MEETING OF THE BOARD OF DIRECTORS OF THE MUNICIPAL WATER DISTRICT OF ORANGE COUNTY Jointly with the **ADMINISTRATION & FINANCE COMMITTEE** September 14, 2022, 8:30 a.m.

Due to the current state of emergency related to the spread of COVID-19 and pursuant to Government Code Section 54953(e), MWDOC will be holding this Board and Committee meeting by Zoom Webinar and will be available by either computer or telephone audio as follows:

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

Telephone Audio: Webinar ID:	(669) 900 9128 fees may apply (877) 853 5247 Toll-free 882 866 5300#
	Staff: R. Hunter, J. Berg, H. Chumpitazi, H. De La Torre, K. Davanaugh, C. Harris

Director Seckel, Chair Director Thomas Director Dick

A&F Committee:

Ex Officio Member: Director Yoo Schneider

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

ROLL CALL

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

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

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

PRESENTATION

1. PRESENTATION BY PARS REGARDING OTHER POST-EMPLOYMENT BENEFITS TRUST & PENSION RATE STABILIZATION PROGRAM (PRSP) TRUST CLIENT REVIEW

PROPOSED BOARD CONSENT CALENDAR ITEMS

- 2. TREASURER'S REPORT
 - a. Revenue/Cash Receipt Report August 2022
 - b. Disbursement Approval Report for the month of September 2022
 - c. Disbursement Ratification Report for the month of August 2022
 - d. GM Approved Disbursement Report for the month of August 2022
 - e. Consolidated Summary of Cash and Investment July 2022
 - f. OPEB and Pension Trust Fund statements
- 3. FINANCIAL REPORT
 - a. Combined Financial Statements and Budget Comparative for the Period Ending July 31, 2022

DISCUSSION ITEM

4. ECONOMIC ANALYSIS OF STATE'S PROPOSED WATER USE EFFICIENCY STANDARDS

ACTION ITEM

5. 2023 LIFE AND LONG-TERM DISABILITY INSURANCE POLICY RENEWALS

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.)

- 6. MWDOC WATER FACILITIES CORPORATION (to be presented to the Water Facilities Corporation Board for action on September 21, 2022)
 - a. 2022 Annual Filing of Tax Compliance Reports for the MWDOC Water Facilities Corporation
 - b. Annual Reorganization of Board Officers for the MWDOC Water Facilities Corporation
- 7. SOLE SOURCE CONTRACT WITH CENTER FOR DEMOGRAPHIC RESEARCH
- 8. UPDATE REGARDING MEMBER AGENCY FACILITATED DISCUSSIONS
- 9. 2023 BENEFIT RATES
 - a. 2023 Health Saving Account Contributions
 - b. 2023 Medical, Vision and Dental Insurance Rates and Open Enrollment Dates
- 10. DEPARTMENT ACTIVITIES REPORTS
 - a. Administration
 - b. Finance and Information Technology

11. MONTHLY WATER USAGE DATA, TIER 2 PROJECTION, 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.

<u>Accommodations for the Disabled.</u> 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.



MUNICIPAL WATER DISTRICT OF ORANGE COUNTY PARS 115 Trust – OPEB Prefunding Program &

Pension Rate Stabilization Program Plan Client Review September 14, 2022





Jennifer Meza, CEBS Manager, Consulting (800) 540-6369 x141 jmeza@pars.org Will Rogers, RPA Client Services Coordinator (800) 540-6369 x161 wrogers@pars.org

Keith Stribling, CFA Senior Portfolio Manager (949) 553-2591 keith.stribling@highmarkcapital.com \sim



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Trust Administrator & Consultant



- Serves as record-keeper, consultant, and central point of contact
 - Sub-trust accounting •
- Coordinates all agency services



Years of Experience (1984-2022)

Administration Plans under

Clients

115 Trust Clients

Processes contributions/disbursements (IRS/GASB/State Government Code) Monitors plan compliance

Hands-on, dedicated support teams

490+ 1,000+ Public Agency

Plan Participants

\$6.0^B

500 K⁺

Assets under Administration

Trustee

Investment Manager



- nation's largest trustees for Section 115 trusts 5th largest commercial bank and one of the
 - Safeguard plan assets
- Oversight protection as plan fiduciary
- Custodian of assets

Customized portfolios (with minimum asset level)

Active and passive platform options

Investment sub-advisor to trustee U.S. Bank

Investment policy assistance

Uses open architecture

HIGHMARK® CAPITAL MANAGEMENT



























Management & Advisement

Assets under

Years of Experience (1919-2022)

\$17.6_B

103

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SUMMARY OF AGEN	CV'S OPEB PLAN
Plan Type:	IRC Section 115 Irrevocable Exclusive Benefit Trust
Trustee Approach:	Discretionary
Plan Effective Date:	July 20, 2011
Plan Administrator:	General Manager
Current Investment Strategy:	Moderate HighMark PLUS (Active) Strategy; Pooled Account
AS OF JULY 31, 2022:	
Initial Contribution:	October 2011: \$500,000
Additional Contributions:	\$1,080,656
Total Contributions:	\$1,580,656
Disbursements:	\$0
Net Investment Earnings:	\$940,177
Account Balance:	\$2,520,834

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SUMMARY OF AGENCY'S OPEB PLAN

HISTORY OF CONTRIBUTIONS, DISBURSEMENTS, AND TOTAL ASSETS AS OF JULY 31, 2022:



MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

*Plan Year Ending June 2012 is based on 9 months of activity.
**Plan Year Ending June 2023 is based on 1 month of activity.

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RETREENT BERVICES PARS

FRUSTED SOLUTIONS. LASTING RESULTS.

OPEB ACTUARIAL RESULTS

We have received the actuarial report by Demsey Filliger & Associates, LLC dated August 2, 2021 with a measurement date as of June 30, 2021. In the table below, we have summarized the results.

Demographic Study	Measurement Date: June 30, 2019	Measurement Date: June 30, 2021
Actives	14	13
Retirees	12	12
Total	26	25



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OPEB ACTUARIAL RESULTS

	Measurement Date: June 30, 2019 Discount Rate: 6.00%	Measurement Date: June 30, 2021 Discount Rate: 6.00%
Total OPEB Liability (TOL) Actuarial Accrued Liability (AAL)	\$2,478,646	\$2,691,904
Fiduciary Net Position Actuarial Value of Assets	\$2,212,237	\$2,781,100
Net OPEB Liability (NOL) Unfunded Actuarial Accrued Liability (UAAL)	\$266,409	(\$89,196)
Funded Ratio (%)	89.25%	103.31%
Actuarially Determined Contribution (ADC) Annual Required Contribution (ARC)	\$49,847	\$50,448
Annual Benefit Payments (Pay-as-you-Go)	\$71,021	\$97,452

Rule of thumb: For every one percent increase in the discount rate, the unfunded liability is lowered by 10-12%.



SUMMARY OF AGENC	CY'S PENSION PLAN
Plan Type:	IRC Section 115 Irrevocable Exclusive Benefit Trust
Trustee Approach:	Discretionary
Plan Effective Date:	February 21, 2018
Plan Administrator:	General Manager
Current Investment Strategy:	Moderate HighMark PLUS (Active) Strategy; Pooled Account
AS OF JULY 31, 2022:	
Initial Contribution:	July 2018: \$207,000
Additional Contributions:	\$621,000
Total Contributions:	\$828,000
Disbursements:	\$0
Net Investment Earnings:	\$59,151
Account Balance:	\$887,151



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SUMMARY OF AGENCY'S PENSION PLAN

HISTORY OF CONTRIBUTIONS, DISBURSEMENTS, AND TOTAL ASSETS AS OF JULY 31, 2022:



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Plan Year Ending



PENSION FUNDING STATUS

As of June 30, 2020, Municipal Water District of Orange County's CalPERS pension plan is funded as follows*:

Combined Miscellaneous Groups	Valuation as of June 30, 2019	Valuation as of June 30, 2020	Change
Actuarial Liability	\$14.1 M	\$15.5 M	9.8% ↑
Assets	\$11.2 M	\$12.2 M	8.6% ↑
Unfunded Liability	\$2.9 M	\$3.3 M	14.3% 个
Funded Ratio	79.49%	78.6%	1.1% 🕹
Employer Contribution Amount	\$537 K (FY 20-21)	\$590 K (FY 21-22)	9.8% ↑
Employer Contribution Amount – Projected*	1	\$836 K (FY 27-28)	41.7% 个





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MUNICIPAL WATER DISTRICT OF ORANGE COUNTY



Presented by Keith Stribling, CFA



Municipal Water District of Orange County

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DISCUSSION HIG	HLIGHTS- Municipal Water District of Orange County	
Investment objective – Mod Asset Allocation: PARS/Mo - Allocation Target – 48	erate HM Plus – PENSION derate HM Plus (as of 7-31-22) .36 stocks (40-60% range), 46.63% bonds (40-60% range),5.02% cash (0-20% range) d-cap 4.63%. Small cap 7.40%. International 7.06%. BEIT 1.81%.	
Performance: Municipal Water Di (as of 7-31-22) gross of investmer.	strict of Orange County <i>th management fees, net of fund fees</i> 4 82%	
 3 Months: 7 months (YTD): 1 vear 	35% -10.54% -0.23%	
7-1-2018 (ITD):	5.13%	
Investment objective – Mod Asset Allocation: PARS/Mo - Allocation Target – 48 - Large cap 26.57%, Mi Performance: Municipal Water Di (as of 7-31-22) gross of investmer (as of 7-31-22) gross of investmer 1 month: - 1 months: - 1 year: - 1 year: - 1 -1-2011 (ITD): - Recently lowered equitie	erate HM Plus – OPEB derate HM Plus (As of 7-31-22) .36 stocks (40-60% range), 5.02% cash (0-20% range) d-cap 4.63%, Small cap 7.40%, International 7.96%, REIT 1.81% strict of Orange County it management fees, net of fund fees 4.82% 35% 35% 	
• Recently lowered high y e 15 of 220	ield	
HIGHMARK®	MUNICIPAL WATER DISTRICT OF ORANGE COUNTY 12	12

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Economic Review

- Aggressive fiscal policy...stoking inflation
- Monetary policy changing...pullback on QE
- Rate hikes to curb inflation expectations
- Vaccines & now antiviral pills...even as covid surges possible light at the end of the covid tunnel?
- Eventually global economies will improve...but Beijing lockdowns and the Moscow war hampering global recovery
 - Recession risks rising as yield curve steepens and inverts
- Risks: Inflation...Inflation...inflation...still more covid hurdles; Fed tapering & Russian aggression with Ukraine & NATO; China slowing



MUNICIPAL WATER DISTRICT OF ORANGE COUNTY | 14



HIGHMARK® CAPITAL MANAGEMENT

As of: July 31, 2022

Account ID: xxxxx50106

Performance Report

			Year			Inception
	1 Month	3 Months	(7 Months)	1 Year	3 Years	08/01/2018
Cash Equivalents	.11	.24	.26	.27	.46	89.
Lipper Money Market Funds Index	.12	.23	.26	.26	.45	.86
Total Eived Income	<i>(()</i>	37	10 8	0 13	7	167
Bloomberg US Aggregate Bd Index (USD)	27.2	1 49	-8.16	-0-0- 0-10-		1 80
			2	41.5	į	8
Total Equities	8.04	-1.02	-13.54	-10.28	9.32	8.00
Large Cap Funds	8.84	31	-13.81	-8.37	12.51	10.75
S&P 500 Composite Index	9.22	39.	-12.58	-4.64	13.36	11.99
Mid Cap Funds	9.81	-1.01	-13.93	-9.91	9.22	8.51
Russell Midcap Index	9.87	-1.02	-13.83	-9.83	9.47	8.77
Small Cap Funds	9.68	.38	-11.04	-11.23	7.39	6.65
Russell 2000 Index (USD)	10.44	1.51	-15.43	-14.29	7.51	4.40
International Equities	2.77	-4.04	-15.38	-16.57	3.44	1.96
MSCI EAFE Index (Net)	4.98	-4.04	-15.56	-14.32	3.16	1.69
MSCI EM Free Index (Net USD)	25	-6.46	-17.83	-20.09	06.	.12
REIT Funds	8.65	-3.88	-13.39	-3.96	6.73	8.24
Wilshire REIT Index	8.73	-7.14	-14.79	-3.48	6.40	7.68
Total Managed Portfolio	4.82	35	-10.54	-9.23	4.87	5.13

ed Returns are gross of fees not including account level advisory fees unless otherwise stated. Gross returns are presented before management and custodial fees but after all trading expenses, ambedded and reflect the reinvestment of dividends and other income. Net returns are net of investment management fees in effect for the respective time period. Returns for periods over one year are annualized. An investor cannot invest directly in unmanaged indices. The information presented has been obtained from sources believed to be accurate and reliable. Past gerformance is not indicative of future returns. Securities are not FDIC insured have no bank guarantee and may lose value.



MUNICIPAL WATER DISTRICT OF ORANGE COUNTY | 15



Returns are gross of fees not including account level advisory fees unless otherwise stated. Gross returns are presented before management and custodial fees but after all trading expenses, embedded and reflect thr reinvestment of dividends and other income. The information presented has been obtained from sources believed to be accurate and reliable. Past one performance is not invested indices, numanaged indices. The information presented has been obtained from sources believed to be accurate and reliable. Past performance is not indicative of future returns. Securities are not FDIC insured have no bank guarantee and may lose value.

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5.39

4.87

-9.23

-10.54

-.35

4.82

Total Managed Portfolio



Account Name: Municipal Water District of OC - OPEB Account ID: AGG000670

Performance Report

As of: July 31, 2022

			Year				Inception
			to Date				to Date
	1 Month	3 Months	(7 Months)	1 Year	3 Years	5 Years	11/01/2011
Cash Equivalents	.11	.24	.26	.27	.46	96 [.]	.51
Lipper Money Market Funds Index	.12	.23	.26	.26	.45	.92	.47
Total Fixed Income	2.22	.37	-8.21	-9.13	13	1.25	2.27
Bloomberg US Aggregate Bd Index (USD)	2.44	1.49	-8.16	-9.12	21	1.28	1.98
Total Equities	8.04	-1.02	-13.54	-10.28	9.32	9.13	11.02
Large Cap Funds	8.84	31	-13.81	-8.37	12.51	11.91	13.37
S&P 500 Composite Index	9.22	.39	-12.58	-4.64	13.36	12.83	13.96
Mid Cap Funds	9.81	-1.01	-13.93	-9.91	9.22	9.48	10.67
Russell Midcap Index	9.87	-1.02	-13.83	-9.83	9.47	9.69	12.17
Small Cap Funds	9.68	.38	-11.04	-11.23	7.39	9.38	12.69
Russell 2000 Index (USD)	10.44	1.51	-15.43	-14.29	7.51	7.12	10.55
International Equities	2.77	-4.04	-15.38	-16.57	3.44	2.56	4.44
MSCI EAFE Index (Net)	4.98	-4.04	-15.56	-14.32	3.16	2.61	5.19
MSCI EM Free Index (Net USD)	25	-6.46	-17.83	-20.09	. 06	.95	2.42
REIT Funds	8.65	-3.88	-13.39	-3.96	6.73	6.88	
Wilshire REIT Index	8 73	-7 14	-14 79	-3 48	6 40	6 80	906

ASSET ALLOCATION – Moderate HM Plus- PENSION & OPEB xxxxx50106

	Ticker	Investment Vehicle	Weight
Equity			48.36%
Large Cap Core	СОFYX	Columbia Contrarian Core CI Y	4.92%
	VGIAX	Vanguard Gro & Inc Admiral Shares	9.35%
Large Cap Value	DODGX	Dodge & Cox Stock Fund	4.44%
	IVE	iShares S&P 500 Value ETF	2.03%
Large Cap Growth	HNACX	Harbor CP Appre Rtrmt Cl	2.91%
	PRUFX	T. Rowe Price Growth Stock Fund	2.91%
Mid Cap Growth	IWR	iShares Rusell Mid Cap ETF	4.63%
Small Cap Value	UBVFX	Undiscovered Mgrs Behavrl R6	3.78%
Small Cap Growth	VBK	Vanguard Small Cap Gr Vipers	3.62%
International Core	DFALX	DFA Large Cap International Port	2.82%
International Value	DODFX	Dodge & Cox International Stock Fund	1.01%
International Growth	MGRDX	MFS International Growth Fund	1.03%
Emerging Markets	HHHFX	Hartford Schrodr Mkts Eq	3.10%
REIT	VNQ	Vngrd Index Tr Reit Viper Shs	1.81%
Fixed Income			46.63%
Short-Term	VFSUX	Vanguard Short-Term Corp Adm Fund	10.72%
Intermediate-Term	PTTRX	PIMCO Total Return Instl Fund	11.64%
	PTRQX	Prudential Total Return BD	11.67%
	DBLFX	Doubleline Core Fixed Inc CI I	11.61%
High Yield	РНГХХ	PIMCO High Yield	0.99%
Cash			5.02%
	FGZXX	First Amern Govt Oblig Fd CL Z	5.02%

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

10-Year Return 10-Year Return 13.45 13.83 12.14 **12.32** 10.60 10.00 13.80 11.32 15.24 13.80 12.73 6.11 7.55 5.79 2.63 13.81 3.33 2.84 8.15 2.10 1.92 1.65 6.21 1.77 Return 5-Year Return 5-Year 12.82 10.64 10.56 12.83 11.75 13.86 9.54 **9.69** 9.53 4.57 **7.12** 3.42 0.95 1.04 1.48 1.47 **1.28** 8.96 6.44 2.61 1.47 7.19 1.61 Return Return 3-Year 12.37 12.73 -4.05 3-Year -0.59 13.44 13.58 7.96 9.30 **9.47** 5.83 3.16 0.68 -0.04 0.65 -0.21 13.36 13.33 7.51 0.90 9.50 5.10 4.87 -0.62 7.11 1-Year -14.29 Return Return -12.21 -20.09 1-Year -24.84 27.12 35.86 -13.83 -14.32 -25.11 -10.08 -11.36 -9.12 -2.16 -9.97 -9.83 -5.11 -3.54 -7.45 -7.71 -4.64 -9.02 -0.21 6.83 -4.37 INTERNATIONAL EQUITY FUNDS LARGE CAP EQUITY FUNDS SMALL CAP EQUITY FUNDS Year-to--13.39 -15.03 MID CAP EQUITY FUNDS Year-to--12.27 -11.71 -26.81 -28.59 -12.58 -13.90 -13.83 -30.38 -15.43 -15.56 -20.41 -17.83 -13.63 -10.46 -6.95 -9.34 -6.29 Date -8.48 **REAL ESTATE FUNDS** -4.21 -8.16 -0.72 Date -8.23 BOND FUNDS 3-Month 3-Month Return Return -1.05 -0.40 -1.26 -1.22 -0.82 -1.81 -2.86 -4.04 -6.36 -0.96 -0.04 0.39 -1.02 1.51 2.94 -1.64 -6.46 -4.13 -0.31 0.63 -0.01 0.89 0.73 1.49 1-Month 1-Month Return Return 10.45 12.64 10.44 -0.78 9.09 5.17 5.90 13.63 9.22 9.86 9.87 4.99 5.40 4.98 -0.25 2.09 2.22 2.66 1.46 7.98 7.81 8.67 44 Vanguard Short-Term Investment-Grade Adm Undiscovered Managers Behavioral Val R6 Hartford Schroders Emerging Mkts Eq F Harbor Capital Appreciation Retirement Bloomberg US Agg Bond TR USD Victory RS Small Cap Growth R6 Dodge & Cox International Stock Vanguard Growth & Income Adm Columbia Contrarian Core Inst3 DoubleLine Core Fixed Income T. Rowe Price Growth Stock I DFA Large Cap International I iShares Russell Mid-Cap ETF MFS International Growth R6 PGIM Total Return Bond R6 iShares S&P 500 Value ETF Vanguard Real Estate ETF **Russell Mid Cap TR USD** PIMCO Total Return Instl Russell 2000 TR USD Dodge & Cox Stock I **MSCIEAFE NR USD MSCI EM NR USD S&P 500 TR USD** Fund Name Fund Name

For Period Ending July 31, 2022

Source: SEI Investments, Morningstar Investments

Returns less than one year are not annualized. Past performance is no indication of future results. The information presented has been obtained from sources believed to $\ddot{b}e$ accurate and reliable. Securities are not FDIC insured, have no bank guarantee and may lose value.

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PARS DIVERSIFIED PORTFOLIOS **CONSERVATIVE**

WHY THE PARS DIVERSIFIED **CONSERVATIVE PORTFOLIO?**

Comprehensive Investment Solution

HighMark® Capital Management, Inc.'s (HighMark) diversified investment portfolios are designed to balance return expectations with risk tolerance. Key features include: sophisticated asset allocation and optimization techniques, four layers of diversification (asset class, style, manager, and security), access to rigorously screened, top tier money managers, flexible investment options, and experienced investment management.

Rigorous Manager Due Diligence

Our manager review committee utilizes a rigorous screening process that searches for investment managers and styles that have not only produced above-average returns within acceptable risk parameters, but have the resources and commitment to continue to deliver these results. We have set high standards for our investment managers and funds. This is a highly specialized, time consuming approach dedicated to one goal: competitive and consistent performance.

Flexible Investment Options

In order to meet the unique needs of our clients, we offer access to flexible implementation strategies: HighMark Plus utilizes actively managed mutual funds while Index Plus utilizes index-based securities, including exchange-traded funds. Both investment options leverage HighMark's active asset allocation approach.

Risk Management

The portfolio is constructed to control risk through four layers of diversification - asset classes (cash, fixed income, equity), investment styles (large cap, small cap, international, value, growth), managers and securities. Disciplined mutual fund selection and monitoring process helps to drive return potential while reducing portfolio risk.

INVESTMENT OBJECTIVE

of Return) To provide a consistent level of inflation-protected income over the long-term. The major portion (Rate of the assets will be fixed income related. Equity securities are utilized to provide inflation protection.



Risk (Standard Deviation)

ASSET ALLOCATION — CONSERVATIVE PORTFOLIO

	Strategic Range	Policy	Tactical
Equity	5 - 20%	15%	14%
Fixed Income	60 - 95%	80%	81%
Cash	0 - 20%	5%	5%

ANNUALIZED TOTAL RETURNS (Gross of Investment Management Fees, but Net of Embedded Fund Fees)

HighMark Plus Composite (Active)		Index Plus Composite (Pass	Index Plus Composite (Passive)		
Current Quarter*	-6.46%	Current Quarter*	-5.61%		
Blended Benchmark*,**	-5.26%	Blended Benchmark*,**	-5.26%		
Year To Date*	-11.36%	Year To Date*	-10.67%		
Blended Benchmark*,**	-9.66%	Blended Benchmark*,**	-9.66%		
1 Year	-10.88%	1 Year	-9.97%		
Blended Benchmark**	-8.85%	Blended Benchmark**	-8.85%		
3 Year	0.60%	3 Year	0.66%		
Blended Benchmark**	0.89%	Blended Benchmark**	0.89%		
5 Year	2.15%	5 Year	2.02%		
Blended Benchmark**	2.21%	Blended Benchmark**	2.21%		
10 Year	3.05%	10 Year	2.76%		
Blended Benchmark**	2.83%	Blended Benchmark**	2.83%		

* Returns less than one year are not annualized. **Breakdown for Blended Benchmark: From 10/1/2012 - Present: 7.5% S&P500, 1.5% Russell Mid Cap, 2.5% Russell 2000, 1% MSCI EM (net), 2% MSCI EAFE (net), 52.25% Bloomberg US Agg, 25.75% ICE BofA 1-3 Yr US Corp/Gov't, 2% ICE BofA US High Yield Master II, 0.5% Wilshire REIT, and 5% FTSE 1 Mth US T-Bill. From 4/1/2007 – 9/30/2012, the blended benchmark was 12% S&P 500; 1% Russell 2000, 2% MSCI EAFE (net), 40% ICE BofA 1-3 Year Corp./Govt, 40% Bloomberg US Agg, 5% FTSE 1 Mth US T-Bill. Prior to April 2007: the blended benchmark was 15% S&P 500, 40% ICE BofA 1-3Yr Corp/Gov, 40% Bloomberg US Agg, and 5% FTSE 1 Mth US T-Bill.

(Gross of Investment Management Fees, but Net of Embedded ANNUAL RETURNS Fund Fees)

HighMark Plus Composite (Active)		Index Plus	Composite (Passive)
2008	-9.04%	2008	-6.70%
2009	15.59%	2009	10.49%
2010	8.68%	2010	7.67%
2011	2.19%	2011	3.70%
2012	8.45%	2012	6.22%
2013	3.69%	2013	3.40%
2014	3.88%	2014	4.32%
2015	0.29%	2015	0.06%
2016	4.18%	2016	3.75%
2017	6.73%	2017	5.52%
2018	-1.35%	2018	-1.09%
2019	11.05%	2019	10.37%
2020	9.03%	2020	8.56%
2021	2.20%	2021	1.97%

07/2004

20

PORTFOLIO FACTS

HighMark Plus (Active)

Composite Inception Date No of Holdings in Portfolio Index Plus (Passive)

Composite Inception Date No of Holdings in Portfolio

13

07/2004

-6.70%

Q2 2022

HOLDINGS

HighMark Plus (Active)

Columbia Contrarian Core I3 Vanguard Growth & Income Adm Dodge & Cox Stock Fund iShares S&P 500 Value ETF Harbor Capital Appreciation - Retirement T. Rowe Price Growth Stock - I iShares Russell Mid-Cap ETF Vanguard Real Estate ETF Undiscovered Managers Behavioral Value-R6 Vanguard Small Cap Growth ETF DFA Large Cap International Portfolio Dodge & Cox International Stock MFS International Growth - R6 Hartford Schroders Emerging Markets Eq Vanguard Short-Term Invest-Grade Adm **PIMCO High Yield Instl** PIMCO Total Return Fund - Inst PGIM Total Return Bond - R6 DoubleLine Core Fixed Income - I First American Government Obligations Z

Index Plus (Passive)

iShares Core S&P 500 ETF iShares S&P 500 Value ETF iShares S&P 500 Growth ETF iShares Russell Mid-Cap ETF Vanguard Real Estate ETF iShares Russell 2000 Value ETF iShares Russell 2000 Growth ETF iShares Core MSCI EAFE ETF Vanguard FTSE Emerging Markets ETF Vanguard Short-Term Invest-Grade Adm iShares Core U.S. Aggregate Vanguard High-Yield Corp Adm First American Government Obligations Z

Holdings are subject to change at the discretion of the investment manager.

STYLE



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The adviser to the PARS portfolios is US Bank, and HighMark serves as sub-adviser to US Bank to manage these portfolios. US Bank may charge clients as much as 0.60% annual management fee based on a sliding scale. US Bank pays HighMark 60% of the annual management fee for assets sub-advised by HighMark under its sub-advisory agreement with US Bank. 60% of the annual management fee for assets sub-advised by HighMark under its sub-advisory agreement with US Bank. The 0.36% paid to HighMark, as well as other expenses that may be incurred in the management of the portfolio, will reduce the portfolio's returns. Assuming an investment for five years, a 5% annual total return, and an annual sub-advisory fee rate of 0.36% deducted from the assets at market at the end of each year, a \$10 million initial value would grow to \$12.53 million after fees (Net-of-Fees) and \$12.76 million before fees (Gross-of-Fees). Gross returns are presented before management and custodial fees but after all trading expenses and reflect the reinvestment of dividends and other income. A client's return will be reduced by the advisory fees and other expenses it may incur as a client. Additional information regarding the firm's policies and procedures for calculating and reporting performance results is available upon request. Performance results are calculated and presented in U.S. dollars and do not reflect the deduction of investment advisory fees, custody fees, or taxes but do reflect the deduction of trading expenses. Returns are calculated based on trade-date accounting.

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HIGHMARK CAPITAL MANAGEMENT

350 California Street Suite 1600 San Francisco, CA 94104 800-582-4734

ABOUT THE ADVISER

HighMark® Capital Management, Inc. (HighMark) has over 100 years (including predecessor organizations) of institutional money management experience with \$8.8 billion in assets under management and \$8.8 billion in assets under advisement*. HighMark has a long term disciplined approach to money management and currently manages assets for a wide array of clients.

ABOUT THE PORTFOLIO MANAGEMENT TEAM Andrew Brown, CFA®

Senior Portfolio Manager Investment Experience: since 1994 HighMark Tenure: since 1997 Education: MBA, University of Southern California; BA, University of Southern California

Salvatore "Tory" Milazzo III, CFA® Senior Portfolio Manager Investment Experience: since 2004 HighMark Tenure: since 2014 Education: BA, Colgate University

J. Keith Stribling, CFA®

Senior Portfolio Manager Investment Experience: since 1985 HighMark Tenure: since 1995 Education: BA, Stetson University

Christiane Tsuda

Senior Portfolio Manager Investment Experience: since 1987 HighMark Tenure: since 2010 Education: BA, International Christian University, Tokyo

Anne Wimmer, CFA® Senior Portfolio Manager Investment Experience: since 1987 HighMark Tenure: since 2007

Education: BA, University of California, Santa Barbara

Asset Allocation Committee Number of Members: 16 Average Years of Experience: 27 Average Tenure (Years): 15

Manager Review Group Number of Members: 7 Average Years of Experience: 22 Average Tenure (Years): 10

*Assets under management ("AUM") include assets for which HighMark provides continuous and regular supervisory and management services. Assets under advisement ("AUA") include assets for which HighMark provides certain investment advisory services (including, but not limited to, investment research and strategies) for client assets of its parent company, MUFG Union Bank, N.A.



PARS DIVERSIFIED PORTFOLIOS MODERATELY CONSERVATIVE

WHY THE PARS DIVERSIFIED MODERATELY CONSERVATIVE PORTFOLIO?

Comprehensive Investment Solution

HighMark® Capital Management, Inc.'s (HighMark) diversified investment portfolios are designed to balance return expectations with risk tolerance. Key features include: sophisticated asset allocation and optimization techniques, four layers of diversification (asset class, style, manager, and security), access to rigorously screened, top tier money managers, flexible investment options, and experienced investment management.

Rigorous Manager Due Diligence

Our manager review committee utilizes a rigorous screening process that searches for investment managers and styles that have not only produced above-average returns within acceptable risk parameters, but have the resources and commitment to continue to deliver these results. We have set high standards for our investment managers and funds. This is a highly specialized, time consuming approach dedicated to one goal: competitive and consistent performance.

Flexible Investment Options

In order to meet the unique needs of our clients, we offer access to flexible implementation strategies: HighMark Plus utilizes actively managed mutual funds while Index Plus utilizes index-based securities, including exchange-traded funds. Both investment options leverage HighMark's active asset allocation approach.

Risk Management

The portfolio is constructed to control risk through four layers of diversification – asset classes (cash, fixed income, equity), investment styles (large cap, small cap, international, value, growth), managers and securities. Disciplined mutual fund selection and monitoring process helps to drive return potential while reducing portfolio risk.

INVESTMENT OBJECTIVE

To provide current income, with capital appreciation as a secondary objective. The major portion of the assets is committed to income-producing securities. Market fluctuations should be expected.



Risk (Standard Deviation)

ASSET ALLOCATION — MODERATELY CONSERVATIVE PORTFOLIO

(Rate of Return)

vard

	Strategic Range	Policy	Tactical
Equity	20 - 40%	30%	29%
Fixed Income	50 - 80%	65%	66%
Cash	0 - 20%	5%	5%

ANNUALIZED TOTAL RETURNS (Gross of Investment Management Fees, but Net of Embedded Fund Fees)

HighMark Plus Composite (Active)		Index Plus Composite (Pas	Index Plus Composite (Passive)		
Current Quarter*	-8.10%	Current Quarter*	-7.28%		
Blended Benchmark*,**	-7.44%	Blended Benchmark*,**	-7.44%		
Year To Date*	-12.84%	Year To Date*	-12.25%		
Blended Benchmark*,**	-12.03%	Blended Benchmark*,**	-12.03%		
1 Year	-11.85%	1 Year	-10.69%		
Blended Benchmark**	-10.30%	Blended Benchmark**	-10.30%		
3 Year	1.82%	3 Year	1.86%		
Blended Benchmark**	2.07%	Blended Benchmark**	2.07%		
5 Year	3.24%	5 Year	3.14%		
Blended Benchmark**	3.37%	Blended Benchmark**	3.37%		
10 Year	4.32%	10 Year	4.11%		
Blended Benchmark**	4.29%	Blended Benchmark**	4.29%		

* Returns less than one year are not annualized. **Breakdown for Blended Benchmark: From 10/1/2012 - Present: 15.5% S&P500, 3% Russell Mid Cap, 4.5% Russell 2000, 2% MSCI EM (net), 4% MSCI EAFE (net), 49.25% Bloomberg US Agg, 14% ICE BofA 1-3 Yr US Corp/Govt, 1.75% ICE BofA US High Yield Master II, 1% Wilshire REIT, and 5% FTSE 1 Mth US T-Bill. From 4/1/2007 -9/30/2012: the blended benchmark was 25% S&P 500; 1.5% Russell 2000, 3.5% MSCI EAFE (net), 25% ICE BofA 1-3 Year Corp./Govt, 40% Bloomberg US Agg, 5% FTSE 1 Mth US T-Bill. Prior to April 2007, the blended benchmark was 30% S&P 500, 25% ICE BofA 1-3Yr Corp/Gov, 40% Bloomberg US Agg, and 5% FTSE 1 Mth US T-Bill.

ANNUAL RETURNS (Gross of Investment Management Fees, but Net of Embedded Fund Fees)

2008

2009

2010

2011

2012

2013

2014

2015

2016

2017

2018

2019

2020

2021

08/2004

20

HighMark Plus Compos	site (Active)
2008	-15.37%
2009	18.71%
2010	10.46%
2011	1.75%
2012	10.88%
2013	7.30%
2014	4.41%
2015	0.32%
2016	4.94%
2017	9.56%
2018	-2.60%
2019	13.73%
2020	10.76%
2021	5 15%

PORTFOLIO FACTS

HighMark Plus (Active)

Composite Inception Date No of Holdings in Portfolio Index Plus (Passive) Page 23 of 220 Composite Inception Date

No of Holdings in Portfolio

Index Plus Composite (Passive)

05/2005 13

-12.40%

11.92%

9.72%

3.24%

8.24%

6.78%

5.40%

-0.18%

5.42%

8.08%

-2.33%

13.53%

9.74%

5.33%

Q2 2022

HOLDINGS

HighMark Plus (Active)

Columbia Contrarian Core I3 Vanguard Growth & Income Adm Dodge & Cox Stock Fund iShares S&P 500 Value ETF Harbor Capital Appreciation - Retirement T. Rowe Price Growth Stock - I iShares Russell Mid-Cap ETF Vanguard Real Estate ETF Undiscovered Managers Behavioral Value-R6 Vanguard Small Cap Growth ETF DFA Large Cap International Portfolio Dodge & Cox International Stock MFS International Growth - R6 Hartford Schroders Emerging Markets Eq Vanguard Short-Term Invest-Grade Adm **PIMCO High Yield Instl** PIMCO Total Return Fund - Inst PGIM Total Return Bond - R6 DoubleLine Core Fixed Income - I First American Government Obligations Z

Index Plus (Passive)

iShares Core S&P 500 ETF iShares S&P 500 Value ETF iShares S&P 500 Growth ETF iShares Russell Mid-Cap ETF Vanguard Real Estate ETF iShares Russell 2000 Value ETF iShares Russell 2000 Growth ETF iShares Core MSCI EAFE ETF Vanguard FTSE Emerging Markets ETF Vanguard Short-Term Invest-Grade Adm iShares Core U.S. Aggregate Vanguard High-Yield Corp Adm First American Government Obligations Z

Holdings are subject to change at the discretion of the investment manager.

STYLE



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Conservative active and passive objectives. The adviser to the PARS portfolios is US Bank, and HighMark serves as sub-adviser to US Bank to manage these portfolios. US Bank may charge clients as much as 0.60% annual management fee based on a sliding scale. US Bank pays HighMark 60% of the annual management fee for assets sub-advised by HighMark under its sub-advisory agreement with US Bank. The 0.36% paid to HighMark, as well as other expenses that may be incurred in the management of the portfolio, will reduce the portfolio's returns. Assuming an investment for five years, a 5% annual total return, and an annual sub-advisory fee rate of 0.36% deducted from the assets at market at the end of each year, a \$10 million initial value would grow to \$12.53 million after fees (Net-of-Fees) and \$12.76 million before fees (Gross-of-Fees). Gross returns are presented before management and custodial fees but after all trading expenses and reflect the reinvestment of dividends and other income. A client's return will be reduced by the advisory fees and other expenses it may incur as a client. Additional information regarding the firm's policies and precedures for calculating and reporting performance results is available upon request. Performance results are calculated and presented in U.S. dollars and do not reflect the deduction of investment advisory fees, custody fees, or taxes but do reflect the deduction of trading expenses. Returns are calculated based on trade-date accounting. Planded beacemparks expressed HighMark strateging allocations between equily. fixed income, and cash and are

expenses. Returns are calculated based on trade-date accounting. Blended benchmarks represent HighMark's strategic allocations between equity, fixed income, and cash and are rebalanced monthly. Benchmark returns do not reflect the deduction of advisory fees or other expenses of investing but assumes the reinvestment of dividends and other earnings. An investor cannot invest directly in an index. The unmanaged S&P 500 Index is representative of the performance of large companies in the U.S. stock market. The MSCI EAFE Index is a free float-adjusted market capitalization index the signed to measure developed market equity performance, excluding the U.S. and Canada. The MSCI Emerging Markets Index is a free float-adjusted market capitalization index this is designed to measure equity market performance in the global emerging markets. The Russell Midcap Index measures the performance of the small-cap segment of the U.S. equity universe. The CB bofA U.S. High Yield Master II Index tracks the performance of below investment grade U.S. dould-ednominated corporate bonds publicly issued in the U.S. domestic market. Wilshire REIT index measures U.S. oublicly traded Real Estate Investment Trusts. The ICE BofA U.S. The ICE BofA U.S. Corporate & Government Index tracks the bond market as a whole. The ICE BofA U.S. Corporate & Government Index tracks the yield of the 1-month U.S. Treasury Bill. Index tracks the yield of the 1-month U.S. Treasury Bill. HighMark Capital Management, Inc. (HighMark), an SEC-registered investment adviser, is a wholly owned subsidiary of

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HIGHMARK CAPITAL MANAGEMENT

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ABOUT THE PORTFOLIO MANAGEMENT TEAM Andrew Brown, CFA®

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Christiane Tsuda

Senior Portfolio Manager Investment Experience: since 1987 HighMark Tenure: since 2010 Education: BA, International Christian University, Tokyo

Anne Wimmer, CFA® Senior Portfolio Manager Investment Experience: since 1987 HighMark Tenure: since 2007 Education: BA, University of California, Santa Barbara

Asset Allocation Committee Number of Members: 16 Average Years of Experience: 27 Average Tenure (Years): 15

Manager Review Group Number of Members: 7 Average Years of Experience: 22 Average Tenure (Years): 10

*Assets under management ("AUM") include assets for which HighMark provides continuous and regular supervisory and management services. Assets under advisement ("AUA") include assets for which HighMark provides certain investment advisory services (including, but not limited to, investment research and strategies) for client assets of its parent company, MUFG Union Bank, N.A.



PARS DIVERSIFIED PORTFOLIOS

WHY THE PARS DIVERSIFIED MODERATE PORTFOLIO?

Comprehensive Investment Solution

HighMark® Capital Management, Inc.'s (HighMark) diversified investment portfolios are designed to balance return expectations with risk tolerance. Key features include: sophisticated asset allocation and optimization techniques, four layers of diversification (asset class, style, manager, and security), access to rigorously screened, top tier money managers, flexible investment options, and experienced investment management.

