



RAYMOND BASIN MANAGEMENT BOARD

ANNUAL REPORT

JULY 1, 2022 — JUNE 30, 2023



SEPTEMBER 2023

Santa Anita Dam and Spreading Grounds Projects

MISSION STATEMENT

*The Raymond Basin Management Board
is responsible for managing the current and future quality
and quantity of water resources for the benefit of
its members and the communities they serve.*

FOREWORD

The Raymond Basin Management Board, as Watermaster, is pleased to submit this report on water supply conditions in the Raymond Basin during the 2022-23 fiscal year. It is prepared annually in accordance with the provisions of the Superior Court of California, County of Los Angeles Judgment in the City of Pasadena vs. City of Alhambra, et al., Case No. Pasadena C-1323.

The Watermaster utilizes the services of the Raymond Basin Staff and Stetson Engineers to prepare the annual report. This report summarizes the Watermaster work, conditions of groundwater supply, water use, storage, groundwater replenishment, and gives a financial summary for the fiscal year.

The Raymond Basin Staff wishes to acknowledge and express appreciation for the assistance and support received from the public and private parties and the individuals whose contributions were essential to the preparation of this report.

**WATERMASTER SERVICE IN THE
RAYMOND BASIN**

July 1, 2022 – June 30, 2023

September 2023

BOARD OF DIRECTORS

2022-2023



Lisa Yamashita-Lopez, Chair
Rubio Cañon Land & Water Association

Jose Reynoso, Vice Chair
City of Sierra Madre

Chris Burt, Secretary
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Paul Cranmer, Treasurer
City of Arcadia

Jennifer Betancourt Torres*
Lincoln Avenue Water Company for Monk Hill

Jim Prior
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Martin Ray
City of Alhambra

Stacie Takeguchi, Member at Large
City of Pasadena

Jessica Taylor
California-American Water Company

Ken Tcheng
Sunny Slope Water Company

Kelly L. Gardner, Executive Officer**
Assistant Secretary Treasurer

*Jennifer Betancourt Torres appointed to replace William Kimberling, January 2023.

**Kelly Gardner appointed to Executive Officer to replace Anthony Zampielo, January 2023.

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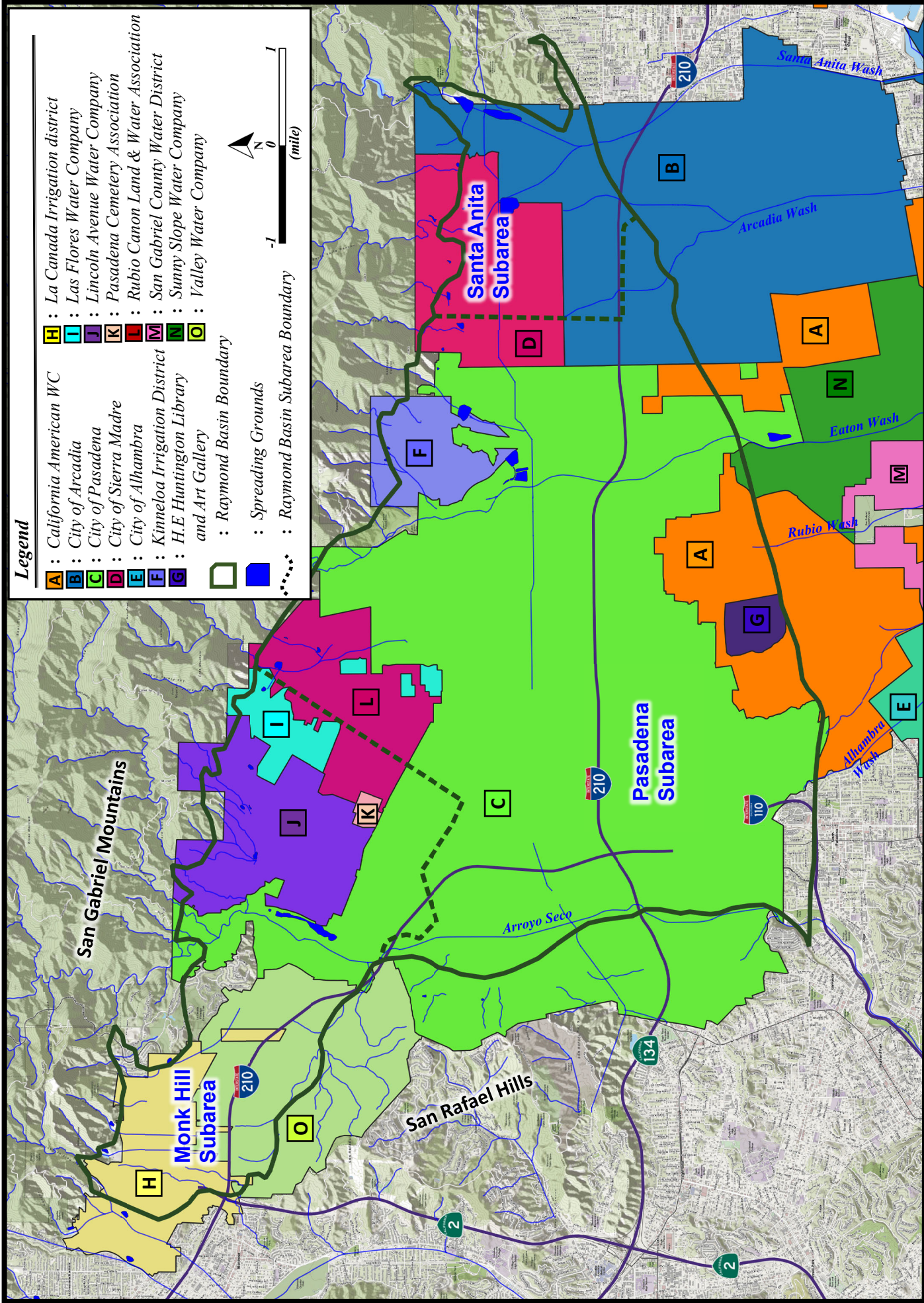
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Water Service Areas of Parties to Raymond Basin Watermaster Service

Figure 1



SUMMARY OF WATER CONDITIONS AND OPERATIONS

On September 16, 2014, Governor Edmund G. Brown Jr. signed a three-bill package (AB 1739 - Dickinson, SB 1319 and SB 1168 - Pavley) known as the Sustainable Groundwater Management Act (SGMA). SGMA created a framework for sustainable, local groundwater management for the first time in California history, outside of court adjudicated basins.

In accordance with the stipulations in the California Water Code, the Raymond Basin Management Board staff, serving as Watermaster for the Raymond Basin, submitted a copy of the governing final judgment, including amendments, along with the annual report to the State of California Department of Water Resources (DWR) on March 31, 2023. Additionally, staff continues to comply with certain regulations within SGMA, which include reporting to DWR on groundwater elevation data, groundwater extractions, surface water supply, total water usage, and groundwater storage.

Summarized below, and in Tables 1 to 4, are highlights of operations for the current fiscal year. Details of the Basin operations and the historic and operational data follow these tables.

1. Precipitation (Tables 1 and 5; Figures 2, 3, and 4)

Precipitation has increased from the previous year (42.19 inches during 2022-23 versus 16.40 inches during 2021-22), roughly 199% percent of the 74-year average (21.17 inches).

Water spread in the Basin increased from the prior year by approximately 377%. (15,547 acre feet during 2022-23 versus 3,259 acre feet during 2021-22).

2. Groundwater Levels Measured in October 2022 and April 2023 (Table 8; Figures 8-12)

Although water levels have continued to fluctuate throughout the Basin, Basin levels appear to have increased following record rainfall in 2022-23. (Figure 8)

3. Water Quality Monitoring Program in the Raymond Basin

Water in the Basin continues to be of good quality regarding most constituents except for a few sources with high fluoride concentrations in the foothills and high nitrate concentrations in the Monk Hill Subarea and Pasadena Subarea. Volatile organic compound (VOC) contaminants have been detected in several areas, particularly in the Arroyo Seco.

In late June of 1997, perchlorate, a previously unknown contaminant, was detected in several basin wells and several monitoring wells at the JPL

Superfund site. As a result of the recent change in the maximum contaminant level (MCL) for, Hexavalent Chromium, RBMB staff continues to monitor these and other constituents to manage water quality effectively and efficiently in the Basin.

In recent years, the presence of PFAS/PFOA have been a water quality concern at both the federal and state level. Raymond Basin Management Board does not manage a comprehensive sampling program throughout the Basin, rather some agencies elect to gather and report data independently. The Board has discussed potential impacts with producers relative to their systems and so far, have not received any orders from the Division of Drinking Water for specific sampling. Staff prepared cost proposals in FY 21-22 to budget for Basin-wide sampling, but the Board elected to continue with the sampling program on a voluntary basis.

4. Nonparty Pumpers

The Las Encinas Hospital resumed pumping from its private well during the 2017-18 fiscal year. The well was inactive in FY 22-23 and produced 0.01 acre-feet in the process of meeting the RBMB meter testing requirement.

5. JPL Superfund Clean-Up Project (Appendix G)

Progress has been made over the past few years with respect to groundwater cleanup efforts by the National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory (JPL). NASA funded and completed the installation of a 2,000 gpm ion exchange treatment plant at Lincoln Avenue Water Company in July 2004. It is within the area known as OU-1 under a clean-up order issued by the USEPA for the removal of Perchlorate. The intent is to contain high levels of VOC's and Perchlorate that are known to be migrating from beneath the JPL property.

Additionally, NASA owns and operates a Bio-remediation treatment plant located on the JPL site intended to intercept high-level contaminants at the source. A new extraction (EW-3) and injection well (IW-3) were added to the OU-1 system and began operation in October 2007. In FY 2017-18, Lincoln Avenue Water Company activated its New Well No. 6 as part of the overall OU-1 clean-up project. In FY 2018-19, NASA drilled a new well on the JPL site for additional contaminant plume capture called EW-4 (presented to RBMB July 2019). It was not constructed to increase extraction rates, rather a replacement for an existing well upstream.

The plant extracted, treated and re-injected 247.66 acre-feet of groundwater from July 1, 2022 through June 30, 2023 (detailed production and injection data contained in Appendix G).

6. Cost Account for Water Salvaged by Sierra Madre (Table 12)

Expenditures during 2022-23 totaled \$1,378.

7. Over Extractions (Table 3)

There were no over extractions during the 2022-2023 fiscal year.

8. Meters Tested (Table 13)

The Management Board requires annual testing of well water production meters. Meters recording more than 5% slow require adjustment to production records. Meters recording fast are the responsibility of the party to adjust. 38 production meters were tested in fiscal year 2022-23. All meters were found to be in compliance.

9. Long-Term Storage Accounts, (Table 4A, 4B and 4C)

The Management Board affirmed the previously approved 1.0 percent loss factor and \$1.50 administrative charge per acre foot for fiscal year 2022-23. A net reduction of approximately 196 acre-feet in Long-Term Storage occurred between July 1, 2022 and June 30, 2023. Beginning June 30, 2009 Long-Term Storage Accounts in the Pasadena Subarea will not be allowed to increase in size beyond certified 2007-2008 amounts.

Effective April 15, 2015, the Board approved Short-Term Storage accounts for the Pasadena Subarea that allows a “one-year carry-over” of unused water for the purpose of storing water in wetter years.

Resolution 54-0719 approved by the Board in 2019 “freezes” existing Long-Term Storage accounts in the Pasadena Subarea, halting its use. Resolution 57-0423 approved by the Board in 2023 “freezes” Long-Term Storage accounts in the Monk Hill Subarea and, effective July 1, 2023, Long-Term Storage cannot be increased or reduced without the approval of an application for an Emergency Exemption as defined in the resolution.

10. In-Lieu Programs

In 2019, the City of Pasadena Water and Power, through a program with the Metropolitan Water District (MWD), participated in an in-lieu program to retire 1,000 acre-feet of water in the Pasadena Subarea. The RBMB agreed to fund this program out of reserves to take advantage of available MWD imported water in lieu of groundwater pumping to help stabilize groundwater levels. In FY 22-23,

the City of Pasadena Water and Power, through a program with the Metropolitan Water District (MWD), participated in the Winter In-Lieu Program to retire 296.43 acre-feet of water in the Monk Hill Subarea. The RBMB conditionally approved participation in the program based on performance criteria and agreed to fund the program out of reserves. A plan for repayment of reserves is being developed.

The RBMB recognizes that the short-term solution to replenishing the Basin is through utilization of in-lieu means, therefore, this can be coordinated with willing and able producers in any given year pending Board approval.

TABLE 1. SUMMARY OF WATER CONDITIONS AND OPERATIONS

Item	2021-22 Fiscal Year	2022-23 Fiscal Year	Change From Previous Fiscal Year
Number of:			
Parties	15	15	0%
Active pumpers	15	15	0%
Active non-parties	2	2	0%
Watermaster Expenses	\$514,181.00	\$536,313.00	4%
Average Valley Rainfall (inches)^{1/}			
	16.40	42.19	157%
Spreading Operation (acre feet)^{2/}			
"Decreed Right" (acre feet)	30,622	30,622	0%
Water Use (acre feet):			
Extractions	19,744	19,245	-3%
Surface Water Diversions	312	576	85%
Imported Water	35,103	28,016	-20%
Exported Water	(1,118)	(1,088)	-3%
Net Water Use	54,041	46,750	-13%

1/ See Table 5/ Figure 3A

2/ Spreading numbers include 1,150.1 of imported MWD water spread by the City of Sierra Madre

TABLE 2. DECREED RIGHTS AND AMOUNTS OF WATER EXTRACTED AND EXCHANGED

Party Name	Allowable Extractions								Amount Extracted ^{3/}	Balance (6-7)	Storage			Carryover into 2023-24	Loss of Decreed Rights
	Decreed Right	Sub-area Reductions	Net Decreed Right (1a + 1b)	Carryover from 2021-22	Net Leases ^{1/}	Prior Year Spread Credit ^{2/}	Imported Water Spread/ Injection	Sub-Total +(1 thru 5)			Long-Term Storage FY Activity ^{4/}	Short-Term Storage FY Activity ^{5/}	Cooperative Storage Program ^{6/}		
	1a	1b	1	2	3	4	5	6			9	10	11		
Monk Hill Subarea															
La Canada Irrigation District	100.0	-	100.0	10.0	0.0	0.0	0.0	110.0	1.1	108.9	98.9	N/A	N/A	10.0	0.0
Las Flores Water Company	249.0	-	249.0	24.9	(263.0)	35.1	0.0	46.0	45.7	0.3	0.0	N/A	N/A	0.3	0.0
Lincoln Avenue Water Company	567.0	-	567.0	56.7	40.0	186.1	0.0	849.8	1,355.4	(505.6)	(505.6)	N/A	N/A	0.0	0.0
Pasadena Cemetery Association	91.0	-	91.0	9.1	0.0	0.0	0.0	100.1	44.3	55.8	46.7	N/A	N/A	9.1	0.0
Pasadena, City of ^{11/}	4,464.0	(296.43)	4167.6	446.4	(22.7)	633.3	0.0	5,224.6	2,655.5	2,569.1	134.8	N/A	0.0	446.4	1,987.9
Rubio Canon Land & Water Assn.	1,221.0	-	1221.0	0.0	223.0	53.7	0.0	1,497.7	1,613.4	(115.7)	(115.7)	N/A	N/A	0.0	0.0
Valley Water Company	797.0	-	797.0	79.7	22.7	0.0	95.9	995.3	770.3	225.0	145.3	N/A	N/A	79.7	0.0
Subtotal	7,489.0	(296.4)	7,192.6	626.8	0.0	908.2	95.9	8,823.5	6,485.7	2,337.8	(195.6)			545.5	1,987.9
Pasadena Subarea <i>30% Reduction ^{7/}</i>															
Alhambra, City of	1,031.0	(309.3)	721.7	103.1	(397.0)	0.0	0.0	427.8	0.0	427.8	0.0	N/A	N/A	103.1	324.7
Arcadia, City of	2,118.0	(635.4)	1,482.6	211.8	0.0	0.0	0.0	1,694.4	641.3	1,053.1	0.0	N/A	N/A	211.8	841.3
California-American Water Company ^{10/}	2,814.0	(844.2)	1,969.8	281.4	0.0	0.0	0.0	2,251.2	2,024.7	226.5	0.0	(18.6)	N/A	245.1	0.0
H.E. Huntington Library & Art Gallery	372.0	(111.6)	260.4	37.2	190.0	0.0	0.0	487.6	196.1	291.5	0.0	219.6	N/A	37.2	34.7
Kinneloa Irrigation District	516.0	(154.8)	361.2	51.6	207.0	74.6	0.0	694.4	504.4	190.0	0.0	138.4	N/A	51.6	0.0
Pasadena, City of	8,343.0	(2,502.9)	5,840.1	834.3	0.0	455.3	0.0	7,129.7	3,805.9	3,323.8	0.0	N/A	N/A	834.3	2,489.5
San Gabriel County Water District	1,091.0	(327.3)	763.7	59.8	0.0	0.0	0.0	823.5	748.9	74.6	0.0	N/A	N/A	74.6	0.0
Sunny Slope Water Company	1,558.0	(467.4)	1,090.6	29.6	0.0	0.0	0.0	1,120.2	1,114.8	5.4	0.0	N/A	N/A	5.4	0.0
Subtotal	17,843.0	(5,352.9)	12,490.1	1,608.8	0.0	529.9	0.0	14,628.8	9,036.1	5,592.7	0.0	339.4		1,563.1	3,690.2
Western Unit Total	25,332.0	(5,649.3)	19,682.7	2,235.6	0.0	1,438.1	95.9	23,452.3	15,521.8	7,930.5	(195.6)	339.4	0.0	2,108.6	5,678.2
Recapitulation for City of Pasadena	12,807.0	(2,799.3)		1,280.7	(22.7)	1,088.6		12,354.3	6,461.4	5,893.0	134.8			1,280.7	4,477.5
Santa Anita Subarea <i>500' Limitation ^{8/}</i>															
Arcadia, City of	3,526.0	(1,205.0)	2,321.0	0.0	0.0	0.0	0.0	2,321.0	1,734.5	586.6	N/A	N/A	N/A	0.0	586.6
Sierra Madre, City of ^{9/}	1,764.0	(824.0)	940.0	0.0	0.0	0.0	1,150.1	2,090.1	1,989.1	101.0	N/A	N/A	N/A	0.0	101.0
Subtotal	5,290.0	(2,029.0)	3,261.0	0.0	0.0	0.0	1,150.1	4,411.1	3,723.5	687.6				0.0	687.6
RAYMOND BASIN TOTAL	30,622.0	(7,678.3)	22,943.7	2,235.6	0.0	1,438.1	1,246.0	27,863.4	19,245.3	8,618.0	(195.6)	339.4	0.0	2,108.6	6,365.7

1/ See Table 10
2/ See Appendix C
3/ See Appendix D
4/ See Tables 4A and 4B for detailed FY activity.
5/ See Table 4C for detailed FY activity. Short-Term Storage approved by RBMB 4/15/15
6/ Applies to City of Pasadena
7/ 30% Reduction adopted by RBMB January 2008.
8/ 500' Limitation per Section VI of 1944 Raymond Basin Judgement.
9/ Salvage Credit shown on Table 9
10/ On September 21, 2021 East Pasadena Water Company sold all rights to the quantity of 515 AF, together with all carryover rights and storage rights associated therewith, to California-American Water Company.
11/ Subarea reductions include 296.43 AF water right retired per the terms of the Winter In Lieu program approved buy the RBMB on July 19, 2023.

