MEETING OF THE BOARD OF DIRECTORS OF THE
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
Jointly with the
PLANNING & OPERATIONS COMMITTEE
September 5, 2023 8:30 a.m.

This meeting will be held in person. As a convenience for the public, the meeting may also be accessed by Zoom Webinar and will be available by either computer or telephone audio as indicated below. Because this is an in-person meeting and the Zoom component is not required, but rather is being offered as a convenience, if there are any technical issues during the meeting, this meeting will continue and will not be suspended.

Computer Audio: You can join the Zoom meeting by clicking on the following link:
https://zoom.us/j/8828665300

Telephone Audio:	**(669) 900 9128 fees may apply** **(877) 853 5247 Toll-free**
Webinar ID:	**882 866 5300#**

P&O Committee:
Director McVicker, Chair
Director Nederhood
Director Seckel

Staff: H.De La Torre, J. Berg, V. Osborn, T. Dubuque, D. Micalizzi, H. Baez, M. Baum-Haley, C. Busslinger, T. Baca

Ex Officio Member: Director Yoo Schneider

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.

ROLL CALL

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

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

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

ACTION ITEMS

1. AUTHORIZE WEROC MOBILE EOC

DISCUSSION ITEM

2. LEAD & COPPER RULE REVISIONS (LCRR) SERVICE LINE INVENTORY CHOICE PROGRAM

3. FINAL STATE WATER RESOURCES CONTROL BOARD STAFF RECOMMENDATIONS FOR MAKING CONSERVATION A CALIFORNIA WAY OF LIFE

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

4. 2023 OC WATER RELIABILITY STUDY – FINAL REPORT

5. MWDOC LEGISLATIVE POLICY PRINCIPLES ANNUAL UPDATE

6. OC WATER SUMMIT UPDATE

7. PUBLIC AFFAIRS HIGHLIGHTS

8. METROPOLITAN'S ASSESSED VALUATION FOR MWDOC AND ORANGE COUNTY FOR FISCAL YEAR 2022-23

9. DEPARTMENT ACTIVITIES REPORTS
   a. Ongoing MWDOC Reliability and Engineering/Planning Projects
   b. WEROC
   c. Water Use Efficiency Projects
   d. Public and Government Affairs

10. REVIEW OF ISSUES RELATED TO PLANNING OR ENGINEERING PROJECTS, WEROC, WATER USE EFFICIENCY, FACILITY AND EQUIPMENT MAINTENANCE, WATER STORAGE, WATER QUALITY, CONJUNCTIVE USE PROGRAMS, EDUCATION, PUBLIC AFFAIRS PROGRAMS AND EVENTS, PUBLIC INFORMATION PROJECTS, PUBLIC INFORMATION CONSULTANTS, DISTRICT FACILITIES, and MEMBER-AGENCY RELATIONS

ADJOURNMENT

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

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

Item No. 1

ACTION ITEM
9/20/2023

TO: Board of Directors

FROM: **Planning & Operations Committee**
(Directors McVicker, Nederhood and Seckel)

Harvey De La Torre, Interim General Manager

Staff Contact: Vicki Osborn

SUBJECT: AUTHORIZE WEROC MOBILE EOC

STAFF RECOMMENDATION

Staff recommends the Board of Directors approves Option #1 to move forward with the WEROC Mobile EOC

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

Since 2020, WEROC has tried to obtain funding for a new, permanent Emergency Operations Center (EOC) to replacing the aging and failing facility located in Mission Viejo.

At the March 2023 P&O Committee meeting, the Director of Emergency Management requested action by the Board for use of funding up to $500,000 from the available reserve funding to purchase a mobile EOC/Command Vehicle; and not move forward with the construction of the WEROC EOC project at the ETWD site. At the June 15, 2022, the funding the board approved was from the MWDOC reserves funds for user for the federal 25% local match if appropriations was granted at the federal level. The Board concurred with the termination of the South EOC permanent project with El Toro Water District and requested WEROC to come back with more specific numbers about the purchase of a mobile vehicle, and continue to pursue potential appropriations funding from the federal

Budgeted (Y/N): N	Budgeted amount:	Core __	Choice __
Action item amount:	Line item:		
Fiscal Impact (explain if unbudgeted): reserve funding of $378,103 will be allocated towards this project.			

level, and continue to seek a location to serve as a location point for the South EOC as an alternative measure.

In July, WEROC learned that the appropriation request was not granted at the federal level.

At the July 20th MWDOC Managers Meeting and the July 27th MET Managers Meeting, the Director of Emergency Management recapped the historical of the project and presented an overview of costs along with highlighting how the Mobile EOC would become a regional asset and use of singular incident to a complex event requiring a physical deployment of the vehicle. Both groups supported the project and outcomes. At the August A&F meeting WEROC brought a discussion to the committee to report on the information requests from the July meting and the results from the MWDOC Manager's and MET Manager's meetings. WEROC appreciates the feedback, thoughtful questions and discussion thus far from stakeholders and board members in regards to this project.

The board requested this item be brought back as an action item, options are presented below.

Attachments

A – MEOC Benefits
B – Estimate Quote
C – All in One Spreadsheet

BOARD OPTIONS

Option #1: Seek the Board's approval for estimated costs of $378,103 of available reserve funding, approved by the Board on June 15, 2022 for the federal 25% local match, to purchase a mobile EOC/Command Vehicle.
Fiscal Impact: Approve Funding from reserves will be allocated to support this project
Business Analysis:. This option is significantly lower in costs than the construction cost estimates of $4 million for the WEROC EOC. Additionally, this option will provide the basic standard capabilities WEROC required during an emergency while maintains the readiness of WEROC along with providing a regional asset that can be used by all agencies

Option #2: Do not approve funding from reserves for the WEROC Mobile EOC Project
Fiscal Impact: Reserves remain intact and are not used
Business Analysis:. WEROC continues to operate with limited response capabilities and a long term solution for the loss of the Primary WEROC EOC continues to be sought after,

MOBILE COMMAND POST/ EMERGENCY OPERATIONS CENTER (MEOC)

A mobile Command Post/Emergency Operations Center (MEOC) provides interoperable emergency communications and incident management resources anywhere required. When a multi-jurisdictional incident occurs, being able to communicate to and from all responding entities and manage the overall incident are key concerns.

Key Benefits

- Interconnected voice radio systems covering multiple bands
- Full featured phone system with voicemail
- ICS Role-based computers with office applications installed
- Broadband Internet access
- Customized radio console solution
- Self-contained, redundant power-generation capability
- Voice and video distribution for situational awareness

Capabilities

A MEOC contains numerous radio and IT systems on-board that provide interoperable communications and incident management functionality to a multi-jurisdictional response environment. Once on-scene MEOC personnel will assist in determining needs, creating a communications plan, and deploy and operate equipment necessary to meet the planning objectives.

Interoperable Communications

At the heart of the MEOC communications system is the WEROC 800Mhz system which provides interoperable communications capabilities for all WEROC agencies to be able to talk with each other in addition to other disciples such as law, fire and public works. The on-board phone system is also connected to the system enabling the MEOC to establish links between dissimilar radio system users, and can further permit them access to the public switched telephone network.

Voice and Data - Including Internet

The MEOC is to be equipped with a satellite Internet auto-acquisition system that can provide Internet access to the incident site within 7 minutes in virtually any environment along with full Wi-Fi systems (802.11a/b/g) on-board providing network connectivity to unwired computing platforms. Further, the MEOC can provide telephone network access via satellite, cellular and hard-wired circuits.

Mobile Emergency Operations Center Equipment

The MEOC brings the necessary essentials to assist a jurisdiction to establish an Emergency Operations Center (EOC) in a field environment. If a structure is available within 1000 feet of the vehicle location - MEOC personnel can extend cabling to that structure enabling the setup of tables, chairs, laptop computers, and phones, and backup generator power to any location.

Disaster Recovery Plan (MWDOC)

MEOC will contain server and a back-up system in the event the MWDOC location is not habitable in Fountain Valley, this vehicle will be able to support the critical business functions MWDOC requires to maintain operations (example Financial).

This Quote is valid through 6/23

480 Bessemer Road
Mt Pleasant, PA 15666
724-542-7640
724-542-7648 FAX
POC: Melissa Marks, Melissa@MobileConcepts.com

www.MobileConcepts.com

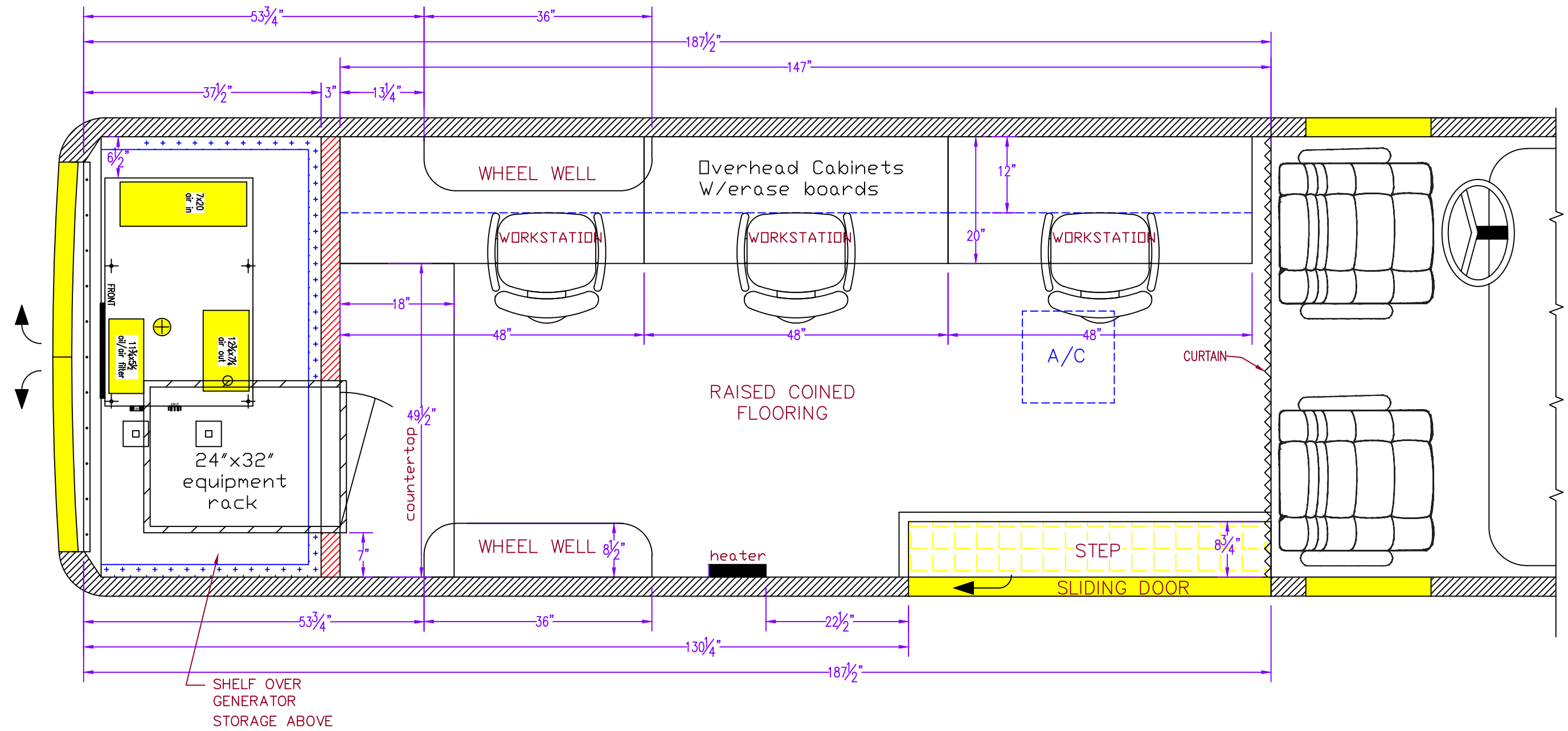
Date: 3/7/2023

PREPARED FOR:
Vicki Osborn
Municipal Water District of Orange County
18701 Ward Ave
Fountain Valley, CA 92708

ITEM	UNIT PRICE	QUANTITY	TOTAL PRICE
2023 Sprinter Mobile Command Center Dimensions: 290L x 80W (in.) • Mercedes • Pre-wire radio • Custom overhead cabinetry w/whiteboard inserts • Duplex wall outlets • Onan 8kw diesel powered generator installed in rear soundproof box • Turbocharged 4 cylinder diesel • 5 speed automatic transmission • 4-wheel hydraulic disc brakes with ABS • 25 gallon tank • Cruise control • A/c • Am/fm/cd stereo • 2 solid swing out doors on rear • Roof access ladder • Electric awning/activation switch • Wire chase with removable cover • Custom overhead cabinets • One (1) 19” wide equipment rack • Three (3) workstations, each with two (2) 110v, one (1) CAT6 • Three (3) task chairs • Raised coin flooring • Smooth fiberglass walls • Led ceiling lights	177,352.00	1	177,352.00

• Curtain to separate the cockpit and office area • 50 amp shoreline • Automatic transfer switch • One (1) 13,500BTU roof mounted a/c • One (1) 750w wall heater • Four (4) perimeter lights • One (1) exterior 110v outlet			
Total Commercial Price			177,352.00
Delivery			**13,497.00**
Total Price FOB			**$190,849.00**

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3WS Command

drafter: JOE MORGAN
filename: FLOORPLAN -1
Version: Autocad 2020
scale: 3/8" = 1'-0"

Date: 3-1-2022
Revised:
Size: B size
approved by:

Freightliner/ Mercedes
Extended Sprinter
FLOORPLAN-1

Model:

480 Bessemer Rd.
Mt. Pleasant, PA 15666
phone (724) 542-7640
fax (724) 542-7648

Mobile Concepts
Speciality Vehicles
Since 1956

WEROC Mobile EOC Data Equipment

Equipment Rack

		Equipment Cost	Reoccuring Cost	
	Electronics equipment rack; vented; fan	1,050		
Voice/Data				
	Multi-provider Gateway/Router	775	$125	Monthly Fee
	Starlink Satellite	3,200	$2,400	Annual Fee Minutes
	(11) handsets	2,475	$300	Monthly Fee
	Speaker/Conference Microphone	300		
	Conferece Poly System	700		
Network/Connectivity				
	(2) 24 port switch w/POE	900		
	(2) Wifi access points (inside and outside	600		
Screen Share				
	Hardware to share laptop screen to rem	500		
Uninterrupted Power (UPS)				
	Rack mounted/1500VA for approximate	400		
Storage				
	Storage area network	500		
Radios				
	(2) Motorola Dual Band 8000 APX Handhelc	20,000	$4,500	Reoccuring County Cost for being on County System
	(4) Motorola UHF HT750 Handheld Radios (	6,000		
Printing				
	Copier/Scanner	700		
	Mobile Plotter	1,000		
	LabelTac Pro X Mobile Printer	2,100		
	Sub	41,200		
			7325	

Baseline Cost Quoted		256,845	
Not included technology		41,200	
	Sub	298,045	
Taxes		26,079	
VLF (Registration)		1,600	This cost will change annually with depriation
Insurance		3,700	
15% Contingency Funding		48,679	
	Grand Total	378,103	

Item No. 2

COMMITTEE DISCUSSION ITEM
September 5, 2023

TO: **Planning & Operations Committee**
(Directors McVicker, Nederhood and Seckel)

FROM: **Harvey De La Torre, Interim General Manager**

Staff Contact: Charles Busslinger

SUBJECT: **Lead and Copper Rule Revisions (LCRR) Service Line Inventory Choice Program**

STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee review the presentation and discuss.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

DETAILED REPORT

The purpose of this item is to provide information to the Board on the LCRR Service Line Inventory (LSI) Choice Program as background for consideration of award of a professional services contract and authorization for the Interim General Manager to enter into agreements with participating agencies for reimbursement of consultant costs; to be presented for consideration at the upcoming September 13, 2023, Administration and Finance Committee Meeting.

Background

In March 2023 multiple member agencies requested MWDOC assistance with completing their US Environmental Protection Agency (USEPA) Lead and Copper Rule Revisions (LCRR) regulations LSI. At the May 1, 2023 P&O Committee meeting, staff presented background information on a potential Choice Program and received input from the Board to continue. Since the P&O Committee meeting, staff have developed and refined the Shared Services Choice Program in collaboration with interested agencies.

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

The USEPA published the Lead and Copper Rule Revisions (LCRR) Final Rule on January 15, 2021, with an effective date of December 17, 2021. Included in the LCRR are requirements for all water systems to complete a Service Line Inventory (SLI) regardless of ownership of the service line (i.e., including private property); and if service lines are found to contain or possibly contain lead, to also submit a Service Line Replacement Plan along with the SLI to the State (which has been delegated primary enforcement authority from the USEPA – known as Primacy) by October 16, 2024. The primacy agency for California is the State Water Resources Control Board Division of Drinking Water (DDW).

In August 2022 USEPA released a guidance document for developing and maintaining a SLI. In September 2022 the State updated its Frequently Asked Questions and guidance on the LCRR and Lead Service Line Inventory. In March 2023 Water Industry guidance for completing the LCRR inventory was released.

Under California Health and Safety Code section 116885, California water suppliers were required to complete an inventory of system-owned service lines by 2018. The LCRR inventory differs because water suppliers with lead, galvanized steel pipe that has ever been downstream of a lead pipe, known as Galvanized Requiring Replacement (GRR), or a service connection of unknown material on either the utility or customer side of the meter are required to make portions of the inventory publicly available in a readily accessible format. Fortunately, we can make use of 2018 inventories, and by including the proper supporting documentation, narrow the focus of the SLI to inventory the private property side of the meter.

LCRR Compliance Components

There are three (3) overall components agencies will implement to achieve LCRR compliance:

The first is a *Desktop Analysis* that includes data gathering, building an initial service line inventory, as well as developing and applying alternative material verification methods. Alternative (indirect) verification methods, such as geospatial statistical analysis and predictive modeling, upon approval by DDW, provide time and cost savings to agencies by reducing the number of physical examinations of service lines needed to take place.

The second compliance component is *Field Investigation* i.e., physical inspection of service lines at the meter box and at the riser immediately before the connection enters the building. If the service lines at both locations are found to be non-lead, the system is considered non-lead. DDW also recognizes the costs and difficulties associated with potholing on private property and has indicated that potholing is not expected and should be employed only as a last resort.

The third LCRR compliance component is *Ongoing Monitoring.* The LCRR comprises additional regulations for monitoring and sampling that are ongoing compliance requirements, including school/childcare sampling (currently a responsibility of schools/ child day care centers) and other sampling based on a tiered structure. Ongoing monitoring is <u>not intended to be part of this Choice Program</u> as these are on-going multi-year requirements that are beyond the scope of MWDOC's intended program. Agencies wishing to contract for these services are offered the opportunity to do so under separate consulting

agreements directly with the consultant. The consultant proposals identify these additional services, but the pricing needs to be negotiated between the interested agency and the consultant due to the highly individualized nature of these services.

Proposed Choice Program Scope of Work

The proposed Choice Program intends to offer technical consulting services that align with the compliance components described above under 12 standalone categories of service i.e., tasks. These tasks are designed to assist agencies achieve full compliance with the LCRR SLI (ongoing monitoring requirements are not covered as mentioned above). Because each agency's situation is unique, the Choice Program is set up as a menu of services for agencies to have the option to select as many or as few services they desire to have performed by the consultant. The exception is Task 1 Project Administration and Progress Reporting, which includes the costs for administration, meetings, etc., where all participating agencies must opt in.

Continuous Task

- Task 1 – Project Administration and Progress Report

Desktop Analysis

- Task 2 – Assistance with Data Gathering, Records Review, and Historical Code Review
- Task 3 – Develop Lead Service Line Inventory Database and Initial Inventory
- Task 4 – Develop Approach for alternative Material Verification Methods
- Task 5 – Apply DDW Approved Alternative Verification Methods
- Task 6 – Assistance with Data Analysis
- Task 9 – Develop Lead Service Line Replacement Plan
- Task 12 – Populate DDW Inventory Template and Service Line Inventory Submission

Field Investigation

- Task 7 – Customer Communications
- Task 8 – Develop and Implement Private Property Owner Self-Verifications
- Task 10 – Manage Field Inspection/Test Pitting/Meter Inspections
- Task 11 – Field Inspection Personnel to Assist with Physical Visual Verifications

Not Intended to be Part of Choice Program

Ongoing Monitoring

- Task A: School/Childcare Sample Site Selection and SOP
- Task B: Compliance Sample Site Selection and SOP

Additional Services

- Task C: Integrate Lead Service Line Inventory into Asset Management System

Request for Proposals and Consultant Solicitation Process

By providing these services under the Choice Program and hiring technical experts to perform the work, MWDOC creates significant value for agencies from increased efficiency

in cost and time to complete the project, streamlined project administration, and greater coordination among MWDOC and participating agencies that will lead to greater knowledge sharing and better understanding of a complex compliance requirement environment for the entire Orange County region. Qualified consultant(s) will provide technical expertise that MWDOC and individual agencies otherwise do not have.

The solicitation process began with the preparation of a Request for Proposals (RFP) by MWDOC and volunteers from interested agencies. The draft RFP was sent out for review on June 11, 2023 to those agencies who attended the initial meeting for review and comments. The final RFP was released on June 19, 2023 via advertisement on MWDOC's website and sent directly to seven firms known to have good LCRR qualifications. Five proposals were received. A Selection Committee was formed of volunteers from interested agencies to evaluate the proposals based on the criteria in the RFP.

Preliminary Costs

Every agency's situation is unique, therefore the level of effort and the cost for completing a Service Line Inventory to comply with the LCRR will be based on several factors including, system size/number of service connections, age of the developments in the service area, condition of existing records, existing staffing resources, level of development of existing GIS and CMMS systems, etc. Preliminary cost estimates based on these factors, primarily the number of service connections and condition and/or availability of existing digital records are shown below for an agency opting in for all categories of services except for field inspection (supplemental field personnel to assist with field inspections). Note that agencies will receive a volume discount when 10 or more agencies participate in a particular category of service. For example, a *high* level of effort represents an agency with a large number of non-digitized records (~ 300 record sets) which translates to an extensive time to review by the consultant.

No. of Service Connections *	**Level of Effort w/ Cost Savings (≥10 agencies) All Tasks (1 - 12) excl. Field Inspection (Task 11)**		
	Low	**Med**	**High**
1 - 20,000	$156,987 (30% Discount)	$179,374 (30% Discount)	$203,379 (30% Discount)
20,001 - 40,000	$188,805 (29% Discount)	$211,192 (29% Discount)	$235,198 (29% Discount)
40,000+	$220,624 (28% Discount)	$243,011 (28% Discount)	$267,016 (28% Discount)
* **Negotiated Volume Discounts**			

Many agencies may choose to utilize the Choice Program for the desktop analysis and inventory development only and perform all field-related tasks in-house. Preliminary cost estimates for agencies opting for desktop tasks only is summarized below:

No. of Service Connections *	Level of Effort w/ Cost Savings (≥10 Agencies) Desktop Analysis + Inventory (incl. Tasks 1 - 6 & 12) No Fieldwork (excl. Tasks 7 – 11)		
	Low	**Med**	**High**
1 - 20,000	$73,528 (24% Discount)	$95,915 (22% Discount)	$119,921 (24% Discount)
20,001 - 40,000	$88,765 (23% Discount)	$111,152 (24% Discount)	$135,158 (25% Discount)
40,000+	$104,002 (22% Discount)	$126,389 (47% Discount)	$150,395 (24% Discount)
* **Negotiated Volume Discounts**			

Timeline

MWDOC staff will be making a recommendation for consideration of award of a professional services contract at the September 13, 2023 Administration and Finance committee meeting for full Board consideration of award at the September 20, 2023 Board meeting. Immediately after the consultant's agreement is in place, individual participating agencies will begin one-on-one meetings with MWDOC staff and the consultant to select categories of services and determine the level of effort (high/medium/low) for each selected category of service. Then MWDOC will complete participation agreements with individual participating agencies and issue Notice to Proceed on a first come, first served basis.

Timeline	Dates
Recommendation of Award at A&F Committee	September 13, 2023
MWDOC Board Consideration of Award at Board Meeting	September 20, 2023
Complete Agreements between MWDOC and Participating Agencies	Oct 2023
Notices to Proceed (First Come, First Served)	Oct 2023
Submit Initial Service Line Inventory to DDW	October 1, 2024
DDW Submittal Deadline	October 16, 2024



Shared Services Program Update

Lead & Copper Rule Revisions - Service Line Inventories

Charles Busslinger, Director of Engineering
Municipal Water District of Orange County

MWDOC P&O Committee Meeting 09.05.2023

1

Lead & Copper Rule Revisions

In mid-March 2023, staff received requests from multiple agencies for assistance in completing Lead Service Line Inventories (LSLI) through creation of a new MWDOC **CHOICE** Shared Services Program.

15 Jan. 2021
Lead & Copper Rule Revisions (LCRR) Final Rule
- U.S. EPA committed to further revise the LCRR by October 2024 with the Lead and Copper Rule Improvements (LCRI)
- Set Lead Service Line Inventory (LSLI) Deadline to Oct. 16, 2024

Mar 2023
Guidance Released
- State FAQ/Guidance
- Industry Guidance

Oct. 16, 2024
Deadline for Service Line Inventory submittal to State

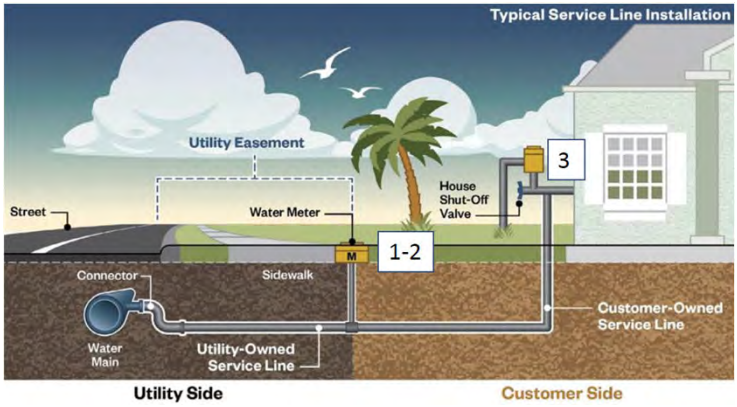
US EPA Lead Service Line Inventory (LSLI) Guidance Released
Aug. 2022

LCR Improvements – 1st Draft anticipated Sept 2023

2

2

LCRR - LSLI Requirements



- "Water systems must develop an inventory to identify service line materials connected to the public water distribution systems by Oct. 16, 2024."
- "The inventory must include all service lines connected to the distribution system, regardless of ownership status" up to the building inlet.
- **This includes private property**

3

3

LCRR Monitoring Requirements

- Water systems* "must conduct sampling:
  - at 20% of elementary schools & childcare facilities per yr., and
  - at secondary schools on request for 1 testing cycle (5 yrs.), and
  - on request of all schools & child care facilities thereafter."
- Water systems are required to communicate results to users of the facility and parents

(Excludes facilities built or having replaced all plumbing after Jan 1, 2014.)

* Previously a Child Day Care Center responsibility under 2018 AB 2370.



Credit: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/leadsamplinginschools.html

4

4

LCRR - LSLI Requirements

Lead Service Line Inventory Submittals	• Require all agencies to submit (both agency & customer side) • Primacy agency is State of California Division of Drinking Water (DDW) • Due to DDW on October 16, 2024 (Target **October 1, 2024 submittal)**
Choice Program Services	• **Desktop Analysis** – data gathering, historical code review, system data review • **Field Investigation** – meter inspection, potholing (last resort) • **Ongoing Monitoring** – **NOT** part of Choice Program offerings.
Upcoming Regulations	• Lead and Copper Rule Improvements (LCRI) • Likely 1st draft in September 2023 • May eliminate possible additional requirements

5

5

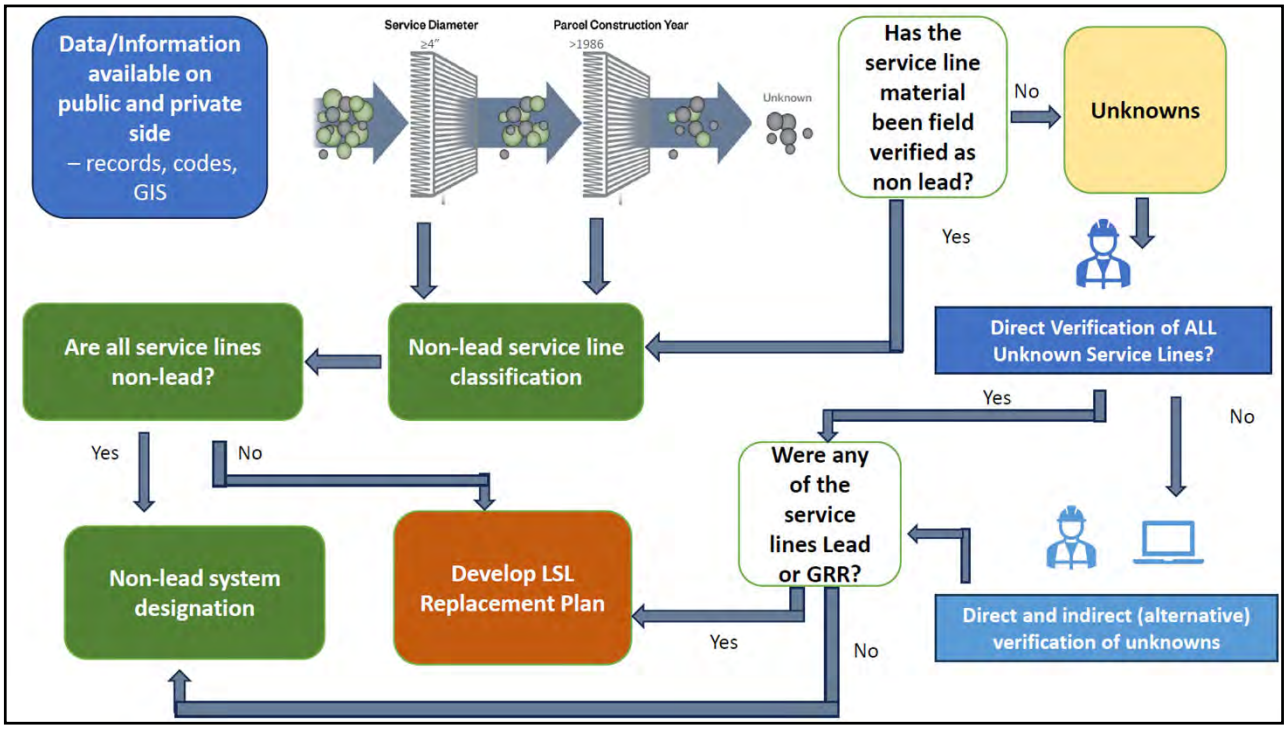
LCRR Compliance Components

Desktop Analysis	• Review historical codes, meter records, GIS, drawings, staff interview • Develop **initial service line inventory** with "lead status unknowns" • Develop DDW-approved approach for **material verification** • Verify material using indirect (alternative) verification of unknowns
Field Investigation	• Direct verification of unknown service lines • **Inspection at meter box** and at riser into building. Potholing not expected. If both are non-lead, system is considered non-lead • Customer **self-verification**
Ongoing Monitoring	• **NOT** part of Choice Program offerings • **School/Childcare Facility Sampling** and Communication • **Revised Tiered Tap Sampling** e.g. *Tier 1* buildings served by LSL; *Tier 3* SFSs* with galvanized service lines downstream of LSL; *Tier 5* representative sites throughout system

*SFSs = Single Family Structures

6

6



7

Timeline

Work Group	Release of RFP	Board Award	Agency Sign up	Notice to Proceed
May/Jun. 2023	**Jul/Aug. 2023**	**Sep. 2023**	**Oct. 2023**	**Oct/Nov. 2023**
Meet with Agencies & Water Boards Staff	Meeting with Consultants	Return to Board with recommend-ation for Award	Agency Selection of Services	**Begin Work**
Work Group Develop RFP	Issue RFP		Agreements	
Develop Agreements	Receive & Score Proposals			
	Negotiate Services			

MWDOC

8

8

Scope of Work (Menu Options)

Task 1
Project Administration & Progress Reporting
(All Agencies)

- Project management, monthly progress reports and meetings
- Data collection & management, QA/QC

Task 2
Assistance with Data Gathering, Records Review, & Historical Code Review

- "Wide & shallow" record review to reduce unknowns
- Plumbing codes, construction permits, system maps & records

Task 3
Develop Lead Service Line Inventory Database & Initial Inventory

- Central live GIS database, auto-populate DDW template
- Dashboards for internal agency access + public display (geospatial)

Task 4
Develop Approach for Alternative Material Verification Methods

- Combination of methods to identify "unknowns"
- SOP for material verification & Service Line Identification Action Plan

9

9

Scope of Work (Menu Options)

Task 5
Apply DDW Approved Alt. Verification Methods

- List of prioritized sites for verification
- Service line verification w/ goal to minimize excavation

Task 6
Assistance with Data Analysis

- Identify actual pipe materials
- Update GIS dashboard
- Web-enabled public inventory

Task 7
Customer Communications

- Customer Outreach campaigns & notifications
- Board community vs targeted communication

Task 8
Develop & Implement Private Property Owner Self-Verifications

- Customer Survey (online & postcard)
- Field verify a subset (as-needed)

10

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Scope of Work (Menu Options)

Task 9
Develop Lead Service Line Replacement Plan

- Required if have "lead status unknowns"
- Replacement goal rate, prioritization strategy
- Consider CIP and capital/time constraints

Task 10
Manage Field Inspections/Test Pitting/Meter Inspections

- Field Verification mobile app and QC dashboard
- Training materials
- Customer education, support, and permission

Task 11
Provide Field Inspection Personnel to Assist w/ Physical Visual Verifications

- 3-point verification: 1) agency-side, 2) customer-side at meter box, and 3) riser at building
- Vacuum truck and pressure washers
- Potholing as a last report

Task 12
Populate DDW Inventory Template & Service Line Inventory Submission

- Convert ESRI inventory template into DDW template for submittal
- Revisions to inventory per DDW's response

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Material Verification Methods

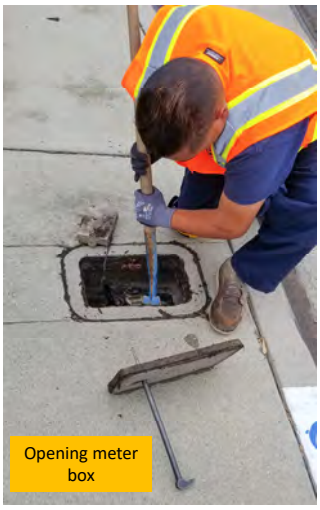
Verification Method	
Field Inspections	**Field Inspections - Visual examination of service line material** DDW is allowing visual inspection at the meter box, and the riser to the house/building – if both are non-lead = system considered non-lead (to avoid potholing)
Customer Validation	Customer Validation - Enable customers to verify service line material
Sequential Monitoring*	Sequential Monitoring – Sequential sampling to determine the presence of lead (low lead results cannot be used to indicate the absence of lead)
Statistical Analysis*	Geospatial statistical analysis. Interpolative analysis for sub-divisions and distinct areas, or Confidence Level approach relying on statistics
Predictive Modeling*	Case-by-Case Basis – machine learning may be useful if the number of lead connections found are sufficient for 'learning'.

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Meter Box & Riser Inspection





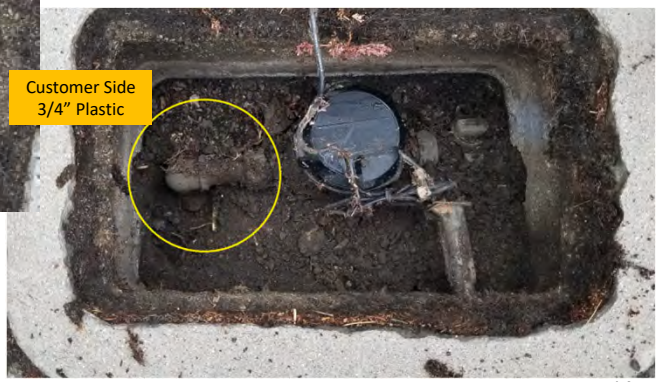


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Meter Box Inspection





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Additional Services

NOT part of Choice Program services. Agency negotiates & contracts directly with consultant.