Rigorous Manager Due Diligence

Our manager review committee utilizes a rigorous screening process that searches for investment managers and styles that have not only produced above-average returns within acceptable risk parameters, but have the resources and commitment to continue to deliver these results. We have set high standards for our investment managers and funds. This is a highly specialized, time consuming approach dedicated to one goal: competitive and consistent performance.

Flexible Investment Options

In order to meet the unique needs of our clients, we offer access to flexible implementation strategies: HighMark Plus utilizes actively managed mutual funds while Index Plus utilizes index-based securities, including exchange-traded funds. Both investment options leverage HighMark's active asset allocation approach.

Risk Management

The portfolio is constructed to control risk through four layers of diversification – asset classes (cash, fixed income, equity), investment styles (large cap, small cap, international, value, growth), managers and securities. Disciplined mutual fund selection and monitoring process helps to drive return potential while reducing portfolio risk.

INVESTMENT OBJECTIVE

To provide current income and moderate capital appreciation. It is expected that dividend and interest income will comprise a significant portion of total return, although growth through capital appreciation is equally important.



Risk (Standard Deviation)

ASSET ALLOCATION — MODERATE PORTFOLIO

(Rate of Return)

/ard

	Strategic Range	Policy	Tactical
Equity	40 - 60%	50%	48%
Fixed Income	40 - 60%	45%	46%
Cash	0 - 20%	5%	6%

ANNUALIZED TOTAL RETURNS (Gross of Investment Management Fees, but Net of Embedded Fund Fees)

HighMark Plus Composite (Active)		Index Plus Composite (Pas	sive)
Current Quarter*	-10.16%	Current Quarter*	-9.45%
Blended Benchmark*,**	-9.86%	Blended Benchmark*,**	-9.86%
Year To Date*	-14.71%	Year To Date*	-14.32%
Blended Benchmark*,**	-14.34%	Blended Benchmark*,**	-14.34%
1 Year	-12.97%	1 Year	-11.58%
Blended Benchmark**	-11.49%	Blended Benchmark**	-11.49%
3 Year	3.51%	3 Year	3.48%
Blended Benchmark**	3.77%	Blended Benchmark**	3.77%
5 Year	4.77%	5 Year	4.59%
Blended Benchmark**	4.92%	Blended Benchmark**	4.92%
10 Year	6.01%	10 Year	5.85%
Blended Benchmark**	6.19%	Blended Benchmark**	6.19%

* Returns less than one year are not annualized. **Breakdown for Blended Benchmark: From 10/1/2012 – Present: 26.5% S&P500, 5% Russell Mid Cap, 7.5% Russell 2000, 3.25% MSCI EM (net), 6% MSCI EAFE (net), 3.50% Bloomberg US Agg, 10% ICE BofA 1-3 Yr US Corp/Govt, 1.50% ICE BofA US High Yield Master II, 1.75% Willshire REIT, and 5% FTSE 1 MH US T-Bill. From 4/1/2007 – 9/30/2012: the blended benchmark was 43% S&P 500; 2% Russell 2000, 5% MSCI EAFE (net), 15% ICE BofA 1-3 Year Corp./Govt, 30% Bloomberg US Agg, 30% FTSE 1 Mth US T-Bill. Prior to April 2007: the blended benchmark was 50% S&P 500; 15% ICE BofA 1-3Yr Corp/Govt, 30% Bloomberg US Agg, and 5% FTSE 1 Mth US T-Bill.

Gross of Investment Management Fees, but Net of Embedded

ANNUAL RETURNS	Fund Fees)	
HighMark Plus Composite	e (Active)	Index Plus Composite (Passive)
2008	-22.88%	2008
2009	21.47%	2009
2010	12.42%	2010
2011	0.55%	2011
2012	12.25%	2012
2013	13.06%	2013
2014	4.84%	2014
2015	0.14%	2015
2016	6.45%	2016
2017	13.19%	2017
2018	-4.03%	2018
2019	17.71%	2019
2020	12.92%	2020

9.31%

10/2004

20

PORTFOLIO FACTS

HighMark Plus (Active)

2021

Composite Inception Date No of Holdings in Portfolio Index Plus (Passive)

Composite Inception Date

No of Holdings in Portfolio

2021

05/2006

-18.14%

16.05%

11.77% 2.29%

10.91%

12.79% 5.72% -0.52% 7.23% 11.59% -4.03% 17.52% 11.23%

10.18%

13

Q2 2022

HOLDINGS

HighMark Plus (Active)

Columbia Contrarian Core I3 Vanguard Growth & Income Adm Dodge & Cox Stock Fund iShares S&P 500 Value ETF Harbor Capital Appreciation - Retirement T. Rowe Price Growth Stock - I iShares Russell Mid-Cap ETF Vanguard Real Estate ETF Undiscovered Managers Behavioral Value-R6 Vanguard Small Cap Growth ETF DFA Large Cap International Portfolio Dodge & Cox International Stock MFS International Growth - R6 Hartford Schroders Emerging Markets Eq Vanguard Short-Term Invest-Grade Adm **PIMCO High Yield Instl** PIMCO Total Return Fund - Inst PGIM Total Return Bond - R6 DoubleLine Core Fixed Income - I First American Government Obligations Z

Index Plus (Passive)

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Asset Allocation Committee Number of Members: 16 Average Years of Experience: 27 Average Tenure (Years): 15

Manager Review Group Number of Members: 7 Average Years of Experience: 22 Average Tenure (Years): 10

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PARS DIVERSIFIED PORTFOLIOS BALANCED

WHY THE PARS DIVERSIFIED **BALANCED PORTFOLIO?**

Comprehensive Investment Solution

HighMark® Capital Management, Inc.'s (HighMark) diversified investment portfolios are designed to balance return expectations with risk tolerance. Key features include: sophisticated asset allocation and optimization techniques, four layers of diversification (asset class, style, manager, and security), access to rigorously screened, top tier money managers, flexible investment options, and experienced investment management.

Rigorous Manager Due Diligence

Our manager review committee utilizes a rigorous screening process that searches for investment managers and styles that have not only produced above-average returns within acceptable risk parameters, but have the resources and commitment to continue to deliver these results. We have set high standards for our investment managers and funds. This is a highly specialized, time consuming approach dedicated to one goal: competitive and consistent performance.

Flexible Investment Options

In order to meet the unique needs of our clients, we offer access to flexible implementation strategies: HighMark Plus utilizes actively managed mutual funds while Index Plus utilizes index-based securities, including exchange-traded funds. Both investment options leverage HighMark's active asset allocation approach.

Risk Management

The portfolio is constructed to control risk through four layers of diversification - asset classes (cash, fixed income, equity), investment styles (large cap, small cap, international, value, growth), managers and securities. Disciplined mutual fund selection and monitoring process helps to drive return potential while reducing portfolio risk.

INVESTMENT OBJECTIVE

To provide growth of principal Return) and income. While dividend and interest income are an important Rate of component of the objective's total return, it is expected that ward capital appreciation will comprise a larger portion of the total return



Risk (Standard Deviation)

ASSET ALLOCATION — BALANCED PORTFOLIO

	Strategic Range	Policy	Tactical
Equity	50 - 70%	60%	57%
Fixed Income	30 - 50%	35%	36%
Cash	0-20%	5%	7%

(Gross of Investment Management Fees, but Net of ANNUALIZED TOTAL RETURNS Embedded Fund Fees)

	(1	
HighMark Plus Composite (Active)		Index Plus Composite (Passive)
Current Quarter*	-11.24%	Current Quarter* -10.66%
Blended Benchmark*,**	-11.09%	Blended Benchmark*,** -11.09%
Year To Date*	-15.71%	Year To Date* -15.47%
Blended Benchmark*,**	-15.55%	Blended Benchmark*,** -15.55%
1 Year	-13.63%	1 Year -12.17%
Blended Benchmark**	-12.19%	Blended Benchmark** -12.19%
3 Year	4.28%	3 Year 4.28%
Blended Benchmark**	4.58%	Blended Benchmark** 4.58%
5 Year	5.51%	5 Year 5.26%
Blended Benchmark**	5.67%	Blended Benchmark** 5.67%
10 Year	6.90%	10 Year 6.68%
Blended Benchmark**	7.13%	Blended Benchmark** 7.13%

* Returns less than one year are not annualized. **Breakdown for Blended Benchmark: From 10/1/2012 – Present: 32% S&P500, 6% Russell Mid Cap, 9% Russell 2000, 4% MSCI EM (net), 7% MSCI EAFE (net), 27% Bloomberg US Agg, 6.75% ICE BofA 1-3 Yr US Corp/Gov't, 1.25% ICE BofA US High Yield Master II, 2% Wilshire REIT, and 5% FTSE 1 Mth US T-Bill. From 4/1/2007 – 9/30/2012: the blended benchmark was 51% S&P 500; 3% Russell 2000, 6% MSCI EAFE (net), 5% ICE BofA 1-3 Year Corp./Govt, 30% Bloomberg US Agg, 5% FTSE 1 Mth US T-Bill. Prior to April 2007: the blended benchmark was 60% S&P 500, 5% ICE BofA 1-3Yr Corp/Gov, 30% Bloomberg US Agg, and 5% FTSE 1 Mth US T-Bill.

(Gross of Investment Management Fees, but Net of Embedded ANNIIAI RETURNS

	Fund Fees)		
HighMark Plus Composite (Active)		Index Plus Composite (Passive)	
2008	-25.72%	2008	-23.22%
2009	21.36%	2009	17.62%
2010	14.11%	2010	12.76%
2011	-0.46%	2011	1.60%
2012	13.25%	2012	11.93%
2013	16.61%	2013	15.63%
2014	4.70%	2014	6.08%
2015	0.04%	2015	-0.81%
2016	6.81%	2016	8.26%
2017	15.46%	2017	13.39%
2018	-4.88%	2018	-5.05%
2019	19.85%	2019	19.59%
2020	13.85%	2020	12.07%
2021	11.44%	2021	12.63%

10/2006

20

PORTFOLIO FACTS

HighMark Plus (Active)

Composite Inception Date No of Holdings in Portfolio

Index Plus (Passive)

Composite Incessed Dates	10/2007
No of Holdings in Portfolio	13

Q2 2022

HOLDINGS

HighMark Plus (Active)

Columbia Contrarian Core I3 Vanguard Growth & Income Adm Dodge & Cox Stock Fund iShares S&P 500 Value ETF Harbor Capital Appreciation - Retirement T. Rowe Price Growth Stock - I iShares Russell Mid-Cap ETF Vanguard Real Estate ETF Undiscovered Managers Behavioral Value-R6 Vanguard Small Cap Growth ETF DFA Large Cap International Portfolio Dodge & Cox International Stock MFS International Growth - R6 Hartford Schroders Emerging Markets Eq Vanguard Short-Term Invest-Grade Adm **PIMCO High Yield Instl** PIMCO Total Return Fund - Inst PGIM Total Return Bond - R6 DoubleLine Core Fixed Income - I First American Government Obligations Z

Index Plus (Passive)

iShares Core S&P 500 ETF iShares S&P 500 Value ETF iShares S&P 500 Growth ETF iShares Russell Mid-Cap ETF Vanguard Real Estate ETF iShares Russell 2000 Value ETF iShares Russell 2000 Growth ETF iShares Core MSCI EAFE ETF Vanguard FTSE Emerging Markets ETF Vanguard Short-Term Invest-Grade Adm iShares Core U.S. Aggregate Vanguard High-Yield Corp Adm First American Government Obligations Z

Holdings are subject to change at the discretion of the investment manager.



The performance records shown represent size-weighted composites of tax exempt accounts that meet the following criteria: Accounts are managed by HighMark with full investment authority according to the PARS Balanced active and passive objectives.

objectives. The composite name has been changed from PARS Balanced/Moderately Aggressive to PARS Balanced on 5/1/2013. The adviser to the PARS portfolios is US Bank, and HighMark serves as sub-adviser to US Bank to manage these portfolios. US Bank may charge clients as much as 0.60% annual management fee based on a sliding scale. US Bank pays HighMark 60% of the annual management fee for assets sub-advised by HighMark under its sub-advisory agreement with US Bank. The 0.36% paid to HighMark, as well as other expenses that may be incurred in the management of the portfolio, will reduce the portfolio's returns. Assuming an investment for five years, a 5% annual total return, and an annual sub-advisory gree rate of 0.36% deducted from the assets at market at the end of each year, a \$10 million initial value would grow to \$12.53 million after fees (Net-of-Fees) and \$12.76 million before fees (Gross-of-Fees). Gross returns are presented before management and custodial fees but after all trading expenses and reflect the reinvestment of dividends and other income. A client's return will be reduced by the advisory fees and other expenses it may incur as a client. Additional information regarding the firm's policies and procedures for calculating and reporting performance results is available upon request. Performance results are calculated and presented in U.S. dollars and do not reflect the eduction of investment advisory fees, custody fees, or taxes but do reflect the deduction of trading expenses. Returns are calculated based on trade-date accounting.

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HIGHMARK CAPITAL MANAGEMENT

350 California Street Suite 1600 San Francisco, CA 94104 800-582-4734

ABOUT THE ADVISER

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PARS DIVERSIFIED PORTFOLIOS

WHY THE PARS DIVERSIFIED CAPITAL APPRECIATION PORTFOLIO?

Comprehensive Investment Solution

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Rigorous Manager Due Diligence

Our manager review committee utilizes a rigorous screening process that searches for investment managers and styles that have not only produced above-average returns within acceptable risk parameters, but have the resources and commitment to continue to deliver these results. We have set high standards for our investment managers and funds. This is a highly specialized, time consuming approach dedicated to one goal: competitive and consistent performance.

Flexible Investment Options

In order to meet the unique needs of our clients, we offer access to flexible implementation strategies: HighMark Plus utilizes actively managed mutual funds while Index Plus utilizes index-based securities, including exchange-traded funds. Both investment options leverage HighMark's active asset allocation approach.

Risk Management

The portfolio is constructed to control risk through four layers of diversification – asset classes (cash, fixed income, equity), investment styles (large cap, small cap, international, value, growth), managers and securities. Disciplined mutual fund selection and monitoring process helps to drive return potential while reducing portfolio risk.

INVESTMENT OBJECTIVE

To provide growth of principal. The major portion of the assets are invested in equity securities and market fluctuations are expected.



Risk (Standard Deviation)

ASSET ALLOCATION — CAPITAL APPRECIATION PORTFOLIO

	Strategic Range	Policy	Tactical
Equity	65 - 85%	75%	72%
Fixed Income	10 - 30%	20%	20%
Cash	0 - 20%	5%	8%

ANNUALIZED TOTAL RETURNS (Gross of Investment Management Fees, but Net of Embedded Fund Fees)

Consolidated Composite	
Current Quarter*	-12.59%
Blended Benchmark*,**	-12.84%
Year To Date*	-17.12%
Blended Benchmark*,**	-17.27%
1 Year	-14.04%
Blended Benchmark**	-13.26%
3 Year	5.30%
Blended Benchmark**	5.59%
5 Year	6.42%
Blended Benchmark**	6.60%
10 Year	8.03%
Rlended Renchmark**	8 36%

* Returns less than one year are not annualized. **Breakdown for Blended Benchmark: 39.5% S&P500, 7.5% Russell Mid Cap, 10.5% Russell 2000, 5.25% MSCI EM (net), 10.25% MSCI EAFE (net), 16% Bioomberg US Agg, 3% ICE BofA 1-3 Yr US Corp/Gov't, 1% ICE BofA US High Yield Master II, 2% Wilshire REIT, and 5% FTSE 1 Mth US T-Bill. INITIAL DETTINALS (Gross of Investment Management Fees, but Net of Embedded

ANNUAL RETURNS

i unu i eesj	
Consolidated Composite	
2008	N/A
2009	23.77%
2010	12.95%
2011	-1.35%
2012	13.87%
2013	20.33%
2014	6.05%
2015	-0.26%
2016	8.79%
2017	16.72%
2018	-5.82%
2019	22.62%
2020	14.50%
2021	14,96%

PORTFOLIO FACTS

Consolidated Composite

Composite Inception Date No of Holdings in Portfolio Page 29 of 220 01/2009 20

Q2 2022

HOLDINGS

HighMark Plus (Active)

Columbia Contrarian Core I3 Vanguard Growth & Income Adm Dodge & Cox Stock Fund iShares S&P 500 Value ETF Harbor Capital Appreciation - Retirement T. Rowe Price Growth Stock - I iShares Russell Mid-Cap ETF Vanguard Real Estate ETF Undiscovered Managers Behavioral Value-R6 Vanguard Small Cap Growth ETF DFA Large Cap International Portfolio Dodge & Cox International Stock MFS International Growth - R6 Hartford Schroders Emerging Markets Eq Vanguard Short-Term Invest-Grade Adm **PIMCO High Yield Instl** PIMCO Total Return Fund - Inst PGIM Total Return Bond - R6 DoubleLine Core Fixed Income - I First American Government Obligations Z

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STYLE



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Item 2a

Municipal Water District of Orange County REVENUE / CASH RECEIPT REPORT August 2022

WATER REVENUES

Date	From	Description	Amount
8/02/2022	City of La Palma	June 2022 Water deliveries	1,461.17
8/02/2022	South Coast Water District	June 2022 Water deliveries	519,881.08
8/04/2022	City of La Habra	June 2022 Water deliveries	44,068.71
8/05/2022	City of Brea	June 2022 Water deliveries	18,071.78
8/05/2022	City of Seal Beach	June 2022 Water deliveries	42,761.67
8/08/2022	City of Buena Park	June 2022 Water deliveries	268,368.04
8/08/2022	Serrano Water District	June 2022 Water deliveries	289,155.44
8/08/2022	Trabuco Canyon Water District	June 2022 Water deliveries	93,851.45
8/11/2022	East Orange Co Water District	June 2022 Water deliveries	939,707.25
8/12/2022	City of Garden Grove	June 2022 Water deliveries	647,181.21
8/12/2022	City of Orange	June 2022 Water deliveries	1,183,799.11
8/12/2022	Santa Margarita Water District	June 2022 Water deliveries	2,603,779.70
8/12/2022	Santa Margarita Water District (ID9)	June 2022 Water deliveries	686,819.55
8/15/2022	City of Fountain Valley	June 2022 Water deliveries	10,405.78
8/15/2022	El Toro Water District	June 2022 Water deliveries	816,509.78
8/15/2022	Golden State Water Company	June 2022 Water deliveries	663,175.77
8/15/2022	Irvine Ranch Water District	June 2022 Water deliveries	4,049,936.88
8/15/2022	Laguna Beach County Water District	June 2022 Water deliveries	352,008.76
8/15/2022	Moulton Niguel Water District	June 2022 Water deliveries	2,426,476.35
8/15/2022	Orange County Water District	June 2022 Water deliveries	2,803,038.71
8/15/2022	Yorba Linda Water District	June 2022 Water deliveries	442,023.05
8/25/2022	City of Westminster	July 2022 Water deliveries	14,362.84
8/26/2022	City of Brea	July 2022 Water deliveries	16,099.41
8/26/2022	City of Huntington Beach	July 2022 Water deliveries	1,203,816.97
8/29/2022	City of Newport Beach	July 2022 Water deliveries	256,319.62
8/30/2022	Serrano Water District	July 2022 Water deliveries	182,679.04
8/30/2022	Trabuco Canyon Water District	July 2022 Water deliveries	199,548.76
8/31/2022	City of Fountain Valley	July 2022 Water deliveries	7,715.56

TOTAL WATER REVENUES \$ 20,783,023.44

Municipal Water District of Orange County REVENUE / CASH RECEIPT REPORT August 2022

MISCELLANEOUS REVENUES

Date	From	Description	Amount
8/04/2022	Pavpal	7/28/2022 ISDOC Luncheon	525.89
8/11/2022	Independent Special Dist of OC	7/28/2022 ISDOC Luncheon reimbursement	1,271.84
8/02/2022	WePav	9/16/2022 OC Water Summit registration	8,510.52
8/04/2022	Salton Sea Authority	9/16/2022 OC Water Summit registration	140.00
8/22/2022	Laguna Beach County Water District	9/16/2022 OC Water Summit registration	280.00
8/29/2022	Laguna Beach County Water District	9/16/2022 OC Water Summit registration	140.00
8/30/2022	Riverside Unified School District	9/16/2022 OC Water Summit registration	560.00
8/08/2022	Irvine Ranch Water District	9/16/2022 OC Water Summit sponsorship	7 600.00
8/22/2022	OC's Credit Union	9/16/2022 OC Water Summit sponsorship	2,000.00
8/29/2022	Hazen and Sawver	9/16/2022 OC Water Summit sponsorship	1,600.00
8/29/2022	Mesa Water District	9/16/2022 OC Water Summit sponsorship	7,500.00
8/29/2022	Yorba Linda Water District	9/16/2022 OC Water Summit sponsorship	1,600.00
8/08/2022	Joan Finnegan	Jul-Aug 2022 Vision COBRA insurance	48.26
8/02/2022	Karl Seckel	August 2022 Retiree Health insurance	179.55
8/02/2022	Keith Lvon	August 2022 Retiree Health insurance	179.55
8/15/2022	Steve Hedges	Aug-Dec 2022 Retiree Health insurance	272.00
8/15/2022	Stan Spraque	September 2022 Retiree Health insurance	179.55
8/29/2022	Keith Lyon	September 2022 Retiree Health insurance	179.55
8/31/2022	Patricia Meszaros	September 2022 Retiree Health Insurance	43.08
8/08/2022	US Bank Custodial Account	Capital One and Goldman Sachs interest payment	6.979.14
8/19/2022	US Bank Custodial Account	JP Morgan Chase and Societe Generale interest payment	2,250,00
8/26/2022	US Bank Custodial Account	Bank of America and FHI B interest payment	1 468 75
8/29/2022	US Bank	CAL Card rebate check	576 44
8/04/2022	ACWA-JPIA	2022 Wellness grant	1.360.00
8/22/2022	Melissa Halev	Movie tickets	54 00
8/31/2022	US Bank	Monthly interest	5.69
8/08/2022	Trabuco Canvon Water District	June 2022 Smartimer rebate program	9.27
8/15/2022	Irvine Ranch Water District	June 2022 Smartimer rebate program	209.97
8/22/2022	City of La Habra	May 2022 Turf Removal rebate program	222.00
8/04/2022	City of Fountain Valley	June 2022 Turf Removal rebate program	777.00
8/12/2022	City of Brea	June 2022 Turf Removal rebate program	444.00
8/18/2022	City of Westminster	June 2022 Turf Removal rebate program	111.00
8/22/2022	City of Buena Park	June 2022 Turf Removal rebate program	333.00
8/22/2022	Laguna Beach County Water District	June 2022 Turf Removal rebate program	111.00
8/29/2022	City of Newport Beach	June 2022 Turf Removal rebate program	111.00
8/08/2022	City of Orange	June 2022 Turf Removal and Spray to Drip rebate program	1,469.19
8/11/2022	Mesa Water District	June 2022 Turf Removal and Spray to Drip rebate program	1,443.00
8/12/2022	City of San Clemente	June 2022 Turf Removal and Spray to Drip rebate program	22,833.00
8/15/2022	Irvine Ranch Water District	June 2022 Turf Removal and Spray to Drip rebate program	3,539.14
8/22/2022	Laguna Beach County Water District	June 2022 So Cal Watersmart rebate program	65.00
8/29/2022	Moulton Niguel Water District	June 2022 So Cal Watersmart rebate program	2,800.00
8/08/2022	City of Anaheim	Dedicated Irrigation Meters Measurement Program FY 2021-22	28,458.45
8/08/2022	Moulton Niguel Water District	Dedicated Irrigation Meters Measurement Program FY 2021-22	136,585.00
8/15/2022	Department of Water Resources	Jan-Mar 2022 Integrated Regional Watershed Management	35,966.06
8/04/2022	City of Fountain Valley	Leak Detection Shared Services Elections FY 2021-22	419.00
8/22/2022	East Orange Co Water District	Water Loss Control Shared Services FY 2022-23	3,600.00
8/25/2022	City of Westminster	Water Loss Control Technical Assistance CY 2022	11,210.00
8/29/2022	City of Fountain Valley	Water Loss Control Technical Assistance CY 2022	23,680.00
8/02/2022	City of La Palma	FY 2022-23 Annual Retail Service Connection Charge	53,369,45
8/02/2022	City of Orange	FY 2022-23 Annual Retail Service Connection Charge	403,066.30
8/02/2022	El Toro Water District	FY 2022-23 Annual Retail Service Connection Charge	116,223.82
8/02/2022	Santa Margarita Water District	FY 2022-23 Annual Retail Service Connection Charge	669,437.48
8/02/2022	Santa Margarita Water District (ID9)	FY 2022-23 Annual Retail Service Connection Charge	132,312.78
8/02/2022	South Coast Water District	FY 2022-23 Annual Retail Service Connection Charge	163,770.48
8/05/2022	City of Huntington Beach	FY 2022-23 Annual Retail Service Connection Charge	667,252.41
8/08/2022	City of Buena Park	FY 2022-23 Annual Retail Service Connection Charge	235,206.44
8/08/2022	City of Garden Grove	FY 2022-23 Annual Retail Service Connection Charge	416,225.56
8/08/2022	Irvine Ranch Water District	FY 2022-23 Annual Retail Service Connection Charge	1,422,286.10
8/08/2022	Laguna Beach County Water District	FY 2022-23 Annual Retail Service Connection Charge	105,225.22
8/11/2022	Mesa Water District	FY 2022-23 Annual Retail Service Connection Charge	298,585.72
8/26/2022	City of San Clemente	FY 2022-23 Annual Retail Service Connection Charge	214,442.16

Municipal Water District of Orange County REVENUE / CASH RECEIPT REPORT August 2022

MISCELLANEOUS REVENUES

Date	From	Description	Amount
8/29/2022	City of Newport Beach	FY 2022-23 Choice Programs Billing invoice	4,212.05
8/29/2022	Golden State Water Company	FY 2022-23 Choice Programs Billing invoice	6,875.04
8/29/2022	Serrano Water District	FY 2022-23 Choice Programs Billing involce	893,05
8/22/2022	Metropolitan Water District	WEEA Sponsorship FY 2022-23	5,000.00
8/02/2022	WRD of So Cal	WEEA Sponsorship FY 2022-23	2,500.00
8/22/2022	Laguna Beach County Water District	WEROC Emergency supplies for COVID-19	294.00
8/29/2022	Irvine Ranch Water District	WEROC Emergency supplies for COVID-19	3,528.00
8/29/2022	Mesa Water District	WEROC Emergency supplies for COVID-19	1,470.00
8/29/2022	South Coast Water District	WEROC Emergency supplies for COVID-19	1,764.00
8/12/2022	SOCWA	WEROC Funding for FY 2022-23	20,493.48
8/19/2022	City of Fullerton	WEROC Funding for FY 2022-23	20,493.48

TOTAL MISCELLANEOUS REVENUES \$ 5,284,826.91 TOTAL REVENUES \$ 26,067,850.35

hjee Robert J. Hunter, General Manager

Hilary Chumpitazi, Treasurer

Municipal Water District of Orange County Disbursement Approval Report For the month of September 2022

Vendor/	·	Amount to
Invoice	Description	Pay
Core Disbur	sements:	
Ackerman Con	sulting-Richard C Ackerman	
1346	August 2022 Legal and regulatory specialized consulting services	3,500.00
Total		3,500.00
Aleshire & Wy	nder LLP	
70000	July 2022 Legal Services	412.50
Total		412.50
Best Best and I	(rieger LLP	
55401-JUL22	July 2022 Legal Services	6,823.50
942993	July 2022 State Advocacy Agreement services	8,000.00
Total		14,823.50
Black & Veatch		
1376545	June 2022 Hydraulic Model Work with SCWD	13,048.75
1378827	July 2022 Hydraulic Model Work with SCWD	9,130.00
Total		22,178.75
The Brattle Gro	pup Inc	
68575	July 2022 Final Report for the Economic Benefit Studies and Modeling Work	460.00
Total		460.00
Cal Desal		
20210977	2022-2023 Membership renewal	5,000.00
Total		5,000.00
CDM Smith		
90159572	August 2022 Services for water resource planning	9,666.50
Total		9,666.50
CDW Governm	ent	
BT85601	Cisco Backbone Switch and Voice Gateway-Catalyst 9200L and Digital Network three year license	3,737.66
Total		3,737.66
Hunter T Cook		
93022	July-September 2022 Retiree medical premium	1,536.00
Total		1,536.00

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Municipal Water District of Orange County Disbursement Approval Report For the month of September 2022

Vendor/		Amount to
Invoice	Description	Pay
Costco Wholes	ale	
607348814	Costco annual membership renewal	120.00
Total		120.00
CSU Fullerton /	asc	
AR172224	7/1/22-9/30/22 Center for Demographic Research support	14.365.50
AR172233	Water distribution system and transmission main map updates	682.46
Total	······································	15,047.96
Davis Farr LLP	July 2022 First syssess billing for EV 2021-22 Financial audit	7 000 00
12002	July 2022 First progress billing for FY 2021-22 Financial audit	7,000.00
The local		7,000.00
Dopudja & We	Ils Consulting Inc	
1140	July 2022 Consulting services on MET Strategic Issues and Priorities	7,375.00
***Tota ***		7,375.00
F Source Comp	anies II C	
21300	May 2022 Technical Assistance Program services for Water Loss Control	9,680,00
21438	July 2022 Technical Assistance Program services for Water Loss Control	5,480.00
21439	July 2022 Business Plan Implementation services	1.160.00
Total	·,	16,320.00
FCC Interview In	_	
LCS Imaging in	C Annual Locar Fiche coffucero, licensee, and support renowal	6 042 00
Total	Annual Laser Fiche software, licenses, and support renewal	6.043.00
		-,
Elevated Healt	h Inc	
August 2022	Pre-employment physical for three new staff members	370.00
Total		370.00
Governmentjo	bs.com Inc	
INV-30131	12/28/22-12/27/23 Subscription for Insight job application management and postings	4,630.60
Total		4,630.60
Hashtag Pinno	int Corporation	
1616	August 2022 Social Media consultation and services	7,913.00
Total		7,913.00
Lawnscape Sys	tems inc	
429751	August 2022 Landscape Maintenance for Atrium	2,950.00
Total		2,950.00

Municipal Water District of Orange County Disbursement Approval Report For the month of September 2022

Vendor/		Amount to
Invoice	Description	Pay
MWDOC-1105	August 2022 MET issues & strategic guidance to staff	1.125.00
Total	August 2022 MET Issues a strategic Bulance to stati	1,125.00
Mega Maids Cle	aning Service	
12664	August 2-9, 2022 Cleaning services for COVID-19 prevention	300.00
***Tota ! ***		300.00
Natural Resource	e Results LLC	
4013	August 2022 Federal legislative advocacy services	8,000.00
Total		8,000.00
NDS		
804742	8/5/22 Board packet delivery service	320.47
805069	8/12/22 Board packet delivery service	214.25
Total		534.72
ODP Business S	plutions LLC	
259706286001	8/26/22 Office supplies	149.68
261472407001	8/16/22 Office Supplies	20.78
261473253001 ***Total***	8/19/22 Office supplies	208.34
10141		
Office Solutions		
1-02033906	8/12/22 Office supplies	130.48
1-02034264	8/15/22 Office supplies	16.99
I-02034860 ***Total***	Name Badge Holders for Public Affairs	191.89
Total		330,30
Orange County	Water District	
24593	July 2022 Postage, shared office & maintenance expense	5,645.83
Total		5,645.83
Paul Redvers B	rown Inc	
DOC011	August 2022 MWDOC Facilitated Member Agency Discussions Project services	870.00
Total		870.00
Resilient Comm	unications	
802896	Cisco VPN three year license renewal	320.27
Total		320.27
Municipal Water District of Orange County Disbursement Approval Report For the month of September 2022

Vendor/		Amount to
Invoice	Description	Pay
Kari Seckei		2 222 02
93022	July-september 2022 Retiree medical premium	2,233.80
*** i otai***		2,233.80
Soto Resources	-Joey C Soto	
GA-AUG-64	August 2022 Grant Research and Acquisition Assistance	3,250.00
Total		3,250.00
Special District	Risk Mgmt Authority	
72792	Program Year 2021-22 Workers' Compensation Reconciliation Invoice	3,154,15
Total		3.154.15
Spiral Holding L	LC	
S12587280	Fastback Super Strip Binding Tape	205.54
Total		205.54
State of Califor	nia-Department of Justice	
8172022	RRF-1 FY2021/22 Filing for Water Facilities Corporation	25.00
Total		25.00
Stetson Engine	ers Inc	
1543-29-2021	FY21-22 Member Agency Consumer Confidence Reports	39.724.25
Total		39,724.25
Steven Enternri	ses Inc	
0456065-IN	Renlacement print head for plotter	155 21
Total		155.21
LICAP		
USAFact Inc	Average 2022 Restances of the state for force your binst	140.24
	August 2022 Background checks for four new nires	149.24
I DIAL		149.24
Water System (Consulting Inc	
7031	July 2022 Water Use Efficiency Economic Analysis	5,347.00
Total		5,347.00
Pauline D Wen	nerstrom	
81922	July-September 2022 Retiree medical premium	459.30
Total	· · ··································	459.30
Tabal Cana From		
Total Core Expe	maxures	201,131.48

Municipal Water District of Orange County Disbursement Approval Report For the month of September 2022

Vendor/		Amount to
Invoice	Description	Pay
Choice Expe	enditures:	
Bryton Printing	Inc	
16707	Water Use Efficiency Fall 2022 Bill inserts for member agencies	4,595.59
Total	· · · · · · · · · · · · · · · · · · ·	4,595.59
McCalls Meter	Sales & Service	
35115	August 2022 Meter Accuracy Testing for South Coast Water District	1,500.00
Total		1,500.00
Mission RCD		
3249	August 2022 Field inspection and verification for Water Use Efficiency rebate programs	2,055.00
Total		2,055.00
Orange County	Water District	
24593	July 2022 Postage for Water Use Efficiency rebate programs	13.22
Total		13.22
Pollardwater		
218664	Three Aqua test T10s Leak Detection Kits for Water Loss Control Shared Services	10,534.78
Total		10,534.78
SubSurface Loc	ators Inc	
220247	LD-18 Sensor Filter and ZCorr Data Cable for Water Loss Control Shared Services	303.00
Total		303.00
Total Choice Ex	penditures	19,001.59
Othor Fund	c Evnandituras	
Other Fullu	s Expenditures.	
E Source Comp	anies LLC	
21300	May 2022 Technical Assistance Program services for Water Loss Control	1,380.00
21438	July 2022 Technical Assistance Program services for Water Loss Control	21,755.00
****! 0(8)***		23,135.00
Mission RCD		
3249 ***Totol***	August 2022 Field inspection and verification for Water Use Efficiency repate programs	5,050.79
I Ofgi		5,050.79

Municipal Water District of Orange County Disbursement Approval Report For the month of September 2022

Vendor/		Amount to
Invoice	Description	Pay
The Plant Nerc	I	
7403	August 2022 Landscape Design and Landscape Maintenance Assistance Program	25,080.00
Total		25,080.00
Soto Resource	s-Joey C Soto	
SA-AUG-65	August 2022 Grant Administration Services for Prop 1 North	2,574.50
Total		2,574.50
Water System	Consulting Inc	
7031	July 2022 Water Use Efficiency Economic Analysis	15,000.00
Total		15,000.00
Total Other Fu	nds Expenditures	71,446.29
Total Expendit	ures	291,579.36

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Name/	Check/			
Date	EFT	Invoice	Description	Amount
Core Disb	ursements	:		
Corodata Re	cords Manag	ement Inc		
8/15/2022	EFT	RS4823555	July 2022 Records Storage Fees	58.22
Total				58.22
Harvey De La	Torre			
8/31/2022	EFT	81122	August 2022 Business expense	49.15
8/31/2022	EFT	81822	August 2022 Business expense	54.71
Total				103.86
Larry Dick				
8/31/2022	EFT	72822	July 2022 Business expense	21.88
Total				21.88
Lina Gunawa	in			
8/31/2022	EFT	71922	July 2022 Business expense	20.00
8/31/2022	EFT	81922	August 2022 Business expense	20.00
Total				40.00
Melissa Hale	Υ			
8/31/2022	EFT	71422	July 2022 Business expense	337.35
Total				337.35
Independen	Special Dist	of OC		- /
8/04/2022	141138	72822	7/28/22 ISDOC Quarterly Luncheon payments received	545.89
Total				545.89
Pacific Adva	nced Civil Eng	ineering Inc		
8/31/2022	141212	72122	Refund Duncan Lee canceled 9/16/22 OC Water Summit registration	140.00
Total				140.00
Petty Cash				
8/15/2022	141152	MAY-JUN22	May-June 2022 Petty Cash reimbursement	161.81
Total				161.81
Ricoh USA Ir	c			
8/31/2022	EFT	5065329711	6/1/22-8/9/22 Ricoh copier maintenance	504.47
Total				504.47
Judy Roberts	5			
8/31/2022	EFT	71522	July 2022 Business expense	45.14
Total				45.14

Name/	Check/			
Date	EFT	Invoice	Description	Amount
Mogan Schn	aidar			
8/31/2022	FFT	77877	July 2022 Business evnense	1 25
Total		72022		4.25
Spectrum Bu	siness			
8/15/2022	141153	343564081022	August 2022 Telephone expense for one analog fax line	39.99
8/04/2022	141139	375210073022	August 2022 Telephone and internet expense	1,426.93
Total			-	1,466.92
US Bank				
8/25/2022	141156	0208/4192/4279-JUL22	6/23/22-7/22/22 Cal Card Charges	11,398.32
Total				11,398.32
Verizon Wire	less			
8/04/2022	141140	9911870708	July 2022 4G Mobile broadband unlimited service	114.03
Total				114.03
Guillermo Za	vala	66570		70.00
8/31/2022	FL	60622	June 2022 Business expense	70.00
iotai				/0.00
Total Core D	isbursemen	its		15,012.14
Choice Dis	sburseme	ents:		
Joseph Berg				
8/31/2022	EFT	71122	July 2022 Business expense	345.25
Total				345.25
Petty Cash	141153	546V II 38122	May June 2022 Detty Cash reimburgement	10.00
0/10/2022 ***Total***	141152	WAT-JUNZZ	May-June 2022 Petty Cash Tellibui senient	10.00
IUtal				10.00
US Bank 8/25/2022	141156	4279-11,11 22	6/23/22-7/22/22 Cal Card Charges	276.96
Total	141100			276.96
US Rook Vov	agor Floot (Systems		
8/31/2022	EFT	8694349932231	6/25/22-7/24/22 Fuel for Water Loss Control Shared	883.09
,,			Services vehicles	
Total				883.09
Total Choice	Disbursem	ents	-	1,515.30