TABLE 3. OVEREXTRACTIONS IN 2022-23
(acre feet)

Party	Decreed Right 1955 (1)	Allowable Carryover from 2021-22 (2)	Net Leases and Prior Year Spreading Credit (3)	Imported Water Spread/ Injection (4)	Long Term Storage Program (5)	Allowable Extractions (1+2+3+4+5) (6)	Amount Extracted (7)	Overextraction ^{1/}		
								Amount Overextracted (6-7) (8)	Amount Allowable (10% of Decreed Right 1955) (9)	Percent Overextracted (8/1) (10)
<u>Monk Hill Subarea</u> None										
<u>Pasadena Subarea</u> None										
<u>Santa Anita Subarea</u> None										

^{1/} Based on modification of Judgment dated March 26, 1984

TABLE 4 A. LONG TERM STORAGE ACCOUNTS - MONK HILL SUBAREA
(acre feet)

Party Name	Storage @ 6/30/22	FY Activity	1% Loss	Storage @ 6/30/23	Maximum Storage	Exchanges	Adjusted Maximum Storage
Monk Hill Subarea							
La Canada ID	1,349.9	98.9	13.5	1,435.3	2,300.0	0.0	2,300.0
Las Flores WC	465.7	0.0	4.7	461.0	900.0	0.0	900.0
Lincoln Avenue WC	1,743.4	(505.6)	12.4	1,225.4	2,200.0	0.0	2,200.0
Pasadena Cemetery	252.3	46.7	2.5	296.5	300.0	0.0	300.0
Pasadena, City	13,399.2 ^{1/}	134.8	134.0	13,400.0	13,400.0	0.0	13,400.0
Rubio Canon LW	1,202.4	(115.7)	10.9	1,075.8	3,700.0	0.0	3,700.0
Valley WC	400.6 ^{2/}	145.3	4.0	541.9	3,400.0	0.0	3,400.0
Monk Hill Total	18,813.5	(195.6)	182.0	18,435.9	26,200.0	0.0	26,200.0

1/ Pasadena, City - CSP water included in Long Term Storage Totals							
2/ Production adjustment in FY 21-22 resulted in additional 0.7 AF added to Long Term Storage							
	<u>Subarea</u>	<u>CSP @ 6/30/22</u>	<u>1% Loss</u>	<u>CSP @ 6/30/23</u>			
	Monk Hill	2,265.7	(22.7)	2,243.0			

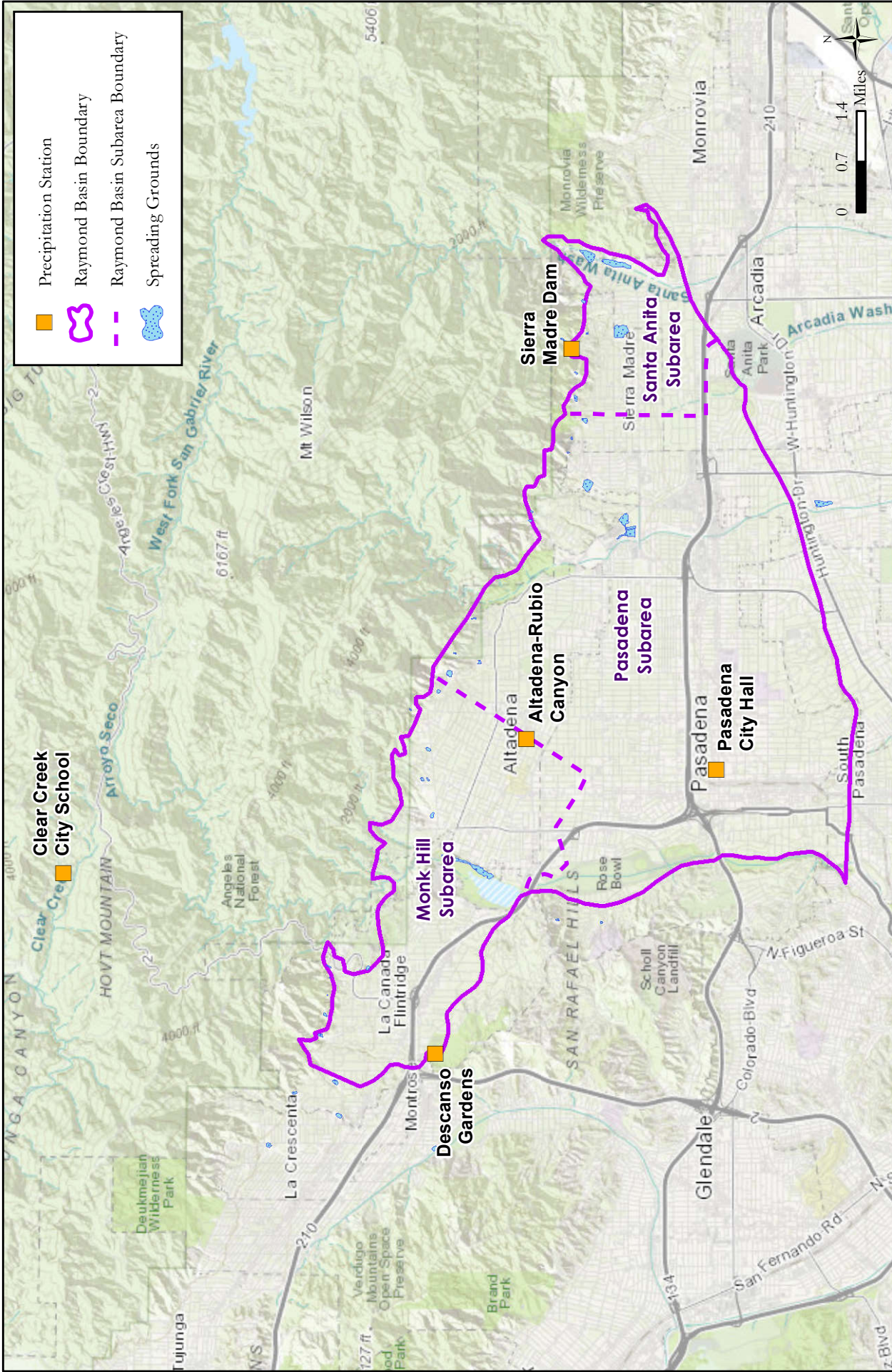
TABLE 4 B. LONG TERM STORAGE ACCOUNTS - PASADENA SUBAREA
(acre feet)

Party Name	Capped Storage @ 6/30/22	FY Activity	1% Loss	Storage @ 6/30/23	Capped Storage @ 6/30/23
Pasadena Subarea					
Alhambra, City	3,403.5	0.0	34.0	3,369.5	3,369.5
Arcadia, City	856.0	0.0	8.6	847.4	847.4
Cal American WC	1,539.6	0.0	15.4	1,524.2	1,524.2
Huntington Library	224.9	0.0	2.2	222.7	222.7
Kinneloa ID	758.9	0.0	7.6	751.3	751.3
Pasadena, City ^{1/}	8,670.7	0.0	86.7	8,584.0	8,584.0
San Gabriel CWD	2,713.6	0.0	27.1	2,686.5	2,686.5
Sunny Slope WC	2,332.2	0.0	23.3	2,308.9	2,308.9
Pasadena Total	20,499.4	0.0	204.9	20,294.5	20,294.5
1/ Pasadena, City - CSP water excluded in Long Term Storage Totals					
	Subarea	CSP @ 6/30/22	Less CSP Drawdown	1% Loss	CSP @ 6/30/23
	Pasadena	11,568.8	-	(115.7)	11,453.1

TABLE 4C. SHORT TERM STORAGE ACCOUNTS - PASADENA SUBAREA
(acre feet)

Party Name	STS Account	STS Brought Forward @ 6/30/22 ^{1/}	Used @ 6/30/23	Added @ 6/30/23	Storage @ 6/30/23 ^{2/}
Pasadena Subarea					
Alhambra, City	N	-	-	-	-
Arcadia, City	N	-	-	-	-
Cal American WC	Y	18.6	18.6	0.0	0.0
Huntington LAG	Y	43.2	43.2	262.8	262.8
Kinneloa ID	Y	45.0	45.0	183.4	183.4
Pasadena, City	N/A	-	-	-	-
San Gabriel CWD	N	-	-	-	-
Sunny Slope	N	-	-	-	-
Pasadena Subarea Total		106.8	106.8	446.2	446.2

- 1/ Short Term Storage Accounts approved by RBMB on 4/15/15
- 2/ Max Short Term Storage Capped @ 300 AF per Agency. Max is a combination of 10% carryover and Short Term Storage.



RAYMOND BASIN MANAGEMENT BOARD PRECIPITATION STATIONS

FIGURE 2

TABLE 5. PRECIPITATION
(inches)

Station ^{1/}	Station Location	Period of Record in Years	Precipitation		
			2021-22	2022-23	74-year Average ^{2/}
Altadena-Rubio Canyon (Station 176)	Monk Hill/Pasadena	102	16.47	36.04	20.60
Descanso Gardens (Station 1071B)	Monk Hill	74	15.35	40.84	20.97
Pasadena City Hall (Station 610B)	Pasadena	99	14.97	43.13	19.17
Sierra Madre Dam (Station 144) ^{3/}	Santa Anita	95	18.85	48.76	23.92
Average			16.41	42.19	21.17

^{1/} Obtained from LACDPW. Station locations shown on Figure 2.

^{2/} 1949-50 to 2022-23

^{3/} Data for April 2022 through June 2022 from Station 144 is available. Consequently, FY 21-22 has been updated.

Rainfall in the Valley FY 2022-23

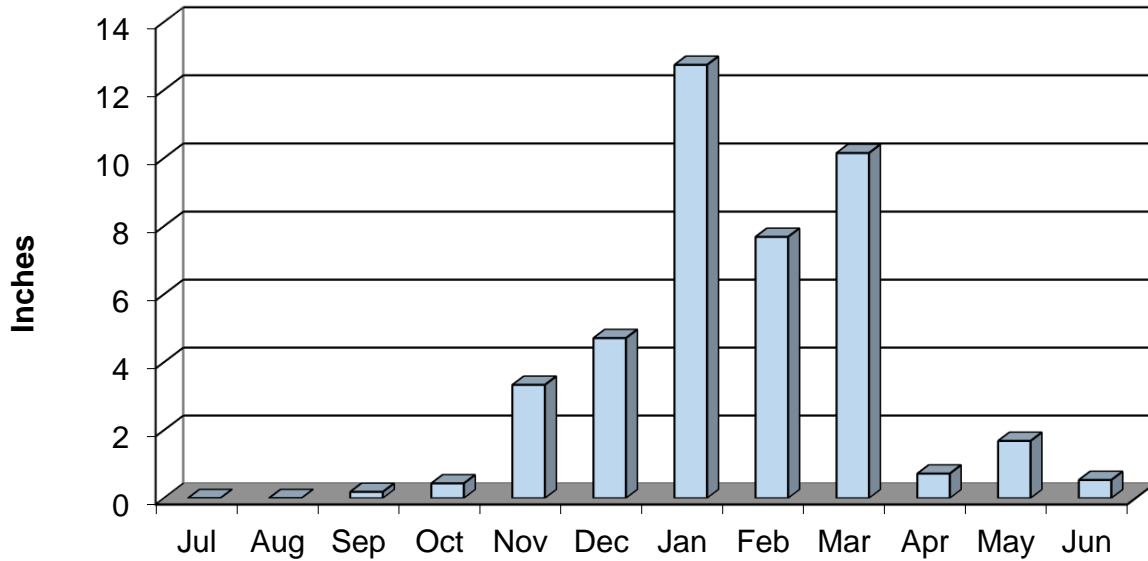


FIGURE 3A - AVERAGE RAINFALL ^{4/}

^{4/} Average of Stations 176, 1071B, 610B, and 144.

FIGURE 3B. HISTORICAL PRECIPITATION IN RAYMOND BASIN

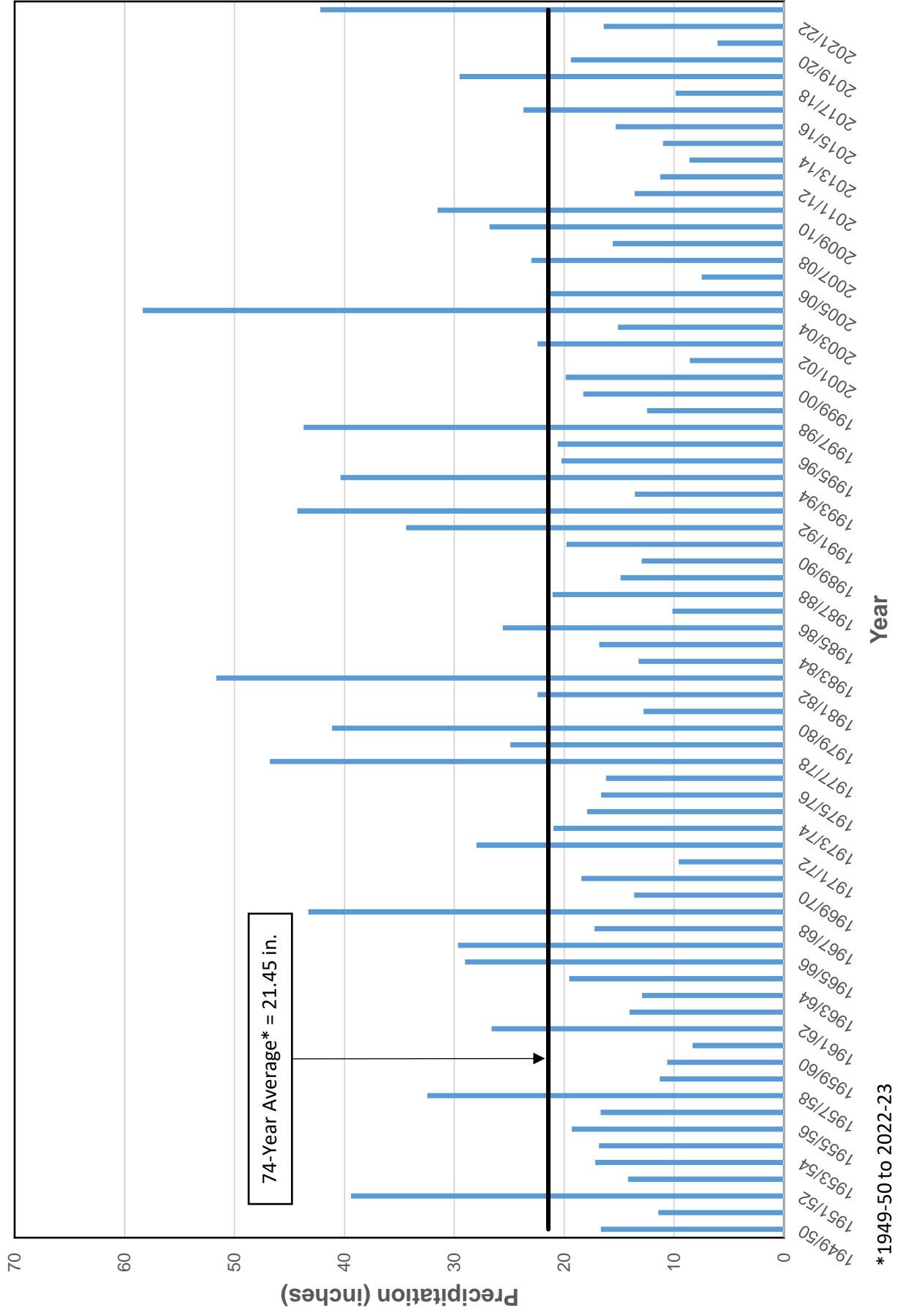


TABLE 6. WATER USE IN 2022-23

(acre feet)

Party	Ground Water Extractions (1)	Water Diversions To System ^{1/} (2)	Imported MWD/Other Water (3)	Water Exported From Basin (4)	Water Imported (Exported) Within Basin (5)	Total Water Use Within Basin (1+2+3+4+5)
Alhambra, City of	0.0	-	2,770.6	-	-	2,770.6
Arcadia, City of	2,375.8	-	0.0	-	-	2,375.8
California-American Water Company	2,024.7	-	961.1	-	-	2,985.8
H.E. Huntington Library & Art Gallery	196.1	-	-	-	-	196.1
Kinneloa Irrigation District	504.4	246.2	-	-	-	750.6
La Canada Irrigation District	1.1	71.0	1,862.0	-	-	1,934.1
Las Flores Water Company	45.7	0.0	312.1	-	-	357.8
Lincoln Avenue Water Company	1,355.4	86.1	226.7	-	-	1,668.2
Pasadena Cemetery Association	44.3	-	-	-	-	44.3
Pasadena, City of	6,461.4	-	16,890.3	(32.1)	202.7	23,522.3
Rubio Canon Land & Water Association	1,613.4	173.0	0.0	-	-	1,786.3
San Gabriel County Water District	748.9	-	0.0	-	-	748.9
Sierra Madre, City of	1,989.1	0.0	1,150.1	-	-	3,139.2
Sunny Slope Water Company	1,114.8	-	1,864.1	(1,055.6)	-	1,923.3
Valley Water Company	770.3	-	1,979.1	-	-	2,749.4
Total	19,245.3	576.2	28,016.1	(1,087.7)	202.7	46,952.7

^{1/} Does not include surface water diversions for spreading credit.