Integrate SLI into Agency Asset Management System

- Identify gaps in CMMS systems
- Update "integrated" database

School/Childcare Facility Sample Site Selection and SOP

- Sample 20% of school/childcare facilities per year for first 5 years
- Conduct outreach to schools and stakeholders annually
- SOP for sampling and communication

Compliance Site Selection and SOP

- Revise LCR sampling sites to reflect new LCRR tiered structure (to prioritize target locations)
- List of prioritized sites, tier assignment, customer outreach info

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Budgetary Estimates (per Agency)

Desktop Analysis
No Fieldwork

No. of Service Connections	Level of Effort w/o Cost Savings Desktop Analysis + Inventory (incl. Tasks 1 - 6 & 12) No Fieldwork (excl. Tasks 7 – 11)		
	Low	Med	High
1 - 20,000	$96,180	$123,215	$157,020
20,001 - 40,000	$114,555	$146,460	$180,265
40,000+	$132,930	$236,595	$198,640

Desktop Analysis
No Fieldwork

No. of Service Connections *	Level of Effort w/ Cost Savings (≥10 Agencies) Desktop Analysis + Inventory (incl. Tasks 1 - 6 & 12) No Fieldwork (excl. Tasks 7 – 11)		
	Low	Med	High
1 - 20,000	$73,528 (24% Discount)	$95,915 (22% Discount)	$119,921 (24% Discount)
20,001 - 40,000	$88,765 (23% Discount)	$111,152 (24% Discount)	$135,158 (25% Discount)
40,000+	$104,002 (22% Discount)	$126,389 (47% Discount)	$150,395 (24% Discount)
* Negotiated Volume Discounts			

Advise agencies to budget for contingency of at least 10%

PRELIMINARY 16

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Budgetary Estimates

Desktop Analysis &
Field Work Supervision
(No Inspections)

No. of Service Connections	Level of Effort w/o Cost Savings All Tasks (1 - 12) excl. Field Inspection (Task 11)		
	Low	Med	High
1 - 20,000	$223,320	$255,225	$289,030
20,001 - 40,000	$264,835	$296,740	$330,545
40,000+	$306,350	$338,255	$372,060

Desktop Analysis &
Field Work Supervision
(No Inspections)

No. of Service Connections *	Level of Effort w/ Cost Savings (≥10 Agencies) All Tasks (1 - 12) excl. Field Inspection (Task 11)		
	Low	Med	High
1 - 20,000	$156,987 (30% Discount)	$179,374 (30% Discount)	$203,379 (30% Discount)
20,001 - 40,000	$188,805 (29% Discount)	$211,192 (29% Discount)	$235,198 (29% Discount)
40,000+	$220,624 (28% Discount)	$243,011 (28% Discount)	$267,016 (28% Discount)
* Negotiated Volume Discounts			

PRELIMINARY 17

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Survey of Agency Interest

Workshop Meeting August 10, 2023

21 of 22 (95%) of respondents indicated interest in participating in this Choice Program services.

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Schedule & Next Steps

Task Item	Anticipated Dates
Agencies to provide commitment to MWDOC	Aug 31, 2023
Choice Program Update at P&O Committee	Sep 5, 2023
Recommendation of Award at A&F Committee	**Sep 13, 2023**
MWDOC Board Consideration of Award at Board Meeting	**Sep 20, 2023**
Complete Agreements between MWDOC and Participating Agencies	October 2023
Notices to Proceed (First Come, First Served)	October 2023
Submit Initial Service Line Inventory to DDW	Oct 1, 2024

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Thank you for your attention.
Please **let us know** if you have questions.

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Item No. 3

DISCUSSION ITEM
September 5, 2023

TO: **Planning & Operations Committee**
(Directors McVicker, Nederhood, and Seckel)

FROM: **Harvey De La Torre, Interim General Manager**

Staff Contact: Joe Berg, Director of Water Use Efficiency

SUBJECT: **Final State Water Resources Control Board Staff Recommendations for Making Conservation a California Way of Life**

STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee receive and discuss this report.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

In 2018, the California State Legislature enacted Senate Bill 606 and Assembly Bill 1668 to establish a new foundation for improvements in water conservation. These companion bills direct the State Water Resources Control Board (Water Board) to adopt long-term volumetric standards for the efficient use of water and performance measures for commercial, industrial, and institutional water use. Volumetric standards have already been adopted for indoor residential water use and for distribution system water loss through AB 1175 and SB 555 respectively.

On August 18, 2023, the Water Board formally started the rule making process to adopt the Making Conservation a California Way of Life water use efficiency standards for residential outdoor water use, dedicated irrigation meter water use and commercial industrial and institutional Performance Measures. The documentation for the rule making process can be accessed here:

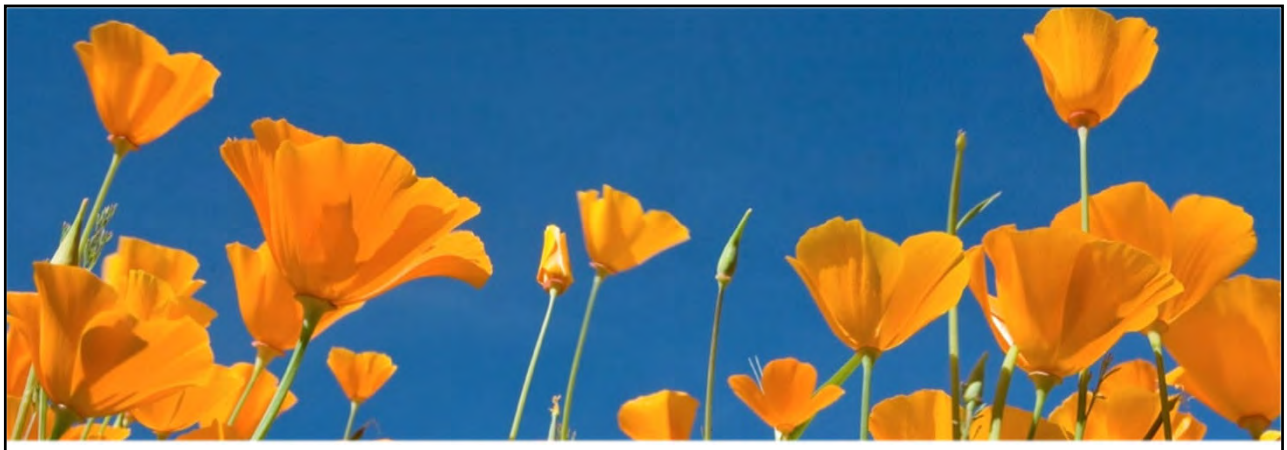
https://www.waterboards.ca.gov/conservation/regs/water_efficiency_legislation.html#reg-docs

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

DETAILED REPORT

At the September 5, 2023 Planning and Operations Committee Meeting, staff will provide the attached presentation summarizing the Water Board's final staff recommendations for Making Conservation a California Water of Life.

The Water Board has scheduled a public hearing for October 4, 2023 to allow staff to present their recommendations and to begin receiving public comments. While a quorum of the Water Board may be present, the Board will not take formal action at the public hearing. The comment period will remain open until October 17, 2023. The schedule for adopting the standards beyond this date is not clear at this time, but staff anticipates more will be revealed at the hearing.



Final Recommendations for Making Conservation a California Way of Life

Joe Berg, Director of Water Use Efficiency
Planning & Operations Committee

September 5, 2023

1

What will be presented?

01 Conservation as a CA Way of Life Framework Basics

02 Final Standard Recommendations

03 Commercial, Industrial and Institutional Performance Measures

04 Next Steps

05 How MWDOC is Providing Assistance

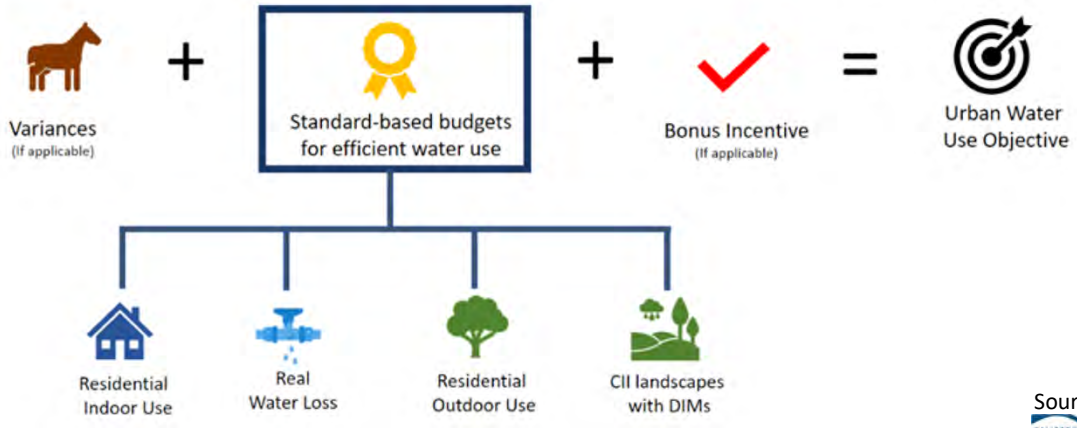


2

Framework Basics

Implement SB 606 & AB 1668 (2018)

Figure 1: How a supplier calculates its urban water use objective



Source: California Water Boards

3

Final Standard Recommendations

Figure 2: How a supplier would calculate its Residential Indoor Budget



Table 1: Residential indoor standard as defined in Water Code Section 10609.4

	Residential Indoor Standard (GPCD)
Through December 31, 2024	55
From January 1, 2025, through December 31, 2029	47
January 1, 2030, onwards	42

Established by AB 1175 in 2022.

Source: California Water Boards

4

Final Standard Recommendations

Figure 3: How a supplier would calculate its Residential Outdoor Budget



Table 2: Residential Outdoor standards

	Landscape Efficiency Factor
Through June 30, 2030	0.80
From July 1, 2030, to June 30, 2035	0.63
July 1, 2035, onwards	0.55

Limited variances can be requested annually.

Source:

5

Final Standard Recommendations

Figure 4: How a supplier would calculate its Outdoor Budget for CII landscapes with DIMs



Table 3: Standard for CII Landscapes with Dedicated Irrigation Meters

	Landscape Efficiency Factor
Through June 30, 2030	0.80
From July 1, 2030, to June 30, 2035	0.63
July 1, 2035, onwards	0.45

Special Landscape Areas = LEF of 1.0 (i.e. Sites irrigated with recycled water, engineered slopes, etc.)

Limited variances can be requested annually

Source:

6

Final Standard Recommendations

Figure 5: How a supplier would calculate its Water Loss Budget



A supplier would calculate its annual water loss budget by multiplying its system-specific standard by the number of days in the year and, depending on the units associated with the standard, either the number of total service connections or the length of the distribution system, in miles.

Established through Rule Making process required by SB 555.

Source: WATER BOARDS

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Bonus Incentive for Potable Reuse

- Bonus incentive available for potable reuse
  - Not to exceed 15% of objective for "existing facilities"
    - Environmental review completed before 1/1/2019; production began before 1/1/2022.
    - Utilizes microfiltration and reverse osmosis technologies.
  - Not to exceed 10% of objective for "other facilities"
- GWRS considered an "existing facility"
  - Basin agencies may be eligible to add up to 15% to their calculated objective.
  - Based on individual retailer's potable reuse volume delivered to residential and DIM connections, adjusted for groundwater recharge and recovery loss.



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CII Performance Measures

Not Volumetric







- Customer Classification System
  - U.S. EPA's ENERGYSTAR Portfolio Manager (18 categories)
    - Plus CII laundries, large landscapes, water recreation, and car washes.
  - Includes timelines and compliance milestones for suppliers to complete classifications.
- Best Management Practice (BMP) Implementation Plans
  - Targets top 2.5% and 20% of CII users for specific offerings.
  - Offers a menu of rebate, education, etc. options to choose from.
  - Bans potable irrigation of NFT by July 1, 2025.
  - Includes timelines and compliance milestones for suppliers to begin offering programs by July 1, 2025.

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CII Performance Measures (Cont.)



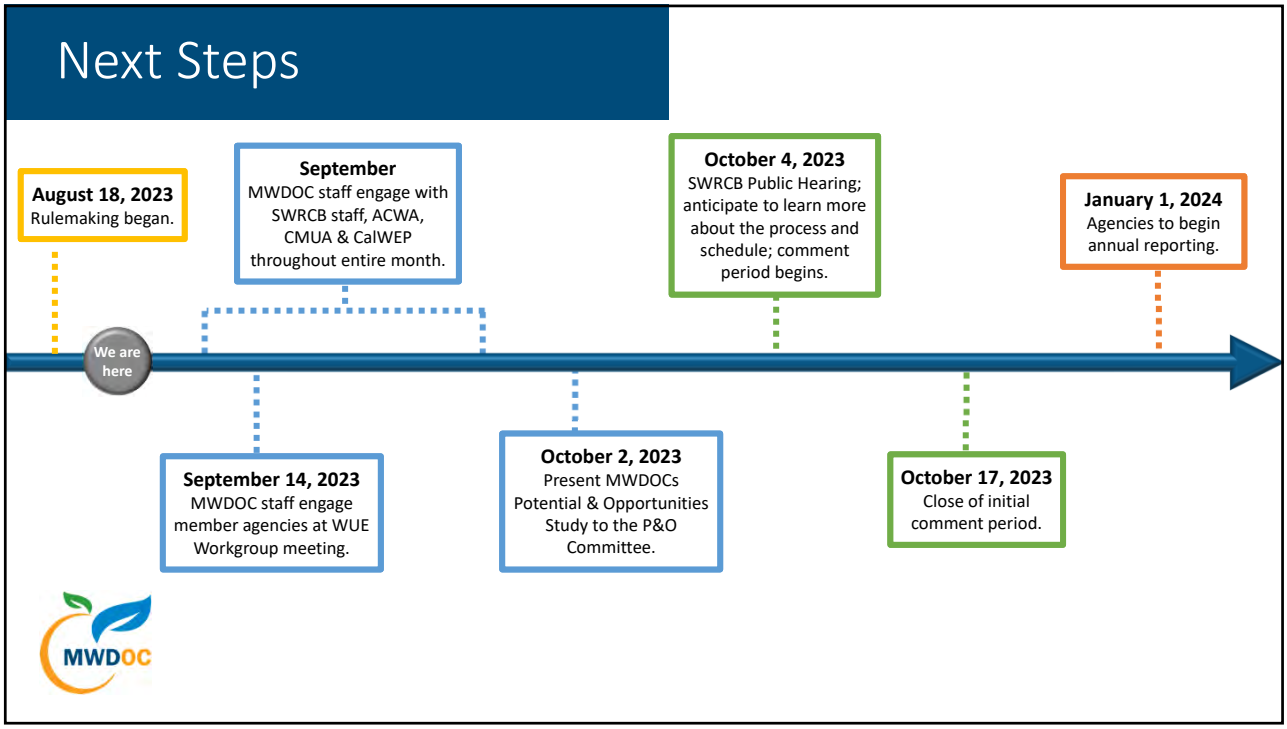


- Splitting mixed-use CII Meters
  - Threshold of 500,000 gallons or more per year per meter used towards irrigation, triggers the split to indoor and outdoor metering.
    - Landscape water use to be estimated using an efficiency factor of 0.76.
    - Dedicated metering or In-lieu technology.
  - If split, new dedicated irrigation meters become part of the volumetric standard.
  - New indoor meters stay in CII Performance Measures BMPs.

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Next Steps



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How MWDOC is Assisting Member Agencies

- General awareness of Standards development and adoption process.
- Numerous comment letters over the past several years.
- WUE Program Implementation & Funding Acquisition.
- Water Loss Shared Services and Technical Assistance.
- Dedicated Irrigation Meter Area Measurements – *underway*.
- CII Customer Classifications – *initiation and RFP process soon*.
- CII BMP Implementation Plans - *initiation and RFP process soon*.



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Discussion

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Thank you for your attention.
Please **let us know** if you have questions.

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MWDOC MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

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Item No. 4

INFORMATION ITEM
September 5, 2023

TO: **Planning & Operations Committee**
(Directors McVicker, Nederhood and Seckel)

FROM: **Harvey De La Torre, Interim General Manager**

Staff Contact: Charles Busslinger

SUBJECT: **2023 OC Water Reliability Study Final Report**

STAFF RECOMMENDATION

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

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

To help guide planning for future water supply reliability for water providers in Orange County and provide input on regional water supply issues for Orange County Metropolitan Water District of Southern California (MET) Directors; the Municipal Water District of Orange County (MWDOC) has prepared the 2023 Orange County Water Reliability Study (2023 OC Study). The 2023 OC Study evaluates a number of changed conditions (uncertainties) since the completion of the previous 2018 OC Study through a set of five (5) water reliability planning scenarios using a 2050 planning horizon (see page 22 of the Report).

The 2023 OC Study findings were presented at six meetings (both public meetings and water agency focused meetings), as well as discussed in numerous additional meetings in preparation for this final report. Through these meetings staff obtained feedback from Directors, the public, staff from OC water agencies, and Metropolitan staff. The comments received have been incorporated into this final report.

The following are key findings and recommendations of the report:

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

Key Findings

1. Under a hot/dry climate future (which recent evidence seems to suggest might be the current path), coupled with 15 percent mandatory water demand restrictions and optimistic future water supply assumptions (i.e., maximum levels of local and regional reuse, increased water use efficiency, new water transfers and storage, and implementation of the Delta Conveyance Project), the analysis indicates that water shortages in the MET and Orange County service area can still occur. The maximum water shortage in 2050 under these future conditions (as represented in Scenario 5) is 171,000 AFY for MET and 40,000 AFY for all of Orange County. The probability of these maximum shortages occurring is 3.5 percent.
2. Within Orange County, these net water shortages can be reduced to near zero values utilizing recent investments made by local water agencies in reuse and water banking, temporarily maximizing local groundwater beyond overdraft targets, and with planned new water supply projects.
3. The maximum value of the Delta Conveyance Project, when coupled with 250,000 AF of new regional storage, is estimated to be 367,000 AFY for MET and 63,000 AFY for Orange County. The Delta Conveyance Project also reduces the probability that any shortage occurs by about 10 percent—meaning a doubling of the time between shortage conditions from once every 5 years to once every decade.
4. Based on MWDOC's 2022 report on the Economic Impacts of Water Shortages in Orange County, the value of water supply investments in Orange County is estimated to be approximately $2,500/AF in present value terms. In comparison, the present value unit costs of recently completed and planned water supply projects in Orange County range from $1,950-$2,350/AF. Therefore, it can be interpreted that these Orange County projects represent a net economic benefit to Orange County.

Recommendations

1. Orange County water agencies should continue to make investments in water reuse, water use efficiency, water transfers and banking, groundwater/surface water conjunctive use, and desalination.
2. Orange County officials should advocate for a balanced regional portfolio of water supplies for MET that includes:
    a. implementation of MET's Pure Water Southern California program;
    b. implementation of the Delta Conveyance Project;
    c. new regional storage, which could include participation in the proposed Sites Reservoir Project;
    d. continued financial support for water use efficiency and local projects, and
    e. exploration of regional seawater desalination.
3. Orange County and MET should continue to study the evolving science of climate change and its impacts on water demands and supplies, as well as develop adaptive management strategies to mitigate these impacts.

DETAILED REPORT

The 2023 OC Study evaluates a number of changed conditions (uncertainties) since the completion of the previous 2018 OC Study through a set of five (5) water reliability planning scenarios using a 2050 planning horizon (see page 22 of the Report). These changed conditions include:

- Improved understanding of climate change impacts on water supply reliability.
- Declining water availability from the State Water Project and the Colorado River.
- Changes in planned water supply projects, such as the State of California's withdrawal of permits for the two-tunnel California WaterFix project and replacement with a one-tunnel Delta Conveyance Project.
- The advancement of MET's Pure Water Southern California project.
- Reduced regional and Orange County water demands through successful water reuse and water use efficiency efforts.
- Completion of MET's 2020 Integrated Water Resources Plan (IRP) Needs Assessment, including higher assumptions of new local water supplies in the region than previously projected.

The 2023 OC Study developed five (5) water reliability planning scenarios which add to the scenarios evaluated in the 2018 OC Study (see page 22 of the Report). These new scenarios use a 2050 planning horizon to analyze future water shortages for MET and Orange County based on updated information. Each of the five scenarios are deemed fully plausible and follow the Intergovernmental Panel on Climate Change (IPCC) 6th Assessment Report and International Energy Agency forecasts of likely future global temperature conditions.

The following assumptions and considerations were included in these scenarios:

- Average demands similar to the average of the demands in Metropolitan's 2020 IRP
- IPCC and International Energy Agency forecasts of likely climate change futures
- Inclusion of new Metropolitan water supply projects

Note, none of the new scenarios are considered "Black Swan" or extreme future conditions scenarios. Although the probabilities of extreme future conditions occurring are low, they are not zero. The question of 'What level of reliability should we be planning for' has to be viewed through the lens of financial capabilities, as 100% reliability in the most extreme theoretical future conditions comes at extremely high costs. Examples of a worst-case (or Black Swan) scenario would include;

- very high projections of regional water demand (instead, average demands similar to the average of MET 2020 IRP demands were used),
- a worst-case climate change forecast, (instead, IPCC and International Energy Agency forecasts of <u>likely</u> climate change futures were used)
- no new MET water supply projects implemented (New MET water supply projects are included in these 5 plausible scenarios).

For each of the five scenarios, water supply shortages were estimated in terms of magnitude and probability for the forecast period between now and 2050. **Table 1** below presents the regional water demands and supplies for the MET Region for Scenario 4,

which is the worst-case hydrology of the five plausible scenarios. **Table 2** below presents total water demand and supplies for Scenario 4 for all of Orange County (for additional details see the 2023 OC Study).

Table 1. Total MET Region Water Demands & Supplies for Scenario 4 under Worst-Case Hydrology of the five scenarios evaluated

Demand and Supplies (AFY)	2030	2050
Regional Water Demands (no restrictions*)	3,559,000	4,108,000
Regional Local Water Supplies	2,173,371	2,313,837
MET SWP Supply	80,000	70,000
MET CRA Supply	550,000	470,000
MET Other Supplies*	270,629	169,163
Maximum Water Shortage	485,000	1,085,000
* No mandatory State, Regional, or Local Water Demand Restrictions ** Pure Water Southern California, storage, and transfers.		

Table 2. Total Orange County Water Demands & Supplies for Scenario 4 under Worst-Case Hydrology of the five scenarios evaluated

Demand and Supplies (AFY)	2030	2050
Total OC Water Demand (no restrictions*)	**550,000**	**578,000**
OC Local Supplies	**306,000**	**285,005**
MET Supply	**139,000**	**103,995**
Maximum Water Shortage	**105,000**	**189,000**
* No mandatory State, Regional, or Local Water Demand Restrictions		

Table 3 presents the **maximum water shortage** without mandatory water demand restrictions and the probabilities that any sized shortage will occur for each scenario.

Table 3. Water Shortages <u>without</u> Mandatory Water Demand Restrictions

Max Water Shortage w/o Water Demand Restrictions (TAF)

Region	Max Shortage (TAF) in 2030					Max Shortage (TAF) in 2050				
	Sc 1	Sc 2	Sc 3	Sc 4	Sc 5	Sc 1	Sc 2	Sc 3	Sc 4	Sc 5
MET Service Area	209	508	508	485	485	0	1,100	927	1,085	718
OC Basin	24	66	66	70	70	0	153	122	130	86
South Orange County	10	30	30	31	31	0	57	47	52	35
Brea/La Habra	1	3	3	4	4	0	6	5	7	5

Probability of Any Shortage Occurring (%)

Region	Probability of Any Shortage (%) in 2030					Probability of Any Shortage (%) in 2050				
	Sc 1	Sc 2	Sc 3	Sc 4	Sc 5	Sc 1	Sc 2	Sc 3	Sc 4	Sc 5
MET Service Area	3	4	4	4	4	0	20	10	20	9
OC Basin	3	4	4	4	4	0	19	10	20	9
South Orange County	3	4	4	4	4	0	19	10	20	9
Brea/La Habra	3	4	4	4	4	0	18	10	20	9

The above probabilities illustrate that by 2050; without the Delta Conveyance Project or some other additional water supply project delivering an equivalent amount of water to the MET region, MET and OC will be in some sort of water shortage condition approximately once every five years (Scenarios 2 & 4).

Mandatory Water Restrictions

It is assumed that mandatory water restrictions will continue to be enforced during critical droughts. As Water Use Efficiency efforts or 'Conservation As a California Way of Life' have greatly improved water use efficiency throughout the region, the ability to further reduce demands through mandatory demand restrictions now have a lesser effect on water demands (demand hardening). Mandatory demand restrictions that were imposed decades ago often yielded 20% demand reduction results; now those same mandated water restrictions yield lower demand reduction results on the order of 15%.

The net water shortages **with the implementation of mandatory water demand restrictions** are presented in **Table 4** for each scenario.

Table 4. Water Shortages <u>without & with</u> Mandatory Water Demand Restrictions

Max Water Shortage w/o Water Demand Restrictions (TAF)

Region	Max Shortage (TAF) in 2030					Max Shortage (TAF) in 2050				
	Sc 1	Sc 2	Sc 3	Sc 4	Sc 5	Sc 1	Sc 2	Sc 3	Sc 4	Sc 5
MET Service Area	209	508	508	485	485	0	1,100	927	1,085	718
OC Basin	24	66	66	70	70	0	153	122	130	86
South Orange County	10	30	30	31	31	0	57	47	52	35
Brea/La Habra	1	3	3	4	4	0	6	5	7	5

Max Water Shortage with 15% Water Use Restrictions in Place (TAF)

Region	Max Shortage (TAF) in 2030					Max Shortage (TAF) in 2050				
	Sc 1	Sc 2	Sc 3	Sc 4	Sc 5	Sc 1	Sc 2	Sc 3	Sc 4	Sc 5
MET Service Area	0	33	33	15	15	0	535	362	538	171
OC Basin	0	6	6	9	9	0	87	59	67	23
South Orange County	0	10	10	11	11	0	37	27	32	15
Brea/La Habra	0	0	0	1	1	0	3	2	4	2

Note: While the scenarios presented in the 2023 OC Study represent five distinct plausible futures, there were many more scenarios that could have been evaluated. For example, planning scenarios that were not tested include:
(1) higher growth, warm/dry climate future, with no additional MET supplies;
(2) higher growth, warm/normal precipitation climate future, with Delta Conveyance Project; or
(3) lower growth, hot/dry climate future, no additional MET supplies.

However, the OC Study team believes the five scenarios used for this study represent a reasonable range of potential outcomes that are appropriate for planning purposes.

MWDOC

2023

ORANGE COUNTY

WATER RELIABILITY STUDY

Municipal Water District of Orange County

July 2023



CDM Smith

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Executive Summary

Background

Ensuring a reliable water supply that is resilient to droughts and climate change is essential to supporting a vibrant economy and quality of life for residents in Orange County. To help guide planning for future water supply reliability for water providers in Orange County and provide input on regional water supply issues for the Metropolitan Water District of Southern California (MET), the Municipal Water District of Orange County (MWDOC) has prepared this 2023 Orange County Water Reliability Study (2023 OC Study) based on a number of changed conditions since the completion of its previous 2018 OC Study.

The changed conditions include:

- Improved understanding of climate change impacts to water supply reliability.
- Declining water availability from the State Water Project and the Colorado River.
- Changes in planned water supply projects, such as the California's withdrawal of permits for the two-tunnel California WaterFix project and its replacement with a one-tunnel Delta Conveyance Project, and the advancement of MET's Pure Water Southern California project.
- Reduced regional and Orange County water demands through successful water reuse and water use efficiency efforts.
- Completion of MET's 2020 Integrated Water Resources Plan (IRP) Needs Assessment, including higher assumptions of new local water supplies in the region than previously projected.

The objectives of the 2023 OC Study are:

1. Re-estimate the probability and magnitude of potential MET and Orange County water shortages under a more robust set of planning scenarios, incorporating changed conditions.
2. Demonstrate how potential water shortages in Orange County can be reduced through temporary water demand restrictions during worst-case droughts, utilization of recent investments made by Orange County water providers, maximizing the use of groundwater assets, and planned reuse and desalination projects.
3. Using MWDOC's recent study on the economic impacts of water shortages, estimate the value of recently implemented and future water supply projects in Orange County.
4. Provide recommendations for local and regional water supply planning based on the findings from this study.

MET's Diamond Valley Lake
Picture Courtesy of Charles Busslinger

Water Reliability Assessment

The 2023 OC Study developed five plausible planning scenarios made up of combinations of uncertainties facing Southern California and Orange County, which are summarized as:

SCENARIO 1. Low Stress without Delta Conveyance



Warm/wet climate future, lower-level retail water demands, increased local water supplies in the MET region, moderate amounts of new MET water supplies, but without implementation of California's Delta Conveyance Project.

SCENARIO 2. Moderate Stress without Delta Conveyance



Warm/dry climate future, medium-level retail water demands, increased local water supplies in the MET region, moderate amounts of new MET water supplies, but without implementation of California's Delta Conveyance Project.

SCENARIO 3. Moderate Stress with Delta Conveyance



Warm/dry climate future, medium-level retail water demands, increased local water supplies in the MET region, moderate amounts of new MET water supplies, and implementation of California's Delta Conveyance Project.

SCENARIO 4. Significant Stress without Delta Conveyance



Hot/dry climate future, higher-level retail water demands (but offset with increased water use efficiency), increased local water supplies in the MET region, higher amounts of new MET water supplies, but without implementation of California's Delta Conveyance Project.

SCENARIO 5. Significant Stress with Delta Conveyance



Hot/dry climate future, higher-level retail water demands (but offset with increased water use efficiency), increased local water supplies in the MET region, higher amounts of new MET water supplies, and implementation of California's Delta Conveyance Project.

The results of the water demand and supply modeling for the 2023 OC Study were then used to estimate the probability and size of potential MET water shortages. MET water shortages were then allocated to Orange County using MET's water supply allocation formulas. Shortages were first estimated without mandatory water use restrictions, and then with assumed 15 percent water use restrictions. Under the more likely Scenarios of 2-5, the probabilities of any-sized water shortage occurring for the MET region and in Orange County range from 10 to 20 percent of the time (or between 1 in 10 years to 1 in five years). Maximum water shortages for Scenarios 2-5, assuming 15 percent mandatory water use restrictions by 2050, are estimated to range from 171,000 to 538,000 AFY for MET and range from 40,000 to 128,000 AFY for Orange County. These maximum shortages are projected to occur 3.5 percent of the time.

Key Findings and Recommendations

The key findings from the 2023 OC Study are summarized as:

Under a hot/dry climate future (which recent evidence seems to suggest might be the current path), coupled with 15 percent mandatory water demand restrictions and optimistic future water supply assumptions (i.e., maximum levels of local and regional reuse, increased water use efficiency, new water transfers and storage, and implementation of the Delta Conveyance Project), the analysis indicates that water shortages in the MET and Orange County service area can still occur. The maximum water shortage in 2050 under these future conditions (as represented in Scenario 5) is 171,000 AFY for MET and 40,000 AFY for all of Orange County. The probability of these maximum shortages occurring is 3.5 percent.

Within Orange County, these net water shortages can be reduced to near zero values utilizing recent investments made by local water agencies in reuse and water banking, temporarily maximizing local groundwater beyond overdraft targets, and with planned new water supply projects.

The maximum value of the Delta Conveyance Project, when coupled with 250,000 AF of new regional storage, is estimated to be 367,000 AFY for MET and 63,000 AFY for Orange County. The Delta Conveyance Project also reduces the probability that any shortage occurs by about 10 percent—meaning a doubling of the time between shortage conditions from once every 5 years to once every decade.

Based on MWDOC's 2022 report on the Economic Impacts of Water Shortages in Orange County, the value of water supply investments in Orange County is estimated to be approximately $2,500/AF in present value terms. In comparison, the present value unit costs of recently completed and planned water supply projects in Orange County range from $1,950-$2,350/AF. Therefore, it can be interpreted that these Orange County projects represent a net economic benefit to Orange County.

The following represents the recommendations from the 2023 OC Study:



Recommendation 1

Orange County water agencies should continue to make investments in water reuse, water use efficiency, water transfers and banking, groundwater/surface water conjunctive use, and desalination.

Recommendation 2

Orange County officials should advocate for a balanced regional portfolio of water supplies for MET that includes: (a) implementation of MET's Pure Water Southern California program; (b) implementation of the Delta Conveyance Project; (c) new regional storage, which could include participation in the proposed Sites Reservoir Project; (d) continued financial support for water use efficiency and local projects, and (e) exploration of regional seawater desalination.

Recommendation 3

Orange County and MET should continue to study the evolving science of climate change and its impacts on water demands and supplies, as well as develop adaptive management strategies to mitigate these impacts.

In short, there is no one or two silver bullets that will provide full water reliability for MET and Orange County. The results from this comprehensive assessment justify an "all of the above strategy" to ensure a robust regional economy and quality of life for our residents for decades to come.



Section 1: Introduction

1.1 History of Orange County Water Reliability Study

Water reliability and resiliency is of key importance for the Southern California region and within Orange County. Droughts and unplanned system failures can significantly reduce water supplies needed for a robust economy and quality of life for residents. In 2014, the Municipal Water District of Orange County (MWDOC) completed its first Orange County Water Reliability Study (OC Study). This study examined water supply and system reliability[1] for three areas of the county: (1) Brea/La Habra; (2) Orange County Basin; and (3) South Orange County. These areas were defined based on the amount and sources of local water supply and vulnerability to imported water shortages caused by droughts and seismic events. To evaluate water reliability for this study, a systems model was developed by CDM Smith that simulates future water demands and supplies under multiple hydrologies and climate change.

In 2018, MWDOC updated the OC Study based on more advanced modeling of imported water from the Metropolitan Water District of Southern California (MET) and local groundwater in Orange County using planning scenarios. At the time of the 2018 OC Study, it was assumed that the California "WaterFix" two-tunnel project in the Sacramento–San Joaquin River Delta would be implemented by 2035 for all of the scenarios given that the project had cleared an extensive environmental review and approvals by the State and Federal governments. Based on the climate change modeling and information available, two climate scenarios were utilized that represented minimal and moderate climate impacts on imported and local water supplies. Finally, the 2018 OC Study examined several proposed Orange County water supply projects in terms of potential costs and benefits.

[1] Water supply reliability measures water shortages caused by hydrology (e.g., droughts and extended dry periods), whereas system reliability measures water shortages caused by unplanned outages (e.g., seismic events or major system failures).

1.2 Changed Conditions for 2023 Study

As a result of significant changed conditions since the 2018 OC Study, MWDOC has prepared this updated 2023 OC Study. It should be noted that some of these changed conditions decreased the water reliability estimated in the 2018 OC Study, while others improved the estimated reliability.

Changed Condition 1 – Improved Understanding of Climate Change

The final installment of the Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment Report was released on March 20, 2023. This 8-year long undertaking from the world's most authoritative scientific body on climate change summarizes the findings from 234 scientists on the physical science of climate change; 270 scientists on impacts, adaptation and vulnerability to climate change; and 278 scientists on climate change mitigation. To date, this is the most comprehensive and best available scientific assessment of climate change. Some of more relevant findings from this IPCC report are as follows:



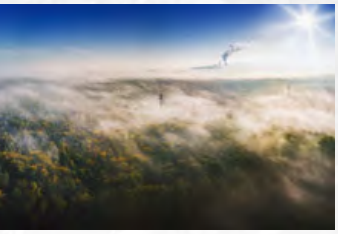
Climate change is already underway. The current 1.1 degrees C of global temperature rise (with the last decade being the warmest in over 125 years) has resulted in: glacial retreat and loss of summer artic ice that is greater than anytime during the last 2,000 years; sea level rise that has been faster than any prior century for 3,000 years; ocean acidification that is at its highest level in last 26,000 years; and observable shifts in the hydrologic cycle of fresh water systems.



Climate impacts are more widespread and severe than expected. Every degree increase beyond the current 1.1 degrees C increase will result in significantly more droughts, extreme heat events, flooding, and wildfires; and significant loss of food-producing agriculture and ecosystem biodiversity.



Some climate impacts are so severe that they can never be adapted. Some areas around the global have reached a point where climate adaptation can no longer be implemented, resulting in permanent losses and damages.