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Name/	Check/			
Date	EFT	Invoice	Description	Amount
Other Fun	ds Disbur	sements:		
AT&T				
8/15/2022	141142	18544768	July 2022 Telephone expense for WEROC Primary & N. EOC	458.51
Total				458.51
Mesa Water	District			
8/15/2022 *** Total ***	EFT	10871	June 2022 Credit for Local Resources program	88,432.00 88,432.00
Metropolita	n Water Distr	rict		
8/31/2022 ***Total***	EFT083122	10827	June 2022 Water deliveries	19,369,670.34 19.369.670.34
Nouton Nig	uel water Di	STREE		E 030 00
8/15/2022	141147	4914570	7/1/20-6/30/22 MET Pass-Through Funding for Smart Timer Distribution Program	5,920.00
8/15/2022	141147	4914572	7/1/20-6/30/22 MET Pass-Through Funding for Naturescape Program	28,144.00
8/15/2022	141147	4914573	7/1/20-6/30/22 MET Pass-Through Funding for ProActive Leak Detection Program	54,486.70
8/15/2022	141147	4914574	7/1/20-6/30/22 MET Pass-Through Funding for	14,327.60
Total			Proactive Recycled Leak Detection Program	102,878.30
Santa Marga	rita Water D	istrict		
8/31/2022	EFT	63022	June 2022 SCP Operation Surcharge	14,560.03
Tota(14,560.03
Santiago Aq	leduct Comn	nission		
8/31/2022	141214	63022	June 2022 SAC Pipeline Operation Surcharge	2,397.27
Total				2,397.27
Spray to Drip	Rebate			
8/29/2022	141205	S2D5-C-IRWD-12274-18513	Irvine Company (Technology Dr, Irvine)	1,394.00
8/29/2022	141158	S2D5-C-IRWD-44434-18608	Brindisi HOA (Irvine)	364.50
8/29/2022	141182	S2D5-R-IRWD-44749-18352	T. Mueller (Cape Cod)	604.10
8/29/2022	141183	S2D5-R-IRWD-45848-18353	T. Mueller (Oak Ave)	486.50
8/29/2022	141165	S2D5-R-IRWD-46536-18647	E. Fang	1,188.60
8/29/2022	141164	S2D5-R-IRWD-46748-18660	J. Fabris	802.20

Name/	Check/			
Date	EFT	Invoice	Description	Amount
			· · · · · · · · · · · · · · · · · · ·	
Spray to Drip	Rebate - cor	ntinued		
8/29/2022	141167	S2D5-R-IRWD-46818-18695	A. Feili	406.00
8/29/2022	141178	\$2D5-R-SM-44193-18208	H. Manjunath	703.50
8/29/2022	141179	S2D5-R-SM-44342-18245	S. McGregor	722.50
8/29/2022	141200	S2D5-R-SM-45967-18406	A. Della Ripa	1,623.50
8/29/2022	141207	S2D5-R-SM-47225-18857	D. Turner	182.00
8/29/2022	141187	S2D5-R-SOCO-46126-18457	D. Nazarbegian	618.58
8/29/2022	141189	S2D5-R-TUST-42809-18435	T. Pham	1,765.00
8/29/2022	141168	S2D5-R-TUST-44318-18537	B. Feng	812.50
Total			-	11,673.48
				·
Turf Rebate				
8/29/2022	141206	TR14-R-HB-41450-40234	D. Tran	1,486.00
8/29/2022	141203	TR14-R-MNT-42606-41297	B. Soriano	2,764.00
8/29/2022	141173	TR15-C-IRWD-38663-45689	Idaho Cal Properties (Irvine)	17,166.00
8/29/2022	141163	TR15-C-IRWD-42726-41400	Deerfield Community Association (Irvine)	150,000.00
8/29/2022	141201	TR15-C-IRWD-45992-44628	Santa Barbara Rentals LP (Lake Forest)	9,464.00
8/29/2022	141204	TR15-C-MNT-38663-44864	South Peak HOA (Laguna Niguel)	9,280.00
8/29/2022	141195	TR15-C-MNT-4463-44630	Rancho Niguel Master (Laguna Niguel)	86,060.60
8/29/2022	141157	TR15-C-MNT-45960-44593	Beacon Hill Planned Comm Assc (Laguna Niguel)	6,804.00
8/29/2022	141161	TR15-C-O-38663-45305	Cowan Hills Comm Association (Orange)	25,814.00
8/29/2022	141191	TR15-C-SC-42132-44696	Presidential Heights Comm Assc (San Clemente)	10,803.00
8/29/2022	141196	TR15-C-SC-4463-44984	Rancho San Clemente Business Park (Avenida Pico)	58,242.00
8/29/2022	141197	TR15-C-SC-4463-44985	Rancho San Clem Business Prk (Avenida La Pata)	94,041.00
8/29/2022	141181	TR15-C-SM-38663-43265	Mission Courts II Maint Corp (Rancho S. Margarita)	12,267.00
8/29/2022	141177	TR15-R-ETWD-44549-45665	A. Maine	8,992.00
8/29/2022	141170	TR15-R-HB-42852-41525	K. Gaitan	936.00
8/29/2022	141160	TR15-R-HB-45927-44554	M. Collins	2,781.00
8/29/2022	141162	TR15-R-HB-46730-45365	L. Crawford	408.00
8/29/2022	141202	TR15-R-HB-47162-45765	M. Smith	3,378.00
8/29/2022	141193	TR15-R-IRWD-42828-41498	M. Prigo	3,068.00
8/29/2022	141184	TR15-R-IRWD-44749-44419	T. Mueller (Cape Cod)	3,452.00
8/29/2022	141185	TR15-R-IRWD-45848-44482	T. Mueller (Oak Ave)	2,780.00
8/29/2022	141199	TR15-R-IRWD-46349-44975	R. Riley	4,475.00
8/29/2022	141174	TR15-R-IRWD-46432-45070	P. Kotzin	3,175.00
8/29/2022	141166	TR15-R-IRWD-46536-45180	E. Fang	3,970.00
8/29/2022	141194	TR15-R-IRWD-46718-45353	R. Punjabi	1,120.00
8/29/2022	141172	TR15-R-IRWD-46791-45431	J. Hann	1,176.00
8/29/2022	141210	TR15-R-MESA-44580-43227	W. Wiley	1,272.00
8/29/2022	141176	TR15-R-MNT-42434-42800	M. Mahoney	1,708.00
8/29/2022	141171	TR15-R-MNT-44322-42961	K. Guerra-Hershey	3,692.00
8/29/2022	141209	TR15-R-MNT-46271-45497	C. Vanderham	1,536.00
8/29/2022	141186	TR15-R-MNT-46415-45054	M. Naughton	1,596.00
8/29/2022	141159	TR15-R-SC-46160-44794	M. Browne	2,400.00

Name/	Check/			
Date	EFT	Invoice	Description	Amount

Turf Rebate	continued			
8/29/2022	141180	TR15-R-SM-44342-42991	S. McGregor	822.00
8/29/2022	141188	TR15-R-SM-44654-44468	P. Olszynski	1,902.00
8/29/2022	141192	TR15-R-SM-45780-44407	R. Price	1,380.00
8/29/2022	141198	TR15-R-SM-46097-44727	G. Rao	1,186.65
8/29/2022	141208	TR15-R-SM-47225-45822	D. Turner	993.00
8/29/2022	141175	TR15-R-TC-41651-40418	D. Li	2,307.00
8/29/2022	141190	TR15-R-TUST-42809-41481	T. Pham	5,181.00
8/29/2022	141169	TR15-R-TUST-44318-42956	B. Feng	3,060.00
Total				552,938.25
US Bank				
8/25/2022	141156	6066-JUL22	6/23/22-7/22/22 Cal Card Charges	9,517.95
Total				9,517.95
Verizon Wire	less			
8/04/2022	141140	9911870708	July 2022 4G Mobile broadband unlimited service	76.02
Total				76.02
Total Other I	unds Disbu	irsements		20,152,602.15
Total Disburs	sements			20,169,129.59

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Robert J. Hunter, General Manager

laur (th Hilary Chumpitazi, Treasurer

Cal Card Charges Statement Date: July 22, 2022 Payment Date: August 25, 2022

Date	Description	
R. Hunter Ca	rd:	
6/29/2022	CA-NV AWWA Water Education Seminar at Santiago Canyon College in Orange, CA on August	485.00
7/01/2022	Department of Water Resources meeting in Sacramento, CA from July 25 to July 28, 2022 - Airfare for T. Baca and K. Vincent	335.92
7/07/2022	ISDOC Quarterly Luncheon in Fountain Valley, CA on July 28, 2022 - Registration for Director Dick	20.00
7/14/2022	ACWA DC Conference in Washington, DC from July 12 to July 14, 2022 - Accommodations for H. Baez and M. Baum-Haley	1,717.38
7/15/2022	OCBC Virtual Washington, D.C. Advocacy Summit on August 16, 2022 - Registration for H. Baez	50.00
7/18/2022	CAPIO Annual Conference in San Diego, CA from August 29 to September 1, 2022 - Registration for S. Wilson	625.00
7/20/2022	CSDA Annual Conference in Palm Desert, CA from August 22 to August 25, 2022 - Registration for H. Baez	650.00
7/21/2022	ACWA Region 10 Meeting in Encinitas, CA on August 2, 2022 - Registration for H. Baez, M. Baum-Haley, and Director Seckel	120.00
Total:		4,003.30
C. Harris Car	d:	
6/21/2022	Overnight FedEx shipment on 6/21/22 to MET	89.55
6/22/2022	Exchange + AD monitoring software annual subscription fee	2,035.00
6/24/2022	5/25/22-6/24/22 Web hosting service for MWDOC website	15.65
6/27/2022	Water Use Efficiency Intern job posting with Symplicity Recruit	110.00
6/27/2022	WEROC Specialist job posting with Water District Jobs	145.00
6/27/2022	WEROC Specialist and Water Use Efficiency Intern job posting with Brown and Caldwell	400.00
6/30/2022	Squarespace Scheduling annual plan for Water Loss Control Shared Services	168.00
7/02/2022	iPad with Smart Keyboard for General Manager	929.07
7/05/2022	Printer toners for office printers	273.51
7/06/2022	Instant soap for Water Loss Control Shared Services	60.56
7/07/2022	Public Affairs Coordinator I/II job posting with Water District Jobs	145.00
7/07/2022	Water Loss Control Intern job posting with Water District Jobs	145.00
7/07/2022	Telescoping Mirrors and Sunscreen for Water Loss Control Shared Services	48.40
7/08/2022	Public Affairs Coordinator I/II and Water Loss Control Intern job postings with Brown and Caldwell	400.00
7/11/2022	iPad Apple Pen for General Manager	140.29
7/12/2022	Desk name plate for new staff member	21.03
7/13/2022	Laptop docking station for Network Systems Engineer and Accountant	170.48
7/13/2022	Amazon price adjustment for docking stations for Network Systems Engineer and Accountant	(22.60)
7/13/2022	Atomic Clock for staff office	73.20
7/14/2022	iPad Air for Director Yoo Schneider	734.41

7/15/2022 Wireless Digital Lighting Remote for MWDOC office 7/20/2022 Myocwater domain five year renewal

Total:

_

450.30

150.80

6,682.65

Cal Card Charges Statement Date: July 22, 2022 Payment Date: August 25, 2022

Date	Description	Amount
Public Affairs	Card:	
7/02/2022	7/2/22-8/1/22 Zoom Video Communications monthly fee with audio licenses	174.93
7/03/2022	July 2022 Public Storage Unit for Public Affairs	360.00
7/07/2022	Canva annual subscription renewal	119.40
7/18/2022	PRSA annual membership renewal for S. Wilson	335.00
Total:		989.33
WEROC Card	:	
7/07/2022	1,600 COVID-19 Acon Flowflex Rapid Test Kits for member agencies	9,397.96
7/14/2022	Canva Annual Subscription for WEROC preparedness materials and training flyers	119.99
Total:		9,517.95

Municipal Water District of Orange County GM Approved Disbursement Report ⁽¹⁾ For the Month of August 2022

Name/	Check/			
Date	EFT	Invoice	Description	Amount
Core Disbu	rsements	:		
AccuFund Inc				
8/26/2022	EFT	20221449	AccuFund Accounting Suite annual maintenance and license renewal	5,760.75
Total				5,760.75
ACWA Joint P	owers ins Au	ıth		,
8/15/2022	EFT	70122	7/1/22-6/30/23 Cyber Liability Program premium	7,484.70
Total				7,484.70
Bell Burnett &	Associates			
8/05/2022	EFT	1097	Reserve Policy Study Report	20,000.00
Total				20,000.00
CALPERS				
8/23/2022	EFT	10000016886384	Fees for GASB-68 Reports & Schedules	700.00
Tota!				700.00
Total Core Dis	bursements			33,945.45
Choice Dist	oursemen	ts:		
Total Choice D	Disbursemen	ts		
Other Fund	ls Disburs	ements:		
Total Other Fu	ınds Disburs	ements		
Total Disburse	ements			33,945.45
×.				

Robert J. Hunter, 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.



Municipal Water District of Orange County Consolidated Summary of Cash and Investment

July 31, 2022

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

Megan Yoo Schneider, P.E. President

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

> Al Nederhood Director

> > Larry D. Dick Director

Karl W. Seckel, P.E. Director

> Sat Tamaribuchi Director

Jeffrey M. Thomas Director

Robert J. Hunter General Manager

MEMBER AGENCIES

City of Brea City of Buena Park East Orange County Water District El Toro Water District Emerald Bay Service District City of Fountain Valley City of Garden Grove Golden State Water Co. City of Huntington Beach Irvine Ranch Water District Laguna Beach County Water District City of La Habra City of La Palma Mesa Water District Moulton Niguel Water District City of Newport Beach City of Orange Orange County Water District City of San Clemente 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 District investments and cash balances are held in various funds designated for certain purposes as follows:

Fund	Book Value	% of Portfolio
Designated Reserves		
General Operations	\$3,738,505	26.08%
Grant & Project Cash Flow	1,500,000	10.46%
Election Expense	461,678	3.22%
Building Repair	436,542	3.05%
OPEB	<u>297,147</u>	2.07%
Total Designated Reserves	6,433,872	44.88%
-		
General Fund	\$5,806,425	40.50%
Water Fund	2,241,000	15.63%
Conservation Fund	(793,400)	(5.53%)
WEROC Fund	629,491	4.39%
Trustee Activities	18,686	0.13%
Total	\$14,336,074	100.00%

The funds are invested as follows:

Term of Investment	% of Portfolio	Book Value	Market Value
Cash	0.76%	\$108,317	\$108,317
Short-term investment			
LAIF	49.41%	7,085,373	7,085,373
OCIP	28.21%	4,042,471	4,042,471
Long-term investment			
US Government Issues	1.74%	249,913	230,660
 Corporate Bond 	8.37%	1,200,000	1,114,797
 Certificates of Deposit 	11.51%	1,650,000	1,620,243
Total	100.00%	\$14,336,074	\$14,201,861

The average number of days to maturity/call as of July 31, 2022 equaled 132 and the average yield to maturity is 1.206%. During the month, the District's average daily balance was \$20,244,159.05. Funds were invested in US Bank Checking Account, Negotiable Certificate of Deposits, Corporate Bonds, US Government Issues, Local Agency Investment Funds (LAIF) and Orange County Investment Pool (OCIP) during the month of July 2022.

The (\$134,213) difference between the book value and the market value on July 31, 2022 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.

Róbert J. Hunter

General Manager

Hilary Chumpitaz Treasurer

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

MWDOC	MUI	VICIPAL WATE	R DISTRICT	OF ORAN	NGE COI	JNTY
			Portfolio Manag	Jement - Po	irtfolio Sun	nmary
					July 31	, 2022
7/31/2022	Par Value	Market Value	Book Value	% of Portfolio	Days to Mat/Call	YTM @ Cost
Negotiable Certificate Of Deposit	1,650,000.00	1,620,243.00	1,650,000.00	11.60	736	2.550
Corporate Bond	1,200,000.00	1,114,797.00	1,200,000.00	8.43	539	0.000
US Government Issues	250,000.00	230,660.00	249,912.60	1.76	26	0.000
Local Agency Investment Funds	7,085,372.91	7,085,372.91	7,085,372.91	49.80	÷	0.980
Orange County Investment Pool	4,042,470.69	4,042,470.69	4,042,470.69	28.41	*~1	1.087
Total Investments	14,227,843,60	14,093,543.60	14,227,756.20	100.00	132	1.206
Cash						
Cash	108,317.54	108,317.54	108,317.54			0.00
Total Cash and Investments	14,336,161.14	14,201,861.14	14,336,073.74		132	1,206
Total Earnings	Month Ending July	Fiscal Year to Date				
Current Year	19,070.84	19,070.84				
Average Daily Balance	20,244,159.05					
Effective Rate of Return	1.206%					
We certify that this report reflects the c requirements and the District Investme flow liquidity to meet the next six mont	ash and investments of the Muni ent Policy and Guidelines in effect th's estimated expenditure. The :	icipal Water District of Orange C at the time of investment. The source for the market values an	ounty and is in conformity w Investment Program herein s from U.S. Bank. Per Resolu	ith the Governmen shown provides su tion 2059 there an	t Code ifficient cash e no compliance	
exceptions to report.	. I want					
Robert J. Hunter, General Mark	ager	07/03/2022. Date				
Hilary Aunuty		09/08/2072				

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY Portfolio Management Long-Term Portfolio Details - investments July 31, 2022

7/24/2024 8/18/2025 7/25/2023 8/8/2023 7/14/2026 6/29/2027 9/27/2022 8/7/2024 11/25/2025 9/16/2025 8/19/2025 7/20/2027 Maturity Date 1,213 1,815 58 738 724 359 373 1,444 736 8 26 4 749 669 19 539 603 Days To Call/Maturity 4.500 2.250 2.250 2.200 3.300 3.350 00.1 0.860 0.860 0.800 1.000 0.800 1.088 1.518 2.014 3.350 2.550 YTM @ Cost 0.850 4.500 2.200 3.300 0.650 1.000 0.800 1.000 3.350 2.250 2.250 3.350 2.550 0.850 1.469 1.994 1.000 Coupon Rate 200,000.00 250,000.00 250,000.00 250,000.00 250,000.00 1,650,000.00 249,912.60 249,912.60 250,000.00 250,000.00 250,000.00 200,000.00 250,000.00 1,200,000.00 3,099,912.60 250,000.00 200,000.00 **Book Value** 230,500.00 1,114,797.00 2,965,700.00 249,972.50 244,647.50 244,507.50 250,597.50 250,690.00 181,632.00 1,620,243.00 230,660.00 230,660.00 224,922.50 227,397.50 229,955.00 202,022.00 198, 196.00 Market Value 250,000.00 250,000.00 250,000.00 250,000.00 250,000.00 200,000.00 1,650,000.00 250,000.00 250,000.00 250,000.00 250,000.00 250,000.00 200,000.00 250,000.00 1,200,000.00 3,100,000.00 200,000.00 Par Value Settlement Date 7/24/2019 7/25/2018 8/8/2018 7/14/2021 12/7/2020 9/16/2020 8/18/2020 6/29/2022 7/20/2022 9/27/2017 8/7/2019 8/19/2020 3/1/2021 CUSIP/Ticker 17328WFZ6 3130ALGR9 02589ADE9 06740KKY2 14042TBQ9 14042RMJ7 254673RV0 38148PT98 06048WK41 48128GV56 61766YKH3 83369MD25 7954507A7 Sub Total Sub Total Total investments Sub Total Citigroup Global Markets Morgan Stanley Fin LLC American Express Bank US Government Issues Issuer Goldman Sachs Bank Bank of America Corp JP Morgan Chase Capital One Bank Corporate Bond Societe Generale Sallie Mae Bank Capital One NA Discover Bank Barclays Bank FHLB

Total Earnings Current Year

Fiscal Year To Date 5,124.37

Month Ending July 5,124.37 MUNICIPAL WATER DISTRICT OF ORANGE COUNTY Short-Term Portfolio Details - Cash and Investments July 31, 2022 **Portfolio Management**

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	7,085,372.91	7,085,372.91	7,085,372.91	1.087	1.087	÷	V/N
Sub Total			7,085,372.91	7,085,372.91	7,085,372.91	1.087	1.087	t	
Orange County Investment Pool County of Orange LGIP	OCIP	6/29/2005	4,042,470.69	4,042,470.69	4,042,470.69	0.793	0.793		N/A
Sub Total			4,042,470.69	4,042,470.69	4,042,470.69	0.793	0.793	4	
Total Investments			11,127,843.60	11,127,843.60	11,127,843.60	0.980	0.980		
Cash									
Petty Cash Cash	CASH	7/1/2010	500.00	500.00	500.00	0.000	0.000	٣	N/A
US Bank Cash	CASHUSBANK	7/25/2018	107,817.54	107,817.54	107,817.54	0.000	0.000	-	N/A
Total Cash			108,317.54	108,317.54	108,317.54	0.000	0.000	1	
Total Cash and Investments			11,236,161.14	11,236,161.14	11,236,161.14	0.980	0.980	4.	
Total Earnings			Month Ending July		Fiscal Year To Date				
Current Year			13,946.47		13,946.47				

Municipal Water District of Qrange County Cash and Investments at July 31, 2022

ALLOCATION	AMOUNT	%	7,800,000.00						
MWDOC			\$,000,000.20						
Designated Reserves									
General	\$ 3,738,505	26.08%	5,000,000.00						
Grant & Project Cash Flow	1,500,000	10.46%							
Election Expense	461,678	3.22%							
Building Repair	436,542	3.05%							
OPEB	297,147	2.07%							
Total Designated Reserves	6,433,872	44.88%	3,000,000,00			·			
			2,000,000.00						
General	5,806,425	40.50%	-						
Water	2,241,000	15.63%							
Conservation	(793,400)	-5.53%	1,000,000,00			5			
WEROC	629,491	4.39%							
TOTAL MWDAG	\$ 14 317 388	00 87%					-		
				Reserves	General	Water		WEROC	Trustee Funds
TRUSTEE ACTIVITIES									
AMP Sales Admin	\$ 18,686	0.13%	- {pp;aan'aaa*L}						
TOTAL TRUSTEE ACTIVITIES	\$ 18,686	0.13%	(2,000,000,00)						
TOTAL CASH & INVESTMENTS	\$ 14,336,074	100.00%							

O:\Finance\Cash & investment/FYZ2-23:CF&invAlloc 07-22Inv Alloc Range:Bar Chart



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

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

Account Summary

Account Report for the Period 7/1/2022 to 7/31/2022

Source	Balance as of 7/1/2022	Contributions	Earnings	Expenses	Distributions	Transfers	Balance as of 7/31/2022
OPEB PENSION	\$2,408,599.26 \$847,653.04	\$0.00 \$0.00	\$113,441.99 \$39,923.39	\$1,207.55 \$424.98	\$0.00 \$0.00	\$0.00 \$0.00	\$2,520,833.70 \$887,151.45
Totals	\$3,256,252.30	\$0.00	\$153,365.38	\$1,632.53	\$0.00	\$0.00	\$3,407,985.15

Investment Selection

Source		
OPEB	Moderate HighMark PLUS	
PENSION	Mouerate fighting r LOS	

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.
	The dual goals of the Moderate Strategy are growth of principal and income. It is expected that dividend and interest income will comprise a
PENSION	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

				А	Annualized Retur	'n	
Source	1-Month	3-Months	1-Year	3-Years	5-Years	10-Years	Plan's Inception Date
OPEB	4.71%	-0.39%	-9.20%	4.88%	5.39%	6.50%	10/26/2011
PENSION	4.71%	-0.39%	-9.22%	4.86%	-	-	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

Headquarters - 4350 Von Karman Ave., Suite 100, Newport Beach, CA 92660 800.540.6369 Fax 949.250.1250 www.pars.org

Item 3

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

COMBINED FINANCIAL STATEMENTS

AND

BUDGET COMPARATIVE

JULY 1, 2022 THRU JULY 31, 2022

Municipal Water District of Orange County Combined Balance Sheet As of July 31, 2022

	<u>Amount</u>
ASSETS	
Cash in Bank	108,317.54
Investments	14,227,756.20
Accounts Receivable	43,658,363.74
Accounts Receivable - Other	504,866.79
Accrued Interest Receivable	38,068.49
Prepaids/Deposits	482,663.83
Leasehold Improvements	7,006,849.74
Furniture, Fixtures & Equipment	879,762.51
Less: Accumulated Depreciation	(3,753,825.12)
TOTAL ASSETS	63,152,823.72
LIABILITIES AND FUND BALANCES	
LIABILITIES	
Accounts Payable	38,900,008.47
Accounts Payable - Other	157.50
Accrued Salaries and Benefits Payable	598,916.95
Other Liabilities	1,103,356.38
Unearned Revenue	1,079,649.00
TOTAL LIABILITIES	41,682,088.30
FUND BALANCES	
Unrestricted Fund Balances	
Designated Reserves	
General Operations	3,738,505.00
Grant & Project Cash Flow	1,500,000.00
Election Expense	461,678.00
Building Repair	436,542.00
OPEB	297,147.00
Total Designated Reserves	6,433,872.00
General Fund	5,866,738.42
General Fund Capital	83,747.32
WEROC	159,687.58
WEROC Capital	298,199.80
I otal Unrestricted Fund Balances	12,842,245.12
Excess Revenue over Expenditure	
Operating Fund	8,457,478.33
Other Funds	171,011.97
TOTAL FUND BALANCES	21,470,735.42
TOTAL LIABILITIES AND FUND BALANCES	63,152,823.72

Municipal Water District of Orange County Revenues and Expenditures Budget Comparative Report General Fund July 1, 2022 thru July 31, 2022

	Month to Date	Year to Date	Annual Budget	<u>% Used</u>	Encumbrance	<u>Budget</u> <u>Remaining</u>
REVENUES						
Retail Connection Charge Ground Water Customer Charge	8,885,401.25 367,806.00	8,885,401.25 367,806.00	8,885,401.25 	100.00% 100.00%	0.00	0.00 (0.28)
Water Rate Revenues	9,253,207.25	9,253,207.25	9,253,206.97	100.00%	0.00	(0.28)
Interest Revenue	19,575.98	19,575.98	145,971.00	13.41%	0.00	126,395.02
Subtotal	9,272,783.23	9,272,783.23	9,399,177.97	98.66%	0.00	126,394.74
Choice Programs Miscellaneous Income Transfer-In from Reserve	0.00 0.00 0.00	0.00 0.00 0.00	1,757,951.87 3,000.00 457,061.00	0.00% 0.00% 0.00%	0.00 0.00 0.00	1,757,951.87 3,000.00 457,061.00
Subtotal	0.00	0.00	2,218,012.87	0.00%	0.00	2,218,012.87
TOTAL REVENUES	9,272,783.23	9,272,783.23	11,617,190.84	79.82%	0.00	2,344,407.61

Municipal Water District of Orange County Revenues and Expenditures Budget Comparative Report General Fund July 1, 2022 thru July 31, 2022

						<u>Budget</u>
	Month to Date	<u>Year to Date</u>	<u>Annual Budget</u>	<u>% Used</u>	Encumbrance	<u>Remaining</u>
EXPENSES						
Salaries & Wages	364 526 84	364 526 84	4 429 129 50	8 23%	0.00	4 064 602 66
Salaries & Wages - Grant Recovery	0.00	0.00	(20,000,00)	0.00%	0.00	(20.000.00)
Director's Compensation	22.920.10	22.920.10	275.041.20	8.33%	0.00	252.121.10
MWD Representation	10.150.33	10.150.33	157.166.40	6.46%	0.00	147.016.07
Employee Benefits	115.001.46	115.001.46	1,441,831,24	7.98%	0.00	1.326.829.78
CalPers Unfunded Liability Contribution	0.00	0.00	207,000.00	0.00%	0.00	207,000.00
Director's Benefits	9.050.19	9.050.19	132.976.50	6.81%	0.00	123,926,31
Health Insurance for Retirees	3,773.10	3,773.10	94,554.00	3.99%	0.00	90,780.90
Training Expense	0.00	0.00	53,000.00	0.00%	0.00	53,000.00
Tuition Reimbursement	0.00	0.00	5,000.00	0.00%	0.00	5,000.00
Temporary Help Expense	0.00	0.00	5,000.00	0.00%	0.00	5,000.00
Personnel Expenses	525,422.02	525,422.02	6,780,698.84	7.75%	0.00	6,255,276.82
Engineering Expense	17,359.00	17,359.00	410,000.00	4.23%	215,125.50	177,515.50
Legal Expense	7,236.00	7,236.00	235,750.00	3.07%	14,587.50	213,926.50
Audit Expense	7,000.00	7,000.00	35,000.00	20.00%	24,500.00	3,500.00
Professional Services	49,589.40	49,589.40	1,516,256.00	3.27%	814,109.66	652,556.94
Professional Fees	81,184.40	81,184.40	2,197,006.00	3.70%	1,068,322.66	1,047,498.94
Conference - Staff	1,155.00	1,155.00	56,205.00	2.05%	0.00	55,050.00
Conference - Directors	159.00	159.00	23,905.00	0.67%	0.00	23,746.00
Travel & Accom Staff	2,390.65	2,390.65	90,325.00	2.65%	0.00	87,934.35
Travel & Accom Directors	0.00	0.00	32,900.00	0.00%	0.00	32,900.00
Travel & Conference	3,704.65	3,704.65	203,335.00	1.82%	0.00	199,630.35
Membership/Sponsorship	57,885.25	57,885.25	145,847.00	39.69%	0.00	87,961.75
CDR Support	14,365.50	14,365.50	57,462.00	25.00%	43,096.50	0.00
Dues & Memberships	72,250.75	72,250.75	203,309.00	35.54%	43,096.50	87,961.75
Business Expense	0.00	0.00	2,500.00	0.00%	0.00	2,500.00
Office Maintenance	6,555.94	6,555.94	151,400.00	4.33%	84,244.06	60,600.00
Building Repair & Maintenance	749.45	749.45	22,056.00	3.40%	9,728.85	11,577.70
Storage Rental & Equipment Lease	58.22	58.22	1,800.00	3.23%	741.78	1,000.00
Office Supplies	660.69	660.69	35,000.00	1.89%	4,402.56	29,936.75
Supplies - Water Loss Control	325.67	325.67	4,000.00	8.14%	0.00	3,674.33
Postage/Mail Delivery	658.46	658.46	11,300.00	5.83%	2,201.04	8,440.50
Subscriptions & Books	0.00	0.00	1,000.00	0.00%	0.00	1,000.00
Reproduction Expense	1,718.25	1,718.25	84,000.00	2.05%	6,500.00	75,781.75
Maintenance - Computers	922.17	922.17	7,000.00	13.17%	651.56	5,426.27
Software Purchase	3,721.79	3,721.79	95,093.00	3.91%	6,546.11	84,825.10
Software Support	5,148.94	5,148.94	55,615.00	9.26%	0.00	50,466.06
Computers and Equipment	1,663.48	1,663.48	43,950.00	3.78%	0.00	42,286.52
	0.00	0.00	6,000.00	0.00%	0.00	6,000.00
Automotive Expense	20.13	20.13	7 3 4 3 00	0.19%	0.00	13,473.87
	1,277.28	1,277.28	7,343.00	17.39%	0.00	0,005.72
	12 077 65	12 077 65	2,100.00	0.00%	0.00	2,100.00
	13,977.00	13,977.00	140,000.00	9.90%	0.00	120,022.33
Dunities - Telephone	2,997.00	2,997.30	43,090.00	0.00%	1,254.55	39,430.17
Miscollanoous Expanso	3 260 26	3 260 26	2,000.00	17.40%	3 060 00	2,147.00
MW/DOC's Control to WEROC	24 600 87	24 600 87	206 200 00	4.09%	3,900.00	271 500 13
Depreciation Expense	7 051 31	7 051 31	230,230.00	0.00%	0.00	(7 051 31)
Other Expenses	76.816.50	76.816.50	1.095.757.00	7.01%	120.230.29	898.710.21
	0.00	0.00	200 709 00	0.000/	0.00	200 729 00
			JUU, 1 20.00	0.00%		JUU, 120.00
Capital Aquisition Building Exponso	55,920.58 0.00	55,9∠6.58 0.00	113,200.00 723.077.00	49.31%	90,903.32 16 027 00	(41,549.90)
	0.00	0.00	123,011.00	7.00%	10,837.00	0 454 222 47
IVIAL LAFENJEJ	815,304.90	815,304.90	11,617,190.84	7.02%	1,347,489.77	9,454,396.17
NET INCOME (LOSS)	8,457,478.33	8,457,478.33	0.00	0.00%	(1,347,489.77)	(7,109,988.56)

Municipal Water District of Orange County Revenues and Expenditures Budget Comparative Report Water Fund July 1, 2022 thru July 31, 2022

	Month to Date	<u>Year to Date</u>	Annual Budget	<u>% Used</u>	<u>Budget</u> <u>Remaining</u>
WATER REVENUES					
Water Sales	17,262,832.00	17,262,832.00	157,620,717.70	10.95%	140,357,885.70
Readiness to Serve Charge	1,014,376.45	1,014,376.45	11,142,354.00	9.10%	10,127,977.55
Capacity Charge CCF	449,264.86	449,264.86	5,396,060.00	8.33%	4,946,795.14
SCP/SAC Pipeline Surcharge	18,854.96	18,854.96	318,000.00	5.93%	299,145.04
Interest Revenue	0.00	0.00	4,547.00	0.00%	4,547.00
TOTAL WATER REVENUES	18,745,328.27	18,745,328.27	174,481,678.70	10.74%	155,736,350.43
WATER PURCHASES					
Water Sales	17,262,832.00	17,262,832.00	157,620,717.70	10.95%	140,357,885.70
Readiness to Serve Charge	1,014,376.31	1,014,376.31	11,142,354.00	9.10%	10,127,977.69
Capacity Charge CCF	449,265.00	449,265.00	5,396,060.00	8.33%	4,946,795.00
SCP/SAC Pipeline Surcharge	18,854.96	18,854.96	318,000.00	5.93%	299,145.04
TOTAL WATER PURCHASES	18,745,328.27	18,745,328.27	174,477,131.70	10.74%	155,731,803.43
EXCESS OF REVENUE OVER EXPENDITURE	0.00	0.00	4,547.00	0.00%	4,547.00

Municipal Water District of Orange County Revenues and Expenditures Budget Comparative Report Water Use Efficiency July 1, 2022 thru July 31, 2022

	Year to Date Actual	Annual Budget	<u>% Used</u>
Spray To Drip Conversion			
Revenues	1,554.00	434,927.51	0.36%
Expenses	3,748.01	434,927.51	0.86%
Excess of Revenues over Expenditures	(2,194.01)	0.00	
Member Agency Administered Pass-Thru	0.00	055 000 00	0.00%
Revenues Expenses	0.00	255,000.00	0.00%
Excess of Revenues over Expenditures	0.00	0.00	0.0070
•			
ULFT Rebate Program	0.00	1 000 00	0.00%
Expenses	0.00	1,000.00	0.00%
Excess of Revenues over Expenditures	0.00	0.00	
HECW Rebate Program			
Revenues	203.08	60,000.00	0.34%
Expenses	0.00	60,000.00	0.00%
Excess of Revenues over Expenditures	203.08	0.00	
CII Rebate Program	0.00	2 000 00	0.000/
Revenues Expenses	0.00	2,000.00	0.00%
Excess of Revenues over Expenditures	0.00	0.00	5.0070
Turf Pemoval Program			
Revenues	192,390.77	6,061,364.00	3.17%
Expenses	266,580.59	6,061,364.00	4.40%
Excess of Revenues over Expenditures	(74,189.82)	0.00	
Comprehensive Landscape (CLWUE)			
Revenues	0.00	321,700.00	0.00%
Excess of Revenues over Expenditures	0.00	0.00	0.00%
Recycled Water Program Revenues	0.00	50 000 00	0.00%
Expenses	0.00	50,000.00	0.00%
Excess of Revenues over Expenditures	0.00	0.00	
WSIP - Industrial Program			
Revenues	0.00	32,645.00	0.00%
Expenses	0.00	32,645.00	0.00%
Excess of Revenues over Expenditures	0.00	0.00	
Land Design Program		224 222 22	40 7501
Revenues Expenses	45,545.15 44 809 10	331,303.00 331,303.00	13.75% 13.53%
Excess of Revenues over Expenditures	736.05	0.00	10.00 /0
Pressure Regulation Program			
Revenues	0.00	26,960.50	0.00%
Expenses	0.00	26,960.50	0.00%
Excess of Revenues over Expenditures	0.00	0.00	
Rotating Nozzle			
Revenues	0.00	1,750.00	0.00%
Excess of Revenues over Expenditures	0.00	0.00	0.00%
•			
Dedicated Irrigation Meters Measurement Project (DIMM)	0.00	966 624 00	0 00%
Expenses	0.00	966,624.00	0.00%
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, 2022 thru July 31, 2022

	Year to Date Actual	Annual Budget	<u>% Used</u>
Total WUE Projects			
Revenues	239,693.00	8,545,274.01	2.80%
Expenses	315,137.70	8,545,274.01	3.69%
Excess of Revenues over Expenditures	(75,444.70)	0.00	
WEROC			
Revenues	294,341.89	565,941.00	52.01%
Expenses	48,255.43	565,941.00	8.53%
Excess of Revenues over Expenditures	246,086.46	0.00	

Item No. 4



DISCUSSION ITEM September 14, 2022

TO:Administration & Finance Committee
(Directors Seckel, Thomas, Dick)

FROM: Robert Hunter, General Manager

Staff Contact: Joe Berg, Charles Busslinger

SUBJECT: ECONOMIC ANALYSIS OF STATE'S PROPOSED WATER USE EFFICIENCY STANDARDS

STAFF RECOMMENDATION

Staff recommends the Administration & Finance Committee review the draft report and the presentation. (The slide presentation will be posted after the meeting.)

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

DETAILED REPORT

MWDOC staff have been partnering with SMWD staff and consultants Water Systems Consulting (WSC) and M.Cubed on an economic analysis of proposed State Water Use Efficiency Standards. The 2018 Legislation on Water Conservation and Drought Planning, which includes Senate Bill 606 and Assembly Bill 1668 (2018 Legislation), instituted a new approach for the establishment, monitoring, and enforcement of long-term water use targets for the state's retail urban water suppliers.

The analysis of the water use impacts and expected compliance costs associated with the proposed statewide urban water use efficiency (WUE) standards was conducted in conjunction with creation of a customized version of the California Department of Water Resources Urban Water Use Objective Analyzer¹ (Model) to evaluate the proposed standards in terms of water use reduction requirements, compliance costs, and feasibility.

¹ This model was originally developed by M.Cubed to analyze alternative Standards for indoor and outdoor residential water use.

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

The analysis also evaluates the relative impact of the standards on Disadvantaged Communities (DACs).

The 2018 Legislation requires the State of California Department of Water Resources (DWR), in coordination with the State Water Board, develop the recommended standards for each of four water use categories:

- Indoor residential uses
- Outdoor residential uses
- Non-residential landscape uses served by dedicated irrigation meters (DIMs), and
- Water losses from the utility's distribution system

The allowances for each of these water uses are to be based on water use efficiency standards which are yet to be adopted by the State Water Resources Control Board (State Water Board). While DWR has not yet submitted its formal recommendations to the State Water Board, the Standards are expected to be become more restrictive.

Attached to this write-up is the draft report on the economic analysis of proposed State Water Use Efficiency Standards. **Please note that this issue and the pending standards are currently actively under development; therefore this analysis is based upon the best available information at this time.**

Key findings of this analysis include:

- The long-term standards result in markedly different reduction requirements and net compliance costs across water suppliers;
- The State's focus on the statewide average impact of the proposed standards, masks potential supplier-level concerns in terms of technical feasibility, cost-effectiveness, and fairness of the urban water use standards;
- The State Water Board's draft water loss standards require very substantial reductions in distribution system water losses. Distribution system water losses overall account for just 6% of current urban water uses. The magnitude of the impact of the mandated reductions varies substantially for water suppliers statewide; with a third of suppliers having no reduction requirement, while nearly a third of suppliers have water loss reduction requirements greater than 50%.

A complete list of the net costs to comply for Orange County agencies, the Metropolitan Water District service area, and water suppliers statewide are included in the draft report and the presentation.

David Mitchell of M.Cubed will present an overview of the analysis and the findings at today's meeting. The slide presentation will be posted to the MWDOC website after the meeting.

Next steps include finalizing the report and completing the web interface portion of the project to allow agencies access to the customized Water Use Objective Analyzer for their own evaluation and planning efforts.

