MEETING OF THE BOARD OF DIRECTORS OF THE
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
Jointly with the
ADMINISTRATION & FINANCE COMMITTEE
18700 Ward Street, Conf. Room 101, Fountain Valley, CA 92708
December 11, 2024, 8:30 a.m.

Teleconference Sites:
25652 Paseo De La Paz, San Juan Capistrano, CA 92675
17420 Walnut Street, Fountain Valley, CA 92708

This meeting will be held in person at 18700 Ward Street, Fountain Valley, California, 92708 (Conference Room 101). 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#

A&F Committee:
Director Crane, Chair
Director Thomas
Director Nederhood

Staff: H. De La Torre, C. Harris, H. Chumpitazi, M. Baum-Haley, K. Davanaugh, M. Goldsby

Ex Officio Member: President McVicker

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.

PRESENTATION ITEM

1. PRESENTATION BY DAVIS FARR REGARDING THE AUDIT OF MWDOC'S FINANCIALS

PROPOSED BOARD CONSENT CALENDAR ITEMS

2. TREASURER'S REPORT
   a. Revenue/Cash Receipt Report – November 2024
   b. Disbursement Approval Report for the month of December 2024
   c. Disbursement Ratification Report for the month of November 2024
   d. GM Approved Disbursement Report for the month of November 2024
   e. Consolidated Summary of Cash and Investment – October 2024
   f. OPEB and Pension Trust Fund statement

3. FINANCIAL REPORT
   a. Combined Financial Statements and Budget Comparative for the Period Ending October 31, 2024

ACTION ITEMS

4. AUTHORIZE CONTINUING REIMBURSEMENT FOR COASTAL MUNICIPAL WATER DISTRICT EMPLOYEE RETIREE BENEFIT

5. AWARD OF CONTRACT FOR INVESTMENT MANAGEMENT SERVICES FOR THE DISTRICT'S 401 (a) AND 457 (b) RETIREMENT PLAN ACCOUNTS

6. SELECTION OF CONSULTANT FOR DEVELOPMENT OF DEMAND FORECASTING FOR OC WATER AGENCIES

7. CONTINUATION OF THE FLUME, INC. RESIDENTIAL END USES OF WATER STUDY – UPDATE #2

DISCUSSION ITEMS

8. MWDOC'S ADMINISTRATIVE STRUCTURE FOR WATER ENERGY EDUCATION ALLIANCE (WEEA)

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.)

9. MWDOC.COM WEBSITE REFRESH

10. DEPARTMENT ACTIVITIES REPORTS
    a. Administration
    b. Finance and Information Technology

11. MONTHLY WATER USAGE DATA AND WATER SUPPLY INFORMATION

OTHER ITEMS

12. REVIEW ISSUES REGARDING DISTRICT ORGANIZATION, PERSONNEL MATTERS, EMPLOYEE BENEFITS FINANCE AND INSURANCE

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

PRESENTATION ITEM
December 11, 2024

TO: **Administration & Finance Committee**
(Directors Crane, Thomas, Nederhood)

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

Staff Contact: Hilary Chumpitazi, Director of Finance/IT

SUBJECT: **PRESENTATION BY DAVIS FARR REGARDING THE AUDIT OF MWDOC'S FINANCIALS**

STAFF RECOMMENDATION

Staff recommends the Administration & Finance Committee receive and file this report.

SUMMARY

Special districts are required to have annual independent audits performed by a certified public accountant at the end of each fiscal year.

The auditors for MWDOC, Davis Farr LLP, conduct their audit in accordance with Generally Accepted Auditing Standards (GAAS) in the United States of America, as well as standards outlined in the *Government Auditing Standards*, issued by the Comptroller General of the United States. MWDOC selects the auditor through a Request for Proposal process every five years.

Jonathan Foster, CPA, and Partner with Davis Farr, will be presenting the outcome of the annual audit of MWDOC's financials. Attached is the presentation material.

Budgeted: ☐ Yes ☐ No ☒ N/A	Budgeted amount:	Core: ☒	Choice: ☐
Action item amount:	Movement between funds: ☐ Yes ☐ No		

ALIGNMENT WITH BOARD STRATEGIC PRIORITIES

- ☒ *Clarifying MWDOC's mission and role; defining functions and actions.*
- ☐ *Balance support for Metropolitan's regional mission and Orange County values and interests.*
- ☐ *Strengthen communications and coordination of messaging.*
- ☐ *Work with member agencies to develop water supply and demand objectives.*
- ☐ *Solicit input and feedback from member agencies.*
- ☐ *Invest in workforce development and succession planning.*

List of Attachments/Links:

1. Presentation Material
2. Annual Financial Report for the year ended June 30, 2024



FINANCIAL REPORT

FOR THE YEAR ENDED JUNE 30, 2024

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INDEPENDENT AUDITORS' REPORT

DavisFarr
CERTIFIED PUBLIC ACCOUNTANTS

Davis Farr LLP
18201 Von Karman Avenue | Suite 1100 | Irvine, CA 92612
Main: 949.474.2020 | Fax: 949.263.5520

Independent Auditor's Report

Municipal Water District of Orange County
Board of Directors
Fountain Valley, California

Report on the Audit of the Financial Statements

Opinions

We have audited the financial statements of the Municipal Water District of Orange County (the District), as of and for the year June 30, 2024, and the related notes to the financial statements, which collectively comprise the District's basic financial statements as listed in the table of contents.

In our opinion, the accompanying financial statements present fairly, in all material respects, the respective financial position of the District as of June 30, 2024, and the respective changes in financial position and, where applicable, cash flows thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS) and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the District and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Responsibilities of Management for the Financial Statements

The District's management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the District's ability to continue as a going concern for one year after the date that the financial statements are issued.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the District's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the District's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control–related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the *Management's Discussion and Analysis, Other Post-Employment Benefit Plan: Schedule of Changes, Other Post-Employment Benefit Plan: Schedule of OPEB Contributions, Cost Sharing Retirement Plan: Schedule of the District's Proportionate Share of the Net Pension Liability, and Cost Sharing Retirement Plan: Schedule of Contributions* be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance

on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Report on Summarized Comparative Information

We have previously audited the Municipal Water District of Orange County's 2023 financial statements, and we expressed an unmodified audit opinion on those audited financial statements in our report dated December 7, 2023. In our opinion, the summarized comparative information presented herein as of and for the year ended June 30, 2023, is consistent, in all material respects, with the audited financial statements from which it has been derived.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated December 4, 2024, on our consideration of the District's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the District's internal control over financial reporting and compliance.



Irvine, California
December 3, 2024



MANAGEMENT'S DISCUSSION AND ANALYSIS

(Unaudited)

The following is a brief discussion of the Municipal Water District of Orange County's (District) activities and financial performance for the year ended June 30, 2024. Please read it in conjunction with the District's basic financial statements and accompanying notes which follow this section.

FINANCIAL HIGHLIGHTS

- The District's revenues were $145.1 million in FY 2023-24, compared to $174.7 million in the prior fiscal year, a 17.0% decrease.
- The District's expenses were $143.6 million in FY 2023-24, compared to $174.1 million in the prior fiscal year, a 17.5% decrease.
- The District's assets at June 30, 2024 were $45.0 million, a 22.6% increase compared to total assets of $36.7 million at June 30, 2023.
- The District's liabilities at June 30, 2024 were $33.0 million, a 28.4% increase compared to total liabilities of $25.7 million at June 30, 2023.
- The District's net position at June 30, 2024 was $14.3 million, a 10.8% increase compared to net position of $12.9 million at June 30, 2023.

OVERVIEW OF THE BASIC FINANCIAL STATEMENTS

The District's financial statements, prepared in accordance with generally accepted accounting principles (GAAP), offer key, high-level financial information about the District activities during the reporting period. The financial statements of the District consist of three interrelated statements designed to provide the reader with relevant information on the District's financial condition and operating results. These statements offer short-term and long-term financial information about the District's activities utilizing the full accrual basis of accounting.

The *Statement of Net Position* includes all of the District's assets and deferred outflows of resources, less liabilities and deferred inflows of resources, with the difference being reported as Net Position. It also provides the basis for computing rate of return, evaluating the capital structure of the District, and assessing the liquidity and financial flexibility of the District.

All the current year's revenues and expenses are accounted for in the *Statement of Revenues, Expenses and Changes in Net Position*. This statement measures the District's operations over the past year and can be used to determine whether the District has successfully recovered all its projected costs through its rates and other service related charges.

The final required financial statement is the *Statement of Cash Flows*, which presents information about the District's cash receipts and cash payments during the reporting period classified as cash receipts, cash payments, and net changes in cash resulting from operations, investing, non-capital financing, and capital and related financing activities. This statement also provides comparative information on the sources and uses of the District's cash during the reporting period.

FINANCIAL ANALYSIS OF THE DISTRICT

One of the most important questions asked about the District's finances is: "Is the District, as a whole, financially better off or worse off as a result of the year's activities?" The Statement of Net Position and the Statement of Revenues, Expenses and Changes in Net Position report information about the District's activities in a way that will help answer this question. These two statements report the net position of the District and changes in them. You can think of the District's net position (the difference between assets plus deferred outflows of resources and liabilities plus deferred inflows of resources) as one way to measure financial health or financial position. Over time, increases or decreases in the District's Net Position are one indicator of whether its financial health is improving or deteriorating. However, you will need to consider other non-financial factors, such as changes in economic conditions, population growth, changes in rates and charges and new or changed government legislation or accounting standards.

STATEMENT OF NET POSITION

Net position is the difference between assets plus deferred outflows of resources, and liabilities plus deferred inflows of resources, and may serve over time as a useful indicator of a government's financial position. The following is a summary of the District's Statement of Net Position.

TABLE 1
Condensed Statements of Net Positions
(In thousands of dollars)
June 30:

	FY 2024	FY 2023	Variance	Total Percent Change
Current Restricted Assets	$ 3,973	$ 3,656	$ 317	8.7%
Current Unrestricted Assets	36,584	28,980	7,604	26.2%
Capital Assets	3,642	3,877	(235)	(6.1%)
Other Assets	797	203	594	292.6%
Total Assets	**44,996**	**36,716**	**8,280**	**22.6%**
Deferred Outflows of Resources	**2,705**	**2,354**	**351**	**14.9%**
Current Liabilities Payable from Restricted Assets	841	1,103	(262)	(23.8%)
Current Liabilities Payable from Unrestricted Liabilities	28,043	21,001	7,042	33.5%
Noncurrent Unrestricted Liabilities	4,131	3,613	518	14.3%
Total Liabilities	**33,015**	**25,717**	**7,298**	**28.4%**
Deferred Inflows of Resources	**373**	**433**	**(60)**	**(13.9%)**
Net Position:				
Net Investment in Capital Assets	3,642	3,877	(235)	(6.1%)
Restricted for Trustee Activities	3,132	2,553	579	22.7%
Unrestricted	7,539	6,490	1,049	16.2%
Total Net Position	**$ 14,313**	**$ 12,920**	**$ 1,393**	**10.8%**

- Current Unrestricted Assets increased by $7.6 million due to an increase in Accounts Receivable for June Water Sales; last fiscal year had an increase in conservation rebates which created an internal borrowing which did not occur this year; and an increase in interest earnings. Other Assets represent the Other Post Employee Benefits (Note 8).

- Current Unrestricted Liabilities increased by $7.0 million due to higher Water Sales in June and the new LCRR Project. Noncurrent Unrestricted Liabilities represent the Net Pension Liability.

- The Unrestricted part of Net Position is the net of Unrestricted Assets and Liabilities as explained above.

STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION

While the Statement of Net Position shows the financial position at year-end, the Statement of Revenues, Expenses and Changes in Net Position provides information as to the results of operations of the District during the year. The District reported an increase in net position of $1.4 million for the year ended June 30, 2024, as compared to $581 thousand for the year ended June 30, 2023. The following is a summary of the change in the District's net position.

TABLE 2
Condensed Statements of Revenues
Expenses, and Changes in Net Position
(In thousands of dollars)

	FY 2024	FY 2023	Variance	Total Percent Change
Water Sales	$ 139,830	$ 165,457	$ (25,627)	(15.5%)
Special Project Revenues	5,510	8,767	(3,257)	(37.2%)
Non-operating Revenues/(Expenses)	(285)	468	(753)	(160.9%)
Total Revenues	**145,055**	**174,692**	**(29,637)**	**(17.0%)**
Operating Expenses	137,813	165,016	(27,203)	(16.5%)
Special Projects Expenses	5,510	8,767	(3,257)	(37.2%)
Depreciation Expense	339	328	11	3.4%
Total Expenses	**143,662**	**174,111**	**(30,449)**	**(17.5%)**
Change in Net Position	**1,393**	**581**	**812**	**139.8%**
Beginning Net Position	**12,920**	**12,339**	**581**	**4.7%**
Ending Net Position	**$ 14,313**	**$ 12,920**	**$ 1,393**	**10.8%**

The sources of change in net position are the following:

- Water Sales Revenues and Operating Expenses are lower due to lower water sales for the whole fiscal year.
    - A further decrease in Operating Expenses for salaries/benefits with a prior year adjustment to record our pension trust as an asset, reduced pension liability, and no election expense this fiscal year.

- Special Projects Revenue and Expense are lower due to decreased conservation and federal grant activity in conservation rebates with turf removal being the biggest driver, and an adjustment to prior year state grant activity.

- Non-operating Revenues/(Expenses) are lower due to a combination of an increase in investment income and Member Agencies refunds from the Tier 2 water refund to in 2023 and an additional refund from the reduction in our designated reserves in 2024.

CAPITAL ASSETS

The following is a summary of the District's capital assets at June 30, 2024 and June 30, 2023.

TABLE 3
Capital Assets
(In thousands of dollars)

	FY 2024	FY 2023	Variance	Total Percent Change
Leasehold Improvements	$ 7,011	$ 7,011	$ -	0.0%
Furniture, Equipment & Computer Equipment	724	914	(190)	-20.8%
Subtotal	**7,735**	**7,925**	**(190)**	**-2.4%**
Less Accumulated Depreciation	**(4,092)**	**(4,048)**	**(44)**	**1.1%**
Net Capital Assets	**$ 3,643**	**$ 3,877**	**$ (234)**	**(6.0%)**

The District disposed of furniture that was replaced and equipment that was obsolete. Additional information regarding capital assets can be found in Notes 1 and 4 of the notes to the financial statements.

DEBT ADMINISTRATION

The District had no debt outstanding as of June 30, 2024. The District does not plan to issue new debt in the year ending June 30, 2025.

BUDGETARY HIGHLIGHTS

The District is governed by a Board of Directors consisting of seven elected members. The Board adopts an annual appropriated budget prior to the start of the fiscal year. The Budget may be revised by Board action during the fiscal year. All amendments to the budget, or transfers of operating budget appropriations to or from reserve accounts, require Board notification. The General Manager is authorized to transfer budget amounts within programs and cost centers. The legal level of budgetary control is at the total fund level. An actual vs. budget comparison schedule for FY 2023-24 is presented in Table 4 to demonstrate compliance with the adopted budget.

TABLE 4
FY 2024 Actual vs Budget
(In thousands of dollars)

	Actual	Budget	Variance	Total Percent Change
Revenues:				
From Operations	$ 145,340	$ 225,485	$ (80,145)	(35.5%)
Non-operating Revenues/(Expenses)	(285)	322	(607)	(188.5%)
Total Revenues	**145,055**	**225,807**	**(80,752)**	**(35.8%)**
Expenses:				
From Operations				
Cost of Water	128,328	199,968	71,640	35.8%
Other Operating	14,994	26,245	11,251	42.9%
Depreciation	339	334	(5)	(1.5%)
Total Expenses	**143,661**	**226,547**	**83,386**	**36.6%**
Change In Net Assets	**$ 1,394**	**$ (740)**	**$ 2,134**	**(288.4%)**

The variances for the budget to actual are as follows:

- Revenues from Operations were $80.1 million less than budget due to actual water sales and special project/choice activity being lower than expected.

- Non-Operating Revenues/(Expenses) are lower due to a combination of an increase in investment income and a refund to our Member Agencies in 2023 to deplete a Tier 2 water fund and an additional refund from the reduction in our designated reserves in 2024.

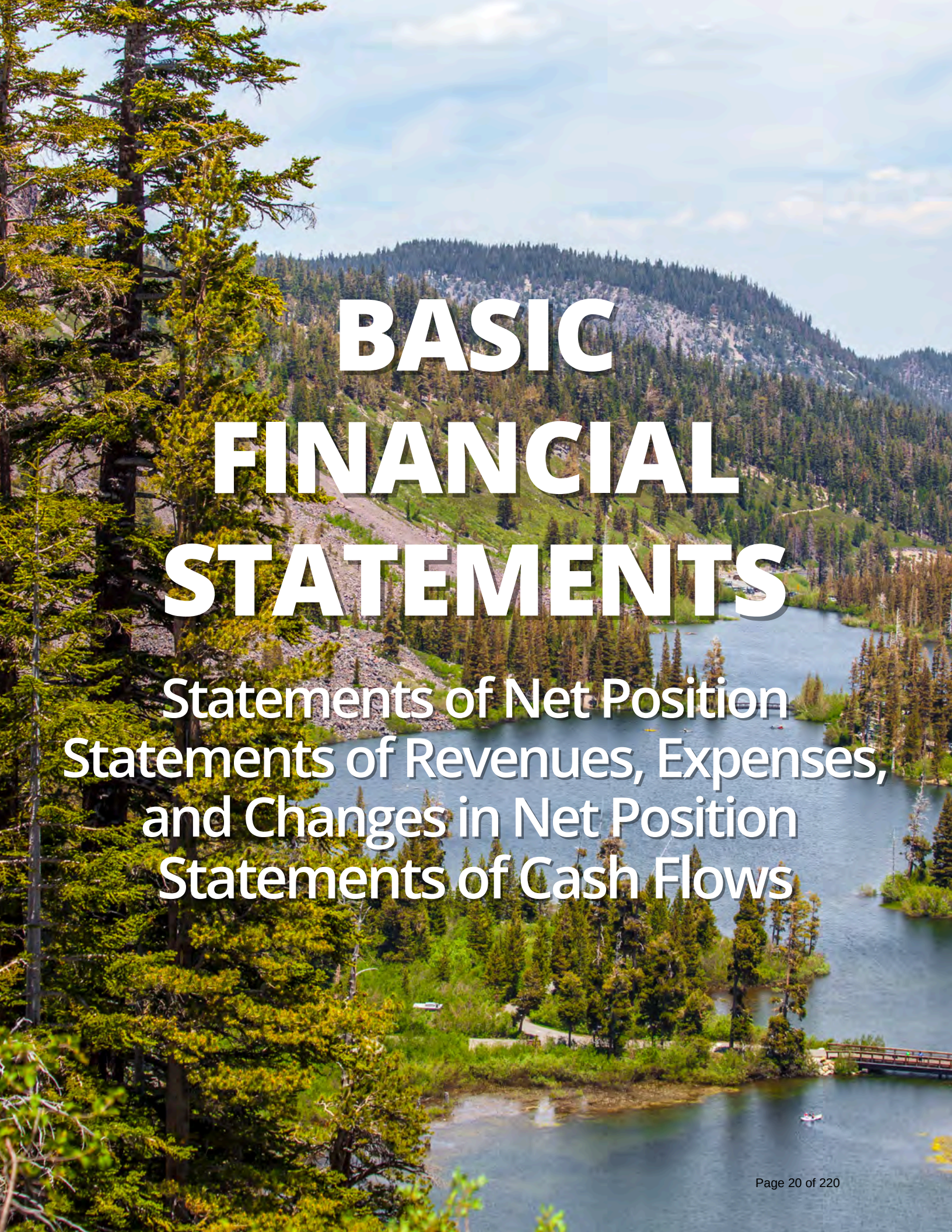
- Expenses from Cost of Water and Other Operating were lower than budget due to actual water sales and special project/choice activity being lower than expected; reduced pension liability, and a prior year adjustment to record our pension trust as an asset.

ECONOMIC FACTORS AND NEXT YEAR'S BUDGET AND RATES

The District's Board of Directors and management considered many factors during the preparation and approval of the annual budget for FY 2024-25. The budgeted operating expenses total $232.3 million and operating revenues total $232.25 million.

CONTACTING THE DISTRICT'S FINANCIAL MANAGEMENT

This financial report is intended to provide the Board of Directors, customers, taxpayers, creditors, and other interested parties with a general overview of the District's financial operations and condition as of and for the year ended June 30, 2024, and to demonstrate the District's accountability for the funds it receives. If you have questions about this report or need additional information, you may contact the Municipal Water District of Orange County, Finance Dept., at 18700 Ward Street, Fountain Valley, CA 92708, (714) 963-3058. Or visit our website at www.mwdoc.com.



BASIC FINANCIAL STATEMENTS

Statements of Net Position
Statements of Revenues, Expenses, and Changes in Net Position
Statements of Cash Flows

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

Statement of Net Position

June 30, 2024

(with comparative data as of June 30, 2023)

	2024	2023
ASSETS		
Current Assets:		
Restricted Assets (Note 3):		
Cash and Cash Equivalents (Note 2)	$ 295,228	$ 365,110
Investments (Note 2)	2,114,677	1,120,665
Accounts Receivable Other	1,562,776	2,169,947
Accrued Interest Receivable	220	149
Total Restricted Assets	3,972,901	3,655,871
Unrestricted Assets:		
Cash and Cash Equivalents (Note 2)	8,970,389	6,740,899
Investments (Note 2)	2,278,463	2,875,886
Accounts Receivable:		
Water Sales	23,729,343	18,599,500
Other	1,172,521	458,696
Accrued Interest Receivable	199,335	135,419
Deposits and Prepaid Expenses	233,857	169,843
Total Unrestricted Assets	36,583,908	28,980,243
Total Current Assets	40,556,809	32,636,114
Noncurrent Assets:		
Unrestricted Assets:		
Capital Assets, Net (Note 4)	3,642,492	3,877,338
Net Other Post Employment Benefits (OPEB) Asset (Note 8)	797,144	202,948
Total Noncurrent Assets	4,439,636	4,080,286
TOTAL ASSETS	44,996,445	36,716,400
DEFERRED OUTFLOWS OF RESOURCES		
Deferred Amount Related to Pensions (Note 7)	2,694,273	2,150,394
Deferred Amount Related to OPEB (Note 8)	10,660	203,488
TOTAL DEFERRED OUTFLOWS OF RESOURCES	2,704,933	2,353,882

See accompanying notes to basic financial statements.

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

Statement of Net Position (Continued)

June 30, 2024

(with comparative data as of June 30, 2023)

	2024	2023
LIABILITIES		
Current Liabilities:		
Payable from Restricted Assets		
Accrued Liabilities	$ 424,592	$ 48,412
Advances from Participants	416,393	1,054,844
Total Payable from Restricted Assets	840,985	1,103,256
Unrestricted Liabilities:		
Accounts Payable, Metropolitan Water District of Southern California	24,842,404	18,900,555
Accrued Liabilities	3,200,207	2,100,680
Total Unrestricted Liabilities	28,042,611	21,001,235
Total Current Liabilities	28,883,596	22,104,491
Noncurrent Liabilities:		
Unrestricted Liabilities:		
Net Pension Liability (Note 7)	4,131,092	3,612,624
Total Noncurrent Liabilities	4,131,092	3,612,624
TOTAL LIABILITIES	33,014,688	25,717,115
DEFERRED INFLOWS OF RESOURCES		
Deferred Amount Related to Pensions (Note 7)	145,973	274,992
Deferred Amount Related to OPEB (Note 8)	227,213	158,066
TOTAL DEFERRED INFLOWS OF RESOURCES	373,186	433,058
NET POSITION		
Net Investment in Capital Assets	3,642,492	3,877,338
Restricted	3,131,916	2,552,615
Unrestricted	7,539,096	6,490,156
TOTAL NET POSITION	$ 14,313,504	$ 12,920,109

See accompanying notes to basic financial statements.

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

Statement of Revenues, Expenses and
Changes in Net Position
For the Fiscal Year Ended June 30, 2024
(with comparative data as of June 30, 2023)

	2024	2023
Operating Revenues:		
Water Sales	$ 139,829,601	$ 165,457,192
Special Projects Revenue	5,473,352	7,058,040
Grant Revenue	36,704	1,708,865
Total Operating Revenues	145,339,657	174,224,097
Operating Expenses:		
Cost of Water Sold	128,328,428	154,366,951
Salaries and Employee Benefits	5,995,337	6,524,046
General and Administrative	3,488,755	4,124,773
Special Project Expenses	5,510,056	8,766,905
Depreciation	338,747	327,888
Total Operating Expenses	143,661,323	174,110,563
Operating Income	1,678,334	113,534
Nonoperating Revenues/(Expenses):		
Investment Income/(Loss)	1,159,074	452,095
Other Income	12,937	15,649
Other Expenses - Refund to Member Agencies (Note 10)	(1,456,950)	-
Total Nonoperating Revenues/(Loss)	(284,939)	467,744
Change in Net Position	1,393,395	581,278
NET POSITION - BEGINNING OF YEAR	12,920,109	12,338,831
NET POSITION - END OF YEAR	$ 14,313,504	$ 12,920,109

See accompanying notes to basic financial statements.

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

Statement of Cash Flows

For the Fiscal Year Ended June 30, 2024

(with comparative data for the Year Ended June 30, 2023)

	2024	2023
Cash Flows from Operating Activities:		
Cash received from member agencies-water deliveries	$ 134,699,758	$ 184,360,387
Cash (payments) to Metropolitan Water District of Southern California	(122,386,579)	(173,734,734)
Cash (payments) for salaries and employee benefits	(6,481,988)	(6,262,897)
Cash (payments) for general and administrative expenses	(3,167,067)	(4,714,478)
Cash received from special projects	6,493,407	8,724,665
Cash (payments) for special projects	(6,148,507)	(8,787,012)
Cash payment to Member Agencies (Note 10)	(1,456,950)	-
Other income	12,937	15,649
Net Cash Provided (Used) by Operating Activities	1,565,011	(398,420)
Cash Flows from Capital and Related Financing Activity:		
Acquisition of capital assets	(103,901)	(64,049)
Cash Used by Capital and Related Financing Activity	(103,901)	(64,049)
Cash Flows from Investment Activities:		
Investment income	1,159,074	452,095
Investments matured/(purchased)	533,436	(1,024)
Cash Provided (Used) by Investment Activities	1,692,510	451,071
Net increase (decrease) in cash and cash equivalents	3,153,620	(11,398)
Cash and Cash equivalents at beginning of year	8,226,674	8,238,072
Cash and Cash Equivalents at End of Year	$ 11,380,294	$ 8,226,674
Financial Statement Presentation:		
Cash and Cash Equivalents (Restricted)	$ 2,409,905	$ 1,485,775
Cash and Cash Equivalents (Unrestricted)	8,970,389	6,740,899
Totals	$ 11,380,294	$ 8,226,674

See accompanying notes to basic financial statements.

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

Statement of Cash Flows (Continued)

For the Fiscal Year Ended June 30, 2024

(with comparative data for the Year Ended June 30, 2023)

	2024	2023
Reconciliation of Operating Income/(Loss) to Net Cash Provided (Used) by Operating Activities		
Operating Income (Loss)	$ 1,678,334	$ 113,534
Adjustments to Reconcile Operating Income to Net Cash Provided (Used) by Operating Activities:		
Depreciation	338,747	327,888
Other Income	12,937	15,649
Other Expenses	(1,456,950)	-
Changes in Assets and Liabilities:		
(Increase)/Decrease in Accounts Receivable - Water Sales	(5,129,843)	18,903,195
(Increase)/Decrease in Accounts Receivable - Other	(713,825)	(373,663)
(Increase)/Decrease in Deposits and Prepaid Expenses	(64,014)	(28,704)
(Increase)/Decrease in Net OPEB asset	(594,196)	(98,664)
(Increase)/Decrease in Accounts Receivable - Special Projects	607,171	185,329
(Increase)/Decrease in Deferred Outflows - Pension/OPEB Related	(351,051)	(1,009,038)
Increase/(Decrease) in Accrued and Other Liabilities	1,099,527	(187,338)
Increase/(Decrease) in Restricted Accrued Liabilities	376,180	(227,569)
Increase/(Decrease) in Advances from Participants	(638,451)	(20,107)
Increase/(Decrease) in Accounts Payable to Metropolitan Water District of Southern California	5,941,849	(19,367,783)
Increase/(Decrease) in Net Pension and OPEB Liability	518,468	2,514,699
Increase/(Decrease) in Deferred Inflows - Pension/OPEB Related	(59,872)	(1,145,848)
Total Adjustments	(113,323)	(511,954)
Net Cash Provided by Operating Activities	$ 1,565,011	$ (398,420)
Noncash investing activity:		
Unrealized gain/(loss) on investments	$ 153,101	$ (54,820)
Total noncash investing activity	$ 153,101	$ (54,820)

See accompanying notes to basic financial statements.



NOTES TO BASIC FINANCIAL STATEMENTS

(1) Organization and Summary of Significant Accounting Policies

Reporting Entity

The Municipal Water District of Orange County (the District) was formed as a municipal water district on January 11, 1951 under the Municipal Water District Act of 1911. The District is a wholesale water supplier and resource planning agency that serves all of Orange County through 27 cities and water agencies (except the Cities of Anaheim, Fullerton, and Santa Ana which are independent member agencies of Metropolitan Water District of Southern California (Metropolitan). As a public agency member of Metropolitan, the District purchases imported water from Metropolitan and provides water to the District's 27 member agencies, which provide retail or wholesale water services to nearly 3.2 million residents within the District's service area of approximately 600 square miles. The District's primary sources of water from Metropolitan are the California State Water Project (SWP) and the Colorado River Aqueduct.

The District is an independent special district of the State of California governed by an elected seven-member board. On January 2001, the District merged with the Coastal Municipal Water District (Coastal) under the recommendation of the Local Agency Formation Commission of Orange County (LAFCO) as part of an effort to streamline local government. The consolidation of the two agencies allows the new district to more efficiently provide wholesale water services for the benefit of residents living throughout the service area.

The District's reporting entity includes the accounts of the District and the Municipal Water District of Orange County Water Facilities Corporation (WFC). Formed as a separate California nonprofit corporation on April 20, 1978 to assist in the financing of the Allen-McColloch Pipeline (AMP) and the Flow Augmentation Project (FAP), the WFC has no employees. The WFC is governed by a seven-member board comprised of the District's board members. The WFC had no activity or balances for the year ended June 30, 2024, and is kept active for potential future financing arrangements. WFC is a blended component unit of the District and the District has operational responsibility for WFC.

Measurement Focus and Basis of Accounting

Measurement focus is a term used to describe which transactions are recorded within the various financial statements. Basis of accounting refers to when transactions are recorded regardless of the measurement focus applied. The accompanying financial statements are reported using the economic resources measurement focus, and the accrual basis of accounting.

Under the economic resources measurement focus, all assets, deferred inflows and outflows of resources, and liabilities (whether current or noncurrent) associated with these activities are included on the Statement of Net Position. The Statement of Revenues, Expenses and Changes in Net Position presents increases (revenues) and decreases (expenses) in total net position. Under the accrual basis of accounting, revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows.

Basic Financial Statements

The District's basic financial statements consist of the Statement of Net Position, the Statement of Revenues, Expenses and Changes in Net Position, the Statement of Cash Flows, and the Notes to the Basic Financial Statements.

(1) Organization and Summary of Significant Accounting Policies (Continued)

Basis of Presentation

The District accounts for its activities as an enterprise fund. An enterprise fund is a proprietary type fund used to account for operations (a) that are financed and operated in a manner similar to private business enterprises - where the intent of the governing body is that the costs (expenses, including depreciation) of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges; or (b) where the governing body has decided that periodic determination of revenues earned, expenses incurred, and/or net income is appropriate for capital maintenance, public policy, management control, accountability or other purposes.

The District's basic financial statements have been prepared on the accrual basis of accounting and are presented on an economic measurement focus reporting all economic resources and obligations as of and for the year ended June 30, 2024.

Net Position

In the Statement of Net Position, net position is classified in the following categories:

- Net investment in capital assets – This amount consists of capital assets, net of accumulated depreciation, reduced by the outstanding balances of bonds, mortgages, notes, or other borrowings that are attributable to the acquisition, construction, or improvement of those assets as applicable.

- Restricted net position – This amount consists of restricted assets reduced by liabilities. Generally, a liability relates to restricted assets if the asset results from a resource flow that also results in the recognition of a liability or if the liability will be liquidated with the restricted assets reported or a resource subject to constraints that are externally imposed by creditors, grantors, contributors, laws or regulations of other governments, or imposed by law through constitutional provisions or enabling legislation.

- Unrestricted net position – This amount is the net amount of the assets, deferred outflows of resources, liabilities, and deferred inflows of resources that are not included in the determination of investment in capital assets or the restricted component of net position.

When both restricted and unrestricted resources are available, it is the District's policy to use restricted resources first and then unrestricted resources, as they are needed.

Operating and Nonoperating Revenues and Expenses

The District's primary purpose is to provide a dependable wholesale supply of imported water for its 27 member agencies. Accordingly, operating revenues such as water sales result from exchange transactions associated with the principal activity of the District, which is the purchase and resale of imported water to the District's member agencies.

Revenues from federal and state grants, reimbursements from participants and special projects, as well as special project expenses are defined as operating revenues and expenses, respectively. Nonoperating revenues consist of investment income and other miscellaneous income.

(1) Organization and Summary of Significant Accounting Policies (Continued)

Water Sales and Cost of Water Sold

Historically, the District's primary source of revenue has been from the resale of imported water to the District's 27 member agencies located in Orange County. Based on Metropolitan's cost of water, each year Metropolitan's Board of Directors approves water rates comprised of a capacity charge, readiness to serve charge and a per acre-foot charge. Metropolitan's rates are based on cost-of-service studies performed on a biennial basis. Water rates are not subject to regulation by the California Public Utilities Commission or by any other local, state, or federal agency. Revenue from sales of water is recognized on an accrual basis as water is delivered.

The District's revenue is from a per retail meter connection charge and a groundwater customer charge. Choice services are charged directly to the agencies as a "fee for service" on a subscription basis. The member agencies also pay for the resale of imported water in addition to the other charges noted.

Investments

Fair Value Measurements

The District categorizes the fair value measurements of its investments based on the hierarchy established by generally accepted accounting principles. The fair value hierarchy, which has three levels, is based on the valuation inputs used to measure an asset's fair value: Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs.

The District's investment policy and delegation of investment authority is reviewed and approved each year by the Board of Directors. The investment policy authorizes the Treasurer to invest, reinvest, sell or exchange permitted fixed income securities in accordance with the California Government Code. Investment income from restricted assets remains restricted.

Cash and Cash Equivalents

Cash and cash equivalents are defined as cash and short-term, highly liquid investments (i.e., Local Agency Investment Fund and Orange County Investment Pool) which are readily convertible to cash and mature within ninety (90) days of original purchase.

Accounts Receivable

The District extends credit to customers in the normal course of operations. Management believes all accounts receivable are collectible. In the event any accounts receivables are determined they are uncollectible, an allowance is recorded.

Capital Assets

Capital assets are defined by the District as assets with an initial, individual cost of more than $5,000 and a useful life greater than one (1) year. Upon retirement, sale or other disposition of capital assets, the cost and related accumulated depreciation are removed from their respective accounts and any gains or losses are recognized. Depreciation is computed using the straight-line method over the estimated useful

(1) Organization and Summary of Significant Accounting Policies (Continued)

life of the asset, which ranges from 3 to 10 years for furniture, fixtures, and equipment, and up to 30 years for leasehold improvements.

Deposits and Prepaid Expenses

Certain payments to vendors reflect costs or deposits applicable to future accounting periods and are recorded as Deposits and Prepaid Expenses in the basic financial statements.

Deferred Outflows and Inflows of Resources

The District reported deferred outflows and inflows of resources related to pensions and OPEB. A deferred outflow of resources is a consumption of net position by the District that is applicable to a future reporting period. A deferred inflow of resources represents an acquisition of net position by the district that is applicable to a future period. Refer to Note 7 and 8 for items identified as deferred inflows and outflows of resources as of June 30, 2024.

Compensated Absences

As vacation leave is a vested employee benefit, the District is obligated to compensate employees for all earned but unused vacation days. Employee vacation days are accrued each pay period and reported as accrued liabilities. Depending on the length of employment, employees earn a minimum of 10 up to a maximum of 21 vacation days per year. Accumulated vacation days may not exceed 2 times the number of days earned per year without the prior approval of the General Manager. Sick leave time is a non-vested employee benefit (i.e., accumulated sick leave is not payable in the event of employee termination), is considered a contingent liability, and is not reflected in the accompanying financial statements.

Unearned Revenue / Advances from Participants

Unearned revenue and advances from participants represent grant and agency revenues received in advance of the recognition of the related expense.

Pensions

For purposes of measuring the net pension liability and deferred outflows/inflows of resources related to pensions, and pension expense, information about the fiduciary net position of the District's California Public Employees Retirement System (CalPERS) plan and additions to and deductions from the plan's fiduciary net position have been determined on the same basis as they are reported by CalPERS. For this purpose, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

Postemployment Benefits Other Than Pensions (OPEB)

For purposes of measuring the net OPEB liability, deferred outflows of resources, deferred inflows of resources related to OPEB and OPEB expense, information about the fiduciary net position of the District's OPEB Plan and additions to/deductions from the Plan's fiduciary net position have been determined on the same basis as they are reported by the Plan. For this purpose, the Plan recognizes benefit payments when due and payable in accordance with the benefit terms. Investments are reported at fair value, except for money market investments and participating interest-earning investment contracts that have a maturity at

(1) Organization and Summary of Significant Accounting Policies (Continued)

the time of purchase of one year or less, which are reported at cost.

Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that could affect certain reported amounts in the financial statements and accompanying notes. Actual results could differ from those estimates. Also, the preparation of the financial statements inherently requires rounding of amounts and estimates. Management believes that any differences due to rounding are not material.

Prior Year Data

Selected information regarding the prior year has been included in the accompanying financial statements. This information has been included for comparison purposes only and does not represent a complete presentation in accordance with generally accepted accounting principles. Accordingly, such information should be read in conjunction with the District's prior year financial statements, from which this selected financial data was derived.

(2) Cash and Investments

Cash and investments at June 30, 2024, are classified in the accompanying financial statements as follows:

Statement of net position:

Cash and cash equivalents (restricted)	$	295,228
Cash and cash equivalents (unrestricted)		8,970,389
Investments (restricted)		2,114,677
Investments (unrestricted)		2,278,463
Total Cash and Investments	$	13,658,757

Cash and investments as of June 30, 2024 consist of the following:

Cash on hand	$	500
Deposits with financial institutions		139,434
Investments		13,518,823
Total Cash and Investments	$	13,658,757

Investments Authorized by the California Government Code and the District's Investment Policy

The table below identifies the investment types that are authorized for the District by the California Government Code (or the District's investment policy). The table also identifies certain provisions of the California Government Code (or the District's investment policy) that address interest rate risk and concentration of credit risk. The District's investment policy allows for funds to be divided into two categories. The Operating Fund authorized investments are below:

(2) Cash and Investments (Continued)

Authorized Investment Type	Maximum Maturity	Maximum Percentage of Portfolio	Maximum Investment in One
U.S. Treasuries	5 years	100%	100%
U.S. Government Agencies	5 years	100%	50%
Corporate Securities	5 years	30%	10%
Commercial Paper	270 days	25%	10%
Negotiable Certificates of Deposit	5 years	30%	5%
Bankers' Acceptances	180 days	40%	5%
Repurchase Agreements	1 year	20%	10%
Money Market Mutual Funds	N/A	20%	20%
Collective Investment Pool	N/A	20%	10%
County Investment Pool	N/A	100%	100%
State Investment Pool	N/A	100%	100%

Disclosures Relating to Interest Rate Risk

Interest rate risk is the risk that a change in market interest rates will adversely affect the fair market value of an investment. Generally, the longer the maturity of an investment, the greater the sensitivity of its fair market value to changes in market interest rates. One of the ways that the District manages its exposure to interest rate risk is by purchasing a combination of shorter-term and longer-term investments and by timing cash flows from maturities so that a portion of the portfolio is maturing or coming close to maturity evenly over time as necessary to provide the cash flow and liquidity needed for operations. Information about the sensitivity of the fair market values of the District's investments to market interest rate fluctuations is provided by the following table that shows the distribution of the District's investments by maturity:

		Remaining Maturity (in Months)		
Investment Type	Total	12 Months or Less	13 to 24 Months	25-60 Months
Negotiable Certificate of Deposits	$ 1,616,830	$ 498,518	$ -	$ 1,118,313
Corporate Securities	1,133,225	-	939,245	193,980
US Government Issues	233,777	-	233,777	-
Orange County Treasurer's Pool	4,260,879	4,260,879	-	-
State Investment Pool	4,274,347	4,274,347	-	-
PARS Section 115 Trust	1,999,765	1,999,765	-	-
	$13,518,823	$11,033,509	$ 1,173,022	$ 1,312,293

(2) Cash and Investments (Continued)

Disclosures Relating to Credit Risk

Generally, credit risk is the risk that an issuer of an investment will not fulfill its obligation to the holder of the investment. This is measured by the assignment of a rating by a nationally recognized statistical rating organization. Presented below is the minimum rating required by (where applicable) the California Government Code or District's investment policy, or debt agreements, and the actual rating by Standard and Poor's (S&P) as of the year end of each investment type. The District purchases all investments at the minimum rating, but some investments' ratings may downgrade during its life, but it is the District's policy to hold investments until their maturity.

			Ratings as of Year End			
Investment Type	Total	Minimum Rating	AA+	A	A-**	Not Rated
Negotiable Certificate of Deposits	$ 1,616,830	N/A	$ -	$ -	$ -	$ 1,616,830
Corporate Securities	1,133,225	A	-	472,210	661,015	-
US Government Issues	233,777	A	233,777	-	-	-
Orange County Treasurer's Pool	4,260,879	N/A	-	-	-	4,260,879
State Investment Pool	4,274,347	N/A	-	-	-	4,274,347
PARS Section 115 Trust	1,999,765	N/A	-	-	-	1,999,765
	$13,518,823		$233,777	$472,210	$661,015	$12,151,821

** Investments conformed to District's Investment Policy at time of acquisition

Disclosures Relating to Fair Value Measurement and Application

Investments categorized as Level 2 are valued using a market approach using quoted market prices. Values are determined by using pricing models and discounted cash flow models and includes management judgement and estimation. Uncategorized investments are not subject to fair value categorization.

The District had the following recurring fair value measurements as of June 30, 2024:

		Fair Value Application			
Investment Type	Total	1	2	3	Uncategorized
Negotiable Certificate of Deposits	$ 1,616,830	$ -	$ 1,616,830	$ -	$ -
Corporate Securities	1,133,225	-	1,133,225	-	-
US Government Issues	233,777	-	233,777	-	-
Orange County Treasurer's Pool	4,260,879	-	-	-	4,260,879
State Investment Pool	4,274,347	-	-	-	4,274,347
PARS Section 115 Trust	1,999,765	-	-	-	1,999,765
	$13,518,823	$ -	$ 2,983,832	$ -	$ 10,534,991

(2) Cash and Investments (Continued)

Concentration of Credit Risk

The District's investment policy contains limitations on the amount that can be invested in any one issuer as stipulated by the California Government Code. At June 30, 2024, the District did not have investments in more than one issuer (other than U.S. Treasury securities, mutual funds, external investment pools) that represented 5% or more of total District investments.

Custodial Credit Risk

Custodial credit risk for deposits is the risk that, in the event of the failure of a depository financial institution, a government will not be able to recover its deposits or will not be able to recover collateral securities that are in the possession of an outside party. The custodial credit risk for *investments* is the risk that, in the event of the failure of the counterparty (e.g., broker-dealer) to a transaction, a government will not be able to recover the value of its investment or collateral securities that are in the possession of another party. The California Government Code and the District's investment policy do not contain legal or policy requirements that would limit the exposure to custodial credit risk for deposits or investments, other than the following provision for deposits.

The California Government Code requires that a financial institution secure deposits made by state or local governmental units by pledging securities in an undivided collateral pool held by a depository regulated under state law (unless so waived by the governmental unit). The market value of the pledged securities in the collateral pool must equal at least 110% of the total amount deposited by the public agency. The Government Code also allows financial institutions to secure public agency deposits by pledging first trust deed mortgage notes having a value of 150% of the secured public deposits. As of June 30, 2024, the District's deposits with financial institutions are covered by the Federal Deposit Insurance Corporation up to $250,000, the remaining amounts of $360,368 were collateralized as described above.

Investment in Public Agency Retirement Services

The District is a voluntary participant in Public Agency Retirement Services (PARS) with US Bank as our trustee and PFM Asset Management as our investment manager. The plan administrator is the District's General Manager. The District has an IRC Section 115 Irrevocable Exclusive Benefit Trust for pension and OPEB to supplement our liabilities. Govt Code Section 53216.6 and 53620 govern plan investments within the Trust. Our current investment strategy is Moderate Strategic Blend (Active) in a pooled account. The OPEB Plan was established July 2011 and Pension was established February 2018. Only the Pension plan is reported as Restricted Investments in these financial statements. Once contributions are placed into the PARS Trust, assets from the Trust can only be used for specific benefit pan purposes.

Investment in State and County Investment Pool

The District is a voluntary participant in LAIF that is regulated by California Government Code Section 16429 under the oversight of the Treasurer of the State of California, and in the OCTP under the oversight of the Orange County Treasurer. The fair market value of the District's investment in these pools is reported in the accompanying financial statements at amounts based upon the District's pro-rata share of the fair market value provided by LAIF and OCTP for the entire LAIF and OCTP portfolios (in relation to the amortized cost of that portfolio). The balance available for withdrawal is based on the accounting records maintained by LAIF and OCTP, which are recorded on an amortized cost basis.

(2) Cash and Investments (Continued)

LAIF is a governmental investment pool managed and directed by the California State Treasurer and is not registered with the Securities and Exchange Commission. An oversight committee comprised of California State officials and various participants provides oversight to the management of the fund. The daily operations and responsibilities of LAIF fall under the auspices of the State Treasurer's office.

The OCTP is an external investment pool, is not rated and is not registered with the Securities Exchange Commission (SEC). The County Treasury Oversight Committee conducts OCTP oversight. Cash on deposit in OCTP at June 30, 2024, is stated at fair value. The OCTP values participant shares on an amortized cost basis during the year and adjusts to fair value at year-end.

For further information regarding OCTP, refer to the County of Orange Annual Comprehensive Financial Report.

(3) Restricted Assets

Restricted assets are monies held in restricted funds or accounts by the District for the benefit of member agencies and the District's specific benefit plan purposes. As of June 30, 2024, $2,409,905 was reported as restricted assets which includes the District's PARS Section 115 Trust and member agency activities as shown in Note 2.

(4) Capital Assets

The following is a summary of capital assets at June 30, 2024 with changes therein:

	2023	Additions	Deletions	2024
Furniture, Fixtures and Equipment	$ 913,950	$ 29,594	$ (219,459)	$ 724,085
Leasehold Improvements	7,011,191	74,307	(74,715)	7,010,783
	7,925,141	103,901	(294,174)	7,734,868
Less Accumulated Depreciation:				
Furniture, Fixtures and Equipment	(613,377)	(111,337)	219,459	(505,255)
Leasehold Improvements	(3,434,426)	(227,411)	74,715	(3,587,122)
	(4,047,803)	(338,748)	294,174	(4,092,377)
Net Capital Assets	$ 3,877,338	$ (234,846)	$ -	$ 3,642,492

(5) Deferred Pension Plan

The District sponsors a Money Purchase Pension Plan (the Pension Plan), a defined contribution plan, under Internal Revenue Code Section 401(a). Currently the MWDOC Board of Directors and MWDOC MET Directors participate in the Pension Plan. In accordance with section 3401(c) of the Internal Revenue Code, the term employee includes officers, whether elected or appointed. The Directors contribute 7.5 percent of their covered compensation to the Pension Plan, in lieu of contributing to Social Security. The Directors' contributions to the Pension Plan totaled $29,984 for the year ended June 30, 2024. Participants become vested in the Pension Plan at a rate of 20% per year of service until they are fully vested after five (5) years. District employees were previously part of the Pension Plan until March 2003 when they became members of the CalPERS plan. See Note 7.

(6) Risk Management

The District is a member of the Association of California Water Agencies Joint Powers Insurance Authority (JPIA) (Insurance Authority). The Insurance Authority is a risk-pooling self-insurance authority, created under provisions of California Government Code Sections 6500 et. seq. The purpose of the Insurance Authority is to arrange and administer programs of insurance for the pooling of self-insured losses and to purchase excess insurance coverage for participating member agencies.

The Insurance Authority bills the District a deposit premium at the beginning of each year, which is placed in a reserve fund to cover the self-insurance portion of any claim. Settlements and/or expenses related to claims during the year are then charged to the reserve. If the balance of the reserve at the end of the year is deemed too low in relation to the amount of outstanding claims, the District is billed for additional premiums. When the claims are fully settled, any amounts remaining in the reserve are refunded to the District.

At June 30, 2024, the District participated in the self-insurance programs as follows:

Property Program - The Insurance Authority has pooled self-insurance for the first $10,000,000 and purchases excess coverage up to $500 million. The coverage limit is $500 million per occurrence with exceptions. The District has a $1,000 deductible for buildings, personal property and fixed equipment and $500 for licensed vehicles/trailers.

General, Auto and Public Officials Liability - The Insurance Authority has pooled self-insurance up to $5 million per occurrence and has purchased excess insurance coverage up to $55 million per occurrence.

Crime and Excess Crime Program - The Insurance Authority has a total coverage limit of $3 million, per loss. The District has a $1,000 deductible for coverage up to $100,000 per loss. Coverage in excess has a $100,000 deductible.

Cyber Liability – The Insurance Authority has a coverage limit of $3 million maximum per member and a $5 million policy aggregate with a $50,000 to $100,000 deductible based on total insurable values.

Workers' Compensation Program (WC) – The District is a member of the Special District Risk Management Authority (SDRMA) and participates in its Workers' Compensation Program for special districts and other public agencies. The SDRMA provides responsive claims management, cost containment, combined with tailored safety and loss prevention and an unequaled full-service workers' compensation program. All claims are handled by SDRMA claims staff. Comprehensive Coverage includes Statutory Workers' Compensation Limits, $5 million Employer's Liability, Zero Member Deductible, and SDRMA maintains a Self-Insured Retention that is periodically adjusted based on market conditions.

Reconciliations are conducted annually by JPIA and the District may receive a refund based on the pool claims status, to adjustment to the pool fund.

The District pays annual premiums for all policy coverages and to date does not have any active/open claims or pending settlements.

(7) Cost-Sharing Defined Benefit Plan

General Information about the Pension Plan

Plan Descriptions – Effective March 1, 2003, all qualified regular full-time employees working over 1,000 hours in a fiscal year are eligible to participate in the District's employee pension plan, a cost-sharing multiple employer defined benefit pension plan administered by CalPERS. The CalPERS Plans (the Plans) consists of a miscellaneous pool and a safety pool (referred to as "risk pools"), which are comprised of individual employer miscellaneous and safety rate plans, respectively. The risk pools are included within the Public Employees' Retirement Funds C (PERF C). Benefit provisions under the Plans are established and may be amended by State statute and the District's resolution. CalPERS issues publicly available reports that include a full description of the pension plans regarding benefit provisions, assumptions, membership information, and related financial information that can be found on the CalPERS website at: http://www.calpers.ca.gov.

Benefits Provided – CalPERS provides retirement and disability benefits, annual cost of living adjustments and death benefits to plan members, who must be public employees and beneficiaries. Benefits are based on years of credited service, equal to one year of full-time employment. Members with five years (5) of total service are eligible to retire at age 50 or 52 with statutorily reduced benefits. All members are eligible for non-duty disability benefits after 5 years of service. The death benefit is one of the following: Basic Death Benefit, 1959 Survivor Benefit, Pre-Retirement Option 2W Death Benefit or the 1957 Survivor Benefit. The cost-of-living adjustments for each plan are applied as specified by the Public Employees' Retirement Law.

The Plans' provisions and benefits in effect at June 30, 2024, are summarized as follows:

	Miscellaneous	
Hire Date	Prior to January 1, 2013	On or after January 1, 2013
Formula	2.0% @55	2.0% @62
Benefit vesting schedule	5 years of service	5 years of service
Benefit payments	monthly for life	monthly for life
Retirement age	50-63	52-67
Monthly benefits, as a % of annual salary	1.426% to 2.418%	1.0% to 2.5%
Required employee contribution rates	7%	7.75%
Required employer contribution rates	12.47%	7.68%
Pensionable Compensation Cap*	$345,000	$181,734

* Will increase to reflect changes in the Consumer Price Index

Contributions – Section 20814(c) of the California Public Employees' Retirement law requires that the employer contribution rates for all public employers are determined on an annual basis by the actuary and shall be effective on the July 1 following notice of a change in rate. Funding contributions for Plans are determined annually on an actuarial basis as of June 30 by CalPERS. The actuarially determined rate is the estimated amount necessary to finance the costs of benefits earned by employees during the year, with an additional amount to finance any unfunded accrued liability. The District is required to contribute the difference between the actuarially determined rate and the contribution rates of employees.

Contributions recognized by the Plans from the employer for the year ended June 30, 2024, were $1,233,081.

(7) Cost-Sharing Defined Benefit Plan (Continued)

Pension Liabilities, Pension Expenses and Deferred Outflows / Inflows of Resources Related to Pensions

As of June 30, 2024, the District's proportionate share of the net pension liability of the Plan is as follows:

	Net Position Liability	
Balance at: December 31, 2022	$	3,612,624
Balance at: December 31, 2023		4,131,092
Net change during 2023	$	518,468

The District's net pension liability was measured as the proportionate share of the net pension liability of the collective cost-sharing plan. The District's net pension liability was measured as of June 30, 2023, and the total pension liability for the Plan used to calculate the net pension liability was determined by an actuarial valuation as of June 30, 2022, rolled forward to June 30, 2023, using standard update procedures. The District's proportion of the net pension liability was based on a projection of the District's long-term share of contributions to the pension plan relative to the projected contributions of all participating employers, actuarially determined. The District's proportionate share of the net pension liability for the Plan as of June 30, 2023, and 2024 were as follows:

	Miscellaneous
Proportion - June 30, 2023	0.07721%
Proportion - June 30, 2024	0.08261%
Change - Increase (Decrease)	0.00541%

For the year ended June 30, 2024, the District recognized pension expense of $1,078,650.

At June 30, 2024, the District reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between Expected and Actual Experience	$ 211,039	$ 32,737
Changes of Assumptions	249,413	-
Differences between Projected and Actual Investment Earnings	668,860	-
Change in Employer's Proportion	331,880	-
Differences between Employers Contributions and Proportionate Share of Contributions	-	113,236
Pension Contributions Made Subsequent to Measurement Date	1,233,081	-
Total	$ 2,694,273	$ 145,973

(7) Cost-Sharing Defined Benefit Plan (Continued)

The amount of $1,233,081 reported as deferred outflows of resources related to contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability in fiscal year ending June 30, 2025. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized as pension expense as follows:

Fiscal Year Ending June 30,	Miscellaneous
2025	$ 447,774
2026	309,326
2027	538,927
2028	19,192
	$ 1,315,219

Actuarial Assumptions – The total pension liabilities in the June 30, 2022 actuarial valuation with update procedures used to roll forward the total pension liability to June 30, 2023, was based on the following actuarial assumptions:

	Miscellaneous
Valuation Date	June 30, 2022
Measurement Date	June 30, 2023
Actuarial Cost Method	Entry-Age Normal Cost Method
Actuarial Assumptions:	
Investment Rate of Return	6.90%
Inflation	2.30%
Salary Increases	Varies by Entry Age and Service
Mortality Rate Table[1]	Derived using CalPERS' Membership Data for all Funds
Post Retirement Benefit Increase	Contract COLA up to 2.30% until Purchasing Power Protection Allowance Floor on Purchasing Power applies

[1] The mortality table was developed based on CalPERS-specific data. The rates incorporate Generational Mortality to capture ongoing mortality improvement using 80% of Scale MP 2020 published by the Society of Actuaries. For more details refer to the 2021 experience study report on the CalPERS website.

Discount Rate – The discount rate used to measure the total pension liability was 6.90%. The projection of cash flows used to determine the discount rate assumed that contributions from plan members will be made at the current member contribution rates and that contributions from employers will be made at statutorily required rates, actuarially determined. Based on those assumptions, the Plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

(7) Cost-Sharing Defined Benefit Plan (Continued)

Long-Term Expected Rate of Return - In determining the long-term expected rate of return, CalPERS took into account long-term market return expectations as well as the expected pension fund cash flows. Projected returns for all asset classes are estimated and combined with risk estimates, are used to project compound (geometric) returns over the long term. The discount rate used to discount liabilities was informed by the long-term projected portfolio return.

The table below reflects the expected real rates of return by asset class.

Asset Class	Assumed Asset Allocation	Real Return Years 1-10[1,2]
Global Equity - cap-weighted	30.00%	4.54%
Global Equity - non-cap-weighted	12.00%	3.84%
Private Equity	13.00%	7.28%
Treasury	5.00%	0.27%
Mortgage-backed Securities	5.00%	0.50%
Investment Grade Corporates	10.00%	1.56%
High Yield	5.00%	2.27%
Emerging Market Debt	5.00%	2.48%
Private Debt	5.00%	3.57%
Real Assets	15.00%	3.21%
Leverage	-5.00%	-0.59%
Total	100.00%	

[1] An expected inflation of 2.30% used for this period.
[2] Figures are based on the 2021-22 Asset Liability Management study

Sensitivity of the District's Proportionate Share of the Net Pension Liability to Changes in the Discount Rate – The following presents the District's proportionate share of the net pension liability, calculated using the discount rate, as well as what the District's proportionate share of net pension liability would be if it were calculated using a discount rate that is 1-percentage point lower or 1-percentage point higher than the current rate.

	Discount Rate -1% (5.90%)	Current Discount Rate (6.90%)	Discount Rate +1% (7.90%)
District's Net Pension Liability/(Asset)	$ 6,865,419	$ 4,131,092	$ 1,880,506

Pension Plan Fiduciary Net Position – Detailed information about the pension plan's fiduciary net position is available in the separately issued CalPERS financial reports.

(7) Cost-Sharing Defined Benefit Plan (Continued)

Amortization of Deferred Outflows and Deferred Inflows of Resources

Under GASB 68, gains and losses related to changes in total pension liability and fiduciary net position are recognized in pension expense systematically over time.

The first amortized amounts are recognized in pension expense for the year the gain or loss occurs. The remaining amounts are categorized as deferred outflows and deferred inflows of resources related to pensions and are to be recognized in future pension expense.