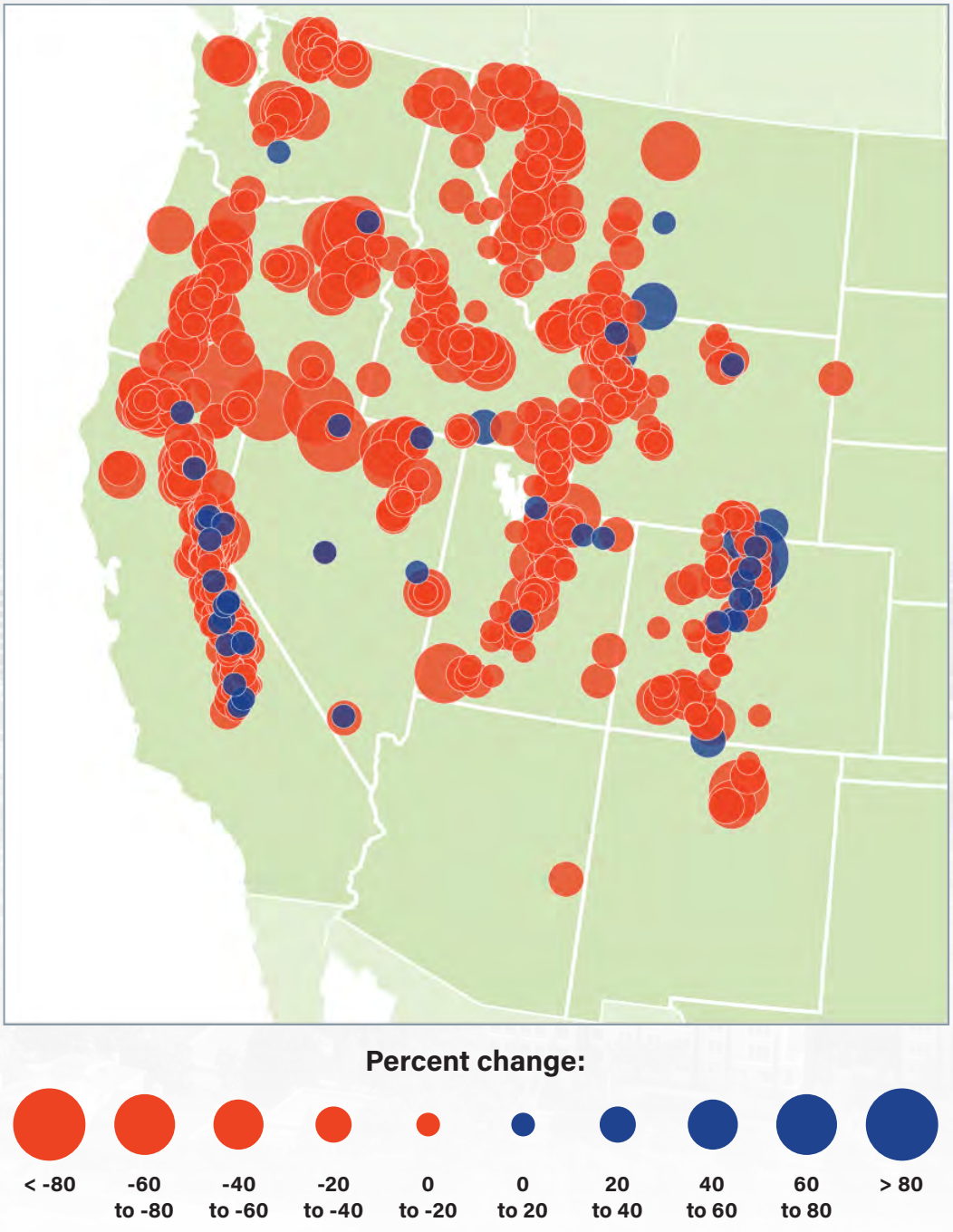
Global greenhouse gas emissions will continue to climb. Global emissions will continue to climb through 2030 before leveling off and then start to decrease if current world governments mitigation efforts are successful. As a result, between 2021 and 2050 there is a more than a 50 percent chance that global temperature rise will surpass 1.5 degrees C and a 25 percent chance that temperatures will rise past 3.5 degrees C.



Changes in precipitation and intensity will vary in North America. The findings indicate that there is a high confidence that total precipitation will increase for the northern half of North America, and medium confidence that it will decrease in parts of the western and south western United States. Further, a greater fraction of precipitation is expected to occur as "intense events" such as those caused by atmospheric rivers.

Regional evidence of climate change can be seen in decreased snowpack in the Western United States, as depicted in **Figure 1-1**. In California, snowpack has declined by 30-50 percent since 1955. Snowpack is essentially free storage and in an average year it represents about 30 percent of the fresh water supply in California and Colorado River basin.

Figure 1-1. Changes in April Snowpack from 1955-2022

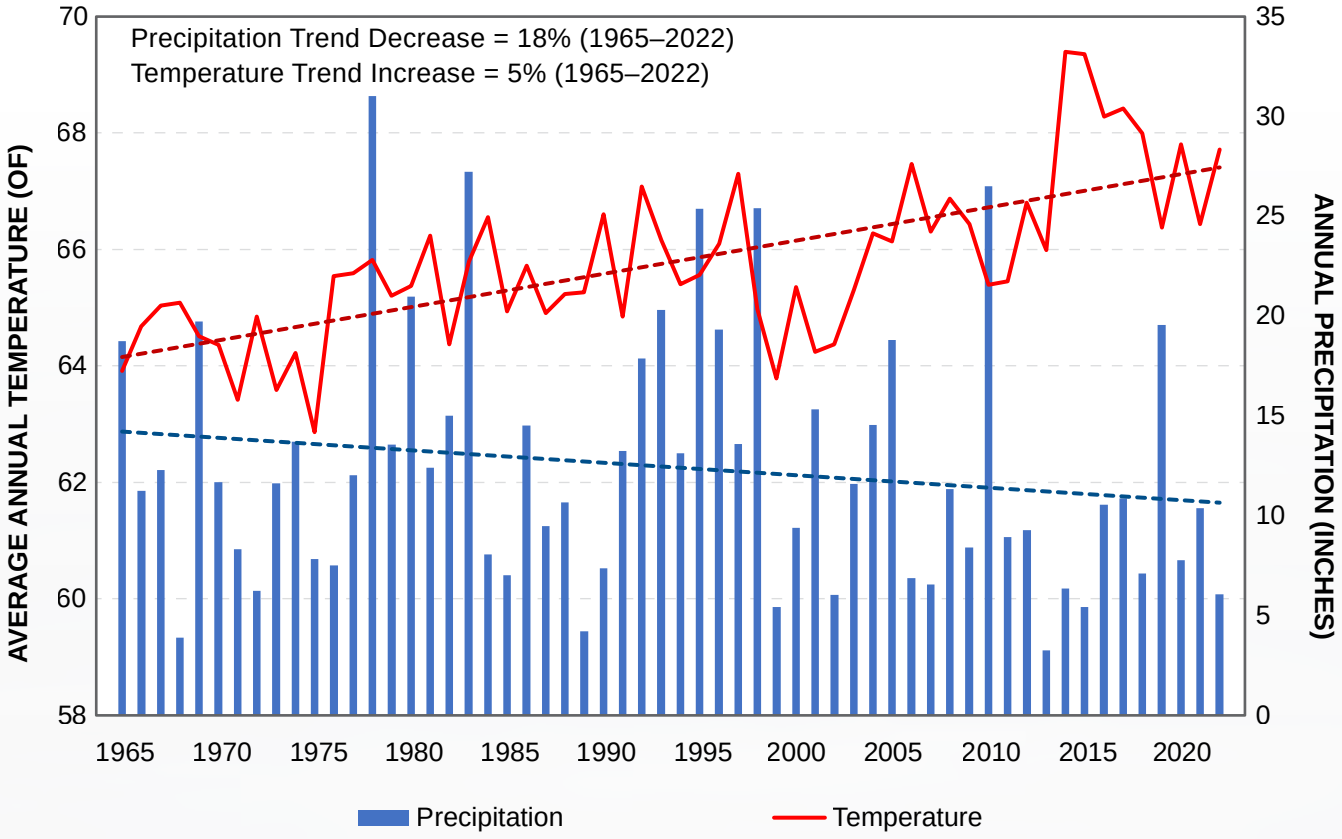


Graphic Source: Courtesy of https://www.epa.gov/climate-indicators/climate-change-indicators-snowpack

In addition, since 1945 there has been an 18 percent decline in snowmelt contribution to late spring inflows in the Sacramento River. The shifting of snowmelt from late spring to late winter occurring in California is important because less of it can be utilized as water supply.

Within Orange County, evidence of climate change can be seen in **Figure 1-2**, with clear trends showing precipitation decreasing by 18 percent and temperature increasing by 5 percent since 1965.

Figure 1-2. Historical Orange County Climate



Data Source: NOAA, Santa Ana Fire Station Data.



Lake Mead



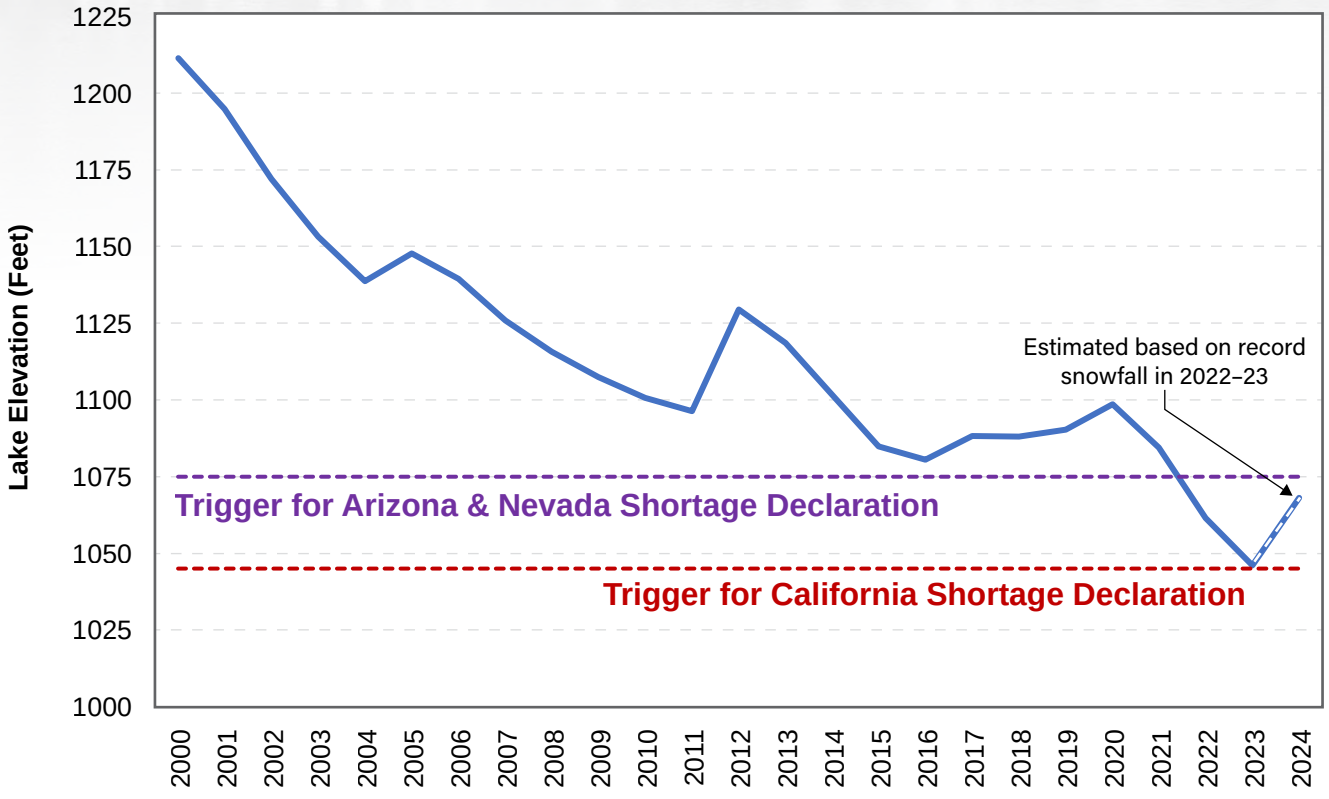
MET's Robert R. Diemer Water Treatment Plant
Picture Courtesy of Charles Busslinger

>>TOC

Changed Condition 2 – Declining Imported Water Availibility

Since the publication of the 2018 OC Study, imported water to MET's region from the Colorado River Aqueduct (CRA) and State Water Project (SWP) have declined in reliability. The current 23-year drought in the Colorado River Basin is considered the worst in 1,200 years[2]. Lake Mead elevation levels have been steadily declining since 2000 (see **Figure 1-3**), triggering official shortage declarations from the U.S. Bureau of Reclamation (BOR) for Arizona and Nevada in 2022 under the current Drought Continency Plan. California's shortage declaration under the current drought plan occurs when Lake Mead elevations are consistently below 1,045 feet. In July 2022, lake levels did drop to 1,040 feet but rebounded slightly to 1,046 feet due to recent record rainfall in late 2022 which spared California an official shortage declaration. Record snowpack in late 2022 and early 2023 is expected to increase Lake Mead elevation to 1,061 feet by the end of 2023.

Figure 1-3. Lake Mead Elevation Levels



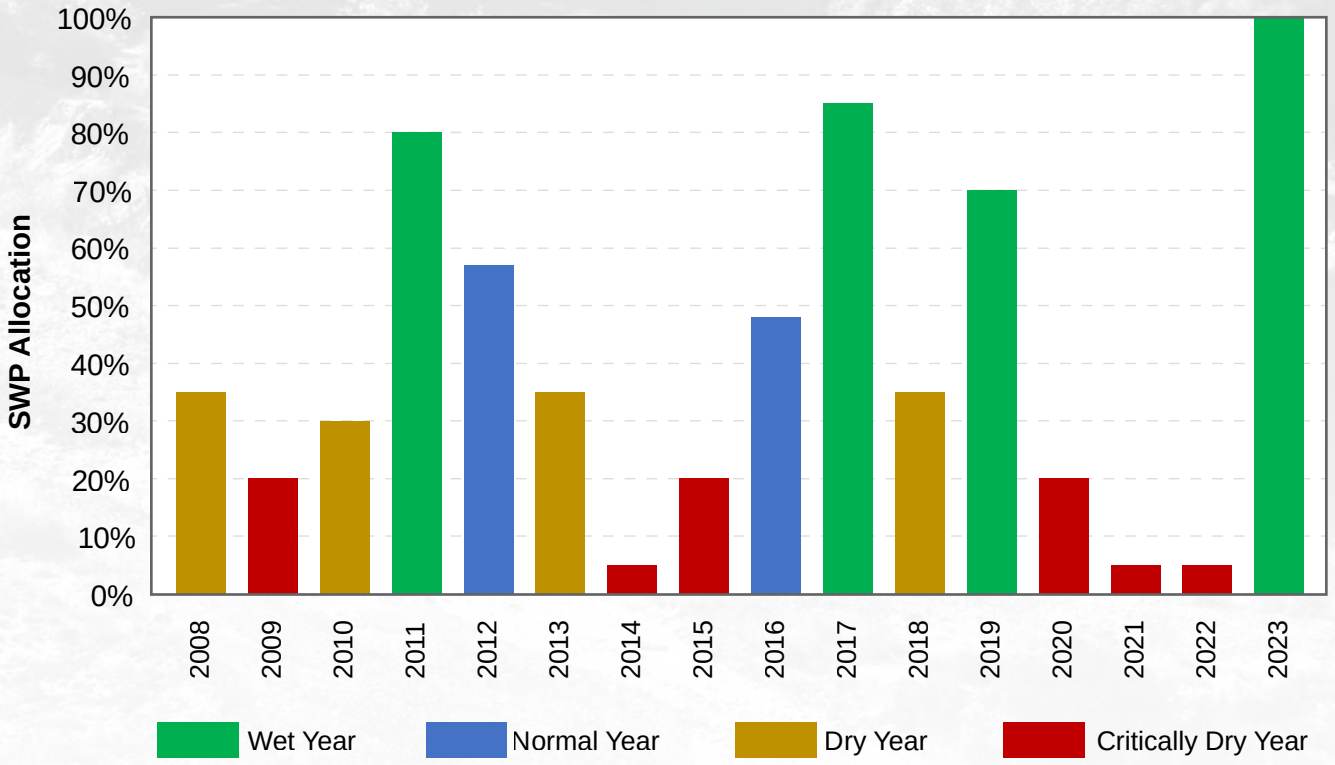
Data Source: https://www.usbr.gov/lc/region/g4000/hourly/mead-elv.html

[2] Based on: Williams, A.P., Cook, B.I. & Smerdon, J.E., Rapid Intensification of the Emerging Southwestern North American Megadrought in 2020–2021. Nature Climate Change Journal, Issue 12, February 12, 2022.

Despite the water supply cuts issued for Arizona and Nevada to date, and record precipitation occurring in late 2022 and early 2023, the Colorado River is still considered to be in peril. In May of 2023 a recent agreement between the BOR and all seven Basin states calls for cuts in river water use of 3 million acre-feet by 2026 between Arizona, California and Nevada. More cuts will likely be needed according to BOR and climate experts, as well as the development of an official long-term operating plan for the River.

The California Department of Water Resources (DWR) spring allocations of SWP Table A contract deliveries to MET are shown in **Figure 1-4**. Ten of the last 16 years (63 percent of the time) have been classified as dry or critically dry years. Three years during this same period had SWP allocations of 5 percent, which is unprecedented. Normal years only represented 13 percent (2 years) of this past 16-year period, while wet years represented 25 percent (4 years). As a comparison, from 1922-2000, wet, normal and dry years were fairly distributed, with wet and dry years occurring about 20 percent of the time and normal years occurring 60 percent. The more recent pattern of multiple dry years followed by a very wet year is indicative of climate change predictions for the western United States. Further

Figure 1-4. State Water Project Spring Allocations to MET



Data Source: https://water.ca.gov/Programs/State-Water-Project/Management/SWP-Water-Contractors







Orange County Water District's Bond Basin.
Picture Courtesy of Charles Busslinger

demonstrating that climate change is already occurring is the recent extreme precipitation that occurred from 12 atmospheric rivers hitting northern California from December 2022 to March 2023—which led to the very rare 100 percent SWP allocation for contract deliveries in 2023. However, it should be noted that both the timing of precipitation (whether as rain or snow) and the intensity of storm events has significant implications in terms of usable water supply. High intensity storms of short durations, more precipitation falling as rain rather than snow, coupled with earlier snowmelt is not ideal for the SWP system which would struggle to handle extreme volumes of runoff in short amounts of time.

Changed Condition 3 – Update on California and MET Imported Water Projects

In May of 2019, DWR withdrew its permit for a two-tunnel WaterFix project in favor for a smaller one-tunnel project alternative. In July 2022, the draft Environmental Impact Report (EIR) for the recommended Delta Conveyance Project alternative was issued. With an estimated cost of $16 billion and strong opposition by environmental organizations and other interests in the Delta, the best-case scenario is that the project is operational by 2040. However, it is also possible that the project is not implemented within the planning horizon of the 2023 OC Study.

In light of worsening conditions for imported water, MET has launched its Pure Water Southern California project, which will use advanced purification technology to treat reclaimed water for indirect potable reuse and potentially direct potable reuse by 2035. Up to 168,000 acre-feet per year (AFY) is anticipated from this project.







Changed Condition 4 – Lower Regional and Local Water Demands

Water demands for MET have been decreasing steadily since 2007 (from 2.4 MAF in 2007 to 1.4 MAF in 2017), as a result of greater levels of water use efficiency, increases in local water supply by MET's member agencies, and periodic mandatory water use restrictions during droughts. However, it appears that this downward trend may be reaching a plateau, with recent MET demands averaging around 1.5 MAF for several years now. Total Orange County water demands have decreased from 687,000 AFY in 2007 to 506,000 AFY in 2017 due to increased water use efficiency and mandatory water use restrictions during droughts. However, since 2015, water demands in Orange County have increased to about 550,000 AFY under average weather conditions.

Changed Condition 5 – MET 2020 Integrated Resources Plan Needs Assessment

On April 12, 2022 the MET Board of Directors approved the needs assessment phase for the update of MET's regional Integrated Resources Plan (IRP). This needs assessment looked at four future scenarios made up of low and high service area demographic growth, increases in local water supplies for the region, and impacts of climate change. For this 2020 MET IRP, projections of local water supplies in the region were made by MET's member agencies without adjustment. These unadjusted projections therefore greatly increase the forecast of local water supplies in the MET region verses what was assumed for the 2018 OC Study. The maximum water shortage under MET's IRP high growth/signifcant climate change scenario was projected to be about 1 MAF by 2045 without any assumed future MET water supply projects. It should be noted that MET used different planning scenarios and climate change assumptions for its 2020 IRP than those used for this 2023 OC Study.


California Aqueduct

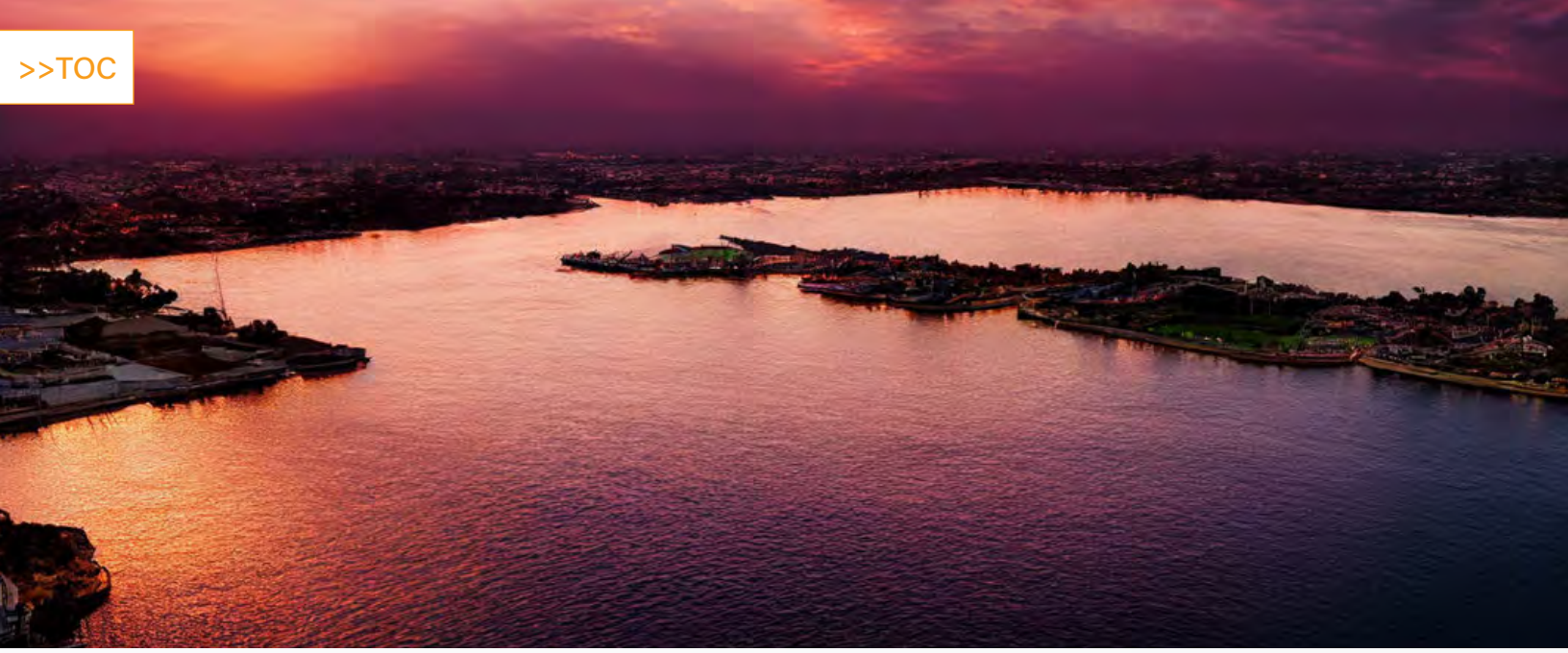


Summary of Changed Conditions

Table 1-1 summarizes how the changed conditions for the 2023 OC Study impacted the water supply reliability estimated vs the 2018 OC Study.

Table 1-1. Changed Conditions and Impacts to Estimated Supply Reliability

Changed Condition for 2023 OC Study	Impact
1. Improved Understanding of Climate Change	Reduced Supply Reliability
2. Declining Imported Water Availability	Reduced Supply Reliability
3. Update on California and MET Water Projects	Little Net Impact
4. Lower Regional and Orange County Water Demands	Increased Supply Reliability
5. MET 2020 IRP Needs Assessment (Higher Local Supplies)	Increased Supply Reliability



1.3 Objectives for 2023 Orange County Water Reliability Study

The key objectives for the 2023 OC Study are as follows:

1. Re-estimate the probability and magnitude of potential MET and Orange County water shortages under a more robust set of planning scenarios, incorporating changed conditions.
2. Demonstrate how potential water shortages in Orange County can be reduced through temporary water demand restrictions during worst-case droughts, utilization of recent investments made by Orange County water providers, maximizing the use of groundwater assets, and planned reuse and desalination projects.
3. Using MWDOC's recent study on the economic impacts of water shortages, estimate the value of recently implemented and future water supply projects in Orange County.
4. Provide recommendations for local and regional water supply planning based on the findings from this study.

It should be noted that the 'system reliability' analyzed in the 2018 OC Study under potential seismic events were not re-estimated for the 2023 OC Study as they are still considered to be valid—meaning no material change in water demands or emergency water supplies occurred between the two studies.

Section 2: Planning Scenarios

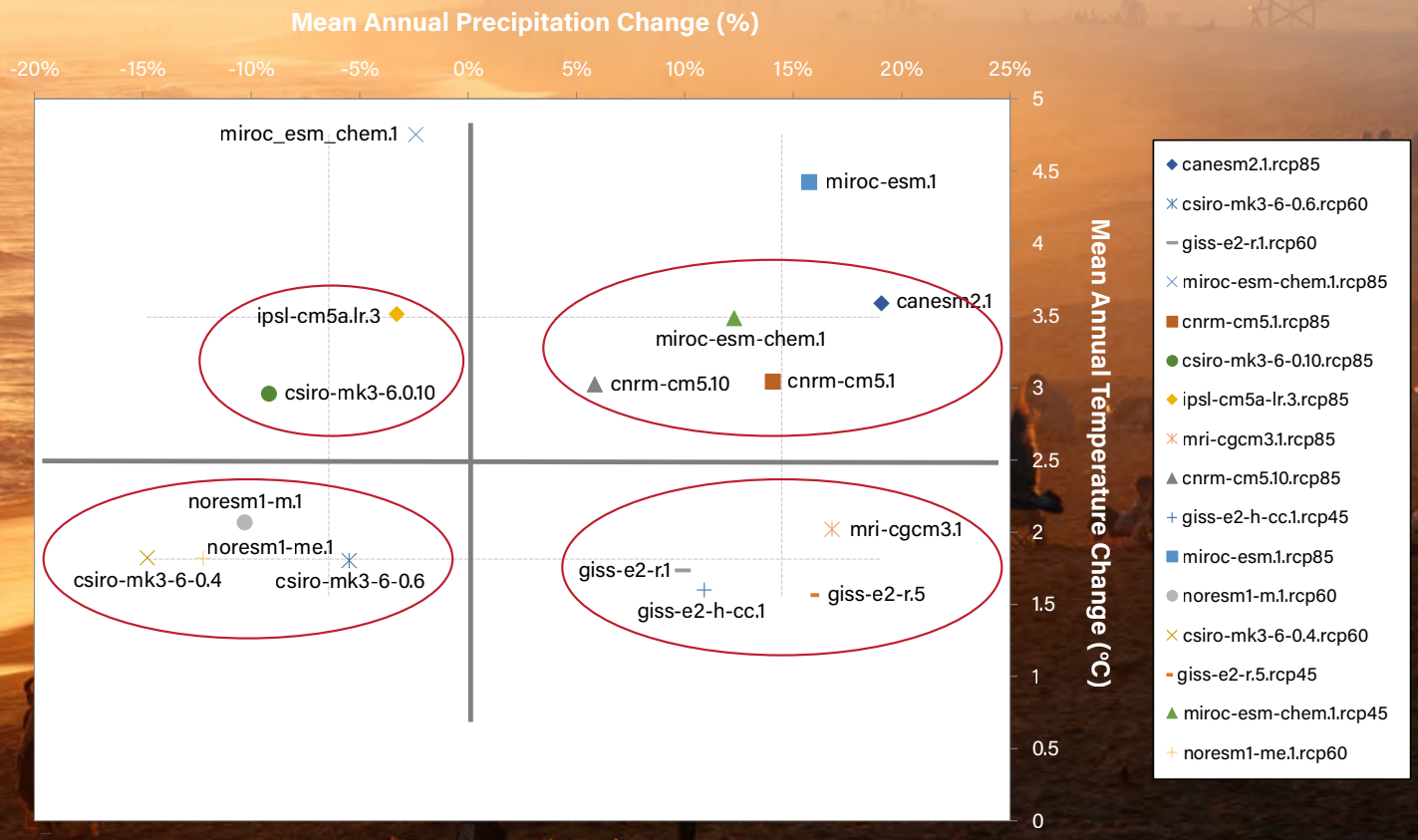
The 2023 OC Study developed plausible planning scenarios made up of combinations of the following uncertainties: climate change, water demands and efficiency levels, Orange County Groundwater Basin assumptions, local water supplies in the MET service area, success of new MET water supply programs, and success of the Delta Conveyance Project.

2.1 Uncertainties

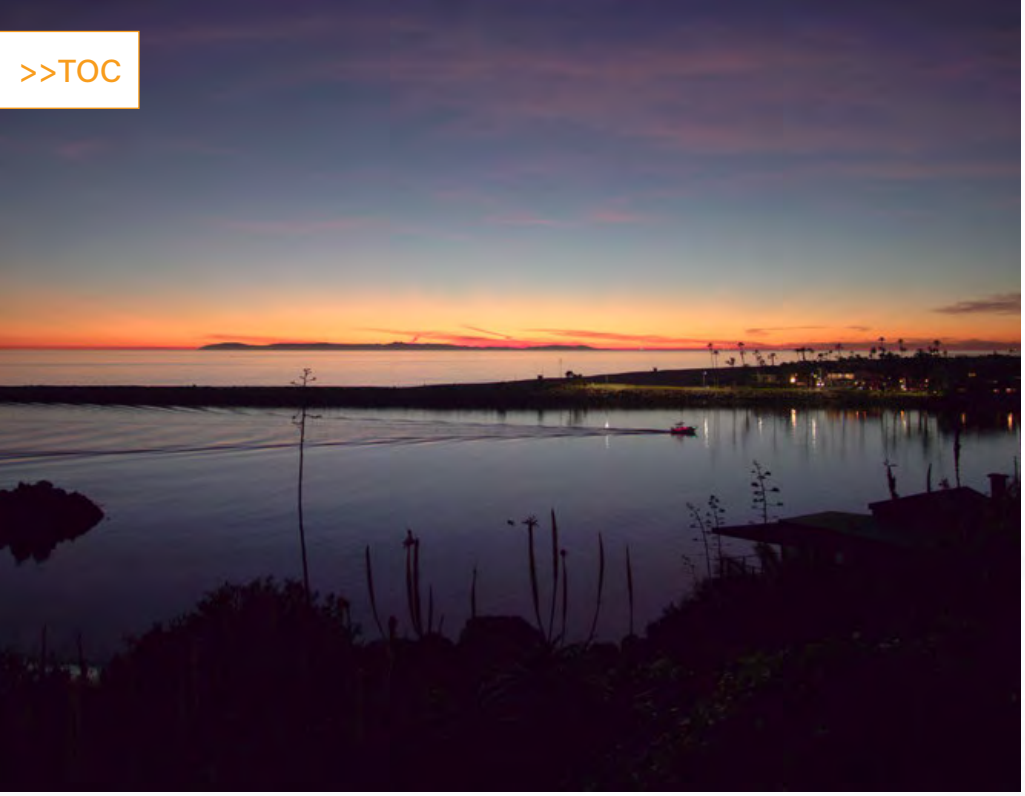
Climate Change

The 2023 OC Study utilized the Coupled Model Intercomparison Project Phase 5 (CMIP5) global climate models (GCMs), which utilize Representative Concentration Pathways (RCP's) to show a range in climate projections. CDM Smith selected a sub-set of 16 GCM/RCP combinations to represent four distinct climate futures: (1) hot/dry, (2) hot/wet, (3) warm/dry, and (4) warm/wet. **Figure 2-1** presents these GCMs plotted for the Colorado River system, showing departures between 2050 temperature and precipitation from historical conditions. The GCMs that are circled in the figure were ensembled to represent the climate futures. It should be noted that the study team decided not to use any GCM showing greater than 4 degrees C change in temperature by 2050, as most climate scientists now indicate this is very unlikely[3].

Figure 2-1. Downscaled GCMs Selected to Represent Four Climate Scenarios for Colorado River



[3] "Emissions – the 'business as usual' story is misleading". Hausfather & Peters, Nature Vol 577, Jan 30, 2020, page 620. And World Energy Outlook 2022 - International Energy Agency, Temperature Rise Scenarios page 127.







The same GCMs shown in Figure 2-1 for the Colorado River were also used for the Delta region and Orange County Basin. In the end, three climate change futures were selected for the 2023 OC Study, as shown in **Table 2-1**, to model impacts on water supplies and demands. The hot/wet climate future was omitted as the water supply modeling results were very similar to the warm/dry future.

Table 2-1. Selected Climate Futures for 2023 OC Study

2023 OC Study Climate Futures	Change in Temperature (°C) by 2050	Change in Precipitation (%) by 2050
Warm/Wet	1.0 – 1.8 increase	10 – 12% increase
Warm/Dry	1.2 – 1.8 increase	5 – 9% decrease
Hot/Dry	2.0 – 3.1 increase	5 – 8% decrease

The lower range in temperature increase shown in Table 2-1 for the climate futures represented Northern California, while the higher range represented the Colorado River Basin. The more optimistic changes in preciptation for the climate futures represented Northern California, while the less optimistic changes represented the Colorado River Basin.



Water Demands

MET's 2020 IRP included low and high retail water demand forecasts, based on a range of demographic projections. For the 2023 OC Study, a mid-range of the low and high retail water demand forecasts was used for both the MET region and Orange County. Uncertainties around these mid-range water demand forecasts included climate change impacts and future water use efficiency levels. Climate change impacts on retail-level water demands were estimated statistically based on historical variability of water use, historical precipitation and historical temperature. Factors such as the economy, development density, and levels of historical water conservation were also accounted for in this statistical analysis, ensuring that weather impacts were isolated. This analysis indicated that future climate could increase retail water demands in 2050 between 5 and 7 percent, above normal historical weather conditions.

Two levels of future water use efficiency were tested, baseline and increased levels. Baseline efficiency assumed continuation of current targets for indoor residential water use, plus assumed increases in outdoor water use efficiency and commercial/institutional/industrial efficiency. Assumptions for increased levels of water use efficiency included reduced indoor residential per capita water use to 42 gallons per person per day, and additional reductions to outdoor water use. Based on proposed California DWR water use targets to achieve the 2018 California legislation goals on making "Water Conservation a Way of Life", the projected water savings from the baseline water use efficiency used in the 2023 OC Study are just shy of these targets, while the water savings projections in this analysis from the increased efficiency levels will likely exceed the DWR proposed targets. The estimated additional water savings from the increased efficiency levels assumed for the 2023 OC Study are 211,000 AFY for the MET region and 40,000 AFY for Orange County.



Orange County Groundwater Replenishment System. Courtesy of CDM Smith


Baker Water Treatment Plant. Courtesy of IRWD



Yorba Linda Water District PFAS Treatment Plant. Courtesy of YLWD

Orange County Groundwater Basin

The Orange County Groundwater Basin is managed by the Orange County Water District (OCWD) and operated based on an annual calculation of accumulated overdraft (AOD). OCWD sets its Basin Production Percentage (BPP[4]) for water providers operating wells in the OC Groundwater Basin (i.e., basin pumpers) to drive the AOD to a desired volume each year. Generally, a long-term target for the basin is not to allow the AOD to be greater than 500,000 acre-feet (AF). OCWD policy calls for consideration to lower the BPP once the AOD exceeds 400,000 AF. Since 1980, the annual AOD has been greater than 400,000 AF two times (5 percent of the time). In the last few years, the AOD has been between 200,000 to 250,000 AF. Due to the wet winter experienced in FY 2022-23, OCWD expects the June 30, 2023, AOD to decline to approximately 185,000 AF.