Attachment: Draft Water Use Efficiency Standards Economic Analysis report



Draft Water Use Efficiency Standards Economic Analysis

Impact Assessment of State-Mandated Urban Water Use Objectives

SEPTEMBER 2022

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY





MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

Draft Water Use Efficiency Standards Economic Analysis

SEPTEMBER 2022

Prepared by Water Systems Consulting, Inc., and M.Cubed

M WSC



ACKNOWLEDGEMENTS

This report was collaboratively developed by Water Systems Consulting, Inc. (WSC) and M.Cubed. The primary contributors are listed below.



Water Systems Consulting, Inc. would like to acknowledge the significant contributions of the Municipal Water District of Orange County (MWDOC) and Santa Margarita Water District (SMWD). The primary contributors are listed below.



Joe Berg, MWDOC Charles Busslinger, MWDOC Nate Adams, SMWD

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ACROYNMS & ABBREVIATIONS

2018 LEGISLATION	2018 Legislation on Water Conservation and Drought Planning (Senate Bill 606 [Hertzberg] and Assembly Bill1668 [Friedman], as amended)
AB	Assembly Bill
ACS	American Community Survey
AF	Acre-feet
ASABE S623	American Society of Agricultural and Biological Engineering Standard 623
CAL-SIMETAW	California Simulation of Evapotranspiration of Applied Water
CII	Commercial, Industrial, and Institutional
CII-DIM	Commercial, Industrial, and Institutional Dedicated Irrigation Meter
CII-DIMWUS	Commercial, Industrial, and Institutional Outdoor Irrigation of Landscape Areas with Dedicated Irrigation Meters Water Use Efficiency Standard
CIMIS	California Irrigation Management Information System
DIM	Dedicated Irrigation Meter
DOF	California Department of Finance
DWR	California Department of Water Resources
EAR	Electronic Annual Report
EIR	Environmental Impact Report
EIRWU	Efficient Indoor Residential Water Use
EORWU	Efficient Outdoor Residential Water Use
ET	Evapotranspiration
ETAF	Evapotranspiration Factor in Model Water Efficient Landscape Ordinance design standard (on parcel level)
ETF	Evapotranspiration Factor (on urban retail water supplier level)
ETo	Reference Evapotranspiration
ETWU	Expected Total Water Use
MWDOC	v WUE Standards Economic Analysis

GIS	Geographic Information System
GPCD	Gallons Per Capita Per Day
П	Irrigable-Irrigated
INI	Irrigable-Not Irrigated
IRWU	Indoor Residential Water Use
IRWUS	Indoor Residential Water Use Efficiency Standard
LA	Landscape Area
LAM	Landscape Area Measurement
MAWA	Maximum Applied Water Allowance
MWELO	Model Water Efficient Landscape Ordinance
N/A	Not Applicable
NI	Not Irrigable
ORWU	Outdoor Residential Water Use
ORWUS	Outdoor Residential Water Use Efficiency Standard
ΟΤΨ	Objective-based Total Water Use
PEFF	Effective Precipitation
PRISM	Parameter-elevation Relationships on Independent Slopes Model
PWS	Public Water System
SB	Senate Bill
SLA	Special Landscaped Area
STATE WATER BOARD	State Water Resources Control Board
UARL	Unavoidable Annual Real Losses
UWMP	Urban Water Management Plan
UWUO	Urban Water Use Objective
WC	California Water Code
WLS	Water Loss Standard
WUE	Water Use Efficiency

vi
Executive Summary

This section introduces the purpose of the report, provides background on the urban water use standards, and summarizes the report's primary findings.

IN THIS SECTION

- Report
 introduction
 and purpose
- Background on the urban water use efficiency standards and urban water use objective
- Summary of primary findings
- Report overview and summary

Introduction and Purpose

The purpose of this report is to document an analysis of the water use impacts and expected compliance costs associated with the proposed statewide urban water use efficiency (WUE) standards. This report was prepared in conjunction with a customized version of the California Department of Water Resources Urban Water Use Objective Analyzer¹ (Model) to evaluate the proposed standards in terms of water use reduction requirements, compliance costs, and feasibility. In addition, this report evaluates the relative impact of the standards on Disadvantaged Communities (DACs) using DWR's DAC Mapping Tool and dataset in combination with the Nicholas Institute of Environmental Policy Solutions Water Affordability Dashboard. Details regarding enhancements made to the Model, including new modules, data sources, and data quality assurance procedures, used to evaluate the economic impact of the Standards for compliance with the urban water use objective (UWUO) can be found in Appendix C. Background on development of the standards and UWUO is provided below.

High-Level Summary of Key Findings

Reduction Requirements

Key findings in terms of expected reduction requirements under the long-term standards are as follows:

- The long-term standards result in markedly different reduction requirements across suppliers. At one end of the spectrum, nearly 40% of suppliers have either no reduction requirement or a very modest reduction requirement (less than 5%). At the other end of the spectrum, nearly a quarter of suppliers have reduction requirements exceeding 20% and 11% of suppliers have reduction requirements exceeding 30%.
- Aggregate reduction requirements are fairly modest: 11% statewide, 8% within Metropolitan Water District's service area, and 7% within Orange County. Focusing on the average effect, however, masks potential supplier-level concerns in terms of technical feasibility, cost-effectiveness, and fairness of the urban water use standards.
- The Potable Reuse Bonus Incentive plays an important role in mitigating reduction requirements in Southern California, and particularly in Orange County. Absent this adjustment to supplier UWUOs, Orange County's aggregate reduction requirement, for example, would nearly double from 7% to 13%.

¹ This model was originally developed by M.Cubed to analyze alternative standards for indoor and outdoor residential water use.

- Within Orange County, reduction requirements range from 0 to 27%, with an average reduction requirement of 7%. Absent the Potable Reuse Bonus Incentive, the average and maximum reduction requirements for Orange County suppliers would increase to 13% and 32%, respectively.
- The State Water Board's draft water loss standards require very substantial reductions in distribution system water losses: 29% statewide, 17% within Metropolitan Water District's service area, and 16% within Orange County. Although distribution system water losses account for just 6% of current urban water uses, the mandated reduction in distribution system water losses comprises a fifth of the statewide reduction requirement.
- The variation in water loss reduction requirements across suppliers is extreme. A third of suppliers have no reduction requirement while nearly a third have reduction requirements greater than 50%.
- Whether such large reductions in real water loss will prove to be feasible and costeffective is an open question. According to water loss data suppliers annually submit to DWR, roughly 30% have <u>unavoidable</u> annual real water losses (UARL) exceeding their real water loss target. Since UARL is used to measure the lowest technically achievable real losses, it would seem that the draft water loss standards may not be technically feasible for 3 in 10 urban retail water suppliers.
- Within Orange County, water loss reduction requirements range from 0 to 53%, with an average reduction requirement of 16%. Reduction requirements are greater than 30% for ten suppliers and greater than 40% for three suppliers. Reducing water loss by these magnitudes will present a herculean task for these suppliers.

Net Compliance Cost

Key findings in terms of net cost to comply with the long-term standards are as follows:

- At the state level, net compliance cost is \$351 million annually (in 2022 dollars). This consists of outlays totaling \$584 million/year to reduce urban water uses and avoided water production costs of \$223 million/year.
- On a per connection basis, net compliance cost is \$39/connection/year at the state level. In Southern California, net compliance cost is less than half this amount. The difference is due to higher reported variable production costs and lower reduction requirement per connection in Southern California compared to other parts of the state.
- As with reduction requirements, net compliance costs vary significantly across suppliers. At one extreme, just over 40% of suppliers have either zero or negative net compliance costs. At the other extreme, more than a fifth of suppliers have net compliance costs in

excess of \$100/connection/year and almost one in ten (36 suppliers) have net compliance costs in excess of \$200/connection/year.

- Within Orange County, net compliance costs range from -\$15/Connection/Year to \$102/Connection/Year, with an average cost of \$16/Connection/Year. Thirteen suppliers have negative net compliance costs and 16 have positive net compliance costs. Six suppliers have net compliance costs exceeding \$50/Connection/Year.
- Net compliance cost as a percentage of typical water bills for Orange County suppliers range from -3 to 19%. Net compliance cost is greater than 10% of the typical bill amount for three suppliers and it approaches 20% for two suppliers. These results indicate that the long-term standards have the potential to significantly impact water service costs for some urban retail water suppliers.

Disadvantaged Community Impacts

Key findings in terms of impacts of the long-term standards on DACs are as follows:

- This study defines high DAC prevalence suppliers as those in the top 25% of the distribution in terms of the percentage of their service area DWR has designated as DAC. This percentage ranges from 44-100% for high DAC prevalence suppliers and from 0-44% for low to moderate DAC prevalence suppliers.
- The long-term standards result in reduction requirements that, on average, are
 proportionately greater for high DAC prevalence suppliers. The average reduction
 requirement for high DAC prevalence suppliers is 45% greater than for low to moderate
 DAC prevalence suppliers 15.9% versus 11.0%.
- Similar results obtain with respect to net compliance cost. The average net compliance cost for high DAC prevalence suppliers is 70% greater than for low to moderate DAC prevalence suppliers -- \$83.10/connection/year versus \$48.80/connection/year.
- The differences in average reduction requirement and net compliance cost between the high DAC prevalence and low to moderate DAC prevalence supplier groups are statistically significant at better than the 99% level of statistical confidence.

Urban Water Use Efficiency Standards and Water Use Objective

The 2018 Legislation on Water Conservation and Drought Planning, which includes Senate Bill 606 and Assembly Bill 1668 (2018 Legislation), instituted a new approach for the establishment, monitoring, and enforcement of long-term water use targets for the state's retail urban water

suppliers (California Water Code (WC) §§10609-10609.38).² An urban retail water supplier is defined by WC §10608.12 as a supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 connections or that supplies more than 3,000 acrefeet (AF) of potable water annually at retail for municipal purposes. Presently, there are about 400 municipal water utilities classified as urban retail water suppliers. These utilities supply water to approximately 93% of the state's population. The 2018 Legislation does not apply to small retail water systems (i.e., less than 3,000 connections or less than 3,000 AF of potable water deliveries annually) or to self-supplied end users, nor does it apply to wholesale water providers. The 2018 Legislation does not directly establish water use objectives for individual end users. Instead, it sets an aggregate target for each urban retail water supplier. It is left to the supplier to determine the best way to meet its target.

Urban Water Use Efficiency Standards

Each urban retail water supplier's target will be calculated as the sum of allowances for indoor and outdoor residential uses, dedicated irrigation meter uses, and real water loss as demonstrated in Table ES-1. This target is equivalent to a supplier's UWUO. Collectively, these end-uses of water will be referred to as regulated urban water uses throughout this report.

Table ES-1. Urban Water Use Objective

Urban Water Use Objective¹

Indoor residential uses

Outdoor residential uses

Dedicated irrigation meter use (DIMs)²

Real water loss³

Notes:

¹ **Urban Water Use Objective** refers to an urban retail water supplier's target and is based on the summation of the listed water uses above.

² Non-residential landscape uses served by dedicated irrigation meters.

³ Water losses from the utility's distribution system.

The allowances for each of these water uses are to be based on water use efficiency standards to be adopted by the State Water Resources Control Board (State Water Board). The indoor

² The 2018 Legislation calls the long-term water use targets Urban Water Use Objectives (UWUO). This report uses the terms Urban Water Use Objective, UWUO, and water use target interchangeably.

residential standard, for example, will set a level of per capita daily indoor water use deemed to be efficient by the state. A supplier's allowance for indoor residential uses will then be calculated as the product of this standard and the residential population it serves. For example, if the supplier has a residential population of 100,000 and the indoor residential standard is 50 gallons per capita day (GPCD), its residential indoor allowance would be 5 million gallons per day (MGD) or about 5,600 AF per year. It would add this volume to the allowances for the other three water use categories to determine its target.

Note that the 2018 Legislation requires only that the supplier meet its aggregate target. Except for the real water loss target, a supplier is not required to separately meet the individual allowances. Indoor residential uses, for example, can exceed the indoor allowance provided that this overage is offset by excess savings in the other water use categories. This provision of the 2018 Legislation was intended to give suppliers flexibility and discretion in how they meet their target. A supplier's real water loss standard is governed by SB 555, which was passed by the Legislature in 2015 and was incorporated by reference into the 2018 Legislation, and suppliers are required to meet their water loss targets regardless of whether they are under their UWUO.

The 2018 Legislation requires the State of California Department of Water Resources (DWR), in coordination with the State Water Board, to develop recommended standards for each of the four use categories listed above. While DWR has not yet submitted its formal recommendations to the State Water Board, Table ES-2 shows the standards DWR is expected to recommend. The standards are expected to ratchet down between now and 2030. The long-term standards are expected to be fully in effect starting in 2030 and it is these standards that are the focus of this report.

Also note that urban water uses other than the four listed above are excluded from the target. A supplier's UWUO is simply a budget or allowance for the sum of its residential uses, dedicated irrigation meter (DIM) landscape uses, and distribution system water losses. Thus, the 2018 Legislation creates two tiers of urban water use: (1) uses that in aggregate are subject to a regulatory target and (2) all other water uses. Whether intended or not, this regulatory bifurcation of urban water use will almost certainly alter the incentives and tradeoffs utilities consider when planning and investing in water conservation.

Water Use Category	Standards DWR is Expected to Recommend	Calculation of Water Use Allowance
Indoor Residential Uses	55 GPCD until 2025 47 GPCD from 2025-2029 42 GPCD from 2030 onward	Standard x Residential Population
Outdoor Residential Uses ²	80% of Net ET _o ¹ until 2030 65% of Net ET _o from 2030 onward	Standard x Residential Landscape Area Subject to Standard x Net ET _o
CII DIM Uses	Regular Landscape Area80% of Net ETo until 203065% of Net ETo from 2030onwardSpecial Landscape Area3100% of Net ETo	Standard x DIM Landscape Area Subject to Standard x Net ET₀
Distribution System Losses	Set by State Water Board for each urban retail water supplier and becoming effective in 2028	Standard ⁴ X Number of Service Connections (GCD), OR Standard ⁴ X Miles of Distribution Main Pipeline (GMD).

Table ES-2. Urban Water Use Standards Expected to be Recommended by DWR

Notes:

¹Net ET_o is reference evapotranspiration minus effective rainfall, where effective rainfall is the portion of annual rainfall that contributes to plant evapotranspiration requirements.

² Outdoor residential standard applies to 100% of residential landscape area classified by DWR as irrigated at the time of landscape area image acquisition plus 20% of residential landscape area classified by DWR as irrigable but not irrigated (INI), , at the time of landscape area image acquisition.

³ Special Landscape Area includes landscape area dedicated solely to edible plants (e.g., community gardens), active and passive recreational areas (e.g., outdoor event spaces and sports fields), and areas irrigated with recycled water. All other landscape area irrigated with Dedicated Irrigation Meters (DIMs) is considered to be Regular Landscape Area.

⁴ The standard for distribution system losses is expressed either in gallons per connection per day (GCD) or gallons per mile of main per day (GMD), depending on the size and connection density of the distribution system. The vast majority are in GCD.

Variances

The 2018 Legislation allows the State Water Board to grant variances for unique uses that can have a material effect on an urban retail water supplier's UWUO (WC §10609.14). A variance will have the effect of increasing a supplier's UWUO. All variances must be reviewed and approved by the State Water Board, which must also post this information on its public website. Variances will be approved by the State Water Board on a case-by-case basis and only if requested by a supplier. It therefore is not possible in advance, nor does this report attempt, to quantify the impact of variances on suppliers' UWUOs.

Potable Reuse Bonus Incentive

The 2018 Legislation allows water suppliers to add a Potable Reuse Bonus Incentive to their UWUO (WC §10609.20). The Potable Reuse Bonus Incentive will be equal to the volume of potable reuse delivered to households and to landscape areas served by DIMs. The Potable Reuse Bonus Incentive is capped at either 10% or 15% of the supplier's UWUO, depending on when the potable reuse facilities were constructed. This report uses potable reuse data from Urban Water Management Plans (UWMPs) and other sources to estimate the Potable Reuse Bonus Incentive for each supplier included in the analysis. As will be discussed below, the Potable Reuse Bonus Incentive is particularly consequential for suppliers in Orange County where there is extensive potable reuse of water.

Comparison of UWUO to Prior Year Water Use

Starting in 2023, urban retail water suppliers will be required to report annually to the State Water Board whether they met their UWUO. This requires that the supplier demonstrate that the sum of its residential water uses, non-residential DIM water uses, and distribution system water losses in the prior year was less than or equal to its UWUO inclusive of any approved variances and the Potable Reuse Bonus Incentive.

State Water Board Enforcement Authorities

The State Water Board may take various enforcement actions against an urban retail water supplier that is not meeting its UWUO (WC §10609.26). The most consequential of which is the issuance of a conservation order. A conservation order may require the supplier to take actions intended to increase water use efficiency, including, but not limited to, education and outreach to customers and local enforcement actions. When issuing a conservation order, the State Water Board is required to identify specific deficiencies in the supplier's progress towards meeting its UWUO and may require the supplier to take specific actions to address these deficiencies. Such an order, however, may not curtail or otherwise limit the exercise of a water right or impose a civil liability pursuant to WC §377.

Reduction Requirements, Compliance Costs, and DAC Impacts of the Long-Term Urban Water Use Standards

Water use reduction requirements, compliance costs, and impacts to DAC communities were estimated for 398 urban retail water suppliers using a customized version of the DWR Urban Water Use Objective Analyzer. This assessment is based on the standards shown in Table ES-2. Key findings for the long-term standards taking effect in 2030 are summarized below. Results for the interim standards are provided in Appendix B. Additional information on the methodologies, data, and assumptions underlying these results are provided in the sections following this Executive Summary and in Appendix C.

Aggregate Reduction in Regulated Urban Water Uses

Regulated urban water uses refers to the four end-uses that make up a supplier's UWUO as shown in Table ES-1. These are indoor and outdoor residential use, DIM use, and real water loss. The estimated aggregate reduction in regulated urban water uses is summarized in Table ES-3. Statewide, the long-term standards are expected to reduce the four types of regulated urban water uses by 11% relative to current usage levels. Within Metropolitan Water District's service area, the aggregate reduction is 8%. Within Orange County, reduction requirements range from 0 to 27%, with an average reduction requirement of 7%. The lower reduction requirement in Orange County is in large part a consequence of the Potable Reuse Bonus Incentive. Absent the Potable Reuse Bonus Incentive, the average and maximum reduction requirements for Orange County suppliers would increase to 13% and 32%, respectively.

Statewide, more than two-thirds of the reduction in regulated urban water uses is expected to come from reductions in residential water use. The residential sector's outsized share of the aggregate reduction requirement is not surprising given that residential water uses presently account for 61% of total urban water uses and 81% of regulated urban water uses.

What is surprising is the large reduction required for distribution system water losses. Presently, distribution system water losses only account for 6% of total urban water uses and 8% of regulated urban water uses, and yet the reduction in distribution system water losses comprises a fifth of the statewide reduction requirement. Meeting the State Water Board's draft water loss standards would require substantial reductions in distribution system water losses: 29% statewide, 17% within Metropolitan Water District's service area, and 16% within Orange County. In Orange County, water loss reduction requirements range from 0 to 53%. Ten Orange County suppliers have water loss reduction requirements exceeding 30% and three have requirements exceeding 40%. Reducing water loss by these magnitudes will present a herculean task for these suppliers. As discussed later in the report, there are reasons to doubt the technical feasibility and cost-effectiveness of such large reductions in distribution system water losses.

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2,009,517 1,037,139	185,009
1,418,630 649,077	106,254
454,625 243,967	70,729
329,775 133,016	18,499
4,212,547 2,063,200	380,491
69,109 66,934	37,050
ply with UWUOs (AF)	
entive 507,086 216,757	50,644
ntive 460,039 171,183	26,034
omply with UWUOs	
entive 12% 11%	13%
ntive 11% 8%	7%
$\begin{array}{c} 36,670,497 & 18,967,873 & 3\\ 9,284,157 & 4,359,919 \\ \end{array}$,207,1 782,3 185,0 106,2 70,7 <u>18,4</u> 380,4 37,0 50,6 26,0

Table ES-3. Aggregate Reduction Requirement Under Long-Term Standards Relative to Current Use

Notes

¹ Indirect Potable Reuse (IPR) Bonus Incentives are added to the UWUOs of suppliers. The difference between the reduction required to comply with UWUOs including versus excluding the IPR Bonus Incentive is less than the total volume of IPR Bonus Incentives reported in the table because some of the suppliers with IPR Bonus Incentives do not have a reduction requirement (i.e., their current use is less than their UWUO) or their reduction requirement is less than their IPR Bonus Incentive. In these cases, none or only part of the IPR Bonus Incentive is needed for the supplier to comply with its UWUO.

Variability of Reduction Requirements at the Supplier Level

Except for distribution system water loss, the aggregate reduction requirements generated by the long-term standards are fairly modest. The aggregate results, however, mask the significant variation in reduction requirements at the supplier level. This variation is illustrated in Figure ES-1. At one extreme, 17% of suppliers would have no reduction requirement and 22% would have a reduction requirement of 5% or less. Thus, nearly 40% of suppliers would have either no or only a very small reduction requirement (less than 5%). At the other end of the spectrum, nearly a quarter of suppliers have reduction requirements exceeding 20%. Thus, nearly a quarter of

suppliers would have reduction requirements exceeding the level of reduction required under SB X7-7 (20x2020).

The variation in real water loss reduction requirements across suppliers is even greater. A third of suppliers have no reduction requirement while nearly 30% have reduction requirements greater than 50%. Whether such large reductions in real water loss will prove to be feasible and cost-effective is an open question. According to water loss data suppliers annually submit to DWR, roughly 30% have <u>unavoidable</u> annual real water losses (UARL) exceeding their real water loss target based on the State Water Board's draft standards released in August 2022.³ Since UARL is used to measure the lowest technically achievable real losses, it would seem that the draft water loss standards may not be technically feasible for 3 in 10 urban retail water suppliers.

It is also important to note that the 20x2020 reductions in urban water use were achieved on a much higher baseline water use. In many parts of the state, particularly in the coastal urban areas, urban water use has been substantially reduced and much of the "low-hanging conservation fruit" has already been picked. Suppliers with reduction requirements exceeding 30% will need to implement more costly water use efficiency actions to comply with their UWUOs. They will need to do it in a shorter amount of time than under SB X7-7 which gave suppliers 10 years to achieve their targets. Assuming the new standards are in place by 2023, suppliers will have at most 7 years to meet their targets. As discussed below, compliance with the long-term standards is expected to significantly impact water service costs for a non-trivial number of urban retail water suppliers. Moreover, analysis done for this report indicates that these impacts will fall disproportionately on DAC communities.

³ Based on suppliers' average unavoidable real water losses calculated from their 2018-2022 annual water loss reports.





Aggregate Compliance Costs

This report calculates compliance cost to meet the long-term standards for the four regulated urban water uses as the expected annual cost of conservation required to meet the supplier's UWUO minus the variable production costs the supplier will avoid by producing less water. Annual conservation program costs were estimated using representative costs for indoor and outdoor residential conservation programs, commercial landscape conservation programs, and distribution system water loss programs and are shown in Table 1-3. The conservation cost estimates include both utility and customer outlays associated with program implementation. Variable water production costs come from the water loss audit reports that urban retail water suppliers are required to submit annually to DWR. All costs are in 2022 constant dollars.

Table ES-4 summarizes the aggregate annual cost of compliance with the long-term (2030) standards by region. Statewide annual compliance cost is \$361 million, or about \$39 per connection per year. Net compliance costs on a per connection basis are lower in Southern California, averaging about \$15 per connection per year. This occurs primarily because reported avoidable water production costs are higher in Southern California than in other parts of the state, but also because per connection reduction requirements are lower.

		Metropolitan	
		Water District	Orange
	California	Service Area	County
Demulation Comment		40.007.070	0 007 407
Population Served	36,670,497	18,967,873	3,207,137
Service Connections	9,284,157	4,359,919	782,392
Reduction Requirement (AF)	460,039	171,183	26,034
Per Service Connection (Gal/Day/Connection)	44	35	30
Per Capita (Gal/Day/Person)	11.2	8.1	7.2
Conservation Program Costs ¹			
Utility Expenditures	\$350,873,730	\$128,717,599	\$20,011,337
Utility Customer Cost Sharing	\$233,315,585	\$78,421,973	\$12,500,221
Percentage Cost Share for Utility	60%	62%	62%
Percentage Cost Share for Customer	40%	38%	38%
Total	\$584,189,315	\$207,139,572	\$32,511,558
Per AF	\$1,270	\$1,210	\$1,249
Per Service Connection	\$63	\$48	\$42
Per Capita	\$16	\$11	\$10
Avoided Water Production Costs ²	(\$223,202,323)	(\$141,908,921)	(\$19,867,606)
Per AF	(\$485)	(\$829)	(\$763)
Per Service Connection	(\$24)	(\$33)	(\$25)
Per Capita	(\$6)	(\$7)	(\$6)
Net Compliance Cost ³	\$360,986,992	\$65,230,651	\$12,643,952
Per AF	\$785	\$381	\$486
Per Service Connection	\$39	\$15	\$16
Per Capita	\$10	\$3	\$4

Table ES-4. Aggregate Annual Cost of Compliance with the Long-Term Standards

Notes:

¹ Suppliers' annual residential indoor, residential outdoor, non-residential DIM, and distribution system reduction requirements multiplied by the representative unit costs reported in Table 1-3.

² Product of suppliers' annual reduction requirement and reported variable cost of production.

³ Conservation program costs minus variable water production costs.

Variability of Compliance Cost at the Supplier Level

As with reduction requirements, there is substantial variation in annual compliance costs at the supplier level. This is illustrated in Figure ES-2. At one extreme, net compliance cost is negative or zero for 41% of suppliers. These suppliers either have no reduction requirement and hence zero compliance cost or the cost of meeting their reduction requirement is expected to be less than their reported variable production cost. At the other extreme, 22% of suppliers are estimated to have net compliance costs in excess of \$100/Connection/Year. For these

suppliers, compliance with the long-term standards would be expected to push up rates and charges for water service.

To get a feel for the potential impact on customer water bills, the estimated net compliance costs for Orange County urban retail water suppliers were compared to the typical bill for monthly water service for these suppliers. The results are summarized in Table ES-5. Net compliance costs are negative or zero for 13 suppliers and positive for 16 suppliers. Among the latter group, net compliance cost ranges from 1-19% of the typical monthly bill with 10 of the 16 having net compliance cost in excess of 5% of the typical monthly bill and three with net compliance cost in excess of 10% of the typical monthly bill. Two suppliers have net compliance costs approaching 20% of the typical monthly bill.





Agoney Namo	Compliance Cost	Typical Bill	%
Agency Name	\$/Con/Mo	(\$/Mo)	Typical Bill
Newport Beach City of	(\$1.23)	\$50.23	-2.5%
San Clemente City of	(\$1.17)	\$50.54	-2.3%
Santa Margarita Water District	(\$0.82)	\$40.77	-2.0%
South Coast Water District	(\$0.96)	\$79.28	-1.2%
GSWC - Placentia	(\$0.45)	\$64.02	-0.7%
San Juan Capistrano City of	(\$0.30)	\$46.09	-0.7%
El Toro Water District	(\$0.17)	\$59.24	-0.3%
Yorba Linda Water District	(\$0.19)	\$74.01	-0.3%
Fullerton City of	(\$0.04)	\$50.52	-0.1%
Irvine Ranch Water District	\$0.00	\$78.07	0.0%
Moulton Niguel Water District	\$0.00	\$31.89	0.0%
Santa Ana City of	\$0.00	\$42.70	0.0%
East Orange County Water District	\$0.00	\$76.75	0.0%
Anaheim City of	\$0.47	\$42.78	1.1%
GSWC - West Orange	\$1.10	\$61.40	1.8%
Huntington Beach City of	\$0.37	\$15.25	2.4%
Seal Beach City of	\$1.93	\$39.86	4.8%
Mesa Water District	\$2.50	\$50.36	5.0%
Garden Grove City of	\$2.41	\$48.18	5.0%
Fountain Valley City of	\$2.93	\$50.74	5.8%
La Palma City of	\$3.46	\$59.36	5.8%
Westminster City of	\$3.06	\$49.30	6.2%
La Habra City of	\$4.97	\$74.83	6.6%
Brea City of	\$4.91	\$73.08	6.7%
Laguna Beach County Water District	\$4.11	\$49.42	8.3%
Tustin City of	\$4.72	\$55.04	8.6%
Trabuco Canyon Water District	\$8.51	\$65.01	13.1%
Orange City of	\$8.14	\$43.63	18.7%
Buena Park City of	\$8.41	\$43.51	19.3%

Table ES-5. Compliance Cost as Percent of Typical Bill by Orange County Urban Retail Water Supplier

Notes:

¹ Typical bill amounts are for 8,000 gallons of water (10.7 CCF).

² Typical bills were taken from the Nicholas Institute for Environmental Policy Solutions Water Affordability Dashboard (<u>https://nicholasinstitute.duke.edu/water-affordability/water-affordability/water-affordability-dashboard/#closeIDWSDiv</u>).

Impact of Long-Term Standards on Disadvantaged Communities

An important question is whether the water use reduction and compliance cost impacts of the long-term standards will fall disproportionately on disadvantaged communities (DACs). To

address this question, the percentage of each urban retail water supplier's service area designated by DWR as DAC was calculated. Reduction requirements and compliance costs were then assessed relative to DAC prevalence. This assessment found that both the reduction requirement and compliance cost distributions skew towards suppliers with high DAC prevalence.

To see the effect of DAC prevalence on supplier reduction requirements and compliance costs more concretely, Figure ES-3 compares the mean reduction requirement and compliance cost of suppliers in the top 25% of the DAC prevalence distribution (those water suppliers servicing areas with more than 44% of their service area meeting the state's definition of DAC) to that of suppliers in the bottom 75% of the distribution. In other words, it compares the expected impacts for suppliers with high DAC prevalence to suppliers with moderate to low DAC prevalence. In both cases, impacts are significantly larger, on average, for suppliers in the high DAC prevalence group.

These results suggest that the reduction requirement and compliance cost impacts of the longterm standards will be proportionately larger for suppliers with high DAC prevalence than for suppliers with moderate to low DAC prevalence.



Figure ES-3. Mean Reduction Requirement and Compliance Cost Conditional on DAC Prevalence

Organization of Remainder of Report

The remainder of the WUE Standards Economic Analysis report is organized by the following sections.

Section 1 Methods and Data

This section provides an overview of the methods and data used to estimate the reduction requirements, compliance costs, and impacts on DACs of the long-term standards. Additional information regarding the analytical model and datasets used to estimate impacts of the long-term standards is provided in Appendix C.

Section 2 Water Use Reduction Estimates

This section presents estimates of the urban water use reduction requirements under the standards DWR is expected to recommend. This section focuses on the long-term standards taking full effect in 2030. Estimates of the urban water use reduction requirements under the interim standards are provided in Appendix B. Reduction requirements are summarized regionally for (1) the state as a whole, (2) urban retail water suppliers within Metropolitan Water District's service territory, and (3) urban retail water suppliers within Orange County.

Section 3 Compliance Cost Estimates (aggregate and Orange County-level)

This section presents estimates of compliance costs to meet the long-term standards DWR is expected to recommend. As with the water use reduction estimates, compliance costs are summarized regionally. Additionally, the expected impact of the long-term standards on customer water bills is provided in this section for Orange County urban retail water suppliers.

Section 4 Disadvantaged Communities Impact Assessment

This section provides an impact assessment of the water use reduction estimates and compliance cost estimates discussed in previous sections on DACs statewide. The report evaluates the relationship between the prevalence of DACs within a supplier's service area and the magnitude of the supplier's reduction requirement and compliance cost.

Section 5 Summary of Findings

This section provides a discussion of results from the analysis, including an overview of the intended use of the Model, opportunities for expansion of the Model, methods and assumptions used, and a detailed review of findings relating to reduction requirements, compliance costs, their impacts on DACs, and potential future hurdles for suppliers to meet the long-term standards.

1.0 Methods and Data

This section provides an overview of the methods and data used to estimate urban water use reduction requirements, compliance costs, and impacts on DACs of the long-term urban water use standards.

IN THIS SECTION

- Introduction to
 the Model
- Water use definitions
- Estimation of reduction requirements and compliance costs

1.1 Estimation of Urban Water Use Reduction Requirements

In this report, an urban retail water supplier's water use reduction requirement is the difference between its current regulated uses of water and its Urban Water Use Objective (UWUO), provided this difference is positive.

Reduction Requirement		Current Regulated Water Uses - UWUO if > 0
	=	0 otherwise

The supplier's current regulated water uses are the sum of its current residential water uses, non-residential DIM water uses, and distribution system water losses.

		Current Residential Water Uses
Current		+
Regulated Water Uses	=	Current Non-Residential DIM Water Uses
		Current Distribution System Losses

The supplier's UWUO is the sum of its allowances under the urban water use standards for indoor and outdoor residential water uses, non-residential DIM water uses, and distribution system losses, plus its Potable Reuse Bonus Incentive.

		Allowance for Indoor Residential Uses
		+
		Allowance for Outdoor Residential Uses
Urban Water Use Objective		+
	=	Allowance for Non-Residential DIM Uses
(0000)		+
		Allowance for Distribution System Losses
		+
		Potable Reuse Bonus Incentive

Additionally, WC §10609.14 authorizes the State Water Board to grant variances for unique uses of water that could have a material effect on a supplier's UWUO. Variances approved by the State Water Board will be added to the supplier's UWUO. Variances will be approved by the State Water Board on a case-by-case basis. It is therefore not possible in advance to quantify the impact of variances on suppliers' UWUOs, and they are therefore by necessity excluded from this analysis.

In this report, current water uses are taken to be the average of reported water uses for 2017-2019. This is the same definition of current water uses DWR used during the urban water use standards development process.

The water usage allowances that comprise the supplier's UWUO are as follows:

- Allowance for Indoor Residential Water Uses: The indoor residential standard (measured in Gallons per Capita Day GPCD) multiplied by the residential population served by the supplier.
- Allowance for Outdoor Residential Water Uses: 65% of net reference evapotranspiration (net ET_o) applied to 100% of residential landscape area classified by DWR as irrigated at the time of landscape area image acquisition plus 20% of residential landscape area classified by DWR as irrigable, but not irrigated, at the time of landscape area image acquisition.⁴
- Allowance for Non-Residential DIM Water Uses: 65% of net ET_o applied to 100% of Regular Landscape Area plus 100% of net ET_o applied to 100% of Special Landscape Area. Special Landscape Area includes landscape area dedicated solely to edible plants (e.g., community gardens), active and passive recreational areas (e.g., outdoor event spaces and sports fields), and areas irrigated with recycled water. All other landscape area irrigated with DIMs is considered to be Regular Landscape Area.
- Allowance for Distribution System Water Losses: The State Water Board will use an economic model of water loss in conjunction with service area and distribution system data to set separate standards for each urban retail water supplier. A supplier's standard will be expressed either in gallons per connection per day (GCD) or gallons per mile of distribution main per day (GMD). The vast majority of water loss standards are expressed in GCD. Standards expressed in GMD were converted to GCD for this study by multiplying the GMD standard by the ratio of main miles to service connections. Each supplier's real water loss allowance is then calculated as the product of their draft standard and the number of active and inactive connections they serve.

The water use allowances are calculated for the standards DWR is expected to recommend shown in Table 1-1. With the exception of the allowance for non-residential DIM water uses, they are calculated using supplier service area data and the supplier's residential landscape area estimates developed by DWR's Landscape Area Measurement Program (LAM Program). Because the LAM Program did not measure non-residential DIM landscape areas, it is not

⁴ Reference evapotranspiration (ET_o) measures the evapotranspiration requirements of cool-season turf grass and is commonly used as a basis for estimating landscape irrigation requirements. Net ET_o is reference evapotranspiration minus effective rainfall, where effective rainfall is the portion of annual rainfall that contributes to plant evapotranspiration requirements. Effective precipitation is capped at 25% of annual rainfall under the proposed standard.

possible to directly calculate the non-residential DIM allowances. For the purposes of this report, a supplier's non-residential DIM allowance is assumed to be proportional in percentage reduction requirement to its outdoor residential allowance. For example, if the supplier's outdoor residential allowance is 90% of current outdoor residential use, the non-residential DIM allowance is assumed to be 90% of current non-residential DIM water use.

Period		Indoor Residential Water Use	Outdoor Residential Water Use	Non-Residential DIM	Distribution System Losses
(0	Before 2025	55 GPCD		80% of net ET _o	Current
erim dards	2025-2027		80% of net ET _o	Regular L	Losses
Inte Stanc	2028-2029	47 GPCD	II + 20% INI	100% of net ET _o applied to Special Landscape Area	
Long-Term Standards	2030 onward	42 GPCD	65% of net ET₀ applied to 100% II + 20% INI	65% of net ET₀ applied to 100% of Regular Landscape Area + 100% of net ET₀ applied to Special Landscape Area	State Water Board Draft Standard

Table	1_1	Urban	Water Use	Standards	Expected to	he	Recommended by DWR
lable	1-1.	Orban	water Use	e sianaaras	Expected to	pe	Recommended by DWR

Notes:

¹ Net ET_o is reference evapotranspiration minus effective rainfall, where effective rainfall is the portion of annual rainfall that contributes to plant evapotranspiration requirements and is capped at 25% of annual rainfall.

² Outdoor residential standard applies to 100% of residential landscape area classified by DWR as irrigated at the time of landscape area image acquisition (II) plus 20% of residential landscape area classified by DWR as irrigable, but not irrigated, at the time of landscape area image acquisition (INI).

³ Special Landscape Area includes landscape area dedicated solely to edible plants (e.g., community gardens), active and passive recreational areas (e.g., outdoor event spaces and sports fields), and areas irrigated with recycled water. All other landscape area irrigated with DIMs is considered to be Regular Landscape Area.

⁴ The standard for distribution system losses is expressed either in gallons per connection per day (GCD) or gallons per mile of main per day (GMD), depending on the size and connection density of the distribution system. The vast majority are in GCD.

Potable reuse bonus incentives are calculated using data on potable reuse from suppliers' urban water management plans and other sources. Per WC §10609.20, the Potable Reuse Bonus Incentive is capped at either 10% or 15% of the supplier's UWUO, depending on when the potable reuse facilities supplying the water were constructed. For this study, 67 suppliers were identified as using potable reuse water, of which 57 were subject to the 15% cap and 10

were subject to the 10% cap. In Orange County, 19 of 29 suppliers were identified as having potable reuse, all of which was subject to the 15% cap.

There are cases when a supplier will have a reduction requirement even when its current use is less than its UWUO. This can occur when the supplier's current distribution system losses exceed its distribution system loss allowance. SB 555, which passed prior to the 2018 Legislation, directed the State Water Board to develop numerical standards for distribution system water losses. The 2018 Legislation incorporates these standards by reference, and they provide the basis for the distribution system water loss component of the supplier's UWUO. Importantly, the 2018 Legislation does not abrogate the requirement that water suppliers comply with the numerical water loss standards under SB 555. This results in a situation where a supplier may be required to reduce its distribution system water losses even though its current regulated water uses are less than its UWUO. This is illustrated in Table 1-2 below using three example cases:

- In Case A, the supplier's current water uses are less than its UWUO by 2,300 AF. However, its current distribution system water losses exceed its water loss target by 500 AF. Therefore, the supplier's reduction requirement is 500 AF, which must be achieved by reducing its distribution system water loss.
- In Case B, the supplier's current use exceeds its UWUO by 200 AF. Its reduction requirement is therefore 200 AF. Since the supplier distribution water losses also exceed its Water Loss target by 100 AF, half of this reduction must come from a reduction in distribution system water loss in order to comply with SB 555.
- In Case C, the supplier's current use exceeds its UWUO by 900 AF. Its reduction requirement is therefore 900 AF. None of this reduction need come from a reduction in distribution system water loss because the supplier is complying with SB 555.