^{2/} San Gabriel Basin water.

FIGURE 4 - 2022-2023 CLIMATIC CONDITIONS AND WATER USE

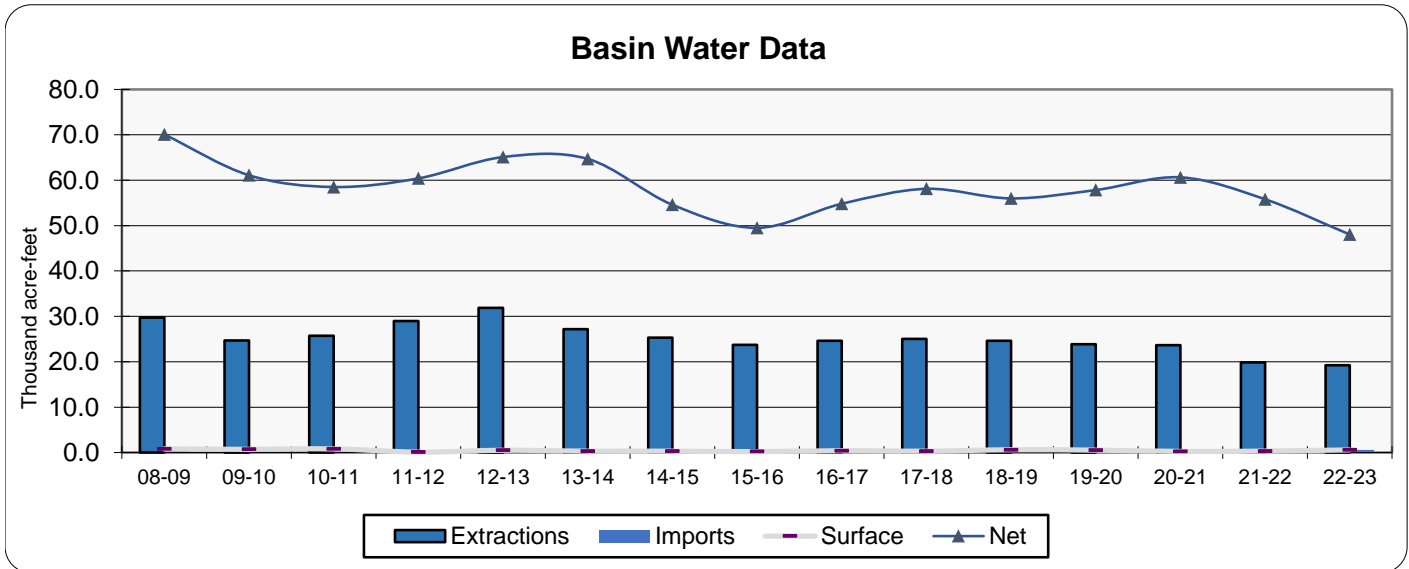
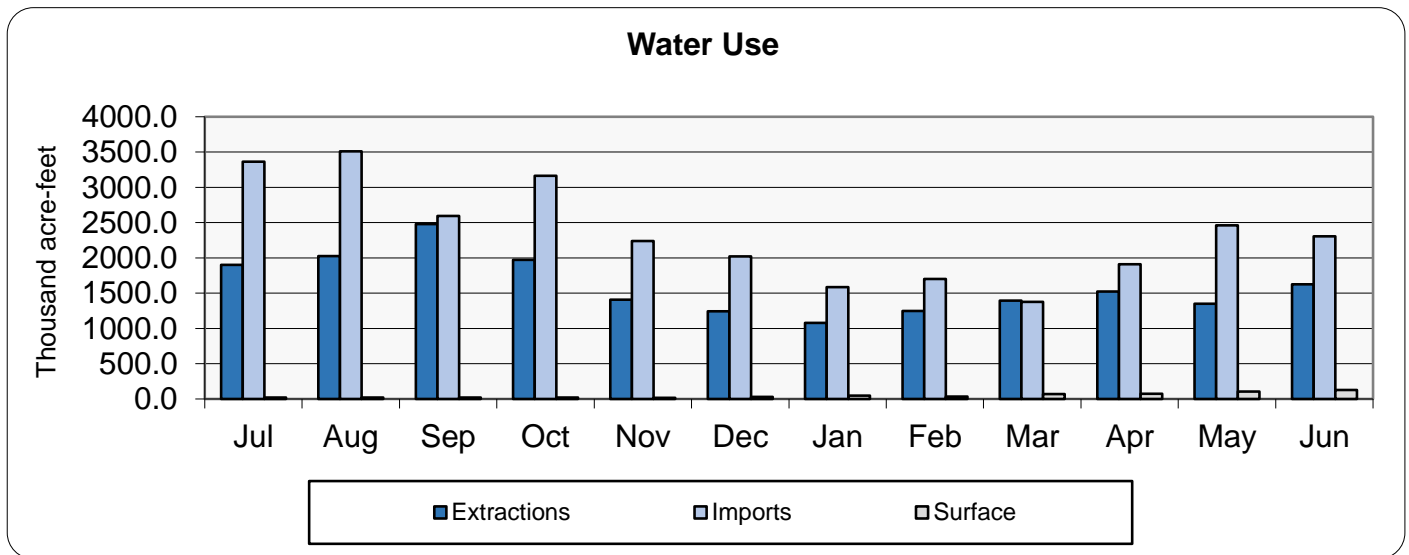
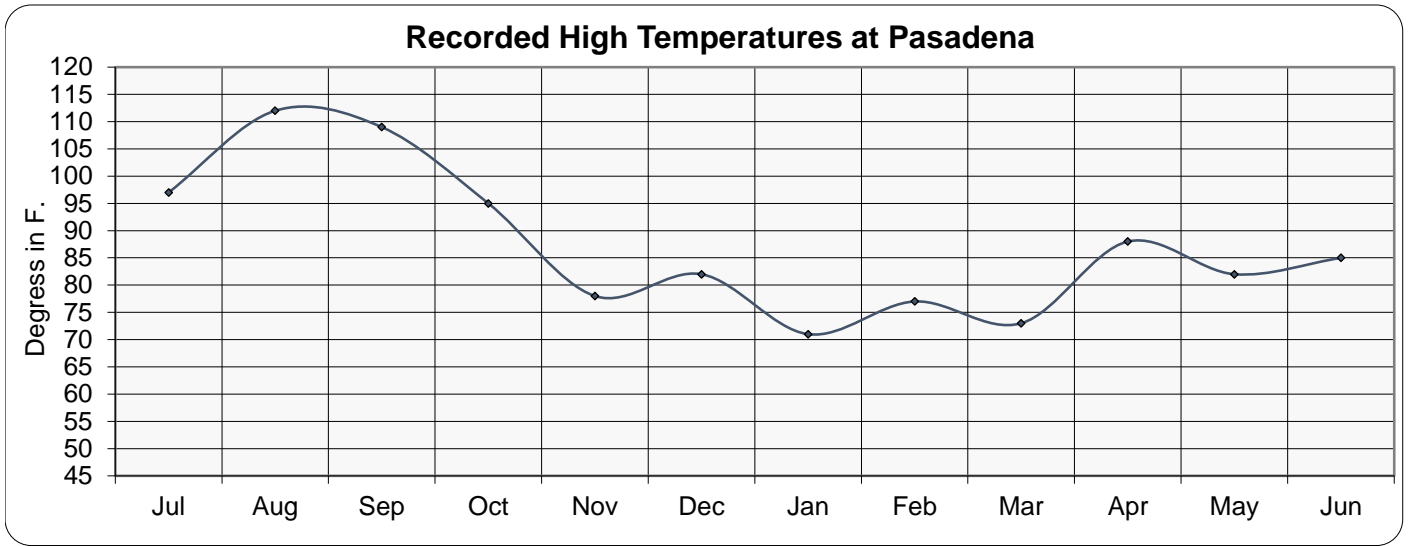


TABLE 7.

COMPARISON OF LONG-TERM AVERAGE ANNUAL EXTRACTIONS TO SAFE YIELD

(acre feet)

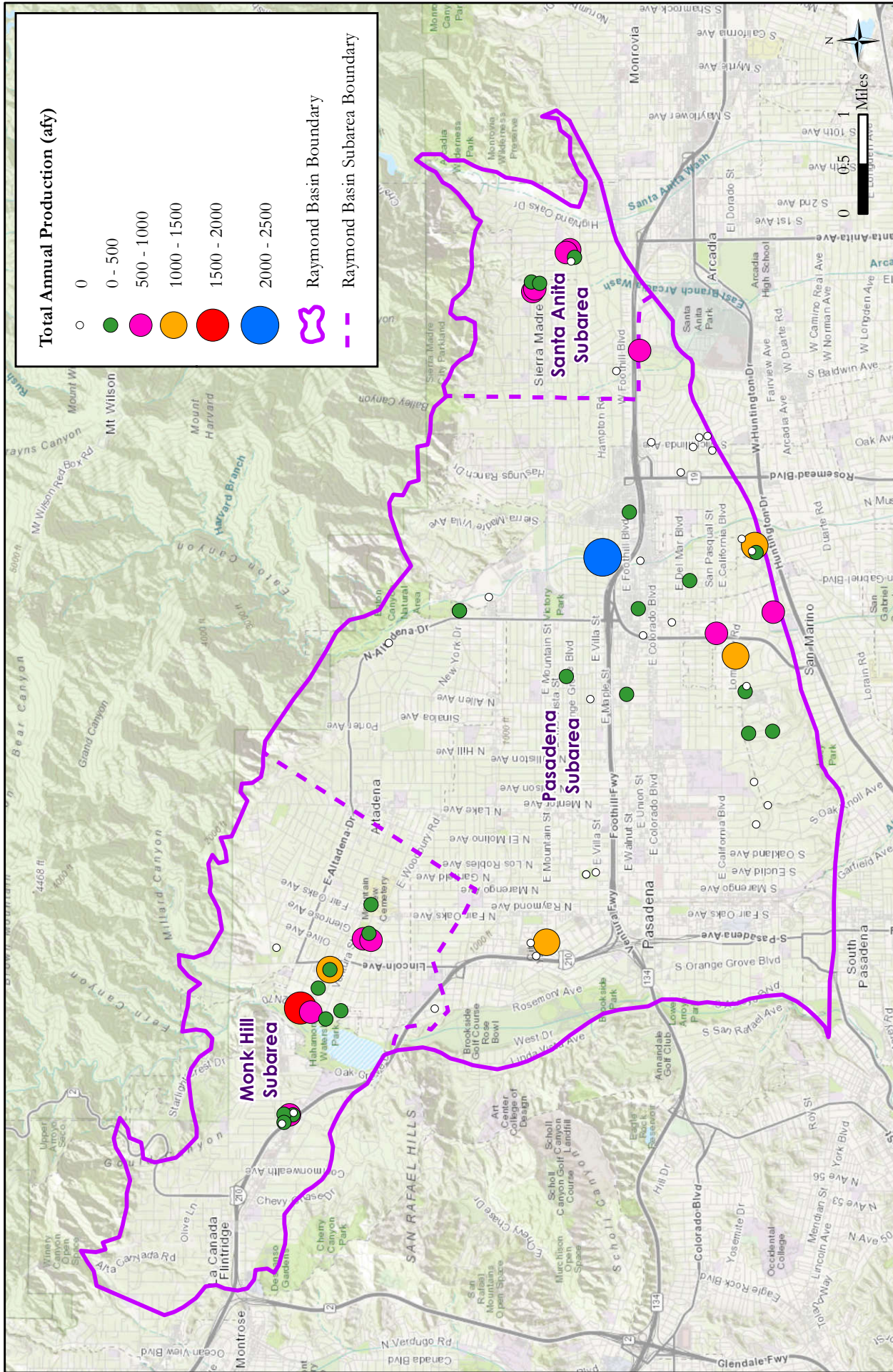
Year July 1 through June 30	Annual Extractions ^{1/}							
	Western Unit			Eastern Unit				Raymond Basin Area (3+4)
	Monk Hill Subarea	Pasadena Subarea	Subtotal (1+2)	Gross Pumped	Salvage Credit Pumped	Difference	Subtotal	
	(1)	(2)	(3)				(4)	
1950-51	7,098	13,418	20,516	2,861	-	2,861	2,861	23,377
51-52	5,903	10,750	16,653	2,489	-	2,489	2,489	19,142
52-53	5,973	12,471	18,444	4,870	335	4,535	4,535	22,979
53-54	6,283	11,765	18,048	3,378	596	2,782	2,782	20,830
54-55	6,420	12,783	19,203	4,528	559	3,969	3,969	23,172
Average Annual Extractions	6,335	12,237	18,573	3,625			3,327	21,900
Safe Yield 1938 ^{2/}	6,039	11,621	17,660	3,791			3,791	21,451
Average Over/(Under) Extractions ^{3/}	296	616	913	(166)			(464)	449
1955-60	35,444	82,043	117,487	23,484	436	23,048	23,048	140,535
1960-65	37,356	89,193	126,549	20,483	2,952	17,532	17,532	144,081
1965-70	37,557	90,821	128,378	23,745	433	23,312	23,312	151,690
1970-75	41,206	87,783	128,990	28,539	1,310	27,228	27,228	156,218
1975-80	40,871	97,733	138,604	28,836	4,434	24,403	24,403	163,007
1980-85	45,697	96,417	142,114	31,553	6,076	25,478	25,478	167,592
1985-90	31,058	101,822	132,880	33,170	6,057	27,113	27,113	159,994
1990-95	37,155	72,509	109,663	31,732	4,752	26,980	26,980	136,643
95-2000	54,452	108,960	163,412	33,482	7,500	25,982	25,982	189,394
2000-05	29,375	97,030	126,405	29,516	4,223	25,293	25,293	151,698
2005-10	25,775	93,895	119,670	31,525	7,638	23,888	23,888	143,557
2010-15	41,971	76,168	118,139	20,783	2,820	17,963	17,963	136,102
2015-20	35,884	65,557	101,441	20,319	0	20,319	20,319	121,760
2020-21	8,527	10,456	18,982	4,688	0	4,688	4,688	23,670
2021-22	5,540	9,727	15,267	4,594	0	4,594	4,594	19,861
2022-23	6,486	9,036	15,522	3,724	0	3,724	3,724	19,245
Average Annual Extractions	7,564	17,488	25,052	5,444	715	4,729	4,649	29,701
Safe Yield ^{4/}	7,489	17,843	25,332	5,290			5,290	30,622
Average Over/(Under) Extractions ^{3/}	75	(355)	(280)	154			(641)	(921)

1/ Includes spreading water pumped in Western Unit and excludes salvage credit water pumped by City of Sierra Madre.