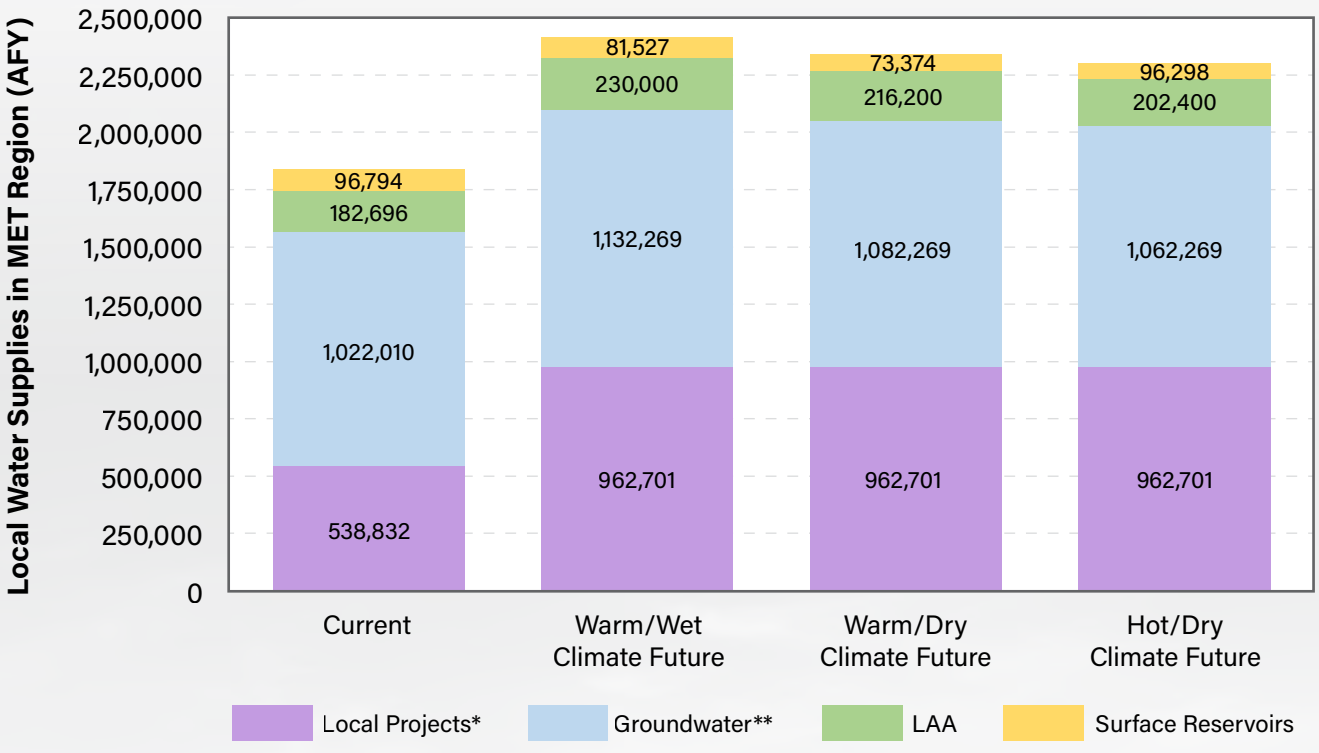
OCWD recently increased the BPP from 82 to 85 percent in FY2022-23 and has maintained it at the same level for FY2023-24. OCWD has also projected the BPP to remain at 85 percent for the next five years. Maintaining this BPP in the future is contingent on projected stormflows in the Santa Ana River, incidental recharge overlaying the basin from rainfall, and baseflows of upstream diverted wastewater in the Santa Ana River. Given the uncertainties in these inflows to the basin, the 2023 OC Study assumed long-term BPP target of 82 percent. Stormflows and incidental recharge were estimated by CDM Smith for each climate future, based on statistical analysis of historical conditions. For the 2023 OC Study, two levels of Santa Ana River baseflows were assumed: (1) the first level reduces current baseflows, estimated to be around 70,000 AFY, to approximately 52,000 AFY by 2040; and (2) the second level reduces current baseflows to 36,000 AFY, reflecting greater upstream water recycling. The recharge of the basin from the Orange County Groundwater Replenishment System is assumed to be constant at 130,000 AFY. When basin recharge capacity and MET water is available, recharge of imported water is modeled to occur. Based on all projections of inflows and basin AOD targets, it is projected that the BPP of 82 percent can be maintained 61 to 77 percent of the time in 2030, and 33 to 73 percent of the time in 2050.

[4] The allowable percentage of a water provider's demands that can be pumped from the basin in any one year.

Increases in Local Water Supplies for MET Region

The projections of local water supplies for the MET region were based on MET's projections of local groundwater, Los Angeles Aqueduct supplies, surface water supplies, recycled water and groundwater recovery used for its 2020 IRP Regional Needs Assessment. The largest assumed increase under these projections is from assumed increases in local water reuse of about 420,000 AFY. Based on CDM Smith's climate modeling of groundwater, surface water, and Los Angeles Aqueducts, MET's projections of these sources were altered to reflect the climate scenarios used for the 2023 OC Study. Regarding MET's projections of new seawater desalination, the supply yield anticipated from the Huntington Beach project was removed as it was not approved by the California Coastal Commission; and the yield for the Doheny project for South Coast Water District was removed as the purpose of the 2023 OC Study is meant to first estimate reliability without new Orange County water supply projects. **Figure 2-2** presents the range of local water supplies in the MET region used for the 2023 OC Study.

Figure 2-2. Local Water Supplies in MET Region used for 2023 OC Study



* Recycled water, groundwater recovery and Carlsbad seawater desalination, based on MET IRP Scenarios.
** Net of replenishment by MET.







Success of MET Water Supply Programs

For the 2023 OC Study it was assumed that MET would implement its Pure Water Southern California program for all of the scenarios, but with two different supply yields (102,000 AFY for solely groundwater replenishment, and 168,000 AFY for groundwater replenishment and direct potable reuse). In addition, a new water transfer program for the CRA of 100,000 AFY was assumed for all scenarios, based on conversations with MET staff. For scenarios that included the Delta Conveyance Project, it was also assumed that MET would invest in new surface water storage of 250,000 AF based on conversations with MET staff. This new storage to maximize the benefits of the DCP could represent a new reservoir (likely in MET's SWP-exclusive area of Ventura County) or MET's participation in the proposed Sites Reservoir Project north of the Delta.

Success of Delta Conveyance Project

For the 2023 OC Study, some scenarios had the Delta Conveyance Project being implemented by 2040, while other scenarios did not have the project implemented within the planning horizon of this study. This allowed the value of this project to MET and Orange County to be determined.

2.2 Planning Scenarios

Based on the uncertainties discussed in Section 2.1, five scenarios were developed for the 2023 OC Study. These scenarios were assembled to be internally consistent—meaning that for stressed conditions, it was assumed that MET and its member agencies would respond by taking additional actions. Therefore, it is the belief of the OC Study team that all of these scenarios are plausible, but none of them represent a "Black Swan" event. Black Swan events represent rare, worst-case conditions across the board—meaning highest levels of projected water demands coupled with extreme climate change impacts, and no or few new projects being implemented.

The planning scenarios for the 2023 OC Study are summarized as:

SCENARIO 1. Low Stress without Delta Conveyance



Warm/wet climate future, lower-level retail water demands, increased local water supplies in the MET region, moderate amounts of new MET water supplies, but without implementation of California's Delta Conveyance Project.

SCENARIO 2. Moderate Stress without Delta Conveyance



Warm/dry climate future, medium-level retail water demands, increased local water supplies in the MET region, moderate amounts of new MET water supplies, but without implementation of California's Delta Conveyance Project.

SCENARIO 3. Moderate Stress with Delta Conveyance



Warm/dry climate future, medium-level retail water demands, increased local water supplies in the MET region, moderate amounts of new MET water supplies, and implementation of California's Delta Conveyance Project.

SCENARIO 4. Significant Stress without Delta Conveyance



Hot/dry climate future, higher-level retail water demands (but offset with increased water use efficiency), increased local water supplies in the MET region, higher amounts of new MET water supplies, but without implementation of California's Delta Conveyance Project.

SCENARIO 5. Significant Stress with Delta Conveyance



Hot/dry climate future, higher-level retail water demands (but offset with increased water use efficiency), increased local water supplies in the MET region, higher amounts of new MET water supplies, and implementation of California's Delta Conveyance Project.

The five scenarios are presented in more detail in Table 2-2 on the following page.

Table 2-2. Planning Scenarios for the 2023 OC Study

	Uncertainties						
Scenario Name	**Climate Change Future**	**Water Demands**	**Water Use Efficiency Levels**	**OC Basin Groundwater Assumptions**	**Increased Local Water Supplies in MET Region**	**Assumed New MET Water Supply Programs/ Projects**	**Delta Conveyance Project**
1. Low Stress without Delta Conveyance	Warm/Wet	Lower Levels	Baseline	▪ BPP of 82% achieved 77% of time in 2030 ▪ Med SAR baseflows	▪ 110 TAF GW ▪ 420 TAF Reuse	▪ 102 TAF Pure Water SoCal (2030) ▪ 100 TAF CRA Transfers (2030)	Not Implemented
2. Moderate Stress without Delta Conveyance	Warm/Dry	Medium Levels	Baseline	▪ BPP of 82% achieved 74% of time in 2030 ▪ Med SAR baseflows	▪ 60 TAF GW ▪ 420 TAF Reuse	▪ 102 TAF Pure Water SoCal (2030) ▪ 100 TAF CRA Transfers (2030)	Not Implemented
3. Moderate Stress with Delta Conveyance	Warm/Dry	Medium Levels	Baseline	▪ BPP of 82% achieved 74% of time in 2030 ▪ Med SAR baseflows	▪ 60 TAF GW ▪ 420 TAF Reuse	▪ 102 TAF Pure Water SoCal (2030) ▪ 100 TAF CRA Transfers (2030) ▪ 250 TAF Storage (2035)	Implemented (2040)
4. Significant Stress without Delta Conveyance	Hot/Dry	Higher Levels	Increased: ▪ 211 TAF MET ▪ 40 TAF OC	▪ BPP of 82% achieved 61% of time in 2030 ▪ Low SAR baseflows	▪ 40 TAF GW ▪ 420 TAF Reuse	▪ 168 TAF Pure Water SoCal (2035) ▪ 100 TAF CRA Transfers (2030)	Not Implemented
5. Significant Stress with Delta Conveyance	Hot/Dry	Higher Levels	Increased: ▪ 211 TAF MET ▪ 40 TAF OC	▪ BPP of 82% achieved 61% of time in 2030 ▪ Low SAR baseflows	▪ 40 TAF GW ▪ 420 TAF Reuse	▪ 168 TAF Pure Water SoCal (2035) ▪ 100 TAF CRA Transfers (2030) ▪ 250 TAF Storage (2035)	Implemented (2040)

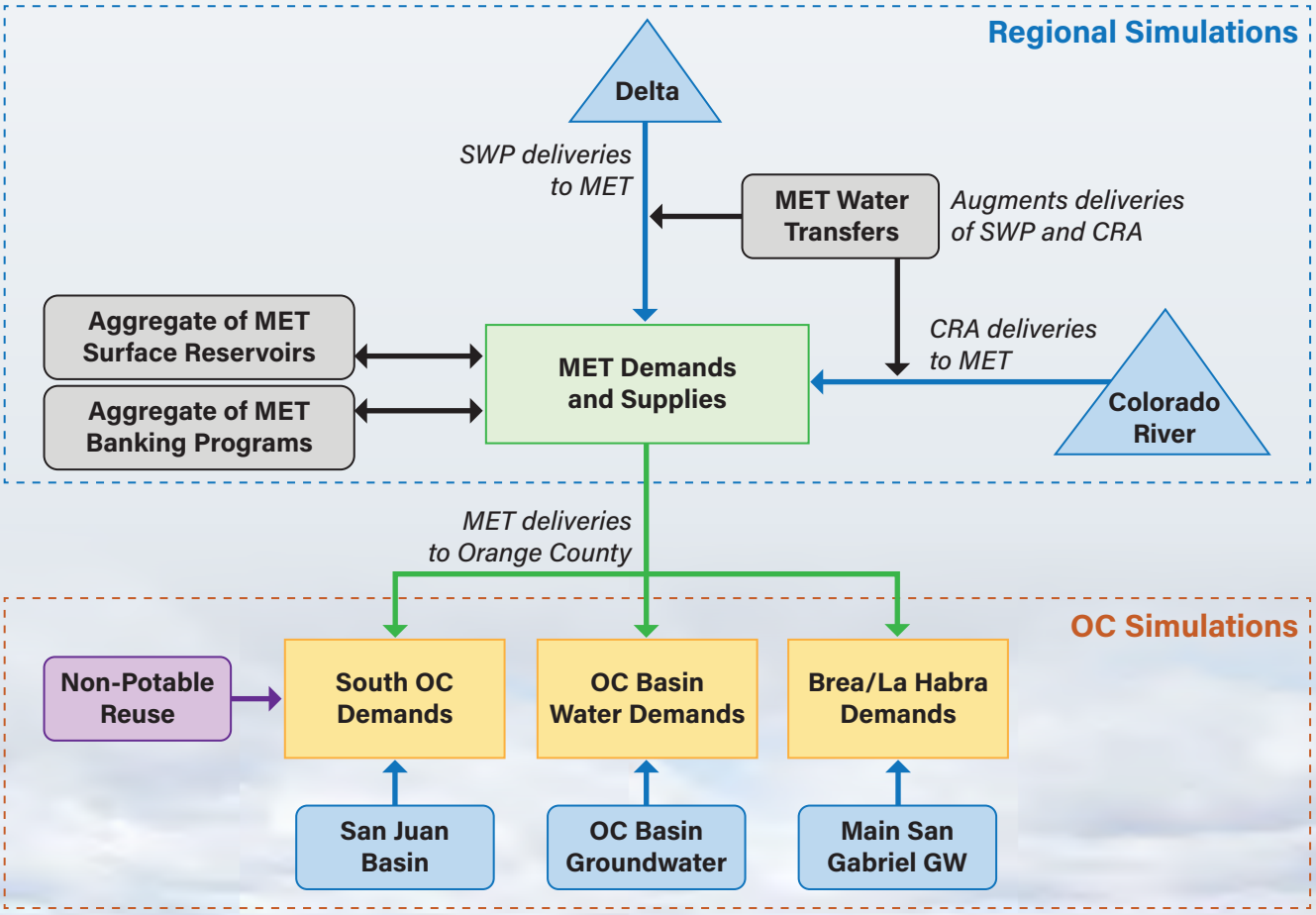
Notes: MET = Metropolitan Water District of Southern California, TAF = Thousand Acre-Feet, BPP = OCWD Basin Pumping Percentage, SAR = Santa Ana River, GW = Groundwater, CRA = Colorado River Aqueduct, Numbers in ( ) indicate online operations

Section 3: Water Supply Modeling

3.1 Orange County Water Supply Systems Model

To estimate water supply reliability at the MET regional and Orange County levels under a wide range of planning scenarios, CDM Smith developed the OC Water Supply Simulation Tool (OCSIM) using the systems model WEAP (Water Evaluation And Planning). WEAP is maintained by the Stockholm Environment Institute[5] and used by water agencies around the world. **Figure 3-1** presents the modeling schematic for OCSIM used for the 2023 OC Study.

Figure 3-1. CDM Smith's OCSIM Model Schematic



[5] http://weap21.org





First, OCSIM performs regional simulations of MET's water demands (representing MET retail demands minus local supplies in the region), MET's imported water sources (SWP and CRA), MET's water transfers, and MET's storage and banking programs. Using indexed-sequential simulation, historical traces of hydrologic patterns of imported water supply from 1965-2022 are mapped onto projected water demands through the year 2050. The 2023 OC Study used a truncated historical hydrology pattern to account for observed climate change that has already occurred, as discussed in **Section 1.2** of this report. Mass-balance equations are then used to simulate storage and banking operations under surplus and dry year conditions. Reduced inflows into the SWP and Colorado River systems for different climate change futures are based on hydrologic watershed evaluations conducted by Dr. David Yates under contract to CDM Smith[6]. These hydrologic models account for changes in temperature, precipitation, snowpack, and monthly patterns that alter naturalized flows of major river systems in Northern California and Colorado River Basin. The results of these climate change impacts are then used to adjust the historical hydrologic periods for SWP and CRA deliveries to MET using the BOR hybrid-delta method. The OCSIM mimics many of the simulations found in MET's water supply planning tool IRPSIM. The OCSIM also utilizes direct outputs from DWR's CALSIM and BOR's CRSS modeling for calibration. The output from this regional simulation is the probability and size of potential MET water shortages.

Second, OCSIM performs water demand and supply simulations for three study areas of Orange County (Orange County Basin, South Orange County, Brea/La Habra). When regional water shortages occur, MET's water shortage allocation formulas from MET's Water Supply Allocation Plan (WSAP) are used to determine cutbacks in deliveries to Orange County. Local water supplies, which impact MET's water shortage allocations, are also simulated (see **Section 3.3** for discussion on Orange County groundwater simulations). The output from this second round of simulations is the estimated probability and size of water shortages for Orange County through the year 2050. Initially, no mandatory water demand restrictions are assumed for these potential water shortages.

[6] Dr. Yates utilized a Southwestern WEAP model to estimate inflow changes to the SWP and Colorado River systems based on 16 GCMs that represent bookends of potential climate futures.







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3.2 Water Demand Forecast

MET Regional Demand Forecast

To estimate MET's future water demands for the 2023 OC Study, data from the MET 2020 IRP were utilized. While MET used a low and a high projection of retail water demands for its scenarios, the 2023 OC Study used an average of these two MET projections for all of its scenarios. Using CDM Smith's previous statistical analyses of water demand and weather variables, projected average-year retail water demands were adjusted to account for future climate change. Projections of recycled water and groundwater recovery in the MET region were based on MET's 2020 IRP. As noted in **Section 2.1** of this report, the 2023 OC Study did not use MET's projected increases in seawater desalination. MET's projection of local groundwater, surface water supplies, and Los Angeles Aqueduct supplies were also adjusted for future climate change based on CDM Smith's statistical models of water supply and weather variables.

Average-year MET water demands under warm/wet future climate are summarized in **Table 3-1**, while **Table 3-2** and **Table 3-3** summarize MET demands under warm/dry and hot/dry climate, respectively. Note that for 2023 OC Study Scenarios 4 and 5, MET demands under hot/dry climate were reduced to account for additional water use efficiency, which is also shown in **Table 3-3**. For supply reliability simulation, average-year water demands are adjusted in the OCSIM for year-to-year variability matched to hydrologic conditions from 1965-2022. In a dry hydrologic year, MET water demands can be as much as 15 percent greater than an average-year demand; while in a wet hydrologic year, MET demands can be as much as 15 percent lower than an average-year demand. This high variability is due to MET being a supplemental supply for some MET member agencies, as well as the extreme hydrologic variability throughout Southern California, and accounts for variability in both retail water demands and local water supplies.

Table 3-1. Average-Year MET Water Demands Forecasts under Warm/Wet Climate Future (AFY)

MET Region Water Demands (AFY)	2020*	2025	2030	2035	2040	2045	2050
Retail M&I Demands	2,974,558	3,075,000	3,173,000	3,276,250	3,379,500	3,482,750	3,586,000
Retail Agricultural Demands	143,905	144,377	134,418	130,494	122,986	123,301	123,300
Regional Seawater Barrier Needs	62,780	68,517	70,253	71,990	72,000	72,000	72,000
Regional Replenishment Needs	197,620	331,534	363,327	383,043	395,555	400,863	400,863
Total Regional Demand	**3,378,863**	**3,619,429**	**3,740,998**	**3,861,778**	**3,970,041**	**4,078,914**	**4,182,163**

MET Region Local Water Supplies (AFY)	2020*	2025	2030	2035	2040	2045	2050
Groundwater Production	1,101,757	1,235,671	1,267,465	1,287,180	1,299,692	1,305,000	1,305,000
Surface Production	96,794	81,527	81,527	81,527	81,527	81,527	81,527
Los Angeles Aqueduct	182,696	190,000	190,000	215,000	230,000	230,000	230,000
Seawater Desalination	50,500	50,500	50,500	50,500	50,500	50,500	50,500
Groundwater Recovery	114,707	152,788	185,680	205,770	215,233	222,295	222,295
Recycled Water	373,625	489,093	570,666	622,433	678,447	689,906	689,906
Total Local Supplies	**1,920,079**	**2,199,579**	**2,345,837**	**2,462,410**	**2,555,399**	**2,579,228**	**2,579,228**

Water Demands on MET (AFY)	2020*	2025	2030	2035	2040	2045	2050
Consumptive Use	1,379,037	1,270,851	1,243,254	1,235,245	1,246,927	1,326,956	1,430,204
Seawater Barrier	21,444	10,489	5,915	5,590	5,334	5,077	5,077
Replenishment	58,303	138,509	145,992	158,532	162,381	167,654	167,654
Total Demands on MET	**1,458,784**	**1,419,849**	**1,395,161**	**1,399,367**	**1,414,642**	**1,499,687**	**1,602,935**

*Actual values

Table 3-2. Average-Year MET Water Demands Forecasts under Warm/Dry Climate Future (AFY)

MET Region Water Demands (AFY)	2020*	2025	2030	2035	2040	2045	2050
Retail M&I Demands	2,974,558	3,075,000	3,204,730	3,341,775	3,480,885	3,622,060	3,765,300
Retail Agricultural Demands	143,905	144,377	134,418	130,494	122,986	123,301	123,300
Regional Seawater Barrier Needs	62,780	68,517	70,253	71,990	72,000	72,000	72,000
Regional Replenishment Needs	197,620	205,954	218,333	226,667	236,000	244,333	247,620
Total Regional Demand	**3,378,863**	**3,493,848**	**3,627,734**	**3,770,926**	**3,911,871**	**4,061,695**	**4,208,220**

MET Region Local Water Supplies (AFY)	2020*	2025	2030	2035	2040	2045	2050
Groundwater Production	1,101,757	1,101,757	1,101,757	1,101,757	1,101,757	1,101,757	1,101,757
Surface Production	96,794	81,527	79,896	78,266	76,635	75,005	73,374
Los Angeles Aqueduct	182,696	182,000	188,840	195,680	202,520	209,360	216,200
Seawater Desalination	50,500	50,500	50,500	50,500	50,500	50,500	50,500
Groundwater Recovery	114,707	152,788	185,680	205,770	215,233	222,295	222,295
Recycled Water	373,625	489,093	570,666	622,433	678,447	689,906	689,906
Total Local Supplies	**1,920,079**	**2,057,665**	**2,177,340**	**2,254,406**	**2,325,093**	**2,348,823**	**2,354,033**

Water Demands on MET (AFY)	2020*	2025	2030	2035	2040	2045	2050
Consumptive Use	1,379,037	1,412,765	1,443,481	1,508,774	1,578,619	1,696,670	1,834,699
Seawater Barrier	21,444	10,489	5,915	5,590	5,334	5,077	5,077
Replenishment	58,303	12,929	998	2,156	2,826	11,124	14,411
Total Demands on MET	**1,458,784**	**1,436,183**	**1,450,395**	**1,516,520**	**1,586,779**	**1,712,872**	**1,854,188**

*Actual values

Table 3-3. Average-Year MET Water Demands Forecasts under Hot/Dry Climate Future (AFY)

MET Region Water Demands (AFY)	2020*	2025	2030	2035	2040	2045	2050
Retail M&I Demands	2,974,558	3,075,000	3,217,422	3,367,985	3,521,439	3,677,784	3,837,020
Retail Agricultural Demands	143,905	144,377	134,418	130,494	122,986	123,301	123,300
Regional Seawater Barrier Needs	62,780	68,517	70,253	71,990	72,000	72,000	72,000
Regional Replenishment Needs	197,620	212,620	227,620	242,620	257,620	272,620	287,620
Total Regional Demand	**3,378,863**	**3,500,515**	**3,649,713**	**3,813,090**	**3,974,046**	**4,145,706**	**4,319,940**

MET Region Local Water Supplies (AFY)	2020*	2025	2030	2035	2040	2045	2050
Groundwater Production	1,101,757	1,101,757	1,101,757	1,101,757	1,101,757	1,101,757	1,101,757
Surface Production	96,794	81,527	79,081	76,635	74,189	71,744	69,298
Los Angeles Aqueduct	182,696	182,000	186,080	190,160	194,240	198,320	202,400
Seawater Desalination	50,500	50,500	50,500	50,500	50,500	50,500	50,500
Groundwater Recovery	114,707	152,788	185,680	200,066	200,066	200,066	200,066
Recycled Water	373,625	489,093	570,666	622,433	678,447	689,906	689,906
Total Local Supplies	**1,920,079**	**2,057,665**	**2,173,764**	**2,241,551**	**2,299,199**	**2,312,293**	**2,313,927**

Water Demands on MET (AFY)	2020*	2025	2030	2035	2040	2045	2050
Consumptive Use	1,379,037	1,412,765	1,459,749	1,547,839	1,645,066	1,788,925	1,946,525
Seawater Barrier	21,444	10,489	5,915	5,590	5,334	5,077	5,077
Replenishment	58,303	19,595	10,285	18,109	24,446	39,411	54,411
Total Demands on MET	**1,458,784**	**1,442,849**	**1,475,949**	**1,571,539**	**1,674,846**	**1,833,413**	**2,006,014**
With Additional Water Use Efficiency	–	(28,857)	(90,320)	(117,776)	(147,148)	(178,489)	(211,851)
Net Demands on MET	**1,458,784**	**1,413,992**	**1,385,629**	**1,453,763**	**1,527,698**	**1,654,924**	**1,794,163**

*Actual values

Orange County Water Demand Forecast

For MWDOC's 2020 Urban Water Management Plan, CDM Smith prepared water demand forecasts for each of the 2023 OC Study areas. **Table 3-4** presents the average year Orange County demand forecast for the three climate change futures. Note that for 2023 OC Study Scenarios 4 and 5, total Orange County demands under hot/dry climate were reduced to account for additional water use efficiency, which is also shown in **Table 3-4**. For supply reliability simulation, average year water demands are adjusted in the OCSIM for year-to-year variability matched to hydrologic conditions from 1965-2022.

Table 3-4. Average-Year Orange County Demand Forecasts for Analyzed Climate Futures (AFY)

Water Demands with Warm/Wet Climate Future (AFY)	2022	2030	2040	2050
South Orange County	124,754	128,774	132,551	135,000
Orange County Basin	389,722	407,882	421,563	423,565
Brea/La Habra	18,508	18,953	19,504	19,531
Total Orange County	**535,006**	**557,639**	**575,658**	**580,146**

Water Demands with Warm/Dry Climate Future (AFY)	2022	2030	2040	2050
South Orange County	124,754	130,614	136,812	139,048
Orange County Basin	389,722	412,543	432,403	440,507
Brea/La Habra	18,508	19,224	20,131	20,508
Total Orange County	**535,006**	**564,411**	**591,386**	**602,113**

Water Demands with Hot/Dry Climate Future (AFY)	2022	2030	2040	2050
South Orange County	124,754	131,350	138,516	141,697
Orange County Basin	389,722	414,874	437,823	448,979
Brea/La Habra	18,508	19,332	20,382	20,898
Total Orange County	**535,006**	**567,586**	**598,761**	**613,623**
With Additional Water Use Efficiency	-	(22,703)	(35,926)	(39,886)
Net Total Orange County Demands	**535,006**	**544,882**	**562,835**	**573,738**







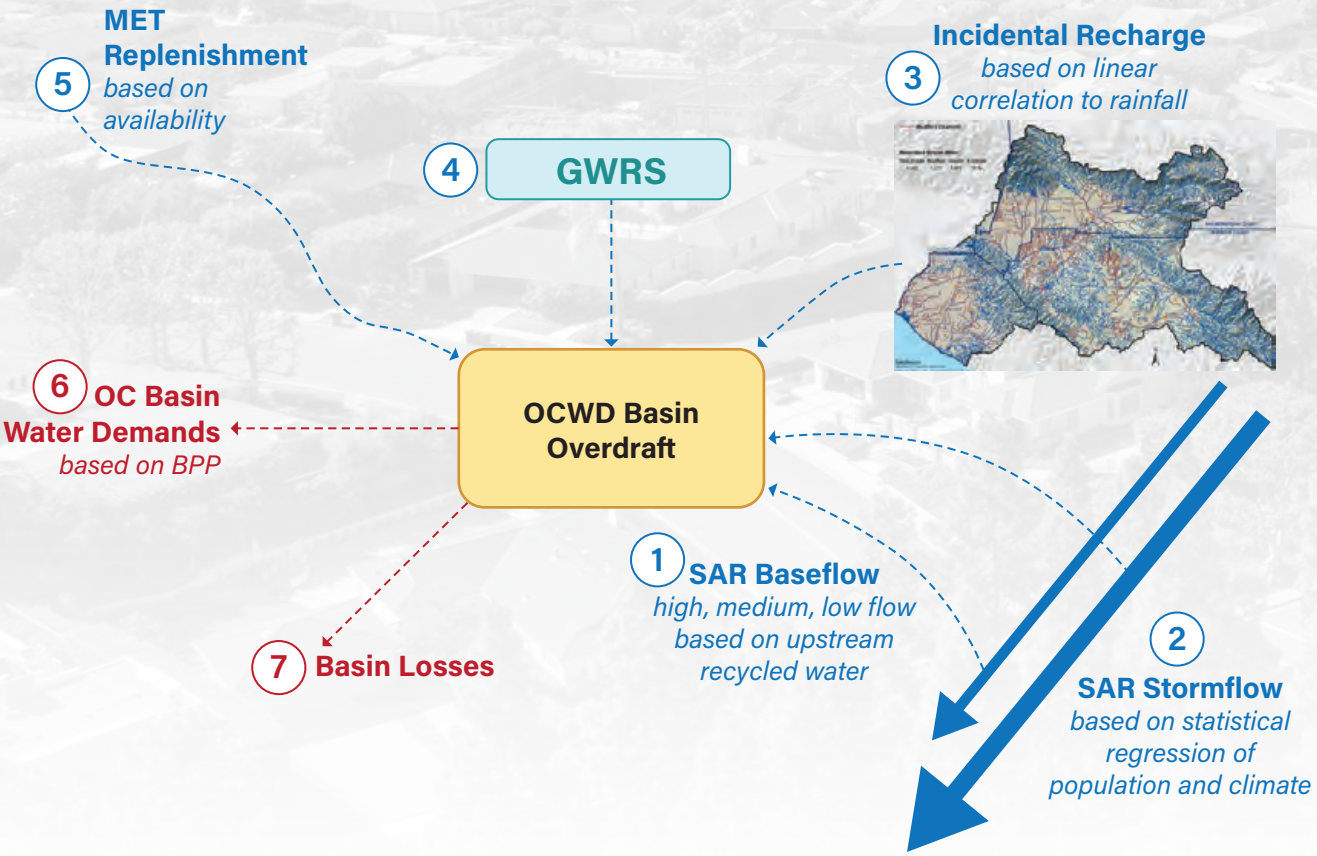
Rattlesnake Reservoir, Courtesy of IRWD

3.3 Orange County Groundwater Assumptions

Orange County Basin

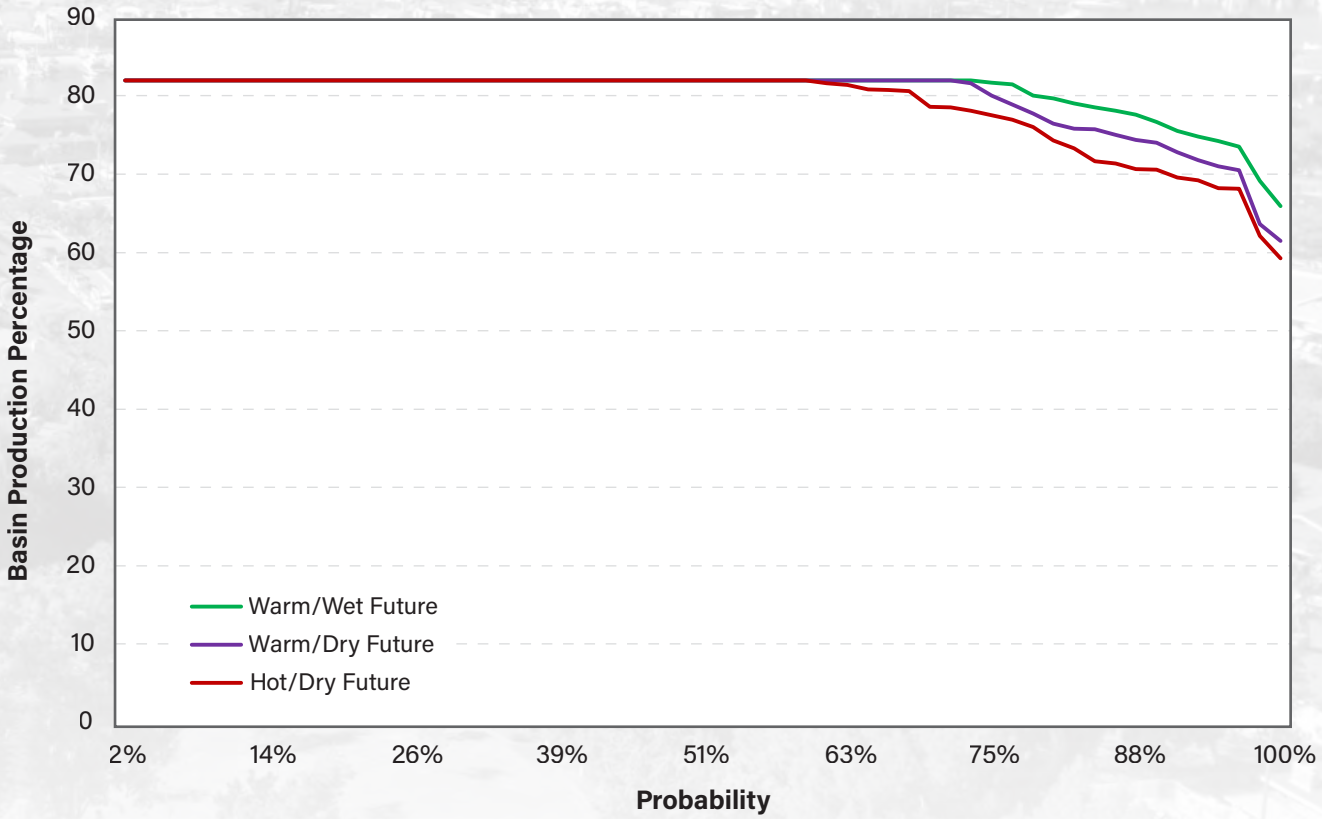
For the Orange County Basin, CDM Smith developed a simple mass-balance model to estimate basin AOD, which is illustrated in **Figure 3-2**.

Figure 3-2. CDM Smith's Mass-Balance Model Schematic of the Orange County Basin



For each hydrologic year from 1965-2022, the mass-balance estimates of Santa Ana River (SAR) stormflows and incidental recharge into the basin are based on statistical regression formulas. Future precipitation for the warm/wet, warm/dry and hot/dry climate futures were estimated by CDM Smith and input into the statistical regression to alter stormflows and incidental recharge. SAR baseflows are assumed to ramp down from the current average of 70,000 AFY to 53,000 AFY in 2040 for Scenarios 1-3, and ramp down to 36,000 AFY for Scenarios 4-5. The lower baseflows assume more upstream water recycling in San Bernardino and Riverside Counties. A constant flow into the basin from the Groundwater Replenishment System of 130,000 AFY is also assumed. When spreading capacity in the basin and MET water supply is available, replenishment of imported water is assumed up to approximately 50,000 AFY. Water pumping from the basin to meet water demands is initially set at a BPP of 82 percent[7]. The AOD is tracked annually, and if it is greater than 450,000 AF for multiple years in a row, the BPP is reduced, and more imported water is required to meet water demands. If imported water is not fully available to meet the demands, water shortages to basin pumpers occurs. The simulated BPP under different climate change futures is shown in **Figure 3-3** for the year 2030.