Water use reduction requirements were calculated for 398 urban retail water suppliers using a customized version of the *DWR Urban Water Use Objective Analyzer* model. Model details are provided in Appendix C.

Urban Water Use	Case A		Ca	ase B	Case C		
Objective Summary (AF)	UWUO	Current Use	UWUO	Current Use	UWUO	Current Use	
Indoor Residential	9,000	8,500	9,000	9,500	9,000	9,500	
Outdoor Residential	4,000	3,500	4,000	4,500	4,000	4,500	
Non-Residential DIM	500	700	500	500	500	600	
Distribution Svs. Water Loss	500	1.000	500	600	500	400	
Potable Reuse Bonus Incentive	2,000	0	900	0	100	0	

1-4

Table 1-2. Water Use Reduc	ction Cases to Ensure SB	555 (Distribution Sv	stem Water Loss) Compliance

Urban Water Use	Ca	ase A	Case B		Case C	
Objective Summary (AF)	UWUO	Current Use	UWUO	Current Use	υωυο	Current Use
Total	16,000	13,700	14,900	15,100	14,100	15,000
Current Use – UWUO		-2,300		200		900
Reduction Requirement						
SB 555 System Water Loss						
Compliance		500		100		0
Residual Reduction Needed		0		100		900

1.2 Estimation of Net Compliance Cost

This report defines net compliance cost as the expected cost of reducing water use to meet the reduction requirement minus the avoided costs from producing less water. Conservation program costs used for this report are summarized in Table 1-3. The cost estimates come from the Alliance for Water Efficiency's Water Conservation Tracking Tool (AWE TT), landscape program cost data compiled by the Municipal Water District of Orange County (MWDOC), and the State Water Board's Water Loss Economic Model. Appropriate markups were added to the base cost estimates for the residential and non-residential DIM programs to account for utility management and program marketing costs.⁵ The participant unit costs reflect typical cost shares paid by participants in Southern California residential and landscape conservation programs.⁶ The program weights used to calculate representative costs for indoor residential, outdoor residential, and non-residential landscape water savings are based on professional judgement and reflect a typical mix of programs operated by urban water suppliers in California.

To calculate a supplier's net compliance cost, its reduction requirement is apportioned as follows:

- First, the reduction in distribution system water loss needed for SB 555 compliance is calculated.
- Second, the residual reduction in water use needed for the supplier to meet its UWUO is determined.
- Third, the residual reduction requirement is divided between indoor residential, outdoor residential, and non-residential DIM water uses in proportion to the amount by which each of these end uses exceeds its allowance under the urban water use standards.

The representative unit cost of savings from Table 1-3 are then multiplied by the end use reduction requirements and the resultant quantities are summed to get the annual water use

⁵ Personal communication with Maureen Erbeznik of Maureen Erbeznik & Associates on May 18, 2022.

⁶ Erbeznik, May 18, 2022.

reduction cost. Lastly, the total reduction requirement is multiplied by the supplier's variable production cost and the resultant quantity is subtracted from the annual water use reduction cost to get the supplier's net compliance cost.

When net compliance cost is positive, it means the cost of achieving the reduction requirement exceeds the supplier's avoided cost of production. Consequently, the supplier's total costs of production would be expected to increase, and this cost increase may pass through to ratepayers. If the opposite holds, it means the cost of achieving the reduction requirement is less than the supplier's avoided cost of production. Consequently, the supplier's total costs of production would be expected to decrease, and these cost savings may pass through to ratepayers.

Variable production costs are taken directly from the annual water loss reports suppliers submit to DWR. It is common for suppliers that purchase wholesale water to report the wholesale price of water as their variable production cost. In some cases, this will overstate the supplier's actual variable production cost because the wholesale price typically embeds a significant share of the wholesale supplier's fixed costs which cannot be avoided in the long-run. Consequently, this analysis likely underestimates net compliance cost to some extent. The annual water loss reports do not include information on the basis for the supplier's reported variable production cost so it is not possible to flag which suppliers may be reporting inflated variable production costs. It is therefore prudent to treat the net compliance costs in this report as lower-bound estimates.

		Utility Unit Cost	Participant	Total Unit Cost	Program
Programs	Source	(\$/AF)	(\$/AF)	(\$/AF)	Weight
Residential Indoor					
Water Use Audit	AWE TT ¹	\$1,031	\$258	\$1,289	10%
Home Water Report	AWE TT	\$607	\$152	\$758	10%
AMI Leak Alert	AWE TT	\$1,275	\$142	\$1,417	5%
Wireless Flow Monitor	AWE TT	\$1,590	\$177	\$1,767	5%
HET Replacement	AWE TT	\$272	\$91	\$363	25%
Washer Rebate	AWE TT	\$580	\$193	\$773	25%
Showerhead Replacement	AWE TT	\$224	\$0	\$224	10%
Bathroom Direct Install	AWE TT	\$529	\$0	\$529	10%
Weighted Average		\$595	\$128	\$723	100%
Residential Outdoor					
Irrigation Nozzle Replacement	MWDOC ²	\$454	\$454	\$909	33%
Smart Irrigation Controller Rebate	AWE TT	\$515	\$515	\$1,030	33%

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Table 1-3. Conservation Program Unit Cost of Savings

		Utility	Participant	Total	
D		Unit Cost	Unit Cost	Unit Cost	Program
Programs	Source	(\$/AF)	(\$/AF)	(\$/AF)	Weight
Turf Replacement	MWDOC	\$2,554	\$2,554	\$5,108	33%
Weighted Average		\$1,175	\$1,175	\$2,349	100%
Non-Residential Landscape					
Irrigation Nozzle Replacement	MWDOC	\$391	\$130	\$522	25%
Smart Irrigation Controller	MWDOC	\$470	\$157	\$627	25%
Turf Replacement	MWDOC	\$2,029	\$1,191	\$3,220	25%
Landscape Water Audit	AWE TT	\$227	\$76	\$303	25%
Weighted Average		\$779	\$389	\$1,168	100%
Water Loss Management					
Leak Detection and Repair	State Water Board	\$308	\$0	\$308	100%
Nataa					

Notes:

¹ AWE TT refers to the Alliance for Water Efficiency's Water Conservation Tracking Tool ² MWDOC refers to the Municipal Water District of Orange County

1.3 Estimation of DAC Impacts

This report considers the extent to which the reduction requirements and net compliance costs of the urban water use standards are expected to skew towards urban retail water suppliers serving disadvantaged communities (DAC).

State law defines a DAC as a community with a median household income less than 80% of the statewide median household income (Public Resources Code §75005(g)). DWR's DAC Mapping Tool identifies all census places, tracts, and block groups in California that meet this definition. This report uses this information to calculate the prevalence of DACs within each urban retail water supplier's service area, where DAC prevalence is measured as the percentage of the supplier's total service area that has been designated by DWR as DAC. Details on the calculation of DAC prevalence for the 398 urban retail water suppliers included in the analysis are provided in Appendix D.

Supplier reduction requirements and net compliance costs are assessed against DAC prevalence using regression analysis and categorical tests of statistical dependence.

2.0 Water Use Reduction Estimates

This section summarizes water use reduction estimates required to meet the long-term standards DWR is expected to recommend. Estimates are summarized at the state level, for urban retail water suppliers within Metropolitan Water District's service area, and for urban retail water suppliers within Orange County.

IN THIS SECTION

- Reduction requirements for the State, Orange County, and Metropolitan
- Supplier-level variation within reduction requirements
- Correlation of reduction requirements to the potable reuse incentive

2.1 Aggregate Water Use Reduction Requirements

Aggregate reduction requirements under the long-term standards at the state level, for urban retail water suppliers within Metropolitan Water District's service area, and within Orange County are summarized in Table 2-1.

Statewide, the long-term standards are expected to reduce regulated urban water uses by 11% relative to current usage levels. Within Metropolitan Water District's service area, the aggregate reduction is 8%, and within Orange County it is 7%. The lower reduction requirement in Orange County is in large part a consequence of the Potable Reuse Bonus Incentive. Absent the Potable Reuse Bonus Incentive, Orange County's reduction requirement would almost double to 13%.

In absolute terms, most of the required reduction is expected to come from the residential sector. This is expected given that residential water uses presently account for 61% of total urban water uses and 81% of regulated urban water uses.

There is a very large reduction requirement for distribution system water losses. Even though water losses only account for 6% of total urban water uses and 8% of regulated urban water uses, the required water loss reductions account for somewhat more than a fifth of the mandated reduction requirement at the state level. Getting this reduction will require decreasing statewide real water loss by 29%.

Whether such a large reduction in real water loss will prove to be feasible and cost-effective is an open question. According to water loss data suppliers submit annually to DWR, roughly 30% have <u>unavoidable</u> annual real water losses (UARL) exceeding their real water loss target based on the draft standards the State Water Board released in August 2022.⁷ Since UARL is used to measure the lowest technically achievable real losses, it would seem that the model the State Water Board is using to set the standards is generating standards that may not be technically feasible for 3 in 10 urban retail water suppliers. This is illustrated in Figure 2-1 where points above the Y=X line indicate a supplier with a draft real loss standard set below its reported UARL. Additionally, the State Water Board's model has been shown to generate implausibly high benefit-cost ratios for water loss reduction, returning an average of \$14 per every one dollar invested in water loss reduction (M.Cubed 2020). Few water suppliers have found water loss management to have this level of payoff in actual practice. All of which begs the question why the state is placing so much emphasis on reducing real water loss since it comprises such a small share of urban water use and relative to other parts of the country California urban water systems are considered reasonably tight.⁸

⁷ Based on suppliers' average unavoidable real water losses calculated from their 2018-2022 annual water loss reports.

⁸ U.S. EPA reports average water losses of 16% of U.S. municipal water production (U.S. EPA, 2013). Average (real and apparent) water losses for California's urban retail water suppliers as a percentage of total production is half this level.

		Metropolitan	_
D ·	0.00	Water District	Orange
Region	California	Service Area	County
Retail Urban Water Suppliers	398	147	29
Population Served	36,670,497	18,967,873	3,207,137
Connections Served	9,284,157	4,359,919	782,392
Regulated Current Uses (AF)			
Residential Indoor	2,009,517	1,037,139	185,009
Residential Outdoor	1,418,630	649,077	106,254
CII DIM	454,625	243,967	70,729
Real Loss	329,775	133,016	18,499
Total	4,212,547	2,063,200	380,491
IPP Popus Incontina (AE)1	60 100	66.024	27.050
IFR Bollus incentive (AF)	69,109	00,934	37,050
Reduction Required to Comply with UWUOs (AF	·)		
Excluding IPR Bonus Incentive	507,086	216,757	50,644
Including IPR Bonus Incentive	460,039	171,183	26,034
% Reduction Required to Comply with UWUOs			
Excluding IPR Bonus Incentive	12%	11%	13%
Including IPR Bonus Incentive	11%	8%	7%
-			

Table 2-1. Aggregate Reduction Requirement Under Long-Term Standards Relative to Current Use (AF)

Notes

¹ Indirect Potable Reuse (IPR) Bonus Incentives are added to the UWUOs of suppliers. The difference between the reduction required to comply with UWUOs including versus excluding the IPR Bonus Incentive is less than the total volume of IPR Bonus Incentives reported in the table because some of the suppliers with IPR Bonus Incentives do not have a reduction requirement (i.e., their current use is less than their UWUO) or their reduction requirement is less than their IPR Bonus Incentive. In these cases, none or only part of the IPR Bonus Incentive is needed for the supplier to comply with its UWUO.



Figure 2-1. Unavoidable Annual Real Loss vs Draft Real Loss Standard

2.2 Variability of Reduction Requirements at the Supplier Level

Although the aggregate reduction requirement under the long-term standards is fairly modest, there is substantial variation in reduction requirements at the supplier level. This is illustrated in Figure 2-2. Geographic variation of reduction requirements between suppliers is demonstrated in Figure 2-3, with an inset service area map of Metropolitan Water District and Orange County. At one extreme, 17% of suppliers would have no reduction requirement and 22% would have a reduction requirement of 5% or less. Thus, nearly 40% of suppliers would have either no or only a very small reduction requirement (less than 5%). At the other end of the spectrum, nearly a quarter of suppliers have reduction requirements exceeding 20%. Thus, nearly a quarter of suppliers would have mandated reductions exceeding the level of reduction required under SB X7-7 (20x2020). Achieving these savings will be harder and more expensive than before. The 20x2020 urban water use reductions were achieved on a much higher baseline water usage. In many parts of the state, particularly in the coastal urban areas, urban water use has been substantially reduced and much of the "low-hanging conservation fruit" has already been picked. Suppliers with reduction requirements exceeding 30% will need to implement even more costly water use efficiency actions to comply with their UWUOs. Additionally, they will be afforded less time to get these savings. The 20x2020 legislation gave suppliers 10 years to meet their targets. Under the 2018 Legislation, suppliers will have 7 years to meet the long-term standards. As will

be discussed in Section 3, compliance with the long-term standards is expected to significantly impact water service costs for a non-trivial number of urban retail water suppliers. Moreover, the modeling done for this report indicates these impacts will fall disproportionately on urban retail water suppliers with a high prevalence of DACs, as will be discussed in Section 4.



Figure 2-2. Statewide Distribution of Supplier Reduction Requirements under Long-Term Standards



Figure 2-3. Geographic Variation of Supplier Reduction Requirements under Long-Term Standards

The variation in real water loss reduction requirements across suppliers is even greater, as illustrated in Figure 2-4. A third of suppliers have no reduction requirement while nearly 30% have reduction requirements greater than 50%. As noted above, whether such large reductions in real water loss will prove to be feasible and cost-effective is an open question. As illustrated in Figure 2-1, 3 in 10 suppliers have been assigned a draft real water loss standard that is less than their reported UARL, which by definition is the lowest level of real loss technically achievable. For the 116 suppliers needing to reduce water loss by more than 50%, this will be a herculean task and is likely to prove to be neither technically nor economically feasible.



Figure 2-4. Statewide Distribution of Water Loss Reduction Requirements under Long-Term Standards

2.3 Orange County Supplier Reduction Requirements

Estimated reduction requirements for Orange County's urban retail water suppliers under the long-term standards are shown in Table 2-2 and illustrated in Figure 2-5. Reduction requirements range from 0 to 27% of current regulated use. The average reduction requirement is 7%. In the absence of the Potable Reuse Bonus Incentive, reduction requirements would range from 0 to 32% of current regulated use and the average reduction requirement would increase from 7% to 13%. Thus, the Potable Reuse Bonus Incentive is expected to substantially mitigate the reduction requirements for the 19 of 29 Orange County water suppliers with potable reuse.

Estimated distribution system water loss reduction requirements needed for SB 555 compliance under the State Water Board's draft water loss standards are summarized in Table 2-3 and illustrated in Figure 2-6. Reduction requirements range from 0 to 53%. The average reduction requirement is 16%. Reduction requirements are greater than 30% for ten suppliers and greater than 40% for three suppliers. Again, water loss reduction requirements of this magnitude may prove to be technically or economically infeasible.

	Res	sidential Us	C)	Non-I	Res. DIM Us	e	Distributi	on Sys. Los	S					Water Loss	Total	%
Agency Name	Current	Standards ¹	Diff	Current S	tandards ²	Diff	Current Sta	andards ³	Diff	ncentive ⁴	regulated Uses ⁵	UWUO	Diff ⁷	Requirement ⁸	Requirement ⁹	Reduction ¹⁰
Anaheim City of	31,905	26,013	5,892	466	435	31	1,288	1,420	-132	4,180	33,659	32,049	1,610	0	1,610	5%
Brea City of	4,704	3,678	1,026	1,429	1,030	400	154	246	-92	0	6,286	4,953	1,333	0	1,333	21%
Buena Park City of	7,695	5,569	2,126	1,072	560	511	794	376	418	976	9,561	7,481	2,079	418	2,079	22%
El Toro Water District	4,760	4,652	108	1,339	1,339	0	285	273	12	0	6,385	6,264	120	12	120	2%
Fountain Valley City of	5,580	4,432	1,148	1,383	977	406	262	308	-46	857	7,224	6,574	651	0	651	%6
Fullerton City of	15,168	12,133	3,036	1,210	1,210	0	590	518	73	2,079	16,969	15,940	1,029	73	1,029	89
Garden Grove City of	14,795	11,789	3,006	688	467	221	1,000	504	496	1,914	16,483	14,674	1,810	496	1,810	11%
GSWC – Placentia	4,261	5,360	-1,099	287	287	0	486	315	171	894	5,034	6,856	-1,823	171	171	3%
GSWC – West Orange	8,800	7,237	1,564	868	649	219	673	602	70	1,273	10,342	9,761	580	70	580	89
Huntington Beach City of	18,135	14,336	3,799	2,408	1,787	621	1,200	767	433	2,533	21,743	19,423	2,320	433	2,320	11%
Irvine Ranch Water District	31,337	28,369	2,968	29,845	54,854	-25,010	2,204	2,204	0	9,737	63,385	95,165	-31,779	0	0	%0
La Habra City of	5,934	4,922	1,012	610	520	06	458	304	155	0	7,002	5,746	1,256	155	1,256	18%
La Palma City of	1,390	1,083	307	31	21	6	157	80	78	178	1,578	1,361	217	78	217	14%
Laguna Beach County Water District	2,577	1,845	733	132	89	42	184	179	ŋ	0	2,893	2,113	780	ъ	780	27%
Mesa Water District	9,518	7,559	1,959	1,611	1,070	542	502	465	37	1,364	11,631	10,458	1,174	37	1,174	10%
Moulton Niguel Water District	16,349	16,619	-270	2,843	2,843	0	1,483	1,591	-108	0	20,676	21,054	-378	0	0	%0
Newport Beach City of	7,985	5,345	2,640	2,545	2,050	495	863	570	293	1,195	11,393	9,160	2,233	293	2,233	20%
Orange City of	16,238	11,535	4,703	581	353	228	1,040	899	141	1,918	17,860	14,705	3,154	141	3,154	18%
San Clemente City of	5,023	4,956	67	2,253	2,253	0	628	380	247	0	7,904	7,589	315	247	315	4%
San Juan Capistrano City of	4,542	4,702	-159	1,779	1,779	0	244	199	45	0	6,566	6,680	-114	45	45	1%
Santa Ana City of	21,616	20,263	1,353	1,174	752	422	678	775	-97	3,268	23,468	25,058	-1,590	0	0	%0
Santa Margarita Water District	16,458	14,157	2,301	10,911	10,911	0	1,004	1,083	-79	0	28,373	26,151	2,222	0	2,222	8%
Seal Beach City of	2,306	1,815	491	16	15	1	160	100	60	290	2,482	2,220	263	60	263	11%
South Coast Water District	3,655	3,169	486	585	585	0	110	243	-133	0	4,350	3,997	353	0	353	8%
Trabuco Canyon Water District	1,589	1,194	395	298	202	96	67	72	ų	0	1,953	1,467	486	0	486	25%
Tustin City of	7,735	5,994	1,742	560	408	153	563	381	182	1,017	8,858	7,799	1,059	182	1,059	12%
Westminster City of	7,691	6,120	1,571	999	455	212	291	371	-80	1,042	8,648	7,988	660	0	660	8%
Yorba Linda Water District	12,795	10,778	2,018	3,139	3,128	11	1,089	976	114	2,232	17,023	17,113	-89	114	114	1%
East Orange County Water District	720	633	87	0	0	0	42	42	0	101	762	776	-14	0	0	%0
Totals	291,263	246,254	45,009	70,729	91,029	-20,300	18,499	16,242 2	2,257	37,050	380,491	390,575	-10,084	3,030	26,034	7%
Notes:	- - - -				hh											
² Corribined allowance for indoor and o ² Approximated such that the DIM allow	utaoor restat ance under t	the long-terr	n standarc	l ine iong-te Is is proporti	rm standard onal in perc	s. entage rec	duction requir	ement to the	e supplie	er's outdoor I	residential all	owance rec	duction rec	auirement.		
³ Based on State Water Board draft wat	ter loss stand	dards.		-	-)	-		-					_		
⁴ Bonus incentive for potable reuse, per	r WC §10609	9.20. Derive	d from sup	plier urban v	vater manaç	ement pla	ins and data	from the Ora	ange Col	unty Water [District.					
⁵ The sum of current residential use, no	n-residential	I DIM use, a	nd distribu	tion system	water loss.			•			·					

⁶ The sum of the residential, non-residential DIM, and distribution system water use allowances under the long-term standards plus potable reuse bonus incentive.
⁷ The difference between supplier's current regulated uses and its UWUO.
⁸ Distribution system water loss reduction required for SB 555 compliance.
⁹ The difference between the supplier's current regulated uses and its UWUO or its water loss reduction requirement, whichever is larger. The supplier does not have a reduction requirement if neither quantity is greater than zero.
¹⁰ The supplier's total reduction required by its regulated uses.

Table 2-2. Orange County Supplier Reduction Requirements Under Long-Term Standards Relative to Current Use (AF)

Laguna Beach County Water District		••••••	
Trabuco Canyon Water District		••••••	
Buena Park City of		•••••••••••	••••••
Brea City of		•••••••••••••••••••••••••••••	
Newport Beach City of		•••••••••••••••••	,
Orange City of		••••••••	
La Habra City of		••••••••••	,
La Palma City of		•••••	••••••••••••••••••
Tustin City of		•	
Seal Beach City of			
Huntington Beach City of		••••••	,
Garden Grove City of		••••••	,
Mesa Water District	······	••••••	,
Fountain Valley City of	·····	••••••	,
Westminster City of		••••••	,
South Coast Water District	·····	•••••••••••••••••••••••••••••••••••••••	,
Santa Margarita Water District	·····	••••••	
GSWC - West Orange		••••••	,
Fullerton City of		•••••••••••••••••••••••••••••••••••••••	,
Anaheim City of		••••••	,
San Clemente City of		••••••	,
GSWC - Placentia		••••••	,
El Toro Water District		••••••	,
Yorba Linda Water District	••••	••••••	
San Juan Capistrano City of	••••	••••••	,
Santa Ana City of	•••••••••••••••••••••••••••••••••••••••	••••••	••••••
Moulton Niguel Water District	•••••••	••••••	,
Irvine Ranch Water District	•••••••	••••••	
East Orange County Water District	•••••••	••••••	,
	Г	I	
	0 10	20	30
	% of Curre	ent Regulated W	Vater Use

Figure 2-5. Orange County Supplier Reduction % Needed for Long-Term Standards Compliance
	Distril	oution Sys. L	OSS	Reduction	%
Agency Name	Current ¹	Standards ²	Diff	Requirement ³	Reduction ⁴
Anaheim City of	1,288	1,420	-132	0	0%
Brea City of	154	246	-92	0	0%
Buena Park City of	794	376	418	418	53%
EI Toro Water District	285	273	12	12	4%
Fountain Valley City of	262	308	-46	0	0%
Fullerton City of	590	518	73	73	12%
Garden Grove City of	1,000	504	496	496	50%
GSWC – Placentia	486	315	171	171	35%
GSWC – West Orange	673	602	70	70	10%
Huntington Beach City of	1,200	767	433	433	36%
Irvine Ranch Water District	2,204	2,204	0	0	0%
La Habra City of	458	304	155	155	34%
La Palma City of	157	80	78	78	49%
Laguna Beach County Water District	184	179	5	5	3%
Mesa Water District	502	465	37	37	7%
Moulton Niguel Water District	1,483	1,591	-108	0	0%
Newport Beach City of	863	570	293	293	34%
Orange City of	1,040	899	141	141	14%
San Clemente City of	628	380	247	247	39%
San Juan Capistrano City of	244	199	45	45	18%
Santa Ana City of	678	775	-97	0	0%
Santa Margarita Water District	1,004	1,083	-79	0	0%
Seal Beach City of	160	100	60	60	37%
South Coast Water District	110	243	-133	0	0%
Trabuco Canyon Water District	67	72	-5	0	0%
Tustin City of	563	381	182	182	32%
Westminster City of	291	371	-80	0	0%
Yorba Linda Water District	1,089	976	114	114	10%
East Orange County Water District	42	42	0	0	0%
Total	18,499	16,242	2,257	3,030	16%

Table 2-3. Orange County Water Loss Reductions Needed for SB 555 Compliance (AF)

Notes:

¹ 2017-19 average distribution system loss reported in supplier's annual water loss reports.

² Allowance for distribution system loss under State Water Board's draft water loss standards.

³ Distribution system water loss reduction needed for SB 555 compliance.

⁴ Reduction requirement divided by current distribution system water loss.

Buena Park City of		•••••	•••••	•••••	••••••	
Garden Grove City of		•••••	•••••	••••••	••••••	
La Palma City of		•••••	•••••	••••••		
San Clemente City of		•••••	•••••	••••••	•••••	•••••
Seal Beach City of		•••••	•••••	•••••	•••••••••••	•••••
Huntington Beach City of		•••••	•••••	••••••	••••••	•••••
GSWC - Placentia		•••••	•••••			•••••
Newport Beach City of		•••••	•••••	••••••	••••••	•••••
La Habra City of		•••••	•••••	••••••	••••••	•••••
Tustin City of	•••••	•••••	•••••	•••••	••••••	•••••
San Juan Capistrano City of		•••••	••••	•••••	••••••	•••••
Orange City of		••••••	•••••	••••••	••••••	•••••
Fullerton City of		•••••	•••••	•••••	••••••	•••••
Yorba Linda Water District		••••	•••••	•••••	••••••	•••••
GSWC - West Orange		••••	•••••	••••••	••••••	•••••
Mesa Water District			•••••	•••••	••••••	•••••
El Toro Water District		•••••	•••••	••••••	••••••	•••••
Laguna Beach County Water District		•••••	•••••	•••••	••••••	•••••
Westminster City of	••••••	•••••	•••••	••••••	••••••	•••••
Trabuco Canyon Water District		•••••	•••••	••••••	••••••	•••••
South Coast Water District		•••••	•••••	••••••	••••••	•••••
Santa Margarita Water District		•••••	•••••	••••••	••••••	•••••
Santa Ana City of		•••••	•••••	•••••	••••••	•••••
Moulton Niguel Water District		•••••	•••••	•••••	••••••	•••••
Irvine Ranch Water District		•••••	•••••	••••••	••••••	•••••
Fountain Valley City of		•••••	•••••	••••••	••••••	•••••
East Orange County Water District		•••••	•••••	••••••	••••••	•••••
Brea City of		•••••				
Ananeim City of		•••••	••••••			••••••
,		10	1	1	1	
(J	10	20	30	40	50
	% C	of Curre	ent Distri	bution S	sys. wat	er Loss

Figure 2-6. Orange County Water Loss Reduction % Needed for SB 555 Compliance

3.0 Compliance Cost Estimates

This section summarizes the annual cost estimates to meet the long-term standards DWR is expected to recommend. Estimates are summarized at the state level, for urban retail water suppliers within Metropolitan Water District's service area, and for urban retail water suppliers within Orange County. This section also presents compliance cost estimates and expected water bill impacts for each Orange County urban retail water supplier.

3-1

IN THIS SECTION

- Compliance cost estimates for the State, Orange County, and Metropolitan
- Supplier-level compliance costs and bill impacts for Orange County suppliers

3.1 Aggregate of Annual Compliance Cost Estimates

Table 3-1 summarizes annual cost of compliance with the long-term standards at the state level, for water suppliers within Metropolitan Water District's service area, and for Orange County water suppliers. The estimated statewide net compliance cost is \$351 million/year. This estimate is comprised of utility conservation program costs and customer cost-sharing totaling \$584 million/year less avoided water production costs of \$223 million/year.

On a per AF basis, statewide net compliance costs average \$785/year per AF of reduction requirement. This is roughly twice the average cost per AF for suppliers in Metropolitan's service area and Orange County. The lower average costs per AF in these two regions are primarily a consequence of higher reported variable production costs.⁹

On a per connection and per capita basis, the average statewide compliance cost is more than double that for suppliers in Metropolitan's service area and Orange County. This occurs for two reasons. The first being the lower average compliance costs per AF discussed above, and the second being lower average reduction requirements per connection and per capita in these two regions compared to the state overall.

3.2 Variability of Compliance Cost at the Supplier Level

As with the reduction requirements discussed previously, a major theme of compliance costs is the variation in these costs across suppliers. This is illustrated in Figure 3-1 which shows the statewide distribution of net compliance cost per service connection. At one extreme, just over 40% of suppliers have either zero or negative net compliance costs. As discussed in Section 1, a negative net compliance cost indicates that the supplier's reported variable production cost exceeds the per AF cost of meeting its reduction requirement under the long-term standards. At the other extreme, more than a fifth of suppliers have net compliance costs in excess of \$100/connection/year and almost one in ten (36 suppliers) have net compliance costs in excess of \$200/connection/year.

Regionally, significant variation in net compliance cost is observed across all hydrologic regions, as illustrated in Figure 3-2. The only region where net compliance cost is not highly dispersed is the San Francisco Bay region. In all other regions, the long-term standards are expected to result in highly variable compliance costs among suppliers. Geographic variation of compliance costs per capita between suppliers is demonstrated in Figure 3-3.

⁹ As noted in Section 1, some suppliers may be reporting inflated variable production costs and therefore it is prudent to treat the net compliance costs in Table 3-1 as lower-bound estimates.

		Metropolitan	
		Water District	Orange
	California	Service Area	County
Population Served	36,670,497	18,967,873	3,207,137
Service Connections	9,284,157	4,359,919	782,392
Reduction Requirement (AF)	460,039	171,183	26,034
Per Service Connection (Gal/Day/Connection)	44	35	30
Per Capita (Gal/Day/Person)	11.2	8.1	7.2
Conservation Program Costs ¹			
Utility Expenditures	\$350,873,730	\$128,717,599	\$20,011,337
Utility Customer Cost Sharing	\$233,315,585	\$78,421,973	\$12,500,221
Percentage Cost Share for Utility	60%	62%	62%
Percentage Cost Share for Customer	40%	38%	38%
Total	\$584,189,315	\$207,139,572	\$32,511,558
Per AF	\$1,270	\$1,210	\$1,249
Per Service Connection	\$63	\$48	\$42
Per Capita	\$16	\$11	\$10
Avoided Water Production Costs ²	(\$223,202,323)	(\$141,908,921)	(\$19,867,606)
Per AF	(\$485)	(\$829)	(\$763)
Per Service Connection	(\$24)	(\$33)	(\$25)
Per Capita	(\$6)	(\$7)	(\$6)
Net Compliance Cost ³	\$360,986,992	\$65,230,651	\$12,643,952
Per AF	\$785	\$381	\$486
Per Service Connection	\$39	\$15	\$16
Per Capita	\$10	\$3	\$4

Table 3-1. Net Compliance Cost with the Long-Term Standards by Region (\$/Year in 2022 Dollars)

Notes:

¹ Suppliers' annual residential indoor, residential outdoor, non-residential DIM, and distribution system reduction requirements multiplied by the representative unit costs reported in Table 1-3.

² Product of suppliers' annual reduction requirement and reported variable cost of production.

³ Conservation program costs minus variable water production costs.



Figure 3-1. Statewide Distribution of Supplier Net Compliance Costs under Long-Term Standards



Figure 3-2. Supplier Net Compliance Cost under Long-Term Standards by Hydrologic RegionMWDOC3-4WUE Standards Economic Analysis



Figure 3-3. Geographic Variation of Supplier Compliance Costs Per Capita under Long-Term StandardsMWDOC3-5WUE Standards Economic Analysis

3.3 Orange County Supplier Compliance Costs and Bill Impacts

A breakdown of annual costs to meet the long-term standards for Orange County suppliers is provided in Table 3-2. A visual representation of net compliance cost is provided in Figure 3-4. Geographic variation of compliance costs per capita for Orange County suppliers is demonstrated in Figure 3-5. Net compliance cost ranges from -\$15/connection/year (Newport Beach) to \$102/connection/year (Trabuco Canyon). The average cost is \$14/connection/year. Net compliance cost is positive for 16 suppliers and exceeds \$50/Connection/Year for six suppliers.

To get a feel for the potential impact on Orange County water bills, the estimated net compliance cost for each supplier was compared to the typical bill for monthly water service.¹⁰ The results are summarized in Table 3-3 and visually represented in Figure 3-6. Net compliance costs are negative or zero for 13 suppliers and positive for 16 suppliers. Among the latter group, net compliance cost ranges from 1-19% of the typical monthly bill with 10 of the 16 having net compliance cost in excess of 5% and three in excess of 10% of the typical monthly bill. Two suppliers have net compliance costs approaching 20% of the typical monthly bill.

¹⁰ Rates and charges for each water supplier are from the Nicholas Institute for Environmental Policy Solutions Water Affordability Dashboard (https://nicholasinstitute.duke.edu/water-affordability/water-affordability-dashboard/#closeIDWSDiv). Typical bills are based on 8,000 gallons of water (10.7 CCF) delivered with a 5/8" meter.

Section 3.0

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Table 3-2.

	Reduction	Variable	Avoided	Conservat	ion Program Co	ost (\$/Yr)	Complia	nce Cost (\$/Yı	(
Agency Name	Kequired (AF)	Cost (\$/AF)	Cost (\$/Yr)	Utility	Participant	Combined	Total	/Connection	/Capita
Newport Beach City of	2,233	\$1,146	(\$2,558,268)	\$1,491,845	\$671,840	\$2,163,685	(\$394,582)	(\$14.80)	(\$5.88)
South Coast WD	353	\$1,263	(\$446,029)	\$210,139	\$45,127	\$255,267	(\$190,762)	(\$14.08)	(\$5.50)
San Clemente City of	315	\$1,036	(\$325,970)	\$116,166	\$8,583	\$124,749	(\$201,221)	(\$11.52)	(\$3.90)
Santa Margarita WD	2,222	¢96\$	(\$2,152,281)	\$1,322,616	\$284,031	\$1,606,648	(\$545,633)	(\$9.81)	(\$3.36)
GSWC – Placentia	171	\$721	(\$123,195)	\$52,624	¢	\$52,624	(\$70,571)	(\$5.39)	(\$1.31)
El Toro WD	120	\$981	(\$118,135)	\$68,148	\$13,825	\$81,973	(\$36,162)	(\$3.60)	(\$0.74)
San Juan Capistrano City of	45	\$903	(\$40,725)	\$13,891	\$0	\$13,891	(\$26,835)	(\$2.30)	(\$0.70)
Yorba Linda WD	114	\$748	(\$85,031)	\$35,013	¢	\$35,013	(\$50,018)	(\$1.99)	(\$0.61)
Fullerton City of	1,029	\$707	(\$727,669)	\$591,901	\$122,296	\$714,197	(\$13,473)	(\$0.42)	(\$0.10)
Irvine Ranch WD	0	\$1,241	¢0	\$0	\$0	\$0	\$0	\$0.00	\$0.00
Moulton Niguel WD	0	\$944	¢0	\$0	\$0	\$0	\$0	\$0.00	\$0.00
Santa Ana City of	0	\$633	\$0	\$0	¢	\$0	\$0	\$0.00	\$0.00
East Orange County WD	0	\$1,229	\$0	\$0	¢	\$0	\$0	\$0.00	\$0.00
Anaheim City of	1,610	\$728	(\$1,171,463)	\$1,063,398	\$394,756	\$1,458,155	\$286,691	\$4.47	\$0.79
Seal Beach City of	263	\$663	(\$174,080)	\$153,156	\$51,157	\$204,313	\$30,233	\$5.61	\$1.18
GSWC – West Orange	580	\$605	(\$350,903)	\$444,568	\$276,517	\$721,085	\$370,182	\$13.15	\$3.27
Huntington Beach City of	2,320	\$665	(\$1,541,844)	\$1,728,613	\$1,075,444	\$2,804,057	\$1,262,213	\$23.17	\$6.28
La Palma City of	217	\$475	(\$102,872)	\$144,701	\$86,248	\$230,949	\$128,077	\$28.96	\$8.04
Garden Grove City of	1,810	\$708	(\$1,281,802)	\$1,361,810	\$933,168	\$2,294,979	\$1,013,177	\$30.01	\$5.81
Fountain Valley City of	651	\$636	(\$413,985)	\$586,956	\$431,579	\$1,018,535	\$604,550	\$35.22	\$10.21
Westminster City of	660	\$313	(\$206,860)	\$570,159	\$398,665	\$968,824	\$761,964	\$36.77	\$7.95
Mesa WD	1,174	\$710	(\$833,513)	\$1,062,693	\$804,412	\$1,867,104	\$1,033,591	\$41.48	\$9.40

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	Reduction	Variable	Avoided	Conservat	ion Program Co	ost (\$/Yr)	Complia	nce Cost (\$/Y	1
	Required	Cost	Cost						
Agency Name	(AF)	(\$/AF)	(\$/Yr)	Utility	Participant	Combined	Total	/Connection	/Capita
La Habra City of	1,256	\$630	(\$791,413)	\$917,492	\$521,306	\$1,438,798	\$647,385	\$49.34	\$10.26
Brea City of	1,333	\$994	(\$1,325,043)	\$1,208,351	\$893,081	\$2,101,432	\$776,390	\$56.61	\$17.92
Tustin City of	1,059	\$647	(\$685,291)	\$875,265	\$643,849	\$1,519,114	\$833,823	\$58.87	\$12.26
Laguna Beach County WD	780	\$1,021	(\$795,968)	\$731,399	\$581,276	\$1,312,675	\$516,707	\$59.60	\$27.03
Orange City of	3,154	\$666	(\$2,101,042)	\$3,064,994	\$2,594,051	\$5,659,045	\$3,558,004	\$97.72	\$25.31
Buena Park City of	2,079	\$525	(\$1,091,688)	\$1,733,224	\$1,301,314	\$3,034,538	\$1,942,850	\$100.91	\$23.21
Trabuco Canyon WD	486	\$869	(\$422,538)	\$462,216	\$367,694	\$829,910	\$407,372	\$102.11	\$30.53
Total	26,034	\$76 3	(\$19,867,606)	\$20,011,337	\$12,500,221	\$32,511,558	\$11,182,559	\$14.29	\$3.49

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Figure 3-4. Orange County Suppliers Net Cost of Compliance with Long-Term Standards (\$/Connection/Year)



Figure 3-5. Geographic Variation of Orange County Supplier Compliance Costs Per Capita under Long-Term Standards

	Compliance Cost	Typical Bill	%
Agency Name	\$/Con/Mo	(\$/Mo)	Typical Bill
Newport Beach City of	(\$1.23)	\$50.23	-2.5%
San Clemente City of	(\$1.17)	\$50.54	-2.3%
Santa Margarita Water District	(\$0.82)	\$40.77	-2.0%
South Coast Water District	(\$0.96)	\$79.28	-1.2%
GSWC – Placentia	(\$0.45)	\$64.02	-0.7%
San Juan Capistrano City of	(\$0.30)	\$46.09	-0.7%
El Toro Water District	(\$0.17)	\$59.24	-0.3%
Yorba Linda Water District	(\$0.19)	\$74.01	-0.3%
Fullerton City of	(\$0.04)	\$50.52	-0.1%
Irvine Ranch Water District	\$0.00	\$78.07	0.0%
Moulton Niguel Water District	\$0.00	\$31.89	0.0%
Santa Ana City of	\$0.00	\$42.70	0.0%
East Orange County Water District	\$0.00	\$76.75	0.0%
Anaheim City of	\$0.47	\$42.78	1.1%
GSWC – West Orange	\$1.10	\$61.40	1.8%
Huntington Beach City of	\$0.37	\$15.25	2.4%
Seal Beach City of	\$1.93	\$39.86	4.8%
Mesa Water District	\$2.50	\$50.36	5.0%
Garden Grove City of	\$2.41	\$48.18	5.0%
Fountain Valley City of	\$2.93	\$50.74	5.8%
La Palma City of	\$3.46	\$59.36	5.8%
Westminister City of	\$3.06	\$49.30	6.2%
La Habra City of	\$4.97	\$74.83	6.6%
Brea City of	\$4.91	\$73.08	6.7%
Laguna Beach County Water District	\$4.11	\$49.42	8.3%
Tustin City of	\$4.72	\$55.04	8.6%
Trabuco Canyon Water District	\$8.51	\$65.01	13.1%
Orange City of	\$8.14	\$43.63	18.7%
Buena Park City of	\$8.41	\$43.51	19.3%

Table 3-3. Long-Term Standards Net Compliance Cost as Percentage of Typical Water Bills of Orange County Water Suppliers

Notes:

¹ Typical bill amounts are for 8,000 gallons of water (10.7 CCF).

