hunter, Karl Seckel, Harvey De La Torre, Mike Markus, John Kennedy and Adam Hutchison met with Deven Upadhyay from MET to discuss various issues regarding groundwater replenishment deliveries, allocations and potential programs.

**Status of Ongoing WEROC Projects  
January 2016**

<b>Description</b>	<b>Comments</b>
<b>Coordination with Member Agencies</b>	<p>Kevin Hostert, Brandon Stock and Kelly Hubbard met with Trabuco Canyon Water District staff to discuss a FEMA Public Assistance project they are working on that will enhance the protection of a drinking water line that has had damage in past significant rain storms. MWDOC staff also received a tour of Trabuco's water treatment facility and other areas of concern within the Trabuco service area that could have impacts during large rain storms.</p> <p>Kelly provided Member Agency and WEROC EOC Staff with a WebEOC training as a refresher on how the system works and what is expected of each agency during an emergency event within the County.</p> <p>Moulton Niguel Water District had a complex water line break on January 5 that was further complicated by rain storms. Kelly was asked to meet with MNWD staff to discuss the design and purchase of a Mobile Command Post. Kelly provided insight from other agencies who already have field command posts and considerations learned from other disasters.</p> <p>WEROC in coordination with El Toro Water District hosted a second Department of Water Resources Flood Fight Training. The class is a full day training with a classroom component on protection of infrastructure techniques and then a field component on how to best create protection barriers.</p> <p>Brandon provided each agency with their agency's individual assessment from the WEROC Radio Assessment performed by Eagle Communications, along with any recommended repairs or suggested equipment replacements.</p>
<b>Coordination with the County of Orange</b>	<p><i>On-Going: The Orange County Fire Authority (OCFA) received grant funding to develop 20 Wildland Urban Interface (WUI) Fire Response Plans. WEROC was able to ensure 100% water utility participation in the first 20 WUI Plans that were developed. OCFA has received additional</i></p>

Description	Comments
	<p>grant funds to continue their planning efforts. An additional 10 plans have received funding, with 10 more plans awaiting funding. This effort has had a significant positive impact on the relationships between our Member Agencies and the Fire Agencies that serve the same area. All parties involved have been very happy with the planning outcomes.</p> <p>The Orange County Operational Area Emergency Operations Center (EOCC) was activated on Tuesday, January 5 to Thursday January 7<sup>th</sup>. The OA EOC requested WEROC representation at the EOC for coordination purposes. Kelly and Brandon provided staffing on Tuesday and Wednesday during split shifts that covered the EOC from 7 am until 9 pm each day. Staff provided support to Moulton Niguel Water District for their potable water line break, to Irvine Ranch Water District to coordinate information on San Diego River flows, and to other areas of the response as needed. Although this was not a significant response in terms of damage or impacts to the water utilities or the county overall, any activation of the EOC is a great learning experience. Kelly has participated in the County's After Action Meeting and provided some recommendations for future responses.</p>
<b>Coordination with Outside Agencies</b>	<p>Kelly attended the California Emergency Services Association (CESA) State Board Meeting in Sacramento as the outgoing Treasurer and incoming Vice President of the Board. The meetings are quarterly and offer Kelly an opportunity to meet with the State California Office of Emergency Services Director, Deputy Director and their Staff to hear about what is occurring in emergency management within the state and nationally.</p>
<b>WEROC Emergency Operations Center (EOC) Readiness</b>	<p>Staff participated in the OC Operational Area Radio Test and the MET Radio Test, as well as conducted the WEROC Radio Test on January 26.</p> <p>Brandon, Kelly and Karl Seckel met to work on a strategic plan for the WEROC program that includes EOC maintenance, long term emergency planning and a Training and Exercise program for WEROC EOC Staff and WEROC Member Agencies.</p>

## Status of Water Use Efficiency Projects

January 2016

<b>Description</b>	<b>Lead Agency</b>	<b>Status % Complete</b>	<b>Scheduled Completion or Renewal Date</b>	<b>Comments</b>
<b>Smart Timer Rebate Program</b>	MWDSC	Ongoing	Ongoing	For December 2015, 54 residential and 117 commercial smart timers were installed in Orange County.  For program water savings and implementation information, please see MWDSC Water Use Efficiency Program Savings and Implementation Report.
<b>Rotating Nozzles Rebate Program</b>	MWDSC	Ongoing	Ongoing	For December 2015, 5,512 rotating nozzles were installed in Orange County.  For program savings and implementation information, please see MWDSC Water Use Efficiency Program Savings and Implementation Report.
<b>Water Smart Landscape Program</b>	MWDSC	Ongoing	June 2016	This Program is currently on hold while a Process and Impact Evaluation is conducted. Once the Evaluation is complete, the results will be used to make refinements to the Program.  For program savings and implementation information, please see MWDSC Water Use Efficiency Program Savings and Implementation Report.
<b>SoCal WaterSmart Residential Indoor Rebate Program</b>	MWDSC	Ongoing	Ongoing	In December 2015, 220 high efficiency clothes washers and 596 high efficiency toilets were installed through this program.  For program savings and implementation information, please see MWDSC Water Use Efficiency Program Savings and Implementation Report.

<b>SoCal Water\$mart Commercial Rebate Program</b>	MWDSC	On-going	On-going	<p>In December 2015, 1 high efficiency toilet, 405 multi-family high efficiency toilets, 30 premium high efficiency toilets, and 1 zero water urinal were installed through this program.</p> <p>For program savings and implementation information, please see MWDDOC Water Use Efficiency Program Savings and Implementation Report.</p>
<b>Industrial Process Water Use Reduction Program</b>	MWDDOC	September 2016	95%	<p>A of 41 Focused Surveys and 19 Comprehensive Surveys have been completed or are in progress. To date, 15 companies have signed Incentive Agreements. Updated discharger lists have been obtained, and outreach is continuing to sites with feasible water savings potential. As a result of this program, 359 AFY of water savings is being achieved.</p>
<b>MWDDOC Conservation Meeting</b>	MWDDOC	Monthly	On-going	<p>The January meeting was cancelled due to the holidays. The next meeting will be on February 4, 2016 at MWDDOC.</p>
<b>Metropolitan Conservation Meeting</b>	MWDSC	Monthly	On-going	<p>This month's meeting was held on January 21, 2016. The next meeting will be February 18, 2016 at Metropolitan.</p>
<b>Turf Removal Program</b>	MWDDOC	Ongoing	On-going	<p>In December 2015, 387 rebates were paid, representing \$1,343,969.67 in rebates paid this month in Orange County. To date, the Turf Removal Program has removed approximately 11.9 million square feet of turf.</p> <p>For program savings and implementation information, please see MWDDOC Water Use Efficiency Program Savings and Implementation Report.</p>
<b>California Sprinkler Adjustment Notification System – Base Irrigation Schedule Calculator</b>	MWDDOC	December 2015	55%	<p>MWDDOC was awarded an additional grant from the Bureau of Reclamation to develop the Base Irrigation Schedule Calculator in support of the California Sprinkler Adjustment Notification System (CSANS). This system will e-mail or “push” an irrigation index to assist property owners with making global irrigation scheduling adjustments. Participants will voluntarily register to receive this e-mail and can unsubscribe at any time.</p>