Figure 3-3. Simulated Orange County Basin BPP Under Different Climate Change Futures in Year 2030



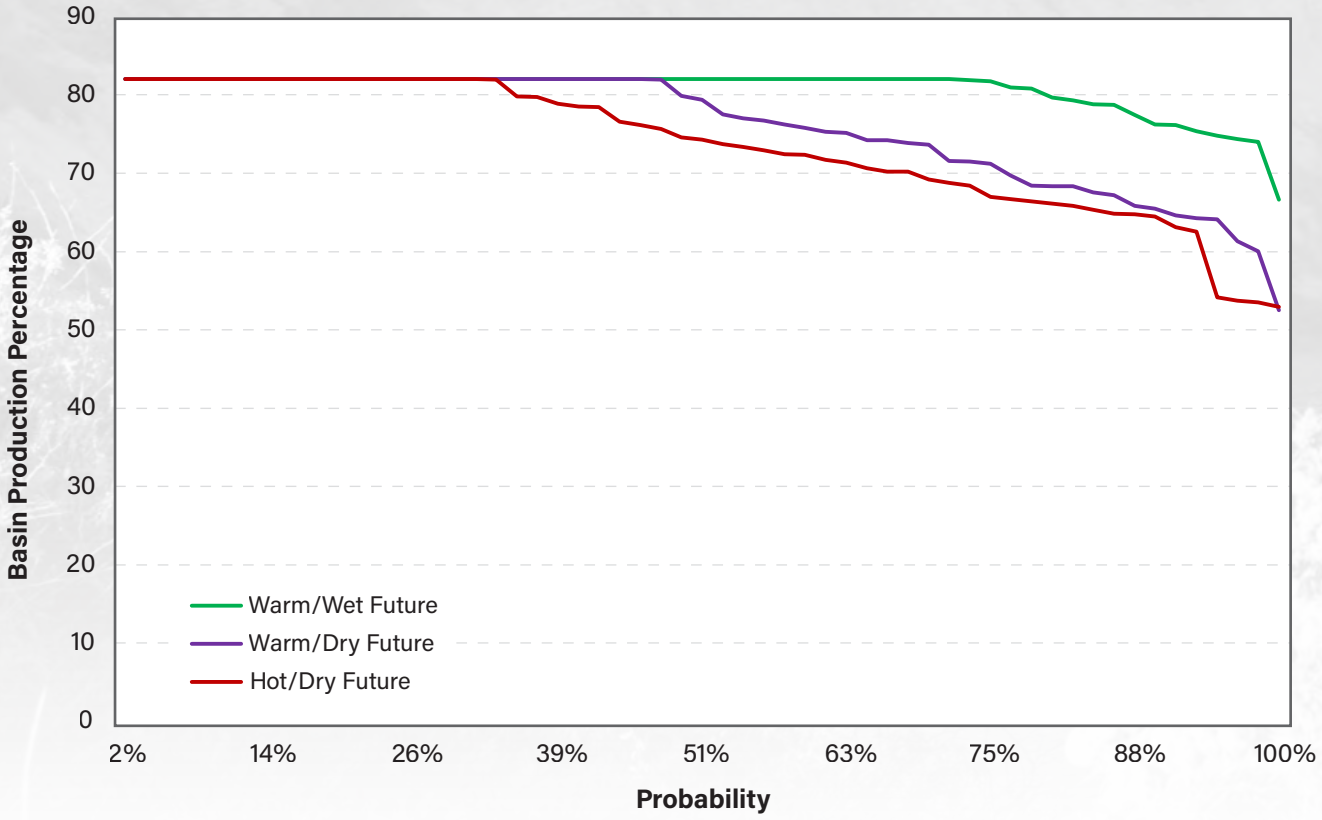
[7] While the current weighted average BPP for FY 2022-23 is 85 percent (meaning water providers in the basin can pump groundwater equal to 85 percent of their water demands), the 2023 OC Study used a long-term BPP target of 82 percent to reflect uncertainty regarding climate change.



Based on the simulated hydrology of 1965-2022 and under the warm/wet future, the BPP target of 82 percent is achieved 77 percent of the time and never falls below 67 percent in the year 2030. Under the warm/dry future, the BPP target of 82 percent is achieved 74 percent of the time and never falls below 62 percent. Under the hot/dry future, the BPP target of 82 percent is achieved 61 percent of the time and never falls below 59 percent. The simulated BPP under different climate change futures is shown in **Figure 3-4** for the year 2050.

Based on the simulated hydrology of 1965-2022 and under the warm/wet future, the BPP target of 82 percent is achieved 75 percent of the time and never falls below 65 percent in the year 2050. Under the warm/dry future, the BPP target of 82 percent is achieved 48 percent of the time and never falls below 53 percent. Under the hot/dry future, the BPP target of 82 percent is achieved 33 percent of the time and never falls below 53 percent.

Figure 3-4. Simulated Orange County Basin BPP Under Different Climate Change Futures in Year 2050







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San Juan Basin

Within the South Orange County area, groundwater is pumped from the San Juan Basin[8]. A similar mass-balance of this basin was developed based on CDM Smith's statistical regression analysis of historical pumping, precipitation, creek evaporation, and outflows to the ocean. When storage in this basin falls below 36,000 AF only minimal groundwater pumping is allowed per the San Juan Basin Authority (SJBA) Adaptive Pumping Management (APM) Plan. **Table 3-5** presents the probability that full groundwater pumping can occur based on simulated San Juan Basin storage conditions for the three climate change futures.

Table 3-5. Probability of Full Groundwater Pumping in San Juan Basin

Climate Future	Probability of Full Groundwater Pumping in 2030	Probability of Full Groundwater Pumping in 2050
Warm/Wet	82%	70%
Warm/Dry	80%	55%
Hot/Dry	79%	41%

3.4 Imported Water Modeling

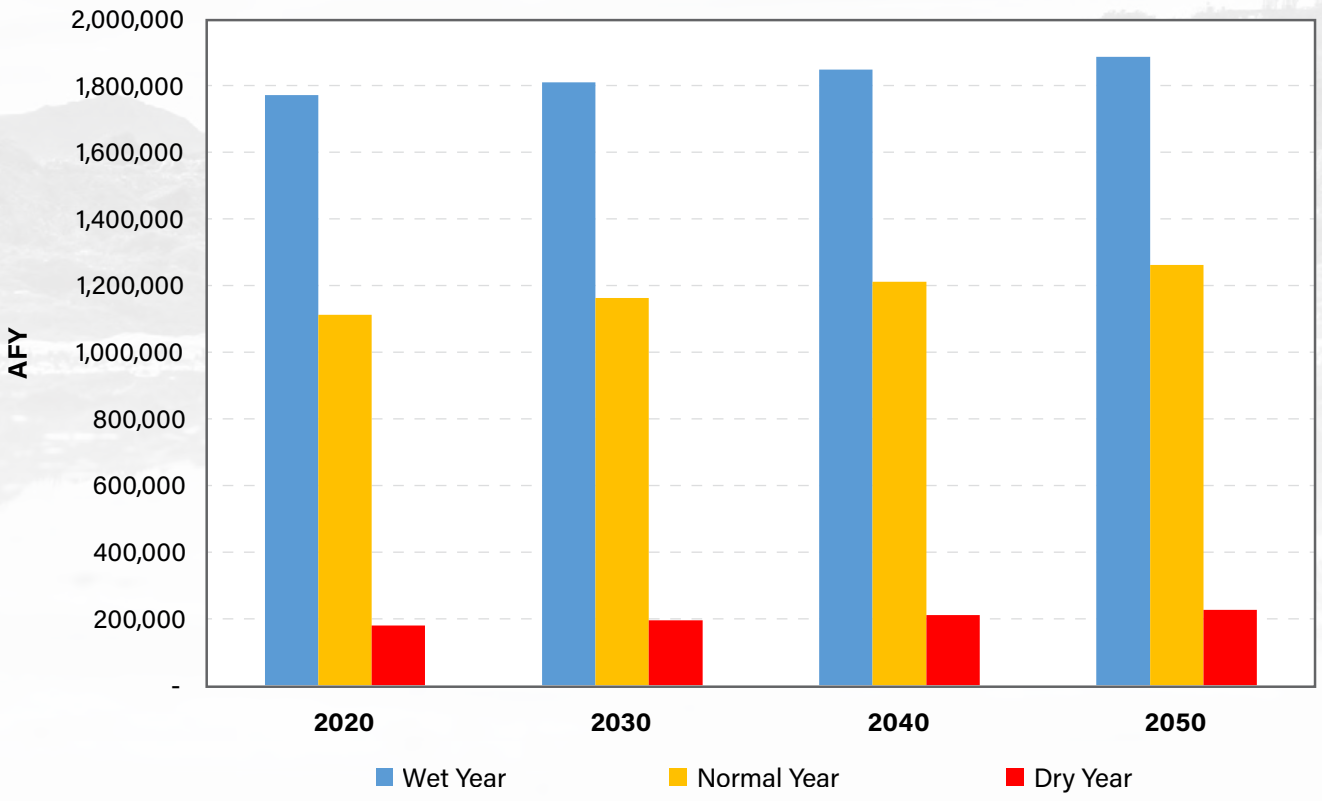
For the 2023 OC Study, extensive modeling of MET's imported water availability was conducted for baseline conditions using CALSIM output results from DWR's 2019 Delivery Capability Report for the SWP, and CDM Smith's own runs of the BOR's CRRS model. For both the SWP and Colorado River systems, the historical hydrology period of 1965-2021 was used. CDM Smith chose to use a more truncated historical hydrology, but with the most recent drought period extended, as the BOR and climate change scientists believe using periods before 1965 are no longer representative of current or future conditions due to climate change that has already taken place. Baseline conditions for imported water were then altered for future climate change conditions. For greater details on CDM Smith's imported water modeling, refer to the 2018 OC Study.

[8] San Juan Basin is categorized as a subterranean flowing stream, with water extraction regulated by State Water Resources Control Board (SWRCB).

State Water Project Deliveries

Several types of SWP water are made available to SWP contractors under the long-term supply contracts between the SWP contractors and DWR. Among these supplies are Table A water and Article 21 water. Table A water is an allocated annual supply made available throughout the year, while Article 21 water is an interruptible water supply made available only when certain conditions exist (usually during normal years). MET's Table A contract is 1.91 MAF. CDM Smith estimated the changes from current conditions (as represented by the year 2020) for the SWP system based on future climate change (as discussed in **Section 2.1**) and simulated benefits of the DCP. **Figure 3-5** shows changes from current conditions for the warm/wet climate future for three representative hydrologic year types (wet, normal and dry), with wet years being the average of the highest 10th percentile, normal years being the 50th percentile, and dry years being the average of the lowest 10th percentile. Mid-century impacts for the GCMs that were ensembled for this climate future were used to estimate the year 2050 future conditions. It was assumed that climate change impacts between 2020 and 2050 would occur linearly.

Figure 3-5. State Water Project Deliveries to MET for Warm/Wet Climate Future

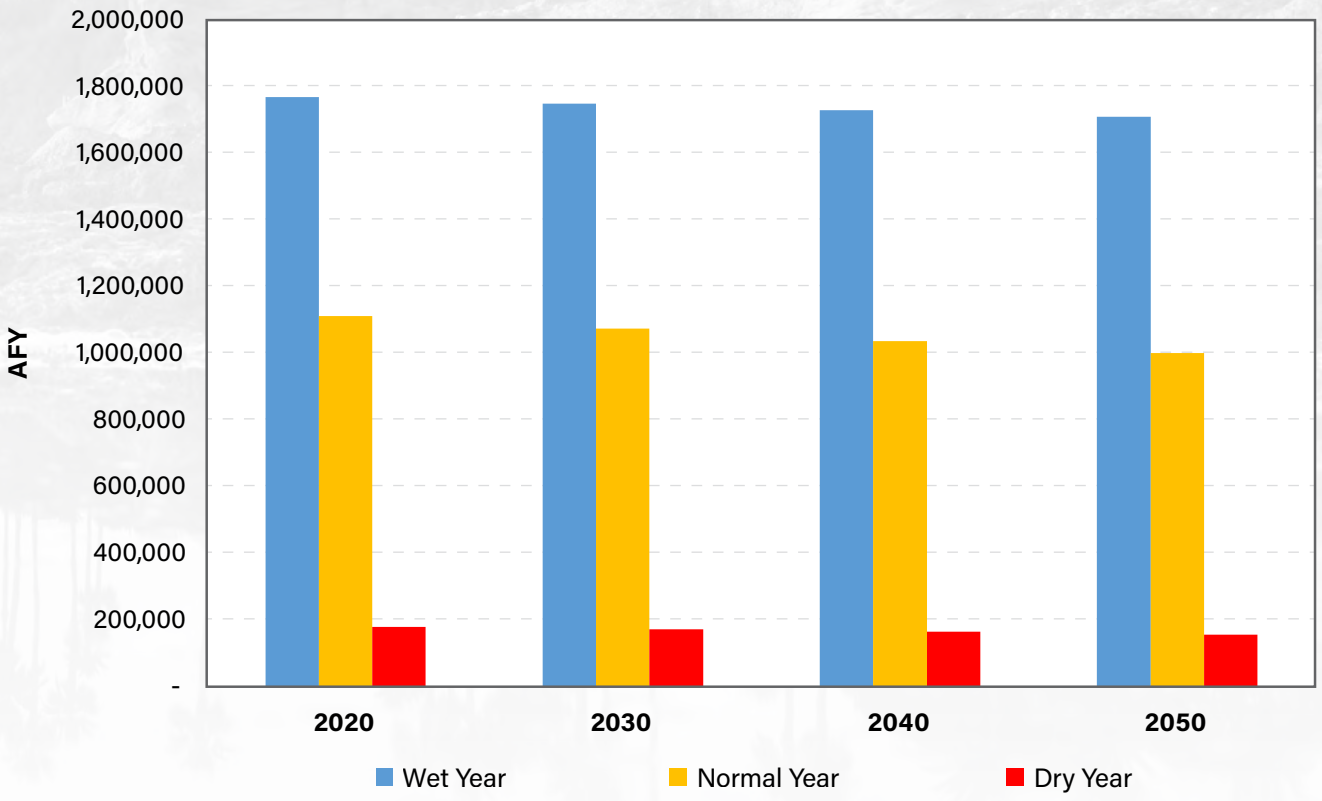




Under the warm/wet climate future, there is a forecasted increase in SWP deliveries to MET, with normal year deliveries increasing from 1.11 MAF in 2020 to 1.26 MAF in 2050 (14 percent increase).

Figure 3-6 shows changes from current conditions for the warm/dry climate future for three representative hydrologic year types (wet, normal and dry).

Figure 3-6. State Water Project Forecast Deliveries to MET for Warm/Dry Climate Future





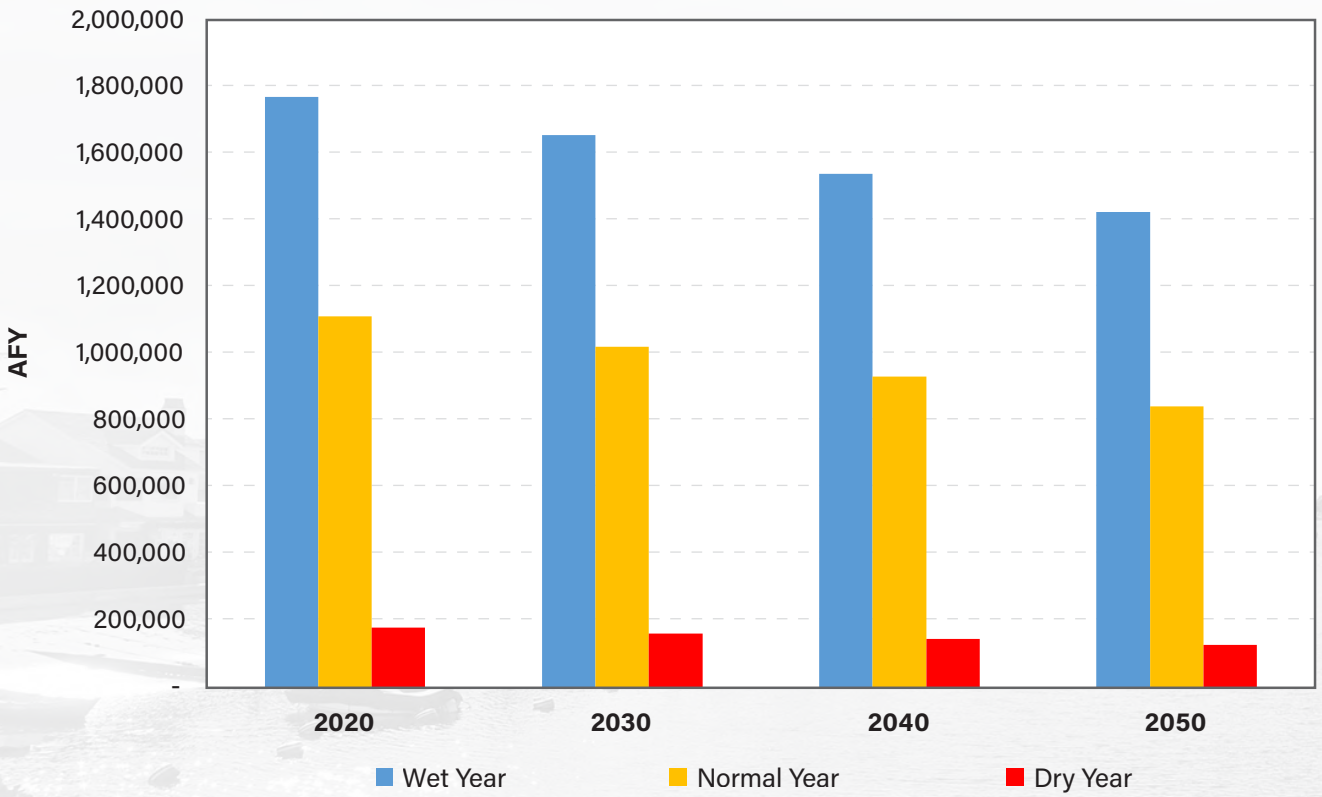




Under the warm/dry climate future, there is a forecasted decrease in SWP deliveries to MET, with normal year deliveries decreasing from 1.11 MAF in 2020 to 1.00 MAF in 2050 (10 percent decrease).

Figure 3-7 shows changes from current conditions for the hot/dry climate future for three representative hydrologic year types (wet, normal and dry).

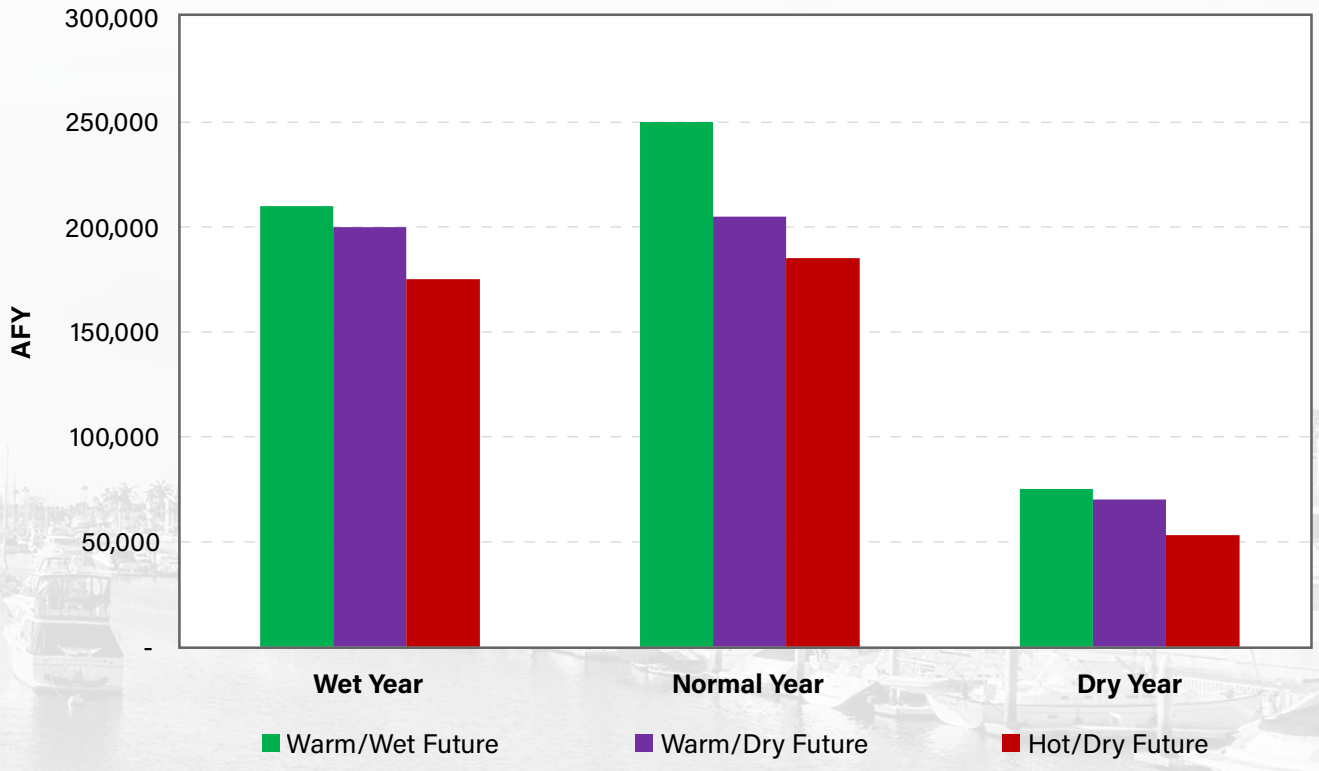
Figure 3-7. State Water Project Forecast Deliveries to MET for Hot/Dry Climate Future



Under the hot/dry climate future, there is a more significant forecasted decrease in SWP deliveries to MET, with normal year deliveries decreasing from 1.11 MAF in 2020 to 0.84 MAF in 2050 (24 percent decrease).

To estimate the additional benefits to SWP deliveries from the DCP for those scenarios that assume its implementation, the DWR's 2022 Draft EIR was utilized. The proposed project for that EIR is Alternative 5 -Bethany Reservoir Alignment with a conveyance capacity of 6,000 cubic feet per second. Incremental supply yields for SWP exports for Alternative 5 were aligned to several year types (e.g., wet, above-normal, below-normal, dry, critically dry). These year types were matched to CDM Smith's hydrology record of 1965-2021. It should be noted that under climate change futures, the number of year-types shift, changing the supply deliveries of the DCP. For example, under the warm/wet climate future there are more wet and above-normal year-types, while under the hot/dry climate future there are more dry and critically dry year-types. The forecast direct SWP deliveries from the DCP shown in **Figure 3-8** represent opportunities to capture high storm flow volumes during extreme precipitation events under different year-types and for the three different climate futures. However, the real value of the DCP to MET and Orange County is even greater when coupled with increases in storage for use in dry years, which will be discussed later in **Section 4**.

Figure 3-8. Forecast SWP Deliveries from the DCP based on Opportunities to Capture High Storm Flow Volumes





Colorado River Aqueduct Deliveries

CDM Smith utilized the BOR's CRRS model to simulate CRA deliveries to MET under baseline conditions, with the year 2021 Lake Mead storage conditions used for the start of the simulation. The historical hydrology of 1965-2021 was used for estimating direct river contributions to the CRA. Metropolitan and its member agencies participate in transfers and exchanges that augment direct deliveries of the Colorado River into the CRA. Colorado River shortages for the Lower Basin States of Arizona, California and Nevada are currently governed by the BOR's Drought Contingency Plan, which superseded the 2007 Interim Guidelines. Allocations of California's share of shortages to MET are based on priorities established in the California 4.4 Plan and negotiations that took place between MET, Palos Verdes Irrigation District (PVID), Coachella Valley Water District and Imperial Irrigation District (IID) during the development of the Drought Contingency Plan. Lake Mead elevation is used to trigger shortage allocations, which is summarized in **Table 3-6**.

Table 3-6. Allocations of Shortages under BOR Drought Contingency Plan

	Colorado River Water Shortage Allocations (AFY)			
Lake Mead Elevation (feet)	Arizona	Nevada	California	MET
>1075 to 1090	192,000	8,000	0	0
>1050 to 1075	512,000	21,000	0	0
>1045 to 1050	592,000	25,000	0	0
>1040 to 1045	640,000	27,000	200,000	170,000
>1035 to 1040	640,000	27,000	250,000	212,500
>1030 to 1035	640,000	27,000	300,000	255,000
>1025 to 1030	640,000	27,000	350,000	297,500
>1000 to 1025	720,000	30,000	350,000	297,500

Note: The current Lake Mead elevation as of April 25, 2023, is 1,047 feet and is expected to increase to 1,061 feet by December 2023 due to heavy snowpack in summer/fall of 2023.



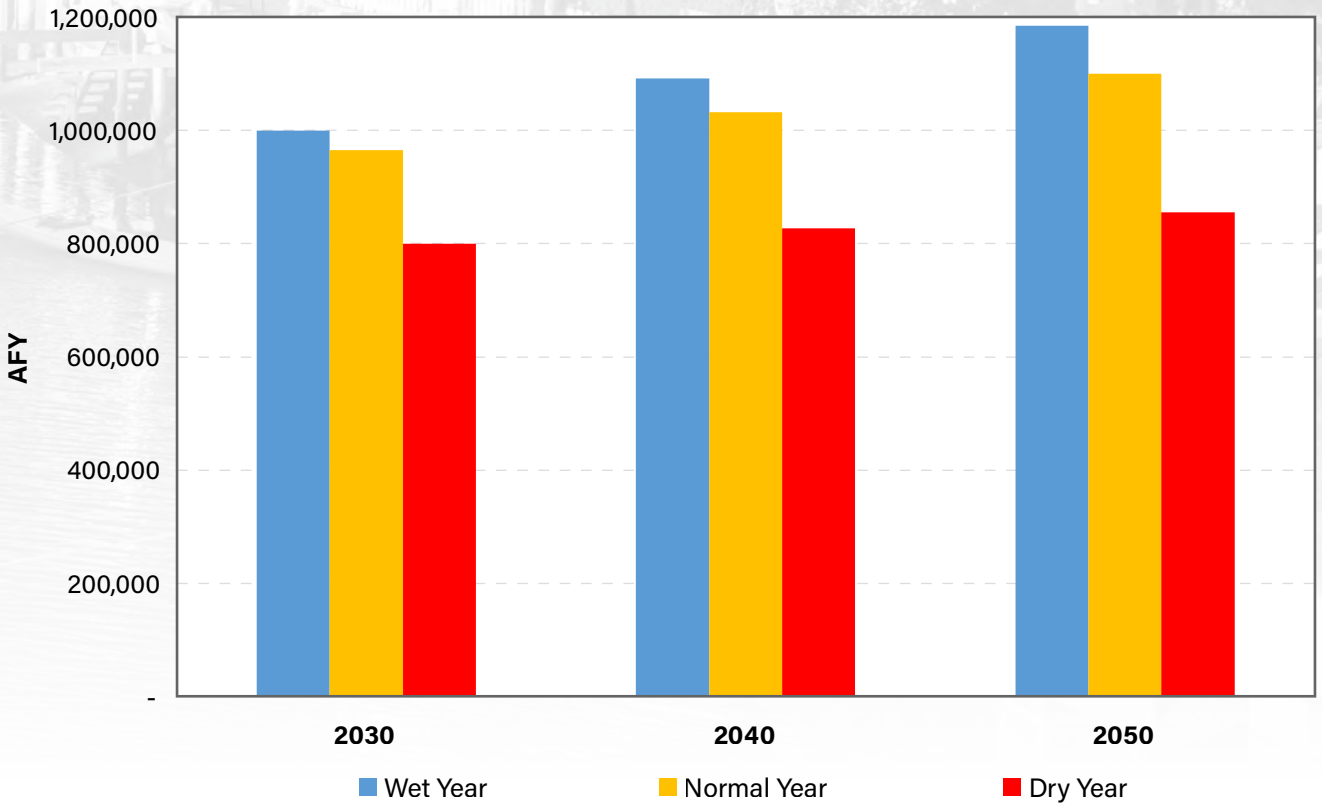


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In exchange for taking shortage allocations sooner, California will receive benefits in the form of access to Intentionally Created Surplus (ICS) storage during shortage situations that are not currently allowed. ICS water in Lake Mead is defined as water that has been conserved through an extraordinary conservation measure, such as land fallowing. If Lake Mead elevations drop below 1,000 feet, then allocations are based proportionally based on priorities among the Lower Basin States and within California.

Based on the current BOR Drought Contingency Plan, CDM Smith used changed inflows into the Colorado River system under three different climate change futures to alter the baseline conditions. **Figure 3-9** presents CRA forecast deliveries for three representative year-types (e.g., wet, normal, dry) for the warm/wet climate future. The wet year represents the average of the highest 10th percentile, the normal year represents the 50th percentile, and the dry year represents the average of the lowest 10th percentile based on historical hydrology of 1965-2021.

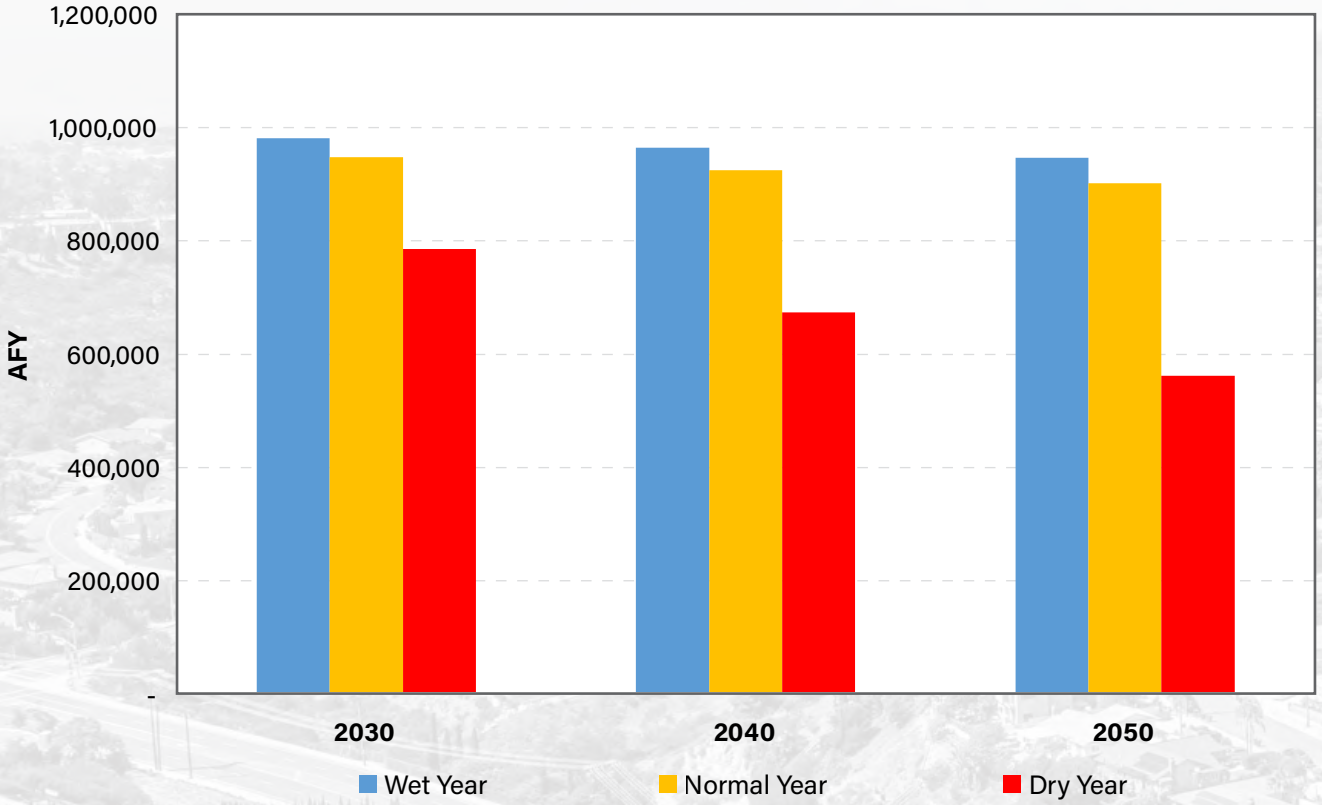
Figure 3-9. Colorado River Aqueduct Forecast Deliveries to MET for Warm/Wet Climate Future



Under a warm/wet climate future, CRA forecast deliveries increase overtime, with normal year deliveries increasing from 0.96 MAF in 2030 to 1.10 MAF in 2050 (15 percent increase).

Figure 3-10 presents CRA deliveries for three representative year-types (e.g., wet, normal, dry) for the warm/dry climate future.

Figure 3-10. Colorado River Aqueduct Forecast Deliveries to MET for Warm/Dry Climate Future

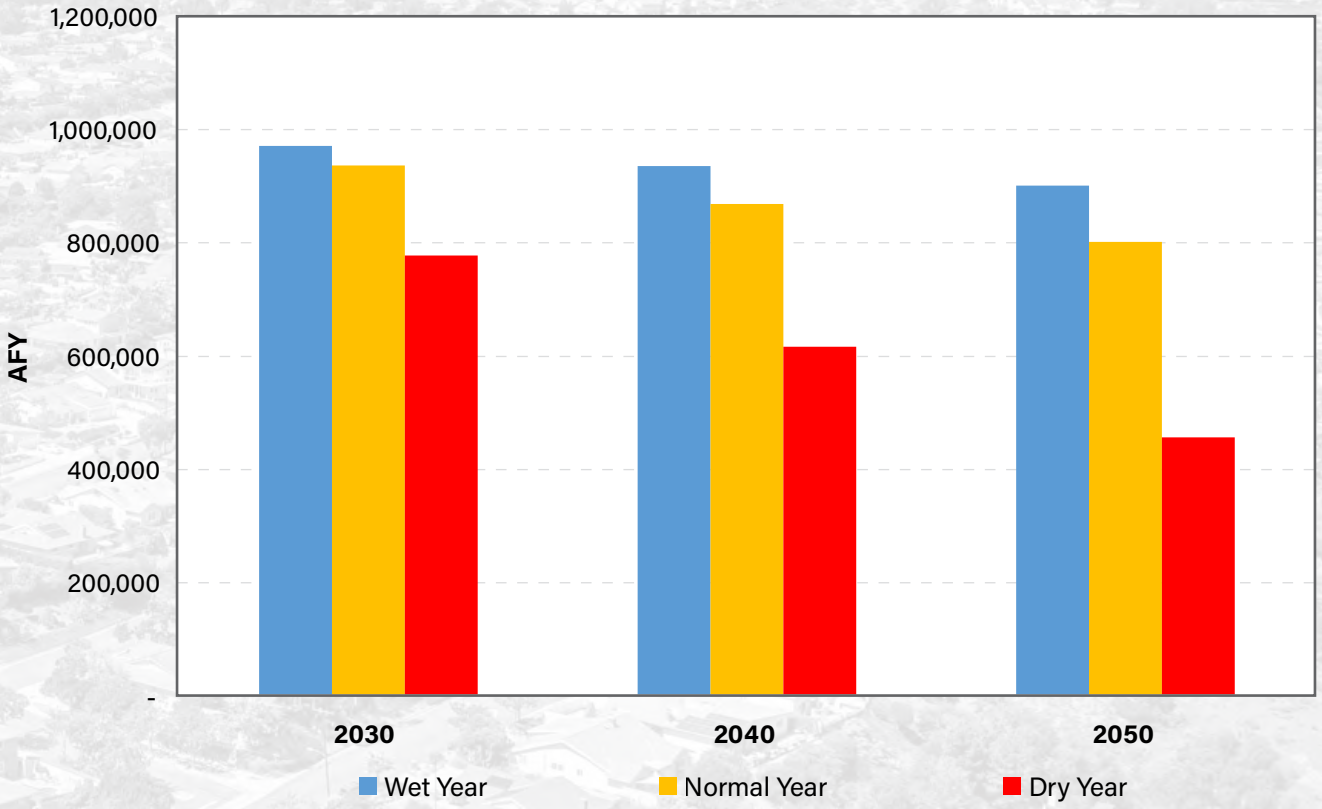


Under a warm/dry climate future, CRA forecast deliveries decrease overtime, with normal year deliveries decreasing from 0.95 MAF in 2030 to 0.90 MAF in 2050 (5 percent decrease). Although dry year deliveries will decrease even more significantly (27 percent decrease).

Figure 3-11 presents CRA deliveries for three representative year-types (e.g., wet, normal, dry) for the hot/dry climate future.

Under a hot/dry climate future, CRA forecast deliveries decrease overtime, with normal year deliveries decreasing from 0.94 MAF in 2030 to 0.80 MAF in 2050 (15 percent decrease). However, dry year deliveries will decrease even more significantly (42 percent decrease).

Figure 3-11. Colorado River Aqueduct Forecast Deliveries to MET for Hot/Dry Climate Future



Existing MET Storage

The OCSIM model tracks surplus water when direct deliveries of imported water exceed MET water demands. Surplus water is stored to given storage capacities for use during emergencies and dry years. **Table 3-7** summarizes the MET storage used in the OCSIM simulations for the 2023 OC Study.

The January 2022 storage levels from MET operations reports were used as the start of the simulation period. MET's substantial storage has greatly mitigated reduced imported deliveries from the SWP in the past and will be key in reducing impacts from future droughts.