² Typical bills were taken from the Nicholas Institute for Environmental Policy Solutions Water Affordability Dashboard (<u>https://nicholasinstitute.duke.edu/water-affordability/water-affordability-dashboard/#closeIDWSDiv</u>).



Figure 3-6. Long-Term Standards Net Compliance Cost as Percentage of Typical Water Bills for Orange County Water Suppliers

4.0 Disadvantaged Communities Impact Assessment

This section provides an assessment of reduction requirements and compliance costs in relation to DAC prevalence within urban retail water supplier service areas. This assessment indicates that the long-term standards DWR is expected to recommend are likely to disproportionately impact water suppliers with high DAC prevalence.

IN THIS SECTION

- Reduction requirement vs DAC prevalence
- Compliance cost vs DAC prevalence

4.1 Water Supplier DAC Prevalence

An important question is whether the impacts of the proposed standards are expected to fall disproportionately on disadvantaged communities (DACs). To address this question, DWR's DAC Mapping Tool was used to calculate the percentage of each urban retail water supplier's service area designated as DAC. Details of these calculations are provided in Appendix D. Reduction requirements and compliance costs were regressed against DAC prevalence to determine the extent they are positively correlated with DAC prevalence. A statistically significant relationship between DAC prevalence and the two impact variables would indicate that the long-term standards may disproportionately impact DAC communities.

The distribution of DAC prevalence across urban retail water suppliers is shown in Figure 4-1. The left and right whiskers of the boxplot in Figure 4-1 denote the 5th and 95th percentiles, respectively. The median DAC prevalence is 19%. Water suppliers in the top 25% of the distribution have a DAC prevalence greater than 44%. All water suppliers in the bottom 75% of the distribution have a DAC prevalence less than 44%.



Figure 4-1. Distribution of Urban Retail Water Supplier DAC Prevalence

4.2 Reduction Requirement versus DAC Prevalence

The relationship between mean reduction requirement under the long-term standards and DAC prevalence is shown in Figure 4-2. On average, each one percentage point increase in DAC prevalence is expected to increase the supplier's reduction requirement by 0.11 percentage points. For example, the expected reduction requirement for a supplier with 80% DAC prevalence is roughly one and a half times greater than that for a supplier with 20% DAC prevalence – a 19% versus 12% expected reduction requirement.

To see the effect of DAC prevalence on supplier reduction requirements more concretely, Figure 4-3 compares the mean reduction requirement of suppliers in the top 25% of the DAC prevalence distribution to that of suppliers in the bottom 75% of the distribution. In other words, it compares the mean reduction requirement for suppliers with high DAC prevalence to suppliers with moderate to low DAC prevalence. The mean reduction requirement is 15.9% for suppliers in the high DAC prevalence group compared to 11.0% for suppliers in the moderate to low DAC prevalence group. This difference is statistically significant at a greater than 99% level of statistical confidence.

These results indicate that the long-term standards can be expected to result in reduction requirements that, on average, are proportionately greater for suppliers with high DAC prevalence than for suppliers with moderate to low DAC prevalence.



Figure 4-2. Mean Reduction Requirement under the Long-Term Standards Conditional on DAC Prevalence

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4.3 Compliance Cost versus DAC Prevalence

A similar assessment was performed for compliance cost in relation to DAC prevalence. The relationship between mean compliance cost under the long-term standards and DAC prevalence is shown in Figure 4-4. On average, each one percentage point increase in DAC prevalence increases the supplier's net compliance cost by \$0.70/Connection/Year. For example, the expected compliance cost for a supplier with 80% DAC prevalence is roughly 1.8 times greater than that for a supplier with 20% DAC prevalence – \$93.96/Connection/Year versus \$51.74/Connection/Year.

To see the effect of DAC prevalence on compliance cost more concretely, Figure 4-5 compares the mean compliance cost of suppliers in the top 25% of the DAC prevalence distribution to that of suppliers in the bottom 75% of the distribution. In other words, it compares the mean compliance cost for suppliers with high DAC prevalence to suppliers with moderate to low DAC prevalence. The mean compliance cost is \$83.10/Connection/Year for suppliers in the high DAC prevalence group compared to \$48.80/Connection/Year for suppliers in the moderate to low DAC prevalence group. This difference is statistically significant at a greater than 99% level of statistical confidence.

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Figure 4-4. Mean Compliance Cost under the Long-Term Standards Conditional on DAC Prevalence





These results indicate that the long-term standards can be expected to result, on average, in greater compliance costs per service connection for suppliers with high DAC prevalence than for suppliers with moderate to low DAC prevalence.

5.0 Summary of Findings

This section summarizes the key findings of the report regarding methods and data, reduction requirements, compliance costs, and DAC impacts under the long-term urban water use standards.

IN THIS SECTION

- Discussion of results regarding reduction requirements
- Discussion of results regarding compliance costs
- Discussion of results regarding the standards' impact on DACs

5.1 Methods and Assumptions

The reduction requirement and compliance cost estimates presented in this report are premised on the best available information regarding the expected long-term standards, supplier current water uses, conservation program implementation costs, variable water production costs, and potable reuse of water. It is nonetheless important to bear in mind the following key assumptions and data limitations undergirding this report's impact assessment:

- Impacts are based on the long-term standards DWR is expected to recommend to the State Water Board. It is always possible that the standards DWR recommends or that the State Water Board ultimately adopts differ in material ways from the standards assumed for this assessment.
- Data on supplier current water uses, service area population, residential landscape area, DIM water uses, distribution system water losses, and potable reuse used to calculate supplier reduction requirements were compiled by DWR and underwent substantial review and quality checks. Nonetheless, there may remain errors in these data that could result in inaccurate estimates for some water suppliers. All Orange County suppliers were afforded an opportunity to review and amend the data for their service area prior to the release of this report.
- Because DWR's LAM Program did not measure non-residential DIM landscape areas, it
 is not possible to directly calculate supplier allowances for non-residential DIM water
 uses. This report assumes that the non-residential DIM allowances are proportional in
 percentage reduction requirement to the allowances for outdoor residential water uses.
 In other words, this report assumes that if a supplier's current outdoor residential water
 uses exceed the allowance for outdoor residential water use by X%, then the supplier's
 current non-residential DIM water uses will also exceed its non-residential DIM
 allowance by X%. The one exception to this assumption is for Orange County water
 suppliers that provided DIM landscape area estimates as part of the Orange County
 data review process undertaken for this report. In the case of these suppliers, the DIM
 water use allowance is calculated directly using these data.
- The distribution system reduction requirements are predicated on the State Water Board's draft water loss standards. The draft standards, in turn, are predicated on data compiled by the State Water Board on supplier distribution system characteristics. Suppliers will have until July 2023 to submit amendments to these data which could in some cases result in a materially different water loss standard than was used for this assessment.
- Compliance costs are estimated using representative costs for indoor and outdoor residential conservation programs, commercial landscape conservation programs, and

water loss reduction programs. Actual conservation program implementation costs depend on many factors and can vary widely from supplier to supplier. The conservation program costs used in this study are deemed to provide reasonable first-order estimates of costs typically paid by water utilities and their cost-sharing partners to reduce urban water uses and manage distribution system water losses.

• Variable production costs used to calculate net compliance costs are taken directly from the annual water loss reports suppliers submit to DWR. It is common for suppliers that purchase wholesale water to report the wholesale price of water as their variable production cost. In some cases, this will overstate the supplier's actual variable production cost because the wholesale price typically embeds a significant share of the wholesale supplier's fixed costs which cannot be avoided in the long-run. Consequently, net compliance costs presented in this report are likely understated to some extent.

5.2 Reduction Requirements

Key findings in terms of expected reduction requirements under the long-term standards are as follows:

- The long-term standards result in markedly different reduction requirements across suppliers. At one end of the spectrum, nearly 40% of suppliers have either no reduction requirement or a very modest reduction requirement (less than 5%). At the other end of the spectrum, nearly a quarter of suppliers have reduction requirements exceeding 20% and 11% of suppliers have reduction requirements exceeding 30%.
- The variation in water loss reduction requirements across suppliers is even greater. A third of suppliers have no reduction requirement while nearly a third have reduction requirements greater than 50%.
- Aggregate reduction requirements are fairly modest: 11% statewide, 8% within Metropolitan Water District's service area, and 7% within Orange County. Focusing on the average effect, however, masks the extreme heterogeneity in mandated reductions across suppliers.
- The Potable Reuse Bonus Incentive plays an important role in mitigating reduction requirements in Southern California, and particularly in Orange County. Absent this adjustment to supplier UWUOs, Orange County's aggregate reduction requirement, for example, would nearly double from 7% to 13%.

- Within Orange County, reduction requirements range from 0 to 27%, with an average reduction requirement of 7%. Absent the Potable Reuse Bonus Incentive, the average and maximum reduction requirements for Orange County suppliers would increase to 13% and 32%, respectively.
- The State Water Board's draft water loss standards require very substantial reductions in distribution system water losses: 29% statewide, 17% within Metropolitan Water District's service area, and 16% within Orange County. Although distribution system water losses account for just 6% of current urban water uses, the mandated reduction in distribution system water losses comprises a fifth of the statewide reduction requirement. There are reasons to question the technical and economic feasibility of water loss reductions of this magnitude.
- Within Orange County, water loss reduction requirements range from 0 to 53%, with an average reduction requirement of 16%. Reduction requirements are greater than 30% for ten suppliers and greater than 40% for three suppliers. Reducing water loss by these magnitudes will present a herculean task for these suppliers.

5.3 Net Compliance Costs

Key findings in terms of net cost to comply with the long-term standards are as follows:

- At the state level, net compliance cost is \$351 million annually (in 2022 dollars). This consists of outlays totaling \$584 million/year to reduce urban water uses and avoided water production costs of \$223 million/year.
- On a per connection basis, net compliance cost is \$39/connection/year at the state level. In Southern California, net compliance cost is less than half this amount. The difference is due to higher reported variable production costs and lower reduction requirement per connection in Southern California compared to other parts of the state.
- As with reduction requirements, net compliance costs vary significantly across suppliers. At one extreme, just over 40% of suppliers have either zero or negative net compliance costs. At the other extreme, more than a fifth of suppliers have net compliance costs in excess of \$100/connection/year and almost one in ten (36 suppliers) have net compliance costs in excess of \$200/connection/year.
- Regionally, significant variation in net compliance cost is observed across all hydrologic regions. The only region where net compliance cost is not highly dispersed is the San Francisco Bay region. The variation in compliance costs (and reduction requirements)

appears to be driven primarily by the standards and not by regional attributes of water suppliers.

- Within Orange County, net compliance costs range from -\$15/Connection/Year to \$102/Connection/Year, with an average cost of \$16/Connection/Year. Thirteen suppliers have negative net compliance costs and 16 have positive net compliance costs. Six suppliers have net compliance costs exceeding \$50/Connection/Year.
- Net compliance cost as a percentage of typical water bills for Orange County suppliers range from -3 to 19%. Net compliance cost is greater than 10% of the typical bill amount for three suppliers and it approaches 20% for two suppliers. These results indicate that the long-term standards have the potential to significantly impact water service costs for some urban retail water suppliers.

5.4 DAC Impacts

Key findings in terms of impacts of the long-term standards on DAC communities are as follows:

- Supplier reduction requirements are positively correlated with DAC prevalence. On average, each one percentage point increase in DAC prevalence is associated with a 0.11 percentage point increase in a supplier's reduction requirement.
- The long-term standards can be expected to result in reduction requirements that, on average, are proportionately greater for suppliers with high DAC prevalence than for suppliers with moderate to low DAC prevalence.
- Similar results obtain with respect to net compliance cost. On average, each one percentage point increase in DAC prevalence is associated with a \$0.70/Connection/Year increase in net compliance cost.
- The average compliance cost for suppliers with high DAC prevalence (top 25% of distribution) is \$83.10/Connection/Year compared to \$48.80/Connection/Year for suppliers with moderate to low DAC prevalence (bottom 75% of distribution), a nearly two-fold difference.

5-5

References

- Alliance for Water Efficiency. 2021. Water Conservation Tracking Tool (Version 4) User Guide. Appendix A Conservation Activity Library. July 2021. Accessed at <u>https://www</u>.allianceforwaterefficiency.org/.
- DWR and State Water Board (California Department of Water Resources and State Water Resources Control Board). 2018. Making Water Conservation a California Way of Life. Primer of 2018 Legislation on Water Conservation and Drought Planning Senate Bill 606 (Hertzberg) and Assembly Bill 1668 (Friedman). Accessed at: <u>https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Water-Use-And-Efficiency/Make-Water-Conservation-A-California-Way-of-Life/Files/PDFs/Final-WCL-Primer.pdf?la=en&hash=B442FD7A34349FA91DA5CDEFC47134EA38ABF209</u>
- DWR (California Department of Water Resources). 2018. DAC Mapping Tool. 116_Census_BlockGroup_DisadvantagedCommunities_2018. Retrieved from <u>https://gis</u>.water.ca.gov/app/dacs/
- DWR (California Department of Water Resources). 2021. Results of the Indoor Residential Water Use Study: A Report to the Legislature Prepared Pursuant to Water Code Section 10609.4(b). Accessed at: <u>https://water.ca.gov/Programs/Water-Use-And-</u> <u>Efficiency/2018-Water-Conservation-Legislation/Urban-Water-Use-Efficiency-Standards-Variances-and-Performance-Measures</u>
- Lambert, A. O., T. G. Brown, M. Takizawa, and D. Weimer. 1999. "A review of performance indicators for real losses from water supply systems." Aqua 48 (6): 227–237.
- M.Cubed. 2020. Review of SWRCB Version 3 Water Loss Model. Technical Memorandum prepared for the Regional Water Authority. December 10, 2020.
- Patterson, Lauren, Martin Doyle, Aislinn McLaughlin, and Sophia Bryson. 2021. Water Affordability Data Repository. Nicholas Institute for Environmental Policy Solutions at Duke University. Retrieved from <u>https://github.com/NIEPS-Water-Program/water-affordability</u>.
- Rupiper, A., M. Guilliams, M. Bush, K. Jessoe, and F. Loge. (2021). Assessing Data Adequacy for Determining Utility-Specific Water Loss Reduction Standards. Journal of Water Resources Planning and Management. 147. 05021011. 10.1061/(ASCE)WR.1943-5452.0001419.
- State Water Board (State Water Resources Control Board). 2020a. Revised Economic Model: Water Loss Performance Standards. December 16. Accessed at: <u>https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/water_loss</u> <u>control.html</u>
 - ____. 2020b. Draft Guidance: Economic (Benefit-Cost) model to calculate water loss standards. Version 3.0. Model version: November 12, 2020. Last updated: December 1,

2020. Accessed at:

https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/docs/waterl osscontrol/2020/swrcb_waterlossmodel_guidance_1dec2020.pdf

U.S. EPA. (2013). Water Audits and Water Loss Control for Public Water Systems. Office of Water, EPA 816-F-13-002. July 2013.

Appendix A



Appendix A Water Suppliers included in MWDOC Urban Water Use Objective Analyzer



Appendix A

Appendix A – Water Suppliers included in MWDOC Urban Water Use **Objective Analyzer**

DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
25	Alco Water Service	Monterey	Central Coast	FALSE	FALSE
66	Arroyo Grande City of	San Luis Obispo	Central Coast	FALSE	FALSE
107	Atascadero Mutual Water Company	San Luis Obispo	Central Coast	FALSE	FALSE
369	California American Water Company – Monterey District	Monterey	Central Coast	FALSE	FALSE
417	California Water Service Company Salinas District	Los Angeles	Central Coast	FALSE	FALSE
445	Cambria Community Service District	San Luis Obispo	Central Coast	FALSE	FALSE
485	Carpinteria Valley Water District	Santa Barbara	Central Coast	FALSE	FALSE
995	Gilroy City of	Santa Clara	Central Coast	FALSE	FALSE
1052	Golden State Water Company – Orcutt	Santa Barbara	Central Coast	FALSE	FALSE
1068	Goleta Water District	Santa Barbara	Central Coast	FALSE	FALSE
1093	Greenfield City of	Monterey	Central Coast	FALSE	FALSE
1110	Grover Beach City of	San Luis Obispo	Central Coast	FALSE	FALSE
1188	Hollister City of	San Benito	Central Coast	FALSE	FALSE
1459	Lompoc City of	Santa Barbara	Central Coast	FALSE	FALSE
1547	Marina Coast Water District	Monterey	Central Coast	FALSE	FALSE
1645	Montecito Water District	Santa Barbara	Central Coast	FALSE	FALSE
1656	Morgan Hill City of	Santa Clara	Central Coast	FALSE	FALSE
1660	Morro Bay City of	San Luis Obispo	Central Coast	FALSE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
1731	Nipomo Community Services District	San Luis Obispo	Central Coast	FALSE	FALSE
1875	Paso Robles City of	San Luis Obispo	Central Coast	FALSE	FALSE
1923	Pismo Beach City of	San Luis Obispo	Central Coast	FALSE	FALSE
2180	San Lorenzo Valley Water District	Santa Cruz	Central Coast	FALSE	FALSE
2182	San Luis Obispo City of	San Luis Obispo	Central Coast	FALSE	FALSE
2209	Santa Barbara City of	Santa Barbara	Central Coast	FALSE	FALSE
2213	Santa Cruz City of	Santa Cruz	Central Coast	FALSE	FALSE
2218	Santa Maria City of	Santa Barbara	Central Coast	FALSE	FALSE
2237	Scotts Valley Water District	Santa Cruz	Central Coast	FALSE	FALSE
2323	Soledad City of	Monterey	Central Coast	FALSE	FALSE
2330	Soquel Creek Water District	Santa Cruz	Central Coast	FALSE	FALSE
2424	Sunnyslope Community Water District	San Benito	Central Coast	FALSE	FALSE
2669	Watsonville City of	Santa Cruz	Central Coast	FALSE	FALSE
129	Banning City of	Riverside	Colorado River	FALSE	FALSE
241	Blythe City of	Riverside	Colorado River	FALSE	FALSE
262	Brawley City of	Imperial	Colorado River	FALSE	FALSE
353	Calexico City of	Imperial	Colorado River	FALSE	FALSE
575	Coachella City of	Riverside	Colorado River	FALSE	FALSE
577	Coachella Valley Water District	Riverside	Colorado River	FALSE	FALSE
727	Desert Water Agency	Riverside	Colorado River	FALSE	FALSE
814	El Centro City of	Imperial	Colorado River	FALSE	FALSE
1167	Hi Desert Water District	San Bernardino	Colorado River	FALSE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
1225	Imperial City of	Imperial	Colorado River	FALSE	FALSE
1236	Indio City of	Riverside	Colorado River	FALSE	FALSE
1270	Joshua Basin Water District	San Bernardino	Colorado River	FALSE	FALSE
1626	Mission Springs Water District	Riverside	Colorado River	FALSE	FALSE
1697	Myoma Dunes Mutual Water Company	Riverside	Colorado River	FALSE	FALSE
2530	Twentynine Palms Water District	San Bernardino	Colorado River	FALSE	FALSE
94	Arcata City of	San Luis Obispo	North Coast	FALSE	FALSE
572	Cloverdale City of	Sonoma	North Coast	FALSE	FALSE
649	Crescent City	Del Norte	North Coast	FALSE	FALSE
859	Eureka City of	Humboldt	North Coast	FALSE	FALSE
920	Fortuna City of	Humboldt	North Coast	FALSE	FALSE
1144	Healdsburg City of	Sonoma	North Coast	FALSE	FALSE
1210	Humboldt Community Services District	Humboldt	North Coast	FALSE	FALSE
1570	McKinleyville Community Services District	Humboldt	North Coast	FALSE	FALSE
2103	Rohnert Park City of	Sonoma	North Coast	FALSE	FALSE
2224	Santa Rosa City of	Sonoma	North Coast	FALSE	FALSE
2536	Ukiah City of	Mendocino	North Coast	FALSE	FALSE
2751	Windsor Town of	Sonoma	North Coast	FALSE	FALSE
2789	Yreka City of	Siskiyou	North Coast	FALSE	FALSE
1752	North Tahoe Public Utilities District	Placer	North Lahontan	FALSE	FALSE
2348	South Tahoe Public Utility District	El Dorado	North Lahontan	FALSE	FALSE
2432	Susanville City of	Lassen	North Lahontan	FALSE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
2512	Truckee – Donner Public Utilities District	Nevada	North Lahontan	FALSE	FALSE
167	Bella Vista Water District	Shasta	Sacramento River	FALSE	FALSE
372	California American Water Company – Sacramento District	Sacramento	Sacramento River	FALSE	FALSE
388	California Water Service Company Chico District	Butte	Sacramento River	FALSE	FALSE
405	California Water Service Company Marysville	Yuba	Sacramento River	FALSE	FALSE
412	California Water Service Company Oroville	San Mateo	Sacramento River	FALSE	FALSE
481	Carmichael Water District	Sacramento	Sacramento River	FALSE	FALSE
561	Citrus Heights Water District	Sacramento	Sacramento River	FALSE	FALSE
678	Davis City of	Yalo	Sacramento River	FALSE	FALSE
816	El Dorado Irrigation District	El Dorado	Sacramento River	FALSE	FALSE
835	Elk Grove Water District	Sacramento	Sacramento River	FALSE	FALSE
866	Fair Oaks Water District	Sacramento	Sacramento River	FALSE	FALSE
867	Fairfield City of	Solano	Sacramento River	FALSE	FALSE
904	Folsom City of	Sacramento	Sacramento River	FALSE	FALSE
966	Fruitridge Vista Water Company	Sacramento	Sacramento River	FALSE	FALSE
972	Galt City of	Sacramento	Sacramento River	FALSE	FALSE
066	Georgetown Divide Public Utility District	El Dorado	Sacramento River	FALSE	FALSE
1036	Golden State Water Company – Cordova	Sacramento	Sacramento River	FALSE	FALSE
1424	Lincoln City of	Placer	Sacramento River	FALSE	FALSE
1427	Linda County Water District	Yuba	Sacramento River	FALSE	FALSE
1718	Nevada Irrigation District	Nevada	Sacramento River	FALSE	FALSE
1792	Olivehurst Public Utilities District	Yuba	Sacramento River	FALSE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
1803	Orangevale Water Company	Sacramento	Sacramento River	FALSE	FALSE
1927	Placer County Water Agency	Placer	Sacramento River	FALSE	FALSE
2031	Red Bluff City of	Tehama	Sacramento River	FALSE	FALSE
2033	Redding City of	Shasta	Sacramento River	FALSE	FALSE
2060	Rio Linda – Elverta Community Water District	Sacramento	Sacramento River	FALSE	FALSE
2063	Rio Vista City of	Solano	Sacramento River	FALSE	FALSE
2111	Roseville City of	Placer	Sacramento River	FALSE	FALSE
2130	Sacramento City of	Sacramento	Sacramento River	FALSE	FALSE
2132	Sacramento County Water Agency	Sacramento	Sacramento River	FALSE	FALSE
2140	Sacramento Suburban Water District	Sacramento	Sacramento River	FALSE	FALSE
2179	San Juan Water District	Placer	Sacramento River	FALSE	FALSE
2273	Shasta Lake City of	Shasta	Sacramento River	FALSE	FALSE
2597	Vacaville City of	Solano	Sacramento River	FALSE	FALSE
2683	West Sacramento City of	Yalo	Sacramento River	FALSE	FALSE
2766	Woodland City of	Yalo	Sacramento River	FALSE	FALSE
2790	Yuba City	Sutter	Sacramento River	FALSE	FALSE
66	Anderson City of	Shasta	Sacramento River	FALSE	FALSE
2337	South Feather Water and Power	Butte	Sacramento River	FALSE	FALSE
669	Del Oro Water Company	Butte	Sacramento River	FALSE	FALSE
23	Alameda County Water District	Alameda	San Francisco Bay	FALSE	FALSE
57	American Canyon City of	Napa	San Francisco Bay	FALSE	FALSE
178	Benicia City of	Solano	San Francisco Bay	FALSE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
286	Burlingame City of	San Mateo	San Francisco Bay	FALSE	FALSE
387	California Water Service Company Bear Gulch	San Mateo	San Francisco Bay	FALSE	FALSE
401	California Water Service Company Livermore	Alameda	San Francisco Bay	FALSE	FALSE
402	California Water Service Company Los Altos	Santa Clara	San Francisco Bay	FALSE	FALSE
420	California Water Service Company Mid Peninsula	Monterey	San Francisco Bay	FALSE	FALSE
422	California Water Service Company South San Francisco	San Mateo	San Francisco Bay	FALSE	FALSE
583	Coastside County Water District	San Mateo	San Francisco Bay	FALSE	FALSE
613	Contra Costa Water District	Contra Costa	San Francisco Bay	FALSE	FALSE
667	Cupertino City of	Santa Clara	San Francisco Bay	FALSE	FALSE
673	Daly City	San Mateo	San Francisco Bay	FALSE	FALSE
759	Dublin San Ramon Services District	Alameda	San Francisco Bay	FALSE	FALSE
775	East Bay Municipal Utility District	Contra Costa	San Francisco Bay	FALSE	FALSE
787	East Palo Alto City of	San Mateo	San Francisco Bay	FALSE	FALSE
856	Estero Municipal Improvement District	San Mateo	San Francisco Bay	FALSE	FALSE
1031	Golden State Water Company – Bay Point	Contra Costa	San Francisco Bay	FALSE	FALSE
1083	Great Oaks Water Company Incorporated	Santa Clara	San Francisco Bay	FALSE	FALSE
1143	Hayward City of	Alameda	San Francisco Bay	FALSE	FALSE
1181	Hillsborough Town of	San Mateo	San Francisco Bay	FALSE	FALSE
1443	Livermore City of	Alameda	San Francisco Bay	FALSE	FALSE
1546	Marin Municipal Water District	Marin	San Francisco Bay	FALSE	FALSE
1554	Martinez City of	Contra Costa	San Francisco Bay	FALSE	FALSE
1587	Menlo Park City of	San Mateo	San Francisco Bay	FALSE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
1605	Mid-Peninsula Water District	San Mateo	San Francisco Bay	FALSE	FALSE
1613	Millbrae City of	San Mateo	San Francisco Bay	FALSE	FALSE
1619	Milpitas City of	Santa Clara	San Francisco Bay	FALSE	FALSE
1671	Mountain View City of	Santa Clara	San Francisco Bay	FALSE	FALSE
1701	Napa City of	Napa	San Francisco Bay	FALSE	FALSE
1739	North Coast County Water District	San Mateo	San Francisco Bay	FALSE	FALSE
1748	North Marin Water District	Marin	San Francisco Bay	FALSE	FALSE
1851	Palo Alto City of	Santa Clara	San Francisco Bay	FALSE	FALSE
1894	Petaluma City of	Sonoma	San Francisco Bay	FALSE	FALSE
1925	Pittsburg City of	Contra Costa	San Francisco Bay	FALSE	FALSE
1940	Pleasanton City of	Alameda	San Francisco Bay	FALSE	FALSE
2037	Redwood City	San Mateo	San Francisco Bay	FALSE	FALSE
2157	San Bruno City of	San Mateo	San Francisco Bay	FALSE	FALSE
2164	San Francisco Public Utilities Commission	San Francisco	San Francisco Bay	FALSE	FALSE
2174	San Jose City of	Santa Clara	San Francisco Bay	FALSE	FALSE
2175	San Jose Water Company	Santa Clara	San Francisco Bay	FALSE	FALSE
2210	Santa Clara City of	Santa Clara	San Francisco Bay	FALSE	FALSE
2326	Sonoma City of	Sonoma	San Francisco Bay	FALSE	FALSE
2405	Suisun – Solano Water Authority	Solano	San Francisco Bay	FALSE	FALSE
2425	Sunnyvale City of	Santa Clara	San Francisco Bay	FALSE	FALSE
2603	Vallejo City of	Solano	San Francisco Bay	FALSE	FALSE
2610	Valley of the Moon Water District	Sonoma	San Francisco Bay	FALSE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
2691	Westborough Water District	San Mateo	San Francisco Bay	FALSE	FALSE
2438	Sweetwater Springs Water District	Sonoma	San Francisco Bay	FALSE	FALSE
55	Amador Water Agency	Amador	San Joaquin River	FALSE	FALSE
82	Antioch City of	Contra Costa	San Joaquin River	FALSE	FALSE
110	Atwater City of	Merced	San Joaquin River	FALSE	FALSE
264	Brentwood City of	Contra Costa	San Joaquin River	FALSE	FALSE
351	Calaveras County Water District	Calaveras	San Joaquin River	FALSE	FALSE
424	California Water Service Company Stockton	San Joaquin	San Joaquin River	FALSE	FALSE
522	Ceres City of	Stanislaus	San Joaquin River	FALSE	FALSE
731	Diablo Water District	Contra Costa	San Joaquin River	FALSE	FALSE
1109	Groveland Community Services District	Tuolumne	San Joaquin River	FALSE	FALSE
1388	Lathrop City of	San Joaquin	San Joaquin River	FALSE	FALSE
1444	Livingston City of	Merced	San Joaquin River	FALSE	FALSE
1450	Lodi City of	San Joaquin	San Joaquin River	FALSE	FALSE
1487	Los Banos City of	Merced	San Joaquin River	FALSE	FALSE
1510	Madera City of	Madera	San Joaquin River	FALSE	FALSE
1539	Manteca City of	San Joaquin	San Joaquin River	FALSE	FALSE
1589	Merced City of	Merced	San Joaquin River	FALSE	FALSE
1631	Modesto City of	Stanislaus	San Joaquin River	FALSE	FALSE
1729	Newman City of Service Area	Stanislaus	San Joaquin River	FALSE	FALSE
1765	Oakdale City of	Stanislaus	San Joaquin River	FALSE	FALSE
1877	Patterson City of	Stanislaus	San Joaquin River	FALSE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
2065	Ripon City of	San Joaquin	San Joaquin River	FALSE	FALSE
2074	Riverbank City of	Stanislaus	San Joaquin River	FALSE	FALSE
2381	Stockton City of	San Joaquin	San Joaquin River	FALSE	FALSE
2496	Tracy City of	San Joaquin	San Joaquin River	FALSE	FALSE
2523	Tuolumne Utilities District	Tuolumne	San Joaquin River	FALSE	FALSE
2524	Turlock City of	Stanislaus	San Joaquin River	FALSE	FALSE
739	Discovery Bay Community Services District	Contra Costa	San Joaquin River	FALSE	FALSE
2979	Chowchilla City of	Madera	San Joaquin River	FALSE	FALSE
4231	Mountain House Community Services District	San Joaquin	San Joaquin River	FALSE	FALSE
30	Alhambra City of	Los Angeles	South Coast	TRUE	FALSE
64	Anaheim City of	Orange	South Coast	TRUE	TRUE
93	Arcadia City of	Los Angeles	South Coast	TRUE	FALSE
117	Azusa light and Water	Los Angeles	South Coast	TRUE	FALSE
159	Beaumont – Cherry Valley Water District	Riverside	South Coast	FALSE	FALSE
170	Bellflower – Somerset Mutual Water Company	Los Angeles	South Coast	TRUE	FALSE
193	Beverly Hills City of	Los Angeles	South Coast	TRUE	FALSE
197	Big Bear Community Services District	San Bernardino	South Coast	FALSE	FALSE
198	Big Bear Lake City of	San Bernardino	South Coast	FALSE	FALSE
263	Brea City of	Orange	South Coast	TRUE	TRUE
283	Buena Park City of	Orange	South Coast	TRUE	TRUE
285	Burbank City of	Los Angeles	South Coast	TRUE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
368	California American Water Company – Los Angeles Division	Los Angeles	South Coast	TRUE	FALSE
373	California American Water Company- San Diego District	San Diego	South Coast	TRUE	FALSE
376	California American Water Company – Ventura District	Ventura	South Coast	TRUE	FALSE
391	California Water Service Company Dominguez	Los Angeles	South Coast	TRUE	FALSE
392	California Water Service Company East Los Angeles	Los Angeles	South Coast	TRUE	FALSE
396	California Water Service Company Hermosa/Redondo	Los Angeles	South Coast	TRUE	FALSE
413	California Water Service Company Palos Verdes	Los Angeles	South Coast	TRUE	FALSE
428	California Water Service Company Westlake	Ventura	South Coast	TRUE	FALSE
443	Camarillo City of	Ventura	South Coast	TRUE	FALSE
467	Camrosa Water District	Ventura	South Coast	TRUE	FALSE
478	Carlsbad Municipal Water District	San Diego	South Coast	TRUE	FALSE
524	Cerritos City of	Los Angeles	South Coast	TRUE	FALSE
545	Chino City of	San Bernardino	South Coast	TRUE	FALSE
547	Chino Hills City of	San Bernardino	South Coast	TRUE	FALSE
596	Colton City of	San Bernardino	South Coast	FALSE	FALSE
607	Compton City of	Los Angeles	South Coast	TRUE	FALSE
624	Corona City of	Riverside	South Coast	TRUE	FALSE
644	Covina City of	Los Angeles	South Coast	TRUE	FALSE
651	Crescenta Valley Community Water District	Los Angeles	South Coast	TRUE	FALSE
664	Cucamonga Valley Water District	San Bernardino	South Coast	TRUE	FALSE
748	Downey City of	Los Angeles	South Coast	TRUE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
793	East Valley Water District	San Bernardino	South Coast	FALSE	FALSE
794	Eastern Municipal Water District	Riverside	South Coast	TRUE	FALSE
821	El Monte City of	Los Angeles	South Coast	FALSE	FALSE
827	El Segundo City of	Los Angeles	South Coast	TRUE	FALSE
830	El Toro Water District	Orange	South Coast	TRUE	TRUE
842	Elsinore Valley Municipal Water District	Riverside	South Coast	TRUE	FALSE
851	Escondido City of	San Diego	South Coast	TRUE	FALSE
873	Fallbrook Public Utilities District	San Diego	South Coast	TRUE	FALSE
890	Fillmore City of	Ventura	South Coast	FALSE	FALSE
924	Fountain Valley City of	Orange	South Coast	TRUE	TRUE
967	Fullerton City of	Orange	South Coast	TRUE	TRUE
977	Garden Grove City of	Orange	South Coast	TRUE	TRUE
1004	Glendale City of	Los Angeles	South Coast	TRUE	FALSE
1005	Glendora City of	Los Angeles	South Coast	TRUE	FALSE
1029	Golden State Water Company – Artesia	Los Angeles	South Coast	TRUE	FALSE
1032	Golden State Water Company – Bell-Bell Gardens	Los Angeles	South Coast	TRUE	FALSE
1034	Golden State Water Company – Claremont	Los Angeles	South Coast	TRUE	FALSE
1038	Golden State Water Company – Culver City	Los Angeles	South Coast	TRUE	FALSE
1041	Golden State Water Company – Florence Graham	Los Angeles	South Coast	TRUE	FALSE
1049	Golden State Water Company – Norwalk	Los Angeles	South Coast	TRUE	FALSE
1053	Golden State Water Company – Placentia	Orange	South Coast	TRUE	TRUE
1054	Golden State Water Company – San Dimas	Los Angeles	South Coast	TRUE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
1057	Golden State Water Company – Simi Valley	Ventura	South Coast	TRUE	FALSE
1058	Golden State Water Company – South Arcadia	Los Angeles	South Coast	TRUE	FALSE
1059	Golden State Water Company – South San Gabriel	Los Angeles	South Coast	TRUE	FALSE
1060	Golden State Water Company – Southwest	Los Angeles	South Coast	TRUE	FALSE
1062	Golden State Water Company – West Orange	Orange	South Coast	TRUE	TRUE
1142	Hawthorne City of	Los Angeles	South Coast	TRUE	FALSE
1154	Helix Water District	San Diego	South Coast	TRUE	FALSE
1157	Hemet City of	Riverside	South Coast	TRUE	FALSE
1215	Huntington Beach City of	Orange	South Coast	TRUE	TRUE
1217	Huntington Park City of	Los Angeles	South Coast	TRUE	FALSE
1238	Inglewood City of	Los Angeles	South Coast	TRUE	FALSE
1245	Irvine Ranch Water District	Orange	South Coast	TRUE	TRUE
1273	Jurupa Community Service District	Riverside	South Coast	FALSE	FALSE
1324	La Habra City of	Orange	South Coast	TRUE	TRUE
1327	La Palma City of	Orange	South Coast	TRUE	TRUE
1333	La Verne City of	Los Angeles	South Coast	TRUE	FALSE
1335	Laguna Beach County Water District	Orange	South Coast	TRUE	TRUE
1352	Lake Hemet Municipal Water District	Riverside	South Coast	TRUE	FALSE
1368	Lakeside Water District	San Diego	South Coast	TRUE	FALSE
1370	Lakewood City of	Los Angeles	South Coast	TRUE	FALSE
1384	Las Virgenes Municipal Water District	Los Angeles	South Coast	TRUE	FALSE
1425	Lincoln Avenue Water Company	Los Angeles	South Coast	TRUE	FALSE

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Name	County	Hydrologic Region	MWDSC	MWDOC
Loma Linda City of	San Bernardino	South Coast	FALSE	FALSE
Lomita City of	Los Angeles	South Coast	TRUE	FALSE
Long Beach City of	Los Angeles	South Coast	TRUE	FALSE
Los Angeles DWP	Los Angeles	South Coast	TRUE	FALSE
LA County Waterworks District 29 – Malibu & Marina Del Rey	Los Angeles	South Coast	TRUE	FALSE
Lynwood City of	Los Angeles	South Coast	TRUE	FALSE
Manhattan Reach City of	l ne Andeles	South Coast	TRUE	FALSE