<b>California Sprinkler Adjustment Notification System – Base Irrigation Schedule Calculator (cont.)</b>				<p>EcoLandscape California (ELC) was selected and approved by the Board to develop the Base Irrigation Schedule Calculator and instructional videos. Development of the calculator and instructional video has been completed and is operational on our website.</p> <p>Through a grant from DWR to the California Urban Water Conservation Council, the East Bay Municipal Utility District and Bay Area Water Supply and Conservation Agency are now being enrolled in CSANS. Once this has been completed, staff will be pursuing DWR for administration of CSANS state-wide.</p>
<b>Public Spaces Program</b>	MWDOC	95%	December 2015	<p>This program targets publicly-owned landscape properties located in the South Orange County IRWM Plan area and encourages the removal of non-functional turfgrass, the upgrade of antiquated irrigation timers, and the conversion of high-precipitation-rate fixed spray irrigation to low-precipitation-rate rotating nozzles and/or drip irrigation.</p> <p>To date, 12 cities, water districts, or other special districts (i.e., school districts) have applied for funding through this program, of which ten (10) have followed through with projects. Three of those projects were funded in August 2015, and the remaining seven were funded in December 2015.</p>
<b>Landscape Irrigation Survey Program</b>	MWDSC	Ongoing	June 2016	<p>Through this program, Metropolitan offers, at no cost, the services of a certified landscape irrigation auditor who will survey and provide written recommendations for qualifying non-residential properties within Metropolitan's service area.</p> <p>To date, 147 sites in the MWDSC service area have contacted Metropolitan to request surveys.</p>
<b>Spray to Drip Conversion Program</b>	MWDSC	68%	April 2016	<p>This is a pilot program designed to test the efficacy of replacing conventional spray heads in shrub beds with low-volume, low-precipitation drip technology. Through a rebate</p>

<b>Spray to Drip Conversion Program (cont.)</b>				<p>program format, residential and commercial sites will be encouraged to convert their existing spray nozzles to drip.</p> <p>To date, 151 residential sites and 37 commercial sites have completed spray to drip conversion projects.</p>
<b>Landscape Training and Outreach</b>	MWDOC & County Stormwater	Ongoing	Ongoing	<p>The Orange County Garden Friendly (OCGF) Pilot Program promotes the use of climate appropriate plants and water efficient irrigation practices, with the overall goals of reducing water runoff and improving outdoor water use efficiency. The Program is a collaborative effort of the Orange County Stormwater Program (OCSP) and the University of California Cooperative Extension (UCCE). Each partner plays a role in planning and implementing the Program. The partners will be meeting in late January 2016 to discuss the upcoming season.</p>



# Orange County

## Water Use Efficiency Programs Savings and Implementation Report

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

Program	Program Start Date	Retrofits Installed in	Month Indicated		Current Fiscal Year		Overall Program		
			Interventions	Water Savings	Interventions	Water Savings	Interventions	Annual Water Savings[4]	Cumulative Water Savings[4]
High Efficiency Clothes Washer Program	2001	December-15	220	0.63	2,654	30.77	106,021	3,658	20,722
Smart Timer Program - Irrigation Timers	2004	December-15	171	6.52	736	47.72	13,803	4,772	29,050
Rotating Nozzles Rebate Program	2007	December-15	5,512	22.04	27,924	409.22	488,794	2,461	9,760
SoCal WaterSmart Commercial Plumbing Fixture Rebate Program	2002	December-15	437	0.93	6,606	49.39	54,772	3,518	34,239
Water Smart Landscape Program [1]	1997	November-15	12,677	904.62	12,677	3,615.21	12,677	10,621	72,668
Industrial Process Water Use Reduction Program	2006	December-15	0	11.41	1	11.41	15	359	1,478
Turf Removal Program <sup>[3]</sup>	2010	December-15	1,087,271	12.68	4,430,121	164	11,947,794	1,673	3,201
High Efficiency Toilet (HET) Program	2005	December-15	596	2.11	9,577	203.68	55,851	2,064	11,502
Home Water Certification Program	2013	November-15	0	0.000	53	0.251	312	7,339	15,266
Synthetic Turf Rebate Program	2007						685,438	96	469
Ultra-Low-Flush-Toilet Programs <sup>[2]</sup>	1992						363,926	13,452	162,561
Home Water Surveys <sup>[2]</sup>	1995						11,867	160	1,708
Showerhead Replacements <sup>[2]</sup>	1991						270,604	1,667	19,083
Total Water Savings All Programs				961	4,490,349	4,532	14,011,874	44,509	366,455

a  
b  
c  
d  
e  
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g

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

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

(c) Turf Removal Interventions are listed as square feet.