Table 3-7. MET Storage Capacities and Initial Volumes

Storage		Total Capacity (AF)	Non-Emergency Capacity (AF)	January 2022 Non-Emergency Current Storage (AF)
State Water Project Storage	Combined MET and Desert Water Coachella Valley Water District (CVWD) SWP Carryover	Allocation Dependent	350,000	38,000
	Castaic Lake (SWP – flexible storage)	325,000	154,000	0
	Lake Perris (SWP – flexible storage)	65,000	65,000	43,600
	Pyramid Lake (SWP)	158,000	0	0
Colorado River Storage	Desert Water & CVWD Advance Delivery Account1	800,000	800,000	259,000
	Intentionally Created Surplus (ICS)	1,700,000	1,700,000	1,243,000
MET Reservoir Storage	Diamond Valley	810,000	610,000	488,200
	Lake Matthews and Skinner	226,000	124,000	66,700
MET Groundwater Storage	In-Region	215,000	215,000	16,000
	Out-of-Region	1,340,000	1,340,000	522,000
	Cyclic	250,000	250,000	0

New MET Supplies

For those alternatives that have new MET programs (see **Table 2-2**), these supplies are modeled in OCSIM as either base-loaded supply offsets (e.g., Pure Water Southern California or Colorado River water transfers) or as supplies that are used only during dry years and droughts (e.g., new surface water storage).



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Section 4: Water Supply Reliability Assessment

The results of the water supply modeling for the 2023 OC Study were used to estimate the probability and size of potential MET water shortages, and then allocate those shortages to Orange County. It should be noted that the first set of shortage simulations do not include mandatory water use restrictions that have been required in past severe droughts. Understanding the level of water shortages without demand restrictions is useful when determining the potential economic impact of water shortages.

4.1 MET Regional Reliability

The MET regional supply reliability without demand restrictions is presented for the five planning scenarios in **Figure 4-1** for the year 2030 and in **Figure 4-2** for the year 2050.

Figure 4-1. MET Regional Supply Reliability Forecast in Year 2030

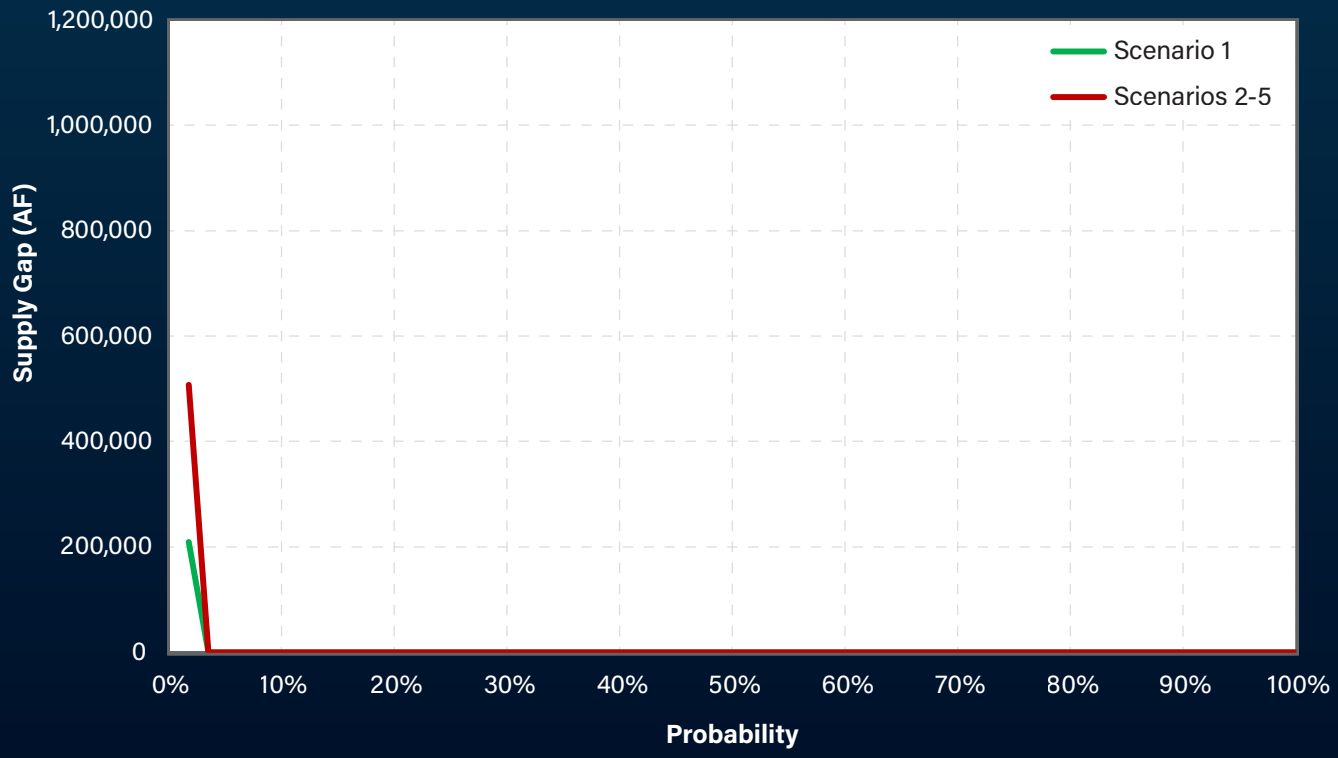
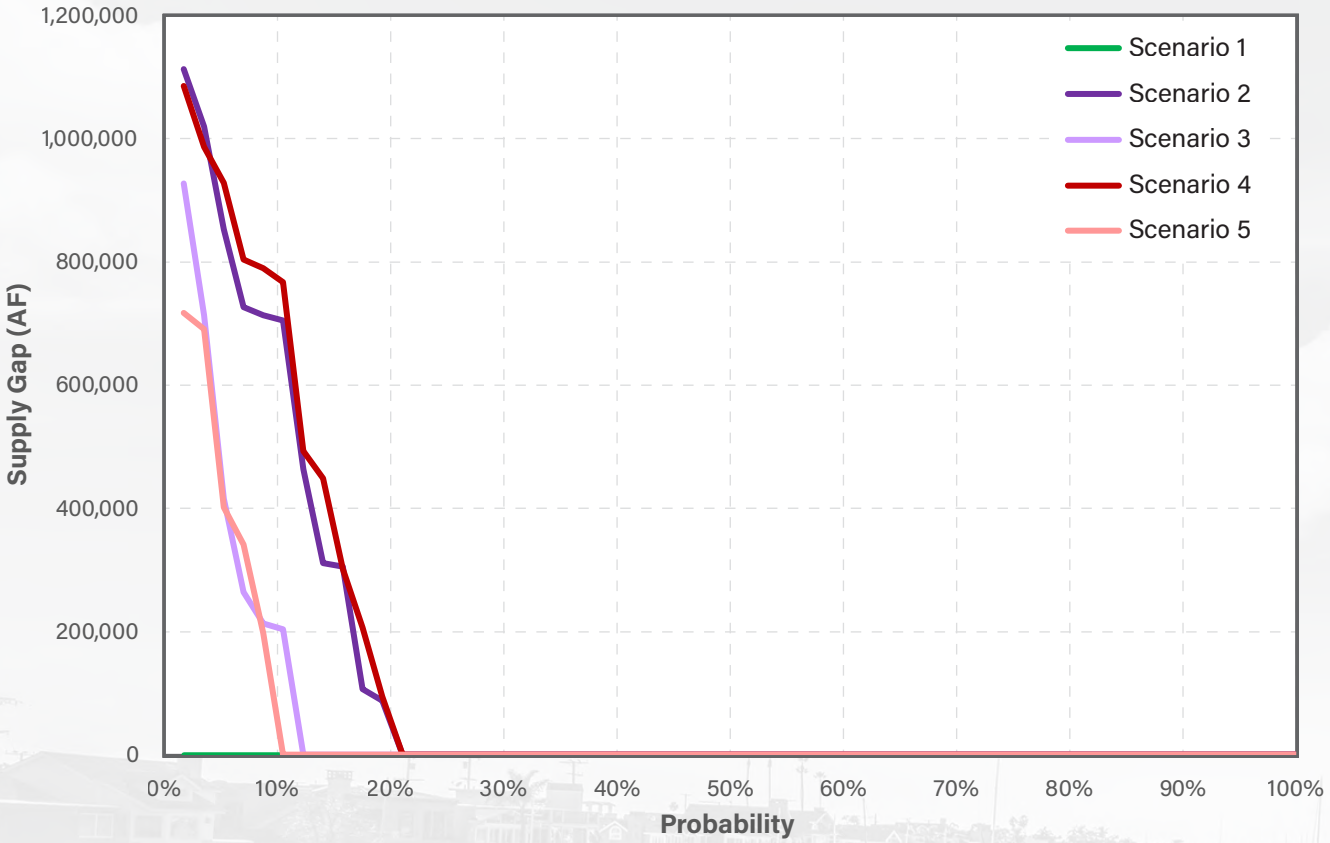


Figure 4-2. MET Regional Supply Reliability Forecast in Year 2050



In 2030, water shortages of any size are expected to occur 3.5 percent of the time. Maximum shortages, which are expected to occur about 1.5 percent of the time, range from 209,000 AFY for Scenario 1 to 508,000 AFY for Scenarios 2-5.

In 2050, MET water shortages of any size are expected to occur between 10 to 21 percent of the time. Maximum MET shortages, which can occur about 3.5 percent of the time, range from 0 AFY for Scenario 1 to 1,085,000 AFY for Scenario 4. When interpreting these results for 2050, it is important to keep in mind the following scenario distinctions:

- While Scenario 1 had shortages in year 2030, those shortages are reduced to zero by 2050 due to: (1) increases in imported water deliveries from 2030-2050 as a result of wetter assumed climate for this scenario; (2) assumed increases in local water supplies in the MET region between 2030 and 2050; and (3) new MET projects assumed to be implemented after 2030, such as the Pure Water Southern California Program and Colorado River water transfer.
- Scenarios 2 and 4 do not include the implementation of the DCP and new MET storage, whereas Scenarios 3 and 5 assume implementation illustrating the value of the DCP.
- While climate change impacts are more significant for Scenarios 4 and 5 (compared to Scenarios 2 and 3), reliability is slightly improved for these scenarios due to assumed increases in water use efficiency and a larger MET Pure Water Southern California program.

4.2 Orange County Reliability

MET regional water shortages were converted into supply allocations to Orange County based on MET's water allocation formulas under its Water Supply Allocation Plan (WSAP). These formulas reflect existing local water supplies and levels of water use efficiency for Orange County. This provides estimates of MET water deliveries under different hydrologic traces, which are then added to the corresponding local water supplies in order to estimate the probability and size of water shortages for the Orange County Basin, South Orange County and Brea/La Habra. When interpreting results, refer to the scenario distinctions discussed in **Section 4.1**.

South Orange County Reliability

The South Orange County supply reliability without demand restrictions is presented for the five planning scenarios in **Figure 4-3** for the year 2030 and in **Figure 4-4** for the year 2050.

Figure 4-3. South Orange County Supply Reliability Forecast in Year 2030

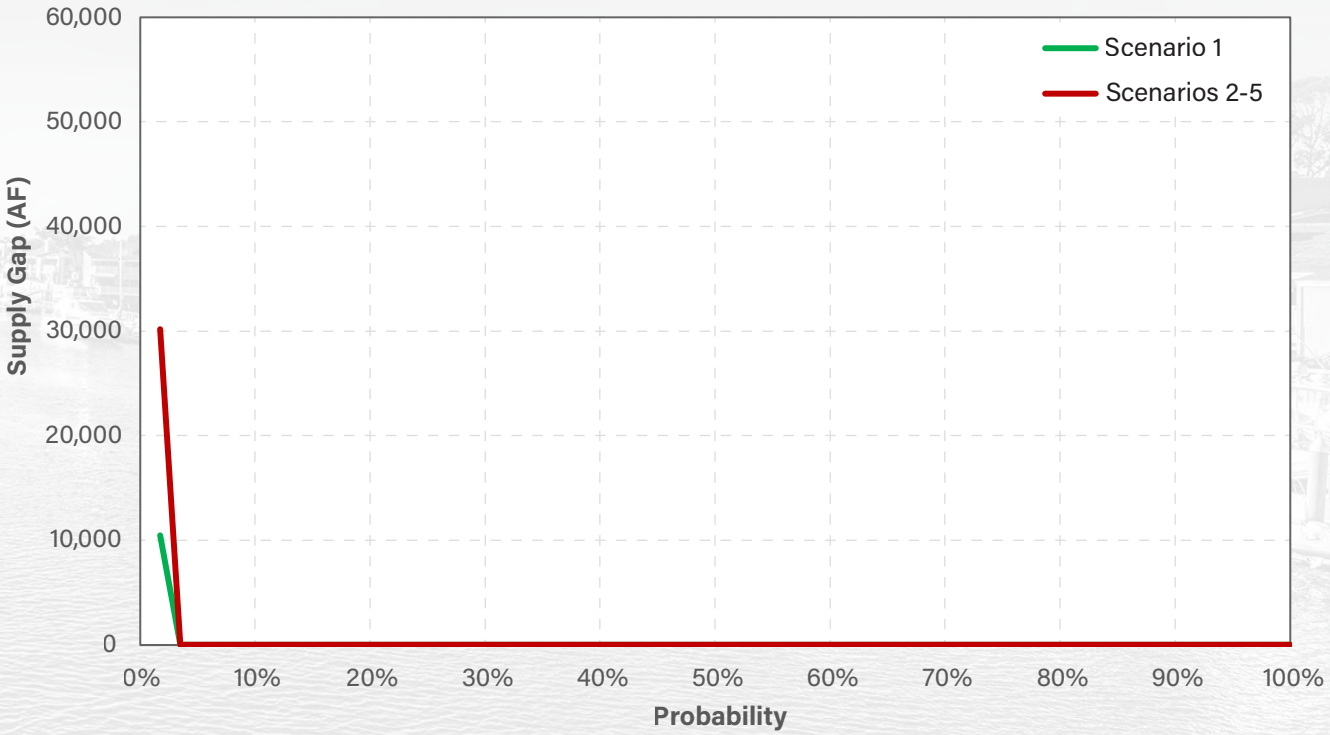
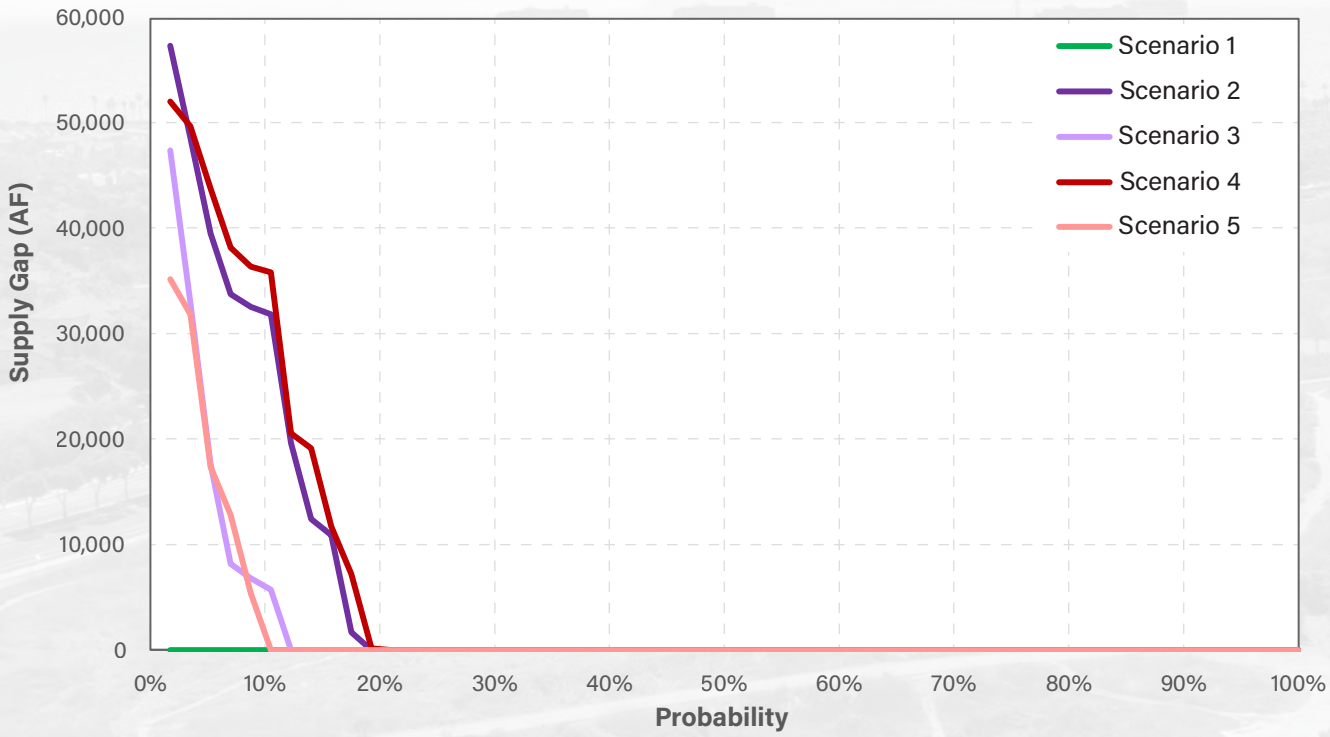






Figure 4-4. South Orange County Supply Reliability Forecast in Year 2050



Orange County Basin Reliability

The Orange County Basin supply reliability without demand restrictions is presented for the five planning scenarios in **Figure 4-5** for the year 2030 and in **Figure 4-6** for the year 2050.

Figure 4-5. Orange County Basin Supply Reliability Forecast in Year 2030

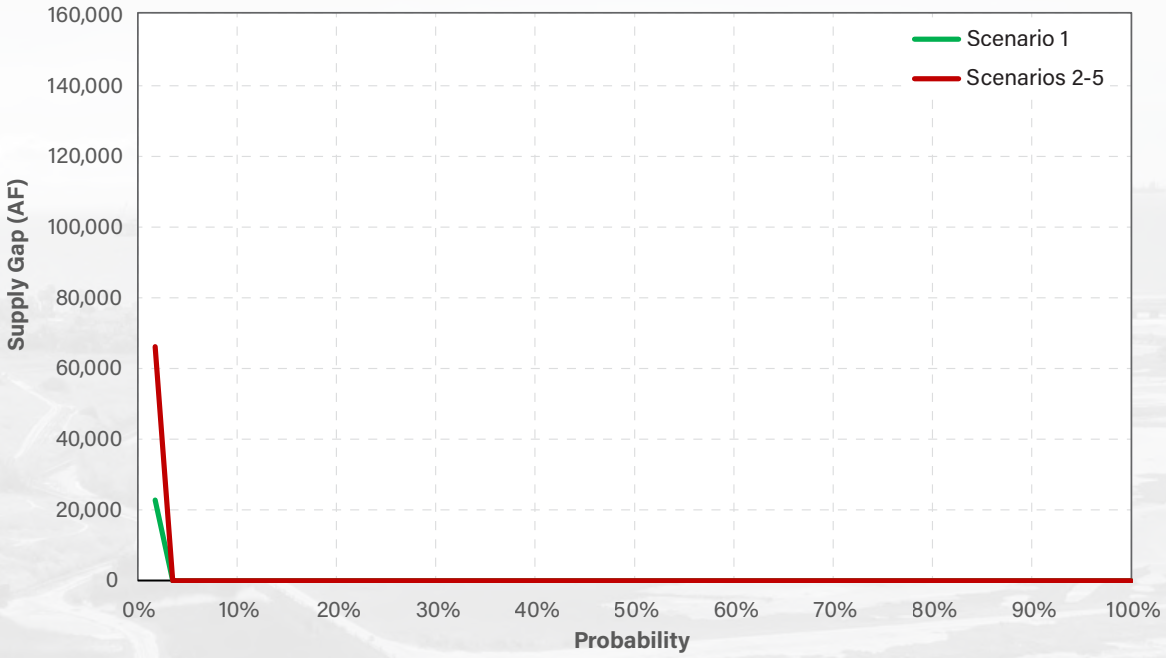
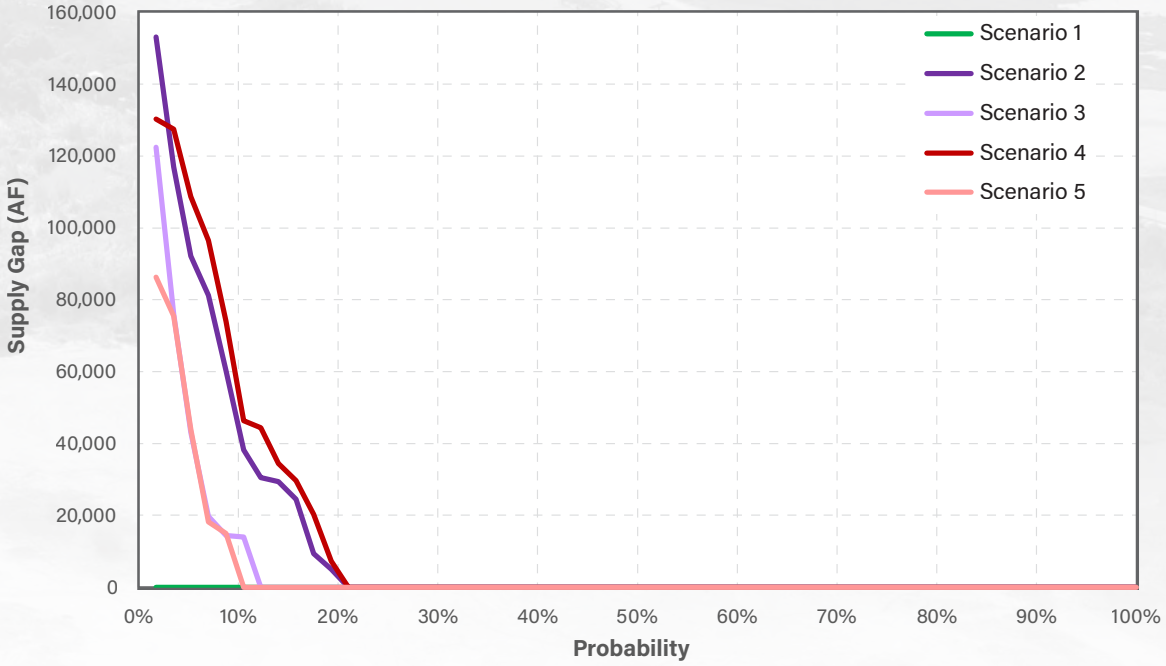


Figure 4-6. Orange County Basin Supply Reliability Forecast in Year 2050



Brea/La Habra Reliability

The Brea/La Habra supply reliability without demand restrictions is presented for the five planning scenarios in **Figure 4-7** for the year 2030 and in **Figure 4-8** for the year 2050.

Figure 4-7. Brea/La Habra Supply Reliability Forecast in Year 2030

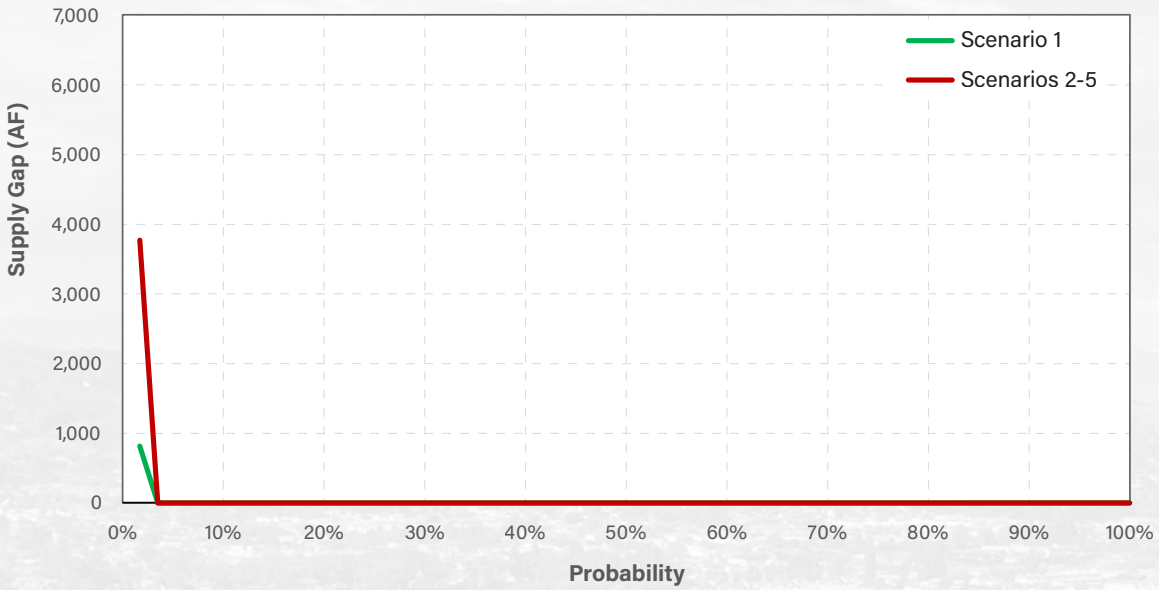
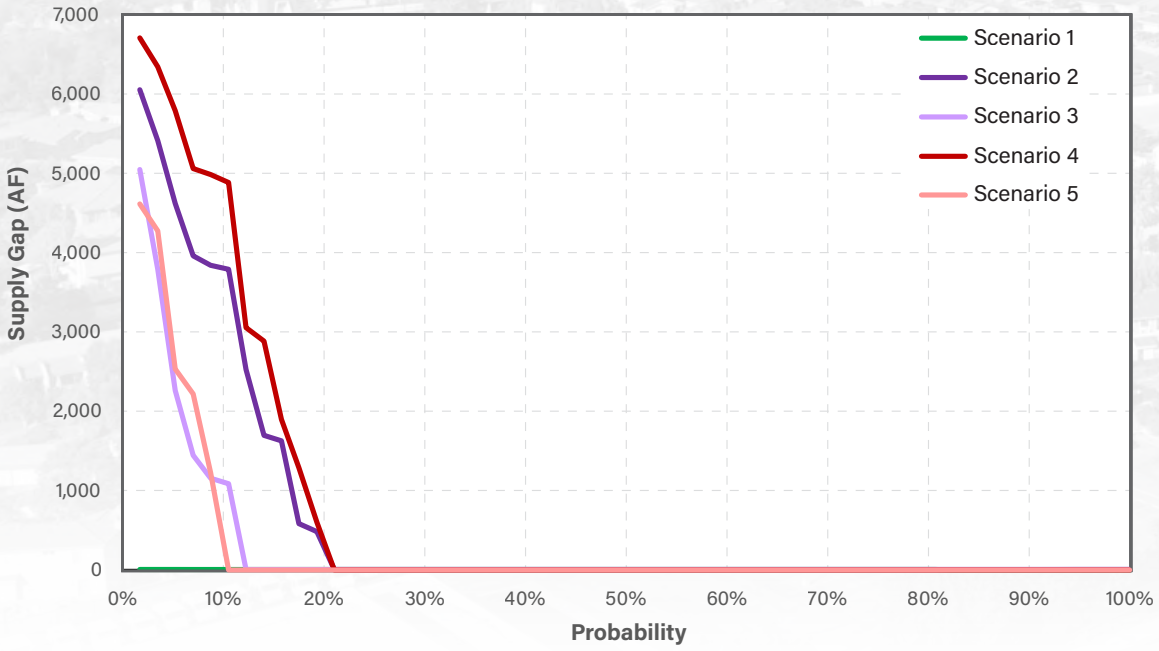
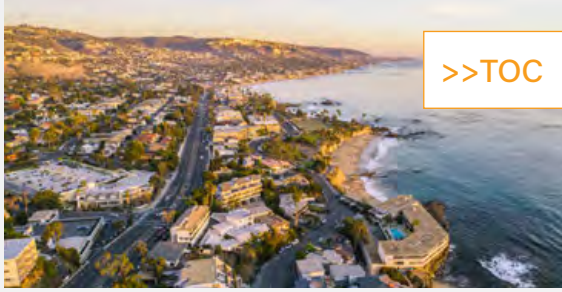


Figure 4-8. Brea/La Habra Supply Reliability Forecast in Year 2050









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4.3 Summary of Reliability Assessment

The summary of maximum water shortages for the MET region and study areas in Orange County are shown in **Table 4-1** without water demand restrictions. These maximum water shortages are expected to occur 1.5 percent of the time for the year 2030 and 3.5 percent of the time for 2050.

Table 4-1. Maximum Water Shortages Forecasts without Demand Restrictions

	Max Shortage (AFY) in 2030, Occurs 1.9% of Time					Max Shortage (AFY) in 2050, Occurs 3.5% of Time				
Region	Sc1	Sc2	Sc3	Sc4	Sc5	Sc1	Sc2	Sc3	Sc4	Sc5
MET Service Area	209,000	508,000	508,000	485,000	485,000	0	1,100,000	927,000	1,085,000	718,000
Orange County Basin	24,000	66,000	66,000	70,000	70,000	0	153,000	122,000	130,000	86,000
South Orange County	10,000	30,000	30,000	31,000	31,000	0	57,000	47,000	52,000	35,000
Brea/La Habra	1,000	3,000	3,000	4,000	4,000	0	6,000	5,000	7,000	5,000

Assuming 15 percent mandatory water demand restrictions at the retail level, that would likely be imposed during a critical drought, the maximum water shortages in Table 4-1 can be reduced as shown in **Table 4-2**

Table 4-2. Maximum Water Shortages Forecasts with Demand Restrictions

	Max Shortage (AFY) in 2030					Max Shortage (AFY) in 2050				
Region	Sc1	Sc2	Sc3	Sc4	Sc5	Sc1	Sc2	Sc3	Sc4	Sc5
MET Service Area	0	33,000	33,000	15,000	15,000	0	535,000	362,000	538,000	171,000
Orange County Basin	0	6,000	6,000	9,000	9,000	0	87,000	59,000	67,000	23,000
South Orange County	0	10,000	10,000	11,000	11,000	0	37,000	27,000	32,000	15,000
Brea/La Habra	0	0	0	1,000	1,000	0	3,000	2,000	4,000	2,000

Depending on the scenario, net MET regional water shortages (assuming 15 percent retail-level demand restrictions) for Scenarios 2-5 range from 171,000 to 538,000 AFY in year 2050. In the Orange County Basin, net shortages for Scenarios 2-5 range from 23,000 to 87,000 AFY in year 2050. For South Orange County, net shortages for Scenarios 2-5 range from 15,000 to 37,000 AFY in year 2050; and range from 2,000 to 4,000 AFY for Brea/La Habra in year 2050.

The net water shortages in Orange County can be reduced to near-zero levels with the operations of recently developed supply projects (such as Irvine Ranch Water District's Central Valley Water Banking Program), temporarily increasing the utilization of groundwater in the Orange County Basin above prescribed overdraft targets, and with planned future reuse and desalination projects in South Orange County.

Note: While the scenarios presented in the 2023 OC Study represent five distinct plausible futures, there were many more scenarios that could have been evaluated. Furthermore, a true 'black swan' event scenario—one that represents all of the worst-case outcomes of the uncertainties occurring—was not evaluated. Nonetheless, the OC Study team believes that the five scenarios used for this study represent a reasonable range of potential outcomes that are appropriate for long-term water supply planning.

Section 5: Economic Impacts of Water Shortages

In 2021, MWDOC initiated a study to determine the "value of water" to Orange County by estimating the economic impacts of hypothetical 15 and 30 percent water shortages in Orange County[9]. This study was not meant to imply that these water shortages would occur, but instead examined the economic consequences if they did occur. The approach used for this study is consistent with approaches used by MET, DWR[10], and other agencies to determine the value of proposed water projects. The goal of these approaches is to provide insights for making future water supply investments.

This MWDOC economic study assumed that water shortages would be proportionally allocated to residential and non-residential customers. However, it should be noted that some water providers may prioritize shortage allocations differently than assumed for this study. Note: There may be alternative approaches to evaluating the value of water, other than the one used for this study.

[9] The Economic Impact of Water Shortages in Orange County, prepared by the Brattle Group on July 15, 2022.
[10] DWR Economic Analysis Guidebook January 2008 located at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/CDWA%20et%20al/SDWA%20273.pdf, Chapter 3 Economic Analysis Methods, pages 15-17.









5.1 Summary of Economic Impacts

To determine the reduced economic output for industrial/commercial customers, a contingent valuation survey was done with 401 businesses in Orange County. Through detailed questions posing different scenarios of reduced water supply, businesses indicated a range of potential reductions in output/services. Then the economic input-output IMPLAN[11] model was used to convert reported percent reductions in output/services into dollar impacts.

To determine the impact for residential customers, a welfare loss function based on water demand/price curves were developed for single-family and multifamily residential homes. By restricting water demands by 15 and 30 percent, the estimated willingness-to-pay for not reducing water demand was estimated.

Lastly, lost revenues for water utilities in Orange County was estimated by reducing water sales 15 and 30 percent to residential, industrial, commercial, and institutional customers based on current water rates.

All economic impacts were estimated in 2021 dollars, with no escalation into the future. **Table 5-1** summarizes the mid-point estimate of these economic impacts to the entire Orange County.

Table 5-1. Economic Impacts to Orange County for Hypothetical Water Shortages in $2021

Region	Water Shortage Impacts ($M)	
	15% Shortage	30% Shortage
Reduced Output for Businesses	$5,108	$10,868
Welfare Losses for Residential	$241	$818
Lost Revenues for Water Utilities	$96	$191
Total	**$5,445**	**$11,877**

[11] https://implan.com

5.2 Applying Economic Impacts to 2023 OC Study Results

The results of MWDOC's economic study were applied to the 2023 OC Study simulations of maximum water shortages based on the following methodology:

Summarize the maximum water shortages over time based on the average results for Scenarios 2-5 (Scenario 1 was omitted as it assumes a more optimistic assumption regarding climate change). Then express these maximum water shortages as a percent of unmet demand.

Match the 15 and 30 percent shortage events from the economic study summarized in Table 5-1 to the results from Step 1. For those years in which the percent shortages fall in between the 15 and 30 percent shortage event, the economic impacts were interpolated.

Estimate the probability that the maximum shortage event is expected to occur over time and multiply the maximum economic impacts by this probability in order to get an expected average impact in current year dollars—similar to the classic risk formula where: average impact = likelihood x consequence.

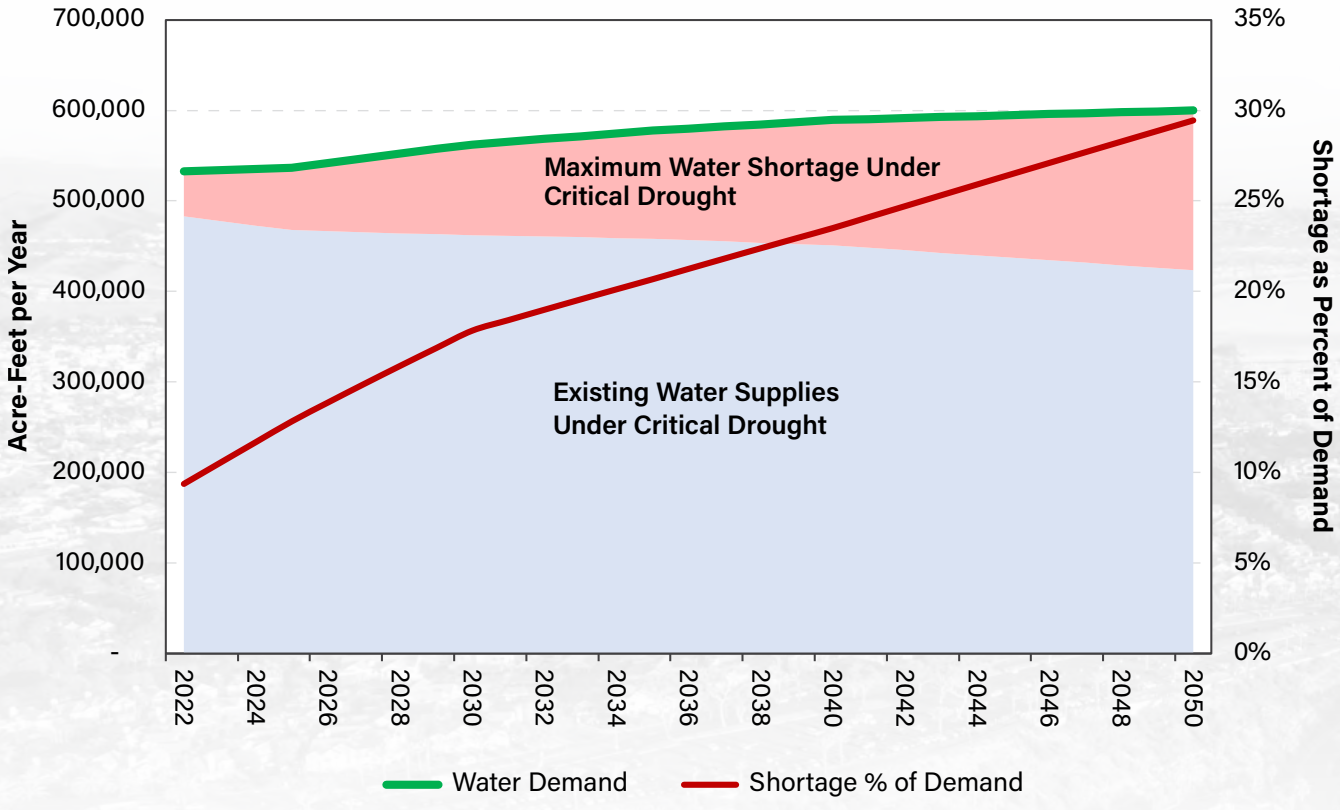
Escalate the current year expected average economic impact for all future years, using an escalation factor of 3 percent per year. Then estimate the total present value economic impact, by discounting future year impacts using a discount rate of 5 percent per year, and summing the years to get a present value total.