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LA County Waterworks District 29 – Malibu & Marina Del Rey	Los Angeles	South Coast	TRUE	FALSE
Lynwood City of	Los Angeles	South Coast	TRUE	FALSE
Manhattan Beach City of	Los Angeles	South Coast	TRUE	FALSE
Mesa Water District	Orange	South Coast	TRUE	TRUE
Monrovia City of	Los Angeles	South Coast	TRUE	FALSE
Monte Vista Water District	San Bernardino	South Coast	TRUE	FALSE
Montebello Land And Water Company	Los Angeles	South Coast	TRUE	FALSE
Monterey Park City of	Los Angeles	South Coast	TRUE	FALSE
Moulton Niguel Water District	Orange	South Coast	TRUE	TRUE
Newhall County Water District	Los Angeles	South Coast	FALSE	FALSE
Newport Beach City of	Orange	South Coast	TRUE	TRUE
Norco City of	Riverside	South Coast	TRUE	FALSE
Norwalk City of	Los Angeles	South Coast	TRUE	FALSE
Oceanside City of	San Diego	South Coast	TRUE	FALSE
Olivenhain Municipal Water District	San Diego	South Coast	TRUE	FALSE
Ontario City of	San Bernardino	South Coast	TRUE	FALSE
Orange City of	Orange	South Coast	TRUE	TRUE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
1804	Orchard Dale Water District	Los Angeles	South Coast	TRUE	FALSE
1821	Otay Water District	San Diego	South Coast	TRUE	FALSE
1827	Oxnard City of	Ventura	South Coast	TRUE	FALSE
1838	Padre Dam Municipal Water District	San Diego	South Coast	TRUE	FALSE
1866	Paramount City of	Los Angeles	South Coast	TRUE	FALSE
1869	Liberty Utilities	Los Angeles	South Coast	TRUE	FALSE
1873	Pasadena City of	Los Angeles	South Coast	TRUE	FALSE
1899	Pico Rivera City of	Los Angeles	South Coast	TRUE	FALSE
1900	Pico Water District	Los Angeles	South Coast	FALSE	FALSE
1945	Pomona City of	Los Angeles	South Coast	TRUE	FALSE
1953	Port Hueneme City of	Ventura	South Coast	TRUE	FALSE
1964	Poway City of	San Diego	South Coast	TRUE	FALSE
1990	Rainbow Municipal Water District	San Diego	South Coast	TRUE	FALSE
1996	Ramona Municipal Water District	San Diego	South Coast	TRUE	FALSE
2000	Rancho California Water District	Riverside	South Coast	TRUE	FALSE
2035	Redlands City of	San Bernardino	South Coast	FALSE	FALSE
2049	Rialto City of	San Bernardino	South Coast	FALSE	FALSE
2057	Rincon Del Diablo Municipal Water District.	San Diego	South Coast	TRUE	FALSE
2087	Riverside Highland Water Company	Riverside	South Coast	FALSE	FALSE
2115	Rowland Water District	Los Angeles	South Coast	TRUE	FALSE
2118	Rubidoux Community Service District	Riverside	South Coast	FALSE	FALSE
2119	Rubio Canyon Land and Water Association	Los Angeles	South Coast	TRUE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
2150	San Bernardino City of	San Bernardino	South Coast	FALSE	FALSE
2153	San Bernardino County Service Area 70 J Oak Hills	San Bernardino	South Coast	FALSE	FALSE
2158	Ventura City of	Ventura	South Coast	FALSE	FALSE
2159	San Clemente City of	Orange	South Coast	TRUE	TRUE
2160	San Diego City of	San Diego	South Coast	TRUE	FALSE
2162	San Dieguito Water District	San Diego	South Coast	TRUE	FALSE
2163	San Fernando City of	Los Angeles	South Coast	TRUE	FALSE
2165	San Gabriel Valley Municipal Water District	Los Angeles	South Coast	FALSE	FALSE
2166	San Gabriel Valley Water Company Fontana Division	San Bernardino	South Coast	TRUE	FALSE
2167	San Gabriel Valley Water Company	Los Angeles	South Coast	TRUE	FALSE
2169	San Jacinto City of	Riverside	South Coast	TRUE	FALSE
2177	San Juan Capistrano City of	Orange	South Coast	TRUE	TRUE
2207	Santa Ana City of	Orange	South Coast	TRUE	TRUE
2212	Castaic Lake Water Agency Santa Clarita Water Division	Los Angeles	South Coast	FALSE	FALSE
2214	Santa Fe Irrigation District	San Diego	South Coast	TRUE	FALSE
2215	Santa Fe Springs City of	Los Angeles	South Coast	TRUE	FALSE
2217	Santa Margarita Water District	Orange	South Coast	TRUE	TRUE
2220	Santa Monica City of	Los Angeles	South Coast	TRUE	FALSE
2222	Santa Paula City of	Ventura	South Coast	FALSE	FALSE
2241	Seal Beach City of	Orange	South Coast	TRUE	TRUE
2290	Sierra Madre City of	Los Angeles	South Coast	TRUE	FALSE
2334	South Coast Water District	Orange	South Coast	TRUE	TRUE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
2341	South Gate City of	Los Angeles	South Coast	TRUE	FALSE
2345	South Pasadena City of	Los Angeles	South Coast	TRUE	FALSE
2402	Suburban Water Systems – Whittier/La Mirada	Los Angeles	South Coast	TRUE	FALSE
2419	Sunny Slope Water Company	Los Angeles	South Coast	FALSE	FALSE
2437	Sweetwater Authority	San Diego	South Coast	TRUE	FALSE
2469	Thousand Oaks City of	Ventura	South Coast	TRUE	FALSE
2487	Torrance City of	Los Angeles	South Coast	TRUE	FALSE
2490	Trabuco Canyon Water District	Orange	South Coast	TRUE	TRUE
2510	Triunfo Sanitation District/Oak Park Water Service	Ventura	South Coast	TRUE	FALSE
2528	Tustin City of	Orange	South Coast	TRUE	TRUE
2541	Upland City of	San Bernardino	South Coast	TRUE	FALSE
2601	Valencia Water Company	Los Angeles	South Coast	TRUE	FALSE
2602	Vallecitos Water District	San Diego	South Coast	TRUE	FALSE
2604	Valley Center Municipal Water District	San Diego	South Coast	TRUE	FALSE
2605	Valley County Water District	Los Angeles	South Coast	FALSE	FALSE
2618	Valley Water Company	Los Angeles	South Coast	TRUE	FALSE
2629	Ventura County Waterworks District No 01 – Moorpark	Ventura	South Coast	TRUE	FALSE
2631	Ventura County Waterworks District No 08 – Simi Valley	Ventura	South Coast	TRUE	FALSE
2633	Vernon City of	Los Angeles	South Coast	TRUE	FALSE
2649	Vista Irrigation District	San Diego	South Coast	TRUE	FALSE
2661	Walnut Valley Water District	Los Angeles	South Coast	TRUE	FALSE
2690	West Valley Water District	San Bernardino	South Coast	TRUE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
2697	Western Municipal Water District of Riverside	Riverside	South Coast	TRUE	FALSE
2704	Westminster City of	Orange	South Coast	TRUE	TRUE
2723	Whittier City of	Los Angeles	South Coast	FALSE	FALSE
2782	Yorba Linda Water District	Orange	South Coast	TRUE	TRUE
2793	Yucaipa Valley Water District	San Bernardino	South Coast	FALSE	FALSE
785	East Orange County Water District	Orange	South Coast	TRUE	TRUE
1408	Temescal Valley Water District	Riverside	South Coast	FALSE	FALSE
2083	Riverside City of	Riverside	South Coast	TRUE	FALSE
2401	Suburban Water Systems San Jose Hills	Los Angeles	South Coast	TRUE	FALSE
495	Casitas Municipal Water District	Ventura	South Coast	FALSE	FALSE
13	Adelanto City of	San Bernardino	South Lahontan	FALSE	FALSE
87	Apple Valley Ranchos Water Company	San Bernardino	South Lahontan	FALSE	FALSE
378	California City	Kern	South Lahontan	FALSE	FALSE
654	Crestline Village Water District	San Bernardino	South Lahontan	FALSE	FALSE
1030	Golden State Water Company – Barstow	San Bernardino	South Lahontan	FALSE	FALSE
1166	Hesperia Water District	San Bernardino	South Lahontan	FALSE	FALSE
1234	Indian Wells Valley Water District	Kern	South Lahontan	FALSE	FALSE
1343	Lake Arrowhead Community Services District	San Bernardino	South Lahontan	FALSE	FALSE
1484	LA County Waterworks District 40 – Antelope Valley	Los Angeles	South Lahontan	FALSE	FALSE
1533	Mammoth Community Water District	Mono	South Lahontan	FALSE	FALSE
1849	Palmdale Water District	Los Angeles	South Lahontan	FALSE	FALSE
1896	Phelan Pinon Hills Community Services District	San Bernardino	South Lahontan	FALSE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
1983	Quartz Hill Water District	Los Angeles	South Lahontan	FALSE	FALSE
2107	Rosamond Community Service District	Kern	South Lahontan	FALSE	FALSE
2154	San Bernardino County Service Area 64 Spring Valley Lake	San Bernardino	South Lahontan	FALSE	FALSE
2635	Victorville Water District	San Bernardino	South Lahontan	FALSE	FALSE
102	Arvin Community Service District	Kern	Tulare Lake	FALSE	FALSE
123	Bakersfield City of	Kern	Tulare Lake	FALSE	FALSE
124	Bakman Water Company	Fresno	Tulare Lake	FALSE	FALSE
386	California Water Service Company Bakersfield	Kern	Tulare Lake	FALSE	FALSE
421	California Water Service Company Selma	Fresno	Tulare Lake	FALSE	FALSE
427	California Water Service Company Visalia	Tulare	Tulare Lake	FALSE	FALSE
574	Clovis City of	Fresno	Tulare Lake	FALSE	FALSE
578	Coalinga City of	Fresno	Tulare Lake	FALSE	FALSE
618	Corcoran City of	Kings	Tulare Lake	FALSE	FALSE
711	Delano City of	Kern	Tulare Lake	FALSE	FALSE
737	Dinuba City of	Tulare	Tulare Lake	FALSE	FALSE
784	East Niles Community Services District	Kern	Tulare Lake	FALSE	FALSE
934	Fresno City of	Fresno	Tulare Lake	FALSE	FALSE
1094	Greenfield County Water District	Kern	Tulare Lake	FALSE	FALSE
1125	Hanford City of	Kings	Tulare Lake	FALSE	FALSE
1286	Kerman City of	Fresno	Tulare Lake	FALSE	FALSE
1304	Kingsburg City of	Fresno	Tulare Lake	FALSE	FALSE

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DWRID	Name	County	Hydrologic Region	MWDSC	MWDOC
1371	Lamont Public Utility District	Kern	Tulare Lake	FALSE	FALSE
1415	Lemoore City of	Kings	Tulare Lake	FALSE	FALSE
1782	Oildale Mutual Water Company	Kern	Tulare Lake	FALSE	FALSE
1956	Porterville City of	Tulare	Tulare Lake	FALSE	FALSE
2042	Reedley City of	Fresno	Tulare Lake	FALSE	FALSE
2184	Sanger City of	Fresno	Tulare Lake	FALSE	FALSE
2260	Shafter City of	Kern	Tulare Lake	FALSE	FALSE
2451	Tehachapi City of	Kern	Tulare Lake	FALSE	FALSE
2516	Tulare City of	Tulare	Tulare Lake	FALSE	FALSE
2626	Vaughn Water Company	Kern	Tulare Lake	FALSE	FALSE
2662	Wasco City of	Kern	Tulare Lake	FALSE	FALSE
2679	West Kern Water District	Kern	Tulare Lake	FALSE	FALSE
863	Exeter City of	Tulare	Tulare Lake	FALSE	FALSE

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Appendix B

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Appendix BReduction RequirementEstimates for InterimStandards



Appendix B – Reduction Requirement Estimates for Interim Standard

This appendix provides aggregate reduction estimates under the interim urban water use standards for all urban retail water suppliers, suppliers within Metropolitan Water District's service area, and suppliers within Orange County. The interim standards DWR is expected to recommend are shown in the table below.

Р	eriod	Indoor Residential Water Use	Outdoor Residential Water Use	Non-Residential DIM	Distribution System Losses
(0	Before 2025	55 GPCD		80% of net ET _o	Current
erim dards	2025-2027		80% of net ET _o	Regular	Losses
Inter Stand	2028-2029	47 GPCD	II + 20% INI	100% of net ET _o applied to Special Landscape Area	
Long-Term Standards	2030 onward	42 GPCD	65% of net ET₀ applied to 100% II + 20% INI	65% of net ET _o applied to 100% of Regular Landscape Area + 100% of net ET _o applied to Special Landscape Area	State Water Board Draft Standard

Notes:

¹ Net ET_o is reference evapotranspiration minus effective rainfall, where effective rainfall is the portion of annual rainfall that contributes to plant evapotranspiration requirements and is capped at 25% of annual rainfall.

² Outdoor residential standard applies to 100% of residential landscape area classified by DWR as irrigated at the time of landscape area image acquisition (II) plus 20% of residential landscape area classified by DWR as irrigable, but not irrigated, at the time of landscape area image acquisition (INI).

³ Special Landscape Area includes landscape area dedicated solely to edible plants (e.g., community gardens), active and passive recreational areas (e.g., outdoor event spaces and sports fields), and areas irrigated with recycled water. All other landscape area irrigated with DIMs is considered to be Regular Landscape Area.

⁴ The standard for distribution system losses is expressed either in gallons per connection per day (GCD) or gallons per mile of main per day (GMD), depending on the size and connection density of the distribution system. The vast majority are in GCD.

Aggregate Reduction Estimates for Interim Standards in Effect from 2023 through 2024 Statewide

Supplier N	398		Population	36,651,826
Category	Current	Compliance	Difference	% Difference
Residential	3,428,147	3,363,807	64,340	2%
Non-Residential DIM	454,625	447,445	7,180	2%
Distribution System Loss	329,775	329,775	0	0%
Total	4,212,547	4,141,026	71,521	2%
Metropolitan Water Distr	ict Service Area			
Supplier N	147		Population	18,949,202
Category	Current	Compliance	Difference	% Difference
Residential	1,686,216	1,670,936	15,280	1%
Non-Residential DIM	243,967	242,390	1,577	1%
Distribution System Loss	133,016	133,016	0	0%
Total	2,063,200	2,046,343	16,857	1%
Orange County				0.400.400
Supplier N	29		Population	3,188,466
Category	Current	Compliance	Difference	% Difference
Residential	291,263	290,829	434	0%
Non-Residential DIM	70,729	70,607	122	0%
Distribution System Loss	18,499	18,499	0	0%
Total	380,491	379,935	556	0%

Notes:

¹Current use is the average usage reported by suppliers for 2017-2019.

²Compliance use is the expected use under the interim standards in effect from 2023 through 2024.

Aggregate Reduction Estimates for Interim Standards in Effect from 2025 through 2027 Statewide

Supplier N	398		Population	36,651,826
				0/ D ://
Category	Current	Compliance	Difference	% Difference
Residential	3,428,147	3,317,342	110,805	3%
Non-Residential DIM	454,625	443,865	10,760	2%
Distribution System Loss	329,775	329,775	0	0%
Total	4,212,547	4,090,981	121,565	3%
Metropolitan Water Distri	ct Service Area			
Supplier N	147		Population	18,949,202
Category	Current	Compliance	Difference	% Difference
Residential	1,686,216	1,655,732	30,485	2%
Non-Residential DIM	243,967	240,849	3,119	1%
Distribution System Loss	133,016	133,016	0	0%
Total	2,063,200	2,029,596	33,603	2%
Orange County				
Supplier N	29		Population	3,188,466
Category	Current	Compliance	Difference	% Difference
Residential	291,263	288,751	2,512	1%
Non-Residential DIM	70,729	70,350	379	1%
Distribution System Loss	18,499	18,499	0	0%
Total	380,491	377,600	2,891	1%

Notes:

¹Current use is the average usage reported by suppliers for 2017-2019.

²Compliance use is the expected use under the interim standards in effect from 2025 through 2027.

Statewide				
Supplier N	398		Population	36,651,826
Category	Current	Compliance	Difference	% Difference
Residential	3,428,147	3,319,263	108,884	3%
Non-Residential DIM	454,625	444,075	10,550	2%
Distribution System Loss	329,775	233,592	96,183	29%
Total	4,212,547	3,996,930	215,617	5%
Metropolitan Water Distr	ict Service Area			
Supplier N	147		Population	18,949,202
Category	Current	Compliance	Difference	% Difference
Residential	1,686,216	1,656,631	29,585	2%
Non-Residential DIM	243,967	240,920	3,047	1%
Distribution System Loss	133,016	110,054	22,962	17%
Total	2,063,200	2,007,605	55,595	3%
Orange County				
Supplier N	29		Population	3,188,466
Category	Current	Compliance	Difference	% Difference
Residential	291,263	288,709	2,554	1%
Non-Residential DIM	70,729	70,361	368	1%
Distribution System Loss	18,499	15,469	3,030	16%
Total	380,491	374,539	5,952	2%

Aggregate Reduction Estimates for Interim Standards in Effect from 2028 through 2029

Notes:

¹Current use is the average usage reported by suppliers for 2017-2019. ²Compliance use is the expected use under the interim standards in effect from 2028 through 2029.

Appendix C



Appendix C Urban Water Use Objective Analyzer



Appendix C – Urban Water Use Objective Analyzer

The *Urban Water Use Objective Analyzer* is a customized version of a model originally developed for DWR to help urban water suppliers compare their current water use against their urban water use objective (UWUO). The original DWR model uses data from water suppliers' electronic annual reports, water loss audit reports, and urban water management plans to estimate current water use and to compare this use to each supplier's UWUO under the recommended standards for (1) indoor residential water use, (2) outdoor residential water use, (3) commercial, industrial, and institutional (CII) water use served by dedicated irrigation meters (DIMs), and (4) distribution system water loss.

Several enhancements were made to the model for this project. These include:

- Supplier Data Update Module A module was added to allow suppliers to review and update the data the model uses to estimate their current water uses and calculate their urban water use objective.
- Supplier Compliance Cost Module A module was added to estimate the cost to comply with the urban water use objectives. Compliance cost is defined as the expected cost of reducing water use to satisfy the urban water use objectives minus any avoided variable water production costs. Variable water production cost for each water supplier is drawn from its annual water loss audit report. Representative costs to reduce residential indoor and outdoor water uses, CII DIM water uses, and distribution system water losses, are used to estimate the expected cost of reducing water use to satisfy the objective. The basis for these estimates is described later in this report.
- Individual Supplier Assessment Module A module was added to provide a detailed breakdown of a supplier's current water uses, water use objective, and expected cost of compliance. For purposes of calculating the expected cost of compliance, the user can choose to use the representative conservation costs developed for this project or enter their own conservation cost estimates. Likewise, they can either let the model allocate the required reduction in water use between the indoor and outdoor residential, CII DIM, and distribution system water loss categories, or enter their own allocation of water savings across these categories of water use.

Model Data Sources

The model uses the following data sources to estimate suppliers' current water uses and urban water use objectives:

- 2017-2019 Electronic Annual Report (eAR) eAR data are used to estimate supplier service area population, number of metered and unmetered service connections, and current residential, CII DIM, CII non-DIM, and other miscellaneous water uses.
- 2017-2019 Water Loss Audit Reports Urban retail water suppliers' water loss audit report data are used to estimate current real and apparent water losses and authorized

unbilled water uses, which together make up suppliers' non-revenue water (NRW) use. As discussed above, the model uses the variable water production cost in suppliers' water loss audit reports to estimate avoided production costs associated with reduced water use.

- **DWR Indoor Residential Water Use Study** Data from this statewide study are used to estimate urban retail water suppliers' indoor residential water use.
- State Water Board Draft Water Loss Standards The model uses the State Water Board's August 2022 draft water loss standards to calculate the difference between current and target distribution system water loss.
- LAM, CIMIS, and CalSIMETAW Data from the Landscape Area Measurement (LAM) project are used to estimate suppliers' residential landscape area, decomposed into irrigable irrigated (II) and irrigable not irrigated (INI) components. CIMIS and CalSIMETAW data are used to estimate suppliers' net reference evapotranspiration (ET_o).
- Urban Water Management Plans (UWMP) UWMP data are used to determine urban retail water suppliers' SB X7-7 2020 per capita water use targets. UWMP data also are used to fill in missing eAR data and to correct aberrant eAR data, as described below. Additionally, UWMP data are used to estimate current potable reuse, which, in turn, is used to estimate suppliers' potable reuse bonus incentives.
- Census ACS and DOF Population and Housing Estimates In addition to the UWMP data, in certain cases population and housing data from the Census American Community Survey (ACS) and Department of Finance (DOF) are used to cross-check and correct aberrant eAR service area population estimates. Additionally, these data are used to decompose service area population into residential and group quarters components for purposes of estimating Indoor Residential Water Use.

Data Quality Assurance

Rigorous data consistency and quality assurance checks were used to screen the data used in the model, including:

- Flagging unusual, outlier, or missing eAR data
- Cross-checking flagged data with UWMP and/or ACS or DOF data
- Filling in missing eAR data and correcting eAR data determined to be erroneous

Data corrections are documented within the model and the original and corrected data are stored side-by-side in the model. There is no data destruction. As noted above, a module was added to the model to allow suppliers to review and update their data.

Water Suppliers Included in Model

The model includes 398 urban retail water suppliers which are listed in Appendix A. Suppliers within the Metropolitan Water District and Orange County service areas have been flagged so the model can generate summaries for these regions.

Water Use Definitions

The model uses the following definitions of water use:

- Current Total Use The average total water use reported by suppliers for 2017-2019.
- **Current Residential Use** Average residential use for 2017-2019 reported by the supplier in its eAR.
- **Current Residential Indoor Use** The estimate of indoor GPCD for the supplier reported in DWR's Indoor Residential Water Use Study multiplied by the supplier's 2017-2019 average residential population.
- **Current Residential Outdoor Use** The difference between Current Residential Use and Current Residential Indoor Use.
- Current CII DIM Use Average CII DIM use for 2017-2019 reported by the supplier in its eAR.
- **Current Real Loss** Average real loss reported in supplier's 2017-2019 Water Loss Audit reports.
- **Current Regulated Use** The sum of Current Residential Use, Current CII DIM Use, and Current Real Loss.
- Indoor Residential Water Use Objective Indoor residential standard (in GPCD) multiplied by the supplier's 2017-2019 average residential population. DWR has recommended initially setting the indoor standard to 55 GPCD, stepping it down to 47 GPCD in 2027, and stepping it down again to 42 GPCD in 2030.
- Outdoor Residential Water Use Objective 100% of supplier's irrigable, irrigated (II) residential landscape area plus 20% of supplier's irrigable, not irrigated (INI) residential landscape area in square feet, multiplied by the outdoor residential standard (% of net ET_o), and converted to gallons.

Outdoor Objective = (II + 0.2 INI) x (ET_o – Effective Precipitation) x Outdoor Standard (%) x 0.62

Effective precipitation is capped at 25% of annual precipitation. DWR has recommended initially setting the outdoor standard to 80% of net ET_o and stepping it down to 65% of net ET_o starting in 2030.

 CII DIM Water Use Objective – 100% of supplier's regular irrigated area served by DIMs multiplied by the CII DIM standard for regular landscape area (% of net ET_o) plus 100% of supplier's special irrigated area served by DIMs multiplied by the CII DIM standard for special landscape area (% of net ET_{\circ}) and converted to gallons.

CII DIM Objective = (Regular Area x Standard for Regular Area + Special Area x Standard for Special Area) x (ET_o – Effective Precipitation) x 0.62

Effective precipitation is capped at 25% of annual precipitation. DWR has recommended initially setting the regular area standard to 80% of net ET_o and stepping it down to 65% of net ET_o starting in 2030. It has recommended setting the special area standard to 100% of net ET_o .

Special landscape area, as defined in the Model Water Efficient Landscape Ordinance (CCR Section 491), includes landscapes dedicated solely to edible plants (e.g., community gardens), active and passive recreational areas (e.g., outdoor event spaces and sports fields), areas irrigated with recycled water, water features using recycled water.

- **Real Water Loss Objective** Sum of supplier's active and inactive service connections multiplied by the draft water loss standard (expressed in gallons/connection/day) assigned to the supplier by the State Water Board.
- **Potable Reuse Bonus Incentive** A credit for potable reuse within the supplier's service area. It cannot exceed 15% of the supplier's Urban Water Use Objective if the potable reuse is produced by an existing project and 10% of the supplier's Urban Water Use Objective if the potable reuse is produced by a new project. Only potable reuse delivered to residential and CII DIM end uses is eligible.
- Urban Water Use Objective Sum of supplier's Indoor Residential Water Use
 Objective, Outdoor Residential Water Use Objective, CII DIM Water Use Objective, and
 Real Water Loss Objective.
- Urban Water Use Objective plus Bonus Incentive Sum of supplier's Urban Water Use Objective and Potable Reuse Bonus Incentive. The model compares this volume of water to the sum of the supplier's Current Residential Use, Current CII DIM Use, and Current Real Loss to determine if the supplier if over or under its water use objective.

Estimation of CII DIM Water Use Objective

DWR's LAM project did not measure landscape areas served by CII DIMs. The model therefore cannot directly estimate the CII DIM Water Use Objective unless a user updates their data with estimates of regular and special landscape areas served by DIMs. In the absence of these data, the model sets the CII DIM Water Use Objective to require the same percentage reduction in water use as would be required to meet the supplier's Outdoor Residential Water Use Objective. For example, if the Outdoor Residential Water Use Objective is 10% less than Current Residential Outdoor Use, then the model sets the CII DIM Water Use Objective so that it is 10% less than Current CII DIM Use.

Variances

WC §10609.14 authorizes the State Water Board to grant variances for unique uses of water that could have a material effect on a supplier's Urban Water Use Objective. Such uses include evaporative coolers, significant populations of horses and other livestock, fluctuations in seasonal populations, landscaped areas irrigated with high TDS recycled water, significant use of water for soil compaction and dust control, significant use of water to supplement ponds and lakes to sustain wildlife, significant use of water to irrigate vegetation for fire protection, and significant use of water for commercial and noncommercial agricultural production.

The State Water Board will grant variances on a case-by-case basis. It is not possible to know in advance the number or volume of variances the State Water Board may ultimately grant. Therefore, the model does not incorporate variances into its calculation of suppliers' Urban Water Use Objectives. In this regard, the model provides an upper-bound estimate of potential reduction requirements since it is expected that some suppliers will apply for and receive variances that result in an Urban Water Use Objective that is larger than the one calculated by the model.

Potable Reuse Bonus Incentives

Potable reuse bonus incentives are calculated using data on potable reuse from suppliers' urban water management plans and other sources. Per WC §10609.20, the Potable Reuse Bonus Incentive is capped at either 10% or 15% of the supplier's UWUO, depending on when the potable reuse facilities supplying the water were constructed.

SB 555 Compliance

There are cases when a supplier will have a reduction requirement even when its current use is less than its UWUO. This can occur when the supplier's current distribution system losses exceed its distribution system loss allowance. SB 555, which passed prior to the 2018 Legislation, directed the State Water Board to develop numerical standards for distribution system water losses. The 2018 Legislation incorporates these standards by reference, and they provide the basis for the distribution system water loss component of the supplier's UWUO. Importantly, the 2018 Legislation does not abrogate the requirement that water suppliers comply with the numerical water loss standards under SB 555. This can result in a situation where a supplier may be required to reduce its distribution system water losses even though its current regulated water uses are less than its UWUO.

Reduction Requirement Apportionment

To calculate a supplier's net compliance cost, the model apportions its reduction requirement as follows:

• First, the reduction in distribution system water loss needed for SB 555 compliance is calculated.

- Second, the residual reduction in water use needed for the supplier to meet its UWUO is determined.
- Third, the residual reduction requirement is divided between indoor residential, outdoor residential, and non-residential DIM water uses in proportion to the amount by which each of these end uses exceed their allowance under the urban water use standards.

Appendix D

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Appendix D Calculation of Disadvantaged Community Prevalence



Appendix D – Calculation of Disadvantaged Community Prevalence

As part of the WUE Standards Economic Analysis Report, the prevalence of disadvantaged communities (DACs) within urban retail water supplier service areas was computed. State of California law defines a DAC as a community with a median household income less than 80% of the statewide median household income (Public Resources Code §75005(g)). DWR's DAC Mapping Tool identifies all census places, tracts, and block groups in California that meet this definition. This report uses this information to calculate the prevalence of DACs within each urban retail water supplier's service area.

Prevalence of DACs is expressed as a percentage of each urban retail water supplier's total service area. This was calculated by taking Geographic Information System (GIS) boundary shapefiles of all urban water suppliers provided by DWR and intersecting each service area boundary with 2019 Census Block Group data from the American Community Survey (ACS).¹¹ Each intersected block was evaluated for DAC-designation by DWR. After computing the total acreage of all DAC-designated intersections within a supplier's service area, a ratio of the DAC-designated area to the supplier's total service area was estimated, providing the percentage of service area per urban water supplier that is designated as financially disadvantaged.

A summary table of these results are presented in Table D-1. Note that East Orange County Water District, the City of La Palma, and Trabuco Canyon Water District were found to have no DACs in their service areas. DACs within the service areas of Metropolitan Water District and Orange County are visually demonstrated in Figure D-1.

¹¹ Note the most recently updated GIS water systems boundary shapefile was provided by DWR staff. ACS data are available using the GitHub for the Nicholas Institute's Water Affordability Dashboard here: https://github.com/NIEPS-Water-Program/water-affordability/tree/main/data

Orange County Supplier	Matching	PWSID	Agency	DAC	% Service
Name	DWR ID		Acreage	Acreage	Area DAC
Anaheim City of	64	CA3010001	32759	6571	20.06%
Brea City of	263	CA3010002	7827	122	1.55%
Buena Park City of	283	CA3010003	6773	1123	16.58%
East Orange County Water District	785	CA3010068/C A3010093	617	0	0.00%
El Toro Water District	830	CA3010079	5255	2391	45.51%
Fountain Valley City of	924	CA3010069	5977	1074	17.98%
Fullerton City of	967	CA3010010	14375	3199	22.26%
Garden Grove City of	977	CA3010062	11593	2819	24.32%
Golden State Water Company - Placentia	1053	CA3010035	3980	673	16.91%
Golden State Water Company - West Orange	1062	CA3010022	9871	1181	11.97%
Huntington Beach City of	1215	CA3010053	17859	1195	6.69%
Irvine Ranch Water District	1245	CA3010092	114092	2578	2.26%
La Habra City of	1324	CA3010018	4703	383	8.14%
La Palma City of	1327	CA3010100	1082	0	0.00%
Laguna Beach County Water District	1335	CA3010017	5182	140	2.69%
Mesa Water District	1596	CA3010004	10177	1368	13.44%
Moulton Niguel Water District	1663	CA3010073	23553	228	0.97%
Newport Beach City of	1730	CA3010023	9322	681	7.31%
Orange City of	1797	CA3010027	14788	1422	9.62%
San Clemente City of	2159	CA3010036	8981	177	1.97%
San Juan Capistrano City of	2177	CA3010030	9032	1331	14.73%
Santa Ana City of	2207	CA3010038	17262	5693	32.98%
Santa Margarita Water District	2217	CA3010101	62523	7433	11.89%
Seal Beach City of	2241	CA3010041	7487	601	8.03%
South Coast Water District	2334	CA3010042	5056	276	5.45%
Trabuco Canyon Water District	2490	CA3010094	7757	0	0.00%
Tustin City of	2528	CA3010046	5102	294	5.77%
Westminister City of	2704	CA3010064	6509	2465	37.87%
Yorba Linda Water District	2782	CA3010037	14811	152	1.03%



Figure D-1. DAC Areas in Urban Retail Water Supplier Service Areas

DAC results per supplier were merged with further water affordability data from the Nicholas Institute for Environmental Policy Solutions Water Affordability Dashboard for Orange County suppliers. This was done by matching the Public Water System ID number provided by the Nicholas Institute to the corresponding DWR ID per supplier provided by DWR's water system boundary GIS file. With these unique IDs matched, the following data were merged to create an integrated water affordability dataset, including insights on the following criteria:

- Average Cost of Water Service: The sum of water service costs using 2019 rate data from the Nicholas Institute assuming an average monthly use of 8,000 gallons, including stormwater, wastewater, and drinking water services.
- **Percent DAC income spent on Water Service**: The Average Cost of Water Service divided by the average 2018 MHI of Census Block Groups within a supplier's service area.
- Household Burden Index (HBI): The percent of income spent on water service where income represents MHI of the bottom 20th percentile, the lowest quintile group.
- **Traditional Household Burden Index (TRAD):** The percent of income spent on water service where income represents the 50th percentile of MHI (includes non-DAC).
- **Poverty Prevalence Indicator (PPI):** The percent of service area per supplier that is at least 200% below the federal poverty level (FPL).
- Affordability Burden: This metric combines HBI and PPL to provide a range for how hard it is to afford water services per supplier. This increases when poverty is more prevalent and when more income is going towards paying for water services. This metric sheds light on how much a community is financially under-resourced and how much low-income households spend on water in a range with the following outcomes: low, low-moderate, moderate, moderate-high, high.
- **Labor Hours:** The expected number of labor hours required to pay for water services assuming a rate of minimum wage.

A summary of these results is provided in Table D-2. Note that water affordability data for East Orange County Water District and the City of Newport Beach were not available.

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Table D-2. Nicholas Institute of Environmental Policy Solutions Water Affordability Insights per Orange County Supplier

Orange County Supplier Name	Matching DWR ID	DWSID	Total Cost of Water Service	% DAC Income Spent on Water Service	. (%) IBH	TRAD (%)	(%) Idd	Affordability Burden	Labor Hours
Anaheim City of	2704	CA3010064	\$77.55	2.19%	4.2	1.6	37.6	Moderate-High	9
Brea City of	2207	CA3010038	\$54.54	1.47%	2	-	43.7	Moderate-High	4.2
Buena Park City of	977	CA3010062	\$63.70	1.63%	2.7	1.2	34.8	Low-Moderate	4.9
East Orange County Water District	967	CA3010010	\$76.73	2.02%	ε	1.3	27.7	Low-Moderate	5.9
El Toro Water District	830	CA3010079	\$75.32	2.12%	3.1	1.3	22.6	Low-Moderate	5.8
Fountain Valley City of	64	CA3010001	\$21.30	0.55%	0.8	0.4	35	Moderate-High	1.6
Fullerton City of	924	CA3010069	\$57.91	1.42%	1.9	0.8	21.4	Low-Moderate	4.4
Garden Grove City of	1053	CA3010035	\$76.14	2.00%	2.6	1.1	23.9	Low-Moderate	5.9
Golden State Water Company - Placentia	283	CA3010003	\$80.76	2.12%	2.9	1.3	32	Low-Moderate	6.2
Golden State Water Company - West Orange	2177	CA3010030	\$99.57	2.56%	3.3	1.4	25.6	Low-Moderate	7.7
Huntington Beach City of	1596	CA3010004	\$67.06	1.82%	2.4	H	29.4	Low-Moderate	5.2
Irvine Ranch Water District	1062	CA3010022	\$98.65	2.41%	3.4	1.5	26.4	Low-Moderate	7.6
La Habra City of	2217	CA3010101	\$87.58	2.49%	1.7	0.8	8.9	Low	6.7
La Palma City of	1797	CA3010027	\$69.15	1.76%	2.1	1	24.3	Low-Moderate	5.3
Laguna Beach County Water District	1324	CA3010018	\$59.86	1.61%	2	1	29.3	Low-Moderate	4.6
Mesa Water District	2241	CA3010041	\$64.44	2.17%	2.2	1.1	14.7	Low	ß
Moulton Niguel Water District	1730	CA3010023	\$61.77	2.19%	N/A	N/A	N/A	N/A	N/A
Newport Beach City of	1215	CA3010053	\$50.21	1.25%	1.5	0.7	20	Low-Moderate	3.9
Orange City of	2528	CA3010046	\$108.18	2.76%	3.5	1.6	26.8	Low-Moderate	8.3
San Clemente City of	2334	CA3010042	\$136.37	3.37%	3.3	1.3	11.2	Low	10.5
San Juan Capistrano City of	1335	CA3010017	\$135.50	3.25%	3.3	1.4	12	Low	10.4
Santa Ana City of	1245	CA3010092	\$170.38	4.86%	3.9	1.3	18.3	Low	8
Santa Margarita Water District	2159	CA3010036	\$116.96	3.08%	3.5	1.4	15.7	Low	6
Seal Beach City of	263	CA3010002	\$184.35	4.08%	4.8	2.5	14.8	Low-Moderate	14.2
South Coast Water District	2782	CA3010037	\$67.34	1.49%	1.4	0.7	10.9	Low	5.2
Trabuco Canyon Water District	1663	CA3010073	\$98.76	2.50%	2.5	1.1	15	Low	7.6
Tustin City of	785	CA3010068/CA3010093	\$116.25	0.00%	N/A	N/A	N/A	N/A	N/A
Westminister City of	1327	CA3010100	\$57.27	0.00%	2.2	0.7	15.2	Low	4.4
Yorba Linda Water District	2490	CA3010094	\$100.21	0.00%	1.4	0.8	9	Low	7.7



ACTION ITEM

September 21, 2022

TO: Board of Directors

FROM: Administration & Finance Committee (Directors Seckel, Dick, Thomas)

Robert Hunter, General Manager

Staff Contacts: Katie Davanaugh, Sr. Executive Assistant

SUBJECT: 2023 LIFE AND LONG-TERM DISABILITY INSURANCE POLICY RENEWALS

STAFF RECOMMENDATION

Staff recommends the Administration & Finance Committee authorize the enhancement to the life insurance policy/benefit at an annual increase of \$1,425 and the long-term disability insurance policy/benefit at an annual increase of \$1,253, as presented.

COMMITTEE RECOMMENDATION

Committee recommends (to be determined at Committee meeting).

SUMMARY

Staff met with the broker, Alliant, to review life and long term disability insurance policies which expire on December 31, 2022 and renewal rates for 2023.

Sun Life proposed a 2-year rate renewal (through December 2024) without a rate increase for both policies with enhancements as follows:

Increase the maximum life insurance benefit from \$250,000 to \$300,000. Increase the monthly maximum long-term disability insurance from \$7,500 to \$10,000.

A summary of the benefits and costs for both policies is listed below:

Budgeted (Y/N): Y	Budgeted amount:		Core <u>X</u>	Choice
Action item amount: n/a		Line item:		
Fiscal Impact (explain if unbu	idgeted):			

Basic Life and AD&D Benefits
Eligibility:
Eligible Employees
Benefit Reduction Formula
Accelerated Death Benefit
Waiver of Premium
Rate Guarantee
Rates
Insurance Volume
Basic Life Rate per \$1,000
AD&D
Combined Rate
MONTHLY PREMIUM ANNUAL PREMIUM
ANNUAL \$ DIFFERENCE ANNUAL % DIFFERENCE

Sun Lite (S Cur	ourcewell) rent	
Class 1: All active Board of Director members		
Class 2: All Full-Time Employees with a		
minimum 32 hours per week		
Class 1:	\$25,000	
Class 2: 2x annual earnings to \$250,000 max		
Age % of Original		
	Benefit	
75	65%	
80 50%		
Included up to 75% Maximum		
Included		
1 Year (1/1/202	22-12/31/2022)	
Cur	rent	
\$8,558,449		
\$0.162		
\$0.020		
\$0.182		
\$1.	558	
\$1,550		

Class 1: All active Boar	d of Director members			
Class 2: All Full-Time Employees with a				
minimum 32 hours per week				
initial be noted bet need				
Class 1: \$25,000				
Class 2: 2x annual earnings to \$300,000 max				
	% of Original			
Age	Benefit			
75	65%			
80	50%			
Included up to	75% Maximum			
Inclu	uded			
(8/1/2022 -	12/31/2024)			
Opt	ion 1			
\$9,21	1,050			
\$0.162				
\$0.020				
\$0.	182			
61	676			
, IÇ	117			
320	,117			
	\$1,425			
	7.6%			

Sun Life (Sourcewell) Option 1

Sun Life (Sourcewell) Option 1
Ig in the All Full-Time United States Employees working in the s per week United States scheduled to work at least 32 hours per wee
90 Days
66.67%
\$10,000
36 Months
80%
Own Occupation and Earning Test
6 Months
24 Months
SSNRA
3/12
(8/1/2022 -12/31/2024)
Option 1
\$395,626
\$0.308
\$1,219
\$14,622
\$1,253 9.4%

BOARD OPTIONS

Option #1

• Authorize the enhancement to the life insurance policy/benefit at an annual increase of \$1,425 and the long-term disability insurance policy/benefit at an annual increase of \$1,253

Fiscal Impact: An annual \$2,678 increase. This increase in employee benefits will be offset by the reduction of health insurance costs in the PPO insurance rates.

Option #2

• Do not authorize the enhancements to the life and long-term disability insurance policies.