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

Item No. 6d

# HIGH EFFICIENCY CLOTHES WASHERS INSTALLED BY AGENCY

through MWDOC and Local Agency Conservation Programs

Agency	FY 06/07	FY 07/08	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	Total	Current FY Water Savings Ac/Ft (Cumulative)	Cumulative Water Savings across all Fiscal Years	15 yr. Lifecycle Savings Ac/Ft
Brea	132	175	156	42	186	144	93	115	114	45	1,779	0.55	346.98	921
Buena Park	85	114	146	59	230	145	105	106	91	27	1,415	0.34	263.23	732
East Orange CWD RZ	18	22	17	3	23	10	10	8	8	5	186	0.05	38.24	96
El Toro WD	91	113	130	32	162	112	134	121	111	36	1,445	0.43	267.71	748
Fountain Valley	205	219	243	72	289	158	115	102	110	42	2,301	0.47	467.72	1,191
Garden Grove	238	304	332	101	481	236	190	162	165	53	3,238	0.65	642.30	1,675
Golden State WC	339	401	447	168	583	485	265	283	359	120	4,737	1.46	909.81	2,451
Huntington Beach	761	750	751	211	963	582	334	295	319	115	7,956	1.26	1,650.20	4,117
Irvine Ranch WD	1,972	2,052	1,844	1,394	2,621	2,170	1,763	1,664	1,882	798	22,570	9.02	4,165.29	11,678
La Habra	96	136	83	22	179	128	82	114	87	32	1,240	0.33	230.52	642
La Palma	33	35	51	25	76	46	34	25	34	11	430	0.13	78.95	222
Laguna Beach CWD	57	77	77	27	96	57	38	37	39	27	908	0.31	181.16	470
Mesa Water	239	249	246	73	232	176	114	86	89	32	2,357	0.38	498.85	1,220
Moulton Niguel WD	652	716	742	250	1,127	679	442	421	790	401	9,059	4.63	1,693.95	4,687
Newport Beach	245	270	259	57	197	142	116	92	95	46	2,543	0.54	541.26	1,316
Orange	366	365	403	111	349	262	218	163	160	63	3,757	0.79	782.04	1,944
Orange Park Acres	4	8	-	-	-	-	-	-	-	-	12	0.00	3.09	6
San Juan Capistrano	109	103	127	43	190	110	76	73	92	41	1,404	0.53	271.32	726
San Clemente	204	261	278	63	333	206	140	94	141	46	2,521	0.55	494.82	1,304
Santa Margarita WD	654	683	740	257	1,105	679	553	662	792	261	8,944	3.13	1,662.09	4,628
Seal Beach	47	46	57	7	81	51	31	29	38	16	586	0.19	113.28	303
Serrano WD	30	31	23	7	21	20	13	10	26	5	343	0.06	71.90	177
South Coast WD	107	130	148	43	183	112	89	79	68	28	1,525	0.33	297.50	789
Trabuco Canyon WD	69	60	62	28	82	62	30	45	47	21	757	0.26	146.60	392
Tustin	152	146	144	45	174	97	78	59	80	36	1,538	0.43	314.52	796
Westminster	213	171	233	74	329	208	121	82	109	35	2,388	0.39	480.90	1,236
Yorba Linda	288	350	367	117	394	273	181	167	156	77	3,650	0.88	750.54	1,889
<b>MWDOC Totals</b>	<b>7,406</b>	<b>7,987</b>	<b>8,106</b>	<b>3,331</b>	<b>10,686</b>	<b>7,350</b>	<b>5,365</b>	<b>5,094</b>	<b>6,002</b>	<b>2,419</b>	<b>89,589</b>	<b>28.10</b>	<b>17,364.79</b>	<b>17,308</b>
Anaheim	854	847	781	860	910	477	331	285	295	121	10,324	1.34	2,141.38	5,342
Fullerton	269	334	330	69	397	270	200	186	211	73	3,496	0.86	644.56	1,809
Santa Ana	236	235	257	87	355	190	163	131	132	41	2,612	0.48	570.84	1,352
<b>Non-MWDOC Totals</b>	<b>1,359</b>	<b>1,416</b>	<b>1,368</b>	<b>1,016</b>	<b>1,662</b>	<b>937</b>	<b>694</b>	<b>602</b>	<b>638</b>	<b>235</b>	<b>16,432</b>	<b>2.67</b>	<b>3,356.78</b>	<b>3,175</b>
<b>Orange County Totals</b>	<b>8,765</b>	<b>9,403</b>	<b>9,474</b>	<b>4,347</b>	<b>12,348</b>	<b>8,287</b>	<b>6,059</b>	<b>5,696</b>	<b>6,640</b>	<b>2,654</b>	<b>106,021</b>	<b>30.77</b>	<b>20,721.58</b>	<b>20,483</b>

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

Agency	FY 08/09		FY 09/10		FY 10/11		FY 11/12		FY 12/13		FY 13/14		FY 14/15		FY 15/16		Total Program		Cumulative Water Savings across all Fiscal Years
	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm.	
Brea	3	9	0	0	2	0	8	0	9	0	4	0	43	6	6	2	86	74	399.62
Buena Park	3	1	0	0	0	0	4	19	3	0	0	0	4	10	3	0	17	30	85.88
East Orange CWD RZ	0	0	0	0	0	0	5	0	2	0	0	0	2	0	0	0	13	0	3.55
El Toro WD	0	25	2	18	5	5	26	2	7	2	11	0	8	9	5	6	78	336	1,980.12
Fountain Valley	1	0	0	0	6	2	8	2	3	2	4	0	7	10	3	0	48	27	115.04
Garden Grove	2	1	6	0	5	4	7	0	5	2	9	0	10	14	8	8	68	35	110.05
Golden State WC	1	2	9	22	7	4	13	3	9	49	9	25	39	12	6	0	140	139	520.30
Huntington Beach	13	1	6	27	6	36	15	4	18	33	20	35	19	2	25	10	167	172	672.75
Irvine Ranch WD	29	56	14	145	28	153	267	71	414	135	71	59	67	310	14	0	1,200	1,659	7,923.97
La Habra	0	0	0	21	0	0	3	0	4	7	2	0	4	7	86	58	107	94	182.68
La Palma	0	0	0	0	0	0	1	0	1	0	2	0	2	0	2	1	8	1	1.64
Laguna Beach CWD	2	0	2	14	4	1	109	2	76	2	71	0	86	0	0	0	384	19	157.52
Mesa Water	6	7	13	7	7	22	21	0	10	2	15	2	17	28	5	0	138	101	486.67
Moulton Niguel WD	21	23	17	162	36	60	179	31	51	74	40	45	46	95	15	0	530	572	2,337.71
Newport Beach	10	27	7	58	6	0	275	12	242	26	168	75	11	9	73	59	1,053	413	1,981.63
Orange	5	2	2	13	5	8	25	0	20	24	13	9	18	31	8	8	173	150	673.54
San Juan Capistrano	10	0	7	49	13	1	103	2	14	18	6	11	6	19	6	2	186	111	448.82
San Clemente	81	20	13	209	46	11	212	17	26	7	28	2	28	24	22	11	1,010	369	2,060.03
Santa Margarita WD	25	44	10	152	61	53	262	7	53	171	64	93	53	321	14	0	653	1,015	3,564.24
Santiago CWD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	42	72	42	31.59
Seal Beach	0	0	0	1	0	0	0	3	1	0	1	36	1	12	0	0	3	52	104.07
Serrano WD	0	0	11	0	4	0	3	0	1	0	0	0	4	0	1	0	24	0	5.95
South Coast WD	11	6	3	10	13	3	78	10	13	16	8	4	104	73	6	2	268	203	830.33
Trabuco Canyon WD	1	0	2	0	2	10	12	0	6	0	2	0	6	1	8	0	82	104	695.36
Tustin	7	9	10	14	10	0	11	0	8	4	9	1	18	14	17	6	94	55	216.07
Westminster	3	0	3	0	1	1	2	0	1	1	2	0	13	17	6	0	47	31	131.02
Yorba Linda	8	5	5	21	25	0	22	0	20	0	12	5	32	2	36	6	241	91	533.52
<b>MWDOC Totals</b>	<b>242</b>	<b>238</b>	<b>142</b>	<b>949</b>	<b>289</b>	<b>374</b>	<b>1,671</b>	<b>185</b>	<b>1,017</b>	<b>583</b>	<b>571</b>	<b>402</b>	<b>648</b>	<b>1,026</b>	<b>447</b>	<b>221</b>	<b>6,890</b>	<b>5,895</b>	<b>26,253.67</b>