2/ Non-party pumping not included during the period 1944-45 through 1954-55

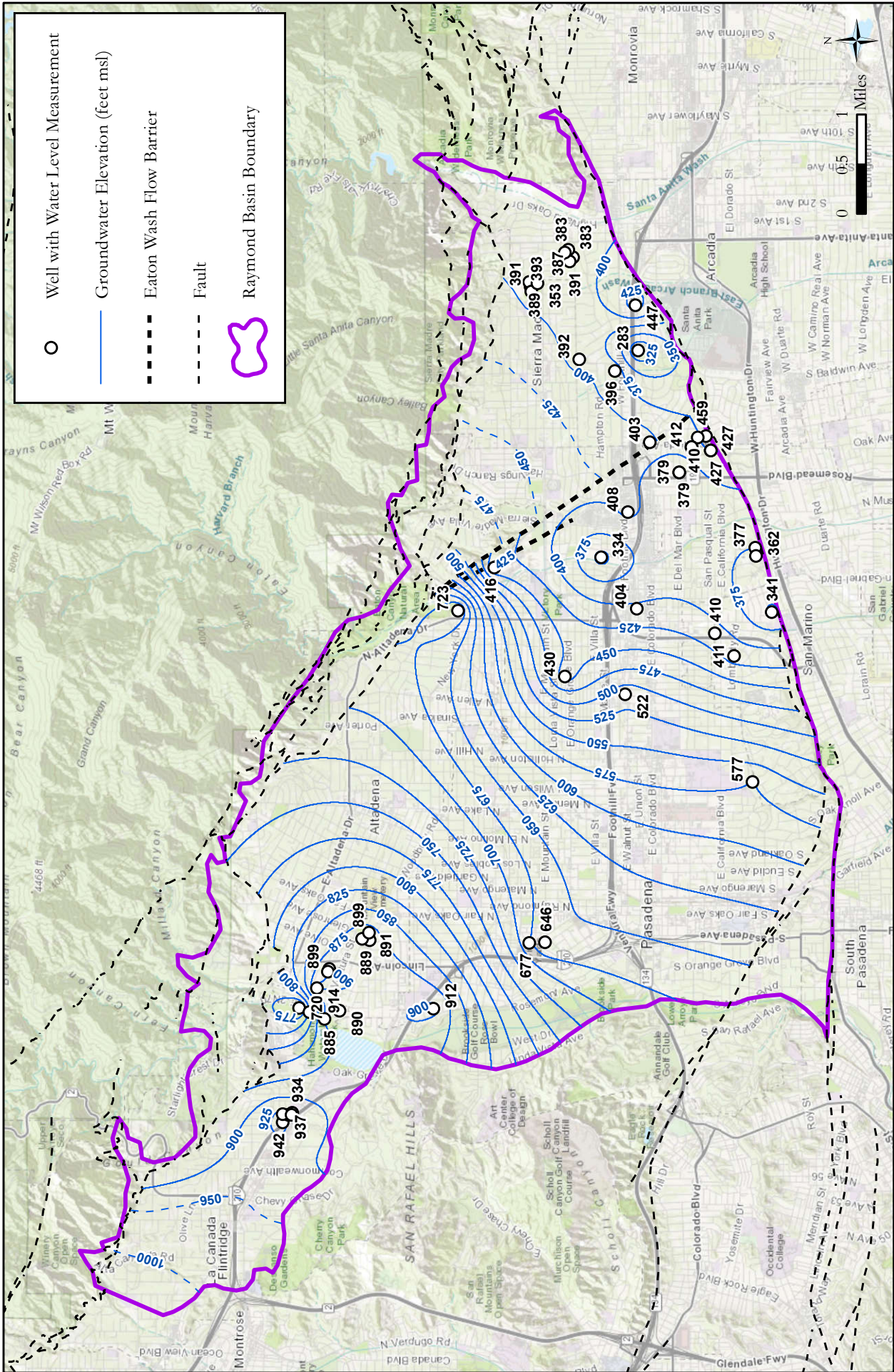
3/ Extractions greater than safe yield; positive; extractions less than safe yield: (negative).

4/ Effective 1955-56 through present and excludes non-party pumping.



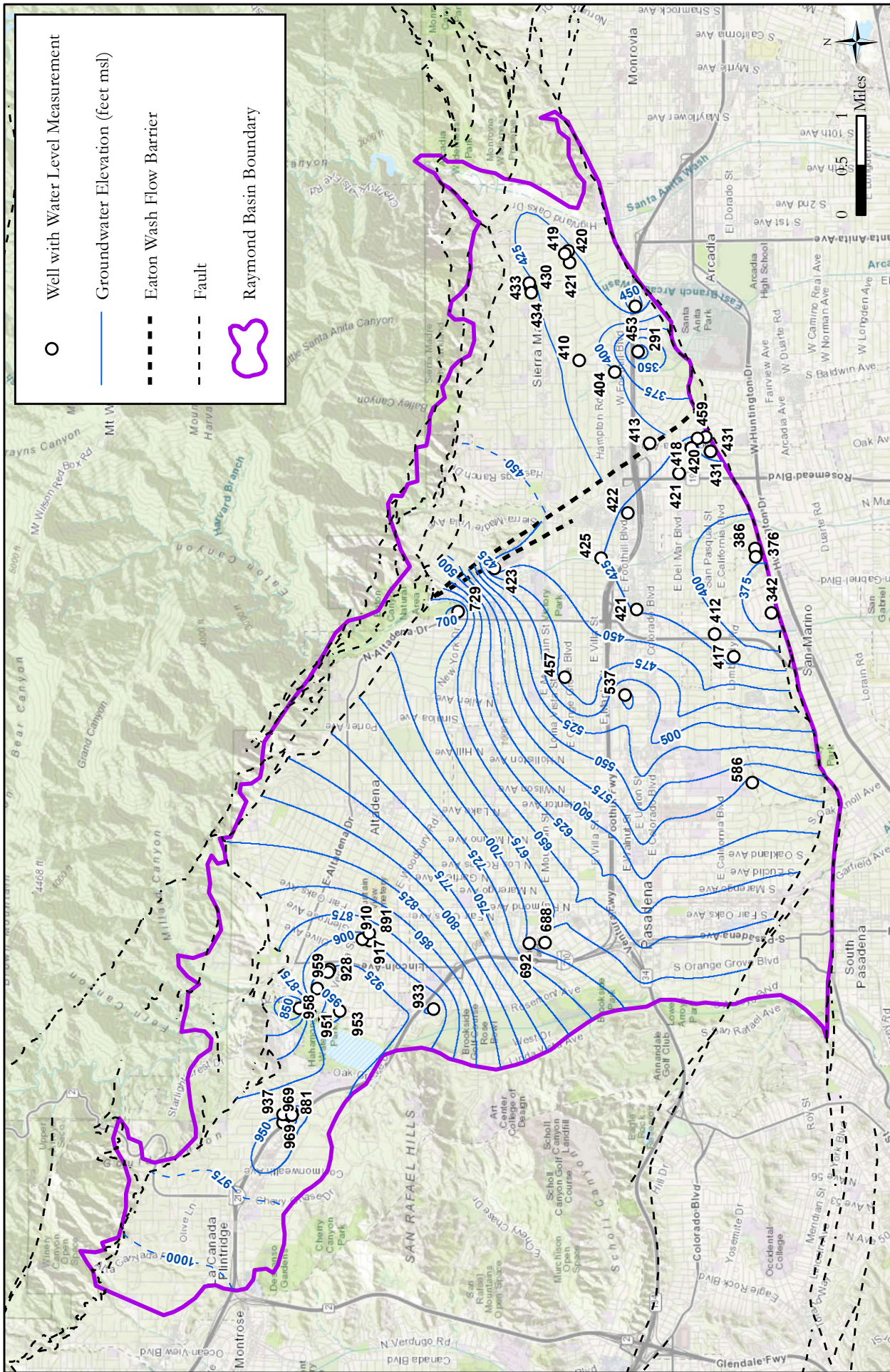
FY 2022 – 2023
TOTAL ANNUAL GROUNDWATER EXTRACTION

FIGURE 5



2022 FALL RAYMOND BASIN
GROUNDWATER CONTOUR MAP

FIGURE 6



2023 SPRING RAYMOND BASIN GROUNDWATER CONTOUR MAP

FIGURE 7

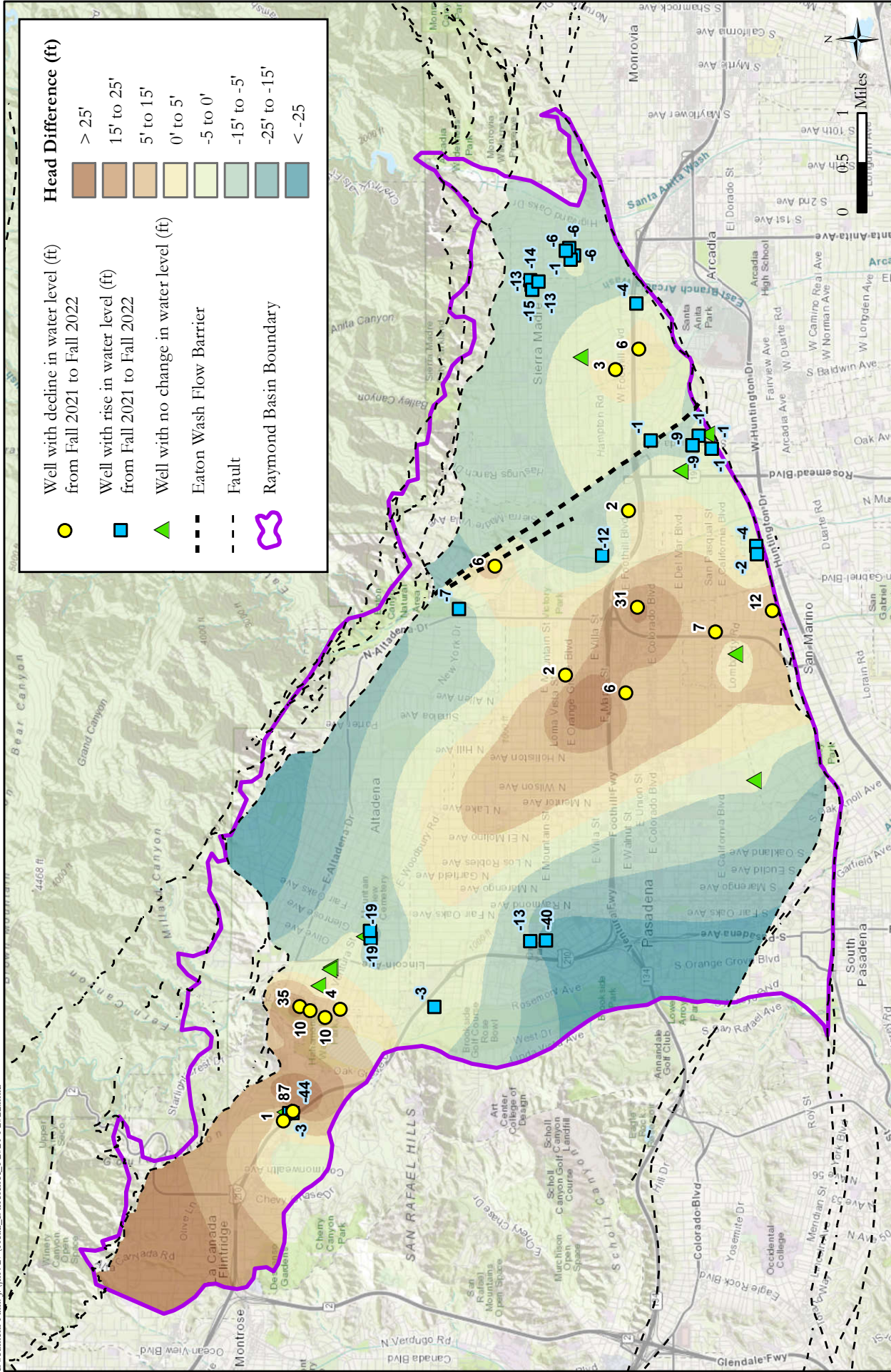
TABLE 8. GROUNDWATER LEVEL ELEVATIONS AT REPRESENTATIVE WELLS
(feet)

Subarea	Owner Key Well Name (Surface Elevation in feet)	Groundwater Level Elevations (feet above sea level)			
		October 2021	April 2022	October 2022	April 2023
Monk Hill					
	City of Pasadena Sheldon (1,048.9)	913	921	911	928
Pasadena					
West Central	City of Pasadena Sunset ¹ (934.4)	686	686	676	683
Northeast	Kinneloa Irrigation District Wilcox (874.9)	410	422	414	418
East Central	Cal-American Water Company Winston (682.6)	400	403	410	413
South Central	City of Alhambra No. 2 (701.9)	631	633	632	634
Southeast	Cal-American Water Company Well No. 7 ² (601.2)	421	417	414	419
Santa Anita					
	City of Arcadia Orange Grove No. 1A (604.4)	396	400	396	425

nm: no measurement

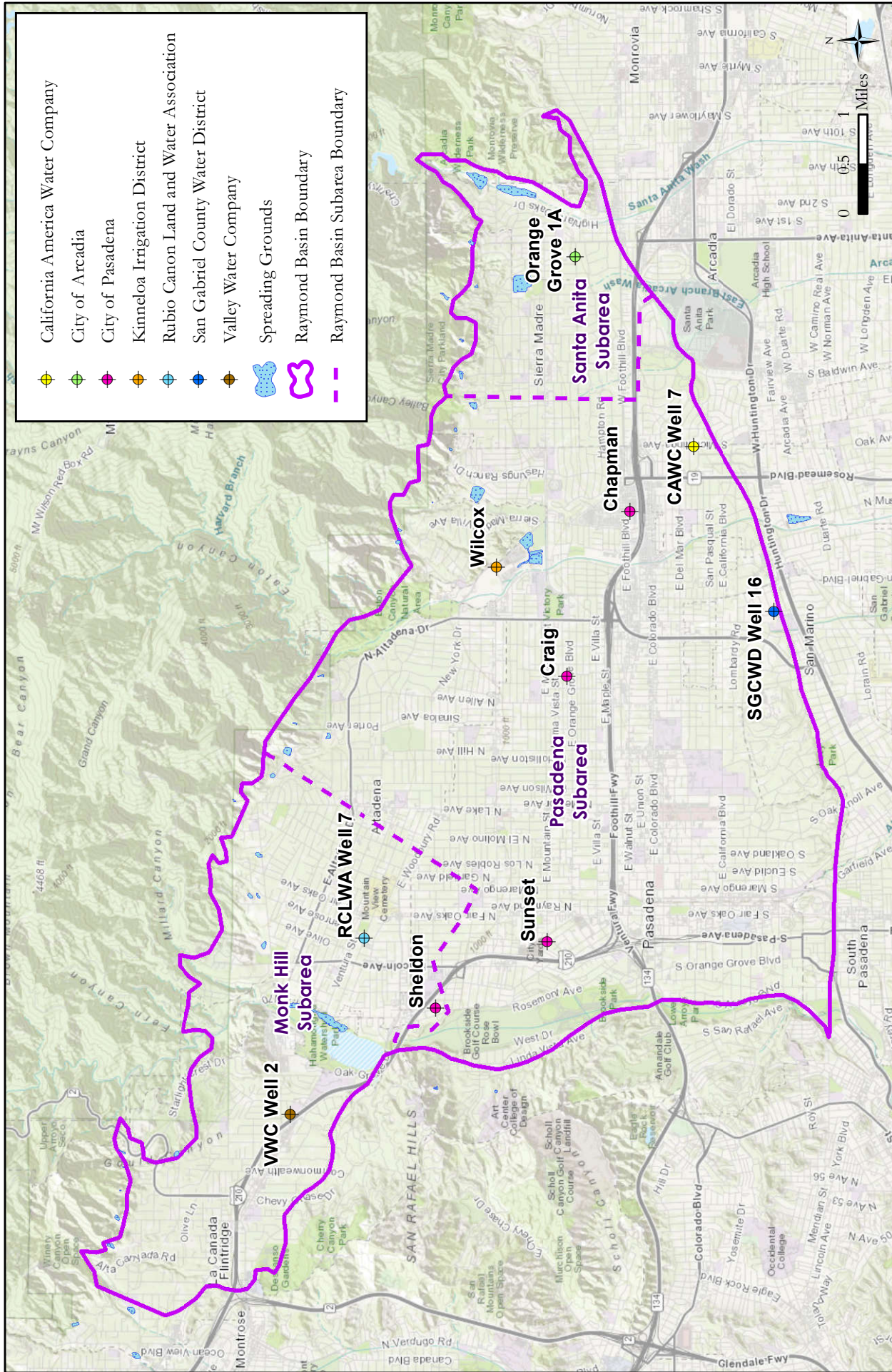
¹ Copelin destroyed; permit no. RB015-DW-012021; Sunset designated as replacement well October 2021.