Estimate the value of water, expressed as dollars per acre-foot, by taking the total present value economic impact (dollars) divided by the sum of present value water shortages (acre-feet).



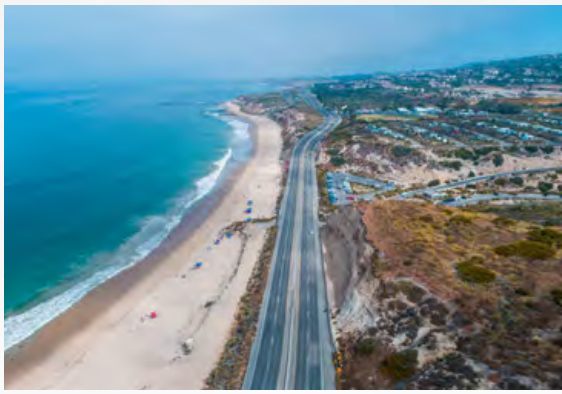
The maximum water shortages, averaged for Scenarios 2-5, for Orange County in total are shown in **Figure 5-1**. Shown in this figure is total water demand, existing water supplies, the maximum water shortages, and the maximum water shortages expressed as a percent of unmet demand.

Figure 5-1. Maximum Water Shortages based on Average of 2023 OC Study Scenarios 2-5









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Matching the percent of unmet water demands in Figure 5-1 to economic impacts in Table 5-1 results in the maximum annual economic impact for future years, as summarized in **Table 5-2**. Also shown in **Table 5-2** is the probability that the maximum shortage event is expected to occur, which when multiplied by the maximum economic impact results in the expected average annual economic impact.

Table 5-2. Economic Impacts of Water Shortages in $2021

Year	Maximum Annual Economic Impact ($M)	Probability of Maximum Shortage Event Occuring	Expected Average Annual Economic Impact ($M)
2025	$3,729	1.7%	$62
2030	$6,731	1.9%	$128
2035	$8,018	2.3%	$184
2040	$8,875	2.7%	$240
2045	$10,162	3.0%	$315
2050	$11,448	3.5%	$401



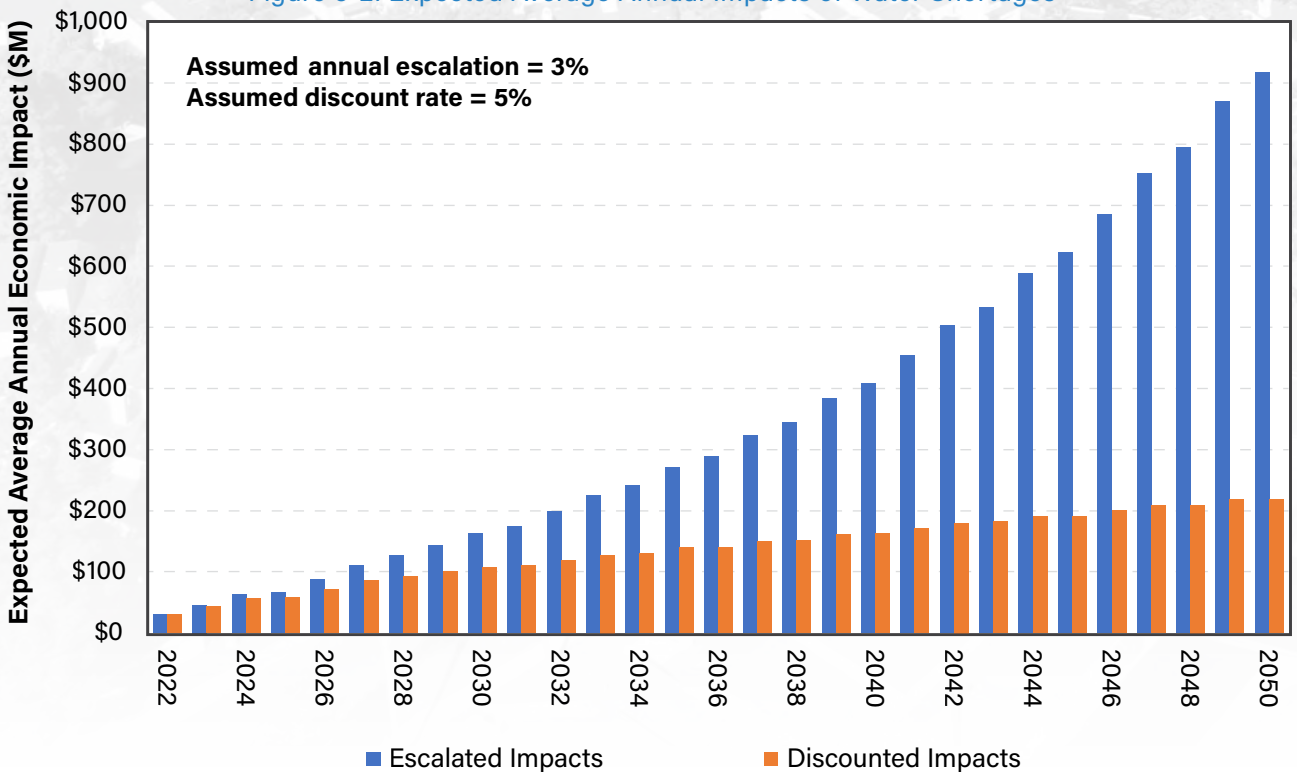
Irvine Ranch Water District's Michelson Water Recycling Plant. Courtesy of IRWD



The expected average annual economic impact in **Table 5-2** was escalated at 3 percent per year, then discounted at 5 percent per year in order to arrive at a total present value (see **Figure 5-2**).

The sum of the discounted expected average economic impacts in Figure 5-2 is **$4 billion**, while the discounted water shortages is **1.6 MAF**. The "value of water" or benefit can also be expressed as a unit value of approximately **$2,500/AF**. This benefit can now be compared to the unit cost of new water supply projects, with that the calculation being the present value of capital and O&M costs divided by the present value of water supply over life of the project. Water supply projects in Orange County identified in the 2018 OC Study ranged from **$1,950 to $2,350/AF**, indicating that there would be a net positive economic impact from their development.

Figure 5-2. Expected Average Annual Impacts of Water Shortages



Section 6: Conclusions

6.1 Summary of Findings

The results of the 2023 OC Study are summarized in four key findings, which are:

KEY FINDING 1

Under a hot/dry climate future (which recent evidence seems to suggest might be the current path), coupled with 15 percent mandatory water demand restrictions and optimistic future water supply assumptions (i.e., maximum levels of local and regional reuse, increased water use efficiency, new water transfers and storage, and implementation of the Delta Conveyance Project), the analysis indicates that water shortages in the MET service area and Orange County can still occur. The maximum water shortage in 2050 under these future conditions (as represented in Scenario 5) is 171,000 AFY for MET and 40,000 AFY for all of Orange County. The probability of these maximum shortages occurring is 3.5 percent.

KEY FINDING 2

Within Orange County, these net water shortages can be reduced to near zero values utilizing recent investments made by local water agencies in reuse and water banking, temporarily maximizing local groundwater beyond overdraft targets, and with planned new water supply projects.

KEY FINDING 3

The maximum value of the Delta Conveyance Project, when coupled with 250,000 AF of new regional storage, is estimated to be 367,000 AFY for MET and 63,000 AFY for Orange County. The Delta Conveyance Project also reduces the probability that any shortage occurs by about 10 percent—meaning a doubling of the time between shortage conditions from once every 5 years to once every decade.

KEY FINDING 4

Based on MWDOC's 2022 report on the Economic Impacts of Water Shortages in Orange County, the value of water supply investments in Orange County is estimated to be approximately $2,500/AF in present value terms. In comparison, the present value unit costs of recently completed and planned water supply projects in Orange County range from $1,950-$2,350/AF. Therefore, it can be interpreted that these Orange County projects represent a net economic benefit to Orange County.

6.2 Recommendations

Based on the findings from the 2023 OC Study, the following recommendations are being made:



Recommendation 1

Orange County water agencies should continue to make investments in water reuse, water use efficiency, water transfers and banking, groundwater/surface water conjunctive use, and desalination.

Recommendation 2

Orange County officials should advocate for a balanced regional portfolio of water supplies for MET that includes: (a) implementation of MET's Pure Water Southern California program; (b) implementation of the Delta Conveyance Project; (c) new regional storage, which could include participation in the proposed Sites Reservoir Project; (d) continued financial support for water use efficiency and local projects, and (e) exploration of regional seawater desalination.

Recommendation 3

Orange County and MET should continue to study the evolving science of climate change and its impacts on water demands and supplies, as well as develop adaptive management strategies to mitigate these impacts.

In summary, there is no one or two silver bullets that will provide full water supply reliability for the MET region and Orange County under a likely warmer and drier climate future through the year 2050. The findings from this comprehensive assessment justify an "all of the above strategy" to ensure a robust regional economy and quality of life for our residents for decades to come.

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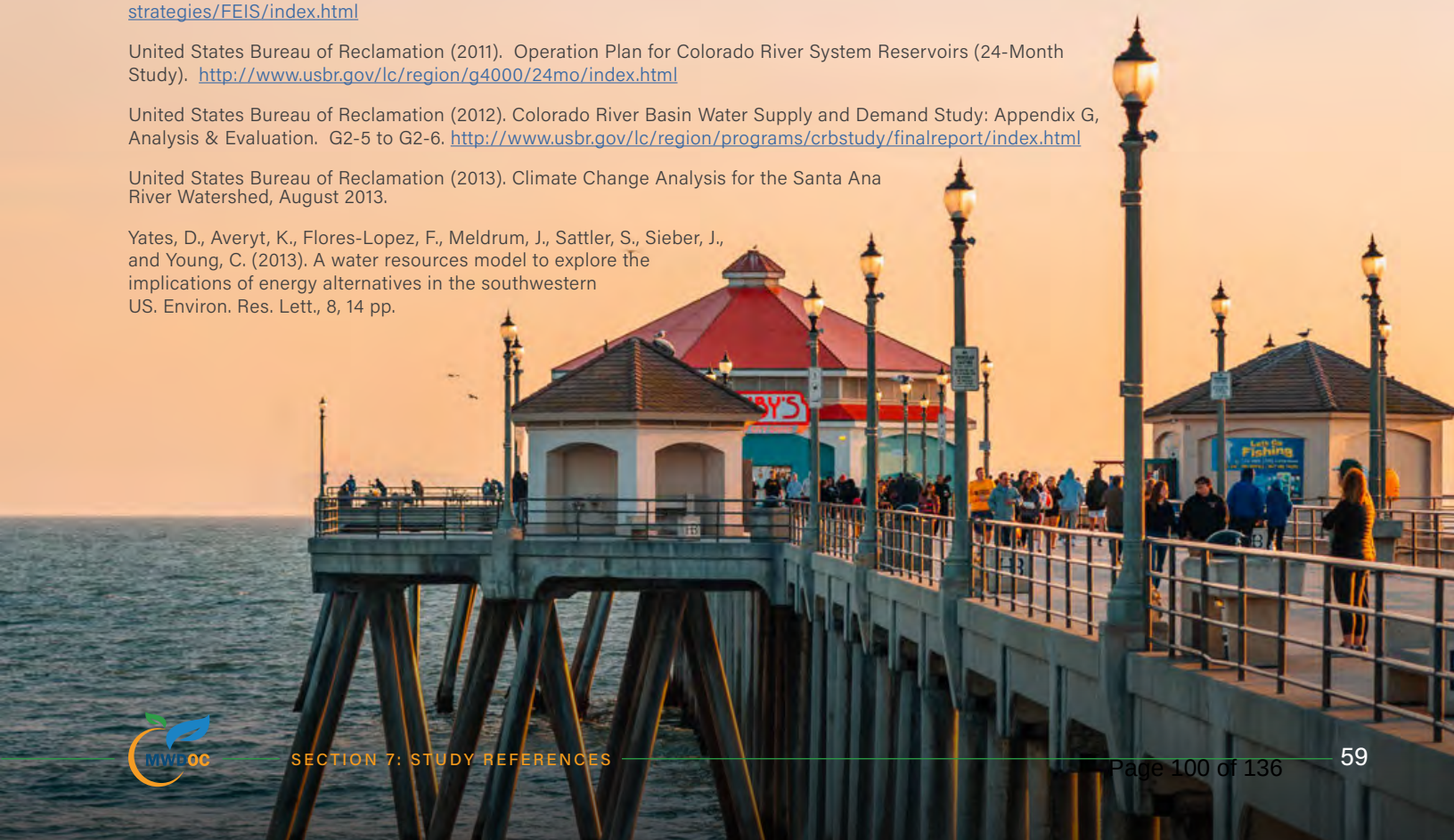
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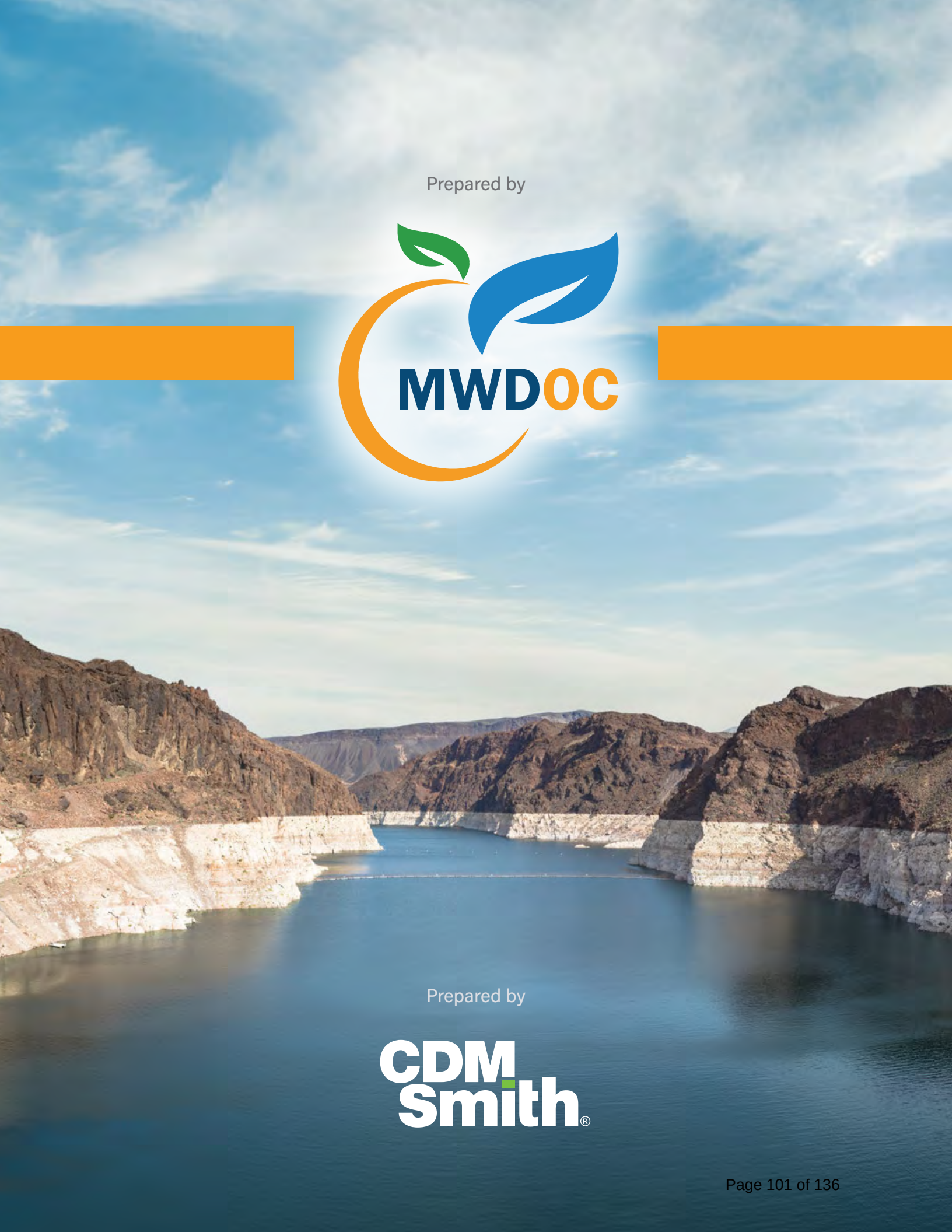
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Prepared by
MWDOC
Prepared by
CDM Smith

Item No. 5

INFORMATION ITEM
September 5, 2023

TO: Board of Directors

FROM: **Planning and Operations Committee**
(Directors McVicker, Nederhood, and Seckel)

Harvey De La Torre
Interim General Manager

Staff Contact: Heather Baez

SUBJECT: **MWDOC LEGISLATIVE POLICY PRINCIPLES ANNUAL UPDATE**

STAFF RECOMMENDATION

Staff recommends the committee review the policy principles and provide feedback to staff on any suggested or requested updates.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

REPORT

MWDOC maintains a set of legislative policy principles that serve as guidelines for staff and our legislative advocates on issues that are of importance to the District. The policy principles here are a culmination of current policies and initial changes recommended by staff from all departments within the agency.

In addition, staff will begin soliciting input from the member agencies through the general managers and their legislative staff. MWDOC staff will coordinate feedback from the Board and any input received from the member agencies, as well as any additional input from MWDOC Department Managers, and bring the proposed Policy Principles to the Board for review at the October P&O Committee meeting.

Budgeted (Y/N): Y	Budgeted amount: n/a	Core X	Choice __
Action item amount: 0	Line item:		
Fiscal Impact (explain if unbudgeted):			

The focus of this month's item is for staff to receive input from the committee and update the policy principles to advance the Board's objective of establishing legislative and regulatory policy principles to help guide for both our federal and state legislative programs.

Attached: **Legislative Policy Principles**

Municipal Water District of Orange County
Legislative and Regulatory Policy Principles

OVERALL POLICY

Legislation and regulations concerning water resource management should focus on high-level goals and defer to local water managers on matters of implementation, and in determining which options to conserve water and secure a reliable water supply best fit their district or region. Legislation and regulations should also respect private property rights and not attempt to dictate specific actions to conserve water to property owners.

IMPORTED WATER SUPPLY

It is MWDOC's policy to support legislation, regulations, and administrative actions that:

1) Implement a Sacramento-San Joaquin Delta Improvement program, such as the Delta Conveyance Project that addresses the co-equal goals of reliable water supply; improve water quality, and ecosystem restoration, and related policies to provide long-term, comprehensive solutions.

a) Improves the reliability and quality of water delivered through the Delta;

b) Employs validated sound scientific research and evaluation;

c) Expedites the completion of the State Water Project and EcoRestore through the use of state, federal and user funding sources;

d) Encourages regular infrastructure maintenance and upkeep of the levees;

e) Deals with the issue of loss of storage of water in the mountain areas in the form of snow.

2) Resolve supply conflicts on the Colorado River, protects Metropolitan's and California's rights to supply and storage and allows flexibility, promote long term balance between supplies and demands, promote funding, promote coordination between states for the salinity control program, and support funding to resolve issues with the Salton Sea.

3) Supports the completion of the Central Valley Project (CVP), which may include the construction of conveyance facilities in the Sacramento-San Joaquin Bay Delta.

LOCAL WATER RESOURCES

It is MWDOC's policy to support legislation and regulation that:

1) Supports the development of, provides funding for, and authorizes and/or facilitates the development and expanded use of local water resources, such as cost-effective, water recycling, potable reuse, conservation, water use efficiency, groundwater recovery and

recharge, storage, brackish and ocean water desalination and surface water development projects where water supply quality and/or reliability is improved and the beneficiaries of the project pay for the portions of the project not funded by state or federal funds.

2) Reduces and/or streamlines regulatory burdens. Including those on augmented or alternative water supply projects and provides protections for the use of these supplies during water supply shortages, through incentives, exemptions or provisions of credit during state-mandated reductions.

3) Supports ecosystem restoration to improve the water resources, increased stormwater capture where the capture avoids impact to others, and sediment management activities that are cost-effective and enhance the quality and/or reliability of water supplies.

4) Support the inclusion of environmental infrastructure projects the Army Corps of Engineers must consider in its Report to Congress.

5) Recognizes that desalinated water, recycled water, and potable reuse are important components of water use efficiency and drought resiliency.

6) Promote science-based and peer-reviewed standards; take economic feasibility and impact into consideration, respect existing water rights, include reasonable time for implementation and compliance, and, be subject to Legislative oversight and review biennially.

7) Authorizes, promotes, and/or provides incentives for the development of extraordinary emergency water supplies for voluntary use by local water agencies during times of drought or water shortages.

WATER STORAGE

It is MWDOC's policy to support legislation and regulation that:

1) Supports “beneficiaries pay” for water storage that ensure full cost recovery.

2) Supports the siting and construction of surface storage in Southern California, which is sited to receive either State Water Project (SWP) or Colorado River Aqueduct (CRA) supplies.

3) Supports funding at the state and federal level for surface and groundwater storage to deal with the loss of storage in the mountains in the form of snow, including reauthorization and expansion of the WIIN Water Storage Program and bifurcation of Surface and Groundwater Storage Funding at the state and federal levels.

4) Supports the development of both a state and federal funding program to provide funding for local and regional dam safety/improvement projects and programs to repair conveyance facilities that have been damaged due to subsidence.

WATER USE EFFICIENCY AND DISTRIBUTION SYSTEM WATER LOSS

It is MWDOC's policy to support legislation and regulation that:

1) Furthers increasing reasonable water use efficiency, throughout the state, and water conservation for local, regional, or statewide emergencies.

2) Would allow flexibility and fosters local and regional collaboration to develop and implement options for compliance in achieving statewide water reduction goals.

3) Seeks to cost-effectively improve water efficiency standards and policies for water-using devices such as, but not limited to, the EPA Water Sense Program and Cal Green Building Standards.

4) Reasonably improves Commercial, Institutional and Industrial (CII) water use efficiency programs while preserving community choice and the local economy.

5) Provides financially appropriate incentives, funding, and other assistance to facilitate market transformation and gain wider implementation of water-efficient indoor and outdoor technologies and practices.

6) Recognizes and protects local control, and recognizes past investments, and incentivizes future investments by agencies and customers in water use efficiency measures, especially from the demand-hardening perspective including that, which decreases non-beneficial outdoor water use.

7) Provides federal and state tax exemptions for water conservation or efficiency incentives for measures including, but not limited to, turf replacement, devices, and other measures to reduce consumption of water or enhance the absorption and infiltration capacity of the landscape.

It is MWDOC's policy to oppose legislation or regulations that:

1) Place unreasonable conservation measures on residential, commercial, industrial and institutional customers that would negatively impact water affordability or limit the potential for economic growth.

2) Require water efficiency standards or performance measures that are infeasible, not practical or fail to have a positive cost-benefit ratio when comparing the cost of meeting the standard or implementing the performance measure with the value of the volume of water saved.

WATER QUALITY AND ENVIRONMENTAL IMPACTS

It is MWDOC's policy to support:

1) Legislation that protects the quality of surface water and groundwater including salinity management and the reduction of salt-loading to groundwater basins.

2) The establishment and/or implementation of standards for water-borne contaminants based on sound science and with consideration for cost-effectiveness.

3) A science-based regulatory process that has been established under the Safe Drinking Water Act and that considers feasibility, benefits and cost, and is the best approach for any consideration and development of drinking water regulations to address any contaminant or family of contaminants, including per- and polyfluoroalkyl (PFAS).

4) The investment in the development of analytical methods to more reliably and accurately measure various contaminants, including PFAS, in drinking water.

5) Administrative/legislative actions to improve clarity and workability of CEQA, and eliminate other duplicative state processes.

6) Streamlining water, recycled and desalinated water, wastewater , and/or environmental restoration projects, from the California Environmental Quality Act (CEQA).

7) Administrative, legislative and/or regulatory actions that provide liability protections to public water districts, and related wholesale water providers, seeking to consolidate with or serve as the administrator for troubled water systems that cannot consistently demonstrate that they are able to provide safe, clean and reliable water supplies to their customers.

8) State-funded groundwater basin contamination studies and associated economic or environmental impacts.

9) Effort by the water industry to promote policies that enhance the pace and scale of headwaters and forest management, including improved planning, coordination, and implementation; increase financing, research, and resources to protect water supply and quality; bring management practices in line with modern challenges; and provide multiple benefits to the State's water users.

10) The eradication and prevention of invasive species from becoming established in or around water supplies.

11) Legislation and/or regulations that enforce against cannabis growers' water theft and/or negative impacts to water quality.

It is MWDOC's policy to oppose:

1) Legislation or regulation that would mandate an unscientifically supported federal or state maximum contaminant level, or that would mandate an artificial deadline for promulgating a maximum contaminant level for drinking water.

2) Legislation, regulation or other policy that would hold drinking water and wastewater facilities liable for PFAS contamination caused by third parties; or that does not clearly state that the party directly responsible for the PFAS pollution is solely liable for the costs associated with the contamination cleanup.

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

It is MWDOC's policy to oppose legislation or regulation that:

1) Compromises the existing governance structure and the representation of member agencies on the Metropolitan Water District Board of Directors.

2) Would restrict MET's rate-making ability.

WATER TRANSFERS

It is MWDOC's policy to support legislation and regulation that:

1) Encourages and facilitates voluntary water transfers, or streamlines the transfer approval process.

2) Provides appropriate protection or mitigation for impacts on the environment, aquifers, water-rights holders, and third-parties to the transfer, including those with interests in the facilities being used.

It is MWDOC's policy to oppose legislation or regulation that:

1) Undermines the operations and maintenance of the conveyance system conveying the water.

2) Interferes with the financial integrity of a water utility, or compromises water quality and/or reliability.

WATER INFRASTRUCTURE FINANCING AND PROJECT FUNDING

It is MWDOC's policy to support legislation and regulation that:

1) Employs a "beneficiary pays" principle that establishes a clear nexus between the costs paid to the direct benefit received.

2) Reduces the cost of financing water infrastructure planning and construction, and establishes grants or other funding and finance opportunities.

3) Considers local investments made in infrastructure, programs, mitigation and restoration in determining appropriate cost-shares for water infrastructure, and project investments.

It is MWDOC's policy to oppose legislation or regulation that:

1) Establishes a fee or tax that does not result in a clear and proportional benefit to the District, its member agencies, and their customers.

2) Would reduce the total available water infrastructure financing measures such as WIFIA, state-revolving funds, and others.

ENERGY

It is MWDOC's policy to support legislation or regulation that:

1) Facilitates the development and expansion of clean, and cost-effective renewable energy in California, and recognizes hydroelectric power as a clean, renewable energy source and that its generation and use meets the greenhouse gas emission reduction compliance requirements called for in the Global Warming Solutions Act of 2006 (AB 32 and SB 100).

2) Facilitates voluntary and cost-effective local investments in renewable energy, energy management and storage, and energy efficiency which improve the water-energy nexus and reduce local agency costs.

3) Provides water agencies greater flexibility to run backup generators to support critical facilities during energy crises, de-energization and PSPS events.

FISCAL POLICY

It is MWDOC's policy to support legislation or regulation that:

1) Allows retail water providers to voluntarily offer localized Water Rate Assistance Programs that comply with Proposition 218 of California's Constitution and/or are funded either voluntarily or via non-restricted/non-water-rates revenues.

2) Supports Proposition 13 as embodied in Article XIII A of the California Constitution, and oppose the "split roll" efforts that would increase property taxes on businesses.

3) Changes how inverse condemnation liability is determined for water service providers in order to limit water agency liability for impacts of wildfire.

It is MWDOC's policy to oppose legislation or regulation that:

1) Is inconsistent with the District's current investment policies and practices.

2) Pre-empts the District's or its member agencies' ability to impose or change cost-of-service-based water rates, fees, or assessments, or requires them to submit their rates or charges to any state agency for approval.

3) Impairs the District or its member agencies' ability to maintain levels of reserve funds that they deem necessary and appropriate.

4) Makes any unilateral reallocation of District revenues, or those of its member agencies, by the state unless the state takes compensatory measures to restore those funds.

5) Mandates a specific rate structure for water agencies.

6) Imposes a "public goods charge" "water user fee*",* or "water tax" on public water agencies or their ratepayers.

GOVERNANCE

It is MWDOC's policy to support legislation or regulation that:

1) Advances good government practices and public transparency measures in a manner that does not take a "one-size-fits-all" approach, respects local government control, and facilitates technological efficiencies to meet state reporting and disclosure requirements.

2) Supports or facilitates responsible programs, procedures, and methods that promote collaboration, transparency and open government.

It is MWDOC's policy to oppose legislation or regulation that:

1) Imposes unnecessarily broad burdens or new costs upon all local governments absent a clear and necessary benefit.

2) Reduces or diminishes the authority of the District to govern its affairs.

3) Resolves state budget shortfalls through shifts in the allocation of property tax revenue or through fees for which there is no direct nexus to benefits received.

PUBLIC EMPLOYEE PENSION REFORM

It is MWDOC's policy to support legislation that:

1) Seeks to contain public employee pension and other post-employment benefit (OPEB) cost obligations that are borne by public agencies via taxpayers and ratepayers.

EMERGENCY RESPONSE

It is MWDOC's policy to support legislation that:

1) Increases coordination on Homeland Security and emergency response efforts among the federal, state, and local governments with clearly defined roles and responsibilities for each.

2) Provides continued funding to enhance and maintain local Homeland Security infrastructure, including physical and cyber protection of critical infrastructure.

3) Ensures adequate funding for expenditures related to disaster response and all phases of emergency management; including an Emergency Operations Center, the earthquake early notification system and efforts to enhance water infrastructure resiliency.

4) Strengthens intergovernmental planning and preparation coordination for emergency response and drills.

5) Enhances protection of information and cyber security for critical infrastructure through policy and funding for local efforts.

6) Supports water utility capability to notify customers of emergency protective measures through mass notification systems.

7) Properly recognizes water agencies' role in emergency response to wildfires and other natural disasters, where water service is needed or may be impacted, because water and wastewater services are essential public utilities that ensure public health and safety.

Item No. 6

INFORMATION ITEM
September 5, 2023

TO: **Planning & Operations Committee**
(Directors McVicker, Nederhood, Seckel)

FROM: **Harvey De La Torre, Interim General Manager**

Staff Contact: Damon Micalizzi

SUBJECT: **OC WATER SUMMIT UPDATE**

STAFF RECOMMENDATION

Staff recommends the Public Affairs & Legislation Committee: Receive and file the report.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

REPORT

We are less than six weeks away from the 2023 Orange County Water Summit. At the time of this report, approximately 130 are registered to attend the event that will be held at the Westin Hotel in Costa Mesa on Friday, October 13th.

The latest DRAFT program for the event themed 'Finding Reliability' is attached:

The OC Water Summit is produced in tandem with the Orange County Water District (OCWD). OCWD is the lead agency for the 2023 event.

The next meeting of the OC Water Summit Planning Committee will be tentatively held on Monday, September 18th.

2023 Draft Program

15th Annual OC Water Summit
Finding Reliability

Friday, October 13, 2023
7:30 am - 1:30 pm
Westin South Coast Plaza
Costa Mesa, California

PROGRAM*	
7:30 am	**Registration and Continental Breakfast**
8:00 am - 8:15 am	**Welcome and Pledge of Allegiance** • Stephen R. Sheldon, Director, Orange County Water District • Jeffery M. Thomas, Board Member, Municipal Water District of Orange County • Fritz Coleman, Master of Ceremonies
8:15 am - 9:15 am	**Drought or Missed Opportunities?** • Moderator: Lisa Ohlund, Principal, Ohlund Management & Technical Services • Alf Brandt, General Counsel to Assembly Speaker Emeritus Anthony Rendon • Darcy Burke, Director, Elsinore Valley Municipal Water District and President, Watermark and Associates • Jason Phillips, Chief Executive Officer, Friant Water Authority
9:15 am - 10:00 am	**Are Infrastructure Funds the New Lottery?** • Congressman Lou Correa
10:00 am - 10:20 am	**Networking Break**

10:20 am - 11:15 am	**Is it Fair to Blame Climate Change for Everything?** • Moderator: Fritz Coleman • John Christy, Director, Earth System Science Center, The University of Alabama in Huntsville • Rong Fu, PhD, Director of the Joint Institute for Earth System Science and Engineering, University of California, Los Angeles • Steve Greenhut, R Street Institute
11:15 am - 12:15 pm	**What's Our Water Supply Future?** • Moderator: Lisa Ohlund, Principal, Ohlund Management & Technical Services • Edward Ring, Senior Fellow, California Policy Center, and Author, The Abundance Choice • Adan Ortega, Chair, Metropolitan Water District • Glenn Farrel, Executive Director, CalDesal
12:15 pm - 12:30 pm	**Closing Remarks** • Stephen R. Sheldon, Director, Orange County Water District • Jeffery M. Thomas, Board Member, Municipal Water District of Orange County • Fritz Coleman, Master of Ceremonies
12:30 pm - 1:30 pm	**Buffet Lunch and Networking**

Program subject to change



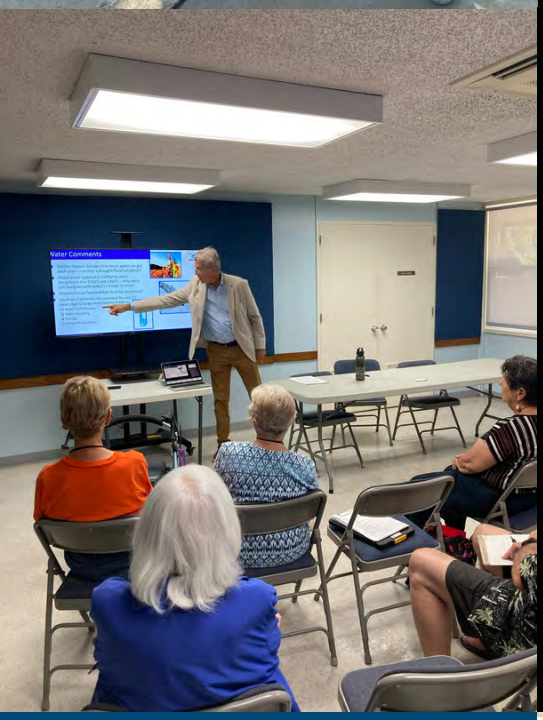
CITY OF WESTMINSTER SAFETY DAY

Engaged with 150 Residents



DEPARTMENT OF WATER RESOURCES WORKFORCE PANEL

In addition to co-hosting the event, assembled and moderated a panel of experts to discuss workforce needs as part of DWR Water Education Committee.



OC SPEAKERS BUREAU

Coordinated and provided support to MWDOC Board of Directors for various speaking engagements:

- *City of Huntington Beach*
- *Canyon Democratic Club*
- *Leisure World*



OC FAIR - SAVE OUR WATER BOOTH

https://tinyurl.com/2p8jun7w

DMV WATER-SMART VIDEO SERIES

Created rotating video ads offering viewers information and access to water-saving rebate opportunities.

Now offered in English, Vietnamese, & Spanish!