The amortization period differs depending on the source of the gain or loss:

Net Difference between projected and actual earnings on pension plan investments	5 year straight-line amortization
All other amounts	Straight-line amortization over the expected average remaining service lifetime (EARSL) of all members that are provided with benefits (active, inactive, and retired) as of the beginning of the measurement period

(8) Retiree Medical Plan – Other Post-Employment Benefits (OPEB)

Plan Description:

Effective October 1, 2011, the District established a Post-Retirement Healthcare Plan (Health Plan) and has contributed to an IRC Section 115 Irrevocable Exclusive Benefit Trust for the pre-funding of post-employment health care costs. Currently, the District provides health benefits for employees, retirees, and their dependents with a choice of medical plans through the Association of California Water Agencies (ACWA) Joint Powers Insurance Authority. Employees and retirees select from the same plans. Retired employees (hired prior to July 1, 2012) who are at least 55 years of age are eligible for these health and welfare benefits based on their years of full-time accrued service. There are two benefit tiers for the years of accrued service:

Tier 1: Employees retiring with a minimum of 10 consecutive years of full-time service with the District, earn medical coverage on the following terms: The District will pay for Retiree only or couples' coverage on the same basis as active employees. Retiree and spouse/domestic partner have the option to continue dental and vision benefits at their own cost and COBRA coverage is offered. Upon becoming Medicare eligible, the retiree must enroll and transition to Medicare coverage. The District will reimburse retiree only up to the annual cap of $3,080.82 for a Medicare Advantage Plan, a supplemental Medigap insurance policy, Medicare Prescription Drug Insurance or Medicare Part B coverage. If a spouse or domestic partner survives a retiree, their coverage will continue until remarriage, enrollment in another plan or becoming Medicare eligible.

Tier 2: Employees retiring with a minimum of 25 consecutive years of full-time service with the District earn medical, dental and vision benefits on the following terms: The District will pay for retiree only or couples coverage on the same basis as active employees. The District pays the following for dental and vision coverage: Dental for retiree only 90%; couples coverage 80%. Vision coverage for retiree only 100%; couples coverage 80%. Retirees and their spouses/domestic partner are required to enroll in Medicare Parts A and B upon eligibility. The District will reimburse for Medicare Part B for both retiree and their eligible

(8) Retiree Medical Plan – Other-Post-Employment Benefits (OPEB) (Continued)

spouse/domestic partner. If a spouse or domestic partner survives a retiree, their coverage will continue until remarriage or enrollment in another plan.

The following guidelines apply to both tiers:

1. The District does not make contributions to Health Savings Accounts on behalf of retirees.
2. Reenrollment is not permitted if a retiree discontinues medical coverage.
3. Annual open enrollment is not permitted for retirees.
4. Reimbursement requires proper verification and is made on a quarterly to yearly basis.

Employees hired on or after July 1, 2012 are ineligible for District-paid retiree health benefits. Plan benefits and contribution requirements of Health Plan members and the District are established, and may be amended, by the District's Board of Directors.

The following parties are responsible for the administration of the Health Plan:

- Public Agency Retirement Services (PARS) serves as Trust Administrator and Consultant
- US Bank serves as Trustee, and
- PFM Asset Management (PFMAM) serves as Investment Manager

PARS issues monthly account reports to the District and PFMAM publishes quarterly performance reports.

Plan membership at June 30, 2024, membership consisted of the following:

Inactive plan members or beneficiaries currently receiving benefit payments	13
Active plan members	8
Total	21

Funding Policy:

The contribution requirements of Health Plan members and the District are established, and may be amended, by the District's Board of Directors. The District has fully funded the OPEB obligation and will be using its OPEB Designated Reserve account to offset retiree expenses.

Net OPEB Liability/(Asset):

The District's Net OPEB Liability/(Asset) was measured as of June 30, 2024 and the Total OPEB Liability/(Asset) used to calculate the Net OPEB Liability/(Asset) was determined by an actuarial valuation as of June 30, 2024. Standard actuarial update procedures were used to project/discount from valuation to measurement dates.

(8) Retiree Medical Plan – Other-Post-Employment Benefits (OPEB) (Continued)

Actuarial assumptions:

The total OPEB liability/(asset) was determined using the following actuarial assumptions, applied to all periods included in the measurement, unless otherwise specified:

Actuarial cost method	Entry Age, Level Percent of Pay
Valuation of fiduciary net position	Fair value of assets
Recognition of deferred inflows and outflows of resources	Closed period equal to the average of the expected remaining service lives of all employees provided with OPEB
Salary increases	3.00 percent
Inflation rate	2.50 percent
Investment rate of return	6.00 percent, net of OPEB plan investment expense
Healthcare cost trend rate	7.50 percent for 2024 decreasing to 5.40 percent for 2029, 5.25 percent for 2030-2034, 4.60 percent for 2035-2049, 4.50 percent for 2050-2064, 4.25 percent for 2065-2074, and 4.00 percent for 2070 and later years; Medicare ages: 4.50 percent for all years.
Preretirement Mortality	Preretirement Mortality Rates from CalPERS Experience Study (2000-2019).
Postretirement Mortality	Post-retirement Mortality Rates for Healthy Recipients from CalPERS Experience Study (2000-2019).

Actuarial assumptions used in the July 1, 2024 valuation were based on a review of plan experience during the period July 1, 2022 to June 30, 2024.

The long-term expected rate of return on OPEB plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of investment expense and inflation) are developed for each major asset class. The calculated investment rate of return was set equal to the expected ten-year compound (geometric) real return plus inflation (rounded to the nearest 25 basis points, where appropriate). The table below provides the long-term expected real rates of return by asset class (based on published capital market assumptions).

Asset Class	Assumed Asset Allocation	Real Rate of Return
Broad U.S. Equity	50%	4.4%
U.S. Fixed	50%	1.8%

Discount rate:

GASB 75 requires a discount rate that reflects the following:

a) The long-term expected rate of return on OPEB plan investments – to the extent that the OPEB plan's fiduciary net position (if any) is projected to be enough to make projected benefit payments and assets are expected to be invested using a strategy to achieve that return.

b) A yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher – to the extent that the conditions in (a) are not met.

(8) Retiree Medical Plan – Other-Post-Employment Benefits (OPEB) (Continued)

To determine a resulting single (blended) rate, the amount of the plan's projected fiduciary net position (if any) and the amount of projected benefit payments is compared in each period of projected benefit payments. The discount rate used to measure the District's total OPEB liability/(asset) is based on these requirements and the following information:

Reporting Date	Measurement Date	Long-Term Expected Return of Plan Investments	Fidelity GO AA 20-Year Municipal Index	Discount Rate
June 30, 2023	June 30, 2023	6.00%	3.86%	6.00%
June 30, 2024	June 30, 2024	6.00%	3.97%	6.00%

Schedule of Changes in Net OPEB Liability/(Asset) (June 30, 2023 to June 30, 2024):

	Increase (Decrease)		
	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability/(Asset)
Balances at June 30, 2023	$ 2,371,670	$ 2,574,618	$ (202,948)
Changes for the year:			
Service Cost	14,595	-	14,595
Interest	140,661	-	140,661
Differences between expected and actual experience	(389,508)	-	(389,508)
Change in assumptions	12,493	-	12,493
Net investment income	-	302,856	(302,856)
Contributions			
Employer - cash subsidy	-	85,085	(85,085)
Benefit payments, including implicit subsidy	(85,085)	(85,085)	-
Administrative expense	-	(15,504)	15,504
Net changes	(306,844)	287,352	(594,196)
Balances at June 30, 2024	**$ 2,064,826**	**$ 2,861,970**	**$ (797,144)**

Sensitivity of the net OPEB liability/(asset) to changes in the discount rate:

The following presents the net OPEB liability/(asset), as well as what the net OPEB liability/(asset) would be if it were calculated using a discount rate that is 1-percentage point lower or 1-percentage-point higher than the current discount rate:

	1% Decrease (5.00%)	Discount Rate (6.00%)	1% Increase (7.00%)
Net OPEB liability (asset)	$(550,572)	$(797,144)	$(1,003,837)

(8) Retiree Medical Plan – Other-Post-Employment Benefits (OPEB) (Continued)

Sensitivity of the net OPEB liability/(asset) to changes in the healthcare cost trend rates:

The following presents the net OPEB liability/(asset), as well as what the net OPEB liability/(asset) would be if it were calculated using healthcare cost trend rates that are 1-percentage-point lower or 1-percentage-point higher than the current healthcare cost trend rates:

	1% Decrease[1]	Trend Rate	1% Increase[2]
Net OPEB liability (asset)	$(996,853)	$(797,144)	$(555,657)

1 Trend rate for each future year reduced by 1%
2 Trend rate for each future year increased by 1%

Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB

For the year ended June 30, 2024, the District made a total contribution of $75,982, which represents actual health care costs for its retirees and their covered dependents. Total contribution inclusive of implicit subsidy amounted to $85,085.

At June 30, 2024, the District's deferred outflows of resources and deferred inflows of resources related to OPEB from the following sources are:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Net difference between projected and actual earnings on plan investments	$ 3,372	$ -
Differences between expected and actual experience	-	(227,213)
Changes in assumptions	7,288	-
Total	$ 10,660	$ (227,213)

Amounts reported as deferred outflows and deferred inflows of resources will be recognized in OPEB expense as follows:

Fiscal Year ending June 30:	Deferred Outflows of Resources
2025	$ (157,800)
2026	8,029
2027	(37,013)
2028	(29,769)
	$ (216,553)

(8) Retiree Medical Plan – Other-Post-Employment Benefits (OPEB) (Continued)

Investments

For the year ended June 30, 2024 the annual money-weighted rate of return on investments, net of investment expense, was 11.82%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts invested.

The District's policy regarding the allocation of the plan's invested assets is established and may be amended by the District's management and Board of Directors. The current investment selection is the Moderate Strategic Blend. The dual goals of the Moderate strategy are growth of principal and income. It is expected that dividend and interest income will comprise a significant portion of total return, although growth through capital appreciation is equally important. The portfolio will be allocated between equity and fixed income investments.

Asset Class	Strategic Asset Allocation Ranges
Equity	40-60%
Fixed income	40-60%
Cash	0-20%

(9) Commitments and Contingencies

The District is involved in various litigation from time to time arising from the normal course of business. In the opinion of management and legal counsel, the District is not involved in any litigation that is expected to have a material adverse effect on the overall financial position of the District at June 30, 2024.

(10) Non-operating Expenses

The District's Board of Directors approved a credit to our Member Agencies to absolve the Tier 2 funds the District was holding, and they also approved a revision to the Reserve Policy which led to a credit to our Member Agencies. Both credits were processed over two fiscal years and the sum of $1,456,950 is reflected in fiscal year 2023-24 as an expense and cash payment.



REQUIRED SUPPLEMENTARY INFORMATION

(Unaudited)

Municipal Water District of Orange County
Required Supplementary Information (Unaudited)
For the Year Ended June 30, 2024

Schedule of Changes in Net OPEB Liability and Related Ratios For the Measurement Periods Ended June 30

Measurement Period	2024	2023	2022	2021	2020	2019	2018
Total OPEB Liability							
Service cost	$ 14,595	$ 17,857	$ 15,920	$ 32,103	$ 30,118	$ 34,408	$ 33,406
Interest on the total OPEB liability	140,661	136,751	159,271	155,170	148,417	140,392	134,254
Actual and expected experience difference	(389,508)	-	(609,684)	-	(86,201)	-	-
Changes in assumptions	12,493	-	155,101	-	102,437	-	-
Changes in benefit terms	-	-	-	-	-	-	-
Benefit Payments	(85,085)	(87,253)	(108,197)	(97,452)	(71,334)	(71,021)	(59,870)
Net change in total OPEB liability	(306,844)	67,355	(387,589)	89,821	123,437	103,779	107,790
Total OPEB liability - beginning	2,371,670	2,304,315	2,691,904	2,602,083	2,478,646	2,374,867	2,267,077
Total OPEB liability - ending (a)	2,064,826	2,371,670	2,304,315	2,691,904	2,602,083	2,478,646	2,374,867
Plan Fiduciary Net Position							
Contribution - employer	85,085	87,253	108,197	97,452	71,334	71,021	59,870
Net investment income	302,856	180,315	(356,249)	509,846	85,732	140,186	128,809
Benefit payments	(85,085)	(87,253)	(108,197)	(97,452)	(71,334)	(71,021)	(59,870)
Administrative expense	(15,504)	(14,296)	(16,252)	(14,829)	(11,886)	(5,669)	(11,456)
Net change in plan fiduciary net position	287,352	166,019	(372,501)	495,017	73,846	134,517	117,353
Plan fiduciary net position - beginning	2,574,618	2,408,599	2,781,100	2,286,083	2,212,237	2,077,720	1,960,367
Plan fiduciary net position - ending (b)	2,861,970	2,574,618	2,408,599	2,781,100	2,286,083	2,212,237	2,077,720
Net OPEB liability/(asset) - ending (a)-(b)	$ (797,144)	$ (202,948)	$ (104,284)	$ (89,196)	$ 316,000	$ 266,409	$ 297,147
Plan fiduciary net position as a percentage of the total OPEB liability	138.61%	108.56%	104.53%	103.31%	87.86%	89.25%	87.49%
Covered-employee payroll	$ 1,466,095	$ 1,379,093	$ 1,351,622	$ 1,889,365	$ 1,975,686	$ 1,956,477	$ 1,933,612
Net OPEB liability as a percentage of covered-employee payroll	-54.37%	-14.72%	-7.72%	-4.72%	15.99%	13.62%	15.37%

Historical information is required only for measurement periods for which GASB 75 is applicable. Future years' information will be displayed up to 10 years as information becomes available.

Municipal Water District of Orange County
Required Supplementary Information (Unaudited)
For the Year Ended June 30, 2024

Schedule of OPEB Contributions
Last Ten Fiscal Years*

Fiscal Year Ended June 30	2024	2023	2022	2021	2020	2019	2018
Actuarially Determined Contribution (ADC)	$ 13,516	$ 13,122	$ 51,962	$ 50,448	$ 46,537	$ 49,847	$ 48,878
Contributions in relation to the ADC	(85,085)	(87,253)	(108,197)	(97,452)	(71,334)	(71,021)	(59,870)
Contribution deficiency (excess)	$ (71,569)	$ (74,131)	$ (56,235)	$ (47,004)	$ (24,797)	$ (21,174)	$ (10,992)
Covered-employee payroll	$ 1,466,095	$ 1,379,093	$ 1,351,622	$ 1,889,365	$ 1,975,686	$ 1,956,477	$ 1,933,612
Contributions as a percentage of covered-employee payroll	5.80%	6.33%	8.00%	5.16%	3.61%	3.63%	3.10%

* Fiscal year 2018 was the first year of implementation, therefore only seven years are shown

Notes to Schedule:

The District's Net OPEB Liability was measured as of June 30, 2024, and the Total OPEB Liability used to calculate the Net OPEB Liability was determined by an actuarial valuation as of June 30, 2024. Standard actuarial update procedures were used to project/discount from valuation to measurement dates.

The Total OPEB Liability was determined using the following actuarial assumptions, applied to all periods included in the measurement, unless otherwise specified:

Actuarial Cost Method	Entry Age, Level Percent of Pay
Valuation of fiduciary net position	Fair Value of Assets
Recognition of deferred inflows and outflows of resources	Closed period equal to the average of the expected remaining service lives of all employees provided with OPEB
Salary increases	3.00%
Inflation Rate	2.50%
Investment Rate of Return	6.00%, net of OPEB plan investment expense
Pre-Retirement Mortality	CalPERS Experience Study (2000-2019)
Post-Retirement Mortality	CalPERS Experience Study (2000-2019)

Healthcare Cost Trend:

Year	Pre-Medicare	Medicare
2024	7.50%	4.50%
2029	5.40%	4.50%
2030-2034	5.25%	4.50%
2035-2049	4.60%	4.50%
2050-2064	4.50%	4.50%
2065-2074	4.25%	4.50%
2074+	4.00%	4.50%

Actuarial assumptions used in the June 30, 2024, valuation were based on a review of plan experience during the period July 1, 2022 to June 30, 2024.

Municipal Water District of Orange County
Required Supplementary Information (Unaudited)
For the Year Ended June 30, 2024

Cost Sharing Retirement Plan
Schedule of the District's Proportional Share of the Net Pension Liability
Last Ten Years

	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
Proportion of the net pension liability	0.08261%	0.07721%	0.05782%	0.06744%	0.06283%	0.05877%	0.05774%	0.05387%	0.05019%	0.02186%
Proportionate share of the net pension liability	$4,131,092	$3,612,624	$1,097,925	$2,844,833	$2,516,221	$2,214,703	$2,276,032	$1,871,472	$1,376,955	$1,360,017
Covered Payroll	$4,422,761	$4,448,997	$4,204,889	$3,792,545	$3,482,913	$3,295,260	$3,022,872	$2,748,796	$2,640,576	$2,601,571
Proportionate share of the net pension liability as a percentage of covered payroll	93.41%	81.20%	26.11%	75.01%	72.24%	67.21%	75.29%	68.08%	52.15%	52.28%
Plan fiduciary net position as a percentage of the total pension liability	77.97%	78.19%	90.49%	75.10%	75.26%	75.26%	73.31%	75.87%	78.40%	79.82%

Municipal Water District of Orange County
Required Supplementary Information (Unaudited)
For the Year Ended June 30, 2024

Notes to Schedule:

Fiscal Year End:	6/30/2024	6/30/2023	6/30/2022	6/30/2021	6/30/2020	6/30/2019	6/30/2018	6/30/2017	6/30/2016	6/30/2015
Valuation Date:	6/30/2022	6/30/2021	6/30/2020	6/30/2019	6/30/2018	6/30/2017	6/30/2016	6/30/2015	6/30/2014	6/30/2013

Methods and assumptions used to determine liability:

Fiscal Year End:	6/30/2024	6/30/2023	6/30/2022	6/30/2021	6/30/2020	6/30/2019	6/30/2018	6/30/2017	6/30/2016	6/30/2015
Valuation Date:	6/30/2022	6/30/2021	6/30/2020	6/30/2019	6/30/2018	6/30/2017	6/30/2016	6/30/2015	6/30/2014	6/30/2013
Actuarial Cost Method:	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal
Amortization Method:	Level Dollar Amount	Level Dollar Amount	Level Dollar Amount	Level Percent of Payroll	Level Percent of Payroll	Level Percent of Payroll	Level Percent of Payroll	Level Percent of Payroll	Level Percent of Payroll	Level Percent of Payroll
Asset Valuation Method:	Fair Value	Fair Value	Fair Value	Fair Value	Market Value	Market Value	Market Value	Market Value	Market Value	Market Value
Discount Rate:	6.90%	6.80%	7.15%	7.15%	7.15%	7.15%	7.15%	7.65%	7.65%	7.50%
Projected Salary Increase:	Varies, based on Entry Age and Service	Varies, based on Entry Age and Service	Varies, based on Entry Age and Service	Varies, based on Entry Age and Service	Varies, based on Entry Age and Service	Varies, based on Entry Age and Service	Varies, based on Entry Age and Service	Varies, based on Entry Age and Service	Varies, based on Entry Age and Service	Varies, based on Entry Age and Service
Inflation:	2.30%	2.30%	2.50%	2.50%	2.50%	2.75%	2.75%	2.75%	2.75%	2.75%
Payroll Growth:	2.75%	2.75%	2.75%	2.75%	2.75%	3.25%	3.00%	3.00%	3.00%	3.00%
Individual Salary Growth:	The price inflation assumption, plus 0.5% per annum productivity component, and an annual merit increase based on length of service.	The price inflation assumption, plus 0.5% per annum productivity component, and an annual merit increase based on length of service.	A merit scale varying by duration of employment coupled with an assumed annual inflation growth of 3.00% and an annual production growth of 0.25%.	A merit scale varying by duration of employment coupled with an assumed annual inflation growth of 3.00% and an annual production growth of 0.25%.	A merit scale varying by duration of employment coupled with an assumed annual inflation growth of 3.00% and an annual production growth of 0.25%.	A merit scale varying by duration of employment coupled with an assumed annual inflation growth of 3.00% and an annual production growth of 0.25%.	A merit scale varying by duration of employment coupled with an assumed annual inflation growth of 2.75% and an annual production growth of 0.25%.	A merit scale varying by duration of employment coupled with an assumed annual inflation growth of 2.75% and an annual production growth of 0.25%.	A merit scale varying by duration of employment coupled with an assumed annual inflation growth of 2.75% and an annual production growth of 0.25%.	A merit scale varying by duration of employment coupled with an assumed annual inflation growth of 2.75% and an annual production growth of 0.25%.

Municipal Water District of Orange County
Required Supplementary Information (Unaudited)
For the Year Ended June 30, 2024

Cost Sharing Retirement Plan
Schedule of Contributions
Last Ten Years

	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
Actuarially determined contributions	$1,233,081	$ 654,493	$ 622,104	$ 413,399	$ 349,145	$ 302,458	$ 273,125	$ 252,815	$ 220,517	$ 288,065
Contributions in relation to the actuarially determined contribution	(1,233,081)	(654,493)	(622,104)	(413,399)	(349,145)	(302,458)	(273,125)	(252,815)	(220,517)	(288,065)
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ - [1]	$ - [1]
Covered Payroll	$4,937,837	$4,422,761	$4,448,997	$4,204,889	$3,792,545	$3,482,913	$3,295,260	$3,022,872	$2,748,796	$2,640,576
Contributions as a percentage of covered-employee payroll	24.97%	14.80%	13.98%	9.83%	9.21%	8.68%	8.29%	8.36%	8.02%	10.91%

[1] Restated Covered Payroll

Summary of Changes of Benefits or Assumptions

Benefit Changes: The standard actuarial practice at CalPERS is to recognize mandated legislative benefit changes in the first annual valuation following the effective date of the legislation. For pooled rate plans, voluntary benefit changes by plan amendment are generally included in the first valuation with a valuation date on or after the effective date of the amendment.

There were no changes in liability or contribution shown for any plan changes which were already included in the prior year's valuation.

Changes of Actuarial Methods and Assumptions: There were no significant changes to the actuarial methods or assumptions for the June 30, 2023 actuarial evaluation

Municipal Water District of Orange County
REVENUE / CASH RECEIPT REPORT
November 2024

WATER REVENUES

Date	From	Description		Amount
11/01/2024	City of Brea	September 2024 Water deliveries	$	5,488.83
11/01/2024	Trabuco Canyon Water District	September 2024 Water deliveries		34,077.37
11/05/2024	City of Seal Beach	September 2024 Water deliveries		13,160.65
11/06/2024	South Coast Water District	September 2024 Water deliveries		661,734.11
11/07/2024	City of Westminster	September 2024 Water deliveries		8,936.73
11/08/2024	City of Garden Grove	September 2024 Water deliveries		532,268.88
11/08/2024	Irvine Ranch Water District	September 2024 Water deliveries		2,730,746.30
11/08/2024	City of San Clemente	September 2024 Water deliveries		904,939.03
11/12/2024	City of Buena Park	September 2024 Water deliveries		292,383.55
11/12/2024	Laguna Beach County Water District	September 2024 Water deliveries		395,595.67
11/12/2024	Serrano Water District	September 2024 Water deliveries		9,924.59
11/13/2024	El Toro Water District	September 2024 Water deliveries		404,972.64
11/13/2024	City of La Habra	September 2024 Water deliveries		103,208.57
11/13/2024	City of La Palma	September 2024 Water deliveries		765.22
11/13/2024	Santa Margarita Water District (ID9)	September 2024 Water deliveries		826,616.38
11/13/2024	Santa Margarita Water District	September 2024 Water deliveries		3,058,452.74
11/14/2024	East Orange Co Water District	September 2024 Water deliveries		597,570.77
11/14/2024	City of Orange	September 2024 Water deliveries		611,325.89
11/14/2024	Yorba Linda Water District	September 2024 Water deliveries		496,122.29
11/15/2024	Golden State Water Company	September 2024 Water deliveries		957,568.38
11/15/2024	Moulton Niguel Water District	September 2024 Water deliveries		2,965,340.39
11/15/2024	Orange County Water District	September 2024 Water deliveries		110,753.27
11/21/2024	Trabuco Canyon Water District	October 2024 Water deliveries		31,659.79
11/25/2024	City of La Habra	October 2024 Water deliveries		31,965.13
11/25/2024	City of Newport Beach	October 2024 Water deliveries		194,667.32
11/27/2024	City of Seal Beach	October 2024 Water deliveries		13,048.01
11/29/2024	City of Brea	October 2024 Water deliveries		99,657.67
11/29/2024	City of Huntington Beach	October 2024 Water deliveries		334,969.11
		TOTAL WATER REVENUES	**$**	**16,427,919.28**

Municipal Water District of Orange County
REVENUE / CASH RECEIPT REPORT
November 2024

MISCELLANEOUS REVENUES

Date	From	Description		Amount
11/18/2024	Santa Margarita Water District	9/27/2024 OC Water Summit sponsorship	$	1,000.00
11/01/2024	Stripe	11/2/2024 Project WET Workshop		309.28
11/01/2024	Paypal	Scouts BSA Clinic		522.95
11/01/2024	Stripe	OCEMO 2024 Holiday Luncheon		752.85
11/13/2024	Patricia Meszaros	Nov-Dec 2024 Retiree Health insurance		55.98
11/04/2024	Karl Seckel	November 2024 Retiree Health insurance		187.02
11/04/2024	Keith Lyon	November 2024 Retiree Health insurance		187.02
11/25/2024	Stan Sprague	December 2024 Retiree Health insurance		187.02
11/27/2024	Keith Lyon	December 2024 Retiree Health insurance		187.02
11/04/2024	Patrick Dinh	Partial COBRA payment		509.05
11/27/2024	Spectrum Business	Credit for telephone equipment return		81.00
11/25/2024	Best Best and Krieger LLP	Partial reimbursement for the OC Water Summit dinner		49.46
11/26/2024	US Bank Custodial Account	Bank of America Interest payment		531.26
11/29/2024	US Bank	Monthly Interest		85.43
11/15/2024	Irvine Ranch Water District	September 2024 Smartimer rebate program		260.63
11/01/2024	Irvine Ranch Water District	August 2024 Smartimer and Rotating Nozzles rebate program		513.65
11/01/2024	Irvine Ranch Water District	August 2024 Turf Removal and Spray to Drip rebate program		14,731.03
11/08/2024	City of Tustin	September 2024 Turf Removal and Spray to Drip rebate program		208.00
11/12/2024	City of La Habra	September 2024 Turf Removal and Spray to Drip rebate program		312.00
11/13/2024	Golden State Water Company	September 2024 Turf Removal and Spray to Drip rebate program		208.00
11/13/2024	Mesa Water District	September 2024 Turf Removal and Spray to Drip rebate program		208.00
11/15/2024	City of Fountain Valley	September 2024 Turf Removal and Spray to Drip rebate program		728.00
11/15/2024	Irvine Ranch Water District	September 2024 Turf Removal and Spray to Drip rebate program		303,905.54
11/08/2024	City of San Clemente	September 2024 High Efficiency Clothes Washers rebate program		125.00
11/14/2024	Trabuco Canyon Water District	September 2024 High Efficiency Clothes Washers rebate program		145.00
11/08/2024	Bureau of Reclamation	Apr-Sep 2024 OC Sustainable Landscapes Program		222,627.61
11/08/2024	Bureau of Reclamation	Apr-Sep 2024 OC Sustainable Landscapes Program Phase 2		27,239.28
11/22/2024	City of Fullerton	Water Loss Control Technical Assistance CY 2024 - E Source		14,460.00
11/15/2024	City of Anaheim	Water Loss Control Technical Assistance CY 2024 progress billing - E Source		4,475.00
11/12/2024	City of Garden Grove	Addition to the Choice School Program FY 2024-25		5,468.85
11/14/2024	East Orange Co Water District	FY 2024-25 Choice Programs Billing		9,207.29
11/25/2024	El Toro Water District	FY 2024-25 Choice Programs Billing		28,210.14
11/15/2024	City of Fullerton	FY 2024-25 Choice Programs Billing		2,063.39
11/01/2024	Irvine Ranch Water District	FY 2024-25 Choice Programs Billing		247,557.82
11/21/2024	City of Westminster	FY 2024-25 Choice Programs Billing		25,419.93
11/18/2024	LA Department of Water and Power	WEEA Sponsorship FY 2024-25		5,000.00
11/18/2024	Moulton Niguel Water District	WEEA Sponsorship FY 2024-25		2,500.00
11/27/2024	Tomorrow's Talent	WEEA Sponsorship FY 2024-25		2,500.00
11/08/2024	City of Fullerton	AWIA RRA		72,450.00
11/25/2024	El Toro Water District	AWIA RRA and HMP		41,500.00
11/13/2024	Moulton Niguel Water District	AWIA RRA and HMP		81,350.00
11/13/2024	Serrano Water District	AWIA RRA and HMP		41,500.00
11/25/2024	Yorba Linda Water District	AWIA RRA and HMP		70,250.00
11/22/2024	Laguna Beach County Water District	Hazard Mitigation Plan		9,300.00
11/20/2024	Orange County Water District	Hazard Mitigation Plan		11,800.00
11/14/2024	Trabuco Canyon Water District	Hazard Mitigation Plan		9,300.00
11/22/2024	Orange County Sanitation District	Hazard Mitigation Plan		11,800.00
11/13/2024	Costa Mesa Sanitary District	Hazard Mitigation Plan		11,800.00

Municipal Water District of Orange County
REVENUE / CASH RECEIPT REPORT
November 2024

MISCELLANEOUS REVENUES

Date	From	Description		Amount
11/25/2024	El Toro Water District	Invoice #3 LCRR Service Line Inventories Project	$	21,633.50
11/25/2024	City of Fountain Valley	Invoice #3 LCRR Service Line Inventories Project		26,732.50
11/25/2024	City of Orange	Invoice #3 LCRR Service Line Inventories Project		71,161.00
		TOTAL MISCELLANEOUS REVENUES	**$**	**1,403,356.49**
		TOTAL REVENUES	**$**	**17,831,275.77**

Harvey De La Torre, General Manager

Hilary Chumpitazi, Treasurer

Municipal Water District of Orange County
Disbursement Approval Report
For the month of December 2024

Vendor/ Invoice	Description	Amount to Pay
Core Expenditures:		
ACCO Engineered Systems Inc		
20625041	11/01/24 Service in server room	454.00
Total		**454.00**
Ackerman Consulting-Richard C Ackerman		
1428	November 2024 Legal and regulatory specialized consulting services	3,500.00
Total		**3,500.00**
AD AV Productions LLC		
1697	Audio Visual for the 09/27/24 OC Water Summit	40,175.00
Total		**40,175.00**
Aleshire & Wynder LLP		
91286/91287	October 2024 Legal services	345.00
Total		**345.00**
Alta FoodCraft		
12460272	December 2024 Coffee and tea supplies	94.57
Total		**94.57**
ARC Document Solutions LLC		
12652933	11/14/24 Digitization of maps and plans	160.78
12655019	11/18/24 Digitization of historic map	35.89
Total		**196.67**
Best Best and Krieger LLP		
55401-NOV24	November 2024 Legal services	14,918.15
55401-OCT24	October 2024 Legal services	13,304.65
Total		**28,222.80**
CSU Fullerton ASC		
AR174641	10/01/24-12/31/24 Center for Demographic Research Support	16,947.36
Total		**16,947.36**
CSUF University Extended Education		
20240259	Leadership Development for Public Agencies Program from 09/03/24-12/12/24 - Registration for T. Baca & R. Waite	3,500.00
Total		**3,500.00**
Green Thumb (Indoor Plant Care) LLC-Dedo Verde Interior		
20241189	December 2024 Indoor plant service	305.50
Total		**305.50**

Municipal Water District of Orange County
Disbursement Approval Report
For the month of December 2024

Vendor/ Invoice	Description	Amount to Pay
Dopudja & Wells Consulting Inc		
1864	October 2024 Consulting for the Development of Rate & Revenue Model for MET	1,557.50
1872	October 2024 Consulting services on MET Strategic Issues and Priorities	2,662.50
1873	October 2024 Senior Advisory Consulting services for State and Federal Legislative and Policy Matters	710.00
1876	October 2024 Needs Assessment	4,869.77
Total		**9,799.77**
E Source Companies LLC		
12619	October 2024 Retail Agency Technical Assistance services	2,742.50
24146	October 2024 Advanced Metering Infrastructure Technical Assistance Workgroup Meeting #1	5,099.80
Total		**7,842.30**
Economic Group Pension Services Inc		
211474	Pension administrative services for 2024 Plan Year	2,501.00
Total		**2,501.00**
GovConnection Inc		
75915208	(3) Annual licenses for Microsoft Power BI	298.02
Total		**298.02**
Hashtag Pinpoint Corporation		
1927	November 2024 Social Media consultation and services	7,913.00
Total		**7,913.00**
Herndon Solutions Group LLC		
INV-0000009129	October 2024 services to assist with the American Water Infrastructure Act compliance	14,490.00
Total		**14,490.00**
Lawnscape Systems Inc		
450333	November 2024 Landscape Maintenance for Atrium	495.00
Total		**495.00**
Mega Maids Cleaning Service		
13981	11/12/24 Breakroom deep cleaning	225.00
Total		**225.00**
Natural Resource Results LLC		
5152	November 2024 Federal Advocacy Agreement services	8,000.00
Total		**8,000.00**
New Horizons Learning LLC		
454095	Subscription to online training programs	2,840.00
Total		**2,840.00**

Municipal Water District of Orange County
Disbursement Approval Report
For the month of December 2024

Vendor/ Invoice	Description	Amount to Pay
NDS		
842595	11/01 & 11/08/24 Board packet delivery service	269.44
842648	11/15/24 Board packet delivery service	134.72
843001	11/27/24 Board packet delivery service	134.72
Total		**538.88**
ODP Business Solutions LLC		
394083317001	11/06/24 Office supplies	48.92
396192070001	11/13/24 Office supplies	239.32
397083473001	11/20/24 Office supplies	254.92
Total		**543.16**
Office Solutions		
I-02269716	11/14/24 Office supplies	38.60
I-02269977	11/15/24 Supply order	23.77
I-02270034	11/15/24 Supply order	21.17
I-02270757	11/19/24 Office supplies	25.22
Total		**108.76**
Orange County Water District		
26919	October 2024 Postage, shared office & maintenance expense	22,070.79
Total		**22,070.79**
Packet Fusion Inc		
PB16859	Holding ten phone numbers each for MWDOC and WEROC for one year period in anticipation of future use	566.61
PB16869	Annual renewal for video conferencing service through Zoom	1,446.11
Total		**2,012.72**
Predict Success-Anne Sandberg		
112624	Harrison assessments for new hires	500.00
Total		**500.00**
Ricoh USA Inc		
5070384300	08/01/24-10/31/24 Ricoh copier maintenance	1,345.28
5070531260	08/28/24-11/27/24 Ricoh copier maintenance	111.34
Total		**1,456.62**
SMS Datacenter-Groupo SMS USA LLC		
41379	December 2024 IT support services	4,590.00
Total		**4,590.00**
Soto Resources-Joey C Soto		
GA-NOV-95	November 2024 Grant Research and Acquisition	3,250.00
Total		**3,250.00**

Municipal Water District of Orange County
Disbursement Approval Report
For the month of December 2024

Vendor/ Invoice	Description	Amount to Pay
Syrus Devers Advocacy LLC		
1081	November 2024 State Legislative Advocacy services	8,000.00
Total		**8,000.00**
Whittingham Public Affairs Advisors-WPAA		
2725	December 2024 Strategic guidance on local & regional issues	7,500.00
Total		**7,500.00**
Total Core Expenditures		**198,715.92**

Choice Expenditures:

Bryton Printing Inc		
18276	Water Use Efficiency Winter 2024 bill inserts for member agencies	4,030.85
Total		**4,030.85**
Building Block Entertainment Inc		
3840-3	November 2024 Choice Elementary School Program K-2	5,910.00
Total		**5,910.00**
Mission RCD		
3463	November 2024 Field inspection and verification for Water Use Efficiency rebate programs	2,624.00
Total		**2,624.00**
Office Solutions		
I-02269717	11/14/24 Supplies for Water Loss Control Shared Services Program	56.93
Total		**56.93**
Orange County Dept of Education		
94UI0632	October 2024 Choice School Program for grades 3-12	33,242.30
Total		**33,242.30**
Orange County Water District		
26919	October 2024 Postage for Water Use Efficiency rebates program	35.56
Total		**35.56**
Westerly Meter Service Co.-Lane M Matsuno		
17712	November 2024 Meter Accuracy Testing for Mesa Water District	1,400.00
17717	November 2024 Meter Accuracy Testing for Fountain Valley	2,200.00
17725	November 2024 Meter Accuracy Testing for Mesa Water District	1,200.00
Total		**4,800.00**
Total Choice Expenditures		**50,699.64**

Municipal Water District of Orange County
Disbursement Approval Report
For the month of December 2024

Vendor/ Invoice	Description	Amount to Pay
Other Funds Expenditures:		
Carey Consulting Solutions-Dana Carey		
136	November 2024 Support on Emergency Management Projects and Training	200.00
Total		**200.00**
E Source Companies LLC		
12619	October 2024 Retail Agency Technical Assistance services	26,630.00
Total		**26,630.00**
Herndon Solutions Group LLC		
INV-0000009127	October 2024 services to assist with the American Water Infrastructure Act compliance	50,000.00
INV-0000009128	October 2024 services to assist with the American Water Infrastructure Act compliance	28,980.00
INV-0000009129	October 2024 services to assist with the American Water Infrastructure Act compliance	14,490.00
INV-0000009130	October 2024 services to assist with the American Water Infrastructure Act compliance	28,980.00
INV-0000009131	October 2024 services to assist with the American Water Infrastructure Act compliance	28,980.00
INV-0000009132	October 2024 services to assist with the American Water Infrastructure Act compliance	28,980.00
INV-0000009133	October 2024 services to assist with the American Water Infrastructure Act compliance	28,980.00
Total		**209,390.00**
Jill Promotions		
12348	Purchase of WEROC logo apparel for trainings and exercises	317.43
Total		**317.43**
Mission RCD		
3463	November 2024 Field inspection and verification for Water Use Efficiency rebate programs	9,927.25
Total		**9,927.25**
County of Orange		
STCS002608	10/01/24-12/31/24 WEROC Radio System operations and maintenance cost	736.26
Total		**736.26**
Packet Fusion Inc		
PB16859	Holding ten phone numbers each for MWDOC and WEROC for one year period in anticipation of future use	566.61
Total		**566.61**
Total Other Funds Expenditures		**247,767.55**
Total Expenditures		**497,183.11**

Municipal Water District of Orange County
Disbursement Ratification Report
For the Month of November 2024

Name/ Date	Check/ EFT	Invoice	Description	Amount
Core Disbursements:				
Tiffany Baca				
11/27/2024	EFT	103024	October 2024 Business expense	88.13
Total				**88.13**
Joseph Berg				
11/27/2024	EFT	100224	October 2024 Business expense	103.44
Total				**103.44**
Hilary Chumpitazi				
11/27/2024	EFT	103024	October 2024 Business expense	133.65
Total				**133.65**
Corodata Records Management Inc				
11/27/2024	EFT	RS7044656	October 2024 Records Storage Fee	104.62
Total				**104.62**
Larry Dick				
11/27/2024	EFT	103024	October 2024 Business expense	24.12
Total				**24.12**
Tina Dubuque				
11/27/2024	EFT	101424	October 2024 Business expense	327.71
Total				**327.71**
Sam Fetter				
11/15/2024	EFT	81624	07/08/24-08/16/24 Education reimbursement	1,835.34
Total				**1,835.34**
Maribeth Goldsby				
11/27/2024	EFT	102224	October 2024 Business expense	193.17
Total				**193.17**
Al Nederhood				
11/27/2024	EFT	103024	October 2024 Business expense	215.74
Total				**215.74**
Megan Schneider				
11/27/2024	EFT	102824	October 2024 Business expense	138.93
Total				**138.93**
Karl Seckel				
11/27/2024	EFT	102324	October 2024 Business expense	43.55
Total				**43.55**
Nathan Shepherd				
11/27/2024	EFT	101724	October 2024 Business expense	44.76
Total				**44.76**
Rachel Waite				
11/27/2024	EFT	101024	October 2024 Business expense	29.08
Total				**29.08**

Municipal Water District of Orange County
Disbursement Ratification Report
For the Month of November 2024

Name/ Date	Check/ EFT	Invoice	Description	Amount
Sarah Wilson				
11/27/2024	EFT	101624	October 2024 Business expense	34.70
Total				**34.70**
Serrano Water District				
11/15/2024	143628	111324	Refund for overpayment of AWIA invoice	32,200.00
Total				**32,200.00**
US Bank				
11/27/2024	143642	2978/4192/8910-OCT24	09/24/24-10/22/24 Cal Card Charges	30,956.37
Total				**30,956.37**
Verizon Wireless				
11/04/2024	143589	9977056423	October 2024 4G Mobile broadband unlimited service	114.03
Total				**114.03**
Total Core Disbursements				**66,587.34**

Choice Disbursements:

US Bank Voyager Fleet Systems				
11/15/2024	EFT	8694349932443	9/25/24-10/24/24 Fuel for Water Loss Control Shared Services Vehicles	569.83
Total				**569.83**
Total Choice Disbursements				**569.83**

Other Funds Disbursements:

AT&T				
11/15/2024	143592	22502897	October 2024 Telephone expense for WEROC N. EOC	320.74
Total				**320.74**
City of Big Bear Lake				
11/27/2024	143630	103024	Prop 1 Project Partner Reimbursement per Report 14	2,818.50
Total				**2,818.50**
Gabriela Landeros				
11/27/2024	143635	103024	October 2024 Business expense	222.53
Total				**222.53**
Mesa Water District				
11/15/2024	EFT	11600	September 2024 Credit for Local Resources program	51,262.45
Total				**51,262.45**
Metropolitan Water District				
11/27/2024	EFT11272024	11625	September 2024 Water deliveries	**15,571,726.39**
Total				**15,571,726.39**
Santiago Aqueduct Commission				
11/27/2024	143636	92024	September 2024 SAC Pipeline Operation Surcharge	2,460.20
Total				**2,460.20**

Municipal Water District of Orange County
Disbursement Ratification Report
For the Month of November 2024

Name/ Date	Check/ EFT	Invoice	Description	Amount
Janine Schunk				
11/27/2024	143637	102624	October 2024 Business expense	121.42
Total				**121.42**
Santa Margarita Water District				
11/27/2024	EFT	92024	September 2024 SCP Operation Surcharge	36,940.95
Total				**36,940.95**
Spray to Drip Rebate				
11/18/2024	143619	S2D7-C-IRWD-54327-23380	Hidden Canyon Community Association	7,025.80
11/18/2024	143609	S2D7-C-MNT-42600-23370	Bear Brand HOA	7,388.00
11/18/2024	143610	S2D7-C-MNT-42600-23371	Bear Brand HOA	878.00
11/18/2024	143623	S2D7-C-SM-42878-23355	Rancho Santa Margarita Landscape and Recreation Corp	45,322.00
11/18/2024	143621	S2D7-R-GSWC-54318-23366	D. Paul	1,922.00
11/18/2024	143625	S2D7-R-IRWD-54351-23400	B. Tekulapalli	1,019.00
11/18/2024	143613	S2D7-R-SM-54289-23340	K. Davis	864.02
11/18/2024	143617	S2D7-R-SM-54650-23561	D. Fisher	324.00
Total				**64,742.82**
Turf Rebate				
11/18/2024	143611	TR17-C-MNT-42600-52844-CNS	Bear Brand HOA	29,952.00
11/18/2024	143612	TR17-C-MNT-42600-52845-CNS	Bear Brand HOA	5,252.00
11/18/2024	143624	TR17-C-SM-42878-52820	Rancho Santa Margarita Landscape and Recreation Corp	136,976.00
11/18/2024	143627	TR17-R-FV-54402-52933	A. White	6,644.00
11/18/2024	143608	TR17-R-GSWC-51863-50349	A. Anderson	555.00
11/18/2024	143622	TR17-R-GSWC-54318-52819	D. Paul	4,869.00
11/18/2024	143616	TR17-R-GSWC-54381-52911	E. Espinoza	2,955.00
11/18/2024	143620	TR17-R-IRWD-51781-52935	K. Kao	4,665.00
11/18/2024	143626	TR17-R-IRWD-54351-52869	B. Tekulapalli	4,900.00
11/18/2024	143615	TR17-R-MNT-54361-52881	M. Dexter	4,124.00
11/18/2024	143614	TR17-R-SM-54289-52778	K. Davis	1,278.00
11/18/2024	143618	TR17-R-SM-54650-53276	D. Fisher	1,021.00
Total				**203,191.00**
US Bank				
11/27/2024	143642	1629-OCT24	09/24/24-10/22/24 Cal Card Charges - WEROC	2,476.52
Total				**2,476.52**
Verizon Wireless				
11/04/2024	143589	9977056423	October 2024 4G Mobile broadband unlimited service	116.03
Total				**116.03**
Total Other Funds Disbursements				**15,936,399.55**
Total Disbursements				**16,003,556.72**

Harvey De La Torre, General Manager

Hilary Chumpitazi, Treasurer

Cal Card Charges
Statement Date: October 22, 2024
Payment Date: November 27, 2024

Date	Description	Amount
General Manager Card:		
9/24/2024	Admin Department breakfast	99.75
9/24/2024	CSMFO Orange County Chapter Meeting in Orange, CA on 10/23/24 - Registration for. H. Chumpitazi	40.00
9/25/2024	Meal for H. De La Torre's meeting	11.50
9/25/2024	Legislative Meet and Greet in Laguna Hills, CA, on 10/03/24 - Registration for H. Baez	100.00
9/26/2024	OC Water Summit Speakers Dinner	3,485.02
9/27/2024	OC Water Summit dinner charge to be reimbursed by guest	49.46
9/27/2024	Lunch for Water Quality and Operations Management Workshop #2 on 10/01/24	1,357.55
10/02/2024	MET Meeting in Los Angeles, CA on 10/07/2024 - Accommodations for J. Thomas	360.28
10/02/2024	CSDA Legislative Committee Meeting in Sacramento, CA on 10/24/24 - Airfare for H. Beaz	486.96
10/07/2024	California Water Professionals Appreciation Week lunch for MWDOC employees on 10/09/24	640.06
10/07/2024	CSDA Virtual Workshop: HR Boot Camp for Special Districts on 10/09/24-10/10/24- Registration for M. Baum-Haley	155.00
10/08/2024	MET Meeting in Los Angeles, CA on 10/07/24 - Accommodations for A. Heide	297.46
10/08/2024	MET meeting in Los Angeles, CA on 10/07/24 - Accomodations for J. Thomas - Credit	(35.00)
10/10/2024	CSDA Virtual Workshop: Financial Management for Special Districts on 10/30/24-10/31/24 - Registration for M. Baum-Haley	155.00
10/11/2024	MET Business Model Retreat in Pomona, CA on 10/10/24 -10/11/24 - Accommodations for H. De La Torre	169.70
10/15/2024	Udemy Education Virtual Courses - Microsoft Excel Beginner to Advanced 2024 - Registration for G. Zavala and H. Escamilla	35.98
10/16/2024	Southern California Water Coalition Annual Dinner in Newport Beach, CA on 11/07/24 - Registration for A. Nederhood	275.00
10/16/2024	ACWA Fall Conference 2024 in Palm Desert, CA from 12/03/24 to 12/05/24 - Registration for T. Baca	899.00
10/18/2024	10/01/24-10/18/24 Meals for H. De La Torre's meetings	711.99
10/18/2024	CA NV AWWA Fall Conference 2024 in Reno, NV from 10/21/24-10/24/24 - Accommodations for R. Davis	295.54
10/18/2024	CCEEB's Fall Planning Conference in Monterey, CA from 11/14/24-11/15/24 - Airfare for R. Crane & M. Yoo Schneider	933.90
Total:		**10,524.15**
Assistant General Manager Card:		
10/16/2024	10/14/24-10/16/24 Meals for Melissa Baum Haley's meetings	158.84
Total:		**158.84**
Administration Card:		
9/14/2024	Shipped Water Loss Control Shared Services equipment for repairs	83.59
9/24/2024	(8) Cisco Business Switches to upgrade network	12,562.80
9/24/2024	Cake for staff members birthday	38.30
9/25/2024	08/25/24-09/24/24 Monthly web hosting and database charges	152.99
9/26/2024	All Staff Meeting lunch	1,213.65
9/26/2024	Supplies for the Water Loss Control Shared Services Program	190.25
9/26/2024	Office supplies	200.89
9/27/2024	Toner for DeskJet plotter	179.76
9/27/2024	Frames for past Directors' photos	543.11

Cal Card Charges
Statement Date: October 22, 2024
Payment Date: November 27, 2024

Date	Description	Amount
Administration Card (continued)		
9/29/2024	(21) inter-switch connector cables for switch upgrade project; (1) power supply for laptop	291.34
9/30/2024	Office supplies return	(38.05)
10/01/2024	Office supplies return	(13.04)
10/01/2024	(2) portable chargers for laptops	304.48
10/02/2024	Toll Road replenishment charge for Water Loss Control Shared Services vehicles	100.00
10/03/2024	Office supplies	18.91
10/04/2024	Office emergency supplies	34.80
10/04/2024	MWDOC Emergency supplies order	45.37
10/04/2024	Service contract package of 3 oil changes for Water Loss Control Shared Services Van	247.20
10/05/2024	Office supplies	399.95
10/07/2024	Flowers for staff member	90.07
10/07/2024	Management Staff meeting lunch	302.68
10/07/2024	MWDOC Entry doors service on 10/03/24	491.29
10/10/2024	HDMI splitter for conference room 101	173.99
10/13/2024	Office supplies return	(18.47)
10/14/2024	WLC Safety Equipment and Supplies	207.82
10/14/2024	Engravement of plates for Directors' frames	488.08
10/15/2024	Lunch for Lunch & Learn	410.50
10/15/2024	FedEX delivery fee	30.95
10/15/2024	Print head for HP DeskJet Plotter	139.09
10/16/2024	Phone cable and super glue for IT	12.55
10/17/2024	October 2024 Wireless Internet Backup	45.00
10/17/2024	Monthly cloud storage fee for immutable storage of Laserfische	36.76
10/19/2024	10/19/24-11/19/24 Monthly fax service charge	10.00
10/20/2024	Portable display to support public meetings	113.74
10/21/2024	October 2024 Telephone for one fax line account - To be reimbursed once equipment is returned	27.68
Total:		**19,118.03**
WEROC Card:		
9/25/2024	Supplies for WEROC mobile command unit for incident response	149.87
9/26/2024	Purchase of Blink Subscription Plus Plan with yearly auto renewal through Amazon on 9/26/2024 - Video security surveillance	100.00
10/01/2024	International Emergency Managers Association Conference 2024 in Colorado Springs, CO from 11/14/24-11/21/24 - Registration for G. Landeros	675.00
10/01/2024	2024 International Emergency Managers Association Conference in Colorado Springs, CO from 11/14/24-11/21/24 - Airfare for G. Landeros	518.53
10/03/2024	Purchase of two Yealink Conference Phones	1,033.12
Total:		**2,476.52**
Public Affairs Card:		
9/23/2024	Meal for D. Micalizzi's team meeting	80.26
9/23/2024	Photo frame centerpieces purchased and returned - Shipping cost	61.36
9/24/2024	Batteries for OC Water Summit on 09/27/24	88.94
9/25/2024	Supplies for OC Water Summit event on 09/27/24	41.32
9/30/2024	October 2024 Open AI monthly subscription, language processing tool	20.00
10/01/2024	Sun tent shelter for community event return	(108.73)

Cal Card Charges
Statement Date: October 22, 2024
Payment Date: November 27, 2024

Date	Description	Amount
Public Affiars Card (continued)		
10/01/2024	Frosted blue green sea glass cups for OC Water Summit on 09/27/24 return	(88.22)
10/01/2024	OC Summit decor - Tealights and sea glass purchase return	(117.41)
10/01/2024	Briefing paper image from Shutterstock	29.00
10/03/2024	October 2024 Monthly Public Storage Unit for Public Affairs	706.00
10/07/2024	Padlet subscription for online surveys and message boards	69.99
10/11/2024	Career Brochure printing for MNWD	10.75
10/11/2024	Branded Careers in Water Brochures	240.67
10/16/2024	Team planning lunch	63.27
10/18/2024	Supplies for Project WET Teacher Workshop held on 11/02/24	58.15
Total:		**1,155.35**

Municipal Water District of Orange County
GM Approved Disbursement Report [1]
For the Month of November 2024

Name/ Date	Check/ EFT	Invoice	Description	Amount
Core Disbursements:				
Corporate Business Interiors Inc				
11/27/2024	143631	61536	Furniture for breakroom	16,683.41
Total				**16,683.41**
Novatech Inc				
11/01/2024	EFT	5970	50% Down-payment on video surveillance system, four cameras and network recording system	2,461.75
Total				**2,461.75**
Total Core Disbursements				**19,145.16**
Total Disbursements				**19,145.16**

Harvey De La Torre, General Manager

Hilary Chumpitazi, Treasurer

[1] For disbursements that did not make the cut-off of previous month's Disbursement Approval report. Disbursements are approved by GM for payment and need A & F Committee ratification.

MWDOC

Street Address:
18700 Ward Street
Fountain Valley, California 92708

Mailing Address:
P.O. Box 20895
Fountain Valley, CA 92728-0895

(714) 963-3058
Fax: (714) 964-9389
www.mwdoc.com

Bob McVicker, P.E., D.WRE
President

Jeffery M. Thomas
Vice President

Randall Crane, Ph.D.
Director

Larry D. Dick
Director

Al Nederhood
Director

Karl W. Seckel, P.E.
Director

Megan Yoo Schneider, P.E.
Director

Harvey F. De La Torre
General Manager

MEMBER AGENCIES

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

Municipal Water District of Orange County
Consolidated Summary of Cash and Investment
October 31, 2024

District investments and cash balances are held in various funds designated for certain purposes as follows:

Fund	Book Value	% of Portfolio
Restricted Reserves		
WEROC Operating Fund	$ 570,061	2.91%
Pension 115 Trust	1,999,765	10.19%
Total Restricted Reserves	$2,569,826	13.10%
Designated Reserves		
Operating Reserves	$3,819,350	19.47%
Election Reserve	1,146,947	5.85%
OPEB Reserve	297,147	1.52%
Total Designated Reserves	$5,263,444	26.84%
General Operations Fund	$13,158,556	67.08%
Water Purchase Payments Fund	418,319	2.13%
Conservation Fund	(1,812,986)	(9.24%)
Trustee Activities - AMP	18,360	0.09%
Total Other Funds	$11,782,249	60.06%
Total	**$19,615,519**	**100.00%**

The funds are invested as follows:

Term of Investment	% of Portfolio	Book Value	Market Value
Cash	1.03%	$ 201,531	$ 201,531
Pension 115 Trust	10.19%	1,999,765	1,999,765
Short-term investment			
• LAIF	50.81%	9,965,786	9,965,786
• OCTP	22.17%	4,348,469	4,348,469
Long-term investment			
• US Government Issues	1.27%	249,968	238,940
• Corporate Bond	6.12%	1,200,000	1,155,147
• Certificates of Deposit	8.41%	1,650,000	1,649,990
Total	**100.00%**	**$19,615,519**	**$19,559,628**

The average number of days to maturity/call as of October 31, 2024, equaled 138 and the average yield to maturity is 4.117%. During the month of October 2024, the District's average daily balance was $29,670,385.68. Funds were invested in US Bank, Pension 115 Trust, Negotiable Certificate of Deposits, Corporate Bonds, US Government Issues, Local Agency Investment Funds (LAIF) and Orange County Treasurer's Pool (OCTP).

The ($55,891) difference between the book value and the market value on October 31, 2024, represents the exchange difference if all investments had been liquidated on that date. Since it is the District's practice to "buy and hold" investments until maturity, the market values are a point of reference, not an indication of actual loss or gain. There are no current plans or cash flow requirements identified in the near future that would require the sale of these securities prior to maturity.

Harvey De La Torre
General Manager

Hilary Chumpitazi
Treasurer

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

Portfolio Management - Portfolio Summary

October 31, 2024

10/31/2024	Par Value	Market Value	Book Value	% of Portfolio	Days to Mat/Call	YTM @ Cost
Negotiable Certificate Of Deposit	1,650,000.00	1,649,990.00	1,650,000.00	9.47	1,301	3.679
Corporate Bond	1,200,000.00	1,155,146.50	1,200,000.00	6.89	196	1.518
US Government Issues	250,000.00	238,940.00	249,967.68	1.44	26	0.860
Local Agency Investment Funds	9,965,785.45	9,965,785.45	9,965,785.45	57.23	1	4.518
Orange County Treasurer's Pool	4,348,469.41	4,348,469.41	4,348,469.41	24.97	1	4.267
Total Investments	**17,414,254.86**	**17,358,331.36**	**17,414,222.54**	**100.00**	**138**	**4.117**
Cash						
Cash	201,531.28	201,531.28	201,531.28		1	0.00
Pension 115 Trust	1,999,764.90	1,999,764.90	1,999,764.90		1	0.00
Total Cash and Investments	**19,615,551.04**	**19,559,627.54**	**19,615,518.72**		**138**	**4.117**

Total Earnings	Month Ending October	Fiscal Year to Date
Current Year	**104,718.38**	**371,407.96**
Average Daily Balance	**29,670,385.68**	
Effective Rate of Return	**4.117%**	

We certify that this report reflects the cash and investments of the Municipal Water District of Orange County and is in conformity with the Government Code requirements and the District Investment Policy and Guidelines in effect at the time of investment. The Investment Program herein shown provides sufficient cash flow liquidity to meet the next six month's estimated expenditure. The source for the market values are from U.S. Bank. Per Resolution 2059 there are no compliance exceptions to report.