² Well No. 7, prev. owned by East Pasadena Water Company; purchased by Cal-American Water Company in September 2021



HEAD DIFFERENCE FALL 2021 TO FALL 2022

FIGURE 8



**LOCATION OF WELLS
USED TO GENERATE HYDROGRAPHS**

FIGURE 9

FIGURE 10a - FLUCTUATION OF WATER LEVELS AT WELLS IN THE PASADENA SUBAREA

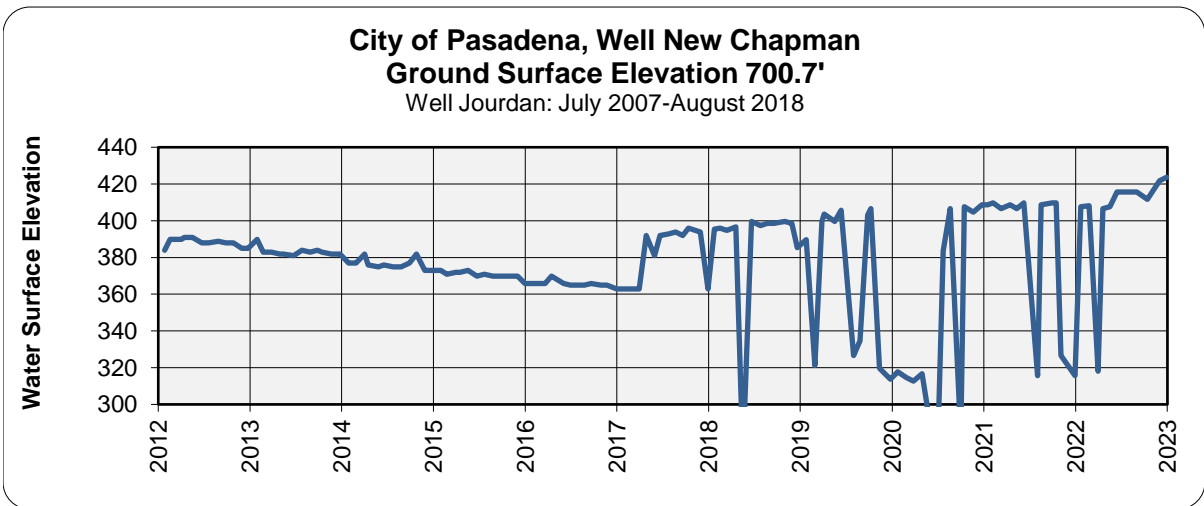
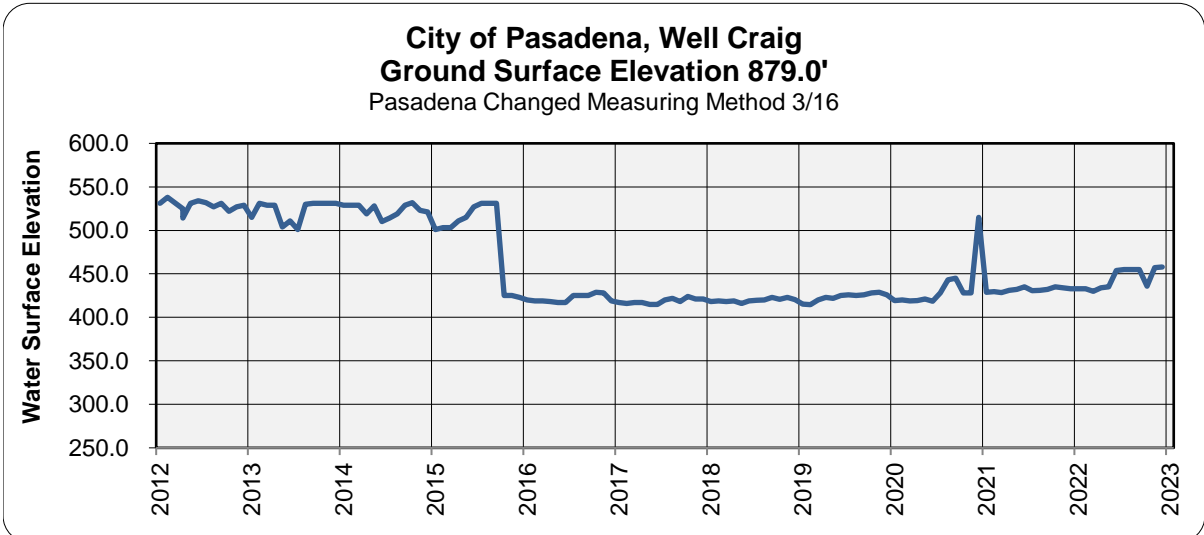
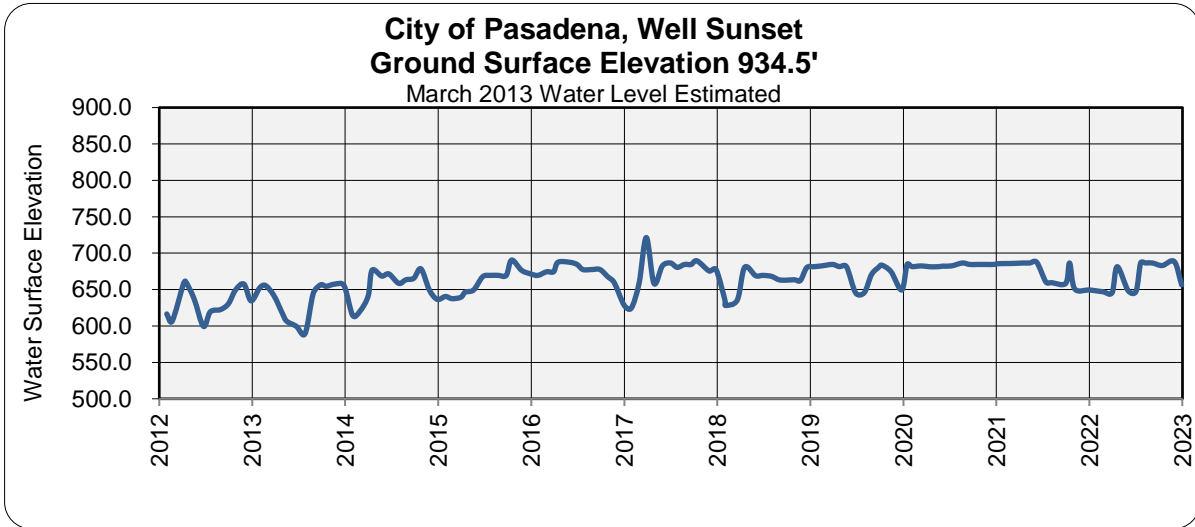


FIGURE 10b - FLUCTUATION OF WATER LEVELS AT WELLS IN THE PASADENA SUBAREA

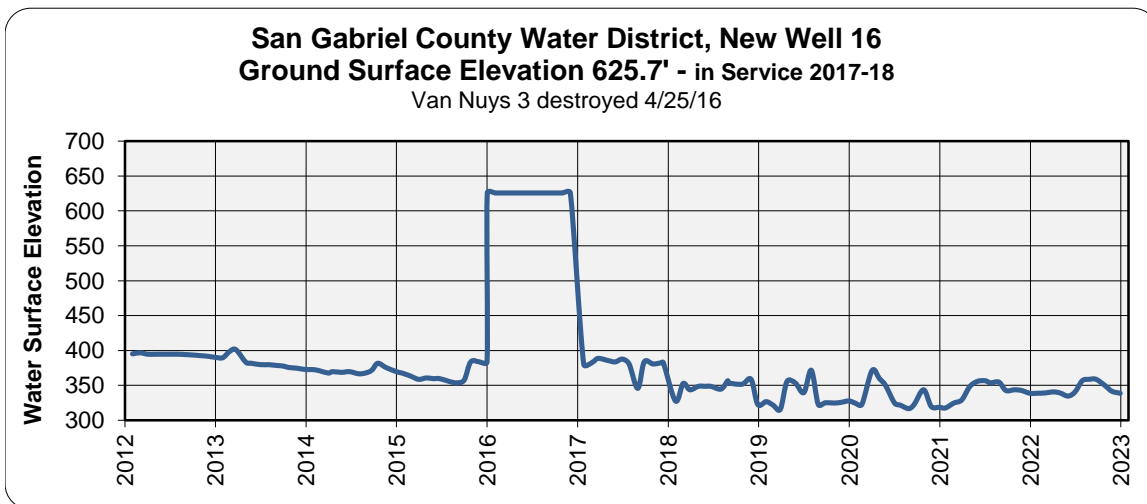
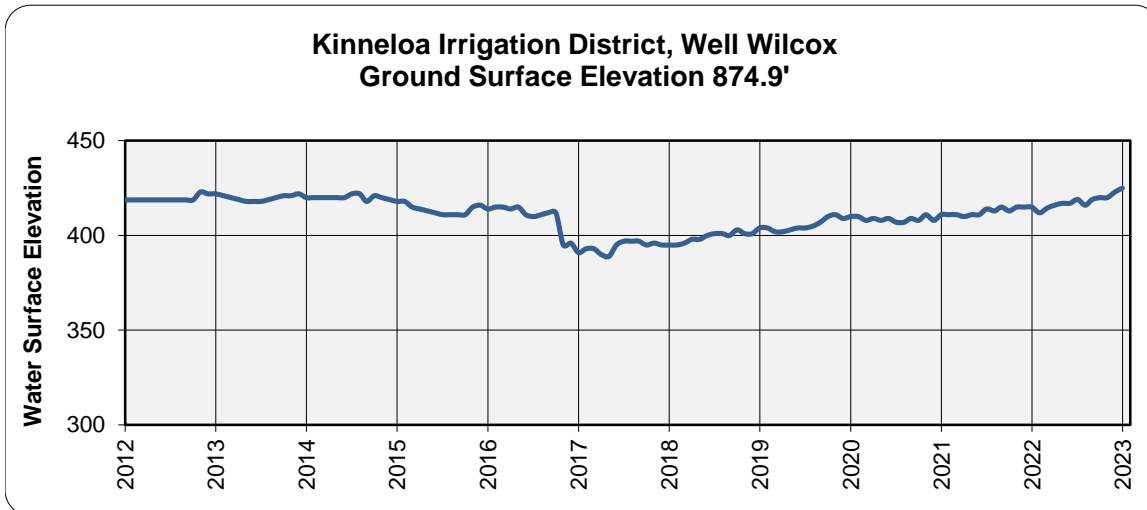
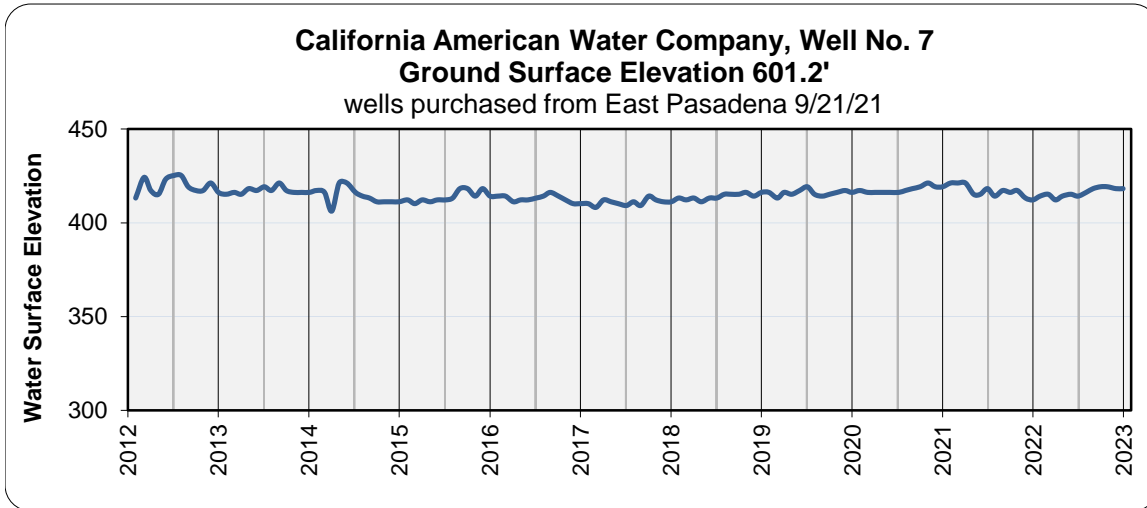


FIGURE 11 - FLUCTUATION OF WATER LEVELS AT WELLS IN THE SANTA ANITA SUBAREA

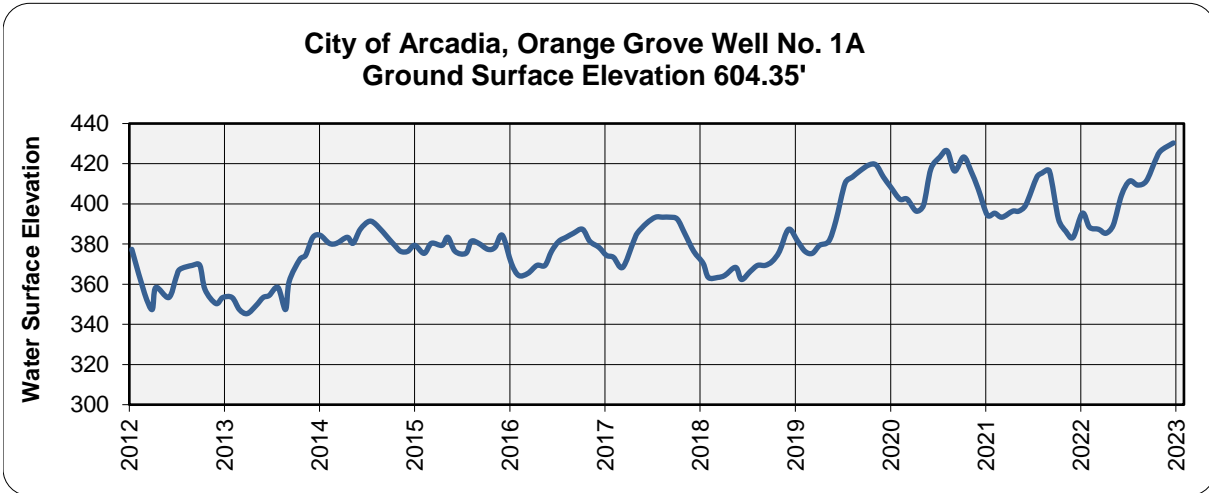


FIGURE 12 - FLUCTUATION OF WATER LEVELS AT WELLS IN THE MONK HILL SUBAREA

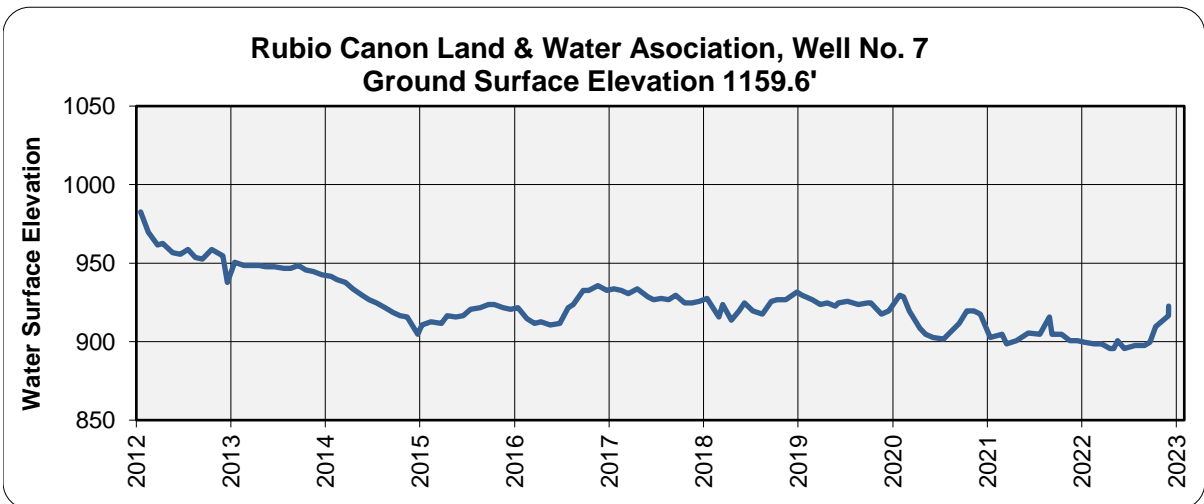
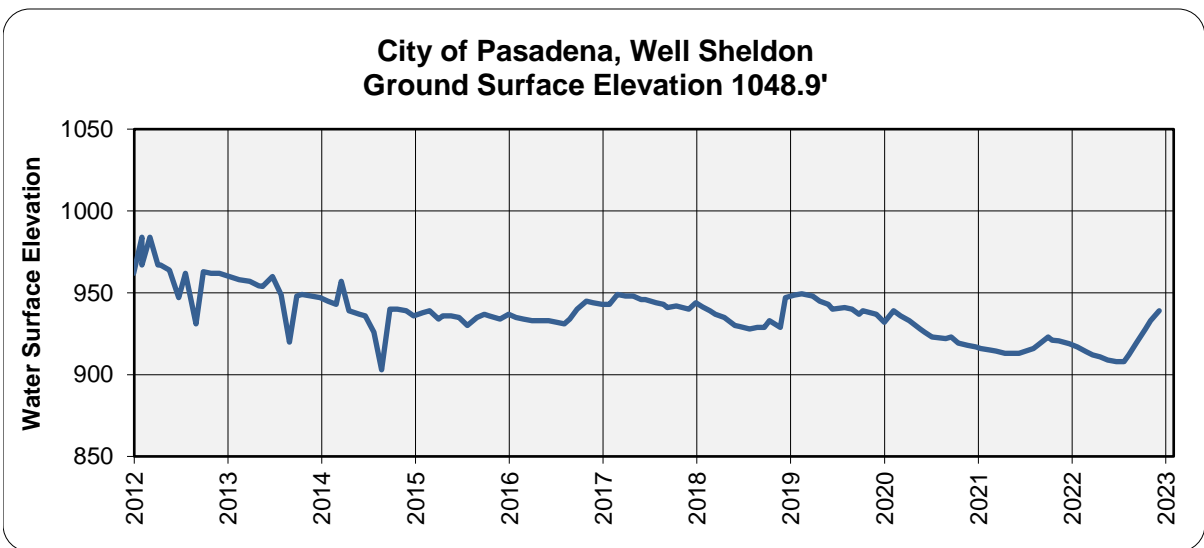
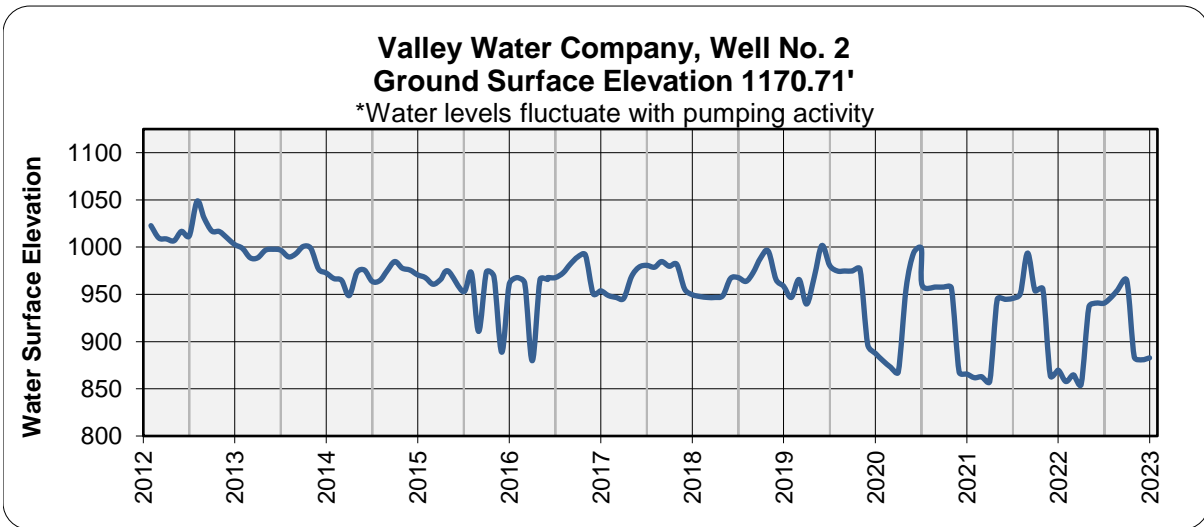