Anaheim	9	59	5	46	12	11	23	60	19	10	9	26	7	52	8	14	135	427	1,953.86
Fullerton	2	2	2	39	9	33	22	51	9	29	8	0	40	26	11	7	125	187	642.94
Santa Ana	2	4	1	8	8	0	6	5	8	19	7	8	9	27	14	14	59	85	199.43
<b>Non-MWDOC Totals</b>	<b>13</b>	<b>65</b>	<b>8</b>	<b>93</b>	<b>29</b>	<b>44</b>	<b>51</b>	<b>116</b>	<b>36</b>	<b>58</b>	<b>24</b>	<b>34</b>	<b>56</b>	<b>105</b>	<b>33</b>	<b>35</b>	<b>319</b>	<b>699</b>	<b>2,796.23</b>

<b>Orange County Totals</b>	<b>255</b>	<b>303</b>	<b>150</b>	<b>1,042</b>	<b>318</b>	<b>418</b>	<b>1,722</b>	<b>301</b>	<b>1,053</b>	<b>641</b>	<b>595</b>	<b>436</b>	<b>704</b>	<b>1,131</b>	<b>480</b>	<b>256</b>	<b>7,209</b>	<b>6,594</b>	<b>29,050</b>
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**ROTATING NOZZLES INSTALLED BY AGENCY**  
through MWDOC and Local Agency Conservation Programs

Agency	FY 10/11			FY 11/12			FY 12/13			FY 13/14			FY 14/15			FY 15/16			Total Program			Cumulative Water Savings across all Fiscal Years
	Small		Large	Small		Large	Small		Large	Small		Large	Small		Large	Small		Large	Small		Large	
	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	
Brea	32	0	0	130	0	0	65	120	0	84	0	0	157	45	0	842	0	498	1,107	0	13.71	
Buena Park	29	0	0	32	0	0	65	0	0	53	0	0	248	0	0	45	0	509	75	2,535	450.99	
East Orange	0	0	0	340	0	0	55	0	0	30	0	0	221	0	0	0	0	751	0	0	9.60	
El Toro	174	0	0	357	76	0	23	6,281	0	56	3,288	0	1,741	28,714	0	90	4,457	0	2,674	45,980	890	635.80
Fountain Valley	83	0	0	108	0	0	35	0	0	0	0	0	107	0	0	186	0	674	0	0	8.62	
Garden Grove	38	0	0	119	0	0	95	0	0	80	0	0	88	50	0	44	0	812	201	0	17.16	
Golden State	303	943	0	294	0	0	257	2,595	0	192	0	0	583	1,741	0	145	0	2,298	5,308	0	103.21	
Huntington Beach	203	625	0	458	0	0	270	0	0	120	0	0	798	1,419	0	574	1,432	0	2,877	7,760	2,681	748.22
Irvine Ranch	2,411	2,861	0	1,715	4,255	0	25,018	1,014	0	11,010	4,257	0	1,421	632	0	620	1,110	0	45,433	81,113	2,004	2,658.17
La Habra	0	0	0	33	90	0	0	0	0	15	0	0	109	338	0	300	0	481	1,236	900	218.61	
La Palma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0.24	
Laguna Beach	156	0	0	763	0	0	3,596	0	0	2,948	878	0	2,879	1,971	0	80	0	10,829	2,896	0	164.74	
Mesa Water	118	0	0	297	277	0	270	0	0	361	0	0	229	0	0	148	0	1,899	385	343	117.54	
Moulton Niguel	1,578	0	0	1,225	0	0	512	1,385	0	361	227	0	1,596	4,587	0	660	419	0	6,889	13,621	2,945	907.64
Newport Beach	337	1,208	0	640	3,273	0	25,365	50	0	19,349	6,835	0	460	3,857	0	348	670	0	46,678	21,413	0	950.38
Orange	135	30	0	343	0	0	264	0	0	245	120	0	304	668	0	517	34	0	3,056	1,015	0	59.29
San Clemente	2,612	851	0	4,266	117	1,343	631	172	0	415	5,074	0	326	0	0	378	0	9,941	7,538	1,343	387.40	
San Juan Capistrano	1,452	0	0	949	0	0	684	30	0	370	0	0	495	737	0	15	593	0	5,125	8,729	0	242.19
Santa Margarita	3,959	3,566	0	4,817	0	0	983	0	0	389	0	0	1,207	1,513	0	1,211	837	0	15,541	6,921	611	420.85
Seal Beach	0	0	0	0	0	0	0	0	0	0	0	0	40	5,261	0	0	0	155	5,552	0	50.97	
Serrano	364	0	0	58	0	0	190	0	0	105	0	0	377	0	0	447	0	3,157	0	0	48.77	
South Coast	318	1,772	0	688	359	0	435	0	0	70	0	0	4,993	13,717	0	116	2,889	0	6,809	18,870	0	223.97
Triabuco Canyon	0	0	0	379	0	0	34	0	0	0	0	0	56	0	0	130	0	2,086	791	0	52.64	
Tustin	512	0	0	476	1,013	0	378	0	0	329	0	0	408	0	0	241	45	0	3,230	1,058	0	60.54
Westminster	0	0	0	26	0	0	15	0	0	0	0	0	54	0	0	57	0	343	0	0	5.47	
Yorba Linda	529	0	0	559	0	0	730	0	0	40	990	0	921	0	0	1,149	0	5,302	4,359	500	257.69	
MWDOC Totals	15,343	11,856	0	19,072	9,460	1,343	59,970	11,647	0	36,622	21,669	0	19,818	65,250	0	7,501	13,328	0	178,057	235,928	14,752	8,814.38