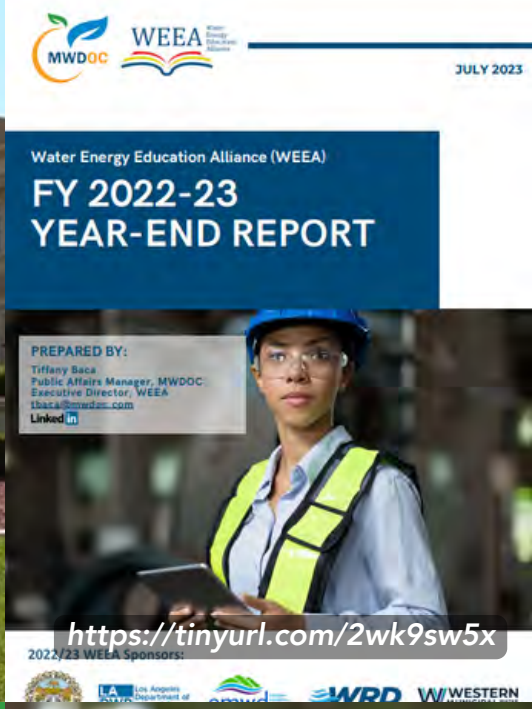


19.7% SOCIAL MEDIA ENGAGEMENT RATE

A Good Rate is *1-5%*









SCOUTS BSA MERIT BADGE CLINIC

- *62 OC Scouts in attendance*
- *Earned the Soil & Water Conservation Merit Badge*
- *Toured Santa Margarita Water District Chiquita Treatment Plant*
- *6 new hands-on activities created and led by MWDOC PA*

https://tinyurl.com/29ppdp5m



OC GRAND JURY INSPECTION TRIP

- *Co-hosted by Directors Larry Dick and Karl Seckel*
- *10 Grand Jurors attended*
- *Stops:*
  - *Diemer Treatment Plant*
  - *El Toro Water District*
  - *South Coast Water District*
- *Topics:*
  - *OC Water Supply*
  - *Consolidation*
  - *Water Reliability*
  - *And more!*





Item No. 8

INFORMATION ITEM
September 5, 2023

TO: **Planning & Operations Committee**
(Directors McVicker, Nederhood and Seckel)

FROM: **Harvey De La Torre, Interim General Manager**

Staff Contact: Melissa Baum-Haley
Alex Heide

SUBJECT: **METROPOLITAN'S ASSESSED VALUATION FOR MWDOC AND ORANGE COUNTY FOR FISCAL YEAR 2022-23**

STAFF RECOMMENDATION

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

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

REPORT

This letter reports on Metropolitan Water District's certified assessed valuations for Fiscal Year (FY) 2023-24, as of August 15, 2023. The assessed valuation is used at Metropolitan to determine each member agency's percentage participation, vote, and director entitlement.

Metropolitan's certified assessed valuations for Metropolitan's six-county service area totaled $3.86 trillion for FY 2023-24. As of 2019, AB1220 (Garcia) added subsection (b) to Section 52 of the Metropolitan Act, which provides, "A member public agency shall not have fewer than the number of representatives the member public agency had as of January 1, 2019." Based on the assessed valuations for FY 2023-24 and pursuant to Section 52 of the Metropolitan Act, the number of representatives for each agency remains the same, thereby Metropolitan's Board of Directors remains at 38.

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

For FY 2023-24, MWDOC will have a voting percentage of 16.74%; a decrease of -0.07% from last year. MWDOC's voting entitlement will be maintained at four seats on the Metropolitan Board of Directors.

MWDOC Assessed Valuation

MWDOC FY 2023-24 Assessed Valuation	$646,336,513,093
Change Compared to FY 2022-23	6.10%

MWDOC Voting Entitlement

MWDOC Voting Entitlement	64,634
Voting Percentage	16.74%
Change Compared to FY 2022-23	-0.07%
Number of Metropolitan Directors	4

Orange County AV & Voting Entitlement

FY 2023-24 Certified Assessed Valuation	$766,647,744,023
MWDOC	16.74%
Anaheim	1.56%
Santa Ana	0.89%
Fullerton	0.66%
O.C. Combined Voting Entitlement	19.85%
O.C. Metropolitan Directors	7

Attachment: Metropolitan staff letter on Item 6G: *Report on list of certified assessed valuations for fiscal year 2023/24 and tabulation of assessed valuations, percentage participation, and vote entitlement of member agencies as of August 15, 2023.*

- Board of Directors
  Finance, Audit, Insurance, and Real Property Committee

8/15/2023 Board Meeting

6G

Subject

Report on list of certified assessed valuations for fiscal year 2023/24 and tabulation of assessed valuations, percentage participation, and vote entitlement of member agencies as of August 15, 2023

Executive Summary

Every year, Metropolitan receives the certified assessed valuation from the county auditors for the six counties where Metropolitan provides water service. All county auditors have until the 14th day of August to provide the certified assessed valuation to Metropolitan, which is why Metropolitan's Board adjourns its August regular and committee meetings to the third week of the month. Metropolitan received the last of the counties' information for fiscal year (FY) 2023/24 on August 8, 2023.

Based on the information received, staff reports that certified assessed valuations (net of homeowners exemptions) for Metropolitan's six-county service area totaled $3.86 trillion for FY 2023/24. The percentage participation and vote entitlement by member agencies as of August 15, 2023, have been updated accordingly and are reported in this letter and in **Attachment 1**. Assessed valuation is also used to determine how many representatives an agency has on the Metropolitan Board. Based on the assessed valuations for FY 2023/24, the number of representatives for each agency remains the same and is also reported in **Attachment 1**.

Details

Background

This letter reports the certified assessed valuations for FY 2023/24 and member agency percentage participation, vote, and director entitlement (**Attachment 1**), which become effective for all purposes at the August 15, 2023, regular board meeting.

As part of the Metropolitan Water District Act, the process of determining assessed valuation is made each August based on submissions from the auditors of each of the six counties in the Metropolitan service area. Metropolitan uses a weighted voting system based on assessed valuation. Under Section 55 of the Metropolitan Water District Act, each member agency gets one vote for every $10 million of assessed valuation of property taxable for Metropolitan's purposes. Under Section 52 of the Metropolitan Water District Act, assessed valuation is also used to determine how many representatives an agency has on the Metropolitan Board. Each member agency is entitled to one board member and may appoint an additional representative for each full 5 percent of Metropolitan's assessed valuation of taxable property that is within such member agency's service area. Section 52 also sets the minimum number of representatives for each member public agency as the amount they had as of January 1, 2019. The Section 52 minimum for representatives does not affect voting percentages set by Section 55. Based on the assessed valuations for FY 2023/24, neither the assessed valuations nor Section 52 affects the current number of directors of any member agencies.

The certificates of the county auditors for the six counties covering Metropolitan's area, certifying the FY 2023/24 assessed valuations of all property used for calculating Metropolitan's FY 2023/24 vote and director entitlement, are on file in the office of the Manager of Treasury and Debt.

The net assessed valuations by the respective county auditors are as follows:

COUNTY		Net Assessed Valuations Taxable by Metropolitan
Los Angeles	$	1,863,383,103,502
Orange		766,647,744,023
Riverside		263,340,254,865
San Bernardino		160,301,386,680
San Diego		677,016,967,276
Ventura		130,730,622,244
Total Net A.V.s within MWD	**$**	**3,861,420,078,590**

A comparison of FY 2022/23 and FY 2023/24 net assessed valuations and the percentage of change (**Attachment 2**) and a comparison of FY 2022/23 and FY 2023/24 vote entitlement and the percentage change (**Attachment 3**) are attached for your information.

Policy

Metropolitan Water District Act Section 52: Additional Directors

Metropolitan Water District Act Section 55: Voting by Board

Metropolitan Water District Act Section 305: Certification of Assessed Valuations; Segregation of Valuations

Fiscal Impact

None

Katano Kasaine 8/10/2023

Katano Kasaine *Date*
Assistant General Manager/
Chief Financial Officer

8/10/2023

Adel Hagekhalil *Date*
General Manager

Attachment 1 – Assessed Valuations, Percentage Participation, and Vote and Director Entitlement of Member Public Agencies as of August 15, 2023

Attachment 2 – Comparison of Net Assessed Valuations for Fiscal Years 2022/23 and 2023/24

Attachment 3 – Comparison of Vote Entitlement Percentage for Fiscal Years 2022/23 and 2023/24

Ref# cfo12695405

The Metropolitan Water District of Southern California
Assessed Valuations, Percentage Participation, and
Vote and Director Entitlement of Member Public Agencies
As of August 15, 2023

Member Agency	*Assessed Valuation Amount Certified	Percent of Total	** Vote Entitlement	*** Director Entitlement
Anaheim	$ 60,384,239,089	1.56%	6,038	1
Beverly Hills	44,925,471,380	1.16%	4,493	1
Burbank	31,747,985,559	0.82%	3,175	1
Calleguas MWD	130,730,622,244	3.39%	13,073	1
Central Basin MWD	193,242,928,112	5.00%	19,324	2
Compton	6,413,398,218	0.17%	641	1
Eastern MWD	115,592,411,711	2.99%	11,559	1
Foothill MWD	24,094,186,106	0.62%	2,409	1
Fullerton	25,613,995,600	0.66%	2,561	1
Glendale	39,846,531,370	1.03%	3,985	1
Inland Empire Utilities Agency	160,301,386,680	4.15%	16,030	1
Las Virgenes MWD	30,903,464,678	0.80%	3,090	1
Long Beach	65,577,549,323	1.70%	6,558	1
Los Angeles	801,720,255,259	20.76%	80,172	5
MWD of Orange County	646,336,513,093	16.74%	64,634	4
Pasadena	38,640,474,384	1.00%	3,864	1
San Diego County Water Authority	677,016,967,276	17.53%	67,702	4
San Fernando	2,596,234,164	0.07%	260	1
San Marino	8,004,717,057	0.21%	800	1
Santa Ana	34,312,996,241	0.89%	3,431	1
Santa Monica	48,607,667,263	1.26%	4,861	1
Three Valleys MWD	86,341,467,819	2.24%	8,634	1
Torrance	35,904,604,824	0.93%	3,590	1
Upper San Gabriel Valley MWD	134,179,397,217	3.47%	13,418	1
West Basin MWD	270,636,770,769	7.01%	27,064	2
Western MWD	147,747,843,154	3.83%	14,775	1
TOTAL ASSESSED VALUATIONS WITHIN METROPOLITAN	$ 3,861,420,078,590	100%	386,141	38

Percentage may not foot due to rounding.

The Metropolitan Water District of Southern California
Comparison of Assessed Valuations Net of HOE for Fiscal Years 2022/23 and 2023/24

Member Agency	FY 2022/23 Net Assessed Valuation	FY 2023/24 Net Assessed Valuation	Percentage Change
Los Angeles County:			
Beverly Hills	$ 42,674,597,044	$ 44,925,471,380	5.3%
Burbank	28,930,674,618	31,747,985,559	9.7%
Glendale	38,135,312,336	39,846,531,370	4.5%
Los Angeles	756,988,951,892	801,720,255,259	5.9%
Pasadena	37,161,819,093	38,640,474,384	4.0%
San Marino	7,698,613,665	8,004,717,057	4.0%
Santa Monica	46,186,316,289	48,607,667,263	5.2%
Long Beach	61,510,103,081	65,577,549,323	6.6%
Torrance	34,159,203,429	35,904,604,824	5.1%
Compton	5,986,309,227	6,413,398,218	7.1%
West Basin MWD	254,528,802,947	270,636,770,769	6.3%
Three Valleys MWD	82,538,322,114	86,341,467,819	4.6%
Foothill MWD	22,900,325,902	24,094,186,106	5.2%
Central Basin MWD	182,159,170,598	193,242,928,112	6.1%
Las Virgenes MWD	29,271,920,993	30,903,464,678	5.6%
Upper San Gabriel Valley MWD	126,877,023,875	134,179,397,217	5.8%
San Fernando	2,381,877,804	2,596,234,164	9.0%
Total Los Angeles County	**1,760,089,344,907**	**1,863,383,103,502**	**5.9%**
Orange County:			
Anaheim	56,269,073,437	60,384,239,089	7.3%
Santa Ana	32,281,865,954	34,312,996,241	6.3%
Fullerton	23,900,520,075	25,613,995,600	7.2%
MWD of Orange County	609,134,298,271	646,336,513,093	6.1%
Total Orange County	**721,585,757,737**	**766,647,744,023**	**6.2%**
Riverside County:			
Eastern MWD	105,024,028,930	115,592,411,711	10.1%
Western MWD	135,413,345,350	147,747,843,154	9.1%
Total Riverside County	**240,437,374,280**	**263,340,254,865**	**9.5%**
San Bernardino County:			
Inland Empire Utilities Agency	**146,634,414,955**	**160,301,386,680**	**9.3%**
San Diego County:			
San Diego County Water Authority	**632,321,979,224**	**677,016,967,276**	**7.1%**
Ventura County:			
Calleguas MWD	**123,683,835,701**	**130,730,622,244**	**5.7%**
Total Within Metropolitan	**3,624,752,706,804**	**3,861,420,078,590**	**6.5%**
Excluded Areas	**82,867,799**	**87,104,636**	**5.1%**
***Total Taxable by Metropolitan**	**$ 3,624,835,574,603**	**$ 3,861,507,183,226**	**6.5%**

The Metropolitan Water District of Southern California
Comparison of Vote Entitlement Percentage for Fiscal Years 2022/23 and 2023/24

	FY 2022/23		FY 2023/24		Change	
Member Agency	**Vote Entitlement**	**Vote Entitlement Percentage**	**Vote Entitlement**	**Vote Entitlement Percentage**	**Vote Entitlement**	**Vote Entitlement Percentage**
Anaheim	5,627	1.55%	6,038	1.56%	411	0.01%
Beverly Hills	4,267	1.18%	4,493	1.16%	226	-0.01%
Burbank	2,893	0.80%	3,175	0.82%	282	0.02%
Calleguas MWD	12,368	3.41%	13,073	3.39%	705	-0.03%
Central Basin MWD	18,216	5.03%	19,324	5.00%	1,108	-0.02%
Compton	599	0.17%	641	0.17%	42	0.00%
Eastern MWD	10,502	2.90%	11,559	2.99%	1,057	0.10%
Foothill MWD	2,290	0.63%	2,409	0.62%	119	-0.01%
Fullerton	2,390	0.66%	2,561	0.66%	171	0.00%
Glendale	3,814	1.05%	3,985	1.03%	171	-0.02%
Inland Empire Utilities Agency	14,663	4.05%	16,030	4.15%	1,367	0.11%
Las Virgenes MWD	2,927	0.81%	3,090	0.80%	163	-0.01%
Long Beach	6,151	1.70%	6,558	1.70%	407	0.00%
Los Angeles	75,699	20.88%	80,172	20.76%	4,473	-0.12%
MWD of Orange County	60,913	16.80%	64,634	16.74%	3,721	-0.07%
Pasadena	3,716	1.03%	3,864	1.00%	148	-0.02%
San Diego County Water Authority	63,232	17.44%	67,702	17.53%	4,470	0.09%
San Fernando	238	0.07%	260	0.07%	22	0.00%
San Marino	770	0.21%	800	0.21%	30	-0.01%
Santa Ana	3,228	0.89%	3,431	0.89%	203	0.00%
Santa Monica	4,619	1.27%	4,861	1.26%	242	-0.02%
Three Valleys MWD	8,254	2.28%	8,634	2.24%	380	-0.04%
Torrance	3,416	0.94%	3,590	0.93%	174	-0.01%
Upper San Gabriel Valley MWD	12,688	3.50%	13,418	3.47%	730	-0.03%
West Basin MWD	25,453	7.02%	27,064	7.01%	1,611	-0.01%
Western MWD	13,541	3.74%	14,775	3.83%	1,234	0.09%
Total	**362,474**	**100%**	**386,141**	**100%**	**23,667**	**0.00%**

Percentages may not foot due to rounding.

ENGINEERING & PLANNING	
Reliability Study Update	Staff have been working with consultant CDM Smith, Metropolitan Water District (MET) staff and the retail agencies on an update to the 2018 OC Water Reliability Study (2023 OC Study). Updating the planning assumptions and understanding the implications will be useful to our staff, Directors, MET Directors, and member agencies for future water reliability decision considerations. This update was launched because of significant changes in conditions since the publication of the 2018 OC Study. Information on the Study was presented: 1. Agency Managers Mtg — Initial Results Presentation — 5/19/2022 2. P&O Committee — Revised Results Presentation — 6/06/2022 3. P&O Committee — Revisions based on Comments — 9/06/2022 4. Agency Managers Mtg — Additional Revisions — 1/12/2023 5. A&F Committee — Additional Revisions — 2/08/2023 6. Review Draft Released for comments — 5/02/2023 7. Agency Managers Mtg — Agency Requested Meeting — 6/08/2023 The final report is included as a Receive and File Informational Item in this P&O Committee packet.
Lead and Copper Rule Revisions – Lead Service Line Inventory Choice Program	In mid-March 2023, multiple agencies requested MWDOC's assistance in complying with US EPA Lead and Copper Rule Revisions (LCRR) - Service Line Inventories which all water systems are required to complete and submit to the primacy agency (for California that is the State Water Boards) by October 16, 2024. On May 24, 2023, MWDOC hosted an initial meeting with (18) OC agencies and the State Division of Drinking Water staff regarding the LCRR – Lead Service Line Inventory compliance requirements. On June 19, 2023, MWDOC posted an RFP to the MWDOC website for technical assistance with multiple agencies' service line inventories; and directly invited seven (7) consultants to respond. On July 26, 2023, MWDOC received five (5) proposals. A Scoring Committee reviewed the proposals toward a recommendation for consideration of award of contract at the A&F Committee on September 13, 2023. On August 10, 2023, MWDOC hosted a 2nd workshop with interested agencies to: • update agencies on the status of the RFP process, • provide preliminary cost estimates for the various areas where agencies may need assistance, • get an initial count of interested agencies to support negotiations with the consultants, and to

	• discuss the multi-party agreement and financing of the project. An agency survey during the workshop revealed 21 of 22 respondents indicated an interest in participating. On August 15, 2023, MWDOC began negotiations with the top scoring consultant to refine Levels of Effort and cost per category of service. On August 24, 2023, MWDOC hosted a 3rd workshop with interested agencies to provide greater understanding on the process and timeline to achieving compliance. In late August, MWDOC staff began one-on-one meetings with interested agencies to provide additional information and answer agency-specific questions related to LCRR compliance approach and costs, Choice Services Program financing, data needs, and others to help agencies navigate the process. The project currently remains on schedule to begin issuing Notices to Proceed on a first-come first-served basis in October 2023.
MNWD Pump-in to EOCF #2 Technical Study	MWDOC hosted a meeting on May 24, 2023 concerning MNWD's technical study of a potential pump-in project to East OC Feeder #2 from the City of Santa Ana's East Station. The meeting included staff from MET's Water Quality Group, Moulton Niguel Water District (MNWD), City of Santa Ana, OCWD, and consultant Brown & Caldwell. MWDOC hosted a 2nd meeting on June 12, 2023, with MNWD staff, Brown & Caldwell, and staff from MET's Engineering and Operations groups to further discuss technical issues. MWDOC hosted a 3rd technical meeting on August 2, 2023 between MET staff, MWDOC, MNWD and consultant Brown & Caldwell. MWDOC continues to support MNWD's efforts as they work with Brown & Caldwell to complete their technical study.
Doheny Ocean Desalination Project	South Coast Water District (SCWD) continues to develop the Doheny Ocean Desalination Project. SCWD estimates an on-line date of 2028, if approved by the SCWD Board. At the SCWD Board Meeting on June 22, 2023, Clean Energy Capital (CEC) provided an update on the financial implications of the project. CEC presented updated cost projections for a 5 MGD project where SCWD would take 2 MGD. The updated estimated 1st year water cost is $2,597/AF (in 2028$) or $2,058/AF (discounted to 2023$), which is a $469/AF increase vs CEC's 2021 estimate. The increase is largely driven by increases in energy costs (with energy costs making up 60% of the overall cost increase). **SCWD Unit Cost of Water ($/AF)** MWDOC Average of High and Low $2,100 5 MGD Plant $2,701

	Difference $ 601 **SCWD Annual Cost of Water** No Desal $10,559,921 With 5 MGD Plant $11,839,526 Difference $ 1,279,605 **SCWD Residential Average Monthly Cost** No Desal $141.63 With 5 MGD Plant $145.64 Difference $4.01 **CEC estimates Construction Costs as follows:** Escalated to a Feb 1,2025 construction start date $137,642,914 Total Grants ($ 30,423,241) Total Development & Financing Costs $ 30,685,350 Total Capitalized Costs $137,905,023 SCWD Staff Report is located here: https://scwd.granicus.com/MetaViewer.php?view_id=3&clip_id=2790&meta_id=180312 CEC Presentation slides are located here: https://scwd.granicus.com/MetaViewer.php?view_id=3&clip_id=2790&meta_id=180313 On July 27, 2023, SCWD released the Request for Qualifications for the Progressive Design Build Operate and Maintain (DBOM) Project with the Request for Proposals planned to be released in October 2023.
South Orange County Nitrification Issues	MWDOC staff are actively working with the agencies in South Orange County and Metropolitan staff on resolving nitrification issues on the Allen McColloch Pipeline (AMP) and Joint Transmission Main (JTM). The nitrification issues are largely a result of a pronounced drop in imported water demands as a result of Tropical Storm Hilary from August 19-21 2023. Temperatures during the storm event remained relatively warm, which is not usually associated with rain events in OC. All of MET's Water Treatment Plants are on a high blend of State Water Project (SWP) to Colorado River Aqueduct (CRA) water. SWP water is high in organics whereas CRA water is high in Total Dissolved Solids (TDS). **AMP** Volumetric demands on the AMP between OC-70 in the City of Orange and the downstream terminus dropped by 75% during and right after the storm compared to August 18, 2023 volumes: resulting in increased detention time. MET began flushing at three locations along the lower reach of the AMP starting early am on Thursday August 23rd with continuous flushing through Monday August 28th. Demands on the AMP also started increasing toward pre-storm levels beginning August 24th. Nitrite levels have reduced steadily and MET and the retail agencies continue to monitor the situation to take additional actions as needed.

	JTM Volumetric demands through CM-10 serving the Joint Transmission Main, dropped 82% during and right after the storm compared to August 18, 2023 volumes: also resulting in increased detention time. MET began flushing East OC Feeder No. 2 into the San Joaquin Reservoir on August 24th with continuous flushing through Monday August 28th. SCWD, as operator of the JTM, began flushing the JTM and mobilized a temporary chloramine booster station for the JTM on August 24th with continuous flushing and boosting of chloramines through Monday (today) August 28th. Total Chlorine residuals have greatly improved, and Nitrite levels are declining. MET, MWDOC, and the retail agencies continue to monitor and take actions as needed. **SWP Blend at Diemer** There is some question whether high SWP blend into the Diemer Water Treatment Plant may have exacerbated the situation. Retail agencies have requested that the SWP to CRA blend be changed. MET has agreed to change the blend from 77% SWP water into Diemer to 50% beginning on Monday August 28th. We continue to work with MET, and the retail agencies; and continue to monitor the situation, temperatures and import water demands on the OC pipelines. MET is currently experiencing similar issues at multiple locations through the MET system. This event has highlighted challenges of running the imported water system in the future as all of Southern California moves to more local water resources and lower imported demands.

Shutdowns	**R6 Reservoir Rehabilitation** El Toro Water District (ETWD) shut down the 275 Million Gallon R6 Reservoir to replace the aging reservoir liner and cover in November 2022. ETWD is now scheduling reservoir refilling and return to service from Aug. 30, 2023 through Sept. 30, 2023. MWDOC is coordinating with MET and the South Orange County agencies to return R6 to service in time for an October 2023 AMP Prestressed Concrete Cylinder Pipe (PCCP) Inspection shutdown. **AMP Prestressed Concrete Cylinder Pipe (PCCP) Inspection** MWDOC has coordinated with ETWD, MET, and the SOC agencies to move the scheduled shutdown of the AMP down-gradient of OC-70 to Oct. 29, 2023 – Nov. 4, 2023 to accommodate the R6 reservoir return to service. R6 is needed to support SOC agencies during the AMP Shutdown. MET is conducting a periodic inspection of the PCCP sections of the AMP. These inspections are to monitor the condition of the high tensile strength prestressed structural steel wire in the pipe. A rehabilitation project for the AMP to add a structural steel liner to the PCCP sections of the pipeline is currently in design with an estimated start date of late 2027 which will require a series of shutdowns over a 2-3 year period. **Diemer Water Treatment Plant** MET has rescheduled a 7-day shutdown of the Diemer WTP to repair a broken chlorine solution line to **January 5-11, 2024**. Finding a suitable window for this shutdown presented challenges due to numerous maintenance shutdowns by MET and retail agencies as well as fire danger concerns. Coinciding with the 7-day Diemer shutdown, the following pipelines will also be down for repairs: • Allen-McColloch Pipeline • East Orange County Feeder No.1 • East Orange County Feeder No.2 • Lower Feeder (Treated) • Lower Feeder (Untreated) • Second Lower Feeder (portions)

General Managers Report
WEROC Status Report

August 2023

AUGUST INCIDENTS/EVENTS

- **Tropical Storm Hilary**

Vicki represented water/wastewater agencies on 6 County Coordination calls. She also sent update and information to the agencies throughout the event and worked with those who had potential impacts such as reservoir overflow potential in order to communicate with city emergency managers and the County as required.

Vicki can provide additional information on this event as warranted.

COORDINATION/PARTICIPATION WITH MEMBER AGENCIES AND OUTSIDE AGENCIES MEETINGS OUTSIDE OF PROGRAMS AREAS AND EMERGENCY RESPONSE

- On 8/3, Janine attend the monthly Orange County Emergency Management Organization (OCEMO) meeting in the city of Laguna Niguel. Presentations included an overview of the OC Courts system and Emergency Management along with the normally scheduled subcommittee report outs.
- On 8/4, Vicki gave her monthly update to the WACO meeting.
- On 8/9, Vickii attended the quarterly Operational Area Executive Board meeting and provided the water/wastewater activate report to the group.
- On 8/10, Vicki attended the IRWD tabletop exercise for the Santiago Dam Reservoir.
- On 8/11, Vicki joined SMWD on a conference call with the California Office of Emergency Services (CalOES) in regards to the OSO Dam Plan in which CalOES was asking for specific changes before approval. Vicki will be assisting SMWD with the corrections before resubmittal for approval.
- On 8/14, Vicki attended a GIS planning meeting with WUE and Engineering.
- On 8/15, the WEROC Quarterly Meeting was held with member agencies.
- On 8/16, Janine attended the AWWA Water Education Seminars held at Santiago College in Orange.
- On 8/22, Vicki attended a workshop/tabletop initial planning meeting with South Coast Water District. Vicki is designing an exercise for the agency to encompass an after-action meeting, training on policies and procedures along with a discussion-based module to apply information learned.

- On 8/23, Vicki supported OCWD with the fire/evacuation drill by evaluating the drill and providing feedback on the event.
- On 8/28, Vicki attended the Urban Area Security Initiative (UASI) Working Group meeting to start providing stakeholder feedback on the annual State Preparedness Report.

PLANNING AND PROGRAM EFFORTS

EOC Readiness & EOC Project
Mobile CP/EOC Project - Refer to Discussion item #1 on the September P&O Committee Meeting.

Efforts to continues to implement lessons learned from the May 2023 exercise is taking place. Example of current actions is the development of functional email address for use by any EOC responder.

IT & Cyber Security
WEROC continues to send out important information to the Cyber Security Distribution Group as received from DHS or the OCIAC.

The next WEROC Cyber Security Working Group meting is scheduled for September 19th. There will be a briefing by the FBI and OCIAC on the Discovery Bay Water Facility Attack and an overview of current threats and IT Information presented to the group/

Member Agency and County/Operational Area Plan Review
Vicki reviewed or revised the following plans this month:

- SCWD Palisades Dam Emergency Response Plan (has been submitted to CalOES for approval)
- SMWD Oso Reservoir Plan (revision made based on input from CalOES) and submitted for approval

Regional Fuel Project
Vicki has begun the research and data collection for the Regional Fuel Planning Project. Agencies were asked to provide critical infrastructure information by August 31st.

Regional Mapping Project
Janine has started working on the revision of the 2017 WEROC Map Atlas and Public Safety Power Shut (PSPS) Off map updates.

Resource Requests and Member Agency Inventory Lists
Janine has completed this project.

Training and Exercises
On 8/7 & 8/8., Vicki taught a G626 EOC Action Planning Course at Moulton Niguel Water District.

Vicki is creating a Workshop/Tabletop Exercise (TTX) for SCWD to be delivered on October 26th.

WEROC Quarterly Meeting
The WEROC Quarterly Meeting was held on August 15th. The following was the agenda for the meeting:

- Current Events Update
    - Covid-19 Update
    - WEROC Mobile EOC Update
    - Regional Fuel Planning Project
    - Member Agency Resource Inventory Listings Update
    - Great Shakeout 2023
    - National EAS Test

- WEROC's Goals and Objectives 2024
    - Planning & Program Initiatives
        - Member Agency Mapping Project
        - 2024 Hazard Mitigation/AWIA Project
        - Cybersecurity Program Update

    - Training and Exercises
        - WEROC Trainings for the remainder of 2023
        - WEROC IPP Multi-Year Training Schedule 2024+

Status of Water Use Efficiency Projects
August 2023

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
SoCal Water$mart Residential Indoor Rebate Program	MWDSC	Ongoing	Ongoing	In July 2023, 147 high efficiency clothes washers and 3 premium high efficiency toilets were installed in Orange County. To date, 128,432 high efficiency clothes washers and 60,004 high efficiency toilets have been installed through this program.
SoCal Water$mart Commercial Rebate Program	MWDSC	Ongoing	Ongoing	In July 2023, zero commercial devices were installed in Orange County. To date, 115,207 commercial devices have been installed through this program.
Flow-Monitoring Device Rebate Program	MWDSC	Ongoing	Ongoing	In July 2023, 6 flow-monitoring devices were installed in Orange County. To date, 116 flow-monitoring devices have been installed through this program.
Smart Timer Rebate Program	MWDSC	Ongoing	Ongoing	In July 2023, 167 residential and 70 commercial smart timers were installed in Orange County. To date, 32,629 smart timers have been installed through this program.
Rotating Nozzles Rebate Program	MWDSC	Ongoing	Ongoing	In July 2023, 195 rotating nozzles were installed in Orange County. To date, 578,436 rotating nozzles have been installed through this program.

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
Rain Barrel Rebate Program	MWDSC	Ongoing	Ongoing	In July 2023, 23 rain barrels were installed in Orange County. To date, 8,885 rain barrels have been installed through this program.
Turf Removal Program	MWDOC	Ongoing	Ongoing	In July 2023, 64 rebates were paid, representing $448,573.14 in rebates paid this month in Orange County. To date, the Turf Removal Program has removed approximately 26.6 million square feet of turf.
Spray to Drip Rebate Program	MWDOC	Ongoing	Ongoing	In July 2023, 26 rebates were paid, representing $65,890.58 in rebates paid this month in Orange County. To date, the Spray to Drip Program has converted approximately 3.0 million square feet of standard spray irrigation to drip irrigation.
Landscape Design and Landscape Maintenance Assistance Programs	MWDOC	Ongoing	Ongoing	In July 2023, 5 landscape design packages and 20 landscape maintenance packages were delivered to MWDOC Turf Removal Program customers. To date, 734 landscape design packages and 302 landscape maintenance packages have been delivered to MWDOC Turf Removal Program customers.
Industrial Process/ Water Savings Incentive Program (WSIP)	MWDSC	Ongoing	Ongoing	This program is designed to improve water efficiency for commercial customers through upgraded equipment or services that do not qualify for standard rebates. Incentives are based on the amount of water customers save and allow customers to implement custom water-saving projects.

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
Industrial Process/ Water Savings Incentive Program (WSIP) cont.				Total water savings to date for the entire program is 1,291 AFY and 6,381 AF cumulatively.
Recycled Water Retrofit Program	MWDSC	Ongoing	Ongoing	This program provides incentives to commercial sites for converting dedicated irrigation meters to recycled water. To date, 183 sites, irrigating a total of 1,676 acres of landscape, have been converted. The total potable water savings achieved by these projects is 3,692 AFY and 24,386 AF cumulatively.

Public & Governmental Affairs Activities Report
August 4, 2023 – August 30, 2023

Member Agency Support	Public Affairs Staff: • Created and distributed Fall 2023 Bill Inserts for 9 member agencies Government Affairs Staff: • Circulated the monthly grants tracking and acquisition report to member agencies • Made various updates to the grants tracking project and contact lists • Provided a letter of support to El Toro Water District for their grant application
Community and Special Events	Public Affairs Staff: • ***Speakers Bureau –*** Coordinated a presentation for President Schneider for the Canyon Democratic Club meeting on Tuesday, August 15th • Continue to participate in the planning and coordination of the OC Water Summit • Partnered with Save Our Water to co-host a booth at the OC Fair. Provided rebate information and giveaways to visitors. An average of 45,000 people visit the OC Fair each day. • Provided a booth for the Annual Festival of the Butterflies in San Juan Capistrano, interacted with 337 attendees • Planned and coordinated the first Scouts BSA Soil and Water Conservation Merit Badge Clinic of the fiscal year with the Santa Margarita Water District where 62 Orange County Scouts earned their badge • Participated in Girl Scouts of Orange County STEM Roundtable • Met with Girl Scouts of Orange County to plan and promote upcoming Girl Scouts Water Resources and Conservation Patch Program clinics • ***Speakers Bureau –*** Attended a speaking engagement with Director Seckel at Leisure World on Wednesday, August 16. Government Affairs Staff: • Participated in the OCBC Governmental Affairs Committee meeting • Attended the OCBC Infrastructure Committee meeting • Attended the ACC-OC Legislative Reception featuring a panel discussion with Senators Min, Nguyen and Archuletta, and Assembly Members Sanchez, Dixon, Petrie-Norris and Davies • Along with Directors Dick and Crane, met with Supervisor Don Wagner, re: LAFCO • Attended the Orange County Public Affairs Association Legislative Staffers lunch • Attended the ACWA State Legislative Committee meeting

K-12 Water Education	Public Affairs Staff: • Met with Orange County teacher – named Irvine Teacher of the Year, Orange County Teacher of the Year, and top 10 for California Teacher of the Year – to discuss education opportunities for students and teachers • Provided information regarding MWDOC Choice School Programs to Director Crane as well as the City of Santa Ana, East Orange County Water District, City of La Habra, City of Huntington Beach, City of Anaheim, and City of Westminster • Provided information regarding MWDOC Water Education Initiatives to Centralia School Board member • Met with MWDOC Choice School Program contractors – Shows That Teach and Orange County Department of Education's Inside the Outdoors – to prepare for the upcoming school year • Sent shared Google Calendar information to participating MWDOC Choice School Program agencies – updated as soon as school visits are scheduled
Workforce Initiative	Public Affairs Staff: • Photographed and video recorded the Municipal Water District of Orange County's Leak Detection crew to be used in promotional materials • Met with San Diego County Office of Education to discuss opportunities to participate in the Water Energy Education Alliance
Digital Communications, Publications, and Media Engagement	Public Affairs Staff: • Prepared and distributed content for social media • Submitted content to the Association of California Water Agencies newsroom o MWDOC's Water Education Mascot Inspires Budding Artists • Updated the MWDOC website as requested by several departments • Interviewed and video recorded Chapman University's Energy Conservation and Sustainability Manager on her experience with the MWDOC Turf Removal and Spray-to-Drip Rebate Programs
Special Projects	Public Affairs Staff: • Planned and coordinated an Inspection Trip for the Orange County Grand Jury with Directors Dick and Seckel to local infrastructure locations with 10 Grand Jury members in attendance Governmental Affairs Staff: • Staffed the August WACO meeting • Staffed the WACO Planning meeting

	• Confirmed the speaker and coordinated details for the ISDOC Quarterly Luncheon meeting in September • Confirmed speakers for the September WACO meeting
Outreach Metrics	Public Affairs Staff: • Google Performance Analytics (August 2023) o 226 business profile interactions o 2,244 people viewed the business profile • Website Analytics (GM report timeframe) o 11k pageviews o Top pages for this date range ▪ MWDOC Homepage 1.9k ▪ Turf Removal 1k ▪ Residential Rebates 911 ▪ Board Meetings 400 ▪ Careers 389 • Social Media (August 3 – August 29) *According to Hootsuite – the global leader in social media management –a good engagement rate is between 1% to 5%. For this period, MWDOC's engagement rate is at 19.70%* o 43,375 Post reach (number of people) o 8,544 Post engagement (actions taken – likes, shares, etc.)
Legislative Affairs	Governmental Affairs Staff: • Participated in the CSDA Legislative Committee meeting • Met with staff from Congresswoman Michelle Steel's office and provided an update on federal priorities • Met with staff from Congresswoman Katie Porter's office and provided an update on federal priorities • Participated in the CCEEB Water, Chemistry and Waste Project meeting • Participated in the Southern California Water Coalition Legilsative Task Force Committee meeting • Met with Chris Palmer of CSDA to discuss their legislative priorities • Participated in the ACWA Region 10 State Legislative Committee meeting prep call • Attended the CSDA Conference in Monterey