TABLE 9. CREDIT FOR WATER SPREAD CITY OF SIERRA MADRE
(acre feet)

Season	(1) Salvage Water at Beginning of Year	Water Spread for Salvage			(5) Salvage Water Lost to Subsurface Outflow	(6) Salvage Water Extracted	(7) Salvage Water at End of Year (1)+(4)-(5)-(6)
		(2) Amount	(3) Lost Through Natural Percolation	(4) Water Stored (2)-(3)			
1952-53	836.3	258.0	94.6	163.4	243.1	334.9	421.7
53-54	421.7	580.0	4.6	575.4	115.4	596.1	285.6
54-55	285.6	341.0	21.5	319.5	15.1	559.1	30.9
55-56	30.9	429.0	90.9	338.1	9.6	128.0	231.4
56-57	231.4	331.0	167.1	163.9	42.1	62.0	291.2
57-58	291.2	3,409.0	811.9	2,597.1	278.8	0.0	2,609.5
58-59	2,609.5	1,308.0	521.0	787.0	945.1	37.5	2,413.9
59-60	2,413.9	45.0	10.4	34.6	705.6	208.2	1,534.7
1960-61	1,534.7	51.0	16.0	35.0	214.1	1,116.3	239.3
61-62	239.3	1,283.0	445.6	837.4	43.1	292.8	740.8
62-63	740.8	1,121.0	544.4	576.6	241.7	253.9	821.8
63-64	821.8	699.0	164.4	534.6	180.2	451.3	724.9
64-65	724.9	904.0	208.6	695.4	142.8	837.3	440.2
65-66	440.2	4,233.0	979.0	3,254.0	533.5	433.1	2,727.6
66-67	2,727.6	4,537.0	945.1	3,591.9	1,110.9	0.0	5,208.6
67-68	5,208.6	2,625.0	1,069.2	1,555.8	1,663.1	0.0	5,101.3
68-69	5,101.3	2,984.0	371.1	2,612.9	1,532.3	0.0	6,181.9
69-70	6,181.1	1,529.3	932.2	597.1	1,495.5	0.0	5,282.7
1970-71	5,282.7	1,145.3	369.7	775.6	1,285.7	0.0	4,772.6
71-72	4,772.6	1,014.4	311.5	702.9	1,518.3	0.0	3,957.2
72-73	3,957.2	3,204.0	824.5	2,379.5	815.1	84.7	5,436.9
73-74	5,436.9	3,029.1	891.9	2,137.2	1,603.7	64.7	5,905.7
74-75	5,905.7	2,244.0	927.8	1,316.2	1,744.1	1,161.0	4,316.8
75-76	4,316.8	1,029.8	387.3	642.5	1,299.5	784.0	2,875.8
76-77	2,875.8	1,106.6	427.4	679.2	863.9	124.6	2,566.5
77-78	2,566.5	3,974.7	463.8	3,510.9	937.3	1,033.1	4,107.0
78-79	4,107.0	4,473.0	1,475.7	2,997.3	1,541.7	894.7	4,667.9
79-80	4,667.9	3,636.3	717.7	2,918.6	971.8	1,597.2	5,017.5
1980-81	5,017.5	2,271.8	1,055.2	1,216.6	1,288.9	2,068.1	2,877.1
81-82	2,877.1	2,004.5	764.4	1,240.1	968.0	197.9	2,951.3
82-83	2,951.3	3,509.4	690.0	2,819.4	1,206.2	0.0	4,564.5
83-84	4,564.5	2,970.8	1,297.9	1,672.9	1,338.7	1,912.2	2,986.5
84-85	2,986.5	1,519.1	503.7	1,015.4	723.7	1,897.7	1,380.5
85-86	1,380.5	3,402.6	974.0	2,428.6	293.6	2,385.8	1,129.7
86-87	1,129.7	969.3	335.2	634.1	258.3	1,505.5	0.0
87-88	0.0	1,756.2	566.9	1,189.3	28.8	772.4	388.1
88-89	388.1	1,458.2	610.4	847.8	103.8	930.2	201.9
89-90	201.9	574.3	279.6	294.7	34.0	462.6	0.0

continued on following page

Season	(1) Salvage Water at Beginning of Year	Water Spread for Salvage			(5) Salvage Water Lost to Subsurface Outflow	(6) Salvage Water Extracted	(7) Salvage Water at End of Year (1)+(4)-(5)-(6)
		(2) Amount	(3) Lost Through Natural Percolation	(4) Water Stored (2)-(3)			
1990-91	0.0	1,542.1	575.0	967.1	0.0	755.4	211.7
91-92	211.7	3,100.7	680.1	2,420.6	0.0	247.6	2,384.7
92-93	2,384.7	3,150.6	487.9	2,662.7	473.0	129.3	4,445.1
93-94	4,445.1	2,113.2	747.2	1,366.0	1,262.7	1,919.1	2,629.3
94-95	2,629.3	4,221.4	706.6	3,514.8	532.2	1,700.3	3,911.6
95-96	3,911.6	3,697.8	1,252.2	2,445.6	1,482.8	505.0	4,369.4
96-97	4,369.4	2,371.7	735.9	1,635.8	1,010.1	2,489.2	2,505.9
97-98	2,505.9	3,424.0	435.1	2,988.9	214.3	984.3	4,296.2
98-99	4,296.2	2,874.9	922.5	1,952.4	590.5	2,038.1	3,620.0
99-00	3,620.0	1,195.0	304.7	890.3	740.6	1,483.1	2,286.6
2000-01	2,286.6	1,513.5	424.0	1,089.5	440.5	1,041.5	1,894.1
01-02	1,894.1	294.8	14.7	280.1	0.0	1,205.3	968.9
02-03	968.9	1,444.7	500.3	944.4	0.0	231.3	1,682.0
03-04 ^{1/}	1,682.0	751.7	124.1	627.6	0.0	1,465.6	844.0
04-05	844.0	5,612.7	1,070.2	4,542.5	282.2	279.1	4,825.2
05-06	4,825.2	2,932.7	603.1	2,329.6	385.7	1,637.8	5,131.3
06-07	5,131.3	745.5	211.0	534.4	0.0	2,653.8	3,011.9
07-08	3,011.9	1,761.1	260.6	1,500.5	0.0	1,395.9	3,116.5
08-09	3,116.5	1,585.2	217.7	1,367.5	0.0	1,189.6	3,294.5
09-10	3,294.5	2,535.1	696.4	1,838.7	0.0	760.4	4,372.8
2010-11	4,372.8	3,086.9	771.4	2,315.5	0.0	424.6	6,263.7
11-12	6,263.7	1,276.7	637.2	639.5	0.0	644.1	6,259.1
12-13	6,259.1	326.8	125.6	201.2	0.0	1,751.4	4,708.9
13-14	4,708.9	456.6	197.5	259.2	0.0	0.0	4,968.1
14-15	4,968.1	391.9	144.0	247.9	0.0	0.0	5,216.0
15-16	5,216.0	677.4	263.5	413.9	0.0	0.0	5,629.9
16-17	5,629.9	1,630.1	676.2	953.9	0.0	0.0	6,583.8
17-18	6,583.8	641.3	275.2	366.1	0.0	0.0	6,949.9
18-19	6,949.9	1,996.7	437.0	1,559.7	0.0	0.0	8,509.6
19-20	8,509.6	1,382.6	387.2	995.4	0.0	0.0	9,505.0
2020-21	9,505.0	459.1	148.6	310.5	0.0	0.0	9,815.5
21-22	9,815.5	506.2	180.9	325.2	0.0	0.0	10,140.7
22-23	10,140.7	4,124.1	728.2	3,395.9	0.0	0.0	13,536.6

1/ Adjustment to 2003-04 End of Year Salvage

TABLE 10. TRANSFERS OR LEASES OF DECREED RIGHT
(acre-feet)

Lease No.	Lease Date	Leasor	Leasee	Acre-Feet
ALH-KID-042023	2/1/2023	City of Alhambra	Kinneloa Irrigation District	207.0
LFWC-LAWC-042023	3/16/2023	Las Flores Water Company	Lincoln Avenue Water Company	25.0
LFWC-RCLWA-042023	4/5/2023	Las Flores Water Company	Rubio Canon Land & Water Assoc	223.0
PASA-VWC-072023	4/14/2023	City of Pasadena	Valley Water Company	22.7
ALH-HUNT-072023	5/22/2023	City of Alhambra	H. E. Huntington Library & Art Gallery	190.0
LFWC-LAWC-072023	6/30/2023	Las Flores Water Company	Lincoln Avenue Water Company	15.0

LONG TERM STORAGE SPACE EXCHANGES
(acre-feet)

Lease No.	Leasor	Leasee	Lease Period	Acre-Feet
<u>Pasadena Subarea</u>				
<u>Monk Hill Subarea</u>				

TABLE 11. APPORTIONMENT OF BUDGET AMONG PARTIES
FISCAL YEAR ENDING JUNE 30, 2023

Party	Part A			Part B			Part C		Total Cost (3)+(6)+(7) (8)
	Acre Feet Decreed Right 1955 (1)	DWR Services Apportionment		Acre Feet Divisions 2018-19 (4)	Spreading Program Apportionment		Other Administration		
		% (2)	\$ (3)		% (5)	\$ (6)		\$ (7)	
Alhambra, City of	1,031	3.4%	\$ 170				\$ 30,962	\$ 31,132	
Arcadia, City of	5,644	18.4%	\$ 920				\$ 167,561	\$ 168,481	
California-American Water Co.	2,814	9.2%	\$ 460				\$ 83,781	\$ 84,241	
The Huntington Library and Art Gallery	372	1.2%	\$ 60				\$ 10,927	\$ 10,987	
Kinneloa Irrigation District	516	1.7%	\$ 85	96.9	8.3%	\$ 249	\$ 15,482	\$ 15,816	
La Canada Irrigation District	100	0.3%	\$ 15				\$ 2,732	\$ 2,747	
Las Flores Water Company	249	0.8%	\$ 40	23.0	2.0%	\$ 60	\$ 7,286	\$ 7,386	
Lincoln Avenue Water Company	567	1.8%	\$ 90	158.2	13.6%	\$ 408	\$ 16,392	\$ 16,890	
Pasadena Cemetery Association	91	0.3%	\$ 15				\$ 2,732	\$ 2,747	
Pasadena, City of	12,807	41.8%	\$ 2,090	836.3	72.1%	\$ 2,163	\$ 380,656	\$ 384,909	
Rubio Canon L&W Assoc.	1,221	4.0%	\$ 200	45.9	4.0%	\$ 120	\$ 36,427	\$ 36,747	
San Gabriel County Water Dist.	1,091	3.6%	\$ 180				\$ 32,784	\$ 32,964	
Sierra Madre, City of	1,764	5.8%	\$ 290				\$ 52,818	\$ 53,108	
Sunny Slope Water Company	1,558	5.1%	\$ 255				\$ 46,443	\$ 46,698	
Valley Water Company	797	2.6%	\$ 130				\$ 23,677	\$ 23,807	
	30,622	100.0%	\$ 5,000	1,160.3	100.0%	\$ 3,000	\$ 910,660	\$ 918,660	

TABLE 12. STATEMENT OF 2022-23 INCOME AND EXPENDITURES

	Budget	Actual	Variance
Cash - July 1, 2022	\$ 3,296,381	\$ 3,369,367	\$ 72,986
Revenue			
Assessments:			
DWR Service Assess - Part A	5,000	5,000	-
Spreading Program - Part B	3,000	3,000	-
Administrative Assess - Part C	910,660	910,660	-
Long-Term Storage Program	400	1,392	992
Title 22 Program	38,000	27,820	(10,180)
Salvage Credit Reimbursement	3,000	1,378	(1,622)
Staff Reports for Wells Income	-	5,000	5,000
FWC - Project Income	1,000	83	(917)
Interest and Other Income	7,000	97,110	90,110
Total Revenue	\$ 968,060	\$ 1,051,443	\$ 83,383
Expense:			
DWR Administration	\$ 5,000	\$ 6,441	\$ (1,441)
MSGBW Administration	266,940	266,940	-
Office Expense	6,000	586	5,414
Professional Services	5,000	-	5,000
General Engineering	140,000	92,541	47,459
Staff Reports for Wells	10,000	4,141	5,859
FWC - Basin Contribution	1,000	83	917
Monk Hill Study	50,000	32,620	17,380
Federal Grant Match	50,000	-	50,000
Monitoring Well Design	20,000	20,845	(845)
Monitoring Well Construction	203,000	-	203,000
Salt & Nutrient Mgmt Plan	5,000	-	5,000
GW Level Management Prgm	1,500	-	1,500
S.A. Subarea Engineering	50,000	35,293	14,707
Pasadena Subarea Study	50,000	8,860	41,140
Groundwater M&M Plan	5,000	-	5,000
Legal Fees	10,000	699	9,301
Legislative Advocacy	40,000	36,000	4,000
Grant Support	10,000	-	10,000
Meeting & Travel	6,000	2,531	3,469
Strategic Planning	10,000	-	10,000
Mapping/GIS/Data Management	5,000	-	5,000
Baseline Assessment Study	40,000	366	39,634
Annual Report Expense	10,500	13,378	(2,878)
Audit Expense	5,000	3,800	1,200
Membership Dues	7,500	4,927	2,573
Title 22 Program Expense	43,000	29,827	13,173
Spreading Program	3,000	4,255	(1,255)
Sierra Madre Salvage Credit Expense	3,000	1,378	1,622
FWC - Project Expense	1,000	83	917
Contingency	10,000	-	10,000
Total Expense	\$ 1,072,440	\$ 565,594	\$ 506,846
Cash - June 30, 2023	\$ 3,192,001	\$ 3,855,216	\$ 663,215

TABLE 13. METER TESTING PROGRAM FOR 2022-2023

OWNER DESIGNATION	TEST DATE	METER ERROR^{1/}		SERIAL NUMBER	NOTES
Alhambra, City of					
WELL NO. 2 (3/)	-	-	-	-	Inactive
Arcadia, City of					
ANOAKIA (3/)	-	-	-	-	Inactive
CHAPMAN 6 (3/)	-	-	-	-	Inactive
CHAPMAN 7 (3/)	-	-	-	-	Inactive
COLORADO	3/17/2023	1.0%	Slow	200-90854-06	
HUGO REID (3/)	-	-	-	-	Inactive
ORANGE GROVE 1A	6/15/2023	1.3%	Slow	97-3802-12	Rehabilitated
ORANGE GROVE 2A	3/17/2023	0.9%	Slow	20012956-12	
ORANGE GROVE 5A (3/)	-	-	-	-	Out of service
ORANGE GROVE 6	3/17/2023	1.0%	Slow	20022209-12	
RANCHO 6 (3/)	-	-	-	-	Inactive
California-American Water Company					
LAMANDA PARK	-	-	-	-	DW 4/19/17
LOMBARDY	5/12/2023	1.2%	Slow	L5045A1600-10	
OAK KNOLL (3/)	-	-	-	-	Inactive
OSWEGO (3/)	-	-	-	-	Inactive
PATTON (3/)	-	-	-	-	Non-Operational
WINSTON	5/12/2023	0.3%	Slow	T60A7016000	
WELL NO. 1 (3/)	-	-	-	-	Inactive
WELL NO. 7 (3/)	-	-	-	-	Inactive
WELL NO. 8 (3/)	-	-	-	-	Inactive
H.E. Huntington Library & Art Gallery					
CANYON	6/28/2023	2.0%	Slow	20023828-10	
ORLANDO (3/)	-	-	-	-	Inactive
ROSCOE MOSS	6/28/2023	0.0%		00-09437-06	
BUDDY MOSS	6/28/2023	0.1%	Slow	16-10192-08	

1/ Slow=Percent production meter is under recording

Fast=Percent production meter is over recording

2/ Separate serial numbers for meter test tube (first serial number) and converter (second serial number).