Anaheim	372	382	0	742	38,554	0	459	813	0	338	0	498	712	0	174	5,221	0	3,253	45,846	105	575.96	
Fullerton	416	0	0	409	0	0	119	0	0	107	0	684	1,196	0	280	0	0	2,604	1,260	1,484	306.45	
Santa Ana	53	0	0	22	65	0	99	0	0	86	2,533	0	310	0	0	1,420	0	859	4,646	0	63.15	
Non-MWDOC Totals	841	382	0	1,173	38,619	0	677	813	0	531	0	1,492	1,908	0	454	6,641	0	6,716	51,752	1,589	945.56	
Orange County Totals	16,184	12,238	0	20,245	48,079	1,343	60,647	12,460	0	37,153	24,202	0	21,310	67,158	0	7,955	19,969	0	184,773	287,680	16,341	9,759.94

# **SOCAL WATER\$MART COMMERCIAL PLUMBING FIXTURES REBATE PROGRAM<sup>[1]</sup>**

## **INSTALLED BY AGENCY**

through MWDOD and Local Agency Conservation Programs

Agency	FY 07/08	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	Totals	Cumulative Water Savings across all Fiscal Years
Brea	27	113	24	4	1	234	0	10	91	631	348
Buena Park	153	432	122	379	290	5	23	56	154	1,919	910
East Orange CWD RZ	0	0	0	0	0	0	0	0	0	0	0
El Toro WD	0	92	143	1	137	0	212	6	263	1,022	519
Fountain Valley	17	35	0	2	314	0	0	1	4	627	517
Garden Grove	5	298	130	22	0	4	1	167	192	1,557	1,306
Golden State WC	46	414	55	68	135	0	1	0	182	1,986	1,685
Huntington Beach	48	104	126	96	156	104	144	7	451	1,981	1,368
Irvine Ranch WD	121	789	2,708	1,002	646	1,090	451	725	2,508	13,316	5,932
La Habra	191	75	53	4	0	0	0	0	138	681	479
La Palma	0	140	21	0	0	0	0	0	0	166	74
Laguna Beach CWD	20	137	189	0	0	0	27	0	0	446	281
Mesa Water	141	543	219	669	41	6	0	79	269	3,080	1,817
Moulton Niguel WD	9	69	151	6	0	0	0	3	65	648	725
Newport Beach	98	27	245	425	35	0	0	566	0	1,834	1,144
Orange	18	374	67	1	73	1	271	81	85	1,989	1,561
San Juan Capistrano	2	1	1	0	0	0	14	0	0	260	367
San Clemente	2	18	43	0	19	0	0	1	0	432	350
Santa Margarita WD	6	23	11	0	0	0	0	2	90	207	186
Santiago CWD	0	0	0	0	0	0	0	0	0	0	0
Seal Beach	1	2	124	0	0	0	0	0	0	354	383
Serrano WD	0	0	0	0	0	0	0	0	0	0	0
South Coast WD	9	114	56	422	84	148	0	382	0	1,320	441
Trabuco Canyon WD	0	4	0	0	0	0	0	0	0	11	14
Tustin	115	145	25	230	0	0	0	75	0	832	720
Westminster	40	161	16	63	35	1	28	0	58	873	900
Yorba Linda	10	24	8	30	0	1	0	0	224	509	501
<b>MWDOD Totals</b>	<b>1,079</b>	<b>4,134</b>	<b>4,537</b>	<b>3,424</b>	<b>1,966</b>	<b>1,594</b>	<b>1,172</b>	<b>2,161</b>	<b>4,774</b>	<b>36,681</b>	<b>22,525</b>
Anaheim	766	3,298	582	64	48	165	342	463	1,149	11,521	6,107
Fullerton	133	579	29	4	0	94	0	178	128	1,809	1,429
Santa Ana	493	815	728	39	12	16	17	5	555	4,761	4,178
<b>Non-MWDOD Totals</b>	<b>1,392</b>	<b>4,692</b>	<b>1,339</b>	<b>107</b>	<b>60</b>	<b>275</b>	<b>359</b>	<b>646</b>	<b>1,832</b>	<b>18,091</b>	<b>11,714</b>
<b>Orange County Totals</b>	<b>2,471</b>	<b>8,826</b>	<b>5,876</b>	<b>3,531</b>	<b>2,026</b>	<b>1,869</b>	<b>1,531</b>	<b>2,807</b>	<b>6,606</b>	<b>54,772</b>	<b>34,239</b>