Harvey De La Torre, General Manager — Date: 12/05/2024

Hilary Chumpitazi, Treasurer — Date: 12/05/2024

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
Portfolio Management
Long-Term Portfolio Details - Investments
October 31, 2024

Issuer	CUSIP/Ticker	Settlement Date	Par Value	Market Value	Book Value	Coupon Rate	YTM @ Cost	Days To Call/Maturity	Maturity Date
Negotiable Certificate Of Deposit									
American Express Bank	02589ADE9	7/20/2022	200,000.00	196,864.00	200,000.00	3.350	3.350	992	7/20/2027
Discover Bank	2546736R2	7/26/2023	250,000.00	254,882.50	250,000.00	4.500	4.500	1,362	7/24/2028
Leaders Credit Union	52171MAN5	8/30/2024	250,000.00	250,632.50	250,000.00	4.000	4.000	1,764	8/30/2029
Magyar Bank	55977RCD3	7/30/2024	250,000.00	251,575.00	250,000.00	4.100	4.100	1,733	7/30/2029
Sallie Mae Bank	7954507A7	7/14/2021	200,000.00	190,056.00	200,000.00	1.000	1.000	621	7/14/2026
State Bank of India	8562852Q3	8/10/2023	250,000.00	257,995.00	250,000.00	4.550	4.550	1,379	8/10/2028
Toyota Financial SGS Bank	89235MPD7	9/27/2022	250,000.00	247,985.00	250,000.00	3.650	3.650	1,056	9/22/2027
Sub Total			**1,650,000.00**	**1,649,990.00**	**1,650,000.00**	**3.679**	**3.679**	**1,301**	
US Government Issues									
FHLB	3130ALGR9	3/1/2021	250,000.00	238,940.00	249,967.68	0.850	0.860	26	2/26/2026
Sub Total			**250,000.00**	**238,940.00**	**249,967.68**	**0.850**	**0.860**	**26**	
Corporate Bond									
Bank of America Corp	06048WK41	12/7/2020	250,000.00	238,632.50	250,000.00	0.850	0.800	390	11/25/2025
Citigroup Global Markets	17328WFZ6	9/16/2020	250,000.00	240,620.00	250,000.00	1.000	1.000	46	9/16/2025
JP Morgan Chase	48128GV56	8/18/2020	250,000.00	240,192.50	250,000.00	0.800	0.800	291	8/18/2025
Morgan Stanley Fin LLC	61766YKH3	6/29/2022	200,000.00	196,144.00	200,000.00	4.500	4.500	241	6/29/2027
Societe Generale	83369MD25	8/19/2020	250,000.00	239,557.50	250,000.00	1.300	1.088	19	8/19/2025
Sub Total			**1,200,000.00**	**1,155,146.50**	**1,200,000.00**	**1.573**	**1.518**	**196**	
Total Investments			**3,100,000.00**	**3,044,076.50**	**3,099,967.68**	**2.635**	**2.615**	**770**	

Total Earnings	Month Ending October	Fiscal Year To Date
Current Year	6,998.98	26,934.37

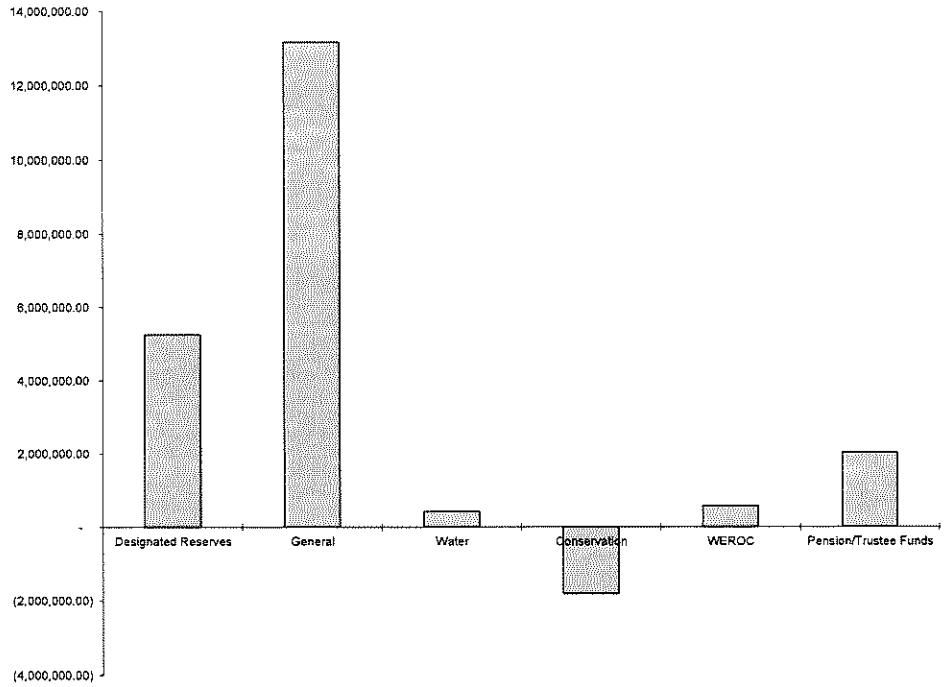
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
Portfolio Management
Short-Term Portfolio Details - Cash and Investments
October 31, 2024

Investments	CUSIP/Ticker	Settlement Date	Par Value	Market Value	Book Value	Coupon Rate	YTM @ Cost	Days To Call/Maturity	Maturity Date
Local Agency Investment Funds									
LAIF LGIP	LAIF	6/30/2010	9,965,785.45	9,965,785.45	9,965,785.45	4.518	4.518	1	N/A
Sub Total			**9,965,785.45**	**9,965,785.45**	**9,965,785.45**	**4.518**	**4.518**	**1**	
Orange County Treasurer's Pool									
County of Orange LGIP	OCIP	6/29/2005	4,348,469.41	4,348,469.41	4,348,469.41	4.267	4.267	1	N/A
Sub Total			**4,348,469.41**	**4,348,469.41**	**4,348,469.41**	**4.267**	**4.267**	**1**	
Total Investments			**14,314,254.86**	**14,314,254.86**	**14,314,254.86**	**4.442**	**4.442**		
Cash									
Petty Cash Cash	CASH	7/1/2010	500.00	500.00	500.00	0.000	0.000	1	N/A
US Bank Cash	CASHUSBANK	7/25/2018	201,031.28	201,031.28	201,031.28	0.000	0.000	1	N/A
Pension 115 Trust	PENSION115TRUST	7/31/2018	1,999,764.90	1,999,764.90	1,999,764.90	0.000	0.000	1	N/A
Total Cash			**2,201,296.18**	**2,201,296.18**	**2,201,296.18**	**0.000**	**0.000**	**1**	
Total Cash and Investments			**16,515,551.04**	**16,515,551.04**	**16,515,551.04**	**4.442**	**4.442**	**1**	

Total Earnings	Month Ending October	Fiscal Year To Date
Current Year	97,719.40	344,473.59

Municipal Water District of Orange County
Cash and Investments at October 31, 2024

ALLOCATION	AMOUNT	%
MWDOC		
Restricted Reserves		
WEROC Operating Fund	$ 570,061	2.91%
Pension 115 Trust	1,999,765	10.19%
Total Restricted Reserves	$ 2,569,826	13.10%
Designated Reserves		
Operating Reserve	$ 3,819,350	19.47%
Election Reserve	1,146,947	5.85%
OPEB Reserve	297,147	1.52%
Total Designated Reserves	$ 5,263,444	26.84%
General Operations Fund	$ 13,158,556	67.08%
Water Purchase Payments Fund	418,319	2.13%
Conservation Fund	(1,812,986)	-9.24%
Total Other Funds	$ 11,763,889	59.97%
TOTAL MWDOC	$ 19,597,159	99.91%
TRUSTEE ACTIVITIES		
AMP Sales Admin	$ 18,360	0.09%
TOTAL TRUSTEE ACTIVITIES	$ 18,360	0.09%
TOTAL CASH & INVESTMENTS	**$ 19,615,519**	**100.00%**



PUBLIC AGENCY RETIREMENT SERVICES

MUNICIPAL WATER DIST OF ORANGE COUNTY
PARS Post-Employment Benefits Trust

Account Report for the Period
10/1/2024 to 10/31/2024

Hilary Chumpitazi
Accounting Manager
Municipal Water Dist of Orange County
18700 Ward Street
Fountain Valley, CA 92708

Account Summary

Source	Balance as of 10/1/2024	Contributions	Earnings	Expenses	Distributions	Transfers	Balance as of 10/31/2024
OPEB	$3,017,413.29	$0.00	-$59,458.63	$1,463.70	$0.00	$0.00	$2,956,490.96
PENSION	$2,108,378.76	$207,000.00	-$45,493.40	$1,022.72	$0.00	$0.00	$2,268,862.64
Totals	$5,125,792.05	$207,000.00	-$104,952.03	$2,486.42	$0.00	$0.00	$5,225,353.60

Investment Selection

Source	
OPEB	Moderate - Strategic Blend
PENSION	Moderate - Strategic Blend

Investment Objective

Source	
OPEB	The dual goals of the Moderate Strategy are growth of principal and income. It is expected that dividend and interest income will comprise a significant portion of total return, although growth through capital appreciation is equally important. The portfolio will be allocated between equity and fixed income investments.
PENSION	The dual goals of the Moderate Strategy are growth of principal and income. It is expected that dividend and interest income will comprise a significant portion of total return, although growth through capital appreciation is equally important. The portfolio will be allocated between equity and fixed income investments.

Investment Return

				Annualized Return			
Source	1-Month	3-Months	1-Year	3-Years	5-Years	10-Years	Plan's Inception Date
OPEB	-1.97%	1.14%	22.16%	2.22%	6.20%	6.00%	10/26/2011
PENSION	-1.96%	1.15%	22.18%	2.25%	6.19%	-	7/31/2018

Information as provided by US Bank, Trustee for PARS; Not FDIC Insured; No Bank Guarantee; May Lose Value

Past performance does not guarantee future results. Performance returns may not reflect the deduction of applicable fees, which could reduce returns. Information is deemed reliable but may be subject to change.
Investment Return: Annualized rate of return is the return on an investment over a period other than one year multiplied or divided to give a comparable one-year return.
Account balances are inclusive of Trust Administration, Trustee and Investment Management fees

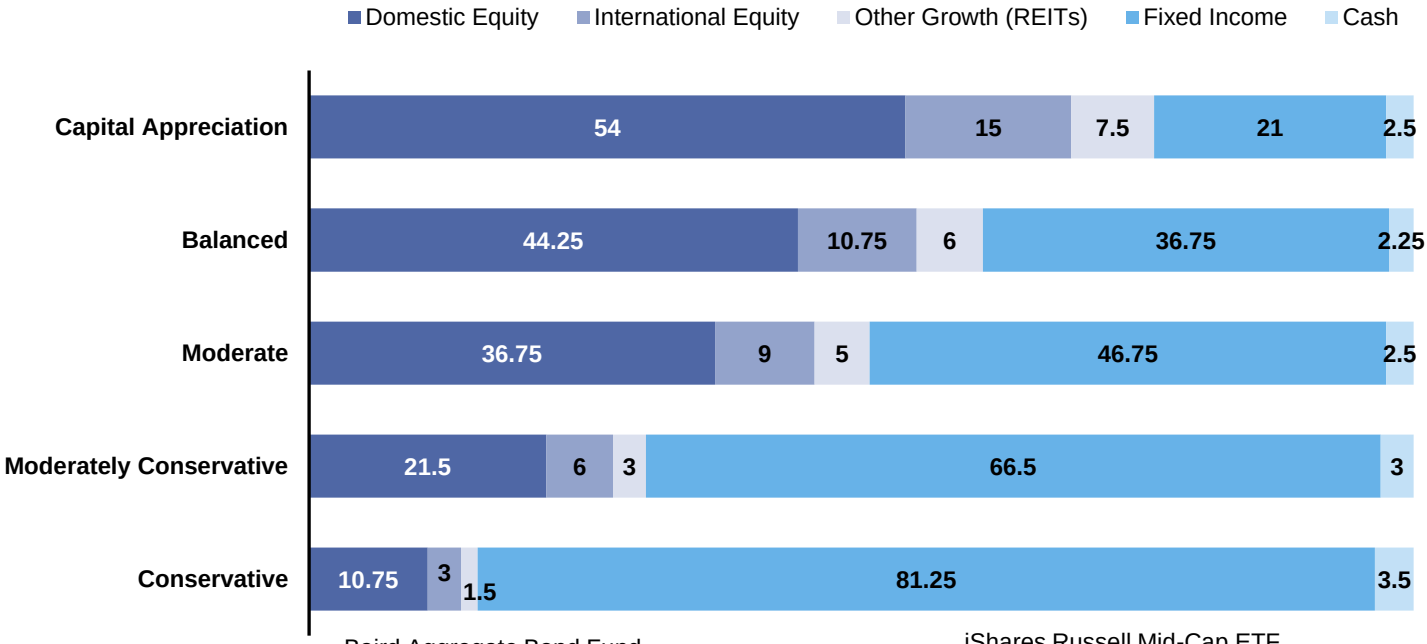
PARS OPEB and Pension Trust Program

pfm asset management

Strategy	Asset Class	Strategic Range	Policy	Tactical	Gross Annualized Total Rate of Return						
					Portfolio	3Q24*	YTD	1-Yr	3-Yr	5-Yr	ITD
Conservative	Equity	5-20%	15%	15%	Strategic Blend	5.27	7.12	15.12	0.95	2.89	3.47
	Fixed Income	60-95%	80%	81%	Benchmark	4.77	6.46	13.12	1.20	2.83	3.27
	Cash	0-20%	5%	4%	Index	5.57	6.59	14.31	0.65	2.50	3.40
					Benchmark	4.77	6.46	13.12	1.20	2.83	3.45
Moderately Conservative	Equity	20-40%	30%	30%	Strategic Blend	5.43	8.86	17.99	2.28	4.67	4.67
	Fixed Income	50-80%	65%	67%	Benchmark	5.36	8.46	16.61	2.32	4.56	4.73
	Cash	0-20%	5%	3%	Index	5.98	8.61	17.27	1.95	4.26	4.39
					Benchmark	5.36	8.46	16.61	2.32	4.56	4.70
Moderate	Equity	40-60%	50%	50%	Strategic Blend	5.58	11.13	21.55	3.73	6.83	7.28
	Fixed Income	40-60%	45%	47%	Benchmark	5.90	11.20	20.89	4.16	7.04	7.56
	Cash	0-20%	5%	3%	Index	6.42	11.19	21.23	3.77	6.61	6.51
					Benchmark	5.90	11.20	20.89	4.16	7.04	6.95
Balanced	Equity	50-70%	60%	60%	Strategic Blend	5.59	12.43	23.49	4.57	7.98	7.98
	Fixed Income	30-50%	35%	37%	Benchmark	6.19	12.58	23.12	5.01	8.23	8.32
	Cash	0-20%	5%	3%	Index	6.77	12.74	23.71	4.70	7.80	7.59
					Benchmark	6.19	12.58	23.12	5.01	8.23	7.94
Capital Appreciation	Equity	65-85%	75%	75%	Strategic Blend	5.78	14.31	26.15	5.74	9.54	7.94
	Fixed Income	10-30%	20%	21%	Benchmark	6.57	14.62	26.33	6.28	9.95	8.96
	Cash	0-20%	5%	4%	Index	6.82	14.18	26.00	6.25	9.32	9.02
					Benchmark	6.57	14.62	26.33	6.28	9.95	9.75

**Returns for periods under one year are not annualized. Returns are gross of investment management fees and net of fund embedded fees. Please see important disclosures on the following page, and your U.S. Bank fee schedule for investment management fees applied to your specific portfolio, as net of fee performance will differ.*

Strategy	Portfolio	Gross Calendar Year Returns							
		2023	2022	2021	2020	2019	2018	2017	2016
Conservative	Strategic Blend	8.99	-12.51	2.12	8.91	10.47	-1.52	7.06	N/A
	Index	7.77	-12.06	1.97	8.27	10.34	0.44	N/A	N/A
	Blended Benchmark	7.82	-10.59	2.24	7.81	10.12	-0.60	5.25	3.92
Moderately Conservative	Strategic Blend	11.32	-13.32	5.27	10.64	13.64	-2.83	9.44	4.81
	Index	9.84	-12.92	5.19	9.84	13.44	-2.58	7.96	5.25
	Blended Benchmark	10.29	-12.35	5.50	9.89	13.55	-1.87	8.13	5.45
Moderate	Strategic Blend	14.07	-14.61	9.29	12.52	17.70	-4.01	13.38	N/A
	Index	12.72	-14.02	10.16	11.32	17.51	-4.04	11.31	N/A
	Blended Benchmark	13.56	-13.74	10.21	12.02	17.66	-3.37	11.66	7.41
Balanced	Strategic Blend	15.14	-14.89	11.36	13.46	18.61	-4.50	15.22	6.58
	Index	14.52	-14.95	12.53	12.12	19.62	-5.00	13.38	7.39
	Blended Benchmark	15.19	-14.58	12.54	13.07	19.78	-4.18	13.54	8.39
Capital Appreciation	Strategic Blend	17.63	-16.09	14.34	14.62	22.10	-7.94	N/A	N/A
	Index	16.57	-14.70	16.05	12.17	20.68	-6.45	15.62	N/A
	Blended Benchmark	17.60	-15.64	15.93	14.37	22.81	-5.53	16.57	9.59



Strategic Blend - Holdings: Portfolios are invested in a strategic mix of actively managed and passive index-based investment vehicles.

Baird Aggregate Bond Fund
Cohen & Steers Institutional Realty Fund
Columbia Contrarian Core Fund
Columbia Small Cap Growth Fund
Dodge Cox Income Fund
Dodge Cox Stock Fund
Emerald Growth Fund
Fidelity International Index Fund
First American Government Obligations Fund
Goldman Sachs GQG International Opportunities Fund
Harbor Capital Appreciation Fund
Hartford Schroders Emerging Markets Equity Fund
iShares Core U.S. Aggregate ETF
iShares Russell Mid-Cap ETF
iShares S&P 500 Growth ETF
iShares S&P 500 Value ETF
Lazard Global Infrastructure Fund
Mainstay CBRE Global Infrastructure Fund
Mainstay MacKay High Yield Corporate Bond Fund
MFS International Growth Fund
PGIM Total Return Bond Fund
Putnam Core Equity Fund
Schwab US Large CAP ETF
Undiscovered Managers Behavioral Fund
Vaughan Nelson Select Fund

Index - Holdings: Portfolios are invested in passive index-based investment vehicles.

First American Government Obligations Fund
iShares 5-10 Year Investment Grade Corporate ETF
iShares Core MSCI EAFE ETF
iShares Core S&P 500 ETF
iShares Core US Aggregate ETF
iShares Global Infrastructure ETF
iShares Russell 2000 Growth ETF
iShares Russell 2000 Value ETF
iShares Russell Mid-Cap ETF
iShares S&P 500 Growth ETF
iShares S&P 500 Value ETF
SPDR High Yield Bond ETF
Vanguard Emerging Markets Stock ETF
Vanguard Real Estate ETF

For illustrative purposes only and subject to change at PFMAM's discretion. Individual portfolio allocations and holdings will vary based on many factors, including each portfolio's specific investment policy and market conditions.

Benchmark Definitions

		Conservative	Moderately Conservative	Moderate	Balanced		Capital Appreciation
10/1/2012 - Current:	S&P 500	7.50%	15.50%	26.50%	32.00%	**Since Inception:**	39.50%
	Russell Mid Cap	1.50%	3.00%	5.00%	6.00%		16.00%
	Russell 2000	2.50%	4.50%	7.50%	9.00%		10.50%
	Wilshire REIT	0.50%	1.00%	1.75%	2.00%		10.25%
	MSCI EM Free (Net USD)	1.00%	2.00%	3.25%	4.00%		7.50%
	MSCI EAFE (Net USD)	2.00%	4.00%	6.00%	7.00%		5.25%
	Bloomberg US Aggregate Bond	52.25%	49.25%	33.50%	27.00%		5.00%
	ICE BofA 1-3 Yr US Corp/Govt	25.75%	14.00%	10.00%	6.75%		3.00%
	ICE BofA US High Yield Master II	2.00%	1.75%	1.50%	1.25%		2.00%
	FTSE 1 Month T-Bill	5.00%	5.00%	5.00%	5.00%		1.00%

About the Adviser: PFM Asset Management (PFMAM)

At PFM Asset Management we partner with public sector, non-profit and other institutions to build tailored, flexible investment solutions using fixed income and Multi-Asset class investments. With more than 40 years of experience managing public sector clients, we offer Liquidity Management, investment grade fixed income, Outsourced Chief Investment Officer (OCIO) and other specialized investment solutions.

Inception Date Information	
Conservative Strategic Blend	*07/01/2016*
Conservative Index	*02/01/2017*
Moderately Conservative Strategic Blend	*07/01/2015*
Moderately Conservative Index	*08/01/2015*
Moderate Strategic Blend	*02/01/2016*
Moderate Index	*09/01/2016*
Balanced Strategic Blend	*10/01/2015*
Balanced Index	*12/01/2015*
Capital Appreciation Strategic Blend	*10/1/2017*
Capital Appreciation Index	*04/01/2016*

Gross returns are time weighted and are calculated based on trade-date accounting. Actual returns for each agency's participation within the portfolio may vary from returns shown based on each agency's own cash flows as well as the specific portfolio in which they are invested. The advisor to the PARS portfolios is U.S. Bank, and PFM Asset Management, a division of U.S. Bancorp Asset Management, Inc., serves as sub-advisor to U.S. Bank to manage these portfolios. Prior to January 1st, 2024, HighMark Capital Management, Inc. ("HighMark") acted as sub-advisor to the PARS portfolios. HighMark, including clients and investment personnel, was consolidated into its affiliate, PFM Asset Management LLC (PFMAM) on January 1st, 2024.

PFM Asset Management serves clients in the public sector and is a division of U.S. Bancorp Asset Management, Inc., which is the legal entity providing investment advisory services. U.S. Bancorp Asset Management, Inc. is a registered investment adviser, a direct subsidiary of U.S. Bank N.A. and an indirect subsidiary of U.S. Bancorp. U.S. Bank N.A. is not responsible for and does not guarantee the products, services, or performance of U.S. Bancorp Asset Management, Inc.

U.S. Bank pays PFMAM up to 67% of the annual management fee for assets sub-advised by PFMAM under its sub-advisory agreement with U.S. Bank. Refer to your U.S. Bank fee schedule for investment management fees applied to your specific portfolio. U.S. Bank compensates PFMAM for these services from its own fees.

NOT FDIC INSURED : NO BANK GUARANTEE : MAY LOSE VALUE

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

COMBINED FINANCIAL STATEMENTS

AND

BUDGET COMPARATIVE

JULY 1, 2024 THRU OCTOBER 31, 2024

Municipal Water District of Orange County
Combined Balance Sheet
As of October 31, 2024

	Amount
ASSETS	
Cash in Bank	201,531.28
Investments	19,413,987.44
Accounts Receivable	31,230,360.44
Accounts Receivable - Other	87,278.46
Accrued Interest Receivable	147,577.50
Prepaids/Deposits	502,085.39
Leasehold Improvements	7,010,782.88
Furniture, Fixtures & Equipment	724,085.38
Less: Accumulated Depreciation	(4,119,567.50)
TOTAL ASSETS	**55,198,121.27**
LIABILITIES AND FUND BALANCES	
LIABILITIES	
Accounts Payable	30,347,681.19
Accounts Payable - Other	7.79
Accrued Salaries and Benefits Payable	626,365.21
Other Liabilities	170,978.89
Unearned Revenue	942,074.07
TOTAL LIABILITIES	**32,087,107.15**
FUND BALANCES	
Restricted Fund Balances	
WEROC Reserve	396,676.84
Pension 115 Trust	1,999,764.90
Total Restricted Fund Balances	2,396,441.74
Unrestricted Fund Balances	
Designated Reserves	
General Operations	3,819,350.00
Election Expense	1,146,947.00
OPEB	297,147.00
Total Designated Reserves	5,263,444.00
General Fund	7,726,155.01
General Fund Capital	86,023.20
Total Unrestricted Fund Balances	13,075,622.21
Excess Revenue over Expenditure	
Operating Fund	7,862,014.57
Other Funds	(223,064.40)
TOTAL FUND BALANCES	**23,111,014.12**
TOTAL LIABILITIES AND FUND BALANCES	**55,198,121.27**

Municipal Water District of Orange County
Revenues and Expenditures Budget Comparative Report
General Fund
July 1, 2024 thru October 31, 2024

	Month to Date	Year to Date	Annual Budget	% Used	Encumbrance	Budget Remaining
REVENUES						
Retail Connection Charge	0.00	9,580,818.25	9,580,818.00	100.00%	0.00	(0.25)
Ground Water Customer Charge	0.00	405,463.00	405,463.00	100.00%	0.00	0.00
Water Rate Revenues	**0.00**	**9,986,281.25**	**9,986,281.00**	**100.00%**	**0.00**	**(0.25)**
Interest Revenue	111,292.00	389,246.63	738,960.00	52.67%	0.00	349,713.37
Subtotal	**111,292.00**	**10,375,527.88**	**10,725,241.00**	**96.74%**	**0.00**	**349,713.12**
Choice Programs	20,046.00	1,011,247.00	1,548,573.00	65.30%	0.00	537,326.00
MWD Revenue - Shared Services	34,000.00	34,000.00	0.00	0.00%	0.00	(34,000.00)
Miscellaneous Income	0.00	814.67	3,000.00	27.16%	0.00	2,185.33
Revenue - Other	108.72	163.08	0.00	0.00%	0.00	(163.08)
School Contracts	24,857.37	413,338.14	496,062.00	83.32%	0.00	82,723.86
Transfer-In from Reserve	0.00	0.00	129,169.00	0.00%	0.00	129,169.00
Subtotal	**79,012.09**	**1,459,562.89**	**2,176,804.00**	**67.05%**	**0.00**	**717,241.11**
TOTAL REVENUES	**190,304.09**	**11,835,090.77**	**12,902,045.00**	**91.73%**	**0.00**	**1,066,954.23**

Municipal Water District of Orange County
Revenues and Expenditures Budget Comparative Report
General Fund
July 1, 2024 thru October 31, 2024

	Month to Date	Year to Date	Annual Budget	% Used	Encumbrance	Budget Remaining
EXPENSES						
Salaries & Wages	464,982.44	1,768,654.78	5,422,706.00	32.62%	0.00	3,654,051.22
Salaries & Wages - Grant Recovery	(6,395.62)	(43,452.03)	(65,000.00)	(66.85)%	0.00	(21,547.97)
Director's Compensation	19,973.23	80,875.21	275,041.00	29.40%	0.00	194,165.79
MWD Representation	9,495.47	42,893.33	157,166.00	27.29%	0.00	114,272.67
Employee Benefits	111,900.47	511,880.99	1,578,059.00	32.44%	0.00	1,066,178.01
Employee Benefits - Grant Recovery	(1,048.94)	(7,705.26)	0.00	0.00%	0.00	7,705.26
CalPers Unfunded Liability Contribution	0.00	207,000.00	207,000.00	100.00%	0.00	0.00
Director's Benefits	8,960.07	36,434.27	149,557.00	24.36%	0.00	113,122.73
Health Insurance for Retirees	3,623.41	19,839.64	81,349.00	24.39%	0.00	61,509.36
Training Expense	(9,262.52)	19,841.04	41,200.00	48.16%	52.73	21,306.23
Tuition Reimbursement	0.00	1,835.34	6,000.00	30.59%	0.00	4,164.66
Temporary Help Expense	0.00	0.00	5,000.00	0.00%	0.00	5,000.00
Personnel Expenses	**602,228.01**	**2,638,097.31**	**7,858,078.00**	**33.57%**	**52.73**	**5,219,927.96**
Engineering Expense	4,220.00	29,922.50	293,000.00	10.21%	91,524.25	171,553.25
Legal Expense	13,649.65	71,466.46	260,000.00	27.49%	188,533.54	0.00
Audit Expense	12,000.00	19,500.00	36,500.00	53.42%	12,000.00	5,000.00
Professional Services	163,863.46	386,881.17	1,765,464.00	21.91%	948,540.54	430,042.29
Professional Fees	**193,733.11**	**507,770.13**	**2,354,964.00**	**21.56%**	**1,240,598.33**	**606,595.54**
Conference - Staff	999.00	12,572.00	40,002.00	31.43%	0.00	27,430.00
Conference - Directors	0.00	3,994.54	16,955.00	23.56%	0.00	12,960.46
Travel & Accom. - Staff	2,295.15	11,399.27	89,580.00	12.73%	0.00	78,180.73
Travel & Accom. - Directors	1,734.34	2,761.08	39,925.00	6.92%	0.00	37,163.92
Travel & Conference	**5,028.49**	**30,726.89**	**186,462.00**	**16.48%**	**0.00**	**155,735.11**
Membership/Sponsorship	14,548.00	177,236.97	243,688.00	72.73%	0.00	66,451.03
CDR Support	0.00	16,947.36	67,789.00	25.00%	50,842.07	(0.43)
Dues & Memberships	**14,548.00**	**194,184.33**	**311,477.00**	**62.34%**	**50,842.07**	**66,450.60**
Business Expense	606.57	1,643.78	5,000.00	32.88%	0.00	3,356.22
Office Maintenance	20,547.01	56,927.78	348,680.00	16.33%	119,210.70	172,541.52
Building Repair & Maintenance	5,313.70	17,935.13	30,200.00	59.39%	7.66	12,257.21
Storage Rental & Equipment Lease	104.62	357.32	1,200.00	29.78%	555.04	287.64
Office Supplies	2,223.15	8,790.14	30,000.00	29.30%	2,276.40	18,933.46
Supplies - Water Loss Control	626.60	912.60	4,800.00	19.01%	0.00	3,887.40
Postage/Mail Delivery	386.82	1,960.46	10,100.00	19.41%	982.79	7,156.75
Subscriptions & Books	0.00	5,785.75	10,000.00	57.86%	0.00	4,214.25
Reproduction Expense	21,200.35	42,008.21	109,000.00	38.54%	6,573.86	60,417.93
Maintenance - Computers	1,039.04	3,568.55	17,500.00	20.39%	0.00	13,931.45
Software Purchase	21,507.83	44,793.06	84,540.00	52.98%	20,047.49	19,699.45
Software Support	(8,821.50)	2,678.13	4,648.00	57.62%	0.00	1,969.87
Computers and Equipment	4,923.51	10,155.64	29,250.00	34.72%	0.00	19,094.36
Automotive Expense	593.49	2,348.35	11,900.00	19.73%	0.00	9,551.65
Vehicle Expense	817.03	3,320.70	12,000.00	27.67%	0.00	8,679.30
Toll Road Charges	86.59	326.82	800.00	40.85%	0.00	473.18
Insurance Expense	19,052.47	68,740.15	198,000.00	34.72%	0.00	129,259.85
Utilities - Telephone	2,681.94	14,291.97	45,526.00	31.39%	912.24	30,321.79
Bank Fees	0.00	0.00	2,400.00	0.00%	0.00	2,400.00
Miscellaneous Expense	9,161.26	35,976.00	157,070.00	22.90%	5,798.00	115,296.00
MWDOC's Contrb. to WEROC	25,067.33	100,269.36	300,808.00	33.33%	0.00	200,538.64
Depreciation Expense	6,474.49	25,898.14	0.00	0.00%	0.00	(25,898.14)
Other Expenses	**133,592.30**	**448,688.04**	**1,413,422.00**	**31.74%**	**156,364.18**	**808,369.78**
Election Expense	0.00	0.00	725,642.00	0.00%	0.00	725,642.00
Capital Aquisition	33,856.79	39,470.36	52,000.00	75.90%	0.00	12,529.64
Building Expense	12,459.35	114,139.14	0.00	0.00%	13,118.53	(127,257.67)
TOTAL EXPENSES	**995,446.05**	**3,973,076.20**	**12,902,045.00**	**30.79%**	**1,460,975.84**	**7,467,992.96**
NET INCOME (LOSS)	**(805,141.96)**	**7,862,014.57**	**0.00**	**0.00%**	**(1,460,975.84)**	**(6,401,038.73)**

Municipal Water District of Orange County
Revenues and Expenditures Budget Comparative Report
Water Fund
July 1, 2024 thru October 31, 2024

	Month to Date	Year to Date	Annual Budget	% Used	Budget Remaining
WATER REVENUES					
Water Sales	11,878,833.10	59,665,964.90	187,429,409.00	31.83%	127,763,444.10
Readiness to Serve Charge	1,277,343.00	5,109,369.57	16,263,519.00	31.42%	11,154,149.43
Capacity Charge CCF	313,880.00	1,255,520.00	4,069,230.00	30.85%	2,813,710.00
SCP/SAC Pipeline Surcharge	37,303.84	157,682.79	459,000.00	34.35%	301,317.21
TOTAL WATER REVENUES	**13,507,359.94**	**66,188,537.26**	**208,221,158.00**	**31.79%**	**142,032,620.74**
WATER PURCHASES					
Water Sales	11,878,833.10	59,665,964.90	187,429,409.00	31.83%	127,763,444.10
Readiness to Serve Charge	1,277,343.00	5,109,369.57	16,263,519.00	31.42%	11,154,149.43
Capacity Charge CCF	313,880.00	1,255,520.00	4,069,230.00	30.85%	2,813,710.00
SCP/SAC Pipeline Surcharge	37,303.84	157,682.79	459,000.00	34.35%	301,317.21
TOTAL WATER PURCHASES	**13,507,359.94**	**66,188,537.26**	**208,221,158.00**	**31.79%**	**142,032,620.74**
EXCESS OF REVENUE OVER EXPENDITURE	**0.00**	**0.00**	**0.00**	**0.00%**	**0.00**

Municipal Water District of Orange County
Revenues and Expenditures Budget Comparative Report
Water Use Efficiency
July 1, 2024 thru October 31, 2024

	Year to Date Actual	Annual Budget	% Used
Spray To Drip Conversion(3423)			
Revenues	282,056.06	1,585,000.00	17.80%
Expenses	307,219.19	1,585,000.00	19.16%
Excess of Revenues over Expenditures	(25,163.13)	0.00	
Member Agency Administered Pass-Thru (3425)			
Revenues	(300.00)	25,000.00	(1.20)%
Expenses	(300.00)	25,000.00	(1.20)%
Excess of Revenues over Expenditures	0.00	0.00	
ULFT Rebate Program(3410)			
Revenues	0.00	1,500.00	0.00%
Expenses	0.00	1,500.00	0.00%
Excess of Revenues over Expenditures	0.00	0.00	
HECW Rebate Program(3411)			
Revenues	20,463.23	50,000.00	40.93%
Expenses	17,529.25	50,000.00	35.06%
Excess of Revenues over Expenditures	2,933.98	0.00	
CII Rebate Program(3416)			
Revenues	0.00	1,000.00	0.00%
Expenses	0.00	1,000.00	0.00%
Excess of Revenues over Expenditures	0.00	0.00	
Turf Removal Program(3418)			
Revenues	1,362,854.87	8,143,000.00	16.74%
Expenses	1,444,384.58	8,143,000.00	17.56%
Excess of Revenues over Expenditures	(81,529.71)	0.00	
Comprehensive Landscape (CLWUE)(3427)			
Revenues	104,873.48	382,900.00	27.39%
Expenses	116,394.77	382,900.00	17.04%
Excess of Revenues over Expenditures	(11,521.29)	0.00	
Recycled Water Program(3433)			
Revenues	269.75	40,000.00	0.67%
Expenses	269.75	40,000.00	0.67%
Excess of Revenues over Expenditures	0.00	0.00	
WSIP - Industrial Program(3432)			
Revenues	0.00	22,000.00	0.00%
Expenses	600.00	22,000.00	2.73%
Excess of Revenues over Expenditures	(600.00)	0.00	
Land Design Program(3431)			
Revenues	1,000.00	120,000.00	0.83%
Expenses	1,000.00	120,000.00	0.83%
Excess of Revenues over Expenditures	0.00	0.00	

Municipal Water District of Orange County
Revenues and Expenditures Budget Comparative Report
Water Use Efficiency
July 1, 2024 thru October 31, 2024

	Year to Date Actual	Annual Budget	% Used
Dedicated Irrigation Meters Measurement Project (DIMM)(3439)			
Revenues	0.00	448,000.00	0.00%
Expenses	0.00	448,000.00	0.00%
Excess of Revenues over Expenditures	0.00	0.00	
Total WUE Projects			
Revenues	1,771,217.39	10,818,400.00	103.16%
Expenses	1,887,097.54	10,818,400.00	91.85%
Excess of Revenues over Expenditures	(115,880.15)	0.00	
WEROC			
Revenues	401,077.11	601,616.00	66.67%
Expenses	505,742.31	601,616.00	108.48%
Excess of Revenues over Expenditures	(104,665.20)	0.00	

Item No. 4

ACTION ITEM
December 18, 2024

TO: Board of Directors

FROM: **Administration & Finance Committee**
(Directors Crane, Thomas, Nederhood)

Harvey De La Torre, General Manager

Staff Contact: Cathy Harris, Director of Human Resources & Administration

SUBJECT: **AUTHORIZE CONTINUING REIMBURSEMENT OF COASTAL MUNICIPAL WATER DISTRICT EMPLOYEE RETIREE BENEFIT**

STAFF RECOMMENDATION

It is recommended that the Board of Directors: 1) Authorize payment of Mr. Cook's retiree medical premiums from April through August 2024; and 2) continue to reimburse Mrs. Cook for medical premiums, effective April 2024, on a continuing basis, in accordance with the MWDOC's Retiree Medical Benefits Policy and reimbursement guidelines.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

In November 2000, the MWDOC Board approved to continue providing Coastal Municipal Water District (CMWD) employees/retirees with the same benefits that similarly situated MWDOC employees/retired employees receive, effective January 2001. The Board also approved adding a section to the Administrative Code addressing various issues related to the Coastal/MWDOC Consolidation with one of them being Medical Insurance Benefits for Coastal Employees. This section remained in the Administrative Code until such time when the Administrative Code was revised in 2011.

The language stated the following:

Budgeted: ☒ Yes ☐ No ☐ N/A	Budgeted amount: $6,144	Core: ☒	Choice: ☐
Action item amount:	Movement between funds: ☐ Yes ☐ No		

§13500 Medical Insurance Benefits for Coastal Employees

Coastal has one employee who has already retired. The only other remaining Coastal employee plans her retirement for December 31, 2000. This section 13500 refers to both collectively as "Coastal Employees." As of the date of adoption of this Section 13500, Coastal provides medical insurance benefits to the Coastal Employees through CalPERS. MWDOC provides medical insurance benefits to its employees and retired employees through the Association of California Water Agencies Joint Powers Insurance Authority ("ACWA JPIA").

As of January 17, 2001 (the effective date of the consolidation), MWDOC will be obligated to provide continuing medical insurance benefits to the Coastal Employees.

By adopting this Section 13500, MWDOC acknowledges and accepts the obligation to provide continuing medical insurance benefits to the Coastal Employees. MWDOC has offered, and the Coastal Employees have accepted, a transfer from the CALPERS medical insurance benefits provided by Coastal into the ACWA JPIA medical insurance benefits currently provided by MWDOC. It is the intent of this Section 13500 that the Coastal Employees will perpetually receive the same benefits that similarly situated MWDOC employees/retired MWDOC employees receive. To this end, all Coastal Employee years of service to Coastal will be treated as years of service to MWDOC. Moreover, it shall be the stated policy of the MWDOC Board that the Coastal Employees shall receive continuing medical insurance benefits comparable to the benefits received by the MWDOC employees.

Since 2001, CMWD retiree Hunter Cook continued to seek reimbursement for medical premiums for himself and his spouse.

Recently, the District was notified by Mrs. Cook that Mr. Cook passed away on September 2, 2024. Mrs. Cook is requesting reimbursement of Mr. Cook's medical premiums that were not submitted during his illness from April to August 2024. In addition, Mrs. Cook is requesting confirmation that the District will continue to reimburse her for her medical premiums on a continuing basis, effective April 2024.

Staff consulted with District Counsel on Mrs. Cook's request. District Counsel advised that since the District no longer has a written policy outlining Coastal Retiree Medical Benefits and this item was approved by the Board 24 years ago, that it be presented to the Board, reaffirming the Board's past action.

Be advised that this obligation is included in the Other Post-Employee Benefits (OPEB) Liability Actuarial Assessment.

Therefore, staff is recommending Option 1 for review and approval.

ALIGNMENT WITH BOARD STRATEGIC PRIORITIES

- ☒ *Clarifying MWDOC's mission and role; defining functions and actions.*
- ☐ *Balance support for Metropolitan's regional mission and Orange County values and interests.*
- ☐ *Strengthen communications and coordination of messaging.*
- ☐ *Work with member agencies to develop water supply and demand objectives.*
- ☐ *Solicit input and feedback from member agencies.*
- ☐ *Invest in workforce development and succession planning.*

BOARD OPTIONS

Option #1: It is recommended that the Board of Directors:1) Authorize payment of Mr. Cook's retiree medical premiums from April through August 2024; and 2) continue to reimburse Mrs. Cook for medical premiums, effective April 2024 on a continuing basis, in accordance with the MWDOC Retiree Medical Benefits Policy and reimbursement guidelines.

Fiscal Impact: $3,584

Option #2: Do not authorize payment of Mr. Cook's retiree medical premiums from April through August 2024; and 2) Do not continue to reimburse Mrs. Cook for medical premiums, effective April 2024, on a continuing basis.

Fiscal Impact: Will result in cost savings of $3,584

List of Attachments/Links:
None

Item No. 5

ACTION ITEM
December 18, 2024

TO: Board of Directors

FROM: **Administration & Finance Committee**
(Directors Crane, Thomas, Nederhood)

Harvey De La Torre, General Manager

Staff Contact: Cathy Harris, Director of Human Resources & Administration

SUBJECT: **AWARD OF CONTRACT FOR INVESTMENT MANAGEMENT SERVICES FOR THE DISTRICT'S 401 (a) AND 457 (b) RETIREMENT PLAN ACCOUNTS**

STAFF RECOMMENDATION

It is recommended that the Board of Directors award a contract for investment management services for the District's Retirement Plan Accounts to Hyas Group and authorize the General Manager to execute the contract in the amount of $20,000.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

To enhance our review and monitoring of the District's retirement plans, analyze fund fees and costs, and ensure compliance with regulations; staff is recommending the District utilize robust investment management services. An Investment Advisor takes the critical fiduciary responsibilities off the shoulders of the Plan Fiduciary (the Board) and allows the Board to delegate the specified fiduciary duties to registered investment advisors. In addition, the investment advisor would provide employee education and support so that employees can make informed decisions on the selection of funds and maximize their retirement benefits. The investment advisor would assist with plan administration and recordkeeping.

Budgeted: ☒ Yes ☐ No ☐ N/A	Budgeted amount: $25,000	Core: ☒	Choice: ☐
Action item amount: $20,000	Movement between funds: ☐ Yes ☐ No		

MWDOC currently maintains two plans, a 401(a) with VOYA and a 457(b) with Empower. Each plan is funded by a separate trust. In total, the two trusts currently hold assets with a value of approximately $7,722,977. Based on District Counsel's review and input, each trust agreement states that the Board is responsible for directing the trustees regarding the investment of the assets. This responsibility exposes the Board to fiduciary liability regarding its investment decisions. While the plans are non-Employee Retirement Income Security Act (ERISA) governmental plans, the Board is subject to Cal. Const. Art. XVI, Section 17(c). This provision requires the Board to exercise its investment authority in accordance with the Prudent Investor Rule. The Prudent Investor Rule requires the Board to make these decisions "*with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims*."

In October 2024, staff issued a Request for Qualifications (RFQ) from qualified investment management firms for investment management services regarding the assets of MWDOC's existing retirement plans.

The RFQ was designed to identify professional investment management firm candidates with demonstrated capabilities to manage the investment of the trusts' assets. Only those candidate firms whose service agreements are expressly designed to allow the Board to delegate its fiduciary responsibility regarding the investment of trust assets and that acknowledge the firm's acceptance of that fiduciary duty were considered. The candidate firms apply modern professional investment management methodologies to review and optimize investment menu options, analyze fund fees and costs, review plan structure, ensure compliance with regulations, and provide recommendations for Board consideration.

According to District Counsel, viewing the candidate firms' offerings through the lens of the ERISA Section 3(38) "Investment Manager" paradigm is useful because (1) it's a common performance standard throughout the investment management industry regarding both ERISA and non-ERISA plans and (2) the body of case law and official guidance for ERISA plans regarding investment management of plan assets is so developed that courts and state regulators frequently consider these rules as persuasive authority in assessing liability for fiduciaries of non-ERISA plans. While the Board's engagement of a candidate firm will relieve the Board of responsibility regarding the investment decisions made by the firm, the Board retains the fiduciary responsibility to monitor the firm's performance as it does for all the plans' service providers. In general, the Board may discharge its duty to monitor the investment management firm by considering the results of an updated RFQ on a 3-to-5-year cycle, with the frequency based on any concerns about the quality of the firm's services or the cost-efficiency of its fees.

District Counsel assisted staff with drafting the RFQ and reviewed the submitted Statement of Qualifications (SOQs) to ensure that the firms met the criteria consistent with fiduciary best practices, planning, governance, and oversight.

Request for Qualifications and Evaluation of Statement of Qualifications (SOQ):

MWDOC issued an RFQ for Investment Management Services and received four Statement of Qualifications (SOQ) by the submission date (November 18, 2024). A review committee made up of staff from Human Resources, Finance, Water Use Efficiency, Public Affairs and

Administration Departments evaluated the SOQs. Each member independently reviewed and scored all four SOQs using the following criteria:

- Relevant education, experience and expertise of the respondent and designated team
- Willingness and capacity to enter into an agreement with MWDOC with respect to which it accepts the Board's delegation of the fiduciary responsibilities to act as the Plans' "Investment Manager" within the meaning of ERISA section 3 (38) (as though ERISA applied)
- Fee structure
- Overall clarity and completeness of the SOQ

Based on the final scoring and review, Hyas Group was the unanimous choice for the Committee.

Hyas' proposal stood out based on the following components:

- Responsive to the criteria outlined in the RFQ
- Depth of familiarity with public agencies throughout the state which include water agencies, cities, special districts and Not-for-Profit
- Similar engagements
- Proposal within the budgeted amount

Therefore, staff is recommending the Board award the contract to Hyas Group and authorize the General Manager to execute the contract in the amount of $20,000.

ALIGNMENT WITH BOARD STRATEGIC PRIORITIES

- ☐ *Clarifying MWDOC's mission and role; defining functions and actions.*
- ☐ *Balance support for Metropolitan's regional mission and Orange County values and interests.*
- ☐ *Strengthen communications and coordination of messaging.*
- ☐ *Work with member agencies to develop water supply and demand objectives.*
- ☐ *Solicit input and feedback from member agencies.*
- ☒ *Invest in workforce development and succession planning.*

Additional Comments: This aligns with the Board Strategic Priorities of workforce development and succession in that it provides employees with the resources, information and knowledge to actively engage with the retirement plans and service providers to maximize their retirement benefits and support their financial well-being.

BOARD OPTIONS

Option #1: It is recommended that the Board of Directors award a contract for investment management services for the District's Retirement Plan Accounts to Hyas Group and authorize the General Manager to execute the contract in the amount of $20,000.

Fiscal Impact: $20,000

Option #2: Do not authorize. Not authorizing this effort is inconsistent with the Board Strategic Priorities, investing in our workforce and retaining employees. In addition, the plans would not be reviewed by an independent third-party to ensure performance monitoring, due diligence, and knowledge and resources for employees to support their financial well-being.

Fiscal Impact: $25,000 would be added to the District's general fund.

List of Attachments/Links:
None

Item No. 6

ACTION ITEM
December 18, 2024

TO: Board of Directors

FROM: **Administration & Finance Committee**
(Directors Crane, Thomas, Nederhood)

Harvey De La Torre, General Manager

Staff Contact: Charles Busslinger and Sarina Sriboonlue

SUBJECT: **SELECTION OF CONSULTANT FOR DEVELOPMENT OF ORANGE COUNTY DEMAND FOECASTS IN PREPARATION FOR 2025 URBAN WATER MANAGEMENT PLANS (UWMPs)**

STAFF RECOMMENDATION

It is recommended that the Board of Directors:

a. Authorize the General Manager to enter into a professional services agreement with Hazen and Sawyer (Hazen) to provide professional services for development of Orange County demand forecasts in preparation for the upcoming 2025 Urban Water Management Plans (UWMPs) for an amount not to exceed $318,940; and
b. Authorize the General Manager to cost share with Orange County Water District (OCWD) at a 2/3 MWDOC ($212,414) and 1/3 OCWD ($106,526) split.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

California Water Code Sections 10610-10656, the "Urban Water Management Planning (UWMP) Act" requires every urban water supplier to prepare, adopt, and file an UWMP with the California Department of Water Resources (DWR) every five years. The 2025 UWMPs are due to the State by July 1, 2026.

Budgeted: ☐ Yes ☐ No ☐ N/A	Budgeted amount: $100,000 Additional $112,414 pull from reserves	Core: ☒	Choice: ☐
Action item amount: $318,940 **(MWDOC 2/3 share = $212,414** **OCWD 1/3 share = $106,526)**	Movement between funds: ☐ Yes ☒ No		

A consistent set of Orange County demand forecasts avoids confusion between studies, plans, and analyses; and eliminates duplication of efforts while realizing cost savings. Therefore, MWDOC and OCWD issued a Request for Proposals (RFP) on October 7, 2024, for qualified consultants to assist in the development of Orange County water demand forecasts with a 25-year planning horizon (2025 to 2050) designed to provide regional consistency for Orange County. MWDOC and OCWD similarly collaborated on Orange County demand forecasts for the 2020 UWMPs.

MWDOC and OCWD worked with eight qualified consulting firms to provide an opportunity for these firms to put forward their expertise and approaches through a competitive procurement process. In response to the RFP, proposals were received from four well-qualified consultant teams. A review panel was formed consisting of representatives from MWDOC, OCWD, and retail agencies. Three consultant teams were shortlisted for interviews based on their experience, qualifications, and proposed project approach.

The review panel reached a consensus that Hazen presented a more robust, rigorous, and defensible demand forecasting approach with long-term applicability suitable for Orange County water agencies and recommends the Hazen team for Board consideration of authorization of contract award for this project.

DETAILED REPORT

Project Background

California Water Code Sections 10610-10656, the Urban Water Management Planning (UWMP) Act enacted by California legislature requires every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare, adopt, and file an UWMP with the DWR every five years in the years ending in six and one. The upcoming 2025 UWMP will be due to DWR on July 1, 2026.

UWMPs are comprehensive documents that present an evaluation of a water supplier's reliability over a long-term (20 to 25 year) planning horizon. UWMPs provide an assessment of the present and future water demand and supply sources within a supplier's service area. Developing a long-term water demand forecast is an important prerequisite to preparing a credible UWMP.

Every five years since 2010, leading up to each UWMP preparation, MWDOC in collaboration with member agencies, Orange County Water District (OCWD), and the cities of Anaheim, Fullerton, and Santa Ana (each a Metropolitan Water District member agency) coordinate to develop updated water demand forecasts that are regionally consistent. MWDOC and OCWD take a bottoms-up approach where forecasts are developed for individual member agencies and the sum of member agencies' demands roll up to the wholesale demand. The development of individual member agency demand is part of MWDOC's core services. OCWD has been a co-funding project partner as 16 of its 19 basin producers are also MWDOC member agencies. The remaining three basin producers are the cities of Anaheim, Fullerton, and Santa Ana who are each Metropolitan member

agencies. For consistency in demand projections across MWDOC and OCWD, the demand forecasting effort is inclusive of the three cities as well.

Factors influencing water demand (i.e., water use drivers) are evolving as the impacts of recent regulatory requirements AB 1668 / SB 606, also known as “Making Conservation a California Way of Life” demographic changes (both population and housing), and weather variability trends continue to shape current and likely future demands. With these demand impacts, the 2025 UWMP cycle represents an appropriate time to revisit demand forecasting methodology.

Project Goals and Objectives

The primary goal for this effort is to develop a demand forecasting model and approach that is robust, transparent, and defensible, and that incorporates an updated set of factors that are expected to drive future water use in Orange County as described above.

This project will provide updated water demand forecasts that are regionally consistent for use in each water agency’s 2025 UWMPs, Annual Water Supply and Demand Assessment (AWSDA), as well as for OCWD’s Resilience Plan and MWDOC’s future regional planning efforts. Secondarily, as has been seen with the 2020 UWMPs, individual retail agencies may choose to use the demand projections developed under this project to lay the groundwork for more detailed demand analysis, such as water master planning and capital improvement planning.

This project will produce water demand projections from 2025 to 2050 (25-year horizon), in five-year increments, by agency for the following:

- 26 MWDOC retail member agencies individual demands
- 3 Cities i.e. Anaheim, Fullerton, and Santa Ana individual demands
- MWDOC service area total demand
- OCWD service area total demand
- Orange County total demand

Scope of Work

The Scope of Work comprises five main tasks to be carried out by the consultant as described below. MWDOC will provide project oversight, contract administration, and project coordination. MWDOC and participating agencies will provide data and information requested by the consultant.

> ***Task 1: Project Management*** – Project management includes day-to-day interface and communication between the consultant, MWDOC, and participating agencies over the span of the project. Project administration, including accurate invoicing and timely progress reporting, is another crucial component of project management.
>
> ***Task 2: Data Collection and Information Review*** – Consultant will collect and review data and information for development of the demand model and create a user-friendly data storage platform for MWDOC and participating agencies to easily transfer data and documents.
>
> ***Task 3: Demand Forecast Model Development*** – Consultant will develop a demand forecast model to project water demand by individual agency for a 25-year

planning horizon (2025 to 2050) that accounts for key factors influencing water demand in Orange County.

Consultant will develop a defensible baseline demand as the starting point for the forecasts.

Task 4: UWMP Scenario Development, Demand Forecast Model Application, and Data Analysis – Consultant will apply the model to develop demand projections for individual agencies by source in five-year increments for a 25-year planning horizon (2025 to 2050) to satisfy the 2025 UWMP requirements of projecting demands for normal year, single-dry year, and multiple-dry year hydrological conditions (i.e. five consecutive dry years).

Task 5: Technical Memorandum and Presentation Preparation – Consultant will prepare a concise Technical Memorandum (TM) that documents the project approach, demand forecasting methodology, and demand projection results discussion. Consultant will prepare a PowerPoint presentation that captures the essence of the project approach and findings for MWDOC and participating agencies staff to present to their respective elected officials for information.

Consultant Procurement and Selection

Consultant procurement was a competitive process. MWDOC released the Request for Proposal on October 7, 2024, to solicit proposals from qualified consultants, and proposal submission closed on November 11, 2024. A review panel was formed to review proposals and evaluate consultant teams consisting of representatives from MWDOC, OCWD, and retail agencies (one direct-Metropolitan member agency, one north county, and one south county). The review panel established review criteria to evaluate and score consultants based on, but not limited to the following considerations:

- Proposal content and format is professional and responsive.
- Proposal demonstrates a clear understanding of the required scope of work.
- The work plan is thorough, sound, and demonstrates a clear path to complete the project on time and within budget.
- The overall project approach is well thought out (e.g. promotes efficiency, seamlessly ties into 2025 UWMP efforts, applicable for future studies). The demand forecasting methodology is robust, transparent, and defensible.
- Firm and project team's experience, particularly the qualifications of the designated project manager, subject matter experts, and key staff, demonstrate ability to effectively deliver all aspects of the project.

MWDOC received proposals from four well-qualified consultant teams, including Arcadis, Carollo, Hazen, and Maddaus Water Management with CDM Smith / Western Policy Research. Based on experience, qualifications, and proposed project approach, three of the four teams ranked very closely. All put forward highly competent and committed teams led by respected technical experts with extensive experience in demand forecasting in southern California. All proposed a demand forecasting approach that would provide rigor and robustness. The review panel shortlisted these three teams for interviews. After thorough review of the proposals and information learned from the interviews, the review panel reached a consensus that Hazen presented a more robust, rigorous, and defensible

demand forecasting approach with long-term applicability suitable for Orange County water agencies at this time. The review panel therefore recommends the Hazen team for Board consideration of authorization of contract award for this project.

Project Timeline

This project spans 10 months (January to October 2025) with the following key milestones and will overlap with a proposed Shared Services Program to assist agencies with completion of their 2025 UWMPs.

Activities	Anticipated Dates
1. Recommendation for Award at MWDOC A&F Committee	December 11, 2024
2. MWDOC Board Consideration of Authorization	December 18, 2024
3. Complete Agreement between MWDOC and Consultant	January 10, 2025
4. Draft Demand Projections	July 31, 2025
5. Final Demand Projections	September 30, 2025
6. Technical Memorandum and Project Completion	October 31, 2025

ALIGNMENT WITH BOARD STRATEGIC PRIORITIES

- ☒ *Clarifying MWDOC's mission and role; defining functions and actions.*
- ☒ *Balance support for Metropolitan's regional mission and Orange County values and interests.*
- ☐ *Strengthen communications and coordination of messaging.*
- ☒ *Work with member agencies to develop water supply and demand objectives.*
- ☒ *Solicit input and feedback from member agencies.*
- ☐ *Invest in workforce development and succession planning.*

Additional Comments: None.

BOARD OPTIONS

Option #1: Staff recommends that the Board of Directors:

a. Authorize the General Manager to enter into a professional services agreement with Hazen and Sawyer (Hazen) to provide professional services for development of Orange County demand forecasts in preparation for the upcoming 2025 Urban Water Management Plans (UWMPs) for an amount not to exceed **$318,940**; and
b. Authorize the General Manager to cost share with Orange County Water District (OCWD) at a 2/3 MWDOC (**$212,414**) and 1/3 OCWD ($106,526) split.

Fiscal Impact: This project will be co-funded by MWDOC (two-thirds) and OCWD (one-third). The basis for the cost share is MWDOC and OCWD each share half of the cost of basin producers (19 of 28 agencies as overlapping service areas between MWDOC and OCWD) and MWDOC pays full cost of non-basin producers (9 of 28 agencies) which is 18.5/28 or 66.6%. MWDOC

FY 2024-25 Cost Center 21 budget includes $100,000 for this work. Additionally, funds will be pulled from reserves to cover the remaining $112,414 of the MWDOC cost share including MWDOC's share of the 10% contingency for a total MWDOC share not to exceed amount of $212,414.

Option #2: Do not authorize the General Manager to enter into a professional service agreement with Hazen to assist with development of demand forecasting for OC water agencies and provide direction to staff.

Fiscal Impact: None.

List of Attachments/Links:
Attachment 1: Presentation
Attachment 2: Hazen's Proposal
Attachment 3: MWDOC Standard Agreement for Consultant Services - Redlined.



Selection of Consultant for Development of Orange County Demand Forecasts in Preparation for 2025 Urban Water Management Plans

MWDOC Administration & Finance Committee Meeting

December 11, 2024

1

Purpose of Demand Forecasting

- ***Prerequisite to UWMPs:***
  - California Water Code §10610-10656 (Urban Water Management Planning Act) requires water suppliers to submit a UWMP to DWR every 5 yrs.
  - 20-year demand and supply projections.
  - 2025 UWMPs are due July 1, 2026.
  - MWDOC, OCWD, and OC retail agencies coordinate leading up to each UWMP cycle.
- ***Reliability Planning***
- ***Groundwork for Infrastructure Planning***



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Drivers of Demand Forecasting

- ***Benefits of regionally consistent demand forecasts***
  - Avoid confusion among studies
  - Avoid duplication in efforts
  - Promote cost and resource savings
- ***Water use drivers are evolving***
  - "Making Conservation a Way of Life" regulations
  - Demographic changes (both population and housing)
  - Weather variability trends



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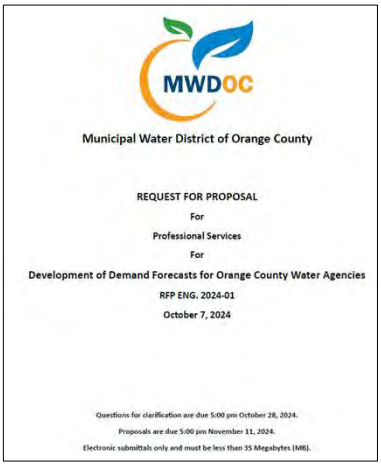
Procurement Process

- Engaged 8 qualified consultants for opportunity
- Received 4 proposals in response to RFP
- Review Panel formed with reps from MWDOC, OCWD, and retail agencies
- Review Panel shortlisted 3 well-qualified firms for interview



Municipal Water District of Orange County

REQUEST FOR PROPOSAL

For

Professional Services

For

Development of Demand Forecasts for Orange County Water Agencies

RFP ENG. 2024-01

October 7, 2024

Questions for clarification are due 5:00 pm October 28, 2024.