3/ Waiver of meter test requirement granted due to inactivity related to water quality issues and/or mechanical failure

OWNER DESIGNATION	TEST DATE	METER ERROR ^{1/}	SERIAL NUMBER	NOTES	
Kinneloa Irrigation District					
K-3	4/7/2023	0.0%	-	20013275-06	
WAGNER (3/)		-	-	-	Inactive
WILCOX	4/7/2023	1.0%	Slow	20170593-06	
La Canada Irrigation District					
WELL NO. 1 (3/)		-	-	-	Inactive
WELL NO. 6	6/27/2023	1.3%	Slow	96-09359-08	
Las Encinas Hospital					
WELL NO. 1	6/26/2023	1.8%	Slow	8108124	
Las Flores Water Company					
WELL NO. 2 (3/)		-	-	-	Inactive
Lincoln Avenue Water Company					
WELL NO. 3	2/22/2023	2.0%	Slow	07-05308-10	Inactive
WELL NO. 5	2/22/2023	0.9%	Fast	05-05107-10	
WELL NO. 6	2/22/2023	0.9%	Fast	16-05947-12	
Pasadena Cemetery Association					
WELL NO. 2-3	5/4/2023	1.6%	Slow	12132	
WELL NO. 4 (3/)		-	-	-	Inactive
Pasadena, City of					
ARROYO (2/)	4/7/2023	0.2%	Slow	M148393810/M230683921	
BANGHAM (3/)		-	-	-	Non-Operational
COPELIN 3		-	-	-	DW approved 1/20/21
CRAIG	6/2/2023	1.8%	Fast	M232180622	Inactive
EATON 51 (3/)		-	-	-	Inactive
EXPLORER		-	-	-	NW approved 10/20/21
<p>1/ Slow=Percent production meter is under recording Fast=Percent production meter is over recording</p> <p>2/ Separate serial numbers for meter test tube (first serial number) and converter (second serial number).</p> <p>3/ Waiver of meter test requirement granted due to inactivity related to water quality issues and/or mechanical failure</p>					

OWNER DESIGNATION	TEST DATE	METER ERROR ^{1/}	SERIAL NUMBER	NOTES	
Pasadena, City of <i>(continued)</i>					
GARFIELD REPLMNT.	-	-	-	NW approved 10/21/20	
GROUNDS-INJECT.	-	-	-	Inactive	
JOURDAN	-	-	-	DW approved 7/20/22	
MONTE VISTA	-	-	-	DW approved 1/15/20	
NEW CHAPMAN	3/1/2023	0.8%	Fast	M099255005	
PASA 52	3/2/2023	0.5%	Fast	M148403810	
SHELDON 1 (3/)	-	-	-	Inactive	
SUNSET	3/2/2023	0.1%	Fast	974184-8	
VENTURA (2/)	6/2/2023	1.9%	Slow	M230683921/M148393810	Active; Non-Operational
VILLA (3/)	-	-	-	-	Inactive
WELL 58, TWOMBLY	3/1/2023	0.5%	Fast	M147603310	
WELL 59, WADSWORTH (3/)	-	-	-	-	Non-Operational
WINDSOR	3/1/2023	0.7%	Fast	20805128	
WOODBURY	3/1/2023	0.5%	Slow	17887932	
Rubio Canon Land and Water Association					
WELL NO. 4	5/3/2023	1.2%	Slow	02-06275-08	
WELL NO. 7	5/3/2023	1.7%	Slow	17-08135-12	
San Gabriel County Water District					
VAN NUYS 3	-	-	-	-	DW approved 10/21/15
WELL NO. 16	5/4/2023	2.6%	Fast	20111385-06	
Sierra Madre, City of					
WELL NO. 3	5/19/2023	1.3%	Slow	3105-12	
WELL NO. 4	5/19/2023	1.7%	Slow	1573-12	
WELL NO. 5	5/19/2023	1.1%	Slow	1556-10	
WELL NO. 6	5/19/2023	0.9%	Slow	1596-12	
Sunny Slope Water Company					
WELL NO. 1 (3/)	-	-	-	-	Inactive
WELL NO. 6 (3/)	-	-	-	-	Inactive
WELL NO. 11	6/27/2023	1.1%	Slow	20201251-12	
WELL NO. 12	6/27/2023	1.4%	Slow	20101500-12	
Valley Water Company					
WELL NO. 1 (3/)	-	-	-	912604-10	Inoperative
WELL NO. 2	1/6/2023	2.6%	Fast	20010901-08	
WELL NO. 3	1/5/2022	3.5%	Fast	934091-8	
WELL NO. 4	1/6/2023	0.6%	Fast	201458-08	
1/ Slow=Percent production meter is under recording Fast=Percent production meter is over recording					
2/ Separate serial numbers for meter test tube (first serial number) and converter (second serial number).					
3/ Waiver of meter test requirement granted due to inactivity related to water quality issues and/or mechanical failure					

APPENDIX A

Significant Actions

by the

Raymond Basin Management Board

APPENDIX A
SIGNIFICANT ACTIONS BY RAYMOND BASIN MANAGEMENT BOARD
2022-23

July 20, 2022

Authorized the Executive Officer to execute the agreement with the Main San Gabriel Basin Watermaster for administrative services for fiscal year 2022-23.

Authorized \$25,000 to begin preliminary engineering for Pasadena Subarea Monitoring Well.

Approved the City of Sierra Madre's request to authorize its Annual Imported Water Spreading Program.

Received and Filed the City of Pasadena's request to Destroy its Jourdan Well.

Reaffirmed implementation of the "500' Rule" groundwater pumping restrictions in the Santa Anita Subarea.

October 19, 2022

Adoption of the 2021-22 Financial Audits.

Accepted and approved the Annual Report of Watermaster Service in the Raymond Basin for fiscal year 2021-22.

Annual review of Alternative Management Scenario I for the Pasadena Subarea Performance Evaluation.

Reviewed Water Balance/Budget for Monk Hill, Pasadena and Santa Anita Subareas.

January 18, 2023

Approved the Annual Review of Investment Policy.

Ratification of City of Pasadena's In-Lieu Program in the Monk Hill Subarea.

Approval of the Monk Hill Subarea 24% Pumping Reduction Plan.

April 19, 2023

Adopted fiscal budget and apportionment of annual assessments among the parties for fiscal 2023-24 along with the corresponding assessments for such year.

Approved consultant selection to prepare the 2022-23 Financial Audit.

Determined that the Long-Term Storage administration fee should remain at \$1.50 per acre foot for fiscal 2023-24 and a Long Term Storage loss factor of 1.0% remain in place for fiscal 2023-24.

Adopted Resolution No. 57-0423 Regarding Cooperative Pumping Reduction Plan and Exemption Criteria for the Parties with Water Rights in the Monk Hill Subarea.

APPENDIX B

Chronology of the Raymond Basin

APPENDIX B CHRONOLOGY OF THE RAYMOND BASIN

- 1880 Southern California land development boom begins.
- 1881 First wells drilled in Raymond Basin to supply water for irrigated agriculture and expanding municipalities.
- 1908 U.S. Geological Survey report on Raymond Basin published, showing 141 wells in operation.
- 1913 Overdraft of Raymond Basin begins.
- 1914 City of Pasadena Water Department initiates a program to replenish the basin by conserving and spreading storm runoff on gravel beds at the foot of the San Gabriel Mountains. Pasadena continued the spreading program until 1924, by which time it had replenished the basin by more than 20,000 AF, using water that otherwise would have made its way to the Los Angeles River.
- 1924 Pasadena terminates its spreading program partly because of the sharp decline in available runoff due to another dry cycle that began in 1922. Through the remainder of the 1920s, underground water levels dropped, some wells failed and longer pumping lifts raised operating costs in the others. The drop in water levels was not just seasonal; they no longer recovered in the spring.
- Raymond Basin users continued to pump groundwater without fully understanding the effects of their actions on each other and on the basin. A full description of the basin's geology and underground water storage characteristics did not appear until 1934.
- 1928 In the meantime, Pasadena focused on acquiring a supplemental water supply. Consequently, Metropolitan Water District of Southern California was established to build and operate a Colorado River aqueduct, although this water would not be available for at least a decade.
- California Division of Water Resources granted Pasadena permits to store and divert flood flows of the San Gabriel River and divert up to 4,000 AF of water per year.
- 1929 Pasadena voters approved a \$10 million bond issue to finance the construction of Morris Dam on the San Gabriel River and a conduit to the city.
- 1932 San Gabriel Valley Protective Association sued to prevent Pasadena from

building the dam and diverting the water. MWD helped resolve the dispute by agreeing to purchase Morris Dam from Pasadena once Colorado River water became available.

1934 California Division of Water Resources published Bulletin 45, giving a full description of the basin's geology and storage characteristics. It was not until the early 1940s that users learned the basin had been in overdraft every year since 1913, and that the annual overdraft had averaged 7,000 acre feet, or roughly 33% of the average annual safe yield.

1935 Pasadena officials called together representatives of other known Raymond Basin producers, reviewed the published reports of DWR and attempted to negotiate a pumping reduction on a cooperative rather than an adversarial basis. These efforts failed and city officials contemplated legal action.

Pasadena officials had reached the limits of their willingness to act alone. The city reduced pumping somewhat when it began to receive additional supplies from the San Gabriel River. But in order to redress the overdraft on its own, Pasadena would have to cut its production by one-half and import the expensive Colorado River water when available, while other basin users continued to meet all their needs with groundwater. Pasadena was unwilling to do so.

1937 Pasadena chose instead to defend its right as a senior Raymond Basin appropriator. On September 23, 1937, Pasadena initiated proceedings in Superior Court against Alhambra and other major Raymond Basin water users. The action sought to adjudicate and quiet title to Pasadena's rights in the basin, and to enjoin the annual overdraft. The trial court required Pasadena to amend its complaint to name as defendants all entities in the basin pumping more than 100 acre feet annually. There were 30 defendants in all. The judge also ruled that the suit was not a simple action to quiet title but was a general adjudication of water rights in the basin.

City of Pasadena v City of Alhambra et al., was the first basinwide adjudication of groundwater rights in California and the first to use the Court Reference Procedure under the California Water Code. That procedure authorized the referral of cases involving the determination of water rights to the Division of Water Resources by the state Department of Public Works for investigation of the physical facts.

1939 20 parties were involved in the court reference procedure and petitioned the court to refer the factual issues to DWR for investigation. The judge directed the referee to determine the "safe yield" of the basin and ascertain whether there was a surplus or an overdraft.

The investigation was expensive and time-consuming. Nevertheless, the referee's investigation avoided multiple concurrent investigations by several parties and provided the parties and court with a coherent, single view of the Raymond Basin and its problems.

1943 Referee's report filed in Raymond Basin litigation; this draft report described the basic geology of the Raymond Basin and specified the location of the Monk Hill Basin, and the Pasadena and Santa Anita subareas. The draft report stated the safe yield for Raymond Basin as a whole was 21,900 acre feet per year and recommended limiting withdrawals to the safe yield and using imported water to meet further demands.

As the referee's draft report circulated among the parties, most tried to work out a settlement. Litigation had changed the default condition of the negotiations. Before litigation, failure to negotiate a settlement simply continued the status quo--the pumping race. With litigation underway, if the parties failed to achieve a negotiated settlement, the case would go to trial and the court would decide the parties' water rights. Since Raymond Basin was the first groundwater basin to be adjudicated and California water rights law was very complex, the possible outcomes of a trial were highly uncertain. Waiting for the judge's decision was risky.

The parties had already spent four years and considerable sums of money on this dispute. A negotiated settlement offered the possibility of minimizing additional expenses. Negotiation was facilitated by the presence of shared counsel; one attorney was either counsel or special counsel for sixteen of the parties. This unusual communication link made it easier to reach a cooperative agreement.

1943 Most parties agreed to appoint a committee of seven attorneys and engineers to work out a stipulated agreement that could be presented to the court. All but two parties agreed to the stipulation which provided:

- 1) Admission that taking of the water was adverse to the claims other parties, thus satisfying the requirements of a superior prescriptive right;
- 2) Allocation of the basin's safe yield among the parties;
- 3) Declaration and protection of each party's right to a specified proportion of the safe yield; and
- 4) Arrangement for the exchange of pumping rights among parties

On April 5, 1944, Judge Collier designated the Division of Water Resources to serve as watermaster for the stipulation.

1944 Judge Collier signed the judgment on December 23, 1944, adopting the stipulation worked out by the parties. By mid 1944, all of the parties except the California-Michigan Land and Water Company had agreed to the stipulation. His decision is known as "mutual prescription". The judge accepted the determination of a "present unadjusted right" defined as the highest amount of water continuously produced during a five-year period prior to the filing of the lawsuit. Each party owned this right by prescription, and the rights were of equal priority. The judge then defined a "decreed right" for each party which was that party's present unadjusted right adjusted downward about one-third so that the sum of all parties' decreed rights matched the estimated safe yield.

The stipulation and judgment in *Pasadena v. Alhambra* completed the first phase of institution building in Raymond Basin. Water users had constituted a governance structure for the basin through the adjudication process. The stipulation and judgment also established a management program for the basin, within and subject to this basin governance system. The management program was a fairly simple fixed safe-yield operation. The provisions of the stipulation and judgment designated: (1) the set of authorized users of the basin and provided for their entry and exit; (2) assigned them rights to specific quantities of pumped water each year and provided for the exchange, lease or sale of those rights; and (3) limited them in the aggregate to the basin's estimated safe yield.

1945 California-Michigan Land and Water Company appealed the *Pasadena v. Alhambra* judgment and the basic governance structure and management program were quickly called into question. As the judge anticipated, his decision based on the stipulation's idea of mutual prescription was the basis for the California-Michigan Land and Water Company appeal.

1947 In response to California-Michigan's appeal, the District Court of Appeal reverses and remands *Pasadena v. Alhambra*.

1949 In response to an appeal filed to the District Court of Appeals decision, the California Supreme Court affirmed *Pasadena v. Alhambra* overturning the Court of Appeal and affirming the judge's original judgment. The Supreme Court also considered the interests of the various publics served by Raymond Basin water producers. Proportionate reduction by each producer would be less disruptive of the local water economy than the complete elimination of rights for some. Without explicitly endorsing the judge's mutual-prescription reasoning, the Supreme Court sustained his result. This had the effect, intended or not, of adding a new doctrine to California water law.

Although a new doctrine had been added, the California law of water rights had not been overturned or revolutionized. *Pasadena v. Alhambra*

had been decided and affirmed without overruling any previous water rights decisions. Mutual prescription was not substituted for the old scheme, but allowed to develop alongside it. *Pasadena v. Alhambra* provided an alternative capacity in which groundwater users could resolve overdraft problems. With the Supreme Court's approval of *Pasadena v. Alhambra*, a community of water users who had worked out their own settlement of an overdraft could approach a court with some assurance that the judge would recognize the settlement and place public authority behind it. *Pasadena v. Alhambra* allowed users of an overdrafted basin to constitute their own basin governance systems and management programs.

The advent of mutual prescription meant that pumpers in every nonadjudicated basin in the state faced the uncertain situation of not knowing when a basin could become overdrawn. Therefore, the decision in *Pasadena v. Alhambra* had the unintended effect of encouraging pumpers in other basins to increase pumping in order to enlarge and protect their right after a potential adjudication.

- 1950 City of Pasadena requested redetermination of Raymond Basin safe yield based on observed changes in basin conditions. The court granted the motion on November 17, 1950 and appointed DWR as referee to make the review.
- 1955 The DWR Report of Referee filed October 5, 1954 increased the estimated safe yield to a total of 30,622 acre feet. The Court issued a Modification of Judgment on April 29, 1955, increasing the decreed rights of the parties proportionally to a total of 30,622 acre feet, effective July 1, 1955.
- 1974 On January 17, 1974, the second modification of Raymond Basin Judgment was signed allowing parties credit for spreading of canyon diversions in spreading grounds in the vicinity of the Arroyo Seco, Eaton Wash, and Santa Anita Creek Canyon.