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

## Water Smart Landscape Program

Total Number of Meters  
in Program by Agency

Agency	FY 06-07	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	Overall Water Savings To Date (AF)
Brea	0	0	0	0	0	22	22	22	22	22	64.37
Buena Park	0	0	0	17	103	101	101	101	101	101	462.69
East Orange CWD RZ	0	0	0	0	0	0	0	0	0	0	0.00
El Toro WD	227	352	384	371	820	810	812	812	812	812	4,856.93
Fountain Valley	0	0	0	0	0	0	0	0	0	0	0.00
Garden Grove	0	0	0	0	0	0	0	0	0	0	0.00
Golden State WC	0	14	34	32	34	32	32	32	32	32	200.59
Huntington Beach	0	0	0	31	33	31	31	31	31	31	148.43
Irvine Ranch WD	646	708	1,008	6,297	6,347	6,368	6,795	6,797	6,769	6,780	38,304.89
Laguna Beach CWD	0	0	57	141	143	141	124	124	124	124	733.07
La Habra	0	0	23	22	24	22	22	22	22	22	136.72
La Palma	0	0	0	0	0	0	0	0	0	0	0.00
Mesa Water	138	165	266	265	288	450	504	511	514	515	2,943.57
Moulton Niguel WD	113	180	473	571	595	643	640	675	673	661	4,120.71
Newport Beach	23	58	142	171	191	226	262	300	300	300	1,501.19
Orange	0	0	0	0	0	0	0	0	0	0	0.00
San Clemente	204	227	233	247	271	269	269	299	407	459	2,368.77
San Juan Capistrano	0	0	0	0	0	0	0	0	0	0	0.00
Santa Margarita WD	618	945	1,571	1,666	1,746	1,962	1,956	2,274	2,386	2,386	14,178.10
Seal Beach	0	0	0	0	0	0	0	0	0	0	0.00
Serrano WD	0	0	0	0	0	0	0	0	0	0	0.00
South Coast WD	0	62	117	108	110	118	118	118	164	164	829.91
Trabuco Canyon WD	0	12	49	48	62	60	60	60	60	60	350.52
Tustin	0	0	0	0	0	0	0	0	0	0	0.00
Westminster	0	10	18	18	20	18	18	18	18	18	116.46
Yorba Linda WD	0	0	0	0	0	0	0	0	0	0	0.00
<b>MWDOC Totals</b>	<b>1,969</b>	<b>2,733</b>	<b>4,395</b>	<b>10,025</b>	<b>10,787</b>	<b>11,273</b>	<b>11,766</b>	<b>12,196</b>	<b>12,435</b>	<b>12,487</b>	<b>71,316.9</b>
Anaheim	0	0	0	142	146	144	190	190	190	190	1,351.53
Fullerton	0	0	0	0	0	0	0	0	0	0	0.00
Santa Ana	0	0	0	0	0	0	0	0	0	0	0.00
<b>Non-MWDOC Totals</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>142</b>	<b>146</b>	<b>144</b>	<b>190</b>	<b>190</b>	<b>190</b>	<b>190</b>	<b>1,351.53</b>
<b>Orange Co. Totals</b>	<b>1,969</b>	<b>2,733</b>	<b>4,395</b>	<b>10,167</b>	<b>10,933</b>	<b>11,417</b>	<b>11,956</b>	<b>12,386</b>	<b>12,625</b>	<b>12,677</b>	<b>72,668.45</b>

# **INDUSTRIAL PROCESS WATER USE REDUCTION PROGRAM** **Number of Process Changes by Agency**

Agency	FY 07/08	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	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	0
Buena Park	0	1	0	0	0	0	0	0	0	1	54	378
East Orange	0	0	0	0	0	0	0	0	0	0	0	0
El Toro	0	0	0	0	0	0	0	0	0	0	0	0
Fountain Valley	0	0	0	0	0	0	0	0	0	0	0	0
Garden Grove	0	0	0	0	0	0	0	0	0	0	0	0
Golden State	1	0	0	0	0	0	0	0	0	1	3	23
Huntington Beach	0	0	0	0	0	2	0	1	0	3	127	266
Irvine Ranch	0	0	2	1	1	1	1	0	0	6	98	390
La Habra	0	0	0	0	0	0	0	0	0	0	0	0
La Palma	0	0	0	0	0	0	0	0	0	0	0	0
Laguna Beach	0	0	0	0	0	0	0	0	0	0	0	0
Mesa Water	0	0	0	0	0	0	0	0	0	0	0	0
Moulton Niguel	0	0	0	0	0	0	0	0	0	0	0	0
Newport Beach	0	0	0	0	0	0	0	1	0	1	21	23
Orange	1	0	0	0	0	0	0	0	1	2	45	341
San Juan Capistrano	0	0	0	0	0	0	0	0	0	0	0	0
San Clemente	0	0	0	0	0	0	0	0	0	0	0	0
Santa Margarita	0	0	0	0	0	0	0	0	0	0	0	0
Seal Beach	0	0	0	0	0	0	0	0	0	0	0	0
Serrano	0	0	0	0	0	0	0	0	0	0	0	0
South Coast	0	0	0	0	0	0	0	0	0	0	0	0
Trabuco Canyon	0	0	0	0	0	0	0	0	0	0	0	0
Tustin	0	0	0	0	0	0	0	0	0	0	0	0
Westminster	0	0	0	0	0	0	0	0	0	0	0	0
Yorba Linda	0	0	0	0	0	0	0	0	0	0	0	0
<b>MWDOC Totals</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>14</b>	<b>348</b>	<b>1422</b>
Anaheim	0	0	0	0	0	0	0	0	0	0	0	0
Fullerton	0	0	0	0	0	0	0	0	0	0	0	0
Santa Ana	0	0	0	0	0	0	0	0	1	1	11	56
<b>OC Totals</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>15</b>	<b>359</b>	<b>1478</b>