Proposals are due 5:00 pm November 11, 2024.

Electronic submittals only and must be less than 35 Megabytes (MB).

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Evaluation Criteria

- Experience, qualifications, and record of performance
- Proposed project approach (sound, efficient, clear path to success)
- Proposed demand forecasting methodology (robust, transparent, defensible)

✓Highly competent & committed teams led by respected PMs & technical experts

✓Extensive demand forecasting experience in SoCal

✓Demand forecasting methodologies provide rigor

✓Consensus that Hazen presented a more robust approach with long-term applicability



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Project Timeline

10-month Project Timeline (January to October 2025)

Activities	Anticipated Dates
Recommendation for Award at MWDOC A&F Committee	December 11, 2024
MWDOC Board Consideration of Authorization	December 18, 2024
Complete Agreement between MWDOC and Consultant	January 10, 2025
Draft Demand Projections	July 31, 2025
Final Demand Projections	September 30, 2025
Technical Memorandum and Project Completion	October 31, 2025

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Staff Recommendation

Staff recommends that the Board of Directors:

a) Authorize the General Manager to enter into a professional services agreement with Hazen and Sawyer to provide professional services for development of Orange County demand forecasts in preparation of the upcoming 2025 Urban Water Management Plans for an amount not to exceed $318,940; and

b) Authorize the General Manager to cost share with Orange County Water District (OCWD) at a 2/3 MWDOC ($212, 414) and 1/3 OCWD ($106,526) split

7

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

8

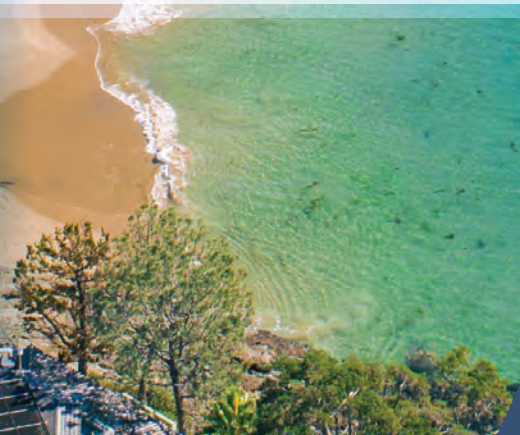
Hazen



Proposal for

Development of Demand Forecasts for Orange County Water Agencies

November 11, 2024



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B Experience and Qualifications

C Record of Performance

D Project Work Plan

E Project Schedule

F Project Fee Schedule

APPENDIX

1 Resumes

2 Proposed Revisions to the MWDOC Standard Professional Services Agreement

A Cover Letter



Hazen and Sawyer
7700 Irvine Center Drive, Suite 200
Irvine, CA 92618 • 949.557.8549

November 11, 2024

Municipal Water District of Orange County
Sarina Sriboonlue
Principal Engineer
18700 Ward Street, P.O. Box 20895
Fountain Valley, CA 92708

Re: Development of Demand Forecasts for Orange County Water Agencies (RFP ENG. 2024-01)

Dear Ms. Sriboonlue:

Hazen understands that the Municipal Water District of Orange County (MWDOC) and its member agencies, as well as the Orange County Water District's (OCWD) basin producers require a demand forecast in order to comply with the 2025 Urban Water Management Plan (UWMP) requirements. The forecast is also crucial for estimating future groundwater replenishment supplies and reassessing regional reliance on the Metropolitan Water District of Southern California (MWD).

We have assembled a team of technical experts who are committed to collaborating with MWDOC, OCWD, and your member agencies and basin producers to develop a range of demand projections that reflect the low regional rebound from drought conditions and limit the industry-wide tendency to overestimate future water demands. We believe that Hazen can provide the following advantages to MWDOC and OCWD:

Unmatched Technical Expertise: The Hazen team has extensive experience in developing water demand forecasts using econometric models tailored for agencies across the country. Our water demand lead, Jack Kiefer, is a nationally recognized authority in water demand and conservation. Recently, he received the Dr. Pankaj Parekh Research Innovation Award from the Water Research Foundation for his contributions to advancing water demand planning and management. Jack has successfully managed numerous demand studies nationwide. Together with technical advisor Luke Wang, Jack has developed similar demand models for organizations such as the San Diego County Water Authority, Santa Clara Valley Water, and East Bay Municipal Utility District.

A Rigorous and Adaptive Approach: We propose an implementation plan that balances technical sophistication with flexibility to accommodate data and other practical constraints. We do not subscribe to "black box" or proprietary models. Instead, Jack Kiefer and our project engineer, Andrea Zimmer, will create transparent and well-documented econometric models that allow you and your stakeholders to conduct scenario analyses, sensitivity testing, and future refinements independently.

Our Project Manager Understands the Collaboration Needed

Hazen's Project Manager, Kirsten Plonka, has collaborated closely with MWDOC on the Water Use Efficiency Standards Economic Analysis and compliance with the Lead and Copper Rule Revisions. Throughout these initiatives, she engaged in weekly or more frequent calls with MWDOC and member agency project managers, clarified expectations, worked with data presented in various formats, and produced deliverables within tight deadlines. These projects equipped Kirsten with the understanding and experience to effectively collaborate with all agencies included in this project.

Hazen

Commitment to Collaborative Partnership: Collaboration is one of the cornerstones of Hazen. It is our culture to work side-by-side with our clients on most every project; we have found this approach results in better ideas, less surprises, and better client preparation for applying project outcomes. Our Project Manager, Kirsten Plonka, maintained constant communication with MWDOC and member agencies during the Lead and Copper Rule Revisions, a successful shared services project. She is dedicated to providing the same level of support to both MWDOC and OCWD.

We begin the following proposal by highlighting our team's experience and qualifications. Our key personnel and support staff have worked together on many demand models and understand the tight timeline for this project's delivery. Our record of performance demonstrates our familiarity with econometric forecasting for large water agencies.

Our work plan describes the Hazen team's planned coordination with member agencies and basin producers through the data acquisition process, which lays the groundwork for our rigorous and flexible econometric forecast. Data analysis will allow us to identify a baseline interval for calibration that allows the demand model to correctly simulate the rebound and/or relative permanence of changes in consumption that stem from periodic acute events such as water supply shortage restrictions, macro-economic conditions, employment and economic changes attributed to the COVID-19 pandemic, and Senate Bills that advocate conservation or housing infill.

We will develop forecasts for four major demand sectors extending to 2050 in five-year increments. The forecasts tailored to individual agencies or supply service areas, including the Orange County Groundwater Basin, will be based on the specific sector composition of each agency.

In each task outlined in our proposal, we highlight the assumptions we've made and the expected involvement needed from both MWDOC and OCWD to keep the project on track regarding budget and schedule. We recognize that individual member agencies or producers may choose to pursue additional forecasts and conservation efforts alongside the baseline demand projections generated in this project, and we have provided clarity on optional tasks and their estimated budgets.

The project and fee schedules are designed to allocate time and resources for producing a technically rigorous demand model while facilitating coordination with member agencies and accommodating potential delays in data collection. Additionally, we have included our resumes to provide a more comprehensive understanding of our team members.

By selecting Hazen, you will partner with a team that is deeply committed to your success. Since our initial engagement with MWDOC in 2018, we have diligently worked to earn the trust of both MWDOC and OCWD by meeting your water resources planning needs and delivering exceptional client service. We are a team you know and trust, and if given the opportunity, we will deliver outstanding results for you once again.

The Hazen team acknowledges receipt of all RFP addenda and confirms our understanding of the terms and conditions outlined in this Request for Proposal. We have attached comments to the terms and conditions in Appendix 2.

Sincerely,

Kirsten Plonka, PE
Project Manager

Cindy Miller, PE
Principal-in-Charge

B

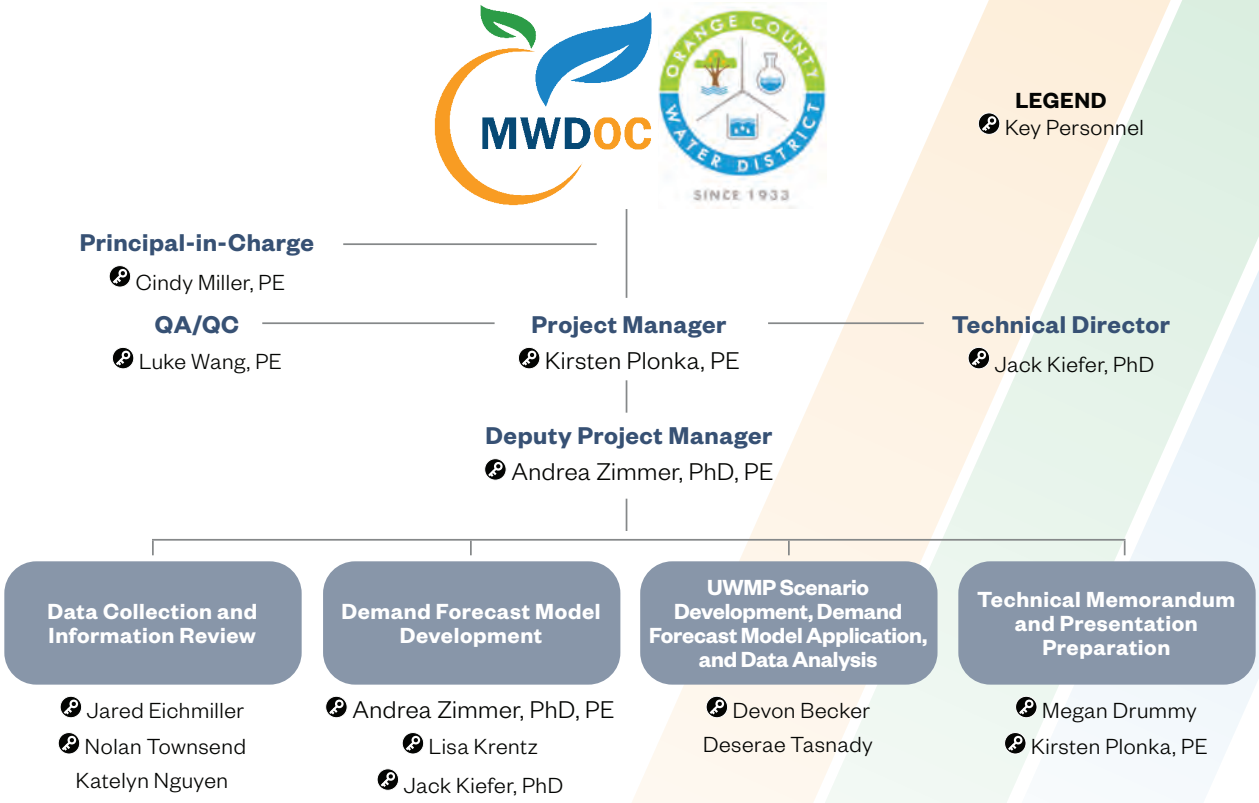
Experience and Qualifications



Section B

Experience and Qualifications

Our Team includes some of the top technical experts in demand modeling who are available and committed to MWDOC and OCWD. Their technical experience will result in a comprehensive and accurate forecast within the required project timeline.





Kirsten Plonka, PE

Project Manager | Technical Memorandum and Presentation Preparation

Kirsten brings over 20 years of experience in the planning, design, and management of water, wastewater, and recycled water systems. She specializes in infrastructure and water resource planning studies, feasibility studies, drought planning, stakeholder outreach, and master planning, including Capital Improvement Plans and budgeting. She is well versed in funding alternatives, regulatory compliance, and public policy development. Kirsten's experience includes demand management projects for multiple agencies throughout California. She also has experience managing public engineering departments, as well as directing wastewater collection systems. Her extensive experience in the public sector allows her to approach projects from an owner's perspective and strategically integrate stakeholder involvement and input.



Andrea Zimmer, PhD, PE

Deputy Project Manager | Demand Forecast Model Development

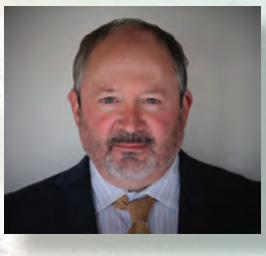
Andrea has spent the last 10 years developing software models that simulate long-term water supply for urban agencies in the southwest U.S. These models quantify various demand futures as well as regulatory and climate changes to large scale imported supplies (such as the California Bay Delta and the Colorado River), local groundwater, surface water, and recycled water. Andrea built and updated the Stockholm Environment Institute WEAP model to identify supply gaps for the 2016, 2018, and 2023 Orange County Reliability Studies. She has recently adapted demands for multiple CMIP3 climate change futures for the City of Santa Fe, New Mexico long-range water resources plan.



Cindy Miller, PE

Principal-in-Charge

Cindy serves as Hazen and Sawyer's Orange County Operations Manager,with over 30 years of experience working for numerous water and wastewater agencies throughout Orange County and the Inland Empire. Her extensive experience includes planning, design and construction oversight of water supply, treatment, storage and conveyance facilities. Her planning experience includes the preparation of master plans, sub-area master plans, urban water management plans, water supply assessments, and water quality management plans. Her design and project management experience includes providing Program Management services for a $150 million groundwater supply project, which includes wells, pipelines, pump stations, and an advanced treatment system for R.O. concentrate reduction; Program Manager for a $30 million TCE groundwater cleanup project; Project Manager for preliminary and final design of a 28 MGD microfiltration treatment facility, and Project Manager for a 10 MGD R.O./Ion Exchange groundwater treatment plant. Ms. Miller has also led numerous water storage and conveyance infrastructure projects, including design of over 100 miles of pipeline (Ductile Iron, CML&C steel, PVC, and HDPE pipeline), design of steel, pre-stressed concrete, and cast-in-place concrete storage reservoirs, up to 10 million gallons, and numerous pump station facilities. She has led feasibility/planning studies, developed treatment process evaluations and life-cycle cost evaluations, participated in value engineering studies and operations evaluations. She has developed detailed designs of many systems and provided construction and startup services. She has experience with different project delivery methods including: design-bid-build, design-build and design-build-operate-finance.

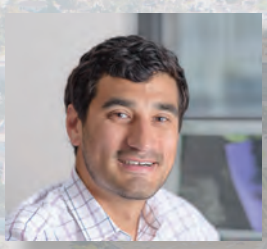


Jack Kiefer, PhD

Technical Director | Demand Forecast Model Development

Jack has over 30 years of experience in water demand analysis and forecasting, integrated water resources planning, risk and uncertainty analysis, applied economics, and econometrics. Jack is a nationally recognized expert in issues related to water demand management and planning, particularly in the areas of water demand modeling, forecasting and conservation program evaluation. He has led numerous analyses of water demand, culminating in long-term water demand forecasts and/or water conservation plans for some of the largest water utilities in the United States, including the Metropolitan Water District of Southern California, San Diego County Water Authority, Tampa Bay Water,

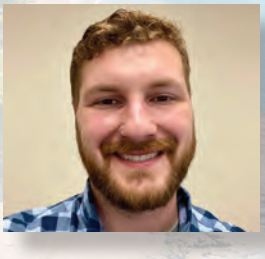
City of Phoenix, East Bay Municipal Utility District, and New York City. Jack has been involved in nine water demand-related studies for the Water Research Foundation (WaterRF), seven for which he served as Principal Investigator (PI). These published studies addressed climate change, the role of the economy, residential and commercial end uses, and information needs and procedures for forecasting water use for the purposes of long-term infrastructure and water resources planning. He was recently awarded WaterRF's 2022 Research Innovation Award for his contributions. Jack currently serves as a senior leader and subject matter expert for Hazen's Water Resources Planning and Economic and Financial Services groups.



Luke Wang, PE

QA/QC

Luke is Hazen and Sawyer's Water Resource Practice Lead for California, and has more than 15 years of experience across a range of projects, including water resources reliability, demand projection, reservoir operations, drought response, climate change adaptation, and infrastructure planning. Luke possesses a deep knowledge of imported water reliability, and has worked with several State Water Project, Central Valley Project, and Colorado River contractors to assess and address long-range water demands and supply vulnerabilities. He works closely with clients to identify needs, establish a path forward, and deliver results.



Jared Eichmiller

Data Collection and Information Review

Jared serves as a lead GIS Analyst in Hazen and Sawyer's Irvine Office. He has over 4 years of experience in helping local governments and organizations achieve their infrastructure and assessment goals through using GIS tools. He is experienced in cartography along with developing web applications, dashboards, and story maps. Mr. Eichmiller was the GIS Lead for the Lead and Copper Rule Revisions project for 13 MWDOC member agencies, utilizing complex data sets to achieve compliance.



Nolan Townsend

Data Collection and Information Review

Nolan has more than 8 years of experience and specializes in the analysis of water resources uncertainty under climate change, and development of dynamic dashboards for water resources and asset management using the Power BI Platform. His project experience at Hazen includes automating workflows for unimpaired flows, analyzing water resources and supply options, working with large hydroclimate datasets and climate-specific data formats, managing/analyzing large datasets, and developing dynamic Power BI dashboards with Power Apps and Power Automate integration. Nolan is proficient in Python (packages include: Pandas, numpy, Matplotlib, Seaborn, and Xarray), ArcGIS Pro, and Microsoft Suite. He also has experience with SQL, Power BI, Power Apps, Power Automate, WEAP, and RiverWare.



Lisa Krentz

Demand Forecast Model Development

Lisa has more than 20 years of experience in water demand planning and management, focusing on geospatial data processes, water conservation and drought planning. She specializes in information system management including the development of integrated geospatial and data visualization tools. With unique experience providing innovative and dynamic, big data digital solutions, she has helped clients solve complex data problems and establish monitoring protocols for maintaining information systems. Lisa has integrated demand forecasting procedures within relational databases, such as MS SQL Server and MS Access, and business intelligence tools, such as Power BI for several demand forecasting projects. Ms. Krentz was a co-author and principal analyst for the most recent update to the San Diego County Water Authority's water demand models and forecasting database. She has also assisted in development of water demand databases and forecasts for Tampa Bay Water, East Bay Municipal Utility District, City of Durham (NC), and New York City.



Devon Becker

UWMP Scenario Development, Demand Forecast Model Application, and Data Analysis

Devon has 8 years of experience in the California water industry and has spent 6 years working as a Water Resources Engineer for the Alameda County Water District. His areas of expertise include water supply planning and modeling, optimization analyses, and regulatory compliance. As part of his previous role at the Alameda County Water District, he managed water deliveries under various water supply and banking contracts, developed water supply budgets, and coordinated water transfer agreements with external partners and regulatory agencies. He is well-versed in the intricacies of the State Water Project, the Semitropic Water Storage District Groundwater Banking Program, and the San Francisco Public Utilities Commission's Regional Water System, and has served as an agency representative on the State Water Project's (SWP) Audit Finance Committee, the Semitropic Monitoring Committee, and the Bay Area Water Supply and Conservation Agency (BAWSCA) Water Management Representatives meetings, including the recent Tier 2 negotiations. He has also participated in a wide range of regional water supply reliability efforts including the Bay Area Regional Reliability (BARR) partnership, the Los Vaqueros Reservoir Joint Powers Authority meetings, the California-Nevada AWWA Water Loss Regulation Subcommittee, the California Urban Water Agencies' (CUWA) water loss workgroup, the California Water Data Consortium's Urban Water Data Reporting workgroup, and the San Francisco Bay Area Integrated Regional Water Management (IRWM) Plan Coordinating Committee.



Megan Drummy

Technical Memorandum and Presentation Preparation

Megan is a Communications Manager in Hazen and Sawyer's San Diego office. She has 12 years of experience developing and implementing public outreach programs and leading community outreach activities for water, wastewater, and water reuse projects. She has worked with agencies and cities of all sizes throughout California and across the U.S. to develop tailored outreach strategies that meet the needs of the community and foster public awareness and support for infrastructure projects. An accomplished communications lead and Project Manager, she is adept at providing strategic counsel and advice to clients, as well as conducting on-the-ground outreach in impacted communities. She has worked extensively on the development of strategic communication plans, written and edited all kinds of informational materials, and planned and managed events, meetings, and open houses. She excels in translating complicated, technical information into accessible content for a variety of audiences. Prior to joining Hazen, she worked at Katz & Associates, a San Diego-based communications firm that focuses primarily on developing outreach programs for government and agency clients.

Percentage of Time Each Team Member will Contribute to the Project

Team Member	Percentage of Time Commitment
Kirsten Plonka, PE *Project Manager | Technical Memorandum and Presentation Preparation*	30%
Andrea Zimmer, PhD, PE *Deputy Project Manager | Demand Forecast Model Development*	30%
Cindy Miller, PE *Principal-in-Charge*	20%
Jack Kiefer, PhD *Technical Director | Demand Forecast Model Development*	15%
Luke Wang, PE *QA/QC*	10%
Jared Eichmiller *Data Collection and Information Reviewi*	30%
Nolan Townsend *Data Collection and Information Review*	10%
Katelyn Nguyen *Data Collection and Information Review*	30%
Lisa Krentz *Demand Forecast Model Development*	20%
Devon Becker *UWMP Scenario Development, Demand Forecast Model Application, and Data Analysis*	15%
Deserae Tasnady *UWMP Scenario Development, Demand Forecast Model Application, and Data Analysis*	30%
Megan Drummy *Technical Memorandum and Presentation Preparation*	15%

C Record of Past Performance

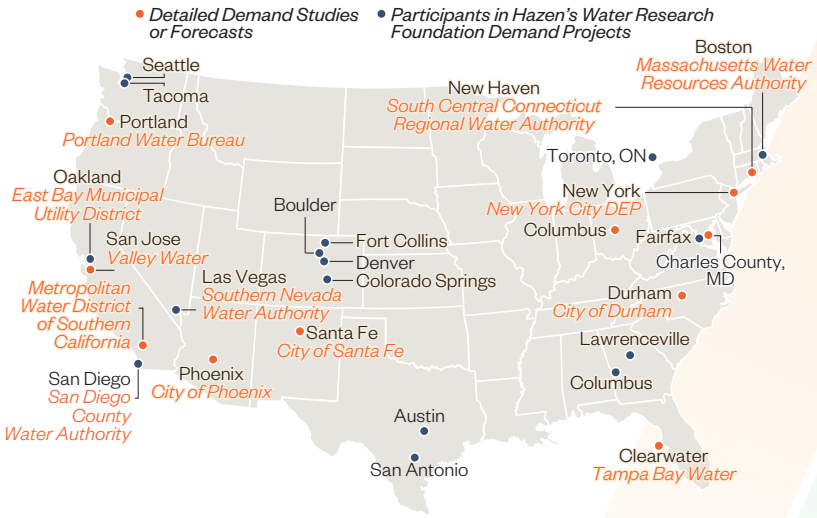


Section C

Record of Past Performance

Hazen's experience in water demand forecasting, combined with our history with MWDOC and your member agencies and OCWD basin producers, make us an ideal consultant for this important project.

Hazen is a leader in state-of-the-art water demand modeling and forecasting techniques, helping water supply agencies evaluate sectoral, spatial and temporal water use, savings potential, and uncertainties surrounding future water demands. Hazen's planning and management strategies provide our clients with information, tools, and resources to understand current and future water use trends and conservation strategies that lead to effective water management and "right sizing" future investments in water supply sources and infrastructure. Our experience in the subject matter – nationally and in California – reflects many water demand forecast elements that are of interest to MWDOC and OCWD, including understanding and representing the effects of drought rebound and COVID-19, the effects of regional demand restrictions and conservation, and the ability to efficiently and transparently conduct scenario analyses.



Since 2017

25+
Water Demand Studies

60M
Total Population Served

100's
Sources of Water Supply

9M AF/Y
In Water Demand

Hazen has significant national experience successfully delivering water demand and conservation forecasts.

In California, our team recently delivered demand forecasts for large water agencies including San Diego County Water Authority (SDCWA), East Bay Municipal Utility District (EBMUD), Santa Clara Valley Water District (Valley Water), and the City of Beverly Hills. In the following pages, we will further elaborate on these specific projects and their key relevancies to MWDOC and OCWD.

Within the past 12 years, Hazen has made significant contributions to the field of water demand forecasting and management. We have led and supported 8 studies with the Water Research Foundation focusing on some of the most important questions water suppliers face related to water demands.

Portfolio of Water Demand Focus Area and Demand-Related Projects , Led and Supported by Hazen
Water Research Foundation

- **Long Term Water Demand Forecasting Practices for Water Resources and Infrastructure Planning (2022).** A principal goal of the project was to develop recommendations that will help improve the role and effectiveness of demand forecasting practices, including strategies for more effective communication for planning and decision making.
- **Water Use in the Multi Family Housing Sector (2018).** This study evaluates and recommends strategies for estimating multifamily water use for the purpose of general utility planning and long term demand forecasting. The report demonstrates how utilities can categorize, estimate, and model water use for prominent multifamily water use categories.
- **Residential End Uses of Water 2016 (2016).** As a subcontractor to *Aquacraft* Inc., this project updated the premier 1999 study of water use in the residential sector. This study estimates and models water used by major water end use or purpose in single family homes and includes an assessment of the potential impact of high efficiency devices on future residential use.
- **Uncertainty in Long Term Water Demand Forecasting (2016).** The study identifies and describes the range of demographic, socioeconomic, climatic, and efficiency uncertainties utilities face in long term water demand forecasting and presents a primer on concepts, techniques, and management strategies.
- **Water Demand Forecasting in Uncertain Times: Isolating the Effects of the Great Recession (2016).** The goal of this project was to use the Great Recession as context to assess the economic channels through which economic factors can affect water demand so that utilities may be better able to anticipate, adapt to, and minimize impacts of future economic cycles on water demand planning.
- **Evaluation of Customer Information and Data Processing Needs for Water Demand Planning and Management (2016).** The objective of this tailored collaboration study was to identify the data collection and information management needs of water utilities as defined by short and long-term analysis requirements of internal water utility managers and planners, external local, regional, State, and Federal agencies, and management consultants.
- **Methodology for Evaluating Water Use in the Commercial, Institutional, and Industrial Sectors (2015).** The objective of this study was to provide water utilities with better and consistent means of understanding the amount of water used by their CII customers by category and by end use or purpose.
- **Analysis of Changes in Water Use under Regional Climate Change Scenarios (2013).** This groundbreaking research project developed procedures by which utilities can explore the impacts of climate change impacted weather on water demand. Included case study utilities across the nation and Canada spanning a range of climate conditions.



Representative Demand Modeling and Forecasting Experience

Project	Client	Type of Agency	Population Served	Purpose of Forecast	Methodology	Project Cost	Staff Role(s)	Client Contact
Integrated Water Resources Master Plan	City of Beverly Hills	Retail	33,000	Long-range water resources planning	• Developed demand forecast to support their Integrated Water Resources Master plan • Scenario analysis around demand projections	$1.4M	Cindy Miller, Principal in Charge Jack Kiefer, QA/QC Luke Wang, Technical Advisor Arthur Moncrieffe, Assistant Engineer	Vince Damasse (310) 285-2491 vdamasse@beverlyhills.org
Demand Model Forecast and Model Development	Santa Clara Valley Water District	Wholesale	2,000,000	Long-range water resources planning	• Data collection from Valley Water Member Agencies • Estimation of pooled time-series cross-sectional econometric models for principal sectors • Processing of ABAG and CA Dept of Finance data in support of projections • Assessment of drought rebound patterns and scenarios • Use of gridded climatic data	$390K	Luke Wang, Project Manager Jack Kiefer, Forecast Lead Lisa Krentz, QAQC John Clayton, QAQC	Jing Wu, PhD, PE Senior Water Resources Specialist Water Supply Planning and Conservation Unit jwu@valleywater.org (408) 630-2330
Demand Study 2050	East Bay Municipal Utility District	Retail	1,400,000	Long-range water resources planning	• Development of econometric sectoral water use models for single-family class, three multifamily classes, and 4 CII classes • Meetings with local land use planning agencies • Processing of Association of Bay Area Governments (ABAG) demographic projections • Derivation of projection scenarios, including climate change • Coordination with Demand Projections Committee • Preparation of long-range forecast by demand modeling region and pressure zones	$1.05M	Jack Kiefer, Project Manager Luke Wang, Deputy Project Manager Lisa Krentz, Information Management John Clayton, Projections Analyst	Bill Maggiore (510) 287-1021 bill.maggiore@ebmud.com
Long-Term Demand Model and Forecast Update	San Diego County Water Authority	Wholesale	3,300,000	Long-range water resources planning	• Econometric model development for principal sectors • Processing of San Diego Association of Governments (DANDAG) demographic projections • Forecasts for 20 retail member agencies • Climate change and consecutive hot/dry weather scenarios	$690K	Jack Kiefer, Project Manager Kirsten Plonka, Member Agency Coordination Lisa Krentz, Information Management Athur Moncrieffe, Analyst	Seevani Bista, PE Senior Water Resources Specialist Office: (858)522.6768 sbista@sdcwa.org
Demand Forecasting Model for Conservation Planning (ongoing, sub-contractor to INTERA, Inc)	Fort Collins Utilities	Retail	160,000	Long-range water resources planning	• Development of integrated econometric, end use, projection models for residential classes • Econometric models for CII classes • Development of fixture stock models	$95K	Jack Kiefer, Lead Modeler	Alice Conovitz Water Conservation Specialist Fort Collins Utilities City of Fort Collins 303-819-2346 mobile aconovitz@fcgov.com
Demand Study 2050 Mid-Cycle Update (on-going)	East Bay Municipal Utility District	Retail	1,400,000	Long-range water resources planning	• Processing of Association of Bay Area Governments (ABAG) and CA Dept of Finance demographic projections • Update of future development assumptions and demand model drivers • Calibration of 2050 Demand Study sectoral demand models	$268K	Luke Wang, Project Manager Jack Kiefer, Technical Advisor Katelyn Nguyen, Analyst Aurthur Moncrieffe, Analyst	Bill Maggiore (510) 287-1021 bill.maggiore@ebmud.com
Water 2100 (on-going)	City of Santa Fe	Retail	88,000	Long-range water resources planning	• Tailored econometric system demand model • Assessment of indoor per capita use floors • Climate change scenarios	$263K	Greg Gates, Project Manager Jack Kiefer, Demand Forecast Lead	Steven Schultz (505) 629-3283 smshultz@santafenm.gov
Demand Model Review and Update (on-going)	Portland Water Bureau	Wholesale	1,000,000	Long-range water resources planning	• Analytical review of existing PWB demand model • Review of peer agency forecasting approaches • Econometric analysis	$318K	Greg Gates, Project Manager Jack Kiefer, Demand Forecast Lead Lisa Krentz, Information Management Luke Wang, Modeling Support	Kavita Heyn (503) 396-0317 kavita.Heyn@portlandoregon.gov

Representative Demand Modeling and Forecasting Experience

Project	Client	Type of Agency	Population Served	Purpose of Forecast	Methodology	Project Cost	Staff Role(s)	Client Contact
Integrated Water Management Plan (on-going)	New York City Department of Environmental Protection	Wholesale	8,500,000	Long-range water resources planning	• Development of econometric demand models for 4 residential and 4 nonresidential classes • Integrated modeling and forecasting database design • Baseline and illustrative weather and price forecast scenarios • Derivation of statistical confidence intervals	$7.13M	Jack Kiefer, Demand Forecast Lead Lisa Krentz, Information Management Greg Gates, Expert Advisor	Alan Cohn (718) 595-4536 alanc@dep.nyc.gov
Long Range Water Supply Plan (on-going)	City of Durham	Retail	310,000	Long-range water resources planning	• Econometric demand model development for primary sectors • Development of hot/dry scenarios • Development of alternative pricing scenarios • Integration of regional CommunityViz demographic and land use data • Assessment of water efficiency programs and operational/deferral benefits	$1.7M (water demand forecast = $370K	Lisa Krentz, Manager, Forecast and Conservation Elements Jack Kiefer, Technical Advisor and Modeler	Sydney Paul Miller (919) 560-4381 Sydney.Miller@durhamnc.gov
Drought Response Plan (on-going)	Santa Clara Valley Water District	Wholesale	2,000,000	Drough Response Plan	• Use of demand forecast as basis for prospective drought response actions	$295K	Luke Wang, Project Manager Jack Kiefer, Technical Advisor Kirsten Plonka, Deputy Project Manager	Michael Martin (408) 630-3095 michaelmartin@valleywater.org
Long Term Water Demand Forecasting Practices for Water Resources and Infrastructure Planning (WRF Project 4667)	Water Research Foundation	Research	N/A	Review of industry forecasting practices	• Review of industry forecasting practices • Development of long-range demand forecasting typology • Web-based survey design and execution • Personal interviews of forecasting practitioners • Synthesis of lessons learned and recommendations for improved forecasting	$248K	Jack Kiefer, Principal Investigator	Maureen Hodgins (303) 734-3465 mhodgins@waterrf.org
Annual Forecast Review and Update	Tampa Bay Water	Wholesale	2,600,000	Update of forecast model	• Annual application of adaptive forecast monitoring process • Update of historical and projected driver and model variable inputs • Review of predictive demand model performance • Update of long-term forecast	$94K	Jack Kiefer, Project Manager	Dr. Tirusew Asefa (727) 791-2375 tasefa@tampabaywater.org
Cost of Water Shortage Model Update	Santa Clara Valley Water District	Wholesale	2,000,000	Evaluation of cost of water shortage	• Use of demand forecast price elasticties for estimating avoided costs of water shortage • Development of seasonally-varying price elasticities	$50K	Luke Wang, Project Manager Jack Kiefer, Technical Advisor	Jing Wu, PhD, PE Senior Water Resources Specialist Water Supply Planning and Conservation Unit jwu@valleywater.org (408) 630-2330
Demand Management Plan Update	Tampa Bay Water	Wholesale	2,600,000	Long-range water resources planning	• Development of geo-reference premise-level database • MS SQL server application with stored procedures • Integration of tax appraiser, Census, and Traffic Analysis Zone data • Sectoral and spatial demand profiling • Formulation of candidate demand measures and benefit-cost analysis	$279K	Lisa Krentz, Project Manager Jack Kiefer, Technical Advisor	Dr. Tirusew Asefa (727) 791-2375 tasefa@tampabaywater.org
Water Demand Management Plan	New York City Department of Environmental Protection	Wholesale	8,500,000	Water shortage management plan	• Evaluation, revisions, and estimation of savings of water shortage management plan actions • Identification and cost-effectiveness analysis of water use reduction options at WWTP's and City properties • Use of AMR/AMI data to evaluate spatial, sectoral, and seasonal water use patterns • Development of algorithm for identifying consistent large water users	-	Jack Kiefer, Project Manager Lisa Krentz, Lead Analyst	Vlada Kenniff (Now with NYC Housing Authority) Vlada.Kenniff@nycha.nyc.gov

Representative Demand Modeling and Forecasting Experience

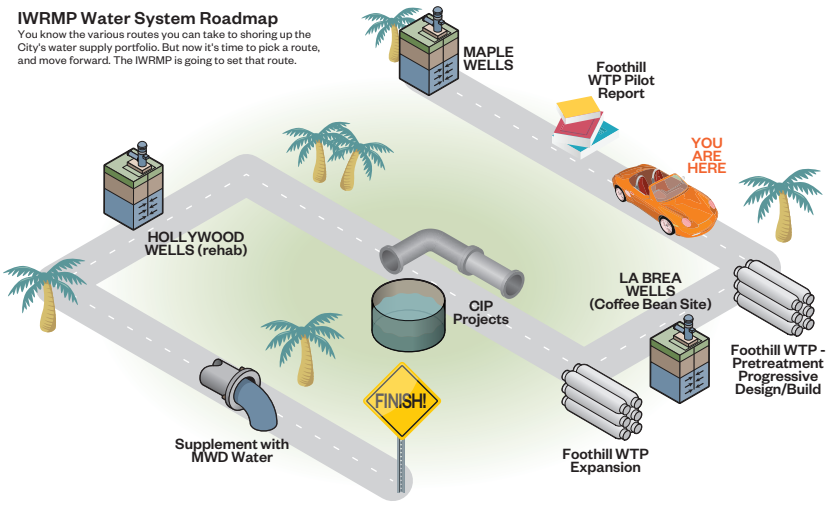
Project	Client	Type of Agency	Population Served	Purpose of Forecast	Methodology	Project Cost	Staff Role(s)	Client Contact
Demand Model Update and Point Demand Forecasts	Tampa Bay Water	Wholesale	2,600,000	Point demand forecasts	• Estimation of panel econometric models for primary sectors including seasonal, demographic, pricing, and socioeconomic variables • Integration of Census and Moody's economic data • Development of water efficiency indices • Point demand forecasts by Water Demand Planning Area and associated TAZ	$1.29M	Jack Kiefer, Project Manager John Clayton, Lead Analyst Lisa Krentz, Information Management	Dr. Tirusew Asefa (727) 791-2375 tasefa@tampabaywater.org
Future Needs Study	Tampa Bay Water	Wholesale	2,600,000	Long-range water resources planning	• Calibration of sectoral demand models • Development of stochactic stream flows • Derivation of forecast uncertainty assumptions • Coupling of demand and surface-supply models • Development of probabilistic reliability (demand-supply) forecast	$219K	Jack Kiefer, Project Manager John Clayton, Lead Analyst Lisa Krentz, Information Management	Dr. Tirusew Asefa (727) 791-2375 tasefa@tampabaywater.org
Water Demand Forecast and Model Update 2020	San Diego County Water Authority	Wholesale	3,300,000	Long-range water resources planning	• Utility survey and database development • Development of sectoral demand models • Development of hot/dry indices • Preparation of forecast scenarios • Climate change scenarios • Water Authority Board presentations • Coordination with retail Member Agencies on data requests	$530K	Jack Kiefer, Project Manager Lisa Krentz, Information Management John Clayton, Climate Projections	Tim Bombardier (858) 522-6740 tbombardier@sdcwa.org
Comprehensive Water Master Plan (subcontractor to Arcadis)	City of Columbus (OH)	Retail	1,250,000	Long-range water resources planning	• Processing of TAZ-level socioeconomic data • Development of water efficiency indices • Development of econometric sectoral demand models • Baseline and extreme weather forecast scenarios	$267K	Jack Kiefer, Forecast Lead Lisa Krentz, Information Management	Matt Steele (614) 645-7020 MKSteele@Columbus.gov
Water Use in the Multi-Family Housing Sector (WRF Project 4554)	Water Research Foundation	Research	N/A	Demand Sector Criteria Definition	• Review of criteria for defining multifamily properties • Assessment of differences between multi-family and single-family consumptions patterns • Analysis of effects of housing density on water use	$300K	Jack Kiefer, Principal Investigator Lisa Krentz, Analyst	Maureen Hodgins (303) 734-3465 mhodgins@waterrf.org
Demand Model and Forecast Development	South Central Connecticut Regional Water Authority	Retail	430,000	Long-range water resources planning	• Development of new hybrid forecasting framework • Analysis of sectoral water use by Town-served • End use modeling • Econometric modeling	$144K	Jack Kiefer, Forecast Lead John Clayton, Analyst	John Hudak (203) 401-2733 jhudak@rwater.com
Residential End Uses of Water 2016 Version 2 (WRF Project 4309) (subcontractor to Aquacraft)	Water Research Foundation	Research	N/A	Develop indoor consumption benchmarks	• Estimation of econometric models by residential end use • Development of indoor consumption benchmarks	$44K	Jack Kiefer, Lead Modeler	Maureen Hodgins (303) 734-3465 mhodgins@waterrf.org
Uncertainty in Long Term Water Demand Forecasting (WRF Project 4558)	Water Research Foundation	Research	N/A	Explain risk and uncertainty concepts	• Developed primer on risk and uncertainty concepts in context of demand forecasting • Annotated case examples of uncertainty analysis • Workshop design and execution	$100K	Jack Kiefer, Principal Investigator	Maureen Hodgins (303) 734-3465 mhodgins@waterrf.org
Water Demand Forecasting in Uncertain Times: Isolating the Effects of the Great Recession (WRF Project 4458)	Water Research Foundation	Research	N/A	Evaluate effect of great recession on water use	• Development of White Paper on economic linkages to water demand • Development of web-based utility survey • Statistical estimation of recession impacts on demand • Identification of economic data sources and methods to assist utilities	$360K	Jack Kiefer, Principal Investigator	Maureen Hodgins (303) 734-3465 mhodgins@waterrf.org

Representative Demand Modeling and Forecasting Experience

Project	Client	Type of Agency	Population Served	Purpose of Forecast	Methodology	Project Cost	Staff Role(s)	Client Contact
Incremental Enhancements to Water Demand Forecast Model	New York City Department of Environmental Protection	Wholesale	8,500,000	Long-range water resources planning	• Improvements to per capita forecast model • Development of passive water efficiency factor • Incorporation of climatic variables • Incorporation of residual variance factor	-	Jack Kiefer, Project Manager John Clayton, Lead Analyst	Vlada Kenniff (Now with NYC Housing Authority) Vlada.Kenniff@nycha.nyc.gov
Evaluation of Customer Information and Data Processing Needs for Water Demand Planning and Management (WRF Project 4527)	Water Research Foundation	Research	N/A	Assess customer classification schemes	• Assessment of customer classification schemes • Review of common demand data needs • Survey of water management agencies	$183K	Jack Kiefer, Principal Investigator Lisa Krentz, Analyst	Maureen Hodgins (303) 734-3465 mhodgins@waterrf.org
M&I and Agricultural Baseline Demand	El Dorado County Water Agency (CA)	Wholesale	130,000	Long-range water resources planning	• Development of econometric models • Development of M&I and AG forecast model calculators • Multi-period model calibration • PRISM climatic data processing • GIS mapping of acreages, elevations, crops	$80K	Jack Kiefer, Project Manager Lisa Krentz, Information Management John Clayton, Tool Development	Kenneth V. Payne (530) 621-5403 ken.payne@edcgov.us
Methodology for Evaluating Water Use in Commercial, Institutional, and Industrial Sectors (WRF Project 4375)	Water Research Foundation	Research	N/A	Establish methodology to calulate CII use	• Development of CII customer classification schemes • Analysis of variance in alternative metrics of CII water user • Design of stepwise methodology for addressing drivers of CII water use	$255K	Jack Kiefer, Principal Investigator Lisa Krentz, Analyst	Maureen Hodgins (303) 734-3465 mhodgins@waterrf.org
Water Demand Forecast and Model Update 2015	San Diego County Water Authority	Wholesale	3,300,000	Long-range water resources planning	• Utility survey and database development • Development of sectoral demand models • Development of hot/dry indices • Preparation of forecast scenarios • Climate change scenarios • Water Authority Board presentations • Coordination with retail Member Agencies on data requests	$460K	Jack Kiefer, Project Manager Lisa Krentz, Information Management John Clayton, Climate Projections	Tim Bombardier (858) 522-6740 tbombardier@sdcwa.org
Value of Water Supply in the Commercial, Industrial, and Institutional (CII) Sector (subcontractor to Stratus Consulting)	Water Reuse Research Foundation	Research	N/A	Evaluate value of water supply	• Examined measures of output relative to water consumption patterns • Processed CII customer demand data for various subclasses related to business function	$85K	Jack Kiefer, Co-Principal Investigator	Julie Minton (571) 699-0023 jminton@waterrf.org
Analysis of Changes in Water Use under Regional Climate Change Scenarios (WRF Project 4263)	Water Research Foundation	Research	N/A	Climate change evaluation	• Development of framework for reconnaissance level national study of vulnerabilities • Development of framework for case study climate assessments • Estimation of demand impacts and adaptation opportunities • Demand/Weather model development for a climatically and geographically diverse set of case study utilities (including the Water Authority) • Characterization of local, downscaled climate change scenarios from public third-party sources • Preparation of raw scenario data for demand model input • Application of multiple scenarios to demand models, characterizing ranges of possible climate change impacts on demand • Assessing seasonal and short-term variation in demand impacts for individual scenarios	$360K	Jack Kiefer, Principal Investigator John Clayton, Analyst	Maureen Hodgins (303) 734-3465 mhodgins@waterrf.org

Representative Demand Modeling and Forecasting Experience

Project	Client	Type of Agency	Population Served	Purpose of Forecast	Methodology	Project Cost	Staff Role(s)	Client Contact
Water Demand Forecast and Model Update 2010	San Diego County Water Authority	Wholesale	3,300,000	Long-range water resources planning	• Utility survey and database development • Development of sectoral demand models • Preparation of forecast scenarios	$459K	Jack Kiefer, Project Manager Lisa Krentz, Analyst	Tim Bombardier (858) 522-6740 tbombardier@sdcwa.org
Analytical Support for Water Demand Management Plan	City of Phoenix	Retail	1,500,000	Water demand management plan	• Demand database development employing fuzzy logic routines • Modeling of water use patterns among multiple type user classes • Random sampling and surveys of nonresidential type users • Derivation of water demand profiles and analysis of variance • Estimation of price elasticities for different customer cohorts	$600K	Jack Kiefer, Principal Investigator John Clayton, Analyst	Adam Miller (now with Phoenix Planning Department) adam.miller@phoenix.gov
Seasonal Source Water Allocation Decision Support Tool	Tampa Bay Water	Wholesale	2,600,00	Long-range water resources planning	• Developed a water supply model and decision support tool for allocating water from each of Tampa Bay Water's supply sources (surface, ground, desalinated) • Incorporated demand projections into the modeling platform	$50K	Luke Wang, Project Engineer John Clayton, Project Manager	Dr. Tirusew Asefa (727) 791-2375 tasefa@tampabaywater.org



Beverly Hills Integrated Water Resources Master Plan

City of Beverly Hills, CA

The City of Beverly Hills took a unique approach to analyze their water resources. Rather than conduct separate master plans for water, sewer, stormwater, SCADA, and local water supply systems, the City integrated this analysis into one comprehensive Integrated Water Resources Master Plan (IWRMP). Long-range demand forecasting was a key component of the IWRMP.

Project Relevance

- Long-range demand forecasting
- Collaborative stakeholder workshops
- Water, sewer, and stormwater model calibration
- Specialized Study / Report

Reference

Vince Damasse
Water Resources Manager
North Rexford Dr.
Beverly Hills, CA 90210
(310) 285-2491
vdamasse@beverlyhills.org

Project Team

Cindy Miller
Luke Wang
Jack Kiefer

With historic demands indicating a rebounding upward trend between years 2016 and 2019, and the anticipation of future developments in the service area, Hazen provided a series of future projected demand scenarios using different water demand projection methodologies. The projection methodologies used included:

- **Population Based Projection:** This methodology uses future population estimates from California Department of Finance, Census data, and Southern California Association of Governments. Historical consumption factors were calculated (gallons per capita per day) and applied to future population projections to calculate a future water demand projection.
- **Historical Based Projection (HBP):** Derived by calculating the mathematical trendline from demands in year 2019 and a previous target year. Different trendlines were established based on the previous target year chosen. The most appropriate (and most conservative) historical trend was established from 2016 through 2019 since this represented a positive trend from the low levels reached by the end of 2015.
- **Future Developments Based Projection:** Through review of "will-serve" applications from developers, the largest future developments over the previous three (3) years were identified, with the water demands estimated by the developer on their will-serve application. This projection used the will-serve application water demands and assumed the developments were complete by 2025.

The IWRMP utilizes the most conservative projections for planning system improvements, which is appropriate for master planning-level analyses. However, Hazen recommended that the City continue to track the status of each development, and closely monitor actual water usage for comparison to the "will-serve" application projected water usage.

Water Demand Model and Forecast

Santa Clara Valley Water District (Valley Water), San Jose, CA

Water demand forecasts are a foundational element in the water supply and infrastructure planning activities of Valley Water. Hazen recently developed a new water demand model for Valley Water and applied the model to forecast county-wide demand through 2045.

Prior to selecting a modeling approach, Hazen conducted a benchmark analysis of regional demand projection models. The analysis defined a typology for demand forecasting and reviewed several demand forecasting approaches applied by peer agencies to Valley Water, including BAWSCA. Based on the benchmark analysis and a detailed review of available historical data, a statistical / econometric approach for the new demand model was selected in collaboration with Valley Water. The new demand model is organized based on water provider type (i.e., retail agency or non-retail groundwater pumper) and further segmented by geography, sector/billing classification, and time. The demand model permits Valley Water to produce demand forecasts for each water use sector and water provider type.

The demand model was developed using a historical database of water consumption against and several explanatory variables known to influence water demand (e.g., weather, water rates, economic conditions, housing density, and water shortage management activities). The demand model showed strong performance in explaining historical patterns of consumption over the last 20 years (including two major droughts and the Great Recession) and was determined to be suitable for forecasting.

Prior to forecasting, the demand model was calibrated to correct for any systematic biases in the average of model predictions for fiscal years 2009 to 2018. Forecasts were prepared out to 2045 for each sector for each of Valley Water's water providers. Conservation forecasts were deducted from the forecasts to represent passive and active efficiency measures. The econometric model and segmented forecasting approach permits a wide range of demand forecast scenarios in addition to conservation, including scenarios revolving around climate and differential rates of growth across sectors and retail agencies.

Hazen has since supported Valley Water with several water supply planning projects directly adjacent to the 2045 water demand projections, including a cost of water shortage analysis and development of a drought response plan.

Project Relevance

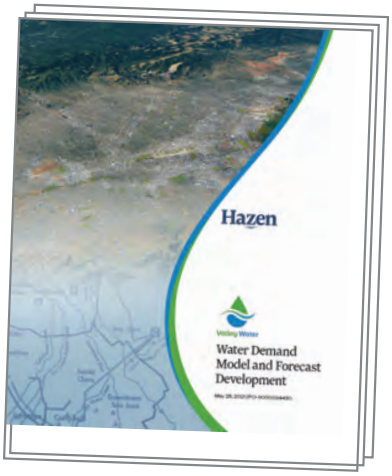
- Long range water demand forecast for water supply wholesaler
- Econometric model framework
- Coordination, including BAWSCA member agencies
- Scenario analysis using climate change projections
- Model training for staff

Reference

Jing Wu, PhD, PE
Senior Water Resources Specialist
Water Supply Planning and Conservation Unit
jwu@valleywater.org
(408) 630-2330

Project Team

Jack Kiefer
Luke Wang
Lisa Krentz



2050 Water Demand Study

East Bay Municipal Utility District , Oakland, CA

Hazen developed a new demand model for the East Bay Municipal Utility District (EBMUD) and developed their 2050 forecast in preparation for the agency's 2020 Urban Water Management Plan. The modeling approach for EBMUD consisted of a blended econometric / land use-driven method, with model parameters that included socioeconomic trends, urban densification, and climate impacts. Modeled sectors included single-family residential, three multifamily classes, commercial general, commercial services, institutional, and industrial land use designations.

Input from multiple land use planning agencies within EBMUD's service area was obtained in the formulation of future land use and development assumptions. Geographic segmentation at the Census tract level included 21 Demand Modeling regions spanning diverse climate zones and socioeconomic characteristics.

The model parameters were custom fitted for EBMUD using EViews and SAS modeling platforms and the modeling tool was developed in Microsoft Power BI. Hazen is currently performing a "mid-cycle" update of the long-term forecast reflecting new growth and land use forecasts from the Association of Bay Area Governments.

Project Relevance

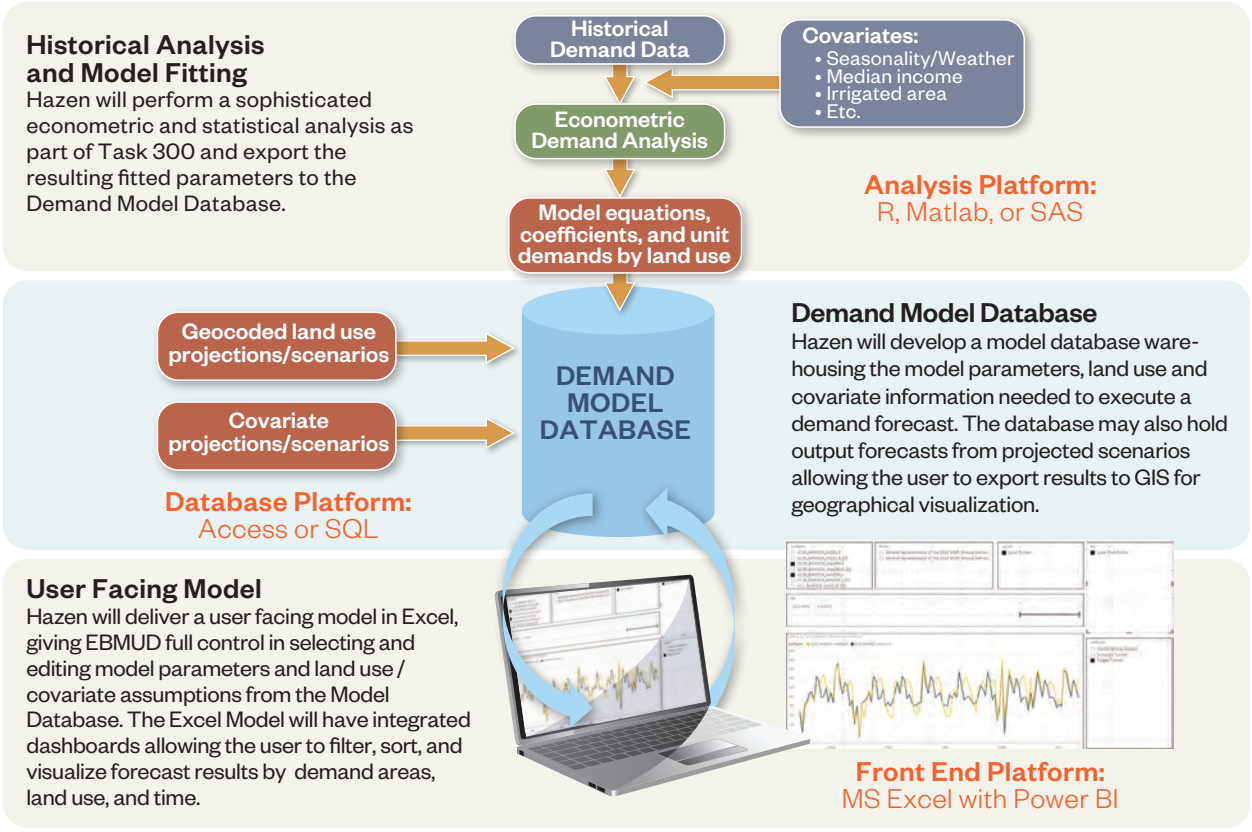
- Long range forecast in support of UWMP
- Econometric modeling by sector and land use type
- Demand forecast tool development
- Integration of Association of Governments projections
- Involvement of Demand Projection Committee stakeholders
- External stakeholder engagement with 22 local land use agencies to seek input on major development trends

Reference

Bill Maggiore
Senior Civil Engineer
(510) 287-1021
bill.maggiorie@ebmud.com

Project Team

Jack Kiefer
Luke Wang
Lisa Krentz



Hazen has implemented a comprehensive modeling and forecast tool development process for EBMUD.

D Project Work Plan



Section D

Project Work Plan

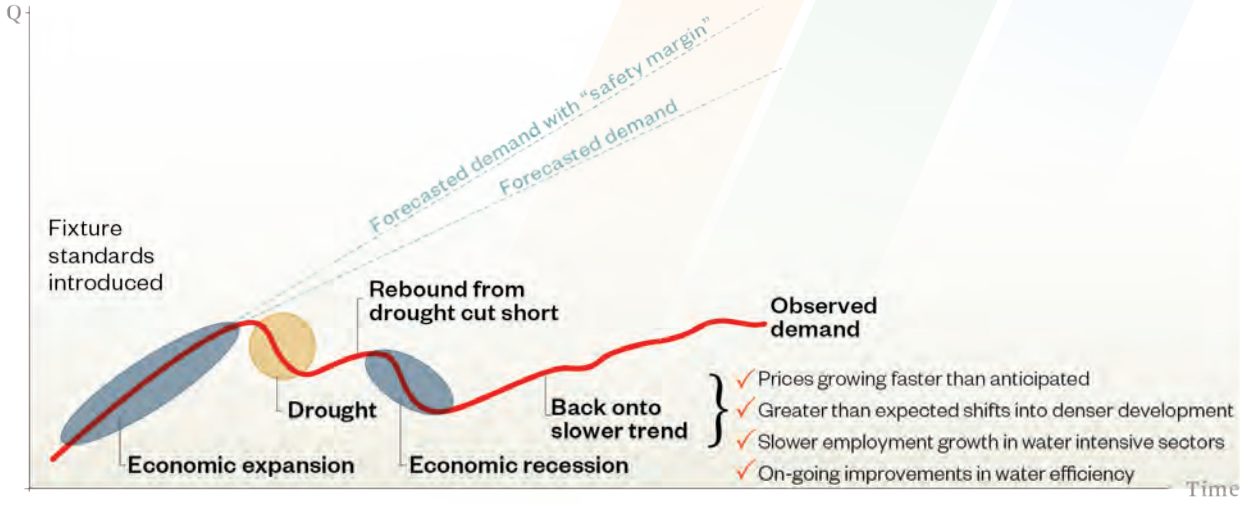
Hazen is proposing an implementation plan that aligns with the technical requirements necessary to meet MWDOC's and OCWD's objectives and is consistent with our team's experience and skill for similar projects. We recognize the project's schedule constraints and are committed to efficiently delivering forecast results, final reporting materials, and any optional tasks selected by specific agencies.

Scope of Work

Previous demand forecasts for MWDOC consistently overestimated observed demands on the District. MWDOC member agencies have met the 2023 indoor water use efficiency target of 55 gallons per capita per day (GPCD) although future outdoor use remains uncertain. Achievement of the indoor target should result in a tighter range of, and overall lower, demand projections than previously estimated for MWDOC.

The Hazen team also recognizes the importance of the baseline time interval selected to calibrate the demand forecast. Our **nationally recognized technical experts** will select an historical calibration period that proves our demand model can correctly simulate the rebound and/or relative permanence of changes in consumption that stem from periodic acute events such as water supply shortage restrictions, macro-economic conditions, and employment and economic changes attributed to the COVID-19 pandemic.