STAFF RECOMMENDATION

Option #1



WFC ACTION ITEM September 21, 2022

TO: Board of Directors, MWDOC Water Facilities Corporation

FROM: Robert Hunter, General Manager Staff Contact: Steven Hung

SUBJECT: 2022 Annual Filing of Tax Compliance Reports for the MWDOC Water Facilities Corporation

STAFF RECOMMENDATION

Staff recommends that the Board of Directors Ratify the annual filing of the Water Facilities Corporation tax compliance reports as presented.

COMMITTEE RECOMMENDATION

Committee recommends (to be determined at committee meeting).

SUMMARY

To maintain the Water Facilities Corporation ("Corporation") as an active entity, the following tax compliance reports will be filed on behalf of the Corporation for FY 2021-22, upon review of the Administration & Finance Committee, and concurrence by the Corporation Board of Directors:

- ePostcard of Organization Exempt from Income Tax (IRS Form 990-N). This is allowed since the corporations gross receipts are less than \$50,000.
- ePostcard of California Exempt Organization Annual Information Return (CA Form 199-N). This is allowed since the corporations gross receipts are less than \$50,000.
- Annual Registration Renewal Fee Report to Attorney General of California
 (CA Form RRF-1)
- The Corporation Board of Directors approved filing these reports for FY 2020-21 on September 15, 2021.

Attachments

- IRS 990-N ePostcard
- CA 199-N ePostcard
- CA Form RRF-1
- CT-TR1 Form

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

e-Postcard View

Form 990-N		Electronic Notice (e-Postcard)	OMB No. 1545-2085
Department of the Treasury Internal Revenue Service	for Tax-Exe	empt Organization not Required to File Form 990 or 990-EZ	2021
			Open to Public Inspection
A For the 2021 Calendar year,	or tax year beg	inning <u>2021-07-01</u> and ending <u>2022-06-30</u>	
B Check if available ☐ Terminated for Business ✔ Gross receipts are normally \$	50,000 or less	C Name of Organization: <u>MUNICIPAL WATER DISTRICT OF</u> ORANGE COUNTY WALTER FACILITIES CORP 18700 Ward Street, Fountain Valley, CA, US, 92708	D Employee Identification Number <u>95-3500739</u>
E Website:		F Name of Principal Officer: <u>Steven Hung</u> <u>18700 Ward Street, Fountain</u> <u>Valley, CA, US, 92708</u>	

Privacy Act and Paperwork Reduction Act Notice: We ask for the information on this form to carry out the Internal Revenue laws of the United States. You are required to give us the information. We need it to ensure that you are complying with these laws.

The organization is not required to provide information requested on a form that is subject to the Paperwork Reduction Act unless the form displays a valid OMB control number. Books or records relating to a form or its instructions must be retained as long as their contents may become material in the administration of any Internal Revenue law. The rules governing the confidentiality of the Form 990-N is covered in code section 6104.

The time needed to complete and file this form and related schedules will vary depending on the individual circumstances. The estimated average times is 15 minutes.

Note: This image is provided for your records only. Do Not mail this page to the IRS. The IRS will not accept this filing via paper. You must file your Form 990-N (e-Postcard) electronically.

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Privacy Policy



199N e-Postcard

Confirmation

Print this page for your records. The Confirmation Number below is proof that you successfully filed	
your 199N e-Postcard.	

We received your 199N e-Postcard on 8/17/2022 10:22:52 AM.

Confirmation Number: 084438622910

Entity ID:	0844386
Entity Name:	MUNICIPAL WATER DISTRICT OF
	ORANGE COUNTY WATER
	FACILITIES CORPORATION

Account Period Information

Account Period Beginning:	7/1/2021
Account Period Ending:	6/30/2022

This is not your entity's first year in business.

Your entity has not terminated or gone out of business.

Your entity has not changed the account period.

Gross Receipts: \$0

This is not an amended return.

An IRS Form 1023/1024 is not pending.

Entity Information

FEIN: Doing Business As: Website Address: 953500739

Entity's Mailing Address

PO Box 20895 Accounting Fountain Valley CA 92728

Principal Officer's Information

Hllary Chumpitazi PO Box 20895 Accounting Fountain Valley CA 92728

Contact Information

Name:	Steven Hung
Phone:	714-593-5030

After we process your 199N e-Postcard, you may receive a bill if the three year <u>gross receipt average</u> is greater than the amount allowed for filing a 199N e-Postcard.

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					DEPARTMENT OF	JUSTIC	E St THE ATTOR
R-1 ev. 02/2021)					PA	GE 1 of 5	
MAIL TO: Registry of Charitable Trusts P.O. Box 903447 Sacramento, CA 94203-4470 STREET ADDRESS: 1300 I Street Sacramento, CA 95814 (916) 210-6400 WEBSITE ADDRESS: www.oag.ca.gov/charities	ANNUAL TO A Se 11 Failure to submit to organization's ac minimum tax of \$%1 23703;	REGISTRATION RENEW ATTORNEY GENERAL OF ACTIONNEY GENERAL OF Cal. Code Regs. sections 301-306, 30 this report annually no later than four months an counting period may result in the loss of tax ex 20, plus interest, and/or fines or filing penalties. Government Code section 12586.1. IRS exte	AL FEE CALIFOI overnment Co 99, 311, and 3 nd fifteen days a emption and the . Revenue & Tay nsions will be ho	REPORT RNIA de 12 after the end of the assessment of a kation Code section prored.	(For Registry Us	e Only	() Constant
Name of Organization	of Orange Cou	inty-Water Facilities Corporation	Check if:	of address			
List all DBAs and names the org	ganization uses or	has used	Amende	d report			
18700 Ward St			State Charity	Registration Nur	_{mber} 34561		
Address (Number and Street)							
Fountain Valley, CA 9270 City or Town, State, and ZIP Co	J8 de		Corporation	or Organization N	o. D-0844386		
714.593.5030	shung@m	wdoc.com					
Telephone Number	E-mail Addres	SS	Federal Emp	ployer ID No. 95	5-3500739		
ANNUAL	REGISTRATION	RENEWAL FEE SCHEDULE (11 Cal. Co Make Check Payable to Departmen	ode Regs. see nt of Justice	ctions 301-307, 3	11, and 312)		
Total Revenue	Fee	Total Revenue	Fee	Total Revenue			Fee
Less than \$50,000 Between \$50,000 and \$100,00 Between \$100,001 and \$250,0	\$25 00 \$50 000 \$75	Between \$250,001 and \$1 million Between \$1,000,001 and \$5 million Between \$5,000,001 and \$20 million	\$100 \$200 \$400	Between \$20,0 Between \$100, Greater than \$	00,001 and \$100 m 000,001 and \$500 r 500 million	illion nillion	\$800 \$1,000 \$1,200
PART A - ACTIVITIES				-			
For your most recent	t full accounting	period (beginning 07 / 01 / 2021	ending 06	3 / 30 / 2022) list:		
Total Revenue \$ (including noncash contributions)	0.00	Noncash Contributions \$	0.00	Total As	sets \$0.0	0	
Progr	am Expenses \$_	0.00 Total	Expenses \$	0.00			
PART B - STATEMENTS REGA	ARDING ORGAN	ZATION DURING THE PERIOD OF THI	S REPORT				
Note: All questions must b providing an explana	e answered. If yeation and details	ou answer "yes" to any of the questior for each "yes" response. Please revie	ns below, you ew RRF-1 inst	r must attach a s tructions for info	eparate page rmation required.	Yes	No
1. During this reporting period, officer, director or trustee the	were there any c ereof, either direc	ontracts, loans, leases or other financial t tly or with an entity in which any such offi	transactions b icer, director o	etween the organ r trustee had any	ization and any financial interest?		✓
2. During this reporting period,	was there any th	eft, embezzlement, diversion or misuse o	of the organiza	tion's charitable p	roperty or funds?		✓
3. During this reporting period,	were any organiz	ration funds used to pay any penalty, fine	or judgment?				1
 During this reporting period, coventurer used? 	were the service	s of a commercial fundraiser, fundraising	counsel for ch	naritable purposes	, or commercial		1
5. During this reporting period,	did the organizat	ion receive any governmental funding?					✓
During this reporting period,	did the organizat	ion hold a raffle for charitable purposes?					1
7. Does the organization cond	uct a vehicle dona	ation program?					✓
 Did the organization conduct generally accepted accounting 	t an independent ing principles for t	audit and prepare audited financial state his reporting period?	ments in acco	rdance with			~
9. At the end of this reporting p	period, did the org	anization hold restricted net assets, while	e reporting neg	gative unrestricted	I net assets?		1
I declare under penalty of perj belief, the content is true, corr	ury that I have ex rect and complet	xamined this report, including accomp e, and I am authorized to sign.	panying docu	ments, and to the	e best of my knowl	edge a	and
Steven 9	Hung	Steven Hung		Financial A	nalyst	8.17	.2022
Signature of Authorize	d Agenit	Printed Name		Title		D	ate
STATE OF CALIFORNIA CT-TR-1 (Orig. 09/2017)

> MAIL TO: Registry of Charitable Trusts P.O. Box 903447 Sacramento, CA 94203-4470

STREET ADDRESS: 1300 I Street Sacramento, CA 95814 (916) 210-6400

WEBSITE ADDRESS: www.oag.ca.gov/charities

ANNUAL TREASURER'S REPORT ATTORNEY GENERAL OF CALIFORNIA

Section 12586, California Government Code 11 Cal. Code Regs., Section 301

(FORM CT-TR-1)

Municipal Water District of Orange County-Water Facilities Corporation	
Name of Organization	State Charity Registration Number 34561
18700 Ward Street Address (Number and Street)	Corporation or Organization No. D-844386
Fountain Valley, CA 92708 City or Town, State and ZIP Code	Federal Employer I.D. No. 95-3500739

For annual accounting period (beginning 07 / 01 / 2021 ending 06 / 30 / 2022)

BALANCE SHEET

ASSETS

Cash	\$ 0.00
Savings	\$ 0.00
Investment	\$ 0.00
Land/Buildings	\$ 0.00
Other Assets	\$ 0.00
TOTAL ASSETS	\$ 0.00

LIABILITIES

Accounts Payable	\$ 0.00
Salary Payable	\$ 0.00
Other Liabilities	\$ 0.00
TOTAL LIABILITIES	\$ 0.00

0.00

0.00

0.00

0.00

0.00

0.00

0.00

\$ 0.00

\$

\$

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\$

\$

\$

\$ 0.00

FUND BALANCE

EXPENSES

Rent

Utilities

Insurance

Total Assets less Total Liabilities \$ 0.00

Compensation of Officers/Directors \$

Compensation of Staff

Fundraising Expenses

Supplies/Postage

Other Expenses

TOTAL EXPENSES

REVENUE STATEMENT

REVENUE

Cash Contributions	\$ 0.00
Noncash Contributions	\$ 0.00
Program Revenue	\$ 0.00
Investments	\$ 0.00
Special Events	\$ 0.00
Other Revenue	\$ 0.00
TOTAL REVENUE	\$ 0.00

NET REVENUE

Total Revenue less Total Expenses \$ 0.00

I hereby declare under penalty of perjury that I have examined this report, including accompanying documents, and, to the best of my knowledge and belief, the content is true, correct and complete and I am authorized to sign.

Steven Hung	Steven Hung	Financial Analyst	8/15/2022
Signature of Authorized Agent	Printed Name	Title	Date







ACTION ITEM

September 21, 2022

TO: Board of Directors, MWDOC Water Facilities Corporation

FROM: Robert Hunter, General Manager

Staff Contact: Maribeth Goldsby

SUBJECT: Annual Reorganization of Board Officers for the MWDOC Water Facilities Corporation

STAFF RECOMMENDATION

Staff recommends that the Board of Directors consider reorganization of Board Officers for the MWDOC Water Facilities Corporation.

MWDOC ADMINISTRATION & FINANCE COMMITTEE RECOMMENDATION

To be determined.

SUMMARY

In December 2010, the Board of Directors adopted the Amended and Restated By-Laws for the Water Facilities Corporation ("WFC"). An annual reorganization of Corporation Board Officers shall be conducted in accordance with Article IV., Sections 4.02 and 4.03, as excerpted below.

Section 4.02. Appointment. The officers shall be chosen at the annual meeting each year by the Board of Directors and each shall hold their office until they shall resign, be removed, or otherwise disqualified to serve, or a successor shall be qualified and appointed.

<u>Section 4.03.</u> <u>Term of Office.</u> Unless otherwise determined at the discretion of the Board of Directors, the term of office of the President and Vice President of the Corporation shall be for one year. The term of office of the General Manager, Secretary and Treasurer of the Corporation, respectively, shall coincide with each individual's term of employment with the District.

Currently Director Al Nederhood serves as President and Director Bob McVicker serves as Vice President of the MWDOC Water Facilities Corporation.

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

Item 7 MUNICIPAL WATER DISTRICT OF ORANGE COUNTY

Fiscal Year 2022-2023 Sole Source Procurement Justification for Projects under \$25,000*

Supplier Information/Name of Company and Prime Contact at the Supplier and at MWDOC:

Center for Demographic Research (CDR) – Deborah Diep MWDOC – Charles Busslinger

A. Contract awards to Supplier over prior 36-months:

1/30/2020	Digitized boundaries, in Shapefile and KML format, of MWDOC's	\$750.00
	historical annexation areas	
6/4/2020	MWDOC Population by Retail Service Provider 2020	\$1,964.34
6/10/2020	Disaggregation of OCP-2018 Projections by Water Service	\$4,944.24
	Provider	
1/8/2021	Estimation of Acreage by Land Uses in the MWDOC service area	\$695.00
3/1/2021	Update Population Based on Mesa WD and Newport Boundary	\$1,258.97
	changes to Water service provider	
3/15/2021	Update Population Based on IRWD and Tustin Boundary	\$1,438.44
	changes to Water service provider	
8/31/2021	Redistricting Support Services for MWDOC Director Divisions	\$23,380.00
6/4/2020	Update O.C. Transmission Main and Distribution Maps	\$682.46

B. Product(s) or Service(s) to be provided and Deliverables:

CDR will complete a number of tasks related to mapping of GIS data regarding legal boundaries and service areas of water agencies in Orange County including:

- 1. Set of draft GIS shapefiles and KML files for agency review in August 2022:
 - a. Consolidated legal boundaries for OC water agencies.
 - b. Consolidated service areas for OC water agencies.
- 2. Updated web map with water agency legal boundaries and service areas for agency review.
- 3. Final GIS shapefiles and KML files of:
 - c. Consolidated legal boundaries for OC water agencies.
 - d. Consolidated service areas for OC water agencies.
- 4. Summary methodology document of consolidated GIS boundary files.
- 5. Standalone web map of Director Divisions hosted by CDR/CSUF through 2032
- 6. Create updated maps of OC Supervisory, Congressional, Assembly, and Senate Districts; (4 maps) with OC Retail Agency boundaries and (4 Maps) with MWDOC Director Divisions.

* Projects over \$25,000 must go to a Committee of the Board.

^{**} Possible justifications include but are not limited to: Only qualified bidder; Proprietary item; Urgent necessity; Bid process did not produce competitors; Governmental agency, association or Utility; Prior phase of professional services contract completed successfully by same Consultant; and Special technical expertise by Consultant for tasks desired.

C. Justification Definition -

Expertise. CDR provided demographic and GIS technical support for MWDOC and multiple other OC agencies in their 2020 redistricting efforts. CDR has been creating maps for MWDOC and WEROC over the past 10+ years using an extensive GIS database developed over that time.

D. Narrative Explanation:

MWDOC has encountered a number of discrepancies between information contained in various GIS information sources concerning agency legal boundaries and service areas over the past several years. MWDOC staff have identified a number of boundary overlaps between agency databases as well as within MWDOC's own GIS data. Much of these discrepancies are an artifact of the evolution of GIS over the past 10-15 years, and the increased accuracy of GIS systems and geo-referencing capabilities; as well as the 2020 redistricting process where additional discrepancies were introduced between agency legal boundaries and the census block boundaries.

As a sponsor of CDR, MWDOC engaged CDR to complete preliminary investigative work on this project in June 2022 in order to determine the extent of GIS 'clean up' work required to clarify legal and service area boundaries and develop a scope of work.

E. Budget Line Item Reference & Amount:

Cost Center 21 7010 - Exhibit J -- CDR GIS Retail & Division Boundary Corrections

Included in Budget Approval = \$15,000

This item = \$11,225

F. Core or Choice designation:

Core

G. Signature/Approvals:

Charles Busslinger	8/30/2022
Requestor	Date
CocuSigned by:	
Harvey De La Torre	9/1/2022 2:14 PM PDT
Harvey De La Torre, Assistant General Manager	Date
Robert J. Hunter, General Manager	

* Projects over \$25,000 must go to a Committee of the Board.

** Possible justifications include but are not limited to: Only qualified bidder; Proprietary item; Urgent necessity; Bid process did not produce competitors; Governmental agency, association or Utility; Prior phase of professional services contract completed successfully by same Consultant; and Special technical expertise by Consultant for tasks desired.



Sponsors:

California State University, Fullerton

County of Orange

Municipal Water District of Orange County

Orange County Council of Governments

Orange County Sanitation District

Orange County Transportation Authority

Orange County Water District

Southern California Association of Governments

Transportation Corridor Agencies

Contributing Partner:

Orange County Local Agency Formation Commission

August 29, 2022 SCOPE OF WORK

Consolidated GIS boundaries for Retail Water Agencies (Legal) and Water Provider Service Areas MWDOC Work Order #124

Description

The CDR will complete the consolidated GIS legal boundaries and service areas for water agencies in Orange County; this project builds on efforts that began in 2021 to consolidate the legal and service areas of Orange County water agencies and MWDOC Work Order #122.

<u>Tasks</u>

- 1. Complete initial drafts in GIS of consolidated legal boundaries and consolidated service areas for all water agencies in Orange County (completed 6/2022).
- 2. Coordinate with MWDOC on outstanding service area issues needing follow up with OC water agencies (completed 7/2022).
- 3. Prepare final draft of consolidated legal boundaries and service areas in GIS (completed 8/2022).
- 4. Prepare GIS data and online web map for agency review. The map will include review and reference files: consolidated legal and service area boundaries, OC Surveyor city boundaries and OC LAFCO legal boundaries for OC Water agencies (completed 8/2022).
- Assist in coordination of review by MWDOC, OC water agencies, and OC LAFCO of consolidated legal boundaries and consolidated service areas (anticipated review by agencies to start by August 18, 2022).
- 6. Receive any final updates to boundaries per August 2022 agency/LAFCO review and complete:
 - a. Final consolidated GIS legal boundaries for all OC water agencies.
 - b. Final consolidated GIS service areas for all OC water agencies.
- 7. Prepare separate web map that displays the MWDOC 2022 Director Divisions for public to be able to find which division they live in. CDR will host this via the CSUF Esri license through 2032 as long as MWDOC is a sponsor of CDR and CDR has access to CSUF's ArcGIS license. If MWDOC has its own ArcGIS Online license and wants to host the map itself, CDR can transfer the information and layers to MWDOC upon request.

Products

- 1. Set of draft GIS shapefiles and KML files for agency review in August 2022:
 - a. Consolidated legal boundaries for OC water agencies.
 - b. Consolidated service areas for OC water agencies.
- 2. Update web map with water agency legal boundaries and service areas for agency review.
- 3. Final GIS shapefiles and KML files of:
 - a. Consolidated legal boundaries for OC water agencies.
 - b. Consolidated service areas for OC water agencies.
- 4. Summary methodology document of consolidated GIS boundary files.
- 5. Standalone web map of Director Divisions hosted by CDR/CSUF through 2032.

Estimated Cost and Timeline

Estimated Cost: \$10,980.63 Project will be billed on a cost-recovery basis. Pa Scope of Work WO#124 Consolidated GIS boundaries for Retail Water Agencies (Legal) and Water Provider Service Areas

Estimated completion: 4 months from notice to proceed in June 2022. CDR will need one week to complete the boundary updates after receiving all comments from August 2022 agency review.

This quote will expire on September 30, 2022.

 Contact:
 Deborah Diep, CDR Director (657) 278-4596
 ddiep@fullerton.edu

 Teresa Victoria, GIS Analyst (657) 278-4670
 tvictoria@fullerton.edu



Sponsors:

California State University, Fullerton

County of Orange

Municipal Water District of Orange County

Orange County Council of Governments

Orange County Sanitation District

Orange County Transportation Authority

Orange County Water District

Southern California Association of Governments

Transportation Corridor Agencies

Contributing Partner:

Orange County Local Agency Formation Commission

August 31, 2022 Scope of Work MWDOC Director Division and Retail Water Agency Maps with Legislative Overlays Work Order #126

Description

The Center for Demographic Research (CDR) will provide MWDOC with 9 maps displaying MWDOC's 2022 Director Division boundaries and Retail Water Agency boundaries overlaid with various legislative boundaries.

<u>Tasks</u>

- 1. Import 2022 Director Division, Retail Water Agency (legal), Congressional, Assembly, Senate, and Supervisorial GIS boundary layers.
- 2. Symbolize boundary layers using the same symbology as previous iterations.
- 3. Export nine (9) maps to PDF format and send drafts to Heather Baez for review.
- 4. Allow for one round of feedback from MWDOC.
- 5. Make final adjustments, export, and send final map products to MWDOC.

Products

- 1. One PDF map of Congressional Districts and MWDOC's 2022 Director Divisions.
- 2. One PDF map of Congressional Districts and Orange County Retail Agency boundaries.
- 3. One PDF map of Assembly Districts and MWDOC's 2022 Director Divisions.
- 4. One PDF map of Assembly Districts and Orange County Retail Agency boundaries.
- 5. One PDF map of Senate Districts and MWDOC's 2022 Director Division boundaries.
- 6. One PDF map of Senate Districts and Orange County Retail Agency boundaries.
- 7. One PDF map of Orange County Supervisorial Districts and MWDOC's 2022 Director Divisions.
- 8. One PDF map of Orange County Supervisorial Districts and Orange County Retail Agency boundaries.
- 9. One PDF map of Orange County Retail Agency boundaries and MWDOC Director Divisions.

Estimated Cost and Timeline

Estimated Cost: \$215.94 Project will be billed on a cost-recovery basis. Not to exceed estimated costs above unless project is modified. Estimated Completion: Two business days from notice to proceed. This quote will expire on September 30, 2022.

Contact

Teresa Victoria, GIS Analyst, (657) 278-4670, <u>tvictoria@fullerton.edu</u> Deborah Diep, Director, (657) 278-4596, <u>ddiep@fullerton.edu</u>

Item No. 8



INFORMATION ITEM September 14, 2022

- TO: Administration & Finance Committee (Directors Seckel, Thomas, Dick)
- FROM: Robert Hunter, General Manager

Staff Contact: Harvey De La Torre, Assistant General Manager

SUBJECT: UPDATE REGARDING MWDOC MEMBER AGENCY FACILITATED DISCUSSIONS

STAFF RECOMMENDATION

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

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

REPORT

Thus far, MWDOC has held three member agency facilitated discussion workgroup meetings (June 30, July 25, and September 6) as part of Phase II. Mr. Paul Brown, of Paul Redvers Brown Inc. is facilitating the workgroup meeting discussions to encourage a productive dialogue among all the member agencies to ensure all of the issues and concerns are incorporated.

Workgroup Meetings #1 & #2

The first workgroup meeting kicked off the process by seeking to build off the input received from the interviews and discussions with the member agencies from Phase I. In addition, there was a robust discussion on the approach and scope for better defining MWDOC's role and responsibility in Orange County as well as MWDOC's relationship among its member agencies.

Budgeted (Y/N): N/A	Budgeted amount: None		Core	Choice
Action item amount: N/A Line item:				
Fiscal Impact (explain if unbudgeted):				

The workgroup discussed and identified topics and preliminary hierarchy of issues to engage. The consensus was to start with high level issues such as MWDOC's relationship with the member agencies.

The second workgroup meeting included MWDOC Board members Seckel and McVicker in their role of listening and understanding the member agencies concerns and issues. It was suggested that the workgroup may not want to limit MWDOC's role but rather define a "process" or set of expectations from MWDOC to ensure an open and transparent dialogue with the member agencies occur before any decisions are made.

There was also a healthy discussion regarding how to ensure the member agencies concerns are heard; and that the expectations are clearly understood on how MWDOC deliberates on such decisions.

Workgroup Meeting #3

The third workgroup commenced with a brief review of workgroup meeting #2 and discussed the relationship between MWDOC and the member agencies as it relates to respective needs and expectations. Mr. Brown had the workgroup focus on defining these needs and expectations in three reoccurring challenges that arose in Phase I of the facilitated discussions; (1) MWDOC's role in water supply planning; (2) MWDOC's role in water supply development; and (3) MWDOC's representation at Metropolitan.

During this discussion, the dialogue centered on how MWDOC can improve its deliberation process on key local and metropolitan decisions as well as how MWDOC considers, understands, and incorporates member agency priorities. Additionally, it was suggested that MWDOC and the member agencies should continue to improve its way of communication in order to better understand each other's approach on Metropolitan issues, regional studies, and policy position.

Although there was much progress made in the areas of MWDOC's role and expectation in water supply planning and representation at Metropolitan, the workgroup suggested focusing workgroup meeting #4 on MWDOC's role in water supply development. We anticipate this next meeting will occur in late September or early October.

Attachment: *MWDOC Member Agencies Facilitated Discussion #3* Presentation, September 6, 2022





Agenda of Workgroup Meeting #3

- Review Meeting #2 outcomes
- Agree on framework for discussing needs and expectations
- Identify expectation gaps and agreements
- Define next steps

Debate Versus Dialogue

Debate	Dialogue
Assuming that there is a right answer and you have it	Assuming that many people have pieces of the answer and that together they can craft a solution
Combative: participants attempt to prove the other side wrong	Collaborative: participants work together toward common understanding
About winning	About exploring common ground
Listening to find flaws and make counterarguments	Listening to understand, find meaning and agreement
Defending assumptions as truth	Revealing assumptions for reevaluation
Critiquing the other side's position	Reexamining all positions
Defending one's own views against those of others	Admitting that others' thinking can help improve on one's own

Source: Daniel Yankelovich, The Magic of Dialogue: Transforming Conflict into Cooperation, 1999

















Next Steps

- Identify gaps between MWDOC and Member Agency needs and expectations
- Discuss process for addressing/closing gaps
- Report progress to MWDOC Board



ACTION ITEM September 21, 2022

TO: Board of Directors

FROM: Administration & Finance Committee (Directors Seckel, Thomas, Dick)

Rob Hunter, General Manager

Staff Contact: Katie Davanaugh, Sr. Executive Assistant

SUBJECT: 2023 HEALTH SAVINGS ACCOUNT CONTRIBUTIONS

STAFF RECOMMENDATION

It is recommended that the Board of Directors approve Option 1, as follows:

Establish the District's annual Health Saving Account (HSA) contributions for 2023, per JPIA recommendation.

	Employee	2-party	Family
Proposed annual District contribution (by plan, by tier)			
Kaiser	\$1500	\$3000	\$3000
Anthem	1300	2600	2400

COMMITTEE RECOMMENDATION

Committee recommends (to be determined at Committee meeting)

<u>Summary</u>

Annually at open enrollment, the Board of Directors reviews, establishes and approves the District's contribution amounts to a Health Saving Account for employees who opt to participate in a Consumer Driven Health Plans (CDHP).

2023 will be the 8th year that the District has offered and participated in the Anthem PPO and Kaiser Consumer Driven Health Plans (CDHP). To incentivize participation in these plans, JPIA recommends that Districts make a contribution to each participant's HSA.

Budgeted (Y/N): Y	Budgeted amount:		Core <u>X</u>	Choice
Action item amount: varies by actual Line item:				
Fiscal Impact (explain if ur	nbudgeted):			

The District currently has one participant (single coverage) enrolled in the Kaiser Consumer Driven Health Plan.

The recommended contributions for 2023 will remain the same as 2022 contributions.

BOARD OPTIONS

Option #1

Authorize 2023 contributions to the HSA Accounts, per MWDOC policy and JPIA recommendation.

Business Analysis: Providing District contributions encourages participation in the plans and may reduce/increase costs to the District, depending on plan enrollment.

Option #2

Do not authorize contributions to the HSA.

Business Analysis: If not approved, this may discourage enrollment.

STAFF RECOMMENDATION

Option #1



INFORMATION ITEM

September 14, 2022

To: Administration & Finance Committee (Directors Seckel, Dick, Thomas)

From: Robert Hunter, General Manager Staff Contact: Katie Davanaugh

SUBJECT: 2023 Health Insurance Rates and Open Enrollment Dates

STAFF RECOMMENDATION

Staff recommends the Administration & Finance Committee receive and file information.

COMMITTEE RECOMMENDATION

Committee recommends (to be determined at Committee meeting).

DETAILED REPORT

The Open Enrollment period for medical and vision insurance for 2023 through JPIA will be October 3rd through November 10th 2022. Plan information will be provided to all eligible participants in early October.

Dental open enrollment will be October 3-14 for participants that have changes. Only one dental plan is available.

2023 Medical, vision and dental insurance rate changes are listed below:

JPIA Benefit Plans	% Rate Change
Anthem PPO - medical	-10%
Anthem HMO – medical	+5.4%
Kaiser	1.3%
Kaiser Sr. Advantage	-11.3%
UHC Medicare Advantage	+3.1%
VSP - vision	No change
SDRMA Plan	
Delta Dental	Decrease less than 1%

- The amount budgeted for FY 2022-23 for medical, dental and vision benefits is \$827,912
- Based on the 2023 plan premium rates, the projected totals for 2022-23 will be \$741,200

Budgeted (Y/N): Y	Budgeted amount: \$827,912		Core <u>X</u>	Choice
Action item amount: NA Line item:				
Fiscal Impact (explain if unbudgeted):				



Administration Activities Report

August 5, 2022 – September 8, 2022

Activity	Summary
Administration/	Administration team worked on the following:
Board	Scheduled meetings for Rob Hunter, Harvey De La Torre and Board members.
	 Assisted Rob and Harvey with various write-ups and follow-up for the Committees and Board.
	 Continue to send the Water Supply Reports to the member agencies. Processed and reviewed agreements for appropriate Board approval and insurance requirements as well as execution following approval; conferred with staff re processes
	Conferred with legal counsel regarding Conflict of Interest Code
	 Responded to one Public Records Act request Assisted with the response to the Grand Jury Report and scheduled meeting with OCWD and SMWD
	 Assisted legal counsel with GM performance evaluation details Coordinated with PA and Engineering on updating the division boundaries on the website
	 In the process of coordinating Ethics Training and Harassment Prevention training
	Coordinated contract with BBK
	 Worked with IT regarding GM computer issues and forms for Directors Prepared and distributed various Resolutions
	Conducted research for Director on past Board actions
	Solicited availability, set-up and hosted Zoom meetings for General
	Manager, Assistant General Manager and Director of Engineering.
	Scheduled a meeting between MWDOC & LADWP
	 Attended meetings regarding Phase 3 of the Facilitated Discussion project.
	Processed agreements for Engineering
	Registered Staff and Directors for various training and conferences, made
	travel accommodations and handled expenses.
	Hosted ISDOC Executive Meeting and drafted meeting minutes.
	Formatted letter for Governmental Affairs.
	Began updating the 2023-2024 Conference date list.
Records	Administration Team worked on the following:
Management	 Continues to review incoming mail and log necessary documents into the Laserfiche system.
	 Staff continues to review documents and update information in Laserfiche.



Health and	• Attended the JPIA Open Enrollment webinar for 2023 health benefits.
Welfare Benefits	This information will be shared with participants during Open Enrollment
	which is being scheduled for October.
Recruitment /	Nathan Shepherd joined the District on 8/31 as a Public Affairs
Departures	Coordinator I.
	 Recruitment efforts for the Water Loss Control Intern have been
	extended.
	 Chris Lingad will be departing the District in early November.
	 Recruitment efforts have been initiated to fill a Sr. Engineer/Principal
	Engineer position.
	 David Anderson will be joining the District on September 12 as the
	District's WEROC Specialist.
	 WUE has filled 2 intern positions and those individuals. Claire Johnson
	and Melissa Hurtado, will start with the District in the next week.
Projects/	Administration Team worked on the following:
Activities	The atrium landscape refresh project was completed 8/30.
	Continue to coordinate with the Director of Emergency Management on
	COVID-19 protocols, OSHA ETS and State guidelines.
	 Hosting of Board, Committee and Department meetings via zoom.
	 Updates to the District Act Database and to the District Contacts in
	Outlook.
	 Provided assistance with WACO on the following items: Meetings via
	Zoom, PowerPoint presentations and various correspondence.
	 Staff assisted with preparation, distribution and compilation of GM
	Performance and Goal Setting Forms.
	Responded to EMWD regarding Performance Management and Flexible
	Positions.
	Responded to Mesa WD GM Salary Survey.
	Provided assistance to Finance department on year-end accounting and
	purchase requisitions.
	Creating a new MWDOC staff directory as a reference for Directors.
	Bids were solicited for plant service and a vendor was selected. Plants
	have been ordered and will be installed in the next 3 to 4 weeks.
	• Bids were solicited for window coverings for specific areas throughout the
	office and a vendor was selected. Window coverings will be delivered
	and installed in the next 4 to 6 weeks.
	Conference call was held with PERS to discuss the District's termination
	liability amounts and its contract.
	Coordinated with legal counsel on GM Performance Evaluation.



Met with PeopleSpace on outstanding punch list items.
Assisted in compiling and reviewing OPEB Census and actuarial
information.
Reviewed Cell Phone and Computer Loan Policies.
Participated in WEROC, WUE and Public Affairs Interviews.

Item No. 10b



INFORMATION ITEM September 14, 2022

TO: Administration & Finance Committee (K. Seckel (Chair), J. Thomas, L. Dick)

FROM: Robert J. Hunter, General Manager Staff Contact: Steven Hung

SUBJECT: Finance and IT Pending Items Report

SUMMARY

The following list details the status of special projects that are in-progress or to be completed during FY 2022-23.

Finance

Description	% of Completion	Estimated Completion date	Status
Further Implementation of WUE Landscape Programs Databases and Web Site.	On-going	On-going	In Progress
2022 W-9 collection for conservation rebates. Currently holding one rebate check awaiting a W-9 form.	On-going	On-going	On-going
Annual Financial Audit	50%	09/16/2022	In Progress
RFP for Custodial Services	0%	12/31/2022	Not Started

Information Technology

Description	% of Completion	Estimated Completion date	Status
Network security issues (hackers, viruses and spam emails)	On-going	On-going	Continuous system monitoring
Replace End-Of-Life Cisco Voice Gateway router (hardware and software)	30%	03-31-2023	In Progress

Upgrade backbone Gigabit network switch (hardware)	75%	03-31-2023	In Progress
Windows Operating systems software upgrade for all Servers	0%	6-30-2022	Not Started
Microsoft Office 365 software upgrade	10%	12-31-2022	In Progress
Replace Wireless Access Controller for wireless network	0%	06-30-2022	Not Started
Replace computers/laptops for Staff	25%	3-31-2022	In Progress

FY 2021-22 Completed Special Tasks

Description	% of Completion	Completion date	Status
Finance		·	
Preparation of documents for FY2021-22 revised budget.	100%	10-31-2021	Completed
Annual audit of our financial statements. Final audit week of Sept 13 th .	100%	11-04-2021	Completed
Prepare Annual Financials	100%	11-02-2021	Completed
State Controller Report preparation FY 2020-21	100%	03-17-2022	Completed
Government Compensation in California FY 2020-21	100%	04-11-2022	Completed
Preparation of documents for FY 2022-23 budget process.	100%	04-30-2022	Completed
RFP for new Annual Financial Statement Auditors	100%	04-20-2022	Completed
Transparent California report submittal	100%	06-22-2022	Completed
Information Technology			
Upgrade 2 IT laptops for check-out	100%	12-31-2021	Completed
Upgrade Conference room 101 and 102 with new Audio/Video equipment.	100%	10-31-2021	Completed
Replace 10 computers and monitors for Staff	100%	12-31-2021	Completed

Exchange E-mail Online Migration for the District	100%	03-31-2022	Completed
Critical Security Controls Review by Tevora	100%	03-31-2022	Completed
Software and hardware upgrade for Hyper-V Virtual Server	100%	07-31-2022	Completed
Batteries replacement for UPS	100%	09-30-2022	Completed



INFORMATION ITEM

September 14, 2022

- TO: Administration & Finance Committee (Directors Seckel, Dick, Thomas)
- FROM: Robert Hunter, 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.

- <u>OC Water Usage, Monthly by Supply</u> **OCWD Groundwater was the main supply** *in July.*
- <u>Estimated OC Water Usage, Monthly, Comparison to Previous Years</u> Water usage in July 2022 was slightly below <u>average</u> compared to the last 5 years. We are projecting a decrease in overall water usage compared to FY 2021-22. On July 8th 2021, state officials have ask California residents to voluntary reduce their water usage by 15% compared to 2020 levels.
- <u>Historical OC Water Consumption</u> Orange County M & I water consumption is <u>projected to be</u> 538,000 AF in FY 2022-23 (this includes ~11 TAF of agricultural usage and non-retail water agency usage). This is about 8,000 AF less than FY 2021-22 and is about 22,000 AF less than FY 2020-21. Water usage per person is projected to be slightly lower in FY 2021-22 for Orange County at 152 gallons per day (This includes recycled water usage). Although OC population has increased 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

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

Efficiency (water conservation) efforts. *O.C. Water Usage has declined significantly since the FY 2013-14. Since FY 2013-14 average O.C. Annual Water usage is 535,000 AF, a decline of 86,500 AF since FY 2013-14.*

<u>Water Supply Information</u> 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.

- <u>Orange County's</u> accumulated precipitation through *early September was below average* for this period. Water year to date rainfall in Orange County is **7.43** *inches*, which is **57% of normal**.
- <u>Northern California</u> accumulated precipitation through *early September was 83% of normal for this period*. Water Year 2021 was 48% of normal while water year 2020 was 63% of normal. The *Northern California snowpack was 27% as April 1st, 2022. As of early September, 99.76%* of California is experiencing *moderate to severe drought conditions*. 40.18% of California is experiencing *extreme to exceptional drought conditions*. The State Water Project Contractors Table A Allocation was decreased in March to 5% for WY 2022.
- <u>Colorado River Basin</u> accumulated precipitation through *early September was* 100% of normal for this period. The Upper Colorado Basin snowpack was 86% of normal as of April 15th 2022. Lake Mead and Lake Powell combined have about 37.0% of their average storage volume for this time of year and are at 26.2% of their total capacity. For the first time on the Colorado River, Lake Mead's levels have fallen below the "trigger" limit of 1,075 ft. at the end of a calendar year. 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 September was <u>31.00' BELOW</u> the "trigger" limit. The USBR has declared a <u>shortage on the Colorado River staring January 1st 2022</u>. <u>There is a</u> <u>100% chance of shortage continuing in 2023, 93% in 2024, 100% in 2025 and 93% in 2026</u>. Lake Mead as of early September was <u>1.00' BELOW</u> the State of California "trigger" limit. <u>There is a 3% chance of shortage for California in</u> <u>2023 (-180 TAF), 70% in 2024 (-272 TAF), 66% in 2025 (-290 TAF) and 56% in</u> <u>2026 (-299 TAF).</u>





GW for consumptive use only. Excludes In-Lieu water deliveries and CUP water extraction that are counted with Import. BPP in FY '22-23 is 77%. MWDOC's estimate of monthly demand is based on the projected 5 Year historical retail water demand and historical monthly demand patterns. <u>7</u> 2 2 2 2 2 2

Total water usage includes IRWD groundwater agricultural use and usage by non-retail water agencies.



Sum of <u>Imported</u> 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 <u>Oct.-Sep.</u> water year, early September 2022





MWDOC















Point






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