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

# **HIGH EFFICIENCY TOILETS (HETS) INSTALLED BY AGENCY** through MWDOC and Local Agency Conservation Programs

Agency	FY05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	Total	Cumulative Water Savings across all Fiscal Years
Brea	0	2	7	43	48	8	0	0	38	146	131	423	57,37
Buena Park	0	1	2	124	176	7	0	0	96	153	89	648	126,70
East Orange CWD RZ	0	0	10	12	1	0	0	0	13	26	23	85	13,07
El Toro WD	0	392	18	75	38	18	0	133	218	869	189	1,950	347,67
Fountain Valley	0	69	21	262	54	17	0	0	41	132	167	763	170,62
Garden Grove	0	14	39	443	181	24	0	0	63	350	313	1,427	282,93
Golden State WC	2	16	36	444	716	37	80	2	142	794	449	2,718	517,65
Huntington Beach	2	13	59	607	159	76	0	0	163	1,190	528	2,797	447,08
Irvine Ranch WD	29	1,055	826	5,088	2,114	325	0	1,449	810	1,777	1,629	15,102	3,794,74
Laguna Beach CWD	0	2	17	91	28	11	0	0	45	112	58	364	67,24
La Habra	0	3	18	296	34	20	0	0	37	94	63	565	139,59
La Palma	0	1	10	36	26	13	0	0	21	59	49	215	37,37
Mesa Water	0	247	19	736	131	7	0	0	147	162	140	1,589	442,32
Moulton Niguel WD	0	20	104	447	188	46	0	0	400	2,497	1,662	5,364	602,64
Newport Beach	0	5	19	163	54	13	0	0	49	168	199	670	113,33
Orange	1	20	62	423	79	40	0	1	142	978	377	2,123	328,09
San Juan Capistrano	0	10	7	76	39	11	0	0	35	140	164	482	70,61
San Clemente	0	7	22	202	66	21	0	0	72	225	202	817	142,15
Santa Margarita WD	0	5	14	304	151	44	0	0	528	997	900	2,943	357,79
Seal Beach	0	678	8	21	12	1	0	2	17	50	52	841	311,57
Serrano WD	2	0	1	13	5	0	0	0	2	40	44	107	12,77
South Coast WD	2	2	29	102	41	12	23	64	102	398	202	977	134,19
Trabuco Canyon WD	0	0	4	23	23	0	0	0	10	108	130	298	32,22
Tustin	0	186	28	387	479	17	0	0	64	132	168	1,461	395,25
Westminster	0	17	25	541	167	23	0	0	35	161	327	1,296	288,72
Yorba Linda WD	0	14	89	323	96	18	0	0	40	280	335	1,195	226,41
<b>MWDOC Totals</b>	<b>38</b>	<b>2,779</b>	<b>1,494</b>	<b>11,282</b>	<b>5,106</b>	<b>809</b>	<b>103</b>	<b>1,651</b>	<b>3,330</b>	<b>12,038</b>	<b>8,590</b>	<b>47,220</b>	<b>9,460,07</b>

Anaheim	0	255	78	2,771	619	114	0	0	156	1,188	496	5,677	1,437,52
Fullerton	0	4	28	286	60	23	0	0	61	293	240	995	176,49
Santa Ana	0	11	25	925	89	23	0	0	33	602	251	1,959	427,72
<b>Non-MWDOC Totals</b>	<b>0</b>	<b>270</b>	<b>131</b>	<b>3,982</b>	<b>768</b>	<b>160</b>	<b>0</b>	<b>0</b>	<b>250</b>	<b>2,083</b>	<b>987</b>	<b>8,631</b>	<b>2,041,73</b>

<b>Orange County Totals</b>	<b>38</b>	<b>3,049</b>	<b>1,625</b>	<b>15,264</b>	<b>5,874</b>	<b>969</b>	<b>103</b>	<b>1,651</b>	<b>3,580</b>	<b>14,121</b>	<b>9,577</b>	<b>55,851</b>	<b>11,501,80</b>
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# TURF REMOVAL BY AGENCY<sup>[1]</sup>

## through MWDOD and Local Agency Conservation Programs

Agency	FY 11/12		FY 12/13		FY 13/14		FY 14/15		FY 15/16		Total Program		Cumulative Water Savings across all Fiscal Years
	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	
Brea	3,397	9,466	7,605	0	5,697	0	71,981	30,617	36,912	26,800	125,592	66,883	53.30
Buena Park	0	0	0	0	0	0	11,670	1,626	16,410	2,417	28,080	4,043	6.36
East Orange	0	0	0	0	1,964	0	18,312	0	6,921	0	27,197	0	6.92
El Toro	4,723	0	4,680	72,718	4,582	0	27,046	221,612	27,927	102,313	68,958	396,643	136.43
Fountain Valley	1,300	0	682	7,524	4,252	0	45,583	5,279	23,039	0	74,856	12,803	24.76
Garden Grove	14,013	0	4,534	0	8,274	0	67,701	22,000	37,045	0	131,567	68,177	84.91
Golden State	42,593	30,973	31,813	3,200	32,725	8,424	164,507	190,738	69,612	19,772	341,250	253,107	200.36
Huntington Beach	27,630	48,838	9,219	12,437	20,642	0	165,600	58,942	108,034	130,398	331,926	254,266	174.31
Irvine Ranch	6,450	1,666	32,884	32,384	36,584	76,400	234,905	317,999	140,019	1,493,723	456,265	1,934,966	488.51
La Habra	0	8,262	0	0	0	0	14,014	1,818	15,543	2,936	29,557	20,791	19.33
La Palma	0	0	0	0	0	0	4,884	0	4,980	57,400	9,864	57,400	10.10
Laguna Beach	2,533	0	2,664	1,712	4,586	226	13,647	46,850	21,410	0	45,818	48,788	27.00
Mesa Water	6,777	0	10,667	0	22,246	0	131,675	33,620	60,739	0	232,104	33,620	74.85
Moulton Niguel	4,483	26,927	11,538	84,123	14,739	40,741	314,250	1,612,845	195,191	169,873	541,157	1,950,648	703.90
Newport Beach	3,454	0	3,548	2,346	894	0	33,995	65,277	23,793	230,024	65,684	297,647	69.42
Orange	12,971	0	15,951	8,723	11,244	0	120,093	281,402	43,279	0	203,538	290,125	146.09
San Clemente	21,502	0	16,062	13,165	18,471	13,908	90,349	1,137	68,798	397,239	215,182	425,449	135.88
San Juan Capistrano	22,656	103,692	29,544	27,156	12,106	0	101,195	32,366	47,865	51,538	213,366	214,752	176.59
Santa Margarita	1,964	11,400	10,151	11,600	17,778	48,180	211,198	514,198	175,481	180,077	421,055	771,016	310.56
Seal Beach	0	0	3,611	0	0	0	15,178	504	5,629	0	24,418	504	7.20
Serrano	0	0	0	0	2,971	0	41,247	0	44,902	0	89,120	0	19.08
South Coast	6,806	0	9,429	4,395	15,162	116,719	84,282	191,853	78,237	1,818	193,916	331,109	170.13
Trabuco Canyon	272	0	1,542	22,440	2,651	0	14,771	0	14,471	66,964	33,707	89,404	30.27
Tustin	0	0	9,980	0	1,410	0	71,285	14,137	52,646	1,700	135,321	15,837	37.71
Westminster	0	0	0	0	0	0	14,040	34,631	21,238	0	35,278	34,631	16.60
Yorba Linda	0	0	0	0	0	0	112,136	12,702	100,421	54,587	223,906	67,289	66.19
<b>MWDOD Totals</b>	<b>183,524</b>	<b>241,224</b>	<b>216,104</b>	<b>303,923</b>	<b>238,978</b>	<b>304,598</b>	<b>2,195,544</b>	<b>3,692,153</b>	<b>1,440,542</b>	<b>2,989,579</b>	<b>4,298,682</b>	<b>7,639,898</b>	<b>3,196.77</b>