Hazen is a leader in state-of-the-art water demand modeling and forecasting techniques, helping water supply agencies evaluate sectoral, spatial and temporal water use, savings potential, and uncertainties surrounding future water demands. Hazen's **rigorous and flexible econometric approach** to demand forecasting provides our clients with information, tools, and resources to understand current and future water use trends and conservation strategies that lead to effective water management. We will provide a reliable forecast for MWDOC and OCWD that can be embellished, as desired, by your member agencies and basin producers.

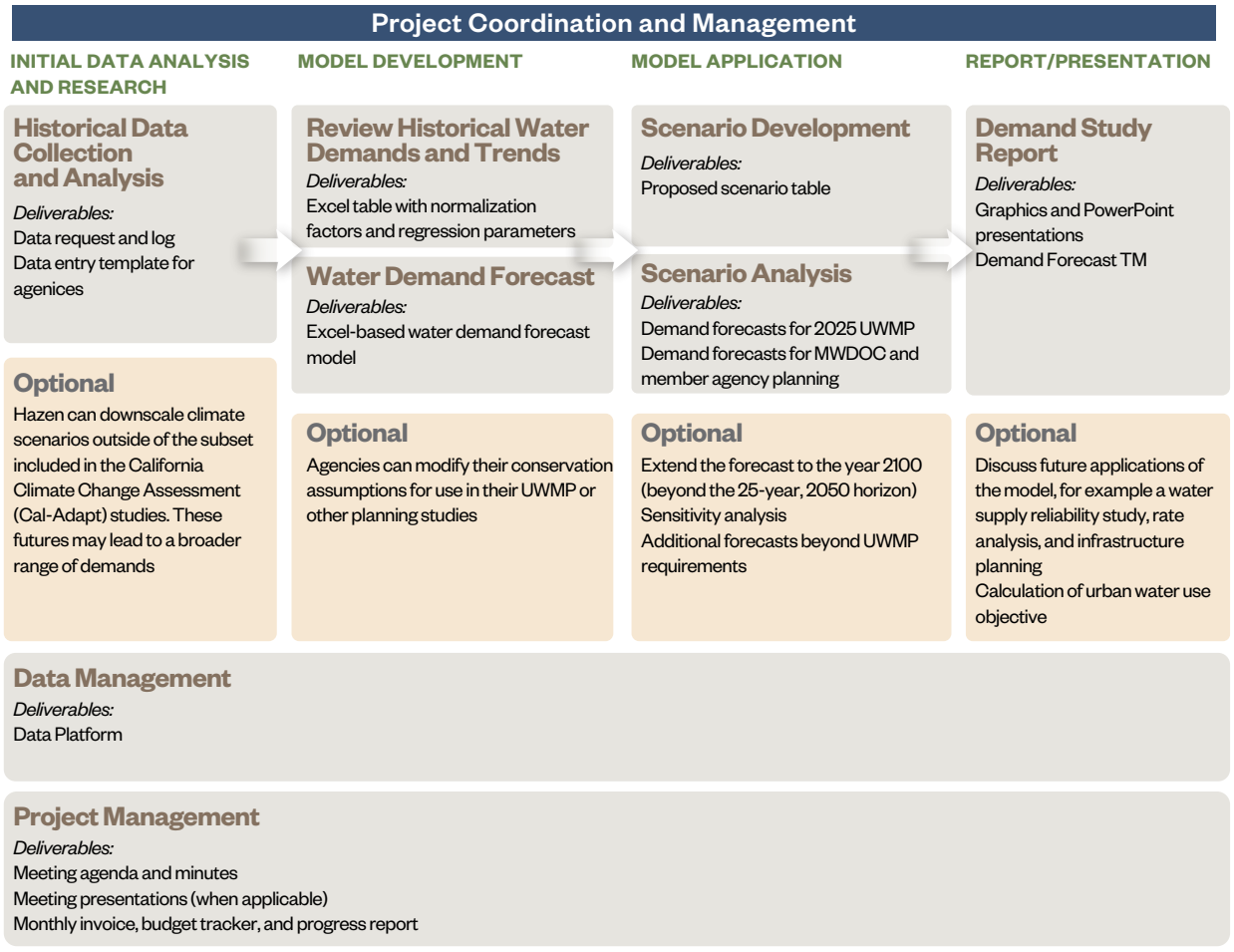


Hazen understands why observed demands may fall below forecast

The following scope of work details the approach we will take to data organization, demand model development, scenario identification pursuant to Urban Water Management Plan requirements and MWDOC and OCWD concerns, as well as coordination with member agencies and basin producers. We will work **collaboratively with your staff** through all deliverables.

Work Plan

The workflow below outlines the technical tasks our team will complete to deliver the final demand forecast. The figure includes the optional deliverables affiliated with each task that may be pursued by MWDOC or OCWD directly or member agencies and basin producers.



TASK 1 Project Management

Hazen understands the time sensitivity of this demand forecast and is dedicated to starting the project strongly right out of the gate. We are led by a project management team including nationally recognized demand forecasting experience from our Technical Director, Jack Kiefer, and Luke Wang. Andrea Zimmer brings familiarity with your supply and demands having done the modeling for your 2016, 2018, and 2023 Water Reliability Studies.

Our Project Manager, Kirsten Plonka, brings exceptional coordination skills to our team. With years of experience working in Orange County, Kirsten has collaborated with many of the water agencies that will benefit from this project. In her recent role as Deputy Project Manager for the LCRR, she demonstrated a proven track record of working closely with these agencies through a detailed and transparent process.

The Hazen Team has completed dozens of demand studies, and **our technical experience and local leadership** will allow us to efficiently initiate the project, deliver a quality product, and **provide the necessary collaboration to keep MWDOC and OCWD's teams involved and informed** throughout the process.

We are prepared to efficiently allocate staff resources and budget to ensure that work is quality and delivered in a timely manner. To that end, Kirsten Plonka will conduct regular project status calls, maintain the schedule and budget, submit detailed monthly progress reports and invoices, and ensure the day-to-day execution of each task is well coordinated between Hazen's local supporting resources and our experts.

Collaboration is the Key to Success

Kirsten Plonka will be your primary point of contact, overseeing the Hazen team's performance and ensuring that project goals remain central to all discussions and deliverables. She'll work closely with MWDOC and OCWD from project kickoff to completion, providing continuity, resolving issues as they arise, and dedicating resources to meet project demands. Drawing from our previous work together, Kirsten is committed to partnering with your team to deliver on expectations and build an actionable plan.

Assumptions

- Biweekly Progress and Check-in Meetings with MWDOC and OCWD staff
- The budget and scope for all hands meetings and one-on one meetings with member agencies are incorporated into the technical tasks

Project Control and Schedule

We understand that this forecast must be completed by September 2025. Hazen will collaborate with MWDOC and OCWD to adjust the overall schedule to accommodate input from key staff and stakeholders. While the demand forecasts for the Urban Water Management Plan are due by September, Hazen has outlined optional tasks that can extend beyond this deadline, offering additional forecast scenarios, deeper insights into forecast applications, and further presentations to Boards and/or stakeholders. A detailed project schedule is shown and discussed in Section E.

Our project manager will work within the Hazen Deltek database to track budget.



Hazen's Deltek Vision accounting system provides real-time monitoring of work hour usage and costs to track total expenditures for tasks.

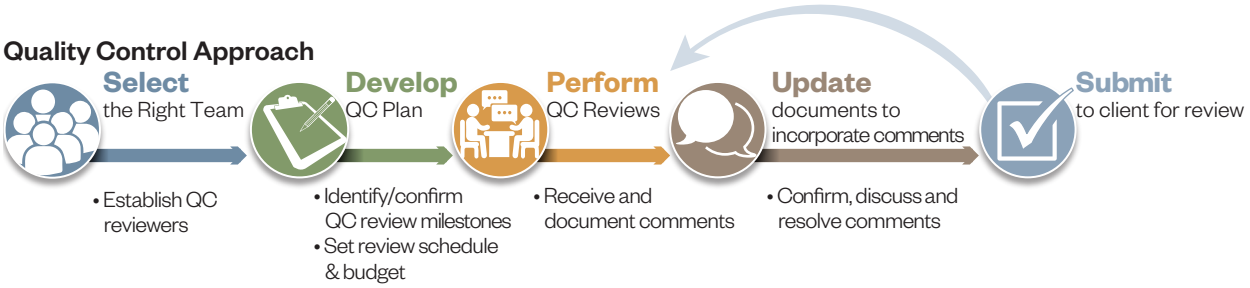
Hazen will use the following tools and strategies to deliver this project on schedule and within budget:

- **MS Project:** Establish critical path and communicate progress
- **Deltek Vision:** Track project costs in real time for clarity on budget performance
- **Risk Register:** Develop and update risk register regularly to mitigate project risks
- **Decision Log:** Track project decisions to provide clarity on path forward
- **Regular Project Manager Check-Ins:** Track hot scope items
- **Bi-weekly Team Progress Meetings:** Frequent communication to keep project moving and discuss critical needs

Quality Assurance and Quality Control

Quality is an integral part of our project execution. It is an attitude within each of our staff who believe in providing the highest quality work for our clients while remaining within our budgetary constraints. Hazen has developed a QA Policy Manual to provide guidance to staff during the execution of projects undertaken by the firm. Hazen's QA Policy Manual requires that QC reviewers be independent of the design process, so that reviews have a broad perspective.

At Hazen, our commitment to quality is not just inherent in our culture and the services we deliver, it is continuous. Hazen has a comprehensive, mandatory, firm-wide Project Quality Control Program that is implemented from the start and applied throughout all stages of project execution. Quality is part of our culture. For every project, we implement a quality control program. To support this commitment, Hazen has developed a Quality Assurance Policy Manual to provide guidance to staff during the execution of all projects.



Our technical expert, Jack Kiefer, will work closely with Andrea Zimmer on each task prior to its execution and afterward to review the results. Our QA/QC expert, Luke Wang, will provide detailed reviews of calculations and model runs, as well as every deliverable.

QAQC will be especially important during Tasks 3, 4, and 5, including:

- Selection of four service area sectors to model and link to water purchases to validate historical patterns over total service area
- Development of service-area wide regression coefficients for the sector-specific explanatory variables that influence demand
- Calibration of the forecast model at the MWDOC member agency and OCWD basin producer scales
- Confirmation that demand projections correspond to land use and economic forecasts

Member Agency Coordination

Coordination with MWDOC member agencies and OCWD producers is crucial for Hazen to successfully complete the data collection and review task. Our team will work closely with agencies to facilitate discussion and understanding of the econometric demand model.

Data acquisition, as well as the all-agency meetings are described in Tasks 2 and 3 adjacent to the appropriate technical material. **Hazen will work collaboratively with MWDOC and OCWD staff** to identify and invite member agency staff for meeting participation. Member agencies may use time during the all-agency meetings to ask questions about their specific forecast. We will explicitly state the efficient budget and timeline assumptions in the first kickoff meeting, and **any agency who would like a more focused approach may discuss offline in collaborative meetings with Hazen, MWDOC, and OCWD staff.**

Anticipated Challenges

Anticipated challenges to developing this demand forecast could include technical and managerial setbacks. The table below presents possible challenges and how our team will deal with them.

Anticipated Challenge	Resolution
Delays with data acquisition	Proceed with what is available after demand request and follow up has gone out, make industry standard assumptions about data we don't have or eliminate components from the model
Delays with demand model due to calibration	Built in 4 extra weeks in schedule
Member agencies reluctant to contribute funding for specific forecasts	Be clear about expectations up front, allow MWDOC and OCWD staff to be present at all meetings

Our Principal in Charge and Project Manager are both local and can easily travel to the headquarters to meet in-person if needed.

TASK 2 Data Collection and Information Review

Task 2 includes data collection, in which the Hazen team will review existing MWDOC and OCWD publications and research online data (for example climate change futures and housing projections) and develop a request to MWDOC and OCWD for the remaining needs. This task includes finalizing Excel templates to facilitate data acquisition from member agencies and data sharing platform setup.

Our project manager and delivery team will provide one all-agency meeting to introduce project goals and data needs during which we will present a timeline for data acquisition and follow-up.

Task 2.1 Data Request

The Hazen team will produce models for four demand sectors. Per the RFP, MWDOC will provide historical monthly demand data for all member agencies by supply source, and our team will adjust the source-specific uses to member-agency billing data by class. Hazen will then associate each agency class with a specific demand sector to define historical trends and explanatory variables.

Our team will work collaboratively with MWDOC and OCWD staff to identify and collect historical and projections of socioeconomic and demographic data by member agency and basin producer from relevant sources, including the California Department of Finance, the US Census Bureau, Southern California Association of Governments, California State University Fullerton's Center for Demographic Research (CDR) and County property appraisers. We will integrate demographic and housing data with water consumption data for demand modeling.

Assumptions

- One all-agency Kickoff Meeting to include all member agencies to present methodology and explain data needs and data collection process
- MWDOC and OCWD will provide Hazen with the future conservation volumes to be used in the forecast based on member agency data
- Hazen will provide the Data Request, including a draft email to send member agencies
- Hazen will provide template(s) for member agency data collection (billing data, water use, etc.)
- Hazen will provide data platform for information sharing with each member agency

Anticipated MWDOC and OCWD Staff Involvement

- Assistance and participation in all-agency meeting
- Review of data request and what specific items should be forwarded to member agencies
- Initial and follow-up emails to member agencies

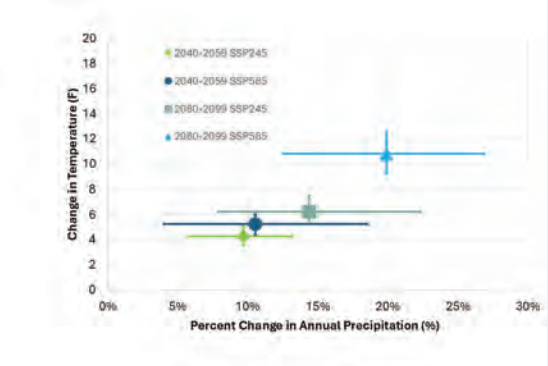
Our team will formulate a data request to MWDOC and OCWD for information including:

- Member agency and basin producer billing information by billing class, including number of accounts billed each period
- Historical water and wastewater rate schedules
- Planning data (other than the Census Bureau and RHNA) concerning estimates of local housing, employment, and characteristics of customer base
- Service area descriptions including available GIS data
- Description of active water conservation programs and tracking data where available
- Metropolitan Water District's (MWD) master meter information including from past allocation years
- Timing and severity of agency-specific supply shortage restrictions and demand management measures (such as reduced OCWD Basin Pumping Percentage, BPP) implemented over the historical consumption period

Hazen will discuss the data elements contained in the request with MWDOC and OCWD staff to determine whether and which data MWDOC and OCWD may already have and maintain to expedite the data collection process and avoid duplication of past or on-going data collection efforts.

Climate Change Incorporation

Our team's **unparalleled expertise** will allow us to acquire additional data that can be found online. Hazen has tracked the Global Circulation Models (GCMs) identified by the California Climate Change Assessment (Cal-Adapt) to best represent California climate at the global, statewide, and regional scale for water planning studies. The Cal-Adapt dataset includes runs from the sixth phase of the World Climate Research Program Coupled Model Intercomparison Project (CMIP6). Our team has worked directly with downscaled, bias corrected CMIP6 GCM data for demand studies across the country. We will acquire downscaled monthly precipitation and temperature forecasts for multiple locations throughout the MWDOC and OCWD service areas.



Hazen will use CMIP6 output to identify climate change impacts on demand

Task 2.2 Data Platform Setup

Hazen will open a SharePoint site with a directory that each MWDOC member agency and OCWD basin producer can use to transfer data. Our team will also develop a list of data needs from each agency and include data entry templates where necessary. The table below outlines example requests and the format in which we will require the data to be uploaded.

Example Data Need	Format
Historical water use by type	Example Excel file with all supply types and volume as columns (agencies may leave some columns blank) and months as rows
Historical billing information	Example Excel file with all billing classes (agencies to add as appropriate) as columns and months as rows
Water pricing information	Excel table of monthly water rates as rows and source as columns
Shortage restrictions	Email to agencies to specify exact months of agency-specific restriction, water reduction (in % from average monthly) requested each month, and water use reduction (in % from average monthly) observed
Conservation Programs	Description of agency-specific conservation programs and any tracking information available (no format requested)

Our team will draft all emails for MWDOC and OCWD agencies to facilitate coordination efforts.

TASK 3 Demand Forecast Model Development

This task involves determining the variables to be used in the econometric analysis, calibrating the demand model, and generating the baseline forecasts.

Task 3.1 Establish Demand Profile

Our team will establish the relationship between water use and up to four (4) standard socioeconomic and land use classes, or sectors across the MWDOC and OCWD service area. This relationship will be used **within our technically rigorous approach** to forecast demand changes related to projected sector growth and other variables that impact demand. It is anticipated that the sectors will be classified as single-family, multifamily, and one or two CII classes. Characteristics used for profiling historical demands including, but are not limited to:

- Rates of water use per unit (e.g., per household, per square foot of area, per account)
- Lot sizes and/or irrigable area
- Household income
- Household size
- Prevailing age of housing stock or distribution of housing stock by year built
- Types of CII users across a set of standardized categories
- Mean monthly, nonseasonal, and seasonal usage patterns

We will standardize member agency and basin producer data to define the modeling classes that differentiate relatively homogeneous customer groupings based on land use and property function. Our team will geo-process the sector data as necessary to estimate values corresponding to agency boundaries and **will work collaboratively** with MWDOC and OCWD staff to make any preferred sector adjustments. The figure below demonstrates how this sector identification fits into the modeling framework.

Assumptions

- Two all-agency progress meetings
- One-on-one meetings with individual agencies to understand data needs and review draft projections (one 1-hour, or two 30-minute meetings per agency)
- Disaggregation of user types into no more than 4 sector classes/user types across the entire MWDOC and OCWD service area; same user classes for all agencies
- Hazen to develop no more than 4 sector models
- A single forecast for the MWDOC and OCWD service area, and each member agency will have their own tab in the Excel model with a forecast based on their specific sector composition
- MWDOC and OCWD will provide Hazen with the future conservation volumes to be used in the forecast

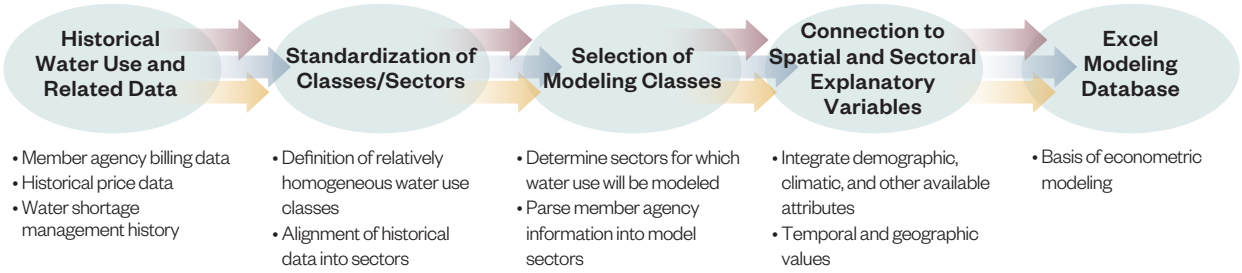
Anticipated MWDOC and OCWD Staff Involvement

- Attendance at all-agency meetings
- Review of initial and final model results
- High level of involvement to scope baseline forecast conditions

Once we identify sectors, the Hazen team will estimate the historical demand observed for each of the four sectors by standardizing account data for the billing classes defined by member agencies and basin producers. Standard data smoothing procedures will be employed where necessary to align and estimate consumption by calendar month to account for different billing cycles and to improve the measurements of seasonal demand variability related to indoor and outdoor uses.

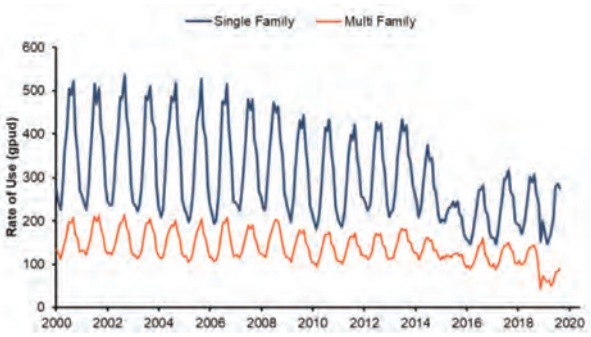
Excel workbooks will contain raw data along with the standardized and smoothed consumption data.

Hazen's modeling database development process



Task 3.2 Estimate Statistical Parameters

Next, **our technical experts will identify drivers for water use in different sectors**, such as number of housing units for residential sectors and employment or building square footage for nonresidential sectors. The effects of drivers on water use can be modeled based on rate of use per driver unit factors, which, for a given sector (i), vary over time (t) and geographic area (j). The general framework to calculate water use is represented in the equation below, in which the water use per driver unit is defined through econometric analysis. For example, the econometric models will calculate water use per housing unit, per employee, or per square foot, respectively:



We will collect and standardize member agency consumption data into defined sectors, such as single- and multi-family. Our analysis will help identify outliers and suspicious observations to improve the accuracy of our modeling.

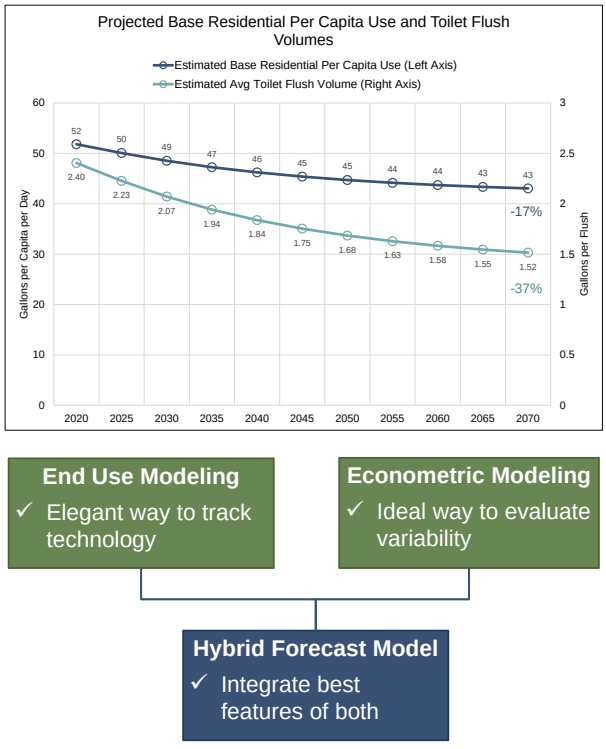
$$(Quantity\ Demanded)_{s,j,t} = (Driver\ Units)_{s,j,t} * (Water\ Use\ per\ Driver\ Unit)_{s,j,t}$$

The rate of water use per driver is a function of a set of explanatory variables. The drivers and explanatory variables within each sector are influenced by factors including:

- Regional Housing Needs Assessment
- Making Conservation as a California Way of Life (SB 606 / AB 1668)
- Demand hardening
- Weather variability and climate change
- Seasonal variability
- Socio-economic trends
- Historical water use trends
- The California HOME Act (SB 9) impacts
- Impacts of MWD shortages and allocations

An important part of this task that will be revisited during scenario development is to distinguish the factors that affect the explanatory drivers (e.g., rate of intensification, population growth), the rate of water use (e.g., water pricing, household incomes, water conservation), or both.

For example, SB 9 leads to intensification and more housing units while past water use restrictions may result in a lower use per unit. Our team will perform multiple regression analyses within our **technically rigorous approach** to estimate how each factor leads to changes in water usage rates. Our team assumes that this analysis will be applied to the four sectors over the entire MWDOC and OCWD service area.



Hazen has designed methods to integrate end-use and econometric models in order to capture efficiency trends and to add proxies for water efficiency into an econometric framework.

Our team will present the four demand sectors, draft drivers, and draft explanatory variables during the second all-agency meeting. The budget also allows for one 1-hour, or two 30-minute virtual meetings and/or phone interviews to be conducted with each member agency to expedite data collection and facilitate formulation and understanding of baseline models.

Task 3.3 Calibrate Water Use Models

Calibration serves to correct any systematic biases in the model predictions. Based on the profile of historical demands, Hazen will recommend and justify a base period to which to calibrate the water demand forecast and to define a normalized anchor point for the forecasts. Hazen will work with MWDOC and OCWD to define the conditions to which to normalize predictions, which may consider the effects of weather and other and other confounding factors such as COVID-19 and drought restrictions.

Task 3.4 Generate Baseline Forecast

Hazen will generate a baseline forecast scenario for the MWDOC service area in five-year increments over the planning horizon. The forecast will be based on assumed future values of model drivers, including population, housing, employment, and explanatory variables that translate projections of such drivers into projections of water use as found in Task 3.2.

The Hazen Team will work collaboratively with MWDOC and OCWD staff to define a "UWMP baseline" consisting of characteristics that may include, for example: specific land use, a certain amount of (or no) additional passive conservation, a specific rebound pattern from drought and COVID-19, and certain demographic and socioeconomic assumptions. The baseline forecast will be based on the historical normal hydrologic record (rainfall and temperature.) The UWMP baseline can then be manipulated as necessary to define dry/hot, consecutive dry-year, climate change, and other scenarios as dictated by the needs of the UWMP.

The baseline models, model inputs, and model outputs will be housed in an Excel format for ease of use. Member agency and supply-area specific demand projections will each have a tab in Excel and be based on the MWDOC forecast prorated to the specific sector-weighted area.

The final all-agency meeting will occur once all baseline analysis is done. The Hazen team will present the baseline demand forecasts and discuss the scenarios to run and provide to each agency.

TASK 4 UWMP Scenario Development, Demand Forecast Model Application, and Data Analysis

Hazen will adapt the baseline forecast for the required UWMP scenarios and work collaboratively with MWDOC and OCWD to define alternative forecasts that vary from the baseline.

4.1 Scenario Development

Hazen will develop demand projections for a the scenarios required by the 2025 Urban Water Management Plan, including normal year, dry year, and multiple dry year scenarios. Our team will develop these scenarios based both on the baseline forecast hydrology, demographic drivers, and explanatory variables.

Assumptions

- Hazen will provide demands for all scenarios required in the UWMP
- Hazen will provide two forecasts in addition to the baseline

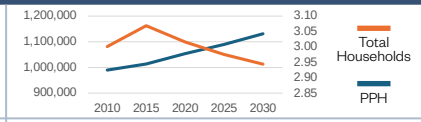
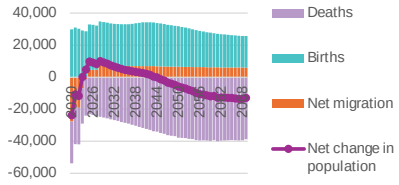
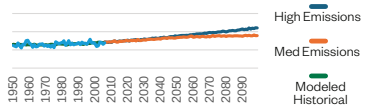
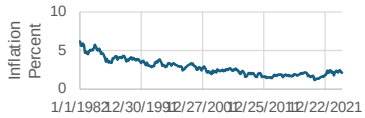
Hazen will work closely with MWDOC and OCWD staff, and member agencies to develop two alternative forecasts alongside the baseline. These forecasts may incorporate factors such as increased conservation aligned with Making Conservation a California Way of Life (SB 606 / AB 1668), different climate change variations, and adjusted population growth assumptions.

Anticipated MWDOC and OCWD Staff Involvement

- High level of involvement to identify additional forecasts

As identified in Task 3, our team will also assess State and regional water management policy scenarios, which may serve as a mitigating factor for demands, independently of MWDOC's active water conservation and water recycling strategies.

The Hazen Team will substitute future values of drivers and explanatory variables for each forecast into the water demand forecasting model. The figure below illustrates example drivers and variables that could potentially be used in the forecasts.

SCENARIO			RECOMMENDED BASELINE	HIGH	LOW
Example Drivers	Housing Units		As predicted without legislative changes	Increased due to SB-9	As predicted without legislative changes
	Population		Department of Finance forecast	Department of Finance Forecast with increased migration	Department of Finance Forecast
Example Explanatory Variables	Maximum Annual Temperature		Historical normal	High relative to historical normal	Low relative to historical normal
	Price of Water		Constant in real terms	Doesn't keep up with inflation	Outpaces inflation expectation

4.2 Scenario Analysis

The Hazen Team will prepare talking points for each forecast in collaboration with MWDOC and OCWD staff to support internal and external communications and evaluation.

TASK 5 Technical Memorandum and Presentation Preparation

The Hazen Team will prepare a report and presentation based on content, organizational, and format instructions provided by and discussed with MWDOC and OCWD. Chapter content will include a summary of member agency demand profiles (Task 2) the demand model development (Task 3) and scenario application (Task 4).

A sequence of draft reports will be developed to refine and fully incorporate comments from MWDOC and OCWD staff and member agencies. The task will culminate in a final Demand Study Report. **Hazen will work collaboratively with MWDOC and OCWD staff** to develop a presentation to member agencies. Dry-runs of the presentation will be performed with MWDOC and OCWD staff in order to refine content, messaging, and length.

TASK 6 Optional Tasks

These reflect optional tasks per MWDOC, OCWD, member agency or basin producer request.

6.1 Board Presentation

MWDOC and OCWD (or other agencies) may choose to have Hazen present project findings to its elected officials. Hazen will ensure that our technical team members are available to present and answer questions, similar to the all-agency meetings.

6.2 Member Agency Support

MWDOC member agencies or OCWD producers may desire additional support from Hazen related to but not directly funded within the immediate scope of services. It is possible that a member agency may request such support by agreeing to reimburse MWDOC for associated costs under the stipulations of the contract with Hazen. For example, agencies could elect to tailor the forecast for their specific planning objectives, or modify their conservation assumptions for use in their UWMP or other planning studies.

6.3 Scenarios Beyond UWMP Requirements

The Hazen team can work with MWDOC, OCWD, and member agencies to define forecast scenarios beyond the UWMP requirements and two additional provided within the baseline project budget. These scenarios could depict different climate change, regulatory environment, or local adjustments. Our team will run the scenarios and deliver the resulting demands, and a brief description, to the interested agencies.

6.4 Discussion of Future Application

The Hazen team will write and deliver a technical memo that discusses future applications of the demand model and forecasts. The memo could include:

1. A description of how the demand model can be adapted to the shorter time steps (for example, daily or hourly) and higher resolution spatial scale needed to estimate pump and pipeline capacities;
2. The applicability of the model for a future Orange County Reliability Study, including how different regions of the forecast would be paired with supply types, and how the assumptions incorporated in separate demand forecasts would correspond to supply scenarios; and
3. A discussion of the potential use of the model for a water rate analysis.

6.5 Sensitivity Analysis

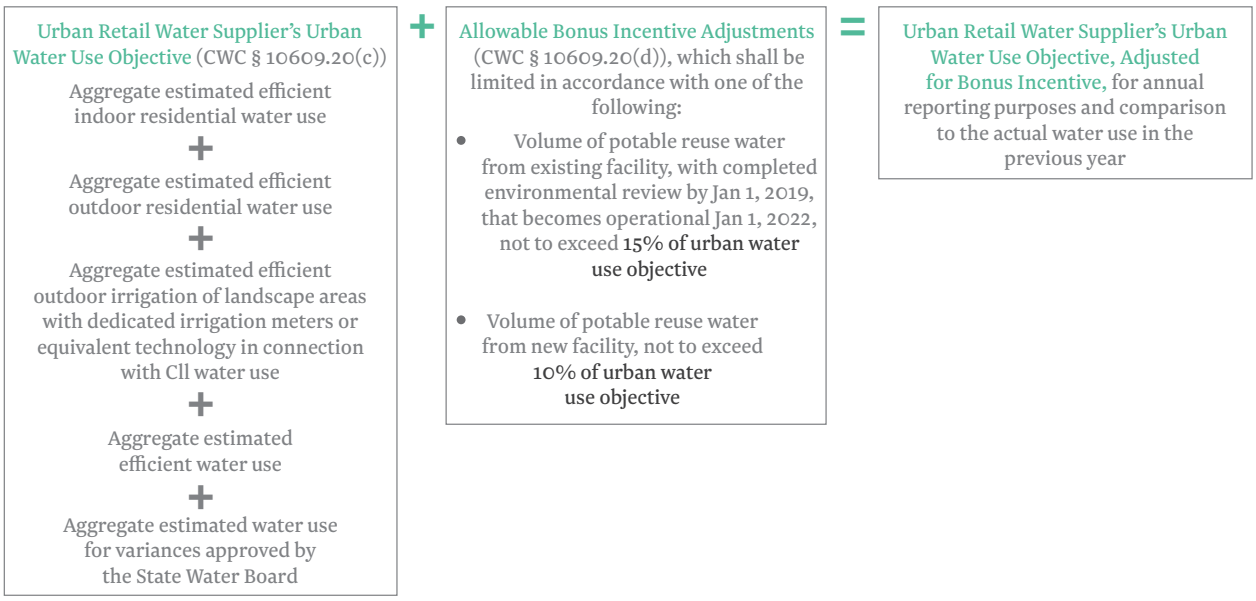
Many variables utilized in the demand forecast may influence future demand projections. Hazen will work with MWDOC and OCWD to establish 5-7 variables that have statistically significant impacts on Orange County water demands and would be most relevant in the demand projection model. Hazen will then work with staff and member agencies to define up to 7 projection scenarios. These forecasts may be defined by model components independently, such as hot/dry, high/low growth, and higher/lower uptake of selected conservation measures, or represent thematic combinations of multiple variables, such as “hot climate/hot economy,” “high price/slow growth/no rebound,” and other conceivable future storylines. Given the expected robust nature of model components, it is possible to develop forecasts that integrate potential responses by member agencies (such as additional pricing and conservation strategies) that mitigate undesirable outcomes related to variables generally outside of the influence of the water providers (such as climate change and economic development trends). Given

the potentially wide and diverse range of scenario combinations, it will be necessary to concentrate on model variables that have the greatest impact and/or statistical significance. From an econometric perspective, the assessment will focus on the size and magnitude of estimated parameters, as well as observed historical variance. From the perspective of water conservation analysis, key areas of uncertainty in the specification and coverage of conservation measures will identify and highlight additional forecasts.

Within the sensitivity analysis, Hazen will focus on the key drivers of each forecasts and identify how, for example, one demand variable might have a much greater impact than another demand variable in a given projection. All scenarios will need to be formulated and translated into the units of measure used for model variables.

6.6 Calculate Urban Water Use Objective

MWDOC and OCWD may want to support member agency and basin producer compliance with statutes related to "Making Water Conservation a California Way of Life," to ensure that the forecast model of Task 3 provides the necessary information to calculate the Urban Water Use Objective (UWUO). The primary components of the methodology are generally known to include water use targets and related calculations for residential indoor use, residential outdoor use, and outdoor commercial, industrial, and institutional (CII) use associated with dedicated irrigation meters. The sum of these components and real water losses represents the UWUO, which is expressed in terms of annual average gallons per capita per day. Although compliance with the UWUO is judged based on the sum of the components versus observed use, the ability to break out the components individually will highlight trade-offs and areas where additional conservation efforts may be needed to reach the individual and collective water efficiency targets.



It will be necessary to process water demand forecast data to fit the individual elements of the UWUO. Thus, the ability to classify demands within Task 2 and Task 3 will require classes for residential use and use associated with CII dedicated irrigation meters, where the latter is generally associated with irrigation-only accounts. Further segmentation of residential use into indoor and outdoor components will require assessment of seasonal demand patterns and a reasonable approach that recognizes the possibility of year-round irrigation. It is anticipated that some variant of the "minimum-month" or "base-seasonal" approach to estimating indoor and outdoor use will be utilized to forecast results, which will be supported by the monthly time step of the Task 3 models.

The UWUO methodology and results of the calculations for each agency will be documented.

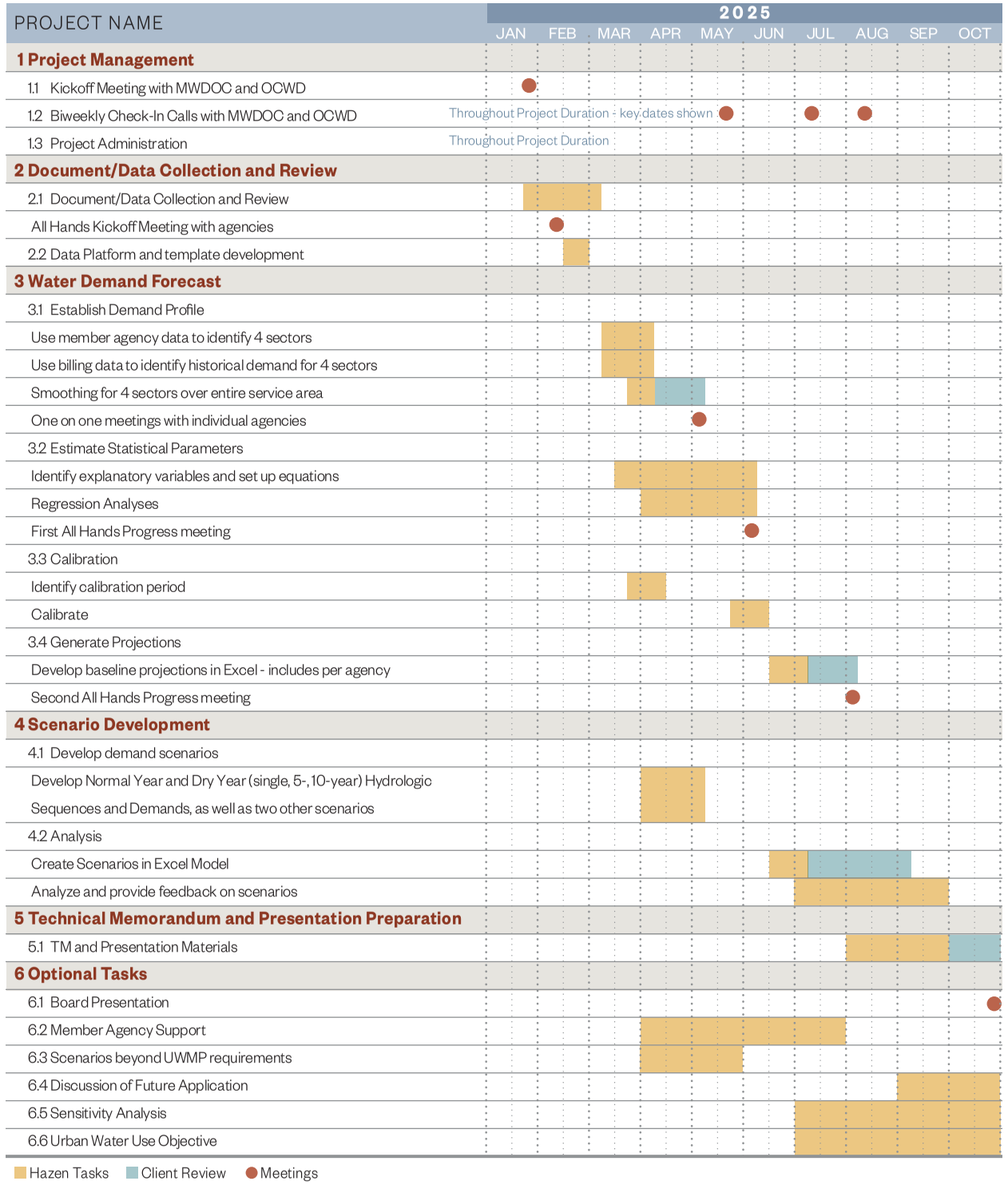
E Project Schedule



Section E

Project Schedule

Hazen has developed a proposed schedule that aligns with our experience in delivering similar work. Our schedule meets the RFP requirements for final demand projections by September 2025. Our team is flexible with specific meeting dates, but must adhere to the overall schedule in order to provide the demand forecasts for the 2025 Urban Water Management Plan. If selected, Hazen is willing to work with MWDOC and OCWD to adjust data collection and review timelines, based on discussion at the Kick Off Meeting.



Task	Completion Date	Notes and Assumptions
Task 1: Project Management	Throughout project duration	• The kickoff meeting with Hazen, MWDOC, and OCWD staff is estimated to occur near the last week in January after notice to proceed/agreement signed • Biweekly check-in calls are not all shown, but key dates are. A meeting will take place during the second to last week of May to talk about what to present in the first all hands progress meeting. Draft demand predictions will be discussed during the second week of July, with two weeks to revise before they are officially due and the agency all-agency meeting takes place. Another key meeting will occur near the second week of August to synthesize thoughts from the last all-agency meeting.
Task 2: Data Collection	Draft: March 14, 2025 Final: April 4, 2025	• The all-agency kickoff meeting with agencies can occur two weeks after the internal kickoff to process notes and objectives • Data collection and review will occur from the notice to proceed into March • Downscaled climate data and template development will occur at the end of February, after the all-agency kickoff meeting
Task 3: Water Demand Forecast	Demand Sectors Draft: March 28, 2025 Final: April 18, 2025 Baseline Projections Draft: June 20, 2025 Final: August 22, 2025	• The second all-agency progress meeting will take place the first week of June, after the four demand sectors, draft drivers, and draft explanatory variables have been identified • The third (and final) all-agency progress meeting can occur the first week in August, after draft demand projections are due • Individual calls with agencies will occur after agency data is sent to Hazen and our team has identified demand sectors, approximately the first week of May. If a second call is required, it could occur after the second all-agency meeting to answer more detailed questions • The Hazen team will work to provide MWDOC and OCWD draft sectors after agencies have a chance to send data; the last few weeks of March, leaving a month for review • This task has extra time built in for estimating statistical parameters and regression analysis and to compensate for any delays in data acquisition • The calibration period will be defined as late as early April to discuss at the first all hands progress meeting. Actual model calibration will occur in early June, giving the Hazen team a month to run the scenarios • Draft baseline projections will be completed at the end of June
Task 4: Scenario Development	Draft: July 11, 2025 Final: September 26, 2025	• The scenarios will be identified by the Hazen team starting in April, and ready to run the last few weeks of June • Key analysis will occur prior to the second all-agency meeting, but will continue with member agencies and staff until the end of September when the final projections are due
Task 5: Technical Memo and Presentation Materials	Draft: September 30, 2025 Final: October 31, 2025	• The technical memo will be formally written in August and September to send MWDOC and OCWD a draft right when the final forecasts are due, but it is expected that individual tasks will be written up before then • Development of presentation materials will take place as appropriate through the project
Task 6: Optional Tasks	As needed	• The board presentation could be the last week of October or early November • Member agency support can start as early as we get data from them, and last until the first draft of the demand forecast at the end of July • Additional scenarios beyond the two non-UWMP forecasts and UWMP scenarios can occur while the team is identifying the scoped scenarios, in April and May • Discussion of future applications can occur in the tech memo and after, September and October • Optional sensitivity analysis and Urban Water Use Objective can be completed either in July, as we are working on the first draft, or when the project is complete to give the Hazen team more time to develop the forecasts

F

Project Fee Schedule



Section F

Project Fee Schedule

Our budget was developed based on the scope presented in the RFP, our discussions with MWDOC and OCWD staff, and our experience on similar assignments.

MWDOC and OCWD	Development of Demand Forecasts for Orange County Water Agencies	Project Director	Project Manager	Project Engineer	Technical Director	QAQC	Outreach	Scenario Development	Data Collection PE	Support AE	Total Hours	H&S Labor Cost	Subs			Total Fee
		Cindy Miller	Kirsten Plonka	Andrea Zimmer	Jack Kiefer	Luke Wang	Megan Drummy	Devon Becker	Jared Eichmiller	Nolan Townsend				Subcontrator Fee (0%)	Other Direct Costs (ODCs)	
	Billing Rate	$400	$330	$270	$375	$330	$215	$310	$200	$180						
1	Project Management	2	66	26	10	0	0	4	0	0	108	$ 34,590	$ -	$ -	$ -	$ 34,590
1.1	Kickoff Meeting with MWDOC	2	2	2	2						8	$ 2,750				
1.2	Biweekly Check-In Calls with MWDOC		16	16	8			4			44	$ 13,840				
1.3	Project Administration		48	8							56	$ 18,000				
2	Document/Data Collection and Review	2	8	28	20	0	0	0	36	96	190	$ 42,980	$ -	$ -	$ -	$ 42,980
2.1	Document/Data Collection and Review	2	4	24	16	0	0	0	20	80	146	$ 33,000				
	Data Collection and Review			16	8				20	40	84	$ 18,520				
	Downscale Climate Data			4	4					40	48	$ 9,780				
	All Hands Kickoff Meeting with agencies	2	4	4	4						14	$ 4,700				
2.2	Data Platform and template development		4	4	4				16	16	44	$ 9,980				
3	Water Demand Forecast	4	38	158	75	24	0	7	112	240	658	$ 160,615	$ -	$ -	$ -	$ 160,615
3.1	Establish Demand Profile	0	28	50	18	4	0	0	24	24	148	$ 39,930				
	Use member agency data to identify 4 sectors			8	6				8	8	30	$ 7,450				
	Use billing data to identify historical demand for 4 sectors			8	6				8	8	30	$ 7,450				
	Smoothing for 4 sectors over entire service area		2	8	6	4			8	8	36	$ 9,430				
	One on one meeting(s) with individual agencies (one 1 hour or two 30 min)		26	26							52	$ 15,600				
3.2	Estimate Statistical Parameters	2	4	72	36	8	0	1	88	88	299	$ 71,450				
	Identify explanatory variables and set up equations			24	16				40	40	120	$ 27,680				
	Regression Analyses		2	24	16	8			40	40	130	$ 30,980				
	First All Hands Progress meeting	2	2	24	4			1	8	8	49	$ 12,790				
3.3	Calibration	0	2	8	14	8	0	0	0	56	88	$ 20,790				
	Identify calibration period			4	6					16	26	$ 6,210				
	Calibrate		2	4	8	8				40	62	$ 14,580				
3.4	Generate Projections	2	4	28	7	4	0	6	0	72	123	$ 28,445				
	Develop baseline projections in Excel - includes per agency		2	4	4	4				60	74	$ 15,360				
	Second All Hands Progress meeting	2	2	24	3			6		12	49	$ 13,085				
4	Scenario Development	0	6	8	8	0	0	32	16	24	94	$ 24,580				$ 24,580
4.1	Develop demand scenarios	0	2	4	4	0	0	8	16	0	34	$ 8,920				
	Develop Normal Year and Dry Year (single, 5-, 10-year) Hydrologic Sequences and Demands		2	4	4			8	16							
4.2	Analysis	0	4	4	4	0	0	24	0	24	60	$ 15,660				
	Create Scenarios in Excel Model									24						
	Analyze and provide feedback on scenarios		4	4	4			24								
5	Technical Memorandum and Presentation Preparation	0	12	24	12	4	0	12	0	40	104	$ 27,180				$ 27,180
5.1	TM and Presentation Materials		12	24	12	4		12		40	104	$ 27,180				
6	Optional Tasks	0	14	124	84	32	0	24	0	248	526	$ 132,240	$ -	$ -		$ 132,240
6.1	Board Presentation		4	24	8	4				32	72	$ 17,880				
6.2	Member Agency Support			24	24	8				40	96	$ 25,320				
6.3	Scenarios beyond UWMP requirements			4	4			24		32	64	$ 15,780				
6.4	Discussion of Future Application			32	16	16					64	$ 19,920				
6.5	Sensitivity Analysis		8	24	16	2				40	90	$ 22,980				
6.6	Urban Water Use Objective		2	16	16	2				104	140	$ 30,360				
	TOTAL (with Optional)	8	144	368	209	60	0	79	164	648	1,680	$ 422,185	$ -	$ -	$ -	$ 422,185
	TOTAL (without Optional)	8	130	244	125	28	0	55	164	400	1,154	$ 289,945	$ -	$ -	$ -	$ 289,945

TOTAL COST (without Optional)	**$ 289,945**
TOTAL COST (with Optional)	**$ 422,185**

1 Resumes





Kirsten Plonka, PE

Project Manager

Kirsten brings over 20 years of experience in the planning, design, and management of water, wastewater, and recycled water systems.

Kirsten's experience includes extensive project management in water resources planning and operations. Her expertise spans reservoir operations, source water allocation planning, demand projection, and infrastructure capacity planning. She is proficient in developing integrated water resources plans and master plans, conducting supply and demand analyses, and hydraulic modeling. Additionally, Ms. Plonka has managed public engineering departments, led wastewater collection operations, and has significant regulatory compliance experience, including securing funding opportunities.

Education

BS, Civil Engineering, California Polytechnic State University, San Luis Obispo

MS, Management, Colorado State University, Global Campus (in-process)

Certification/License

Professional Engineer

Utility Risk & Resilience Certified by AWWA

Advanced Water & Wastewater Modeling Certified by Autodesk

Areas of Expertise

- Water Supply Planning and Modeling
- Water Resource Planning
- Water and Collection System Master Planning
- Risk, Resiliency, and
- Emergency Response Planning
- Feasibility Studies
- Funding

Professional Affiliations

American Society of Engineers

American Public Works Association

Engineers Without Borders

(former Southern California State Representative)

Potable Reuse Advisory Committee, San Diego

Lead and Copper Rule Revisions, Municipal Water District of Orange County, Fountain Valley, CA

Deputy Project Manager. As the Deputy Project Manager for MWDOC's Lead and Copper Rule Revisions (LCRR) project, played a critical role in ensuring compliance for thirteen member agencies with updated federal regulations aimed at reducing lead and copper in drinking water systems. As the project was focused on identifying lead service lines, she was responsible for leading a team reviewing historical codes, utilizing GIS technology to compile a comprehensive list of lead service lines, and employing additional verification methods like geo-spatial statistical analysis. Kirsten managed a field contractor and coordinated QA/QC. She also corresponded with the Division of Drinking Water (DDW), providing regulatory advice and developing educational materials for the community. Additionally, she played a crucial role in evaluating project costs, ensuring accurate budgeting, and maintaining transparency and accountability throughout the project to safeguard public health.

2020 UMWPs, Various Clients, CA

Project Manager. Managed the development of the 2020 Urban Water Management Plans (UWMPs) for San Antonio Water Company, City of Escondido, Valley Center Municipal Water District, Big Bear Community Services District, Scotts Valley Water District, and San Lorenzo Valley Water District. Key responsibilities included ensuring the accuracy and quality of each plan to meet California Department of Water Resources (DWR) requirements. A primary focus was on developing detailed demand projections through 2045, assessing future water needs, and evaluating supply options for each agency. The plans also integrated energy efficiency measures and climate action strategies, addressing the link between water management, energy use, and climate resilience to promote long-term sustainability.

Hazen

Comprehensive System Master Plan and Asset Management Program and UWMP, San Antonio Water Company, Upland, CA

Project Manager. Collaborated with SAWCo on the development of a comprehensive Water Master Plan and Asset Management Program, including their UWMP, designed to guide the company's annual planning and rate structure over the next decade. The plan's key focus areas included demand forecasting, evaluating the current water supply portfolio under various risk scenarios, providing recommendations to strengthen existing supplies and explore alternative sources, and delivering a new calibrated hydraulic model integrated with GIS datasets to enhance system operations and Capital Improvement Program (CIP) development.

Sweetwater Authority, Water Resources Master Plan, Chula Vista, CA

Deputy Project Manager. Collaborated closely with Sweetwater Authority (the Authority) on updating its Water Resources Master Plan. This plan provided in-depth demand analysis for multiple planning scenarios, assessed the reliability of the Authority's water supply over a 25-year planning horizon, evaluated options for developing new local water sources and expanding existing ones, and provided recommendations for cost effective project alternatives to reduce dependence on expensive imported water. Additionally, the plan identified potential funding opportunities to support these initiatives.

East Valley Water District Drought Contingency Plan, Highland, CA

Project Manager. Led the development of a Bureau of Reclamation (BOR) funded Drought Response Plan for the East Valley Water District, aimed at enhancing the district's ability to proactively address drought conditions by integrating new hydrologic indicators and identifying specific response triggers. The project focused on forecasting demands under multiple drought scenarios, improving water supply management and fostering alignment between East Valley and its regional partners in drought response efforts. Key elements included the creation of a project framework, in-depth stakeholder engagement, and coordination with the BOR to ensure compliance with federal guidelines. Through technical analysis and collaborative outreach, the plan provided a comprehensive strategy to safeguard water resources and enhance the district's resilience in future drought scenarios.

Santa Clara Valley Water Drought Contingency Plan, Santa Clara, CA

Deputy Project Manager. Oversaw the creation of a Bureau of Reclamation (BOR) funded Drought Response Plan for Santa Clara Valley Water, emphasizing demand forecasting to enhance the agency's proactive approach to drought management. The plan introduced advanced hydrologic indicators and specific response triggers to better prepare for drought impacts. Key efforts included developing a comprehensive demand forecast model, facilitating extensive stakeholder engagement, and closely coordinating with BOR to meet federal compliance standards. Through technical analysis and strategic collaboration, the plan delivered a structured approach to protect water resources and reinforce Santa Clara Valley Water's resilience against future droughts.

Water Master Plan and Condition Assessment, Big Bear City Community Services District, Big Bear City, CA

Project Manager. Led the development of a Water Master Plan and Condition Assessment for Big Bear City Community Services District, integrating comprehensive demand forecasting, Urban Water Management Plan development, and supply analysis. Conducted in-depth site visits and collaborated with operators to thoroughly document the maintenance and replacement needs of the water system. The project involved detailed assessments of the district's infrastructure, including age, condition, and projected lifespan of assets. The final master plan will feature a Capital Improvement Plan designed to support annual budgeting, rate-setting, improvement prioritization, and long-term planning to meet future water demands.



Andrea Zimmer, PhD, PE

Deputy Project Manager
Demand Forecast Model Development

Andrea has spent the last 10 years developing software models that simulate long-term water supply for urban agencies in the southwest U.S. These models quantify regulatory and climate changes to large scale imported supplies (such as the California Bay Delta and the Colorado River) as well as local groundwater, surface water, and recycled water.'

Education

Ph.D., Civil/Environmental Engineering, University of Illinois, Urbana, IL

M.S., Civil/Environmental Engineering, Rice University, Houston, TX

B.S., Civil/Environmental Engineering, Rice University, Houston, TX

Certification/License

Professional Engineer

Areas of Expertise

- Integrated Planning
- Water Supply Modeling
- Stormwater Management

Orange County Water Reliability Study, Municipal Water District of Orange County, Fountain Valley, CA

Project Engineer. Synthesized environmental regulations and historic hydrology on the California State Water Project and Colorado River to identify water supply contributions; developed a mass balance model for Orange County Groundwater District to establish a basin production percentage. Collaborated with colleagues at the National Center for Atmospheric Research to quantify the impacts of Coupled Model Intercomparison Project 5 (CMIP5) climate change using the hybrid delta method, programmed systems hydrologic models to run both historic and climate change projections in an index sequential format within the Stockholm Environment Institute WEAP model. Defined future supply and demand scenarios and evaluated the impacts of potential water supply projects on water demand, and framed results for presentations to agency board.

Sweetwater Authority Water Resources Master Plan, Sweetwater Authority, Chula Vista, CA

Project Engineer. Prepared an estimate of imported water costs from San Diego County Water Authority out to 2050 to predict the cost efficiency of new local projects. Based cost predictions on variable treated and untreated rates, transportation rates, and commodity based fixed charges. Incorporated future Metropolitan Water District of Southern California (MWD) project investment costs to simulate higher costs corresponding to higher water supply reliability. Approximated MWD charges from population projections from the MWD 2020 Integrated Resources Plan as well as MWD's Biennial Budget for Fiscal Years 2020/21 and 2021/22, and projected SDCWA costs from the CY 2021 and CY 2023 Cost of Service studies. Results showed that most of the cost increase to Sweetwater Authority due to new MWD projects is in the MWD pass-through Readiness to Serve Charge.

Hazen

Water Supply Reliability Study, Cal Water Delta Region Districts, Stockton, CA
Project Engineer. Used CalSim 3 (CA DWR and U.S. Bureau of Reclamation) to simulate deliveries to the Stockton District through Stockton East Water District's (SEWD) New Melones and New Hogan Reservoirs. Calculated a multiplicative change factor (delta) between the 2021 Delivery Capability Report (DCR) Existing flows and the 2019 DCR 2070 Drier Extreme Warming scenario to develop an extreme climate change condition. Assumed two separate implementations of the 2006 Bay Delta Plan: through voluntary agreements (VAs) and based on State Water Board Resolution No. 2018-0059 which recommended minimum unimpaired flows. Determined water supply gaps for the Stockton District by running CalSim 3 through 94 hydrologic traces using an Index Sequential Methodology (ISM) approach. Recommended adaptive management practices for the Stockton and Livermore Districts to determine level of investment in new supplies.

Water 2100, City of Santa Fe, Santa Fe, NM
Project Engineer. Supported the development of a long-range water resources plan. Adapted demand forecast to incorporate downscaled CMIP3climate change data, and advanced a GoldSim software model to quantify City water supplies into the future (also under climate change impacts). Depicted local Santa Fe River inflows to the City's Canyon Road Treatment Plant (CRWTP), groundwater pumping from three wellfields, and imported flows from the Colorado River through the San Juan Chama Project and the Buckman Direct Diversion on the Rio Grande. Incorporated Modflow-computed response functions to simulate groundwater elevations and affiliated well capacity over time.

Proof of Concept Alternative Integrated Resources Planning Model, Alameda County Water District, Fremont, CA
Project Engineer. Developed Proof of Concept (PoC) model in RiverWare to include ACWD supply sources (State Water Project and local surface water through two treatment plants, a groundwater desalination facility, a blending facility for groundwater and San Francisco Public Utilities Commission SFPUC supplies, and direct SFPUC supplies) and storage (San Luis, Semitropic, groundwater, Los Vaqueros Reservoir and Lake Del Valle) prioritization. Simulated Table A inflows, storage limits, and spill rules for San Luis Reservoir as well as limiting Semitropic operations. Depicted Lake Del Valle releases to treatment plant and all groundwater basin flows. Designed methodology to limit the amount of water model could take from desalination and blending to the appropriate TDS ratios, setting the minimum and maximum bounds in the model. Assigned weights to each of four sources based on the expense of treating water and the water needed through each source at the daily time step. Pursued model validation and QA/QC exercises on output of supply system model with existing Excel IRPM results.

2020 Agricultural Water Management Plan; Byron Bethany Irrigation District, Byron, CA
Project Engineer. Performed QAQC for the 2020 AWMP by researching state requirements, including the Water Conservation Act of 2009 (Senate Bill X7-7), SB 1330, and Executive Order B-37-16 (2016). Checked future production and demand numbers for consistency across report.



Cindy Miller, PE

Principal-in-Charge

Cindy is an experienced water resources expert with a long resume of leading the most challenging water and wastewater projects to successful completion. Her experience extends from planning, design, construction, and owner's agent services.

Education

B.S., Civil Engineering, University of California, Irvine

Certification/License

Professional Engineer

Areas of Expertise

- Pump Station Planning and Design
- Reservoir Storage Planning and Design
- Well Equipping Planning and Design
- Groundwater Supply
- Pipeline Planning and Design
- Project Management
- Program Management
- Project Delivery
- Drinking Water

Professional Activities

AWWA, ASCE, AMTA

CA-NV AWWA

CA Water Reuse Association

Cindy serves as Hazen's Orange County Operations Manager,with over 30 years of experience working for numerous water and wastewater agencies throughout Orange County and the Inland Empire. Her extensive experience includes planning, design and construction oversight of water supply, treatment, storage and conveyance facilities. Her planning experience includes the preparation of master plans, sub-area master plans, urban water management plans, water supply assessments, and water quality management plans. Her design and project management experience includes providing Program Management services for a $150 million groundwater supply project, which includes wells, pipelines, pump stations, and an advanced treatment system for R.O. concentrate reduction; Program Manager for a $30 million TCE groundwater cleanup project; Project Manager for preliminary and final design of a 28 MGD microfiltration treatment facility, and Project Manager for a 10 MGD R.O./Ion Exchange groundwater treatment plant. Ms. Miller has also led numerous water storage and conveyance infrastructure projects, including design of over 100 miles of pipeline (Ductile Iron, CML&C steel, PVC, and HDPE pipeline), design of steel, pre-stressed concrete, and cast-in-place concrete storage reservoirs, up to 10 million gallons, and numerous pump station facilities. She has led feasibility/planning studies, developed treatment process evaluations and life-cycle cost evaluations, participated in value engineering studies and operations evaluations. She has developed detailed designs of many systems and provided construction and startup services. She has experience with different project delivery methods including: design-bid-build, design-build and design-build-operate-finance.

Water Quality Evaluation Study, Jurupa Community Services District, Jurupa Valley, CA

Project Manager. Cindy was Project Manager for an analysis to evaluate design alternatives to address a range of water quality constituents, including TDS, nitrate, PFAS, VOCs, 1,2,3-TCP, 1,1-DCE, and perchlorate. This study included the development of short-term options to mitigate service risks resulting from out of service wells, as well as long-term design alternatives to address regulated contaminants, while allowing flexibility to comply with potential future regulations.

Beverly Hills Integrated Water Resources Master Plan (Water, Sewer, Storm, Recycled, and SCADA), City of Beverly Hills, CA

Principal in Charge. This is a comprehensive $1.5 M master plan of the potable water, recycled water, sanitary sewer, stormwater, and SCADA system. The IWRMP – Part 1 addresses the City's major water resources strategy which includes imported water, groundwater, and other potential supply sources. Part 1 also addresses other topics including emergency storage for the water system, and stormwater compliance. The IWRMP – Part 2 is a master plan of the water, sewer, and storm drain systems. For each system, the document addresses the existing system and service area, evaluation and design criteria, system analysis, and capital improvements. The theme of the IWRMP is to focus on near-term practical solutions with an eye towards what could be done in the future. The near-term represents a focus on projects that should be implemented within the next five years – 2021 through 2025. An eye towards the future includes taking the necessary steps now to position for long-term resiliency and reliability of the City's water, sewer, and storm drain systems. The IWRMP achieved several important goals for the City, including hydraulic model updates and calibration, long-range demand forecasting, and independent analysis of each of the systems.

Sunset Gap Seawater Intrusion Barrier Feasibility Study, Orange County Water District, Fountain Valley, CA

Project Manager. OCWD has established that seawater intrusion is occurring in the Sunset Gap area of the Orange County Groundwater Basin, and threatens groundwater resources in the cities of Huntington Beach, Seal Beach, and Westminster. To address this issue Hazen is evaluating potential alternatives to prevent the inland migration of seawater. The alternatives include construction of up to 34 injection wells with an annual average demand of 13 MGD, and 3 extraction wells that would pump 3 MGD. Alternative water supply sources to supply the injection wells are being evaluated and include GWRS purified recycled water; purified recycled water from MWD future expanded Carson plant; groundwater extracted from the Deep aquifer; and purified recycled water from WRD. OCWD is currently studying whether to change the injection barrier to an extraction barrier and if OCWD determines this to be a viable alternative, Hazen will be performing an engineering evaluation of this alternative as well.

Regional Brackish Water Reclamation Program- Phase 1 Pilot Testing and Water Quality Characterization, Water Replenishment District of Southern California, Lakewood, CA

Program Management/Delivery. Cindy managed the pilot program and design for the Regional Brackish Water Reclamation Program. The Phase 1 Project develops a well drilling and water quality characterization program to define where the trapped seawater plume is within the aquifer and to determine the best location for production wells to pump the plume to a 10,000 AF (9 mgd) Reverse Osmosis System. The project includes drilling a nested pilot well to supply water to a treatment pilot. The project includes developing preliminary designs of the wells, pipelines, pretreatment, reverse osmosis and post treatment pumping and brine disposal lines. The project will remediate the aquifer and reclaim water that will be supplied to multiple local stakeholders.

Chino I Desalter VOC Treatment, Chino Basin Desalter Authority, CA

Project Manager. The project includes preliminary and final design of two (2) GAC treatment facilities (1.7 mgd and 3.4 mgd) at the Chino I Desalter Plant for the removal of TCE and 1,2,3-TCP, and evaluation of treatment requirements for 1,4-dioxanr, cis-1,2-DCE, 1,2-CDA, PFOA, and PFOS. The goal of this project is to provide groundwater treatment for all CDA bypass wells (CDA Wells I-1 through I-4), and several treated wells (CDA I-16 through 18), plus 10 new wells that will be installed by the County of San Bernardino as part of a Cleanup and Abatement Order issued by the Santa Ana Regional Water Quality Control Board (SARWQCB).



Jack C. Kiefer, PhD

Technical Director
Demand Forecast Model Development

Jack is an economist and geographer specializing in multiple consulting areas of water resource economics and planning, econometrics, and integrated water demand and supply planning and management.

Education

PhD, Geography, Southern Illinois University

MA, Monetary and Development Economics, Southern Illinois University

BA, Economics, Southern Illinois University

Areas of Expertise

- Econometric Analysis and Forecasting
- Water Supply Reliability Planning
- Impact and Process Evaluation
- Risk and Uncertainty Analysis
- Water Resources Planning
- Economic Analysis

Professional Activities

American Water Works Association

American Water Resources Association

Technical Publications and Presentations

Water Demand Forecasting for Water Resources and Infrastructure Planning. 2022. J. Kiefer, C. Jones, and B. Dziegielewski. Water Research Foundation, Denver.

"Information Needs for Water Demand Planning and Management." J. Kiefer and L. Krentz. 2018. Journal of the American Water Works Association, 110:3.

Long-term Water Demand Forecasts, San Diego County Water Authority, San Diego, CA
Project Manager. Development of six consecutive water demand forecasts and forecast updates for the San Diego County Water Authority, in support of the Agency's periodic development of its Urban Water Management Plan. Original efforts involved the development of econometric models of M&I water demands, which were followed by development of predictive models for agricultural demands. More recent support to the Authority has included the analysis of climate change impacts on waterdemand and the development and application of risk-based simulation procedures to support long-term supply reliability and capital improvement planning.

East Bay Municipal Utility District Water Demand Study 2050, CA
Technical Director/Project Manager. Directed the development of econometric model for forecasting water demands in EBMUD service area out to the year 2050. The econometric model explicitly accounts for weather/climate conditions, anticipated land use changes, development trends, and socioeconomic factors (e.g., water rates, jobs, population growth, income) which have been shown to impact water use. The forecasted demands deduct savings from passive and active conservation and are allocated into demand planning regions pressure zones.

Cost of Water Shortage Model Update, Valley Water, CA
Technical Advisor. As part of this model update, new water demand forecasts, prices and price elasticities, and water production costs were integrated into the model, along with updated water shortage simulation obtained from the Water Evaluation and Planning System (WEAP). The model structure was also modified to operate on monthly time step. Output from the cost of shortage model can be used to estimate the regional economic benefits associated with proposed water supply infrastructure investments and/or alternate management strategies (i.e., project portfolios).

Water Use in the Multifamily Housing Sector. J. Kiefer and L. Krentz. 2018. Denver, Colo.: Water Research Foundation.

"Urban Water Demand Forecasting: Demand Trends, Drivers, and Uncertainties". Presented at Water Research Foundation Symposium hosted by Metro Vancouver Water, Vancouver, BC, November 29, 2017.

"Developing a Spatially and Sectorally Disaggregate Water Demand Forecasting Tool for Tampa Bay Water" J. Kiefer. Presented at American Water Works Association 2017 Annual Conference and Exposition, Philadelphia, PA, June 11-14, 2017

Water Demand Forecasting in Uncertain Times: Isolating the Effects of the Great Recession. Kiefer, J., Johns, G., Snaith, S., and B. Dziegielewski. 2016. Denver, Colo.: Water Research Foundation.

Evaluation of Customer Information and Data Processing Needs for Water Demand Analysis, Planning, and Management. J. Kiefer and L. Krentz. 2016. Denver, Colo.: Water Research Foundation.

"Identifying and Adapting to Water Demand Uncertainties." 2016. J. Kiefer. Presented at American Water Works Association 2016 Annual Conference and Exposition, Chicago, IL, June 19-22, 2016.

Uncertainty in Long-Term Water Demand Forecasts: A Primer on Concepts and Review of Water Industry Practices. Kiefer, J., Yoe, C., Clayton, J. and J. Leonard. 2016. Denver, Colo.: Water Research Foundation.

"Research Considerations for Evaluating Water Use among CII Sectors." J. Kiefer. 2016. Presented at American Water Works Association 2016 Sustainable Water Management Conference, Providence, RI, March 2016

Analysis of Changes in Water Use under Regional Climate Change Scenarios. 2013. J. Kiefer, J. Clayton, B. Dziegielewski, and J. Henderson. Water Research Foundation, Denver.

Long-Term Probabilistic Water Demand and Supply Reliability Forecast for Tampa Bay Water, FL

Project Manager. Led risk-based water demand and supply study for Tampa Bay Water, where he focused on the development of econometric models of water demand and applied a risk-based framework for assessing long-term supply reliability.

Portland Water Bureau, Demand Model Update, OR

Technical Lead. Updating PWB's demand forecasting model in support of long-term adaptive planning, including a critical review of existing econometric model and internal stakeholder input on important model design features.

New York City Demand Projection Model, NY

Technical Director. Designed and implemented econometric models for projecting water demands and sanitary wastewater flows using AMI data and integrated spatial database. Projection models were designed for 8 customer class/land use designations based on intersection of parcel and water use information.

Confidential Client, CO

Expert Advisor/Technical Lead. As part of a team led by INTERA providing expert guidance on water demand model development and forecasting for litigation support and planning efforts. Demand forecasting models integrate end use accounting and econometric methods to capture and distinguish between indoor and outdoor demand trends .

Water Demand Study 2050, East Bay Municipal Utilities District, CA

Technical Director/Project Manager. Developed an econometric model for forecasting water demands for the EBMUD service area out to the year 2050. The econometric model explicitly accounts for weather/climate conditions, anticipated land use changes, development trends, and socioeconomic factors (e.g. water rates, jobs, population growth, income) which have been shown to impact water use.

Comprehensive Water Master Supply Plan, City of Columbus, OH

Lead Forecaster. As part of demand forecast model development, this effort included a significant change in the methods used to forecast, with a new focus on statistical modeling and spatial data disaggregation. The forecasting model differs fundamentally from previous models used by the City in that it (a) does not rely on population solely as the primary driver of water use and (b) uses a statistical model to incorporate the influence of socioeconomic, water conservation, and climatic factors used to allocate demands into parcels within traffic analysis zones.



Luke C. Wang, PE

QA/QC

Luke specializes in water resources planning and operations. He has extensive experience in water demand forecasting, water supply planning, reservoir operations, and econometric analyses. Luke is the Water Resources Practice Leader for Hazen's Western Region.

Education

MS, Earth and Environmental Engineering, Columbia University

BS, Earth and Environmental Engineering, Columbia University

Certification/License

Professional Engineer

Areas of Expertise

- Water supply operations management and modeling
- Big data management and visualization
- Statistical analysis and modeling
- Hydrology
- Climate variability and change

Professional Activities

American Water Works Association

American Geophysical Union

American Water Resources Association

Publications

James Porter, Gerald Day, John C Shaake, and Lucien Wang. "New York City's Operations Support Tool: Utilizing Hydrologic Forecasts for Water Supply Management",Handbook of Hydrometeorological Ensemble Forecasting (2018)

Gong, Gavin, Lucien Wang, Laura Condon, Alastair Shearman, and Upmanu Lall. "A Simple Framework for Incorporating Seasonal Streamflow Forecasts Into Existing Water Resource Management Practices." Journal of the American Water Resources Association 46.3 (2010): 574-585.

Bay Area Water Supply & Conservation Agency Regional Water Supply Reliability Model Development and Analysis Services, San Mateo, CA

Project Manager and Lead Systems Modeler. Designed a water supply system model for the Bay Area incorporating regional supply sources (e.g. San Francisco Regional Water System) with locally utilized supplies and detailed estimations of municipal demands. BAWSCA is using the model for long-term water reliability planning and alternatives analysis.

Santa Clara Valley Water District (Valley Water) Water Demand Model, San Jose, CA

Project Manager. Developing Valley Water's new water demand model. Valley Water is in the process of developing a new water demand model for the purpose of developing long-term water demand projections. The model will be used to support several water supply planning and analysis efforts. As Project Manager, Mr. Wang is responsible for guiding the overall technical direction of the project, as well as maintaining the project budget and schedule.

East Bay Municipal Utility District (EBMUD) 2050 Demand Study, Oakland, CA

Deputy Project Manager. EBMUD is in the process of developing an econometric model for forecasting water demands in their service area out to the year 2050. The econometric model will explicitly account weather/climate conditions, anticipated land use changes, development trends, and socioeconomic factors (e.g. water rates, jobs, population growth, income) which have been shown to impact water use. The forecasted demands will be a critical component of EBMUD's 2020 Urban Water Management Plan.

Zone 7 Water Agency (Zone 7) Conjunctive Use Study and Water Supply Evaluation Update, Livermore, CA
Project Manager. With declining yields to the SWP and increasing water demands, Zone 7 is conducting a conjunctive use study in parallel with an update to their Water Supply Evaluation (WSE) to evaluate new water supply sources and strategies to meet their future demands. As a part of the WSE, Mr. Wang led a peer review and update of Zone 7's existing water supply risk model in coordination with revisions to the Agency's water supply portfolio alternatives. The peer review recommended migrating the existing risk model to a RiverWare implementation utilizing an Index Sequential Method (ISM) to address hydrologic variability.

Santa Clara Valley Water District (Valley Water) Drought Response Plan, San Jose, CA
Project Manager. Currently developing a Bureau of Reclamation funded Drought Response Plan for Valley Water. The goals of the project are to enable Valley Water to be more proactive in responding to drought by considering new hydrologic indicators of drought, triggers for implementing response actions, and promoting alignment in drought response actions between Valley Water and its retail agencies.

Sweetwater Authority, Water Resources Master Plan, Chula Vista, CA
Project Manager. Currently working closely with Sweetwater Authority (Authority) an update to its Water Resources Master Plan. The intent of the Water Resources Master Plan is to examine the reliability of the Authority's water supplies to meet demands over a twenty-five-year planning period, to evaluate development of new local water supplies and/or expansion of existing local water supplies, and provide recommendations for reliable and cost-effective project alternatives to reduce dependence on more costly imported water supplies.

Demand Management Study, Upper Colorado River Commission, Salt Lake City, UT
Lead Modeler. Led development of updates the Colorado River Simulation System (CRSS) RiverWare model to support evaluation of the Demand Management Storage Agreement (DMSA). The modeling strategy included new RiverWare Policy Language (RPL) code to calculate conserved consumptive use (CCU) for water users in the Upper Basin, shepherding of the CCU to the Colorado River Storage Project Act (CRSP) Initial Units, and development of an "off-stream" reservoir account to model the accrual, evaporation, releases, and spills of CCU from Lake Powell. Oversaw batch execution of the model for 27 simulated scenarios varying hydrology, CCU contribution methods, and CCU accrual periods.

Cost of Water Shortage Model Update, Valley Water, CA
Project Manager. As part of this model update, new water demand forecasts, prices and price elasticities, and water production costs were integrated into the model, along with updated water shortage simulation obtained from the Water Evaluation and Planning System (WEAP). The model structure was also modifed to operate on monthly time step. Output from the cost of shortage model can be used to estimate the regional economic benefts associated with proposed water supply infrastructure investments and/or alternate management strategies (i.e., project portfolios).

Design Services for the Development of New York City's Operation Support Tool, NYCDEP, New York, NY
The Operations Support Tool (OST) is a state-of-the-art decision support system to provide computational and predictive operations and planning support for New York City's 1+ bgd water supply system. OST is an integrated model consisting of a water supply operations model, mechanistic reservoir water quality models, hydrologic forecasts, and a database containing near-real-time system data. Mr. Wang developed hydrologic forecasts, demand forecasts, dynamic reservoir operating rules, and customized dashboards for visualizing model output.



Jared Eichmiller

Data Collection and Information Review

Jared serves as Hazen's GIS Analyst in the Irvine Office. He has over 2 years of experience in helping local governments and organizations achieve their infrastructure and assessment goals through using GIS tools. He is experienced in cartography for print along with developing web applications, dashboards, and story maps. Jared is also skilled in developing field collection tools through Survey123 to conduct field assessments.

Education

BA, Geography, Indiana University

Areas of Expertise

- Geographic Information Systems
- Asset Management

San Bernardino Municipal Water District Condition Assessment, San Bernardino, CA

GIS Analyst. Jared is supporting the Asset Management team by developing Survey123 field collection forms. Surveys will be customized to meet the needs of collection type along with levying task assignments through an Operations Dashboard. These advancements will reduce data collection time.

Trabuco Canyon Water District Master Plan and Condition Assessment, Trabuco Canyon, CA

GIS Analyst. Jared developed deliverables for this project which involves field and desktop condition assessment data for several lift stations, pump stations, water and wastewater treatment plants.

NapaSan Master Plan, Napa CA

GIS Analyst. Jared is utilizing StoryMaps to create a visual, electronic submittal of Napa Sanitation's Capital Improvement Plan. as part of the Master Plan Project. The District selected Hazen to develop the Soscol Water Recycling Facility (SWRF) to provide NapaSan with strategic planning guidance and in-depth analysis of key focus areas. NapaSan intends to produce an actionable and strategic master plan that supports decision making over the next five-to-ten years while maintaining a 20-year planning horizon. the master Plan included key areas such as condition assessment, nutrients, biosolids, recycled water, capacity analysis.The Master Plan also includes an evaluation of vulnerabilities as well as susceptibility to climate change factors such as flood, wildfire risk and public safety power shutoffs.

Lead and Copper Rule Revisions, Los Angeles Department of Water and Power, Los Angeles, CA
GIS Analyst. Jared is the GIS Analyst for LADWP's evaluation of historical lead service line use and code reviews, development of an LSL inventory in GIS, use of alternative verification methods (predictive modeling and geospatial statistical analysis), funding assistance, and communications with DDW.

Napa Sanitation Capital Improvement Plan, Napa Sanitation District, Napa, CA
GIS Analyst. Jared is utilizing StoryMaps to create a visual, electronic submittal of Napa Sanitation's Capital Improvement Plan.

District-Wide Asset Management Plan, El Toro Water District, Lake Forest, CA
GIS Analyst. Hazen was selected through a competitive procurement to develop an asset management plan for the El Toro Water District's Pumping Division, which is responsible for the District's potable water pump stations, wastewater lift stations, storage tanks, and pressure-reducing valves. The effort included the development of the District's first ever asset management plan. Key elements of the asset management plan included adopting formal strategies around risk analysis, assigning likelihood and consequence of failure values, and performing staff consultation and field condition assessment to capture key asset condition and performance information. This information was used to identify and prioritize the District's capital improvement program. Deliverables of the work included an update asset register, written asset management plan, and data visualization dashboard.

Condition Assessment, San Bernardino Municipal Water District, San Bernardino, CA
GIS Analyst. Jared is supporting the Asset Management team by developing Survey123 field collection forms. Surveys will be customized to meet the needs of collection type along with levying task assignments through an Operations Dashboard. These advancements will reduce data collection time.



Nolan Townsend

Data Collection and Information Review

Mr. Townsend specializes in water resources analysis, unimpaired flow methodology and generation, and data analysis/visualization. His project experience at Hazen includes automating computations and procedures for unimpaired flows, analyzing water resources and supply options, working with large climate datasets and climate-specific data formats, and managing and analyzing large datasets.

Education

MS, Earth and Planetary Sciences, University of New Mexico, Albuquerque, NM

BS, Geology, University of Texas, Austin, TX

Areas of Expertise

- Water resources
- Water supply evaluation and modelling
- Developing unimpaired flows as model inputs
- Climate model analysis
- Data management, analysis, and visualization
- GIS with hydrology applications

Professional Activities

American Water Resources Association

American Geophysical Union

Water Supply Modeling, Southwest Connecticut Regional Water Authority (RWA), CT
Technical Support and Data Management. Currently, the model is being used to conduct a climate change resiliency study, where Hazen is developing stochastic climate-adjusted ensemble stream flows and demands to stress-test the reservoir system against potential future climate outcomes.

Climate Change Impacts on NYCDEP Water Supply, New York City Department of Environmental Protection, New York, NY
Python Developer, Water Resources/Climate Analyst. Co-lead the identification, analysis, and processing of downscaled CMIP6 datasets to support water supply modeling for NYC watersheds and reservoirs. Developed a robust data pipeline for two datasets, NASA and LOCA, including geospatial transformations to align gridded, polygon, and point data. Performed quality control testing to identify and correct issues in CMIP6 datasets.

Drought Plan Development and Water Supply Planning, Aquarion Water Company (AWC), CT
Technical Support and Data Management/Analysis. Supports the integrated model of AWC's surface water supply systems in Greenwich, Stamford, and Bridgeport in Southwestern Connecticut. Continue to support AWC with drought forecasts and alternatives planning studies with data updates and technical support.

Water Resource Dashboard, City of Santa Fe, NM
BI Development and Data Modelling Support. Assisted with ETL updates and facilitated updates to the data model. The updates to the Power BI dashboard allow the City of Santa Fe to view production data, streamflow, and other water resources data in near-real time, with key data being streamed in daily.

Demand Dashboard, City of Santa Fe, NM
BI Development Support, Data Management and GIS Support. Supported dashboard development to help the City of Santa Fe to track and analyze water usage by housing units, by meter, indoor vs. outdoor use, by neighborhood, and other metrics relevant for water supply planning and conservation. Constructed tabular, time series, and map-based data visualizations of metered water usage to inform city stakeholders. Created a script that used fuzzy matching to make the connection from meter data to the parcel data and then updated the data model and visuals in Power BI to allow users to see demand by parcel type. Performed data quality control for multi-year dataset and maintained data over time.

Water Supply Planning and Operations Modeling - Salt River Project, Phoenix, AZ
Python Developer and Data Management. Supporting development of a watershed forecast and reservoir operations support tool with a USBR WaterSMART Applied Science grant. Hazen is building a custom framework for processing input/output data and automating runs between multiple models. The tool will be utilized to inform short-term operations of the reservoir system, and eventually be leveraged to inform long-term and seasonal drought projections.

Surface Water Availability Resource Assessment Phase III: Apalachicola-Chattahoochee-Flint Basin, Georgia Environmental Protection Division, GA
Water Resources Assistant Engineer. Member of the unimpaired flows development team for the Apalachicola-Chattahoochee-Flint Basin. Mr. Townsend's primary task involved collecting and managing data, automating/streamlining unimpaired flow procedures, and hindcasting impairment data. The tasks involved the use of Excel, Python, and ArcGIS Pro.

Surface Water Availability Resource Assessment Phase II: Savannah-Ogeechee Basin, Georgia Environmental Protection Division, GA
Assistant Engineer. Member of the unimpaired flows development team for the Savannah-Ogeechee Basin. Mr. Townsend's primary task involved collecting and managing data, automating/streamlining unimpaired flow procedures, and hindcasting impairment data. The tasks involved the use of Excel, Python, and ArcGIS Pro.

Surface Water Availability Resource Assessment: Oconee-Ocmulgee-Altamaha Basin, Georgia Environmental Protection Division, GA
Water Resources Assistant Engineer. Development of the pilot basin environmental assessment model (BEAM) in OASIS for the Oconee-Ocmulgee-Altamaha Basin. Tasks include automating unimpaired streamflow methods in Python, develop impairment hindcast methodology using population and GDP data for municipal and industrial impairments, data collection and management, and analyzing and refining unimpaired flow procedures results. The tasks involved the use of Excel, Python, and ArcGIS Pro.

Demand Management Study, Upper Colorado River Commission, CO
Water Resources Assistant Engineer. Helped automate model outputs and supported BI development to help visualize and analyze model results to support the Demand Management Study.

Water Supply Evaluation, City of Fort Dodge, IA
Water Resources Assistant Engineer. Helped assess the safe yield of surface water supplies and investigate how surface water could augment the City of Fort Dodge's current groundwater reliance. Helped to evaluate historical streamflow statistics and visualizing streamflow data. Developed initial conceptual surface water model to assess the amount of surface water storage would be required assuming historical demand patterns and instream flow requirements. A simple spreadsheet model was incorporated into GoldSim, which looks at both surface and groundwater needs based on demand patterns and historical streamflow.



Katelyn Nguyen

Data Collection and Information Review

Katelyn serves as an Assistant Engineer in the San Diego office. Her experience includes pipeline design, water reclamation, drinking water treatment, master planning, asset management, and sewer system design and analyses.

Education

B.S., Civil and Environmental Engineering, California State University Fullerton, Fullerton, CA

Certification/License

Engineer in Training

Professional Affiliations

American Society of Civil Engineers (ASCE)

Clean Water SoCal

Water Resources Master Plan, Sweetwater Authority, San Diego, CA
This is a comprehensive master plan of Sweetwater Authority's water resources, including local surface water, groundwater, and imported water. The plan includes an overview of the existing supply system, hydrologic planning scenarios, projected demands in those scenarios, an evaluation on the reliability of the existing supply system, and the development and evaluation of potential local water alternatives. Ms. Nguyen assisted in an overview of the existing supply system which included local surface water from the Sweetwater and Loveland Reservoirs treated at the Perdue Water Treatment Plant, fresh groundwater from the National City wellfield, brackish groundwater from the San Diego Formation (SDF) wellfield treated at the Reynolds Desalination Facility and imported water from the San Diego County Water Authority. She also assisted in developing seven local supply alternatives including a potable water sales agreement with the Otay Water District, a recycled water purchase from the Otay Water District, two Indirect Potable Reuse (IPR) alternatives, two brackish groundwater desalination alternatives, and potential yield improvements from increased brine concentration. For each alternative, Ms. Nguyen assisted in developing conceptual designs and performing calculations and analysis to determine how each potential supply could offset imported water purchases and reliance for Sweetwater Authority. Additionally, she helped evaluate potential areas of impact and using those criteria, created an evaluation matrix to rank the potential local supply alternatives.

2050 Demand Study Mid-Cycle Update, East Bay Municipal Utility District (EBMUD), Oakland, CA
EBMUD is in the process of updating the econometric model for forecasting water demands in their service area out to the year 2050. The econometric model will explicitly account weather/climate conditions, anticipated land use changes, development trends, and socioeconomic factors (e.g. water rates, jobs, population growth, income) which have been shown to impact water use. The forecasted demands will be a critical component

of EBMUD's 2020 Urban Water Management Plan. Ms. Nguyen assisted in analyzing data from the Employment Development Department (EDD) as well as Major New Service Activity Reports (MNSARs) to compare to the forecasted residential and commercial, industrial, and institutional projections from the initial 2050 Demand Study. Based upon this analysis, recommendations were made to adjust the forecasted demands from the initial 2050 Demand Study.

Lower Santa Margarita Water Supply Reliability Study, United States Marine Corp Base Camp Pendleton and Fallbrook Public Utility District, San Diego, CA

Using data from the pilot plant, a full-scale feasibility report was prepared to establish the regulatory and technical feasibility and construction and operation considerations of 2.3 mgd full-scale IPR facilities. The two alternative process designs, Carbon Based Advance Treatment (CBAT) and Reverse Osmosis Based Advance Treatment (RBAT) were developed considering the regulatory pathway and difficulty in permitting, conceptual design criteria, conceptual layouts for the treatment plant, the alignment of major piping between new and existing facilities, and the capacity of the existing infrastructure. The feasibility analysis also developed concept level capital and operating costs taking into consideration the pilot and tracer data, a more complete roadmap of project implementation, and identified any further studies and data gaps that must be filled for the clients to move these projects forward. Ms. Nguyen assisted in all aspects of the feasibility report.

Regional Brackish Water Reclamation Program Phase 1, Water Replenishment District of Southern California, Lakewood, CA

The Water Replenishment District intends to implement a 10,000 AF/yr (8.9 mgd) brackish water treatment facility to reclaim the West Coast Basin water for potable use and to ultimately provide aquifer storage space for potential Indirect Potable Water from planned regional recycled water projects. This project includes four program elements including the program development, well siting and drilling, pilot testing of treatment processes, and the development of preliminary design of the major project elements including the wells, pipelines, reverse osmosis treatment facility, and the brine pipeline. Ms. Nguyen assisted in the analysis of water quality data from the pilot testing stage and groundwater quality in preparation for well siting and drilling. She also participated in the conceptual layout of the new treatment facility and the preliminary design report.

Preliminary and Final Design of David C. McCollom Water Treatment Plant Centrifuge Project, Olivenhain Municipal Water District, Encinitas, CA

This project entailed providing planning, preliminary design, final design, plans, specifications, contract documents, construction cost estimates, and construction phase support services for the Stage 4 Centrifuge Addition project. The purpose of this project was to add a second centrifuge unit to enhance reliability, redundancy, and operations. As a part of this endeavor, Hazen evaluated options for the new centrifuge unit, a new centrifuge feed pump, a new dewatering polymer feed pump, and all associated equipment and support systems. Ms. Nguyen assisted in contacting vendors regarding the associated equipment for polymer use and the selection of the equipment. She also assisted in preparing the technical specifications package for this project.

POW-5 Turnout and Flow Control Facility Project, San Diego County Water Authority and City of Poway, San Diego, CA

The purpose of this project is to provide an alternate source of potable water for the City of Poway, as a supplement to or in lieu of the existing Berglund Water Treatment Plant. As a part of the design, a Basis of Design Report (BODR) and mid-point design submittal package were prepared. Ms. Nguyen assisted in writing the BODR and designing the fittings to lower the pipeline on Espola Road in accordance with the American Water Works Association (AWWA) M11 steel pipe design guide. She also assisted in completing permitting and regulatory documents, such as the City of Poway's Right of Way Permit, State Water Resources Control Board Stormwater Quality Management Plan, and easement documents.



Lisa Krentz

Demand Forecast Model Development

Lisa has more than 20 years of experience in water demand planning and management. Her experience includes a variety of projects related to water demand forecasting, water use profiling, water efficiency, drought planning, database development, and GIS.

Education

BS, University of Washington, Biology: Ecology, Evolution & Conservation Biology

Areas of Expertise

- Water Demand Planning and Management
- Geospatial Data Management and Processing
- Water Efficiency Planning, Cost-Benefit Analysis
- Water Demand Forecasting
- Water Use Profiling
- Water Resources Policy

Professional Activities

American Water Works Association (AWWA), Water Conservation Division, Trustee

AWWA, Water Use Efficiency & Technology Committee, Chair

Florida Section AWWA, Water Use Efficiency Division, Chair; Florida 2030, Conservation Task Force

Advisory Committee, Tampa Bay Water Regional Demand Management

Advisory Committee, Florida Department of Environmental Protection, Conserve Florida Statewide Water Conservation Program for Public Supply

Water Demand Forecasts, San Diego County Water Authority, CA
Lisa has completed three consecutive water demand forecasts for the Authority. In support of the Agency's periodic development of its Urban Water Management Plan, efforts have involved the development of econometric models of water demand for 4 major sectors, which account for socioeconomic and land use factors, and which contain unique climatic terms for 22-member retail agencies. The models have been used for climate scenario analysis, as well as assessment of alternative socioeconomic futures. In addition to various analytical components of the project, she managed the development of a water use database which relates water billing, pricing, meteorological and socioeconomic data for single-family, multi-family, non-residential, and agricultural water sectors. The database supports the analysis of climate change impacts on water demand and the development and application of risk-based simulation procedures to support long-term supply reliability and capital improvement planning for use in the development of sector models.

2050 Demand Study, East Bay Municipal Utility District, CA
Technical Lead. Lisa served as Technical Lead for information management and various analytical aspects of the project which consisted of updating the agency's demand model for forecasting water demands to the year 2050 in support of its 2020 Urban Water Management Plan (UWMP). The forecasted demands are a critical component of EBMUD's 2020 Urban Water Management Plan and supports multiple other planning and operational efforts of the agency.

Long Range Water Resources Plan, Durham, NC
Project Manager. Lisa was responsible for the development of a water demand forecast and demand management plan, as part of overall water resources management plan. She was responsible for oversight of econometric water demand forecast models and water conservation plan which seek to explain variability in water demand based on association to socioeconomic explanatory variables and the alignment with regional CommunityViz planning models and land use development plans.

Technical Publications

Quantifying CII Water Use Efficiency and Market Potential. WaterSmart Innovations Conference, Las Vegas, NV, 2014.

Implications of Deficit / Surplus Irrigation for Targeting Conservation Program. AWWA Annual Con-vention and Exposition, Boston, MA, 2014.

Regulatory and Market-Based Efficiency Impacts on Water Supply Planning: What's In Your Future? WaterSmart Innovations Conference, Las Vegas, NV, 2013.

Understanding Passive Demand Reductions Related to an Increasing Market for HE Products. AWWA Annual Convention and Exposition, Denver, CO, 2013.

Developing Geographical and Sectoral Water Use Profiles of New York City Water Demand. AWWA Annual Convention and Exposition, Denver, CO, 2013.

Implications of Deficit / Surplus Irrigation for Targeting Conservation Program. WaterSmart Innova-tions Conference, Las Vegas, NV, 2012.

Increasing the Informational Value of Demand Side Planning Analyses, WaterSmart Innovations Con-ference, Las Vegas, NV, 2011.

Estimating the Impact of Outdoor Efficiency Measures on Outdoor Water Use. Water Use Efficiency Workshop, FS/AWWA Annual Conference and Exhibition, Orlando, FL, 2011.

Turning Billing Data into Information. Water Use Efficiency Workshop, Florida Section AWWA Annu-al Conference, Orlando, FL, 2010.

Managing Regional Water Shortages in the Tampa Bay Area. Water Smart Innovations Conference, Las Vegas, NV, 2009.

Utilizing GIS to Enhance Water Conservation Impact Analyses. AWWA Water Conservation Work-shop, Portland, OR, 2009.

Planning for Conservation Before it's Time. Water Use Efficiency Workshop, Florida Section AWWA Annual Conference, Orlando, FL, 2008.

NYC Department of Environmental Protection, Integrated Water Management Planning and Assessment, NY

Key Analyst. Lisa was a key analyst for development of water and wastewater demand projection models and forecasts for New York City In addition to various analytical components of the project, she was responsible for overseeing the development of the project information system which links the agencies 3+ billion daily water use records to various external data sources including property appraiser and various other demographic and socio-economic data that support forecast development efforts.

Regional Water Demand Management Plan, Tampa Bay Water, FL

The focus of this project is to identify achieved water savings from both natural plumbing replacement and active utility-sponsored programs and to estimate the potential and net economic benefits from additional future investments in water conservation as an alternative source of water supply. Lisa served as project manager, responsible for geospatial database development and overseeing technical analyses, including multiple regression and cost-benefit analyses, related to profiling water use, establishment of water-use benchmarks, generating estimates and projections of water fixtures and technologies market saturation by age and efficiency levels, analyzing seasonal water use patterns and assessing conservation potential in new homes, existing homes, and CII establishments. She was also responsible for assessing the impact of future water efficiency on the agencies long-term water demand forecast and developing goals and strategies to assist in monitoring and response to expected and observed changes in demand.

Water Conservation Planning Support, New York City Department of Environmental Protection, NY

The objective of this project is to assist in the development of NYC DEP's Water Demand Management Plan through a series of investigations involving pilot efficiency projects, water reuse at specific facilities, spatial demand profiling, assessment of large users, drought management, and water pricing strategies. Lisa was responsible for managing the development a geospatial database linking daily AMR utility water consumption data to tax appraiser and other data relating to water use and conservation. She was also responsible for analysis of sectoral and geographic urban water demand trends and identification of potential conservations strategies for the City's largest users.

Water Use in the Multifamily Housing Sector, Water Research Foundation Project # 4558

Co-Author and Analyst. Lisa served as co-author and analyst for investigated the underlying factors influencing multifamily water use patterns influencing water demand forecasting, water efficiency program development, and planning for future water supply needs. She was responsible for overseeing database development and evaluation of alternative classifications and metrics.



Devon Becker, PE

UWMP Scenario Development, Demand Forecast Model Application, and Data Analysis

Devon works as an Associate at Hazen's San Francisco Office. He has 8 years of experience in the California water industry and has spent the last 6 years working as a Water Resources Engineer for the Alameda County Water District. His areas of expertise include water supply planning and modeling, optimization analyses, and regulatory compliance.

As part of his previous role at the Alameda County Water District, he managed water deliveries under various water supply and banking contracts, developed water supply budgets, and coordinated water transfer agreements with external partners and regulatory agencies. He is well-versed in the intricacies of the State Water Project, the Semitropic Water Storage District Groundwater Banking Program, and the San Francisco Public Utilities Commission's Regional Water System, and has served as an agency representative on the State Water Project's (SWP) Audit Finance Committee, the Semitropic Monitoring Committee, and the Bay Area Water Supply and Conservation Agency (BAWSCA) Water Management Representatives meetings, including the recent Tier 2 negotiations.

He has also participated in a wide range of regional water supply reliability efforts including the Bay Area Regional Reliability (BARR) partnership, the Los Vaqueros Reservoir Joint Powers Authority meetings, the California-Nevada AWWA Water Loss Regulation Subcommittee, the California Urban Water Agencies' (CUWA) water loss workgroup, the California Water Data Consortium's Urban Water Data Reporting workgroup, and the San Francisco Bay Area Integrated Regional Water Management (IRWM) Plan Coordinating Committee.

Proof-of-Concept Alternative Integrated Resources Planning Model, Alameda County Water District (ACWD), Fremont, CA
Technical Lead. Devon served as Technical Lead responsible for the review and QA/QC of model output from Hazen's newly-developed water supply model created in RiverWare. Model validation efforts incorporated a mass-balance approach and involved comparing reservoir and groundwater storage levels, production facility output, water supply shortages, and 'spilled' losses to existing output from the underlying, Excel-based water supply planning model.

Education

M.S., Civil Engineering, University of Washington, Seattle, WA

B.S., Civil Engineering, University of Washington, Seattle, WA

B.A., Archaeology, Columbia University, New York, NY

Certification/License

Professional Engineer

Certified Water Distribution System Operator Grade D2

California Water Audit Validator

Areas of Expertise

- Integrated Resources Planning
- Water Supply Modeling and Analysis
- Production Optimization
- Regulatory Compliance
- Project Management

Technical Publications & Presentations

Presenter at the 2020 California Water and Environmental Modeling Forum (CWEMF) Conference: "Turning the Tide: ACWD's Integrated Resources Management—Restoring a Coastal Aquifer and Preparing for Climate Change."

Korotkova, N., Hoff, J. S., Becker, D. M., Quinn, J. K. H., Icenogle, L. M. and Moseley, S. L. (2012), SpyA is a membrane-bound ADP-ribosyltransferase of Streptococcus pyogenes which modifies a streptococcal peptide, SpyB. Molecular Microbiology, 83: 936–952.

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2020 Urban Water Management Plan (UWMP), Alameda County Water District (ACWD), Fremont, CA
Project Lead. Devon was Project Lead for ACWD's 2020 UWMP and was responsible for carrying out water supply and demand modeling and analysis, as well as drafting and reviewing the UWMP itself, including new sections on Drought Risk Assessment, Water Shortage Contingency Plan, and Reduced Reliance on the Delta.

Annual Water Supply and Demand Assessment (WSDA), Alameda County Water District (ACWD), Fremont, CA
Project Lead. For two consecutive years, Devon served as Project Lead for ACWD's annual WSDA, a new state requirement for urban water suppliers beginning July 1, 2022. For both the 2022 and 2023 WSDA submissions to the California Department of Water Resources, Devon performed water supply and demand analysis for the current year as well as one, subsequent dry year, and outlined the agency's water shortage contingency response actions in case of a supply shortfall.

Forecast Informed Reservoir Operations (FIRO) Feasibility Study for Del Valle Reservoir, Fremont, CA
Project Manager. Devon served as Project Manager on behalf of several local Bay Area water agencies to coordinate the work of David Ford Consulting Engineers. The project evaluated the potential benefits of FIRO implementation at Del Valle Reservoir and provided technical analysis of the risks and benefits of incremental reallocations of flood control pool space into the water supply pool.

Project Screening Committee for the San Francisco Bay Area Integrated Regional Water Management (IRWM) Program
Committe Chair. Devon served as Committee Chair for the 16-member Project Screening Committee that selected San Francisco Bay Area regional projects for a total of $32,214,479 in funding under the Department of Water Resources' Integrated Regional Water Management Round 2 Implementation Grant Program in 2022.



Desarae Tasnady, EIT

UWMP Scenario Development, Demand Forecast Model Application, and Data Analysis

Desarae has over 2 years of experience in applied research, green building design, water reuse, drinking water, and wastewater projects. Her most recent projects involve sidestream deammonification, evaluation studies, water reclamation, and advanced water purification projects. .

Education

B.S. Civil/Environmental Engineering, California Polytechnic University, Pomona

Certification/License

Engineer in Training

LEED Green Associate

Areas of Expertise

- Wastewater Process Engineering
- Water Reuse
- Applied Research
- Stream Restoration Design
- Watershed Management
- Wetland Preservation
- Stormwater
- Groundwater
- Hydraulic and Hydrologic Modeling
- Green Building Design
- CAD/BIM

Outfall Initial Dilution Model, Orange County Sanitation District, Fountain Valley, CA

Technical writing, sampling procurement, and team coordination. The Outfall Initial Dilution Model includes developing a comprehensive workplan, providing inputs and assessments for initial dilution and plume dispersion modeling, and conducting whole effluent toxicity (WET). The project will evaluate the effects of reduced total effluent flow at Plant 2 and increased reverse osmosis concentrate from the Groundwater Replenishment System (GWRS).

Sidestream Treatment at Warren Facility, Los Angeles County Sanitation District, Carson, CA

Aided in team coordination, technical support, data analysis, and vendor procurement. The Warren Facility is LACSD's largest wastewater resource facility with an average flow of 240 MGD serving a population of 4.8 million people. LACSD is implementing sidestream treatment in order to comply with nutrient reduction permit requirements. The goal of the sidestream treatment is to remove nitrogen loads with cost-effective means.

Outfall Initial Dilution Model, Orange County Sanitation District, Fountain Valley, CA

Technical writing, sampling procurement, and team coordination. The Outfall Initial Dilution Model includes developing a comprehensive workplan, providing inputs and assessments for initial dilution and plume dispersion modeling, and conducting whole effluent toxicity (WET). The project will evaluate the effects of reduced total effluent flow at Plant 2 and increased reverse osmosis concentrate from the Groundwater Replenishment System (GWRS).

Advanced Water Purification Project, VenturaWaterPure, Ventura, CA
As an Assistant Engineer I, Ms. Tasnady supported the design team through aiding in team coordination, technical support, data analysis, and vendor procurement. VenturaWaterPure's advanced water purification project (AWPP) highlights Ventura's dedication to sustainability commitments and to providing their growing community with sufficient water resources. The AWPF will intake 3.2 MGD for indirect potable reuse with the ability to adapt to direct potable reuse in the future.

PS21-10 Integrated Nitrogen Removal, Orange County Sanitation District; Huntington Beach, CA
In partnership with Hazen, Orange County Sanitation District (OCSAN) process engineers gathered data and assisted in conducting a batch test to explain increasing cBOD values in the non-reclaimable effluent at Plant 2. As a Student Intern in the process engineering division, Ms. Tasnady gathered samples from the HPOAS facility, assisted in data collection and aided in identifying possible point sources.

J-120 Process Control Systems Upgrade, Orange County Sanitation District; Fountain Valley, CA
The process engineering division utilized the TPOD report as a fiscal year summary of Plant 1 and 2 operational data at Orange County Sanitation District (OCSAN). Since TPOD's inception there have been process configuration changes and removal of major equipment that has required an evaluation of TPOD's extensive data report (over 23,000 data points). As a student intern in the process engineering division, Ms. Tasnady identified relevant parameters and verified background calculations for all constituents.

Enhancing Organic Contaminant Removal from Wool Scouring Wastewater with Chemically Enhanced Biochar, Cal Poly Pomona Foundation; Pomona, CA
As an undergraduate research assistant Ms. Tasnady was involved in the initial conception to the final publication for this USDA funded research. The goal of the publication was to demonstrate biochar's ability to act as a sufficient adsorbent medium for fats, oils, and greases (OFGs) in recycled wool scouring wastewater. Removing OFGs from recycled streams can assist in reducing process upsets in recycled wastewater. The biochar was subjected to three different types of chemical treatments to create maximum surface area and retention. Testing included FTIR spectroscopy and COD testing of the resulting wastewater effluent to evaluate the treatment's effectiveness. KOH-treated biochar demonstrated the highest effectiveness in removing OFGs from the recycled effluent stream. Implementation of chemically modified biochar can help the wool textile industry become more sustainable in their water usage and treatment. Ms. Tasnady assisted in developing/executing procedures, performing tests, data analysis, and academic writing support.



Megan Drummy

Technical Memorandum and Presentation Preparation

Megan is a Communications Manager in Hazen's San Diego office. She has 12 years of experience developing and implementing public outreach programs and leading community outreach activities for water, wastewater, and water reuse projects.

Education

B.A., Literary Journalism, University of California, Irvine, Irvine, CA

Areas of Expertise

- Community outreach and public engagement
- Development and implementation of outreach programs for water infrastructure projects
- Writing and editing
- Stakeholder research
- Stakeholder outreach (tours, presentations, etc.)
- Event planning and execution (in person and virtual)
- Construction relations
- Materials development (communication plans, fact sheets, press releases, etc.)
- Website content and social media writing
- Youth program development

She has worked with agencies and cities of all sizes throughout California and across the U.S. to develop tailored outreach strategies that meet the needs of the community and foster public awareness and support for infrastructure projects. An accomplished communications lead/PM, she is adept at providing strategic counsel and advice to clients, as well as conducting on-the-ground outreach in impacted communities. She has worked extensively on the development of strategic communication plans, written and edited all kinds of informational materials, and planned and managed events, meetings, and open houses. She excels in translating complicated, technical information into accessible content for a variety of audiences. Prior to joining Hazen, she worked at Katz & Associates, a San Diego-based communications firm that focuses primarily on developing outreach programs for government and agency clients.

Regional Recycled Water Program, Metropolitan Water District of Southern California; Los Angeles, CA
Megan advised communications staff about the design of their water purification demonstration facility, including developing the facility tour pathway and general public tour experience. She also developed messages, worked on community network mapping and developed an outreach plan for the launch of their community education program. Following this initial work, she worked with the client team to develop an action plan for outreach to the disadvantaged communities that would be impacted by pipeline construction for a full-scale program, and to create a more inclusive public involvement plan that addressed environmental justice concerns.

Southeast Wastewater Capacity Evaluation; City of Franklin, TN
Megan has worked closely with the Franklin Water Management Department to help launch the outreach program for their water purification demonstration facility and future water reuse program. She developed a communications framework; wrote materials including facility signage, a tour brochure, and a virtual tour script; and developed website content. She continues to implement outreach initiatives and provide day-to-day strategic counsel.

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Plant City Water/One Water Demonstration Facility; City of Plant City, FL
Megan assisted the City's Utilities Operations Division in launching their water purification demonstration facility. She developed the content for facility signage and a tour brochure, supported the planning for the facility ribbon cutting, and assisted with the development of a new logo, branding, and a style guide for Plant City Water.

Drought Response Planning; Santa Clara Valley Water District
Megan has supported Valley Water in their stakeholder engagement process that is part of their drought response planning. She has developed agendas and materials for stakeholder meetings and facilitated virtual meetings and breakout sessions for groups including a community task force.

Department of Environmental Protection; New York City, NY
Megan supports the NYC DEP by overseeing materials development and graphic design and providing copy editing for various manuals and community plans.

Wastewater Treatment Plant Facility Plan; City of Sioux City, IA
Megan provides communications support for the City of Sioux City, including developing media materials, a project fact sheet, and website content.

Water Division; City of Santa Fe, NM
Megan provides the City of Santa Fe with as-needed communications support, and has developed website content, infographics, and presentations.

Alvarado 2nd Pipeline Extension Project, City of San Diego, CA
Megan led the outreach program during the design of this project, which will extend and replace aging water pipelines for San Diego's coastal communities and impact a major thoroughfare in the center of the city. She provided day-to-day strategic counsel; wrote a public outreach plan and key project messages; developed a community presentation and coordinated presentations for planning groups throughout the city; identified key stakeholders and participated in stakeholder meetings; and created materials including a project fact sheet, stakeholder mailers, and a dedicated project webpage. She also served as the project Public Information Officer, managing and responding to questions received via the project email address and hotline number.

Groundwater Reliability Plus, Eastern Municipal Water District, Perris, CA
Megan worked with Eastern Municipal Water District for nearly five years on the launch and implementation of the education and outreach program for Groundwater Reliability Plus (GRP), their series of programs to improve the quality and quantity of water in their groundwater basins. She served as the day-to-day project manager for outreach, developing meeting agendas and action item schedules; and led a variety of program initiatives, including writing communication and implementation plans; writing and coordinating the design of collateral materials including fact sheets, web content, animations and display boards; conducting stakeholder interviews with community leaders in EWMD's service area; writing opinion editorials; and developing social media content. She planned and executed EMWD's partnership with a public relations class at Mount San Jacinto College to inform the students about GRP and have the students develop short videos about the program.

Mary's Creek Water Reclamation Facility, City of Fort Worth, TX
Megan developed a communication plan, fact sheets, FAQs and other materials for the permitting phase for Fort Worth's new water reclamation facility. She also coordinated logistics, prepared materials for, and staffed a community open house.

2 Proposed Revisions to the MWDOC Standard Professional Services Agreement



Appendix 2

Proposed Revisions to the MWDOC Standard Professional Services Agreement

Hazen and Sawyer would like to the following edits to the sample agreement provided with RFP ENG. 2024-01 to be considered.

1. Under Termination Article V, request to delete #5.

TERMINATION

DISTRICT may terminate this **AGREEMENT** at any time upon thirty (30) days written notice to CONSULTANT, except as provided otherwise in **Exhibit "B."** In the event of termination: (1) all work product prepared by or in custody of **CONSULTANT** shall be promptly delivered to **DISTRICT;** (2) **DISTRICT** shall pay **CONSULTANT** all payments for services performed and due under this **AGREEMENT** on the effective date of termination; (3) **CONSULTANT** shall promptly submit a final invoice to the **DISTRICT**, which shall include any and all non-cancelable obligations owed by **CONSULTANT** at the time of termination, (4) neither **PARTY** waives any claim of any nature whatsoever against the other for any breach of this **AGREEMENT;** and; ~~(5) **DISTRICT** may withhold 125 percent of the estimated value of any disputed amount pending resolution of the dispute, consistent with the provisions of section III D above, and;~~ (6) **DISTRICT** and **CONSULTANT** agree to exert their best efforts to expeditiously resolve any dispute between the **PARTIES.**

2. Under Indemnification Article VII, request to use language from previous agreement.

VII INDEMNIFICATION

To the fullest extent permitted by applicable law, **CONSULTANT** shall indemnify, defend and hold harmless **DISTRICT**, its Directors, officers, agents, employees, ~~attorneys, consultants~~ and authorized volunteers, the **PARTICIPATING AGENCIES**, and each of them from and against all third party actions, proceedings, damages, costs, expenses, penalties or liabilities, in law or equity, of every kind or nature whatsoever, including reasonable legal fees and costs, arising out of, resulting from, or on account of **CONSULTANT's** or its officials, officers, employees, subcontractors, consultants, or agents' negligent performance of **SERVICES** under this agreement, including but not limited to:

a. ~~Any and all actions, proceedings, damages, costs, expenses, penalties or liabilities, in law or equity, of every kind or nature whatsoever, arising out of, resulting from, or on account of the violation of any governmental law or regulation, compliance with which is the responsibility of CONSULTANT.~~

CONSULTANT shall indemnify, defend and hold harmless **DISTRICT**, the **PARTICIPATING AGENCIES**, and its elected officials, officers and employees, and each of them from and against all third party actions, proceedings, damages, costs, expenses, penalties or liabilities, in law or equity, of every kind or nature whatsoever, including reasonable legal fees and costs, arising out of, resulting from, or on account of **CONSULTANT's** negligent acts or willful misconduct in the performance of the work under this agreement, provided, however, that **CONSULTANT's** liability under this indemnity shall not apply to the extent of the contributory negligence of the **DISTRICT**, the ~~PARTICIPATING AGENCIES~~, its employees and contractors.

CONSULTANT's obligation to indemnify shall survive the termination or completion of this agreement for the full period of time allowed by law and shall not be restricted to insurance proceeds, if any, received by **DISTRICT**, the **PARTICIPATING AGENCIES**, or its directors, officers, employees, or authorized volunteers.

Or use CA Statue Language that applies to Hazen and Sawyer

To the fullest extent permitted by law (including without limitation California Civil Code Section 2782.8, **CONSULTANT** agrees to defend, indemnify, and hold harmless the **DISTRICT**, its Directors, officers, agents, employees, and authorized volunteers from and against any and all penalties or liabilities, in law or equity, of every kind or nature whatsoever, including reasonable legal fees and costs to the extent arising out of, pertaining to, or relating to **CONSULTANT's** negligence, recklessness or willful misconduct in the performance of the work under this Agreement.

b. ~~Any and all losses, expenses, damages (including damages to the work itself), attorney's fees incurred by counsel of the **DISTRICT's** choice and other costs, including all costs of defense, which any of them may incur with respect to the failure, neglect, or refusal of **CONSULTANT** to faithfully perform the work and all of the **CONSULTANT's** obligations under the agreement. Such costs, expenses, and damages shall include all costs, including attorneys' fees, incurred by counsel of the **DISTRICT's** choice, incurred by the indemnified parties in any lawsuit to which they are a party.~~

~~When the law establishes a professional standard of care for the **CONSULTANT's** services,~~ all claims and demands of all persons that arise out of, pertain to, or relate to the **CONSULTANT's** negligence, recklessness or willful misconduct in the performance (or actual or alleged non-performance) of the work under this agreement, ~~**CONSULTANT** shall defend itself against any and all liabilities, claims, losses, damages, and costs arising out of or alleged to arise out of **CONSULTANT's** performance or non-performance of the **SERVICES** hereunder, and shall not tender such claims to **DISTRICT**, its Directors, officers, employees, attorneys, consultants or authorized volunteers, nor to any **PARTICIPATING AGENCY** in contract with **DISTRICT** for **CONSULTANT's SERVICES**, for defense or indemnity.~~

~~**CONSULTANT** shall immediately defend, at **CONSULTANT's** own cost, expense and risk, any and all such aforesaid suits, actions, or other legal proceedings of every kind that may be brought or instituted against DISTRICT or its Directors, officers, employees, attorneys, consultants, or authorized volunteers with legal counsel reasonably acceptable to **DISTRICT**, and shall not tender such claims to **DISTRICT** nor its directors, officers, employees, or authorized volunteers.~~

~~**CONSULTANT** shall immediately pay and satisfy any judgment, award or decree that may be rendered against **DISTRICT** or its Directors, officers, employees, attorneys, consultants, or authorized volunteers, in any and all such suits, actions, or other legal proceedings.~~

~~**CONSULTANT** shall immediately reimburse **DISTRICT** or its Directors, officers, employees, attorneys, consultants, or authorized volunteers, for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing indemnity herein provided.~~

CONSULTANT's obligation to indemnify shall survive the termination or completion of this agreement for the full period of time allowed by law and shall not be restricted to insurance proceeds, if any, received by **DISTRICT**, the **PARTICIPATING AGENCIES**, or its Directors, officers, employees, attorneys, consultants, or authorized volunteers.

Notwithstanding anything to the contrary in this Agreement, **CONSULTANT** is not obligated to indemnify, hold harmless, or defend **DISTRICT** or a **PARTICIPATING AGENCY** against any claim (whether direct or indirect) if such claim or corresponding loss arises out of or result from, **DISTRICT's:** (1) sole or active negligence or more culpable act or omission (including recklessness or willful misconduct); (2) bad faith failure to comply with any of its obligations set forth in this Agreement; or (3) use of the deliverables in any manner that does not materially conform with the usage instructions, or guidelines, or specifications.





Hazen

Hazen and Sawyer
7700 Irvine Center Drive • Suite 200 • Irvine, CA 92618

~~STANDARD~~ AGREEMENT FOR CONSULTANT SERVICES

This **AGREEMENT** for consulting services dated _____, which includes all exhibits and attachments hereto~~,~~ (“**AGREEMENT**”), is made on the last day executed below by and between **MUNICIPAL WATER DISTRICT OF ORANGE COUNTY**, hereinafter referred to as "**DISTRICT**," and **HAZEN AND SAWYER** hereinafter referred to as "**CONSULTANT"** for development of Orange County demand forecast for the 2025 Urban Water Management Plans, hereinafter referred to as **“SERVICES.”**[1] **DISTRICT** and **CONSULTANT** are also referred to collectively herein as the **“PARTIES”** and individually as **“PARTY”**. The **PARTIES** agree as follows:

I PURPOSE AND SCOPE OF WORK

A. Consulting Work

DISTRICT hereby contracts with **CONSULTANT** to provide general or special **SERVICES**, as more specifically set forth in **Exhibit "B"** attached hereto and incorporated herein, and in coordination with “**PARTICIPATING AGENCIES**”, as more specifically defined by the List of Participating Agencies, attached as **Exhibit “C”**[2]. Tasks other than those specifically described therein shall not be performed without prior written approval of **DISTRICT's** General Manager.