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Anaheim	0	0	0	0	0	0	0	0	0	0	0	0	-
Billerston	0	0	0	0	0	9,214	0	0	0	0	0	9,214	3.87
Santa Ana	0	0	0	0	0	0	0	0	0	0	0	0	-
<b>Non-MWDOD Totals</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9,214</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9,214</b>	<b>3.87</b>

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<b>Orange County Totals</b>	<b>183,524</b>	<b>241,224</b>	<b>216,104</b>	<b>303,923</b>	<b>238,978</b>	<b>313,812</b>	<b>2,195,544</b>	<b>3,692,153</b>	<b>1,440,542</b>	<b>2,989,579</b>	<b>4,298,682</b>	<b>7,649,112</b>	<b>3,201</b>
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[1] Installed device numbers are listed as square feet

# HOME WATER SURVEYS PERFORMED BY AGENCY

through MWDOC and Local Agency Conservation Programs

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

Anaheim	0	0	0	0	0	0	0	0	0.00
Fullerton	0	0	17	0	1	0	18	0	0.82
Santa Ana	0	0	0	0	0	0	0	0	0.00
<b>Non-MWDOC Totals</b>	<b>0</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>0.82</b>
<b>Orange County Totals</b>	<b>78</b>	<b>0</b>	<b>181</b>	<b>1</b>	<b>53</b>	<b>0</b>	<b>312</b>	<b>1</b>	<b>15.266</b>

# **SYNTHETIC TURF INSTALLED BY AGENCY<sup>[1]</sup>** through MWDOC and Local Agency Conservation Programs

Agency	FY 07/08		FY 08/09		FY 09/10		FY 10/11		Total Program		Cumulative Water Savings across all Fiscal Years
	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	
Brea	0	0	2,153	2,160	500	0	0	0	2,653	2,160	3.30
Buena Park	0	0	1,566	5,850	0	0	0	0	1,566	5,850	5.19
East Orange	0	0	0	0	983	0	0	0	983	0	0.55
El Toro	3,183	0	2,974	0	3,308	0	895	0	10,360	0	6.98
Fountain Valley	11,674	0	1,163	0	2,767	0	684	0	16,288	0	12.46
Garden Grove	1,860	0	0	0	3,197	0	274	0	5,331	0	3.47
Golden State	6,786	0	13,990	0	15,215	0	2,056	0	38,047	0	24.88
Huntington Beach	15,192	591	12,512	0	4,343	1,504	0	0	32,047	2,095	25.29
Irvine Ranch	11,009	876	13,669	0	2,585	0	0	0	27,263	876	21.00
La Habra	0	0	0	0	0	0	0	0	0	0	-
La Palma	429	0	0	0	0	0	0	0	429	0	0.36
Laguna Beach	3,950	0	3,026	0	725	0	0	0	7,701	0	5.84
Mesa Water	4,114	0	3,005	78,118	4,106	0	2,198	0	13,423	78,118	63.46
Moulton Niguel	14,151	0	25,635	2,420	7,432	0	0	0	47,218	2,420	35.69
Newport Beach	2,530	0	6,628	0	270	0	0	0	9,428	0	6.92
Orange	4,169	0	7,191	0	635	0	0	0	11,995	0	8.89
San Clemente	9,328	0	11,250	455	2,514	1,285	500	0	23,592	1,740	18.37
San Juan Capistrano	0	0	7,297	639	2,730	0	4,607	0	14,634	639	9.02
Santa Margarita	12,922	0	26,069	0	21,875	0	7,926	0	68,792	0	44.68
Seal Beach	0	0	817	0	0	0	0	0	817	0	0.57
Serrano	7,347	0	1,145	0	0	0	0	0	8,492	0	6.97
South Coast	2,311	0	6,316	0	17,200	0	1,044	0	26,871	0	16.43
Trabuco Canyon	1,202	0	9,827	0	0	0	0	0	11,029	0	7.89
Tustin	6,123	0	4,717	0	2,190	0	0	0	13,030	0	9.67
Westminster	2,748	16,566	8,215	0	890	0	0	0	11,853	16,566	22.47
Yorba Linda	11,792	0	12,683	0	4,341	5,835	0	0	28,816	5,835	24.48
<b>MWDOC Totals</b>	<b>132,820</b>	<b>18,033</b>	<b>181,848</b>	<b>89,642</b>	<b>97,806</b>	<b>8,624</b>	<b>20,184</b>	<b>0</b>	<b>432,658</b>	<b>116,299</b>	<b>384.83</b>

Anaheim	4,535	0	7,735	20,093	13,555	65,300	4,122	0	29,947	85,393	69.18
Fullerton	4,865	876	5,727	0	6,223	0	105	0	16,920	876	12.36
Santa Ana	0	0	2,820	0	525	0	0	0	3,345	0	2.27
<b>Non-MWDOC Totals</b>	<b>9,400</b>	<b>876</b>	<b>16,282</b>	<b>20,093</b>	<b>20,303</b>	<b>65,300</b>	<b>4,227</b>	<b>0</b>	<b>50,212</b>	<b>86,269</b>	<b>83.81</b>

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

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

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

Anaheim	447	1,054	1,788	3,661	1,755	7,551	4,593	6,346	9,707	5,075	473	371	462	341	1	43,625	18,359.52
Fullerton	1,453	1,143	694	1,193	1,364	2,138	1,926	2,130	2,213	1,749	172	77	44	23	2	16,321	7,435.23
Santa Ana	1,111	1,964	1,205	2,729	2,088	8,788	5,614	10,822	10,716	9,164	279	134	25	5	0	54,644	22,887.95
<b>Non-MWDOC Totals</b>	<b>3,011</b>	<b>4,161</b>	<b>3,687</b>	<b>7,583</b>	<b>5,207</b>	<b>18,477</b>	<b>12,133</b>	<b>19,298</b>	<b>22,636</b>	<b>15,988</b>	<b>924</b>	<b>582</b>	<b>531</b>	<b>369</b>	<b>3</b>	<b>114,590</b>	<b>48,682.70</b>

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