B. Independent Contractor

CONSULTANT is retained as an independent contractor for the sole purpose of rendering professional and/or special **SERVICES** described herein and is not an agent or employee of **DISTRICT**. **CONSULTANT** shall be solely responsible for the payment of all federal, state and local income tax, social security tax, Workers’ Compensation insurance, state disability insurance, and any other taxes or insurance **CONSULTANT,** as an independent contractor, is responsible for paying under federal, state or local law. **CONSULTANT** is thus not eligible to receive workers’ compensation, medical, indemnity or retirement benefits, including but not limited to enrollment in CalPERS. Unless, expressly provided herein, **CONSULTANT** is not eligible to receive overtime, vacation or sick pay. **CONSULTANT** shall not represent or otherwise hold out itself or any of its directors, officers, partners, employees, or agents to be an agent or employee of **DISTRICT**. **CONSULTANT** shall have the sole and absolute discretion in determining the methods, details and means of performing the **SERVICES** required by **DISTRICT**. **CONSULTANT** shall furnish, at his/her own expense, all labor, materials, equipment and transportation necessary for the successful completion of the **SERVICES** to be performed under this **AGREEMENT. DISTRICT** shall not have any right to direct the methods, details and means of the **SERVICES;** however, **CONSULTANT** must receive prior written approval from **DISTRICT** before using any sub-consultants for **SERVICES** under this **AGREEMENT**. **CONSULTANT** will determine whether **SERVICES** implicate prevailing wage and if so, pay the applicable prevailing wage rate for all work and comply with all other requirements of the prevailing wage law.

CONSULTANT represents and warrants that in the process of hiring **CONSULTANT’s** employees who participate in the performance of **SERVICES**, **CONSULTANT** conducts such lawful screening of those employees (including, but not limited to, background checks and Megan’s Law reviews) as are appropriate and standard for employees who provide **SERVICES** of the type contemplated by this Agreement.

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[1] Pursuant to Section 8002 of the District’s Administrative Code, the District’s “Ethics Policy” set forth at sections 7100-7111 of the Administrative Code is attached hereto as Exhibit “A” and incorporated herein by this reference.

[2] The PARTIES acknowledge that the list of **PARTICIPATING AGENCIES** in contract with **DISTRICT** for **CONSULTANT’s SERVICES** as set forth in **Exhibit “C”** is subject to modification.

C. **Changes in Scope of Work**

If **DISTRICT** requires changes in the tasks or scope of work shown in **Exhibit "B"** or additional work not specified therein, **DISTRICT** shall prepare a written change order. If **CONSULTANT** believes work or materials are required outside the tasks or scope of work described in **Exhibit "B,"** it shall submit a written request for a change order to the **DISTRICT**. A change order must be approved and signed by the **PARTIES** before **CONSULTANT** performs any work outside the scope of work shown in **Exhibit "B." DISTRICT** shall have no responsibility to compensate **CONSULTANT** for such work without an approved and signed change order. Change orders shall specify the change in the budgeted amount for **SERVICES.**

II TERM

This **AGREEMENT** shall commence upon the date of its execution and shall extend thereafter for the period specified in **Exhibit "B"** or, if no time is specified, until terminated on thirty (30) days notice as provided herein.

III BUDGET, FEES, COSTS, BILLING, PAYMENT AND RECORDS

A. **Budgeted Amount for Services**

CONSULTANT is expected to complete all **SERVICES** within the Budgeted Amount set forth on **Exhibit "B."** The total compensation for the **SERVICES** to be performed under this **AGREEMENT** shall not exceed the Budgeted Amount unless modified as provided herein. Upon expending and invoicing the **DISTRICT 80%** of the Budgeted Amount, **CONSULTANT** shall prepare and provide to **DISTRICT** a "cost to complete" estimate for the remaining **SERVICES**. The **PARTIES** shall work together to complete the project within the agreed-upon Budgeted Amount, but the obligation to complete the **SERVICES** within the Budgeted Amount lies with the **CONSULTANT**.

B. **Fees**

Fees shall be billed per the terms and conditions and at the rates set forth on **Exhibit "B"** for the term of the **AGREEMENT.** Should the term of the **AGREEMENT** extend beyond the period for which the rates are effective, the rates specified in **Exhibit "B"** shall continue to apply unless and until modified by consent of the **PARTIES**.

C. **Notification Clause**

Formal notices, demands and communications to be given hereunder by either **PARTY** shall be made in writing and may be effected by personal delivery or by registered or certified mail, postage prepaid, return receipt requested and shall be deemed communicated as of the date of mailing. If the name or address of the person to whom notices, demands or communication shall be given changes, written notice of such change shall be given, in accordance with this section, within five (5) working days.

Notices shall be made as follows:

Municipal Water District of Orange County
Harvey De La Torre
General Manager
18700 Ward Street, P.O. Box 20895
Fountain Valley, CA 92708

D. **Billing and Payment**

CONSULTANT's fees shall be billed by the 25th day of the month for the previous month's activities. Invoices received by the 25th day of the month will be paid by **DISTRICT** by the end of the following month. Invoices shall reference the Purchase Order number from **DISTRICT**.

DISTRICT shall review and approve all invoices prior to payment. **CONSULTANT** agrees to submit additional supporting documentation to support the invoice if requested by **DISTRICT**. If **DISTRICT** does not approve an invoice, **DISTRICT** shall send a notice to **CONSULTANT** setting forth the reason(s) the invoice was not approved. **CONSULTANT** may re-invoice **DISTRICT** to cure the defects identified in the **DISTRICT** notice. The revised invoice will be treated as a new submittal. If **DISTRICT** contests all or any portion of an invoice, **DISTRICT** and **CONSULTANT** shall use their best efforts to resolve the contested portion of the invoice.

E. **Billing Records**

CONSULTANT shall keep records of all **SERVICES** and costs billed pursuant to this **AGREEMENT** for at least a period of seven (7) years and shall make them available for review and audit if requested by **DISTRICT**.

IV DOCUMENTS

All **MATERIALS** as defined in Paragraph XI below, related to **SERVICES** performed under this **AGREEMENT** shall be furnished to **DISTRICT** upon completion or termination of this **AGREEMENT**, or upon request by **DISTRICT**, and are the property of **DISTRICT**.

V TERMINATION

DISTRICT may terminate this **AGREEMENT** at any time upon thirty (30) days written notice to **CONSULTANT**, except as provided otherwise in **Exhibit "B."** In the event of termination: (1) all work product prepared by or in custody of **CONSULTANT** shall be promptly delivered to **DISTRICT**; (2) **DISTRICT** shall pay **CONSULTANT** all payments for services performed and due under this **AGREEMENT** on the effective date of termination; (3) **CONSULTANT** shall promptly submit a final invoice to the **DISTRICT**, which shall include any and all non-cancelable obligations owed by **CONSULTANT** at the time of termination, (4) neither **PARTY** waives any claim of any nature whatsoever against the other for any breach of this **AGREEMENT**; and; ~~(5) **DISTRICT** may withhold 125 percent of the estimated value of any disputed amount pending resolution of the dispute, consistent with the provisions of section III D above, and;~~ (~~5~~6) **DISTRICT** and **CONSULTANT** agree to exert their best efforts to expeditiously resolve any dispute between the **PARTIES**.

VI INSURANCE REQUIREMENTS

CONSULTANT shall obtain prior to commencing work and maintain in force and effect throughout the term of this **AGREEMENT**, all insurance set forth below.

A. **Workers' Compensation Insurance**

By his/her signature hereunder, **CONSULTANT** certifies that he/she is aware of the provisions of Section 3700 of the California Labor Code, which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and that **CONSULTANT** will comply with such provisions before commencing the performance of the **SERVICES** under this **AGREEMENT**.

CONSULTANT and sub-consultant will keep workers' compensation insurance for their employees in effect during all work covered by this **AGREEMENT** in accordance with applicable law. An ACORD certificate of insurance or other certificate of insurance satisfactory to **DISTRICT**, evidencing such coverage must be provided (1) by **CONSULTANT** and (2) by sub-consultant's upon request by **DISTRICT**.

B. **Professional Liability Insurance**

CONSULTANT shall file with **DISTRICT**, before beginning professional **SERVICES**, an ACORD certificate of insurance, or any other certificate of insurance satisfactory to **DISTRICT**, evidencing professional liability coverage of not less than $1,000,000 per claim and $1,000,000 aggregate, requiring 30 days notice of cancellation (10 days for non-payment of premium) to **DISTRICT**.

Such coverage shall be placed with a carrier with an A.M. Best rating of no less than A: VII, or equivalent. The retroactive date (if any) of such insurance coverage shall be no later than the effective date of this **AGREEMENT**. In the event that the **CONSULTANT** employs sub-consultants as part of the **SERVICES** covered by this **AGREEMENT**, **CONSULTANT** shall be responsible for requiring and confirming that each sub-consultant meets the minimum insurance requirements specified herein.

C. **Other Insurance**

CONSULTANT will file with **DISTRICT**, before beginning professional **SERVICES**, ACORD certificates of insurance, or other certificates of insurance satisfactory to **DISTRICT**, evidencing general liability coverage of not less than $1,000,000 per occurrence for bodily injury, personal injury and property damage; automobile liability (owned, scheduled, non-owned or hired) of at least $1,000,000 for bodily injury and property damage each accident limit; workers' compensation (statutory limits) and employer's liability ($1,000,000) (if applicable); requiring 30 days (10 days for non payment of premium) notice of cancellation to **DISTRICT**. For the coverage required under this paragraph, the insurer(s) shall waive all rights of subrogation against **DISTRICT**, its Directors, officers, agents, employees, attorneys, consultants or authorized volunteers, and the **PARTICIPATING AGENCIES**. **CONSULTANT's** insurance coverage shall be primary insurance as respects **DISTRICT**, its Directors, officers, agents, employees, attorneys, consultants and authorized volunteers, and the **PARTICIPATING AGENCIES**, for all liability arising out of the activities performed by or on behalf of the **CONSULTANT**. Any insurance pool coverage, or self-insurance maintained by **DISTRICT**, its Directors, officers, agents, employees, attorneys, consultants or volunteers, and the **PARTICIPATING AGENCIES**, shall be excess of the **CONSULTANT's** insurance and shall not contribute to it.

The general liability coverage shall give **DISTRICT**, its Directors, officers, agents, employees, attorneys, consultants and authorized volunteers, and the **PARTICIPATING AGENCIES** additional insured status using ISO endorsement CG2010, CG2033, or equivalent.

Coverage shall be placed with a carrier with an A.M. Best rating of no less than A: VII, or equivalents. In the event that the **CONSULTANT** employs sub-consultant as part of the work covered by the **AGREEMENT**, it shall be the **CONSULTANT's** responsibility to require and confirm that each sub-consultant meets the minimum insurance requirements specified herein.

D. **Expiration of Coverage**

If any of the required coverages expire during the term of the **AGREEMENT**, **CONSULTANT** shall deliver the renewal certificate(s) including the general liability additional insured endorsement to **DISTRICT** at least ten (10) days prior to the expiration date.

VII INDEMNIFICATION

To the fullest extent permitted by law (including without limitation California Civil Code Section 2782.8), **CONSULTANT** agrees to defend, indemnify, and hold harmless the **DISTRICT**, its Directors, officers, agents, employees, and authorized volunteers, the **PARTICIPATING AGENCIES**, and each of them from and against any and all third party actions, proceedings, damages, costs, expenses, penalties or liabilities, in law or equity, of every kind or nature whatsoever, including reasonable legal fees and costs arising out of, pertaining to, or relating to **CONSULTANT**'s or its officials, officers, employees, subcontractors, consultants, or agents' negligence, recklessness or willful misconduct in the performance (or actual or alleged non-performance) of the work under this Agreement.

CONSULTANT's obligation to indemnify shall survive the termination or completion of this agreement for the full period of time allowed by law and shall not be restricted to insurance proceeds, if any, received by **DISTRICT**, ~~the **PARTICIPATING AGENCIES**, or~~ its Directors, officers, employees, attorneys, consultants, or authorized volunteers, or the **PARTICIPATING AGENCIES**.

Notwithstanding anything to the contrary in this Agreement, **CONSULTANT** is not obligated to indemnify, hold harmless, or defend **DISTRICT** or a **PARTICIPATING AGENCY** against any claim (whether direct or indirect) if such claim or corresponding loss arises out of or result from, **DISTRICT's**: (1) sole or active negligence or more culpable act or omission (including recklessness or willful misconduct); (2) bad faith failure to comply with any of its obligations set forth in this Agreement; or (3) use of the deliverables in any manner that does not materially conform with the usage instructions, or guidelines, or specifications.

VIII FINANCIAL DISCLOSURE AND CONFLICTS OF INTEREST

Although **CONSULTANT** is retained as an independent contractor, **CONSULTANT** may still be required, under the California Political Reform Act and **DISTRICT's** Administrative Code, to file annual disclosure reports. **CONSULTANT** agrees to file such financial disclosure reports upon request by **DISTRICT**. Further, **CONSULTANT** shall file the annual summary of gifts required by Section 7105 of the **DISTRICT's** Ethics Policy, attached hereto as **Exhibit "A."**

Failure to file financial disclosure reports upon request and failure to file the required gift summary are grounds for termination of this **AGREEMENT.** Any action by **CONSULTANT** that is inconsistent with **DISTRICT's** Ethic's Policy current at the time of the action is grounds for termination of this **AGREEMENT**. The Ethics Policy as of the date of this **AGREEMENT** is attached hereto as **Exhibit "A."**

IX PERMITS AND LICENSES

CONSULTANT shall procure and maintain all permits, licenses and other government-required certification necessary for the performance of its **SERVICES**, all at the sole cost of **CONSULTANT**. None of the items referenced in this section shall be reimbursable to

CONSULTANT under the **AGREEMENT**. **CONSULTANT** shall comply with any and all applicable local, state, and federal regulations and statutes including Cal/OSHA requirements.

X LABOR AND MATERIALS

CONSULTANT shall furnish, at its own expense, all labor, materials, equipment, tools, transportation and other items or services necessary for the successful completion of the **SERVICES** to be performed under this **AGREEMENT**. **CONSULTANT** shall give its full attention and supervision to the fulfillment of the provisions of this **AGREEMENT** by its employees and sub-consultant and shall be responsible for the timely performance of the **SERVICES** required by this **AGREEMENT**. All compensation for **CONSULTANT's SERVICES** under this **AGREEMENT** shall be pursuant to **Exhibit "B"** to the **AGREEMENT**.

Only those **SERVICES,** materials, administrative, overhead and travel expenses specifically listed in **Exhibit "B"** will be charged and paid. No other costs will be paid. **CONSULTANT** agrees not to invoice **DISTRICT** for any administrative expenses, overhead or travel time in connection with the **SERVICES, unless agreed upon and listed in Exhibit "B"**.

XI CONFIDENTIALITY AND RESTRICTIONS ON DISCLOSURE

A. Confidential Nature of Materials

CONSULTANT understands that all documents, records, reports, data, or other materials (collectively **"MATERIALS"**) provided by **DISTRICT** and **PARTICIPATING AGENCIES** to **CONSULTANT** pursuant to the **AGREEMENT**, including but not limited to draft reports, final report(s) and all data, information, documents, graphic displays and other items that are not proprietary to **CONSULTANT** and that are utilized or produced by **CONSULTANT** pursuant to the **AGREEMENT** are to be considered confidential for all purposes.

B. No Disclosure of Confidential Materials

CONSULTANT shall be responsible for protecting the confidentiality and maintaining the security of **DISTRICT MATERIALS** and records in its possession. All **MATERIALS** shall be deemed confidential and shall remain the property of **DISTRICT** and **PARTICIPATING AGENCIES**. **CONSULTANT** understands the sensitive nature of the above and agrees that neither its officers, partners, employees, agents or sub-consultants will release, disseminate, or otherwise publish said reports or other such data, information, documents, graphic displays, or other materials except as provided herein or as authorized, in writing, by **DISTRICT's** representative and the **PARTICIPATING AGENCY's** representative. **CONSULTANT** agrees not to make use of such **MATERIALS** for any purpose not related to the performance of the **SERVICES** under the **AGREEMENT**. **CONSULTANT** shall not make written or oral disclosures thereof, other than as necessary for its performance of the **SERVICES** hereunder, without the prior written approval of **DISTRICT** and the **PARTICIPATING AGENCY**. Disclosure of confidential **MATERIALS** shall not be made to any individual, agency, or organization except as provided for in the **AGREEMENT** or as provided for by law.

C. Protections to Ensure Control Over Materials

All confidential **MATERIALS** saved or stored by **CONSULTANT** in an electronic form shall be protected by adequate security measures to ensure that such confidential **MATERIALS** are safe from theft, loss, destruction, erasure, alteration, and any unauthorized viewing, duplication, or use. Such security measures shall include, but not be limited to, the use of current virus protection software, firewalls, data backup, passwords, and internet controls. The provisions of this section survive the termination or completion of the **AGREEMENT**.

XII OWNERSHIP OF DOCUMENTS AND DISPLAYS

All original written or recorded data, documents, graphic displays, reports or other **MATERIALS** which contain information relating to **CONSULTANT's** performance hereunder and which are originated and prepared for **DISTRICT** and **PARTICIPATING AGENCIES** pursuant to the **AGREEMENT** are instruments of service and shall become the property of **DISTRICT** and **PARTICIPATING AGENCIES** upon completion or termination of the Project. **CONSULTANT** hereby assigns all of its right, title and interest therein to **DISTRICT** and **PARTICIPATING AGENCIES**, including but not limited to any copyright interest. In addition, **DISTRICT** and **PARTICIPATING AGENCIES** reserve the right to use, duplicate and disclose in whole, or in part, in any manner and for any purpose whatsoever all such data, documents, graphic displays, reports or other **MATERIALS** delivered to **DISTRICT** and **PARTICIPATING AGENCIES** pursuant to this **AGREEMENT** and to authorize others to do so. Reuse of documents by **DISTRICT** or others on extensions or modifications of this project or on other sites or use by others on this project, shall be at the user's sole risk, without liability to **CONSULTANT**.

To the extent that **CONSULTANT** utilizes any of its property (including, without limitation, any hardware or software of **CONSULTANT** or any proprietary or confidential information of **CONSULTANT** or any trade secrets of **CONSULTANT**) in performing **SERVICES** hereunder, such property shall remain the property of **CONSULTANT**, and **DISTRICT** and **PARTICIPATING AGENCIES** shall acquire no right or interest in such property.

CONSULTANT hereby assigns to **DISTRICT, PARTICIPATING AGENCIES** or its designee, for no additional consideration, all **CONSULTANT**'s intellectual property rights, including, but not limited to, copyrights, in all deliverables and other works prepared by the **CONSULTANT** under this agreement. **CONSULTANT** shall, and shall cause its employees and agents to, promptly sign and deliver any documents and take any actions that **DISTRICT, PARTICIPATING AGENCIES,** or its designee reasonably requests to establish and perfect the rights assigned to **DISTRICT, PARTICIPATING AGENCIES** or its designee under this provision.

XIII EQUAL OPPORTUNITY

DISTRICT is committed to a policy of equal opportunity for all and to providing a work environment that is free of unlawful discrimination and harassment. In keeping with this commitment, **DISTRICT** maintains a policy prohibiting unlawful discrimination and harassment in any form based on race, religious creed, color, national origin, ancestry, physical or mental disability, medical condition, pregnancy or childbirth, marital status, gender, sex, sexual orientation, veteran status or age by officials, employees and non-employees (vendors, contractors, etc.).

This policy applies to all employees, consultants and contractors of the **DISTRICT**. Appropriate corrective action will be taken against all offenders, up to and including immediate discharge or termination of this **AGREEMENT**. During, and in conjunction with, the performance of this **AGREEMENT**, **CONSULTANT** shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, marital status or national origin.

XIV INTEGRATION OF ALL OTHER AGREEMENTS

This **AGREEMENT**, including any Exhibits and Addenda, contains the entire understanding of the **PARTIES**, and there are no further or other agreements or understandings, written or oral, in effect between the **PARTIES** hereto relating to the subject matter hereof. Any prior understanding or agreement of the **PARTIES** shall not be binding

unless expressly set forth herein and, except to the extent expressly provided for herein, no changes of this **AGREEMENT** may be made without the written consent of both **PARTIES**.

XV ELECTRONIC SIGNATURES

The Uniform Electronic Transactions Act, California Civil Code section 1633.1 et seq., authorizes **PARTIES** to conduct business electronically. In accordance with California Civil Code section 1633.5, **PARTIES** acknowledge, consent and agree that transactions subject to this **AGREEMENT** may be effectuated by electronic means through the use of electronic and/or digital signatures. For purposes of this section, an electronic signature means an electronic symbol or process logically associated with the intent to sign an electronic record pursuant to Civil Code section 1633(h). A digital signature, which is a type of electronic signature, means an electronic identifier, created by a computer, that is intended to have the same force and effect as the use of a manual signature under Government Code 16.5(d). An example of an electronic signature would be a JPG of a manual signature imposed onto this **AGREEMENT**, an example of a digital signature would be the use of DocuSign or similar provider that requires an encrypted key that certifies the authenticity of the signature.

This consent to conduct transactions by electronic means through the use of electronic and/or digital signatures extends to the execution of this **AGREEMENT** or any related contract or other document necessary for the performance of this **AGREEMENT** including, without limitation, any related offers, proposals, bids, amendments, change orders, task orders and notices.

XVI ATTORNEYS' FEES

In any action at law or in equity to enforce any of the provisions or rights under this **AGREEMENT**, the prevailing **PARTY** shall be entitled to recover from the unsuccessful **PARTY** all costs, expenses and reasonable attorney's fees incurred therein by the prevailing **PARTY** as determined by a court of competent jurisdiction.

XVII JURISDICTION AND VENUE SELECTION

In all matters concerning the validity, interpretation, performance, or effect of this **AGREEMENT**, the laws of the State of California shall govern and be applicable. The **PARTIES** hereby agree and consent to the exclusive jurisdiction of the courts of the State of California and that venue of any action brought hereunder shall be in Orange County, California.

IN WITNESS WHEREOF, the **PARTIES** have hereunto affixed their names as of the day and year thereinafter, which shall be and is the effective date of this **AGREEMENT**.

APPROVED BY:

_____

Date _____

CONSULTANT ACCEPTANCE:

_____

Date _____

_____

Date _____

Harvey De La Torre
General Manager
Municipal Water District of Orange County
18700 Ward Street,
P.O. Box 20895
Fountain Valley, CA 92708
(714) 963-3058

Internal Use Only:

Program No. _____

Line Item: _____

Funding Year: _____

Contract Amt.: _____

Purchase Order # _____

ETHICS POLICY	§7100-§7110

§7100 PURPOSE

The policy of MWDOC is to maintain the highest standards of ethics from its Board members, officers and employees (all shall be referred to as employees for the purposes of this section). The proper operation of MWDOC requires decisions and policy to be made in the proper manner, that public office not be used for personal gain, and that all individuals associated with MWDOC remain impartial and responsible toward the public. Accordingly, all employees are expected to abide by the highest ethical standards and integrity when dealing on behalf of MWDOC with fellow Board members or employees, vendors, contractors, customers, and other members of the public.

§7101 RESPONSIBILITIES OF BOARD MEMBERS

Board members are obliged to uphold the Constitution of the United States and the Constitution of the State of California and shall comply with all applicable laws regulating Board member conduct, including conflicts of interest and financial disclosure laws. No Board member or officer shall grant any special consideration, treatment, or advantage to any person or group beyond that which is available to every other person or group in the same circumstances.

§7102 PROPER USE OF MWDOC PROPERTY AND RESOURCES

Except as specifically authorized, no employee shall use or remove or permit the use or removal of MWDOC property, including MWDOC vehicles, equipment, telephones, office supplies, and materials for personal convenience or profit. No employee shall require another MWDOC employee to perform services for the personal convenience or profit of another employee. Each employee must protect and properly use any MWDOC asset within his/her control, including information recorded on paper or in electronic form. Employees shall safeguard MWDOC property, equipment, monies, and assets against unauthorized use or removal, as well as from loss due to criminal act or breach of trust.

Employees are responsible for maintaining written records, including expense reports, in sufficient detail to reflect accurately and completely all transactions and expenditures made on MWDOC's behalf. Creating a document with misleading for false information is prohibited.

Motion - 1/17/96;

§7103 CONFLICT OF INTEREST

All MWDOC Directors, officers, and employees at every level shall comply with the requirements of Section 1090 of the California Government Code which prohibits such persons from being financially interested in any contract made by them in their official

capacity, or by any body or board of which they are members, or from being a purchaser at any sale or a vendor at any purchase made by them in their official capacity.

All Directors and employees designated under MWDOC's Conflict of Interest Code ("designated employees") and employees required to report under Chapter 7, Article 2 of the Political Reform Act (Government Code Section 7300 et seq.) shall promptly and fully comply with all requirements thereof.

MWDOC employees who are not designated employees under MWDOC's Conflict of Interest Code shall refrain from participating in, making a recommendation, or otherwise attempting to influence MWDOC's selection of a contractor, consultant, product, or source of supply if the non-designated employee, or an immediate family member, has a direct or indirect financial interest in the outcome of the selection process. No employee shall use his/her position with MWDOC in any manner for the purpose of obtaining personal favors, advantages or benefits for him/herself or an immediate family member from a person or entity doing business or seeking to do business with MWDOC. Such favors, advantages, or benefits would include, but are not limited to: 1) offers of employment; 2) free or discounted goods or services; or 3) gifts.

§7104 GIFTS

No employee shall accept, directly or indirectly, any compensation, reward or gift from any source except from MWDOC, for any action related to the conduct of MWDOC business, except as set forth below:

1. Acceptance of food and refreshments of nominal value on infrequent occasions in the ordinary course of a breakfast, luncheon or dinner meeting or other meeting or on an inspection tour where the arrangements are consistent with the transaction of official business.*

2. Acceptance of transportation, lodging, meals or refreshments, in connection with attendance at widely attended gatherings sponsored by industrial, technical or professional organizations; or in connection with attendance at public ceremonies or similar activities financed by nongovernmental sources where the employee's participation on behalf of MWDOC is the result of an invitation addressed to him or her in his/her official capacity, and the transportation, lodging, meals or refreshment accepted is related to, and is in keeping with, his/her official participation.*

3. Acceptance of unsolicited advertising or promotional materials such as pens, pencils, note pads, calendars, or other items of nominal value.*

4. Acceptance of plaques and commemorative mementoes, of nominal value, or of value only to the recipient, such as service pins, recognition awards, retirement mementoes.

5. Acceptance of incidental transportation from a private organization, provided it is furnished in connection with an employee's official duties and is of the type customarily provided by the private organization.

* Nothing herein shall be deemed to relieve any Director or designated employee from reporting the value of such meals, transportation, lodging or gifts and abstaining from

participation in any decision of MWDOC which could foreseeably have a material financial effect on the donor when the value of such gifts reaches the limits set forth in MWDOC's Conflict of Interest Code and the Political Reform Act.

In no event shall any employee accept gifts from any single source, the cumulative value of which exceeds the applicable gift limit under California law.

A gift or gratuity, the receipt of which is prohibited under this section, shall be returned to the donor. If return is not possible, the gift or gratuity shall be turned over to a public or charitable institution without being claimed as a charitable deduction and a report of such action, and the reasons why return was not feasible shall be made on MWDOC records. When possible, the donor also shall be informed of this action.

Motion - 1/17/96;

§7105 PERSONS OR COMPANIES REPORTING GIFTS

All persons and companies doing business with MWDOC, with the exception of public agencies, shall submit a summary, by January 31 of each calendar year, of all gifts claimed for internal vendor audits (including meals) made to, or on behalf of, employees or Directors of MWDOC, or their immediate family members, that have occurred in the normal course of business during the previous calendar year. Failure to provide this information to MWDOC may result in the termination of MWDOC business with that person or company.

Motion - 7/21/93; Motion - 8/18/93;

§7106 USE OF CONFIDENTIAL INFORMATION

Confidential information (i.e., information which is exempt from disclosure under the California Public Records Act) shall not be released to unauthorized persons unless the disclosure is approved by the Board, President of the Board, or General Manager. Employees are prohibited from using any confidential information for personal advantage or profit.

§7107 POLITICAL ACTIVITIES

During the course and scope of their employment employees are prohibited from engaging in campaign activities associated with MWDOC Director elections, MWDOC Director appointments, the appointment of MET Directors, or from attempting to influence changes to MWDOC Division boundaries, except where such activities are expressly required in the course of official duties. Employees are otherwise free to personally, endorse, advocate, contribute to, or otherwise support any political party, candidate, or cause they may choose; however, employees are prohibited from soliciting political funds or contributions at MWDOC facilities or during the course and scope of their duties for MWDOC. In any personal political activity an employee may be involved in, it shall be made clear that the employee is acting personally and not for MWDOC. These provisions are intended to protect employees against political assessments, coerced political activities, and to prevent political activities on the part of employees from interfering with MWDOC operations. Nothing in this section shall be

interpreted or applied in a manner to unlawfully curtail the constitutional right to political activity of MWDOC employees.

Motion – 6/17/15

§7108 IMPROPER ACTIVITIES

Employees shall not interfere with the proper performance of the official duties of others, but are strongly encouraged to fulfill their own moral obligations to the public, MWDOC, and its member agencies by disclosing, to the extent not expressly prohibited by law, improper activities within their knowledge. No employee shall directly or indirectly use or attempt to use the authority or influence of his/her position for the purpose of intimidating, threatening, coercing, commanding, or influencing any person with the intent of interfering with that person's duty to disclose improper activity.

§7109 VIOLATION OF POLICY – STAFF AND STAFF OFFICERS

If an employee is reported to have violated MWDOC's Ethics Policy, the matter shall be referred to any of the following: (1) the General Manager; (2) Human Resources; (3) the Board of Directors; or (4) any member of the management staff, for investigation and consideration of any appropriate action warranted which may include employment action such as demotion, reduction in salary, or termination.

If a Board appointed officer (Secretary, Treasurer or General Manager) is reported to have violated MWDOC's Ethics Policy, the matter shall be referred to the Executive Committee for investigation and consideration of any appropriate action. The Executive Committee may make a determination and present the issue to the full Board.

Motion - 1/17/96; 6/17/15

§7110 VIOLATION OF POLICY -- DIRECTORS

A perceived violation of this policy by a Director should be referred to the President of the Board or the full Board of Directors for investigation, and consideration of any appropriate action warranted. A violation of this policy may be addressed by the use of such remedies as are available by law to MWDOC, including, but not limited to: (a) adoption of a resolution expressing disapproval of the conduct of the Director who has violated this policy, (b) injunctive relief, or (c) referral of the violation to MWDOC Legal Counsel and/or the Grand Jury.

§7111 PERIODIC REVIEW OF ETHICS, CONFLICT OF INTEREST AND ADMINISTRATIVE GUIDELINES

Pursuant to the terms of Government Code Sections 53234 through 53235.2, each Director shall receive at least two hours of training in general ethics principles every two years. Pursuant to Government Code Section 53235(c), the curricula for ethics training must be approved by the Fair Political Practices Commission (FPPC) and the Attorney General. It is the general desire of the MWDOC Board to meet and review and/or receive a presentation that addresses principles relating to reporting guidelines on compensation, conflict of interest issues, and standards for rules of conduct during the first quarter of the year immediately following an election (every two years).

Each Director shall retain the certificate of completion from any ethics course in which he/she participates and shall provide a copy of such report to MWDOC. Such records shall be retained for five years from the date they are received.

M-12/21/05

Please note If using Consultant's proposal as Exhibit "B" please attach the proposal or complete the standard Exhibit "B" Form below, BOTH Parties must verify that all sections of this form are FULLY ADDRESSED and the appropriate Exhibit is attached and labeled accordingly

EXHIBIT "B"

SCOPE OF WORK, TERMS OF AGREEMENT AND TERMS AND CONDITIONS FOR BILLING

Company: _____
Name: _____
Address: _____
_____
Phone: _____
Tax I.D. #

1. Term – Commencement (Insert Date) _____Termination (Insert Date) _____

2. Fees/Rates to be billed - $_____

3. Budgeted Amount – Compensation is to be on a "time and material" basis, not to exceed $_____. **CONSULTANT's** fees shall be billed by the 25th day of the month for the previous month's activities. Invoices received by the 25th day of the month will be paid by **DISTRICT** by the end of the following month. Invoices shall reference the Purchase Order number from **DISTRICT**.

   Consultant shall prepare a breakdown of percent complete by task by Participating Agency to submit with each monthly invoice.

   Upon invoicing **DISTRICT** 80% of the contract amount, **CONSULTANT** shall prepare and provide to **DISTRICT** a "cost to complete" estimate for the remaining work.

4. Scope of Work/Services – (Insert **SPECIFIC** description – do not list "refer to Exhibit ")
   _____

5. Consultant Representative: _____

Item No. 7

ACTION ITEM
December 18, 2024

TO: Board of Directors

FROM: **Administration & Finance Committee**
(Directors Crane, Thomas, Nederhood)

Harvey De La Torre, General Manager

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

SUBJECT: **CONTINUATION OF THE FLUME, INC. RESIDENTIAL END USES OF WATER STUDY – UPDATE #2**

STAFF RECOMMENDATION

It is recommended that the Board of Directors authorize a budgeted expenditure of $25,000 to continue the Residential End Uses of Water Study to include 27 months of additional Flume data.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

Staff is seeking Board authorization to continue the Residential End Uses of Water Study and Dashboard by adding nine additional quarters (27 months) of data from October 2022 through December 2024.

This additional data will be used in the 2025 Urban Water Management Plan Demand Forecasting effort and allow staff to gauge compliance with the Conservation as a California Way of Life water use reduction regulation.

The cost of this second update is $25,000 and will be shared between MWDOC's Engineering (Cost Center 21: $15,000) and Water Use Efficiency (Cost Center 35: $10,000) Departments using budgeted funds.

Budgeted: ☒ Yes ☐ No ☐ N/A	Budgeted amount: $25,000 Cost Center 21 ($15,000) Cost Center 35 ($10,000)	Core: ☒	Choice: ☐
Action item amount: $25,000		Movement between funds: ☐ Yes ☒ No	

DETAILED REPORT

Flume smart water sensors are currently one of the most innovative and practical technologies to help water agencies best understand residential water use. The Flume sensor attaches to most residential positive displacement water meters and measures water use with extreme granularity at five-second intervals. This data is transmitted to an application installed on the user's smart device, allowing them to better understand their water use and receive leak alerts. Through partnerships with Flume, aggregate data may also be utilized by water utilities.

In February 2020, the Board authorized staff to implement a Residential End Uses of Water Study (Study) in partnership with Flume, Inc. The cost of the Study totaled $227,925 and included the installation of 585 Flume smart water sensors. Three member agencies offered installation incentives for Flume devices: Golden State Water Company, Santa Margarita Water District, and South Coast Water District. In September 2022, the Board authorized staff to update the study to include an additional six months of data (Q4 of 2021 and Q1 of 2022) at the cost of $25,000. Staff is seeking a secondary update to the Flume data, which will include 27 months of additional data at the cost of $25,000. This will complete calendar year 2022 and provide data for all of 2023 and 2024.



Figure 1. Flume Study periods, actual and proposed.

Today, there are more than 3,300 Flumes installed throughout Orange County. This widespread spatial distribution allows for data to be analyzed at the county level or by drilling into quadrants to detect any micro-regional patterns or differences that could be present due to factors such as age of housing stock, climatic differences, or socioeconomic factors. Quadrants include North Coastal, South Coastal, North Inland, and South Inland, as shown in Figure 2.

To deliver study results, Flume built an interactive, online data dashboard (Dashboard) to view the data and evaluate compliance with the Conservation as a California Way of Life standards called for in SB 606 and AB 1668. The Dashboard allows for the viewing of aggregate data on a user-customized scale (e.g., monthly, quarterly, annual, all-time) and by quadrant or county-wide.

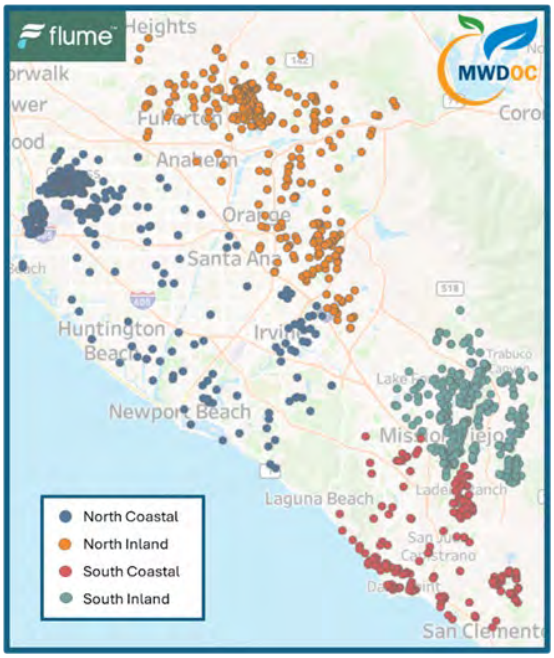


Figure 2. Flume device distribution throughout Orange County.

Importantly, the Dashboard shows single-family residential water use disaggregated into indoor and outdoor volumes. Historically, this type of disaggregation has been difficult to obtain because residential water use is typically aggregated on a single water meter. Additionally, the Dashboard breaks down indoor residential water by type of use such as toilet, faucet, shower, clothes washer, leaks, bath, dishwasher, and other. The disaggregated indoor and outdoor water use data, and other insights, will be a key tool in the Demand Forecasting effort led by Engineering Department staff as well as the Water Use Efficiency Department's efforts in supporting member agencies with compliance of Making Conservation a California Way of Life. MWDOC currently has access to data from January 2020 through September 2022. Accessing the additional 27 months of data will be imperative to understanding the downward trend of indoor water use from 2020, as shown in Figure 3.

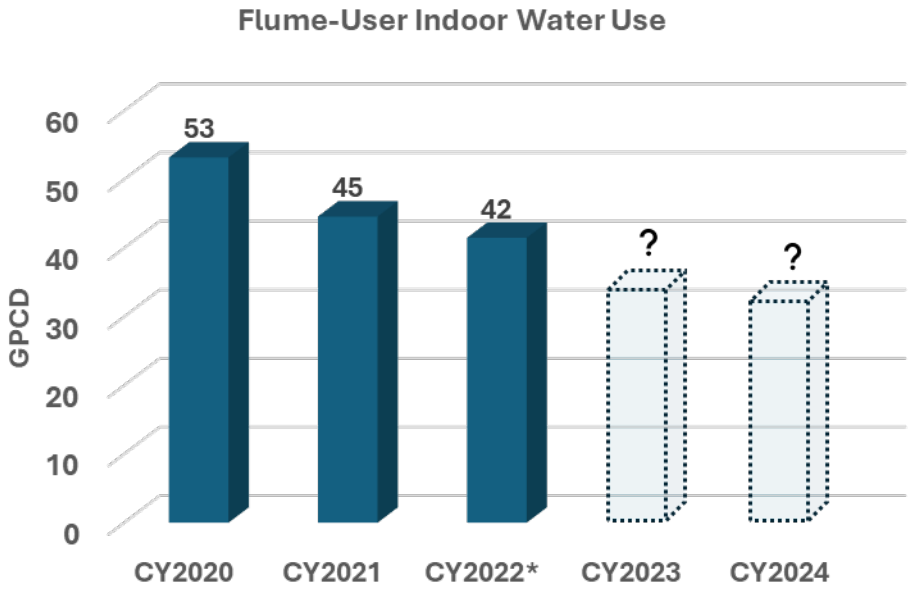


Figure 3. Average Flume-user indoor water use by year.
[*] Calendar year 2022 goes through September 2022; the proposed update will provide Q4 of 2022 in addition to years 2023 and 2024.

Staff is seeking Board authorization to continue the Residential End Uses of Water Study and Dashboard by adding nine additional quarters (27 months) of data from October 2022 through December 2024. This additional data will be used in the 2025 Urban Water Management Plan Demand Forecasting effort and allow staff to gauge compliance with the Conservation as a California Way of Life water use reduction regulation. The cost of this second update is $25,000 and will be shared between MWDOC's Engineering (Cost Center 21: $15,000) and Water Use Efficiency (Cost Center 35: $10,000) Departments using budgeted funds.

Upon completion and within the first quarter of 2025, staff will present the results of this second updated study to the Board and highlight any changes in water use patterns from October 2021 through December 2024.

ALIGNMENT WITH BOARD STRATEGIC PRIORITIES

- ☒ *Clarifying MWDOC's mission and role; defining functions and actions.*
- ☐ *Balance support for Metropolitan's regional mission and Orange County values and interests.*
- ☒ *Strengthen communications and coordination of messaging.*
- ☒ *Work with member agencies to develop water supply and demand objectives.*
- ☒ *Solicit input and feedback from member agencies.*
- ☐ *Invest in workforce development and succession planning.*

BOARD OPTIONS

Option #1: It is recommended that the Board of Directors authorize a budgeted expenditure of $25,000 to continue the Residential End Uses of Water Study to include 27 months of additional Flume data.

Fiscal Impact: Staff is proposing the use of budgeted funds shared between Cost Center 21 ($15,000) and Cost Center 35 ($10,000).

Option #2: Take no action.

Fiscal Impact: Forego budgeted funds of $25,000.

List of Attachments/Links:
Attachment 1: N/A
Link 1: Flume website https://flumewater.com/

Item No. 8

DISCUSSION ITEM
December 11, 2024

TO: **Administration & Finance Committee**
(Directors Crane, Thomas, Nederhood)

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

SUBJECT: **MWDOC'S ADMINISTRATIVE STRUCTURE FOR WATER ENERGY EDUCATION ALLIANCE (WEEA)**

STAFF RECOMMENDATION

Staff recommends the Administration & Finance Committee direct staff to move forward with the following in the FY 2025-26 Budget Process:

- Support the transitional model MWDOC would provide a financial contribution instead of "In-Kind" support;
- Set a staff time allocation of approximately 0.40 FTE for management and administrative functions; and
- MWDOC to assign $33,000 (50% contributing) in the upcoming FY 2025-26 Budget Process.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

The Water Energy Education Alliance (WEEA) is a statewide coalition of more than 200 water and energy industry professionals, educational institutions, and workforce advocacy groups that work to leverage resources, experience, and expertise to advance and support the future of the water and energy workforce. At the October 9, 2024, Administration and Finance (A&F) Committee, MWDOC staff presented the 2024 Water Energy Education Alliance (WEEA) Year in Review.

Budgeted: ☐ Yes ☐ No ☒ N/A	Budgeted amount:	Core: ☒	Choice: ☐
Action item amount:	Movement between funds: ☐ Yes ☐ No		

The A&F Committee also began an initial discussion on potential modification options for the future administrative structure of WEEA, which is currently led and administered by MWDOC through in-kind staff support. Additionally, WEEA receives external direct financial sponsorships from a variety of regional entities that include the Metropolitan Water District of Southern California, the Moulton Niguel Water District, the Los Angeles Department of Water & Power, Tomorrow's Talent, the Water Replenishment District, Eastern Municipal Water District, and Western Municipal Water District. The California Environmental Education Foundation and California Community Colleges also provide in-kind sponsorship.

The ongoing administrative structure options for MWDOC outlined at the October 9 A&F Committee were the following:

- **Status Quo:** MWDOC continues with "In-Kind" staff support for the management and administrative functions of approximately 0.15 FTE of time directly allocated to WEEA (with the other 0.85 FTE allocated to the Public Affairs department).
    - Risks of maintaining the status quo highlighted in the discussion included potential program stagnation due to resource constraints, limited ability to meet growing member needs, missed opportunities for program expansion, and difficulty maintaining quality of service with the current allocation.

- **Transition to Shared Services:** Financial contributions, in the form of sponsorships, to fund management and administrative functions. MWDOC would provide a financial contribution instead of "In-Kind" support. Under this option, the administrative functions could account for approximately 0.30 FTE of time directly allocated to WEEA (with the reciprocal 0.70 FTE allocated to the Public Affairs department).

- **Stand Alone (WEROC Model):** This would create a new position for management and administrative functions. The FTE would be allocated solely to WEEA and supported entirely through MWDOC's financial contribution and external funding.

Based on the outline of the three options discussed, the MWDOC A&F Committee asked the General Manager to further explore the opportunities within the "Transition to Shared Services" option to provide a sustainable long-term structure as the WEEA program grows and allows for efficient resource scaling. Staff evaluated historic WEEA staff time allocation along with conception-to-date and anticipated expenditures to determine the appropriate level of resource needs.

This evaluation determined that the current 0.15 FTE allocation appears insufficient, given WEEA's growth and resource needs. Under the transitional approach, the administrative functions that staff determine appropriate would be 0.40 FTE of time directly allocated to WEEA (with the reciprocal 0.60 FTE allocated to other duties within the Public Affairs department).

In concurrence with MWDOC's recent Needs Assessment recommendations, the General Manager and Public Affairs Department Director will evaluate the strategic allocation of staff resources between WEEA and Public Affairs duties and ongoing education initiatives and delineate other communications/outreach-based Public Affairs responsibilities if the Board agrees with this transitional approach.

To fund this transition, staff recommends that MWDOC provide a financial contribution through the FY 2025-26 Budget process and expand external sponsorships to fund the WEEA management and administrative functions. A monetized staff time for 0.40 FTE is approximately $66,000, with MWDOC contributing 50% ($33,000) within the FY 2025-26 Budget, and with external sponsorships covering the remaining 50%.

The recommendation for MWDOC's financial contribution of 50% aligns with the time and effort for the proposed outreach within the MWDOC service area. Staff also proposes that future increases in staff time and effort should be recovered through expanded external/regional sponsorships. The structured tier-based sponsorship demonstrates strong external support and validation for any future additional resource allocation needs.

Transitioning to a shared service model will provide financial transparency and accountability for the program. MWDOC would provide a monetary contribution instead of "In-Kind" support. This direct financial contribution by MWDOC will provide clearer financial tracking by explicitly monetizing staff time allocation. Moving from in-kind to monetary support reduces the appearance of hidden costs. This will also allow for a dedicated budget line item for future evaluation and adjustments to resource allocations.

Therefore, MWDOC staff recommends the A&F Committee direct staff to move forward with the following in the FY 2025-26 Budget Process:

- Support the transitional model MWDOC would provide a financial contribution instead of "In-Kind" support;
- Set a staff time allocation of approximately 0.40 FTE for management and administrative functions; and
- MWDOC to assign $33,000 (50% contributing) in the upcoming FY 2025-26 Budget Process.

ALIGNMENT WITH BOARD STRATEGIC PRIORITIES

- ☒ *Clarifying MWDOC's mission and role; defining functions and actions.*
- ☐ *Balance support for Metropolitan's regional mission and Orange County values and interests.*
- ☒ *Strengthen communications and coordination of messaging.*
- ☐ *Work with member agencies to develop water supply and demand objectives.*
- ☒ *Solicit input and feedback from member agencies.*
- ☒ *Invest in workforce development and succession planning.*

List of Attachments/Links:

Attachment 1: *Presentation to follow under separate cover.*

Item No. 9

INFORMATION ITEM
December 11, 2024

TO: **Administration & Finance Committee**
(Directors Crane, Thomas, Nederhood)

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

Staff Contact: Tiffany Baca and Sarah Wilson

SUBJECT: **MWDOC.COM REFRESH UPDATE**

STAFF RECOMMENDATION

Staff recommends the Administration & Finance Committee receive and file this report.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

Staff continues to make significant progress on the MWDOC.com website refresh project, guided by valuable feedback from the MWDOC Board Members, staff, and external partners. This update highlights recent achievements, solutions to challenges, and the next steps in the project.

Key Progress to Date

- **Service Area Map Modernization**: Finalized a static, modernized service area map in collaboration with the Center for Demographic Research (CDR) for enhanced usability and accuracy.
- **ADA Compliance Enhancements:** Reviewed and converted nearly 100 documents to meet Americans with Disabilities Act (ADA) standards, ensuring accessibility for all users.
- **Homepage Video Strategy:** Partnered with HashtagPinpoint to finalize a strategy for producing two new videos.
- **Content Accuracy and Updates:** Collaborated with all MWDOC departments to thoroughly review and update page content for accuracy and relevance.

Budgeted: ☒ Yes ☐ No ☐ N/A	Budgeted amount: $30,000	Core: ☒	Choice: ☐
Action item amount:	Movement between funds: ☐ Yes ☐ No		

- **SEO Audit and Analysis:** Identified high-impact keywords and phrases relevant to current page content
- **K-16 Water Education Content:** Completed updates for all K-16 water education pages, including landing page information and resource details. L.A. Design Studio is integrating these pages into the new layout.

Next Steps

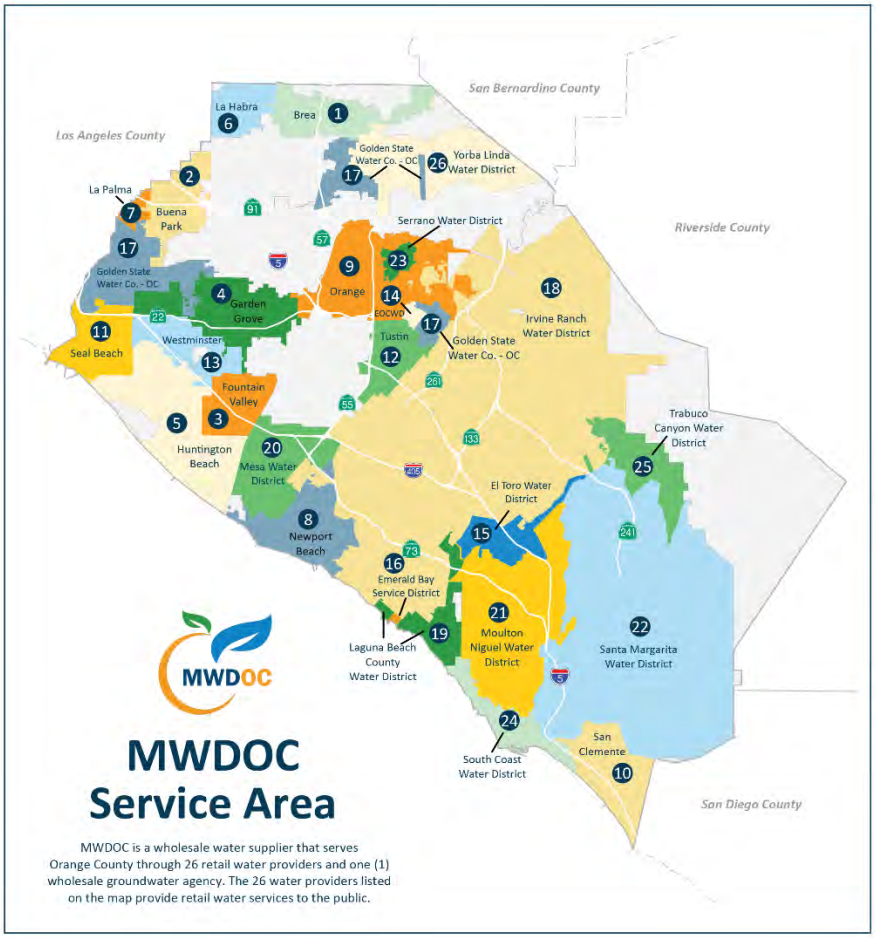
- **Page Integration:** Continue integrating updated content and layout into the new website design.
- **Backend Cleanup:** Review and organize approximately **3,400 backend assets** (images, PDFs, and documents), categorizing them as active, archived, or for deletion to streamline site management.
- **Hidden Pages Assessment:** Identify and address outdated, inactive, or campaign-specific pages to enhance site structure and relevance.
- **Homepage Video Production:** Initiate production of the finalized homepage videos, including the "About MWDOC" and Member Agency Spotlights, ensuring alignment with the approved strategy.
- **ADA Compliance:** Advance document accessibility efforts, including a review of approximately **2,400 PDFs** to meet ADA standards.
- Develop and implement **Standard Operating Procedures (SOPs)** for ongoing accessibility compliance across all departments.
- **SEO Optimization:** Conduct a comprehensive SEO audit and analysis, focusing on metadata, tags, and on-page optimization to boost search engine visibility.
- **Testing and Refinement:** Test redesigned pages thoroughly to ensure optimal functionality, intuitive navigation, and alignment with organizational goals. Refine designs based on feedback and analytics to enhance the user experience.

The project is progressing steadily, with staff committed to delivering a modern, accessible, and engaging website that reflects MWDOC's mission and value to the community. Updates will continue to be shared as key milestones are achieved. The soft launch is expected to occur in February 2025.

ALIGNMENT WITH BOARD STRATEGIC PRIORITIES

- ☒ *Clarifying MWDOC's mission and role; defining functions and actions.*
- ☒ *Balance support for Metropolitan's regional mission and Orange County values and interests.*
- ☒ *Strengthen communications and coordination of messaging.*
- ☐ *Work with member agencies to develop water supply and demand objectives.*
- ☐ *Solicit input and feedback from member agencies.*
- ☐ *Invest in workforce development and succession planning.*

List of Attachments/Links: ***Attachment 1: Modernized MWDOC Service Area Map***
MWDOC Service Area Map



1. City of Brea
2. City of Buena Park
3. City of Fountain Valley
4. City of Garden Grove
5. City of Huntington Beach
6. City of La Habra
7. City of La Palma
8. City of Newport Beach
9. City of Orange
10. City of San Clemente
11. City of Seal Beach
12. City of Tustin
13. City of Westminster
14. East Orange County Water District
15. El Toro Water District
16. Emerald Bay Service District
17. Golden State Water Co. - OC
18. Irvine Ranch Water District
19. Laguna Beach County Water District
20. Mesa Water District
21. Moulton Niguel Water District
22. Santa Margarita Water District
23. Serrano Water District
24. South Coast Water District
25. Trabuco Canyon Water District
26. Yorba Linda Water District

Administration Activities Report

November 8, 2024 – December 4, 2024

Activity	Summary
Administration/ Board	The administration team worked on the following: • Scheduled meetings for Harvey De La Torre and Board members (including Special meetings and Ad Hoc meetings). • Assisted Harvey with various write-ups and follow-up for the Committees and Board. • Continue to send Water Supply Reports to the member agencies. • Processed and reviewed agreements for appropriate Board approval and insurance requirements as well as execution, following approval. • Research and response to three Records Act requests. • Made various updates/changes to the website including financial items, Harassment Prevention, Ethics Certificates, etc.; worked with various Board members regarding Ethics and Harassment Prevention training • Reviewed files for Records Management clean-up. • Responded to various member agency requests (e.g., Board compensation surveys and Administrative Code policies) and conferred with member agencies on various processes and procedures. • Registered Staff and Directors for various conferences, training, made travel accommodations, processed business expenses, and updated the travel budget spreadsheet. • Prepared agreements, solicited signatures, and requested insurance documents for Engineering. • Formatted letters for Governmental Affairs. • Hosted the ISDOC Executive Meeting • Executed the 2024 Holiday Charity Drive.
Records Management	• Conducted Laserfiche training for staff (ongoing). • Continued to review incoming mail and log necessary documents into the Laserfiche system. • Staff continue to review documents and update information in Laserfiche.
Health and Welfare Benefits	• HR staff continues: • Finalizing plans for the new Life, Long-term disability and EAP insurance plans for 2025. • Coordinating 2025 Open enrollment information for the Flexible Benefits Spending Plans with Igoe (health care and dependent care) is underway and will close on November 13.

Recruitment / Departures	• Recruitment efforts for Accounting Technician continue. • The Public Affairs Assistant position is currently vacant, with recruitment efforts on hold.
Projects/ Activities	The Administration Team worked on the following: • Coordinated with Paul Jones on Needs Assessment presentation to Executive Committee on November 19th. • Assisted with WACO on Meetings via Zoom, PowerPoint. presentations, preparing for hybrid meetings, various correspondence, note taking and coordinating with WACO president and speakers and updating WACO information to website. • Attended Board and Committee Meetings, as well as preparation for these meetings, including packet preparation, meeting setup/take-down, Zoom coordination, etc. • Assisted Finance Department with filing, processing of invoices, purchase requisitions, business expense reports and credit card reconciliations. • Continue to update District Contacts lists in Outlook. • Continue to review and organize all electronic files in preparation for transitioning to SharePoint at the first of the year. • Reviewing quotes on Shade Sails for the atrium area. • Coordinated with District Counsel and staff on the evaluation of the responses to the RFQ for investment Management Services. • Completed the reframing, matting and hanging of Director photos for display in hallway. • Received and reviewing quotes for sound masking devices to install throughout the office. • Work on the new directory for 2025 – getting pages ready to send information out to agencies for updates. • Performed research on computer training resources for the upcoming transition to OneDrive and SharePoint. Currently working with New Horizon on a trial basis for the admin team to assess. • Fumigation of the MWDOC and OCWD Offices were completed during the weekend of November 8th. • Participated in a meeting with AWIA consultant on November 18. • HR continues to review new employment laws for 2025. • HR staff is finalizing plans for the supervisor training through The Center for Organizational Effectiveness schedule for a series of 5 sessions commencing January 2025 through April 2025 in conjunction with Yorba Linda Water District.

Item No.
10b

INFORMATION ITEM
December 11, 2024

TO: Board of Directors

FROM: **Administration & Finance Committee**
(Directors Crane, Thomas, Nederhood)

Harvey De La Torre, General Manager

Staff Contact: Steven Hung

SUBJECT: **Finance and IT Pending Items Report**

SUMMARY

The following list details the status of special projects in progress or to be completed during this Fiscal Year.

Finance

Accounting	Rebate Program(s)	W-9 collection for conservation rebates. Currently holding no rebate check(s) awaiting W-9 form(s)
Accounting	Annual Audit	100% complete
Finance	Annual Budget	FY25/26 Budget is about 8% Complete
Finance	ERP	Began discovery stages and attended ERP demos
Finance	Other	On-going process improvement

Information Technology (IT)

Security	Backups	Weekly reviews of backup reports show systems are securely backed-up according to schedule.
	Network/ Infrastructure	Phase I of the network project completed to update routers, switches, and wiring. The upgrade will provide better performance, security, and reliability/redundancy.
	Vulnerability Scanning	Weekly external vulnerability scans report no identified exposures.
Services	Phone System	Tuning and configuration of new phone system continued throughout the month; auto attendants, call flow, and messaging.
	Support Tickets	137 new support tickets opened; 147 tickets completed and 51 remain pending, in progress, or on-hold status.
Training	Cybersecurity	All staff engaged in training on *Social Engineering Red Flags* on-demand training.

INFORMATION ITEM
December 11, 2024

TO: **Administration & Finance Committee**
(Directors Crane, Dick, Thomas)

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

Staff Contact: Kevin Hostert

SUBJECT: **Monthly Water Usage Data and Water Supply Info.**

STAFF RECOMMENDATION

Staff recommends the Administration & Finance Committee receive and file this information.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

REPORT

The attached figures show the recent trend of water consumption in Orange County (OC), an estimate of Imported Water Sales for MWDOC, and selected water supply information.

- OC Water Usage, Monthly by Supply ***OCWD Groundwater was the main supply in October.***
- Estimated OC Water Usage, Monthly, Comparison to Previous Years Water usage in October ***2024 was slightly Below average compared to the last 5 years***. We are projecting an increase in overall water usage compared to FY 2023-24. On March 24th 2023, state officials eased back drought emergency provisions that were in place since July 2021.
- Historical OC Water Consumption Orange County M & I projected water consumption is ***514,000 AF for FY 2024-25*** *(this includes ~7 TAF of agricultural usage and non-retail water agency usage).* This is about ***40,500 AF more than FY 2023-24*** and is about ***34,000 AF more than FY 2022-23***. Water usage per person is projected to be slightly lower in ***FY 2024-25 for Orange County at 145 gallons per day*** (This includes recycled water usage). Although OC population has increased

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

20% over the past two decades, water usage has not increased, on average. A long-term decrease in per-capita water usage is attributed mostly to Water Use Efficiency (water conservation) efforts. ***O.C. Water Usage has declined significantly since the end of FY 2013-14. Since FY 2013-14 average O.C. Annual Water usage is 523,000 AF, a decline of 98,500 AF since FY 2013-14. FY 2023-24*** Orange County M & I water consumption was ***the lowest since FY 1978-79 (45 Years).***

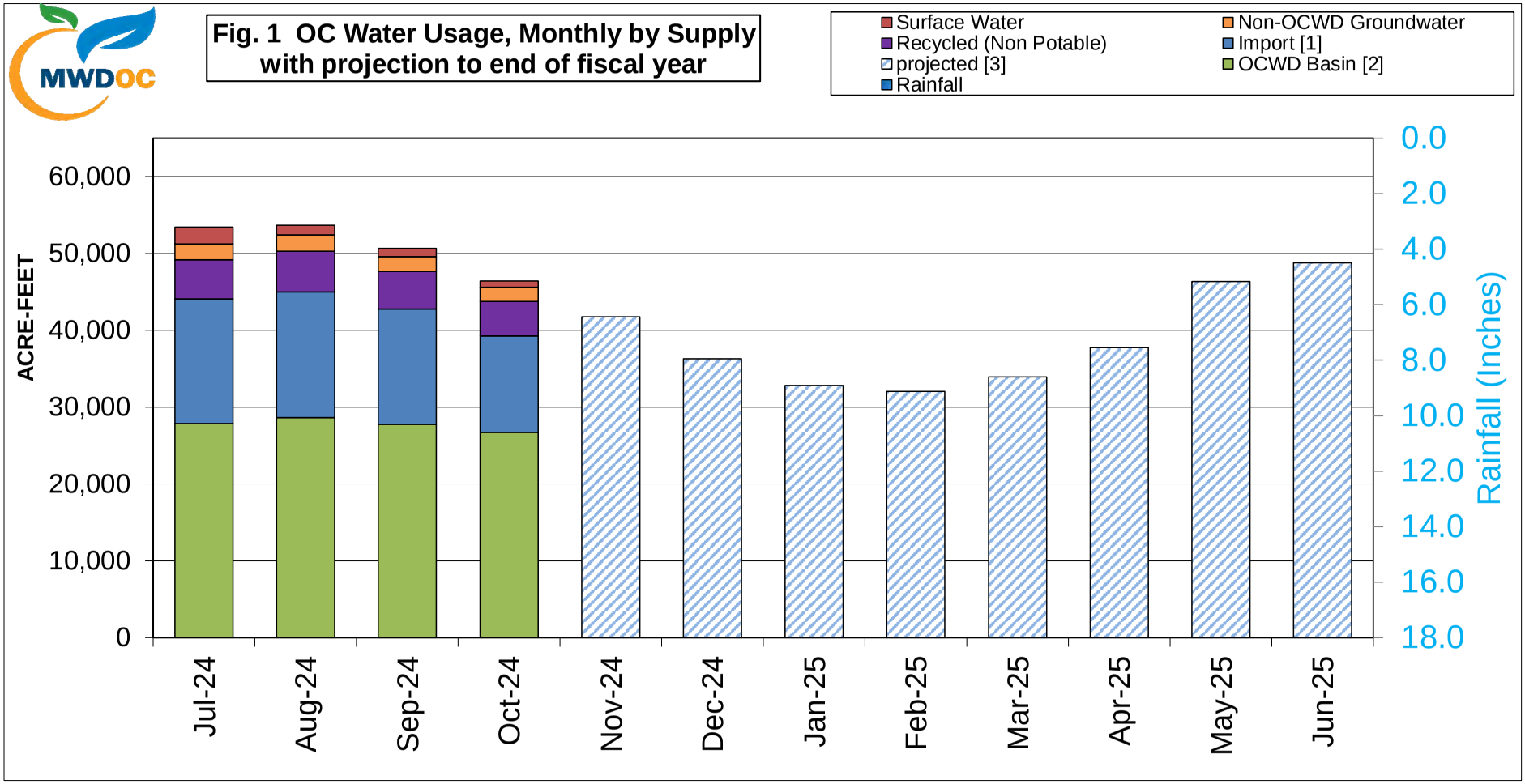
Water Supply Information Includes data on Rainfall in OC; the OCWD Basin overdraft; Northern California and Colorado River Basin hydrologic data; the State Water Project (SWP) Allocation, and regional storage volumes. The data have implications for the magnitude of supplies from the three watersheds that are the principal sources of water for OC. Note that a hydrologic year is Oct. 1st through Sept. 30th.

- Orange County's accumulated precipitation through ***early December was below average*** for this period. Water year to date rainfall in Orange County is ***0.13 inches***, which is ***7% of normal***.

- Northern California accumulated precipitation through early ***December was 134% of normal for this period***. Water Year 2023 was 133% of normal while water year 2022 was 48% of normal. The ***Northern California snowpack was 120% of normal as of December 4th, 2024. As of late November, 16.72%*** of California is experiencing ***moderate drought conditions***. ***5.7%*** of California is experiencing ***severe to exceptional drought conditions.*** The State Water Project Contractors Initial Table A Allocation was set to 5% as of December for WY 2024.

- Colorado River Basin accumulated precipitation through ***early December was 109% of normal*** for this period. The ***Upper Colorado Basin snowpack was 116% of normal*** as of December 4th 2024***. Lake Mead and Lake Powell*** combined have about ***51% of their average storage volume*** for this time of year and are at ***34.6% of their total capacity***. Lake Mead's ***levels have been below the "trigger" limit of 1,075 ft. since the start of CY 2022***. The US Bureau of Reclamation (USBR) has declared a shortage at Lake Mead, impacting Colorado River water deliveries to the Lower Basin states. Lake Mead as of early December ***was 14.07' BELOW the "trigger" limit***. The USBR has declared a ***shortage on the Colorado River that started on January 1st 2022***. ***There is a 100% chance of shortage continuing in 2025, 93% in 2026 and 57% in 2027.*** Lake Mead as of ***early December was 15.93' ABOVE the State of California "trigger" limit***. ***There is a 0% chance of mandatory cutbacks for California in 2025, 0% in 2026 and 7% in 2027.***

Fig. 1 OC Water Usage, Monthly by Supply with projection to end of fiscal year

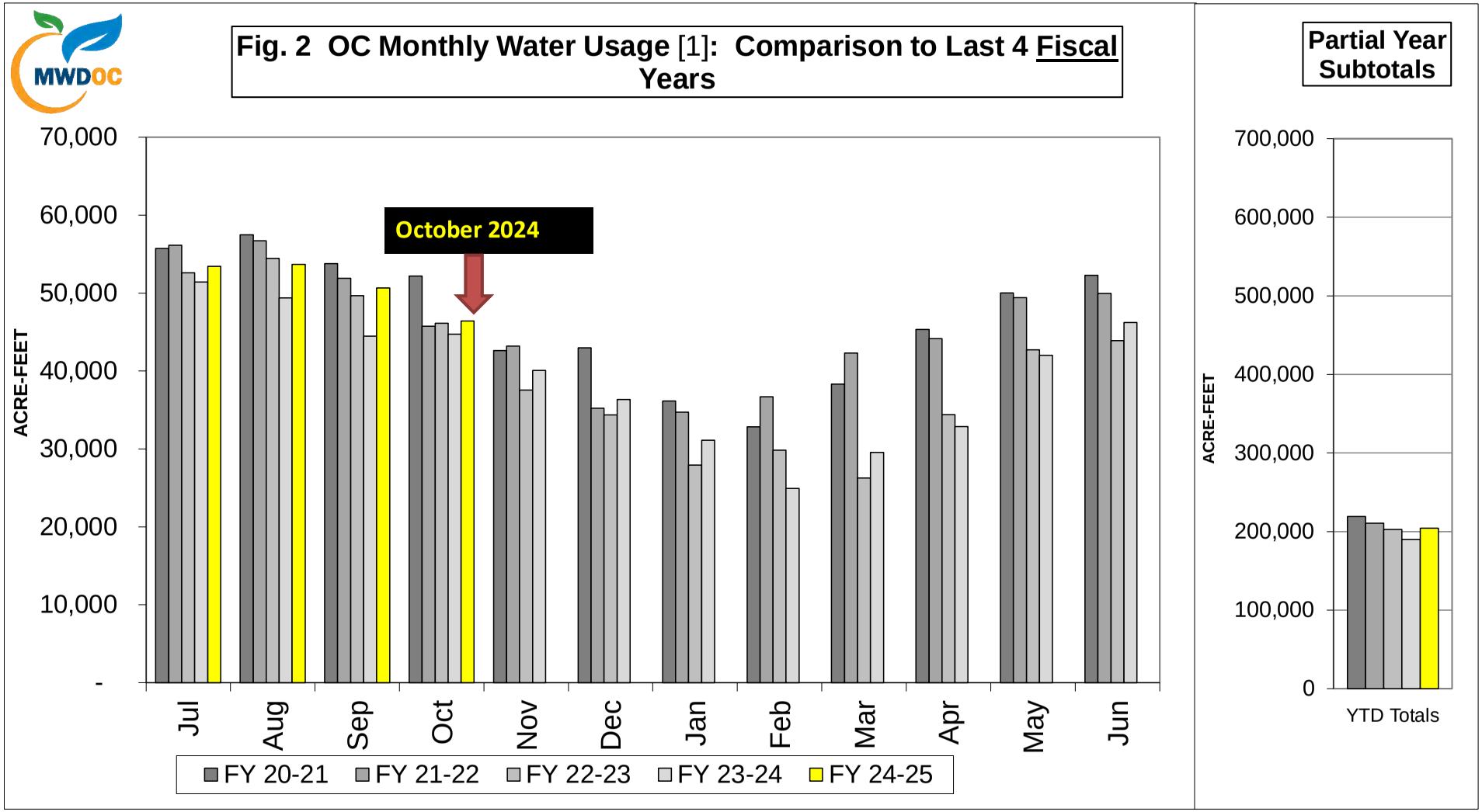


[1] Imported water for consumptive use. Includes "In-Lieu" deliveries and CUP water extraction. Excludes "Direct Replenishment" deliveries of spreading water and deliveries into Irvine Lake.

[2] GW for consumptive use only. Excludes In-Lieu water deliveries and CUP water extraction that are counted with Import. BPP in FY '24-25 is 85%.

[3] MWDOC's estimate of monthly demand is based on the projected 5 Year historical retail water demand and historical monthly demand patterns.

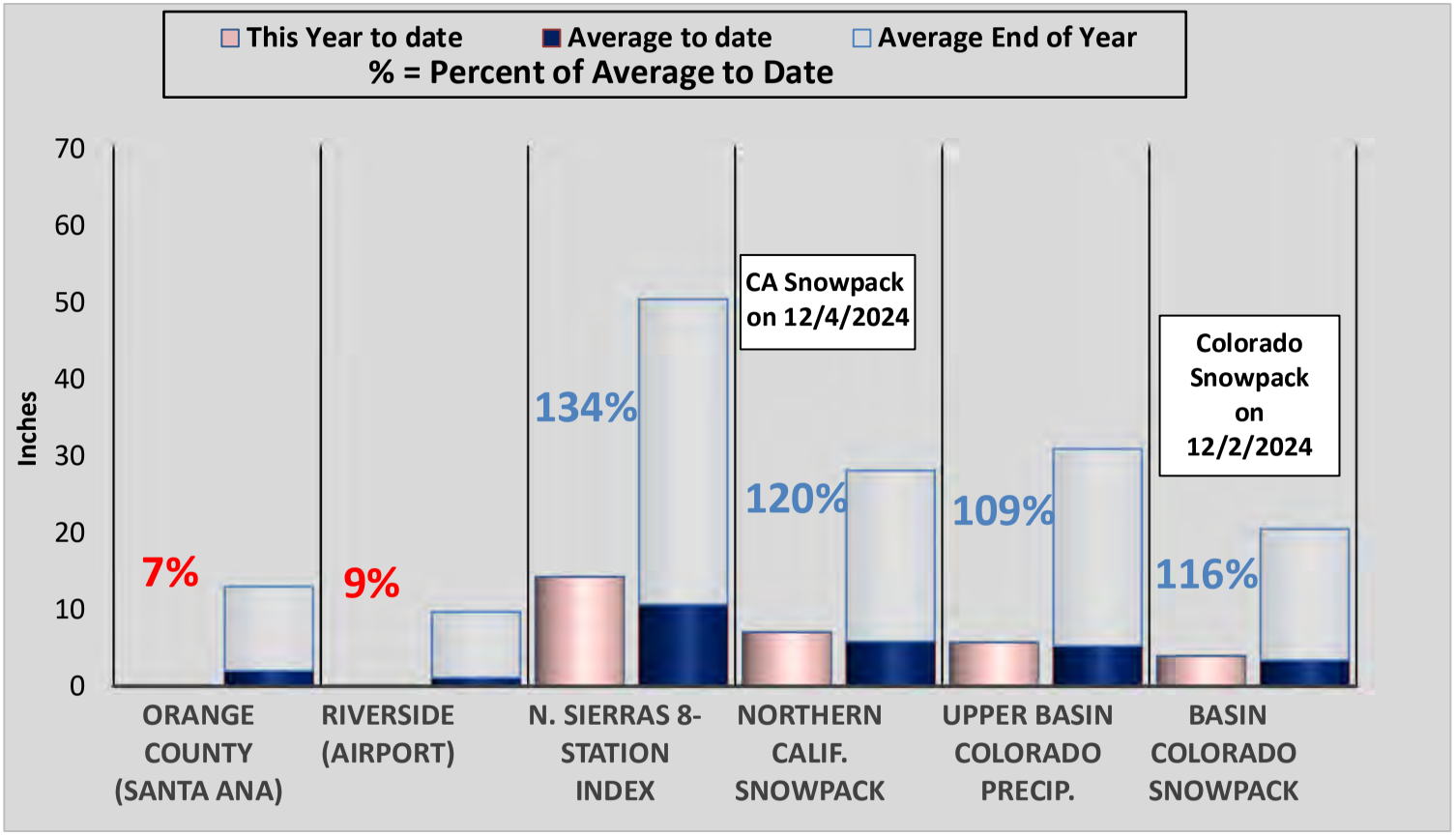
[4] Total water usage includes IRWD groundwater agricultural use and usage by non-retail water agencies.



[1] Sum of Imported water for consumptive use (includes "In-Lieu" deliveries; excludes "Direct Replenishment "and "Barrier Replenishment") and Local water for consumptive use (includes recycled and non-potable water and excludes GWRS production) Recent months numbers include some estimation.

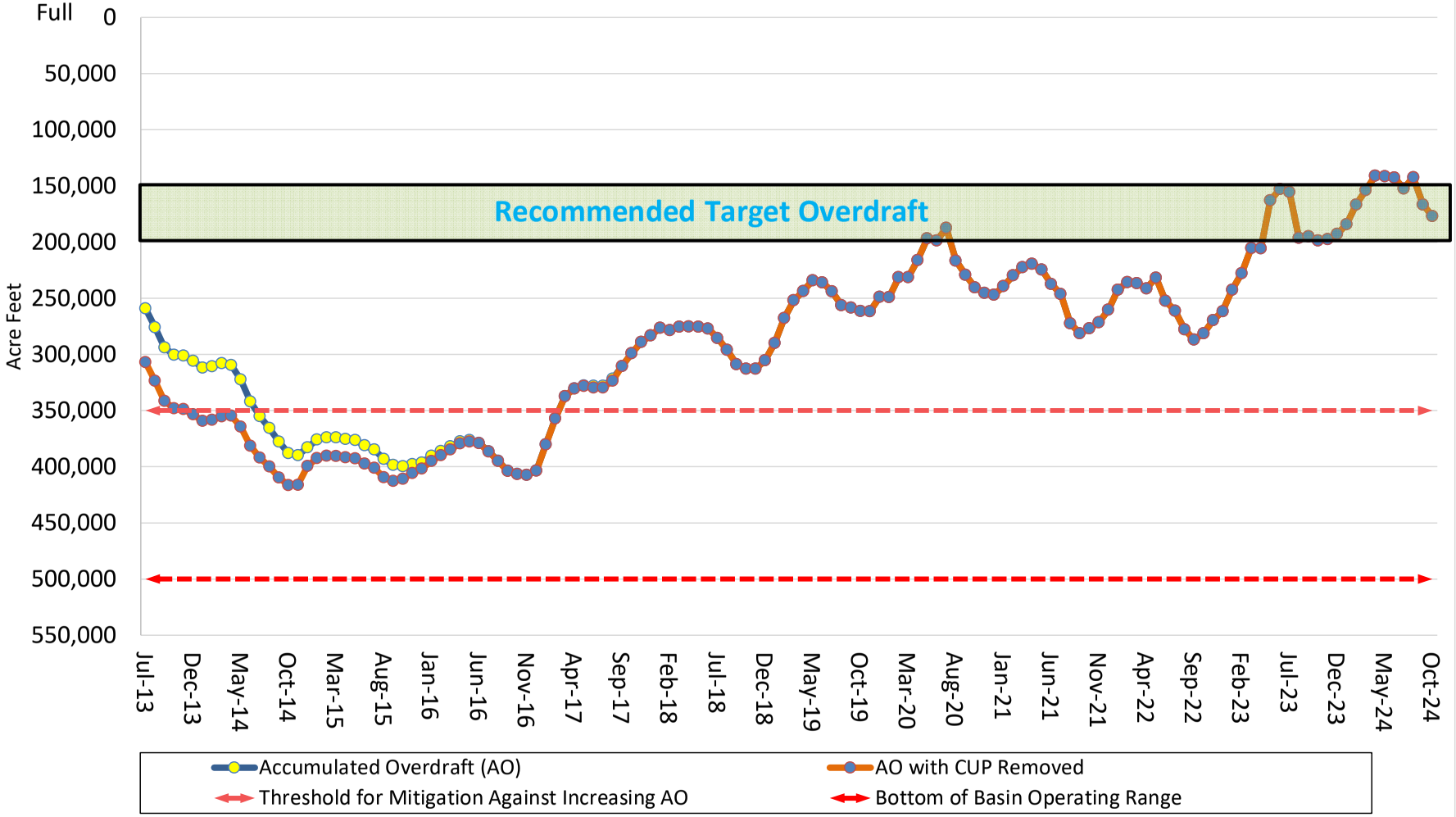
Accumulated Precipitation

for the *Oct.-Sep.* water year, as of Early December 2024



* The date of maximum snowpack accumulation (April 1st in Northern Calif. , April 15th in the Upper Colorado Basin) is used for year to year comparison.

Accumulated Overdraft of the OCWD Groundwater Basin as of October 2024

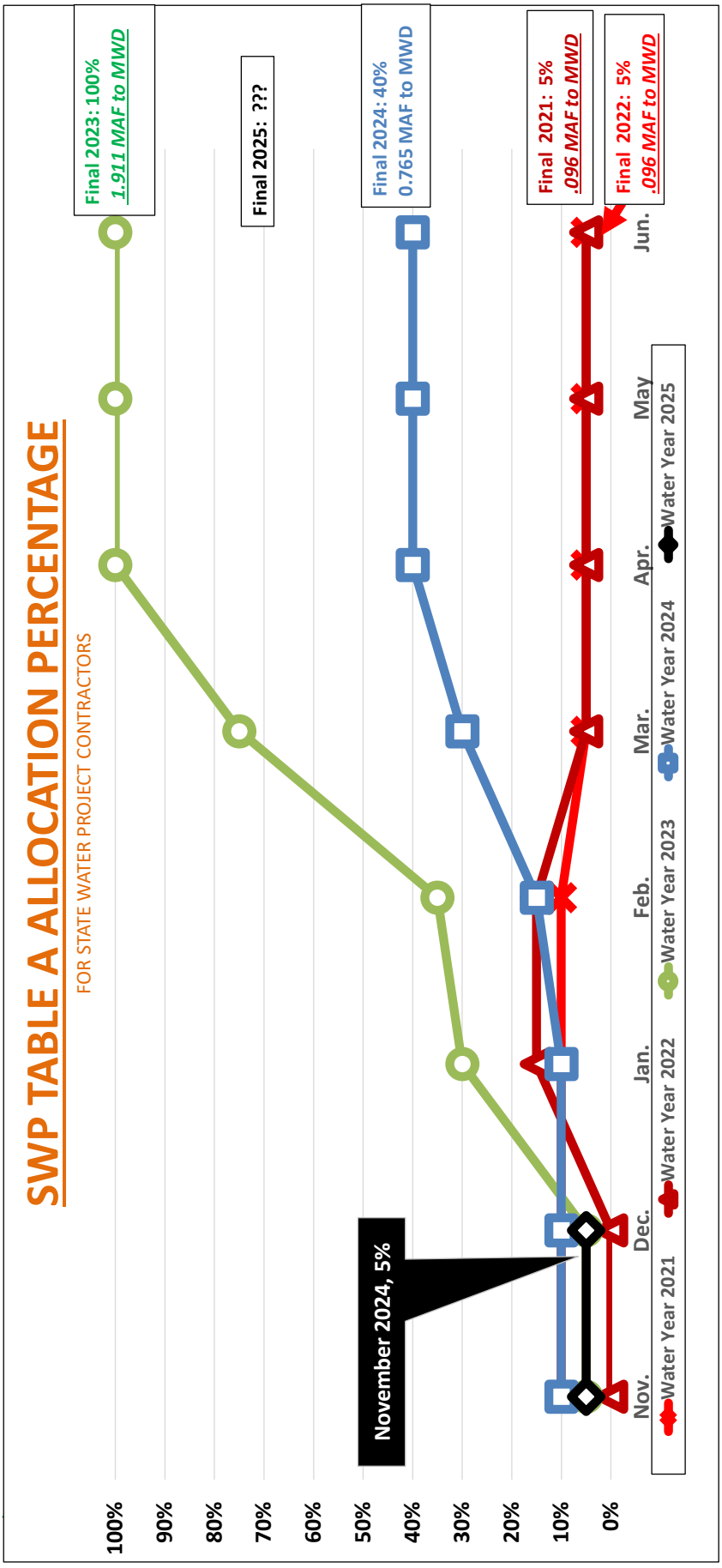


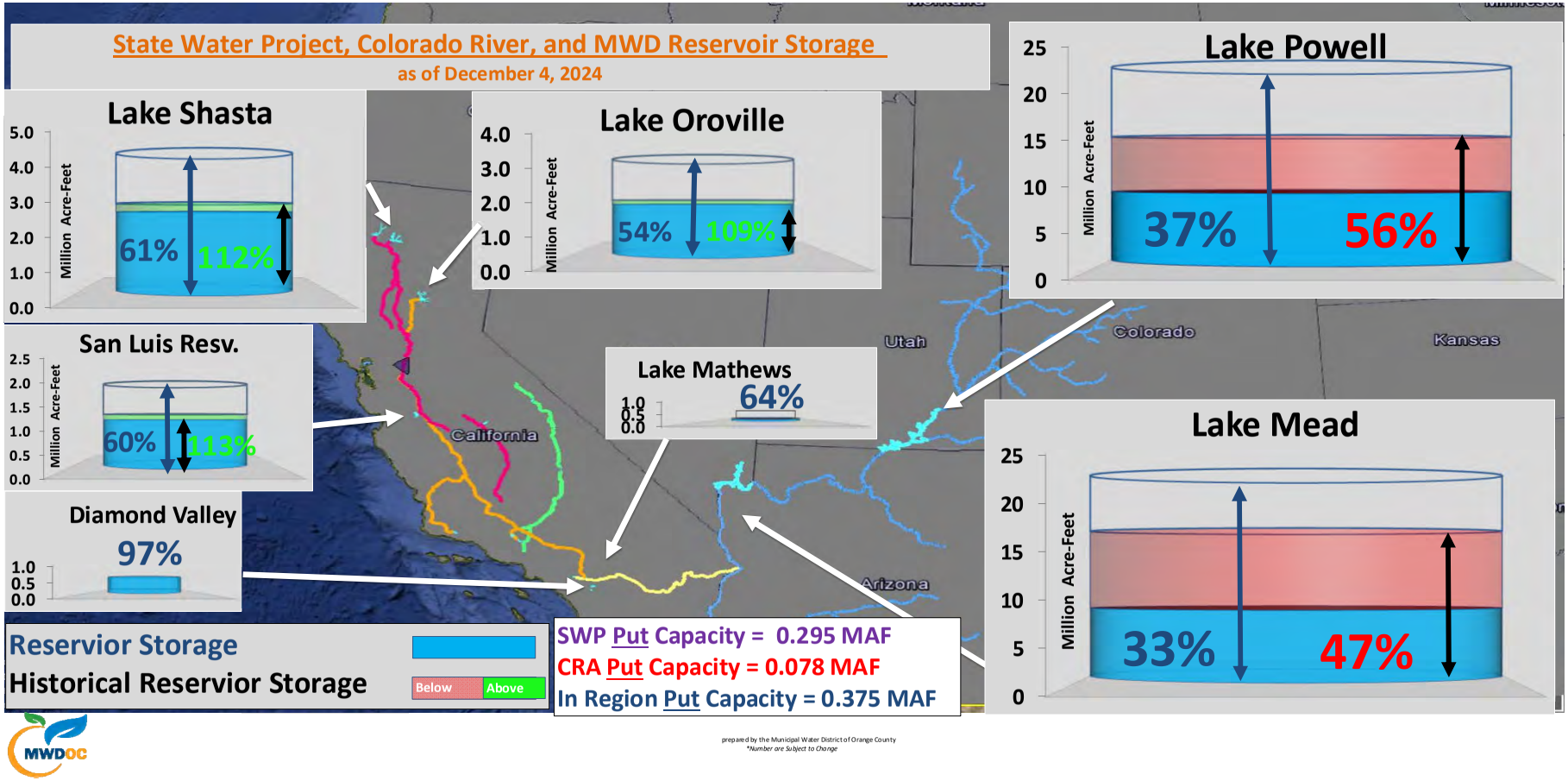
	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24
AO (AF)	155,360	196,275	194,961	198,554	197,412	192,806	184,258	166,730	153,904	141,024	141,462	142,581
AO w/CUP removed (AF)	155,360	196,275	194,961	198,554	197,412	192,806	184,258	166,730	153,904	141,024	141,462	142,581
	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25
AO (AF)	152,428	142,325	166,580	176,943								
AO w/CUP removed (AF)	152,428	142,325	166,580	176,943								

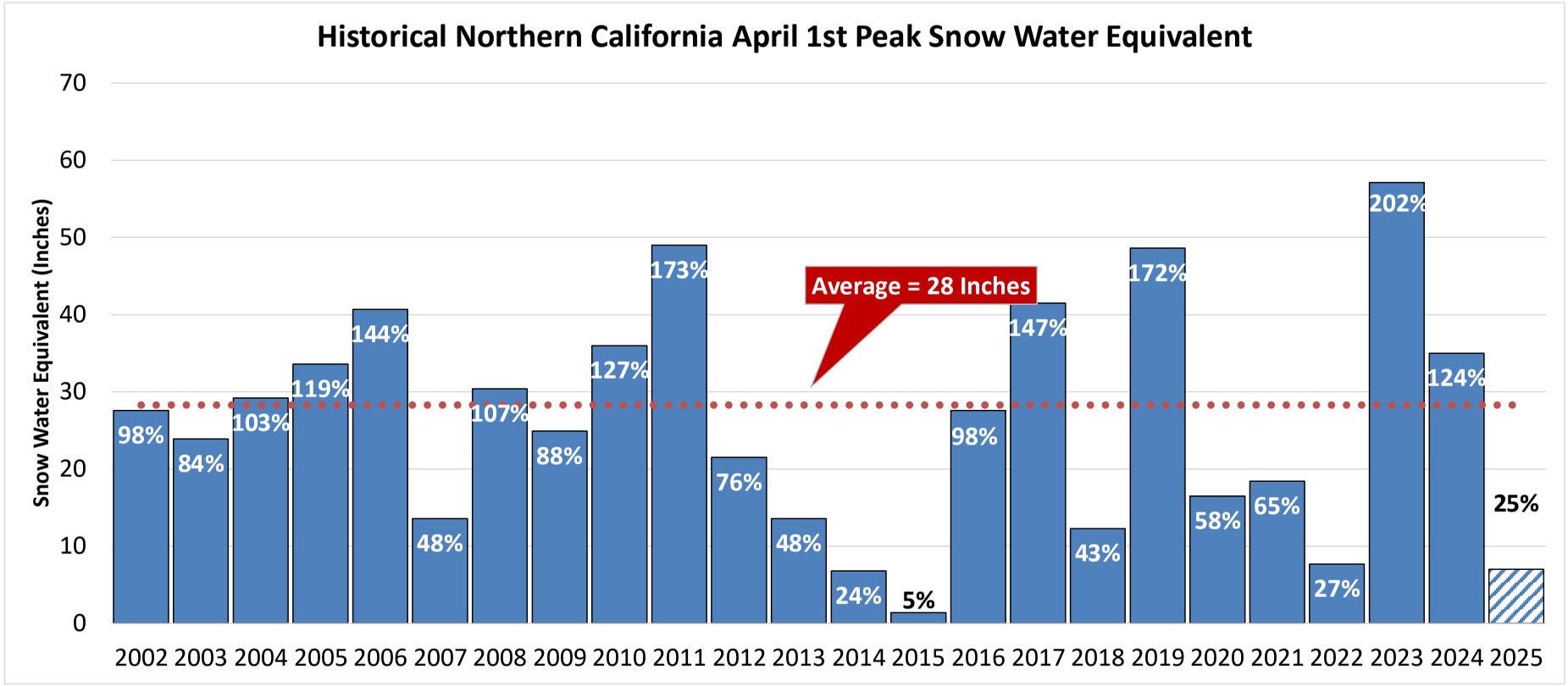
**** Source ~ OCWD Monthly Board of Directors Packet, Water Resources Summary***

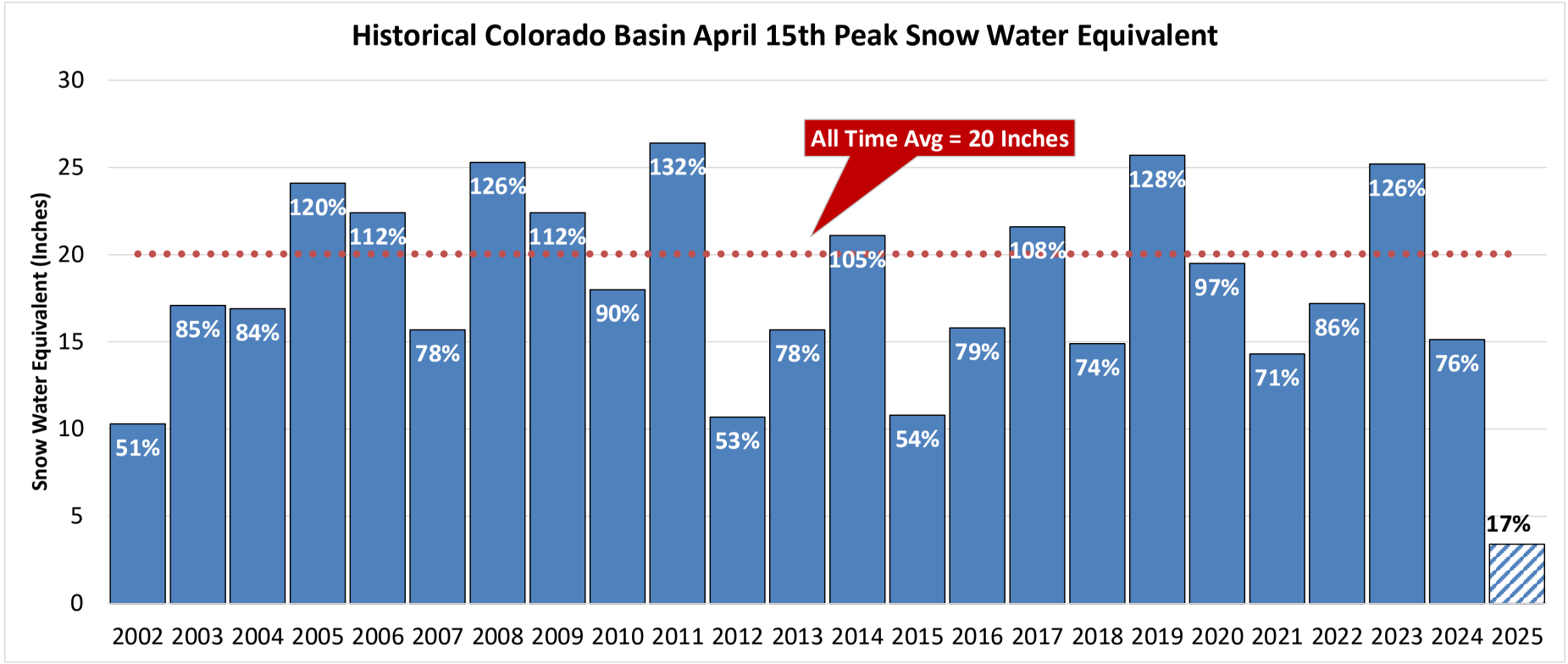
MWDOC

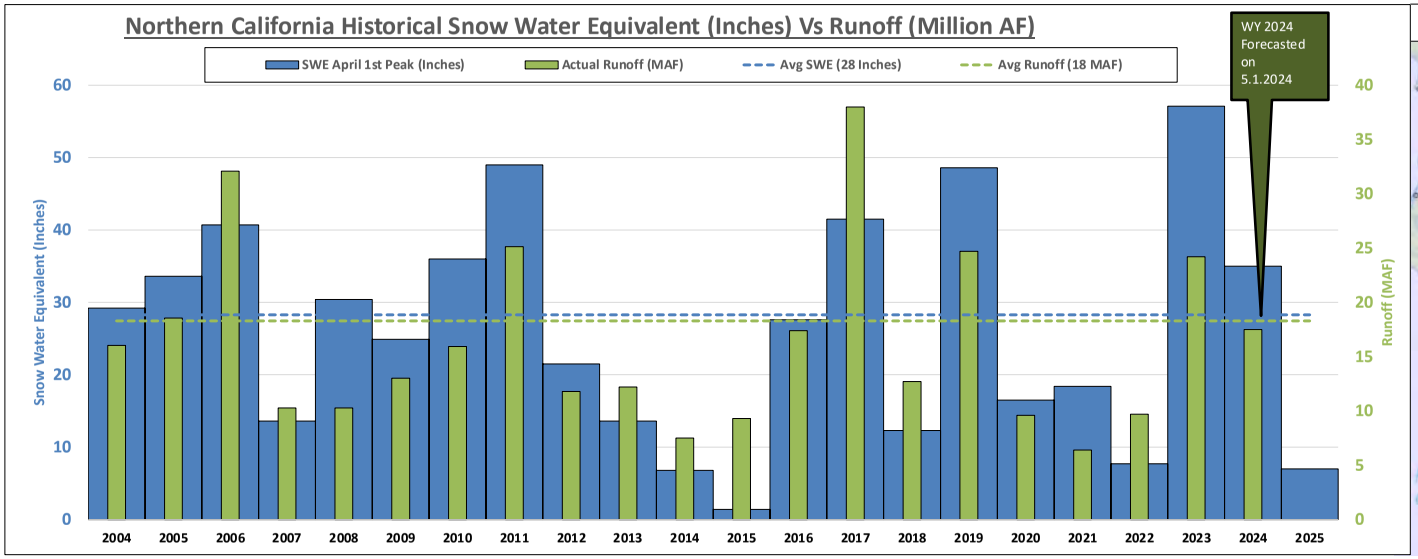
Source of data = OCWD monthly Water Resources Report in Board meeting packet


SWP TABLE A ALLOCATION PERCENTAGE
FOR STATE WATER PROJECT CONTRACTORS
Final 2023: 100%
1.911 MAF to MWD
Final 2025: ???
Final 2024: 40%
0.765 MAF to MWD
Final 2021: 5%
.096 MAF to MWD
Final 2022: 5%
.096 MAF to MWD
November 2024, 5%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Nov.
Dec.
Jan.
Feb.
Mar.
Apr.
May
Jun.
Water Year 2021
Water Year 2022
Water Year 2023
Water Year 2024
Water Year 2025

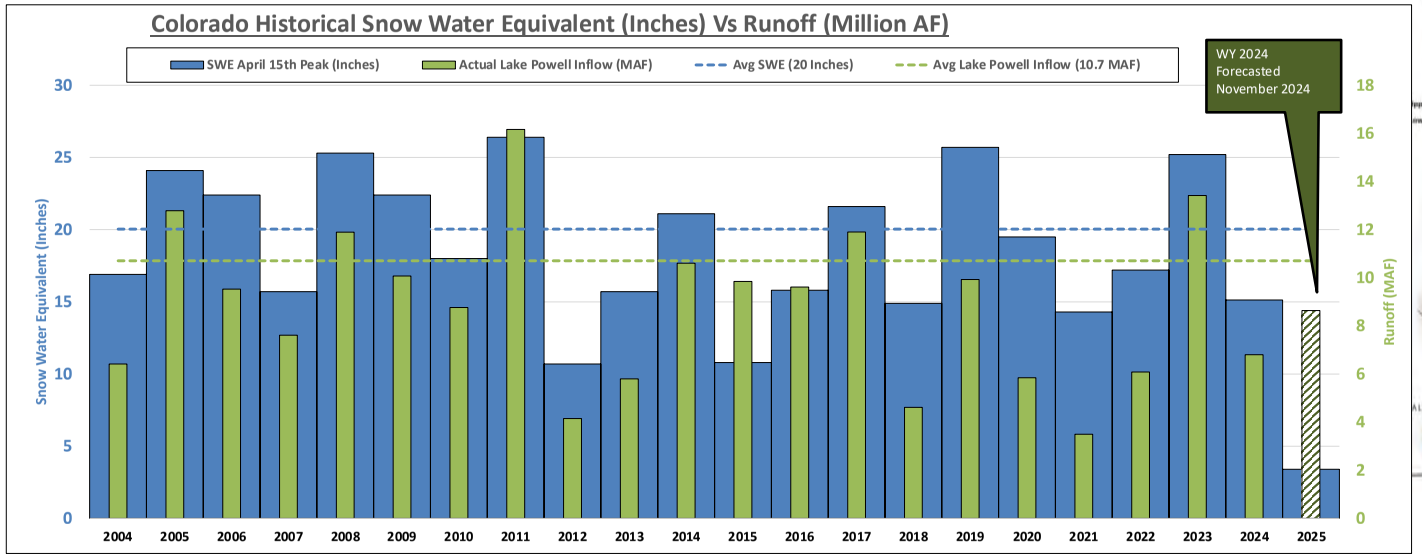

State Water Project, Colorado River, and MWD Reservoir Storage
as of December 4, 2024
Lake Shasta
Million Acre-Feet
5.0
4.0
3.0
2.0
1.0
0.0
61%
112%
Lake Oroville
Million Acre-Feet
4.0
3.0
2.0
1.0
0.0
54%
109%
Lake Powell
Million Acre-Feet
25
20
15
10
5
0
37%
56%
San Luis Resv.
Million Acre-Feet
2.5
2.0
1.5
1.0
0.5
0.0
60%
113%
Lake Mathews
1.0
0.5
0.0
64%
Diamond Valley
1.0
0.5
0.0
97%
Lake Mead
Million Acre-Feet
25
20
15
10
5
0
33%
47%
Utah
Colorado
Kansas
California
Arizona
Reservior Storage
Historical Reservior Storage
Below
Above
SWP Put Capacity = 0.295 MAF
CRA Put Capacity = 0.078 MAF
In Region Put Capacity = 0.375 MAF
MWDOC
prepared by the Municipal Water District of Orange County
*Number are Subject to Change


Historical Northern California April 1st Peak Snow Water Equivalent
Snow Water Equivalent (Inches)
70
60
50
40
30
20
10
0
Average = 28 Inches
98%
84%
103%
119%
144%
48%
107%
88%
127%
173%
76%
48%
24%
5%
98%
147%
43%
172%
58%
65%
27%
202%
124%
25%
2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

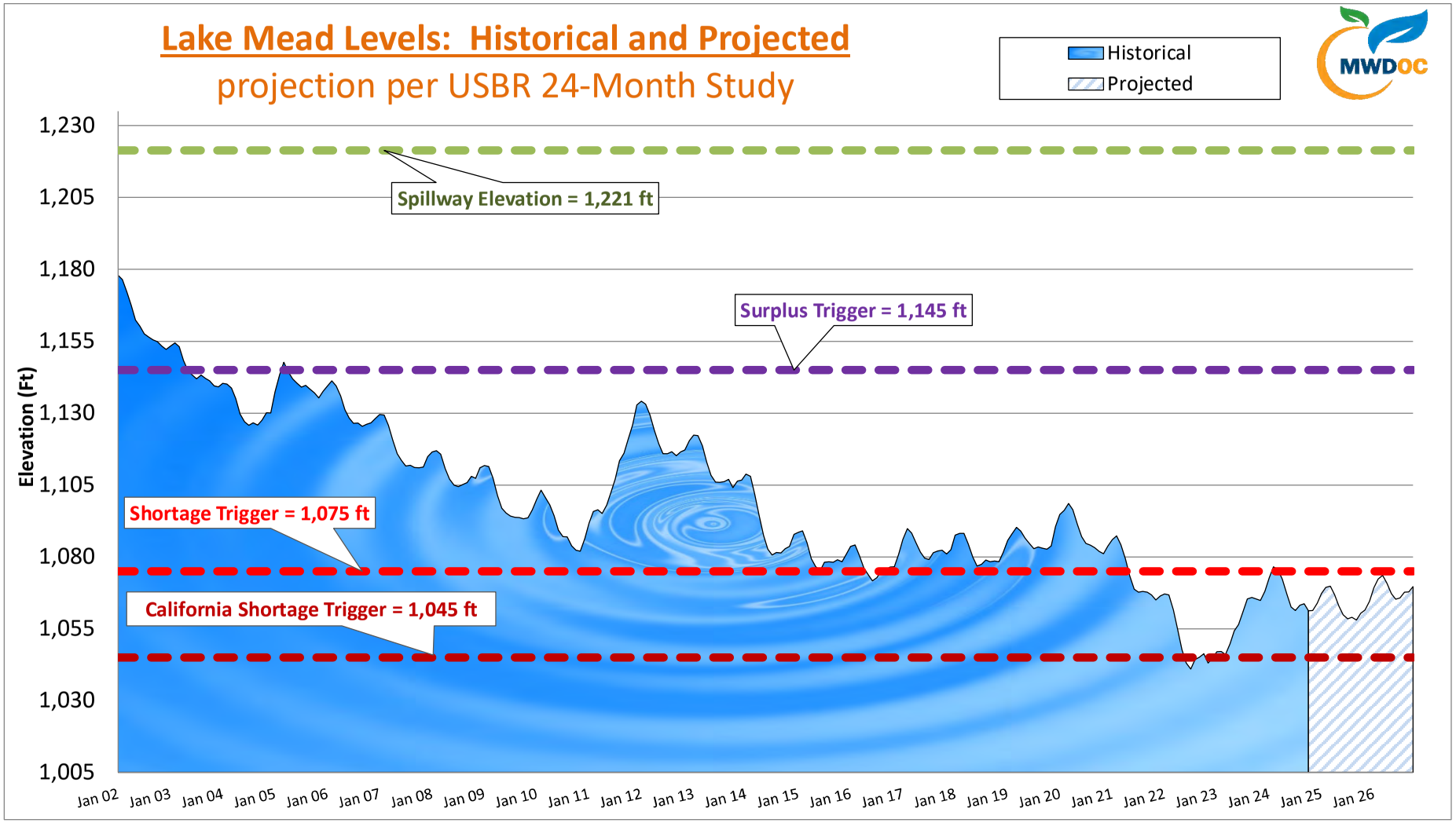

Historical Colorado Basin April 15th Peak Snow Water Equivalent
Snow Water Equivalent (Inches)
30
25
20
15
10
5
0
All Time Avg = 20 Inches
51%
85%
84%
120%
112%
78%
126%
112%
90%
132%
53%
78%
105%
54%
79%
108%
74%
128%
97%
71%
86%
126%
76%
17%
2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

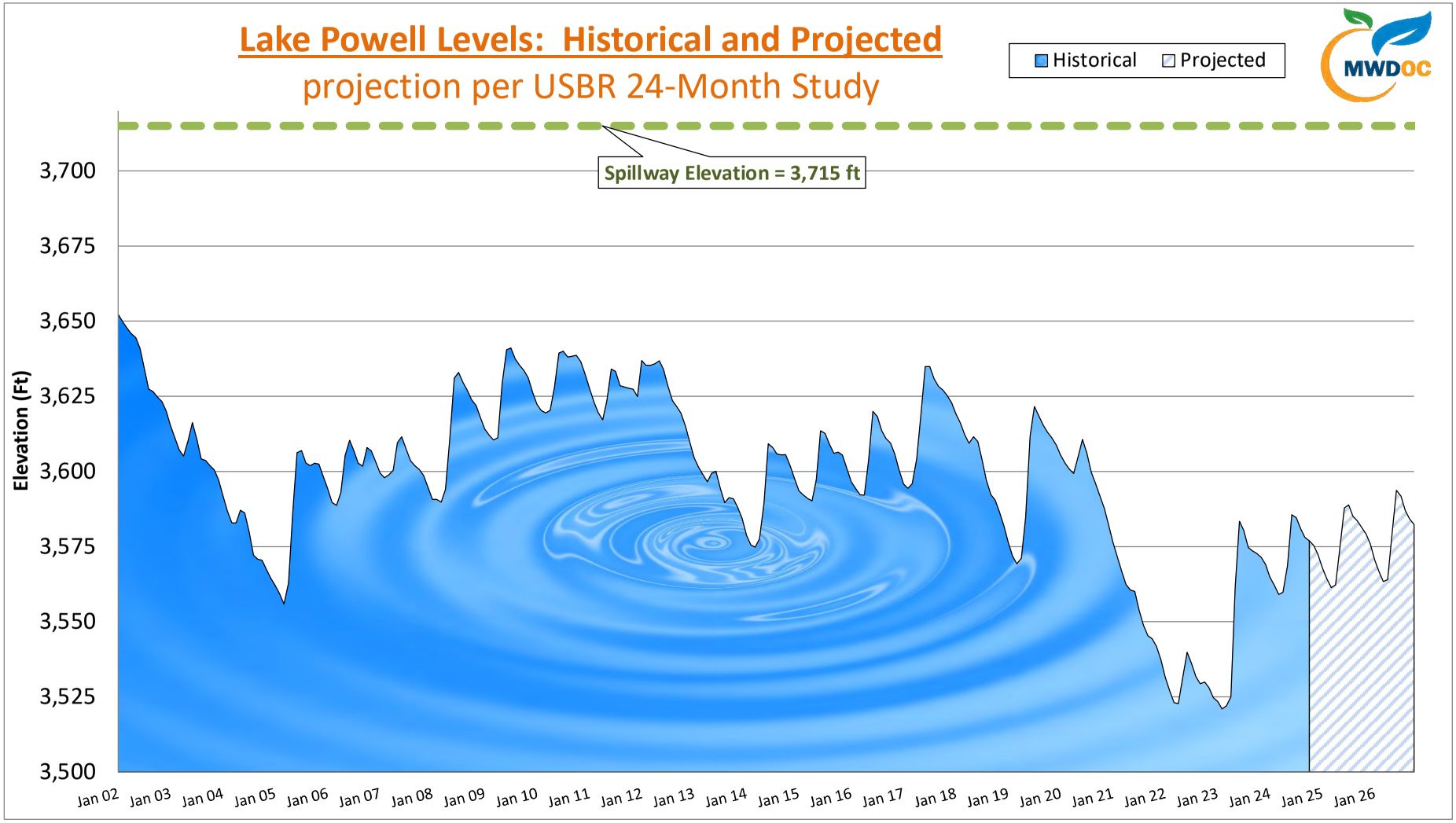

Northern California Historical Snow Water Equivalent (Inches) Vs Runoff (Million AF)
SWE April 1st Peak (Inches)
Actual Runoff (MAF)
Avg SWE (28 Inches)
Avg Runoff (18 MAF)
WY 2024 Forecasted on 5.1.2024
Snow Water Equivalent (Inches)
Runoff (MAF)
0 10 20 30 40 50 60
0 5 10 15 20 25 30 35 40
2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

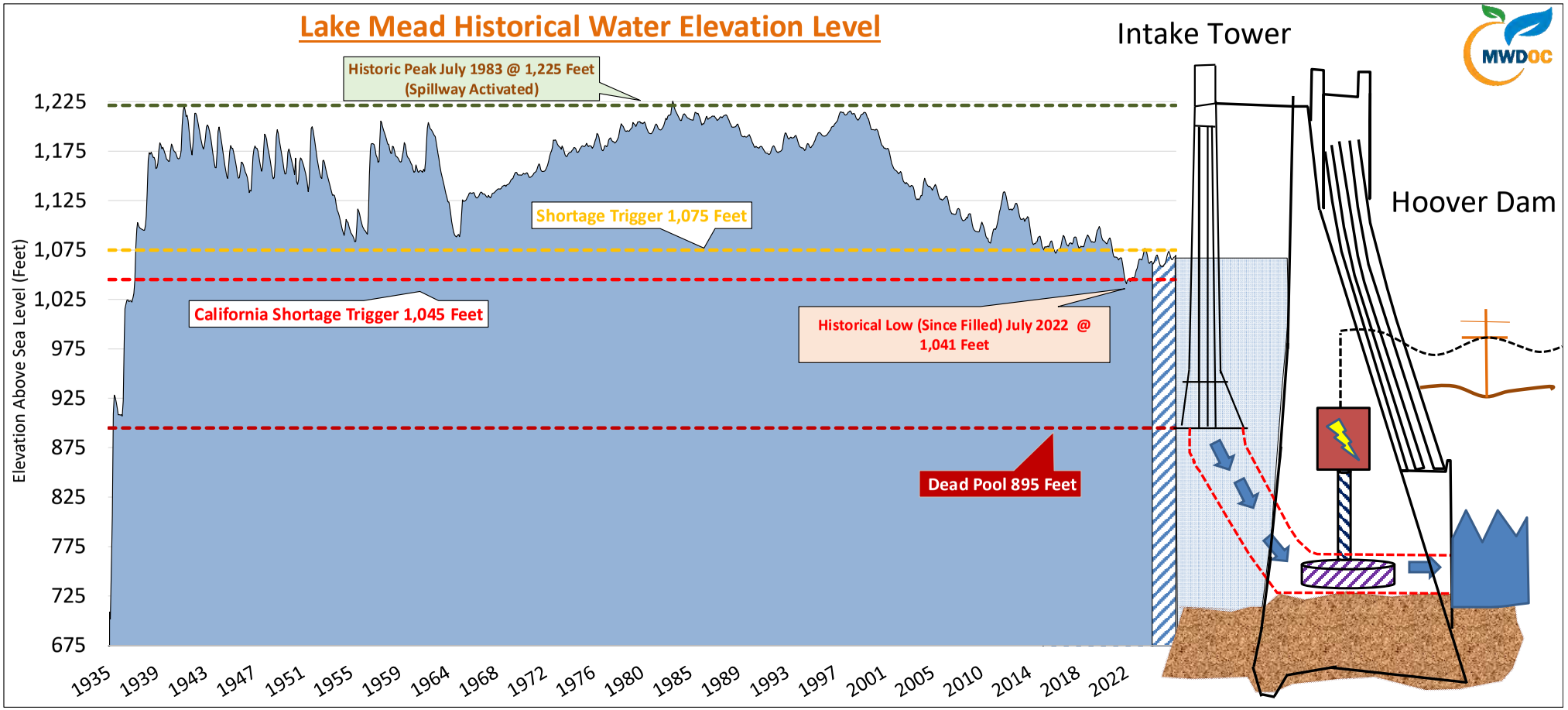

Sacramento River Basin
OREGON
CALIFORNIA
Sacramento
Santa Rosa
San Francisco
Oakland
Stockton
Pacific Ocean

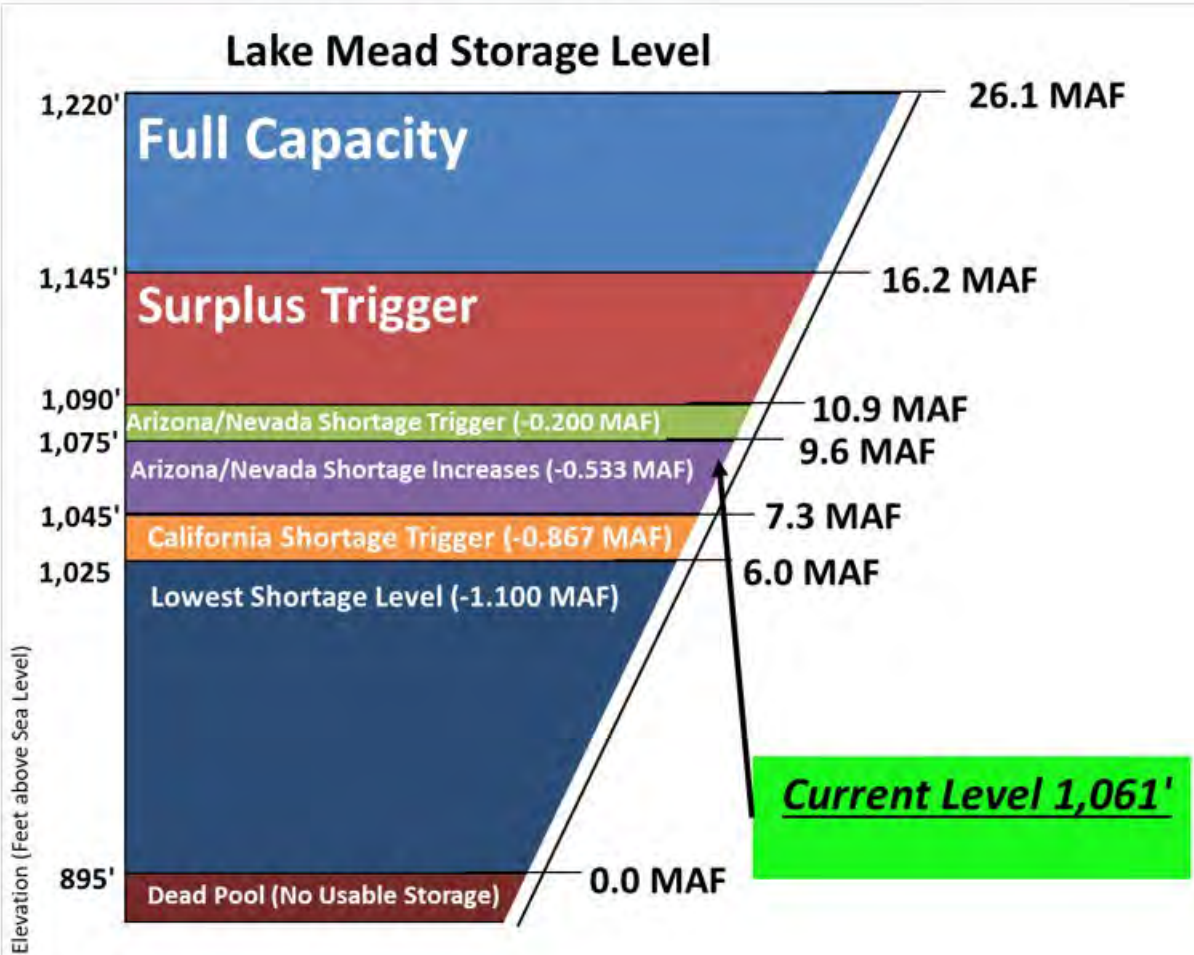

Colorado Historical Snow Water Equivalent (Inches) Vs Runoff (Million AF)
SWE April 15th Peak (Inches)
Actual Lake Powell Inflow (MAF)
Avg SWE (20 Inches)
Avg Lake Powell Inflow (10.7 MAF)
WY 2024 Forecasted November 2024
Snow Water Equivalent (Inches)
Runoff (MAF)
0 5 10 15 20 25 30
0 2 4 6 8 10 12 14 16 18
2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025


Colorado River Basin
WYOMING
UTAH
CALIFORNIA
NEW
MEXICO


Lake Mead Levels: Historical and Projected
projection per USBR 24-Month Study
Historical
Projected
MWDOC
Elevation (Ft)
1,230
1,205
1,180
1,155
1,130
1,105
1,080
1,055
1,030
1,005
Spillway Elevation = 1,221 ft
Surplus Trigger = 1,145 ft
Shortage Trigger = 1,075 ft
California Shortage Trigger = 1,045 ft
Jan 02
Jan 03
Jan 04
Jan 05
Jan 06
Jan 07
Jan 08
Jan 09
Jan 10
Jan 11
Jan 12
Jan 13
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
Jan 25
Jan 26


Lake Powell Levels: Historical and Projected
projection per USBR 24-Month Study
Historical
Projected
MWDOC
Spillway Elevation = 3,715 ft
Elevation (Ft)
3,700
3,675
3,650
3,625
3,600
3,575
3,550
3,525
3,500
Jan 02
Jan 03
Jan 04
Jan 05
Jan 06
Jan 07
Jan 08
Jan 09
Jan 10
Jan 11
Jan 12
Jan 13
Jan 14
Jan 15
Jan 16
Jan 17
Jan 18
Jan 19
Jan 20
Jan 21
Jan 22
Jan 23
Jan 24
Jan 25
Jan 26


Lake Mead Historical Water Elevation Level
Historic Peak July 1983 @ 1,225 Feet
(Spillway Activated)
Shortage Trigger 1,075 Feet
California Shortage Trigger 1,045 Feet
Historical Low (Since Filled) July 2022 @
1,041 Feet
Dead Pool 895 Feet
Elevation Above Sea Level (Feet)
1,225
1,175
1,125
1,075
1,025
975
925
875
825
775
725
675
1935
1939
1943
1947
1951
1955
1959
1964
1968
1972
1976
1980
1985
1989
1993
1997
2001
2005
2010
2014
2018
2022
Intake Tower
Hoover Dam
MWDOC


Lake Mead Storage Level
1,220'
Full Capacity
26.1 MAF
1,145'
Surplus Trigger
16.2 MAF
1,090'
Arizona/Nevada Shortage Trigger (-0.200 MAF)
10.9 MAF
1,075'
Arizona/Nevada Shortage Increases (-0.533 MAF)
9.6 MAF
1,045'
California Shortage Trigger (-0.867 MAF)
7.3 MAF
1,025
Lowest Shortage Level (-1.100 MAF)
6.0 MAF
Current Level 1,061'
895'
Dead Pool (No Usable Storage)
0.0 MAF
Elevation (Feet above Sea Level)