Source of above information: "Dividing the Waters" by William Blomquist

- 1984 On March 26, 1984, the third modification of Raymond Basin Judgment was approved, reconstituting the basin governance system by assigning watermaster responsibilities to Raymond Basin Management Board, successor to the Raymond Basin Advisory Board. The Board's authority to manage storage water in the basin ushered in the era of conjunctive

use and provided the mechanism for local management of the groundwater resource while retaining the safe yield concept of the original adjudication.

1992-1993 On October 7, 1992 and March 10, 1993: Long Term Storage policies were adopted and Basin storage capacity determined and allocated to parties for their use; an important step in allowing all parties to benefit from the storage potential of the Basin.

2001 In July of 2001, by way of a letter to the Chief Executive Officer of Metropolitan Water District, the Raymond Basin Board affirmed their support for conjunctive use in the Basin, once potential negative impacts are identified, evaluated, and resolved.

At the same meeting, the Board approved the proposed concept of the Foothill/Monk Hill Conjunctive Use Program under the following conditions:

- 1) Five Monk Hill producers that were also member agencies of Foothill Municipal Water District would participate.
- 2) Storage allotted to the program would be 7,500 acre feet, which was a number equal to 10% of the 75,000 acre feet of storage deemed at that time to be set aside for conjunctive use (CH2 M Hill determined that additional available storage in the Monk Hill was approximately 12,000 acre feet).
- 3) No imported MWD water could be used for injection unless the TDS is lower than 450 ppm.
- 4) Foothill and Monk Hill Producers submit the detailed final agreement terms with MWD for the program for Board evaluation and approval prior to issuing the final approval of the program.

2002 On July 10, 2002, the Board took action to conceptually approve the MWD Lead Agency Agreement to enable preparation of environmental documentation for the Pasadena portion of the Raymond Basin Conjunctive Use Program. Additionally, the Board appointed a steering committee to draft a request for proposal to perform a baseline study of the Basin. The study was intended to be used to evaluate the impacts of ongoing and future storage programs in the Basin.

On August 10, 2002, the Board approved the Lead Agency Agreement for the Raymond Basin/MWD Conjunctive Use Program.

2003 The Board approved the proposed concept of the Foothill/Monk Hill Conjunctive Use Program under the following conditions:

- 1) Five Monk Hill producers that were also member agencies of Foothill Municipal Water District would participate and storage under the program.

- 2) Storage would be allotted equitably among those agencies.
- 3) Storage set aside for the program was increased from 7,500 acre feet to 9,000 acre feet with that amount being subtracted from the other conjunctive use program proposed by the City of Pasadena. This would leave 64, 000 acre feet of storage for future consideration as part of the Pasadena Program.
- 3) No imported MWD water could be used for injection unless the TDS is lower than 450 ppm.
- 4) Extraction of project water would only occur after Metropolitan placed a call on this stored water as set forth by the guidelines within the final agreement.

The Board engaged Geoscience to prepare the Baseline Groundwater Assessment of the Raymond Basin which included a ground water flow model of the study area.

The City of Pasadena requested that the Pumping and Storage Committee review the applied calculation for spreading credits in the Arroyo and Milliard Canyons. The City requested that the variable calculation in use at the time be replaced with a straight 80% credit for water spread. After extensive review, the Committee recommended that staff use the 80% calculation as an interim method until the impact on water spread for general benefit could be evaluated. The Board approved this approach on July 9, 2003.

During the summer of 2003, an observation well (the Bricker Well) used in calculating the City of Sierra Madre's Salvage Credit went completely dry. After inspection, it was determined that this condition was due to a combination of age and prolonged dry conditions in the Basin. In October of 2003 the Board made two determinations with regards to the Bricker Well:

- 1) Base calculations for Sierra Madre's Salvage Credit for that year on the assumption that there was zero outflow from the Basin.
- 2) Direct the City of Sierra Madre to construct a new observation well.

On December 8, 2003, Raymond Basin submitted its first application for \$30 million to the Corps of Engineers Section 219 Environmental Infrastructure Program for a raw water supply pipeline, recharge enhancement and additional monitoring wells.

2004

Recognizing conditions highlighted by the ongoing Baseline Groundwater Assessment; the Board authorized staff to assemble a consulting team to seek Federal Grant funding to implement needed water resource enhancement projects for future supply reliability.

In February of 2004, the Baseline Groundwater Assessment of the Raymond Basin was completed. After initial review of the groundwater modeling for the Baseline Groundwater Assessment Geoscience was authorized to prepare partial tracking and capture zone modeling for the same scenarios used in the study. It was also determined that future additional modeling would be required to fully characterize contamination migration.

Baseline Assessment findings indicated that although proposed storage programs would have minimal impact on Basin water levels, the ability for the Basin to sustain production rates in the long-term may not be feasible without increased replenishment. The basin management strategies outlined in the assessment were used to develop projects and concepts meant to eventually stabilized groundwater levels in the Basin.

In July of 2004 the Board of Directors vote to accept a proposal by the Main San Gabriel Basin Watermaster to provide for Anthony Zampielo's continued service as Executive Officer utilizing Watermaster's staff to provide support. The Raymond Basin Management Board's offices officially move to Azusa, CA.

At their September 2004 strategic planning workshop the Board set a goal to obtain \$50 Million in outside funding in matching funds for much needed water resource projects in the Basin. After a series of meetings with other local basin managers and water agencies it is determined that a local coalition should be formed to seek Federal funding.

In October of 2004 Raymond Basin Staff and Board members began to actively participate in Regional Technical meetings hosted by the Main San Gabriel Basin Watermaster. These meetings were designed to identify regional water supply issues and possible solutions. The study area included Foothill and Valley Communities stretching from Rancho Cucamonga to La Canada/Flintridge.

Raymond Basin along with other water agencies and municipalities collaborate to develop water supply enhancement projects which are packaged together and called the Southern California Foothill Communities Water Supply Reliability Program (WSRP).

Study projects include:

- 1) A 14 mile imported replenishment water pipeline from Azusa into the Raymond Basin eventually terminating in northern Pasadena.
- 2) An inter-connection from the Metropolitan Water District Foothill Feeder to the San Gabriel Valley Municipal Water District's (SGVMWD) pipeline in the San Dimas/La Verne area.
- 3) Emergency interconnections from the SGVMWD pipeline to the Water Facilities Authority, Three Valleys Municipal Water District and Inland

Empire Utilities Agency treatment plants in the eastern San Gabriel Valley and Inland Empire.

4) The extension of the SGVMWD water delivery system south to the Alhambra, San Gabriel and Monterey Park area to mitigate groundwater production impacts in the area of the Main San Gabriel Basin commonly referred to as the Alhambra Pumping Hole.

5) An area-wide reconnaissance and feasibility study of natural groundwater recharge enhancement opportunities using new and existing facilities within the combined watersheds. The study area includes portions of the Raymond Basin, Main San Gabriel Basin, Six Basins and Chino Basin.

2005 January 12, 2005, Raymond Basin holds a community meeting for State and local elected officials to unveil the Southern California Foothill Communities Water Supply Reliability Program (WSRP).

February 2005, the Board is informed that the Foothill Conjunctive Use Program and City of Pasadena's storage proposal will not include a State Water Project Pipeline extension from the Glendale area. MWD also informs the Board that it will no longer be the lead agency for CEQA purposes on the 64,000 acre foot Pasadena Storage Program.

In October 2005, construction on the Chelsea Well (the Bricker Well replacement) is completed.

2006 Draft Supplemental Water Quality Criteria for Raymond Basin is published in March and distributed to the all parties to the judgment.

May 17, 2006, the MWD Board approves \$480,000 to reimburse the City of Pasadena for CEQA review and preliminary design work to develop a 64, 000 acre foot storage program within the Raymond Basin.

July 2006, the Board entered into an Agreement to provide in-kind services as a partner in the Arroyo Watershed Feasibility Study to identify and evaluate potential habitat and water supply restoration projects along the Arroyo Seco Corridor.

October 2006, the Board adopted criteria for supplemental water paving the way for development of replenishment and supplemental water to be stored.

2007 Raymond Basin Management Board and Main San Gabriel Basin Watermaster formed the Foothill Water Coalition (FWC). The main focus of the Coalition is to cooperatively seek Federal and State funding for regional water supply reliability projects. The charter members include the

Raymond Basin Management Board, Main San Gabriel Basin Watermaster, San Gabriel Valley Municipal Water District, Upper San Gabriel Valley Municipal Water District, Three Valleys Municipal Water District, Inland Empire Utilities Agency, Six Basins and Chino Basin Watermaster.

January 2007, Monk Hill Task Force or working group is formed to review and resolve issues unique to the Monk Hill producers and their region.

April 2007, Raymond Basin staff is authorized to act as lead administrative agency for The Water Supply Reliability Coalition, which would eventually become the Foothill Water Coalition.

October 2007, as planned, the Board authorizes work to begin on (Phase I) of comprehensive Ground Water Monitoring and Management Plan, mainly focused on groundwater level and extraction management strategies in the Pasadena Subarea, of the Western Unit.

November 2007, HR 1495- The Water Resources Development Act became United States Law 110-114 on November 9, 2007. Section 5050 of that law authorizes \$5 million for Raymond Basin and FWC projects.

2008

January 2008, Recognizing declining water levels and impacts on supply the Board adopted resolution 42-0109. Resolution 42-0109 puts in place self imposed pumping reductions of 30% implemented over five years in the Pasadena Subarea. This resolution was adopted with the goal of a reduction of water produced below 1955 Decreed Rights from 17,843 Acre Feet to 12,493 Acre Feet, dissolution of remaining Long-Term Storage accounts and increased groundwater levels. In order to meet this goal, water production reductions were implemented incrementally at a rate of 1,070 Acre Feet per year for five years until a 30% reduction is achieved. Implementation set to begin July 1, 2009.

July 2008, as Lead Agency for the Foothill Water Coalition, the Raymond Basin Management Board enters into a planning agreement with the Army Corps of Engineers to prepare the project implementation plan for the feasibility and implementation of the Coalition and Raymond Basin suite of water reliability projects.

2009

January 2009, the Board approved Resolution 43-0409 creating the Monk Hill Temporary Perchlorate Clean-up Pool. The Resolution established a temporary storage pool for clean-up of un-produced water in the area of the Raymond Basin, Western Unit, known as the Monk Hill Subarea. The goal is to help mitigate Perchlorate contamination in the Monk Hill

Subarea and retaining water production historically transferred to the area of the Raymond Basin, Western Unit, known as the Pasadena Subarea as Long Term Storage. By establishing the Clean-up Pool (Clean-up Pool) this Resolution is intended as a means to improve water quality and supply conditions in order to avoid disputes between impacted parties.

2010 July 2010, the Board adopted a Joint Prosecution Agreement and Cost-Sharing Agreement regarding a Proposed Rule of the United States Fish and Wildlife Service regarding the designation of a Critical Habitat for the Santa Ana Sucker. The adoption does not bind RBMB with any financial obligation, rather allows participation in a confidential working group.

2011 January 2011, the Board approved membership in the California Groundwater Coalition. The Coalition's mission is to educate policy makers, represent groundwater interests in legislative and other policy areas, and to promote a fair share of funding for statewide programs.

April 2011, the Board adopted revisions to the Rules and Regulations pertaining to discharge credit.

July 2011, the Board approved a contract extension with the Army Corps of Engineers for funding and "in-kind" services match. The extension was based on matching funds whereby the Corps would provide \$125,000 toward additional groundwater modeling and basin study, provided RBMB approved an equal amount.

2012 January 2012, the Board adopted revisions to the Rules and Regulations pertaining to annual report distribution consistent with the Judgment.

2013 January 2013, the Board approved the Cooperative Agreement for the Santa Anita Stormwater Flood Management and Seismic Strengthening Project. Participants in this agreement are Los Angeles County, City of Arcadia, City of Sierra Madre, and the Raymond Basin Management Board. The project involves improvements to Santa Anita Dam and existing facilities to better capture stormwater and maximize conservation for the Eastern Raymond Basin.

2014 January 2014, Pasadena Subarea reduction for 2013-14 moved to 30%. The 30% represents the final phase of the planned reduction.

May 2014, the Board submitted a draft Salt and Nutrient Management Plan for the Raymond Basin to the Los Angeles Regional Water Quality Control Board.

June 2014, Monk Hill Temporary Perchlorate Clean-up Pool (Clean-up Pool) five-year term ended.

September 2014, Governor Jerry Brown enacted the Sustainable Groundwater Management Act (SGMA). The act is intended to promote groundwater extraction accountability and stability. The Raymond Basin is named in SGMA as an adjudicated basin, and is required to comply with certain reporting requirements by April 2016.

2015 January 2015, the RBMB approved New Well Construction and Destruction Guidelines. These guidelines are a tool to be used in not only tracking wells, but will also provide a technical basis for better management of groundwater extractions and contamination control. The Board adopted Resolution No. 48-0415 at the April meeting.

April 2015, the RBMB adopted Resolution No. 47-0415 establishing a Short Term Storage Program for Producers meeting specific criteria in the Pasadena Subarea. This provides some flexibility for smaller Producers to “save” and store water during wetter years for use in the subsequent year only.

October 2015, after five years of unprecedented drought, the RBMB authorized the use of imported water for spreading on behalf of the City of Sierra Madre. The Metropolitan Water District entered into an agreement with the City of Sierra Madre and the San Gabriel Valley Water District, to deliver imported water to the Santa Anita Subarea through a connection constructed at the Sierra Madre Spreading Grounds. Water levels in the Santa Anita Subarea have been declining during the prolonged drought due to lack of rainfall and subsequent runoff.

2016 July 2016, the RBMB adopted amendments to the By-Laws that address quorum requirements, terms of office, and the make-up of Executive Committee membership.

December 8, 2016, the Los Angeles Regional Water Quality Control Board, unanimously approved the Raymond Basin Salt and Nutrient Management Plan. This plan is a tool to provide technical assistance in developing various types of alternative water sources for introduction into the Basin.

2018 April 2018, the RBMB awarded a construction contract to drill its first of three planned groundwater monitoring wells. The first well will be constructed in the Santa Anita Subarea, in the City of Arcadia. Well completed in September 2018.

2019 April 2019, the RBMB approved the Pasadena Subarea Alternative Management Scenario No. 1, restricting the use of Long-Term Storage in an effort to reduce Basin groundwater decline.

July 2019, the RBMB adopted Resolution No. 54-0719 approving the Alternative Management Scenario in the Pasadena Subarea, reducing pumping and freezing Long-Term Storage.

December 2019, the RBMB approved the City of Pasadena In-Lieu Program, retiring 1,000 acre-feet of water rights in the Pasadena Subarea. RBMB agreed to pay \$731,000 to offset the cost difference between taking imported water in-lieu of pumping its rights.

2020 April 2020, the RBMB held its first virtual Board Meeting via Zoom Conference due to the COVID-19 Pandemic.

2021 September 2021, California American Water Company purchased East Pasadena Water Company including water rights in the Raymond Basin.

2022 Recognizing the need to have financial flexibility for potential participation in projects and programs that could benefit the Raymond Basin, the RBMB approved an increase of the Annual Assessment from \$20 per acre-foot of decreed right to \$30.

November 2022, the Board voted to approve the City of Pasadena's Monk Hill In-Lieu Program, with a goal of 100 acre-feet per month through the end of the fiscal year.

2023 At its January meeting, the Board entered into a three-year agreement with the Main San Gabriel Basin Watermaster for Administrative Services, including the appointment of Kelly Gardner to replace Tony Zampiello as Executive Officer.

After years of groundwater level decline in the Monk Hill Subarea, the Board approved the Monk Hill Subarea 24% Pumping Reduction Plan. Resolution No. 57-0423 was adopted implementing the Cooperative Pumping Reduction Plan and Exemption Criteria for the parties with Water Rights in the Monk Hill Subarea.

APPENDIX C

Program for Spreading

Credit Certification

by

Los Angeles County Department of Public Works

and

Raymond Basin Management Board

SUMMARY OF WATER DIVERSIONS, SPREAD AND PUMPING CREDIT ^{1/}
(acre feet)

Month/Year	Eaton Canyon Area																		
	Kinneloa Irrigation District				Las Flores Water Company				City of Pasadena Eaton Wash				Rubio Canon Land & Water Association						
	Eaton Wash		Pasadena Glen		Brown Reservoir		Total		Las Flores Water Company		City of Pasadena Eaton Wash		Rubio Canon Land & Water Association						
Diverted	Spread	Diverted	Outflow	Spread	Diverted	Outflow	Spread	Diverted	Spread	Credit ^{2/}	Diverted	Spread	Credit ^{2/}	Diverted	Spread	Credit ^{2/}			
Jul-22	1.2	1.2	5.2	0.0	5.2	0.0	0.0	6.4	6.4	5.1	2.0	2.0	1.6	2.8	2.8	2.2	4.9	4.9	3.9
Aug-22	1.1	1.1	4.8	0.0	4.8	0.0	0.0	5.9	5.9	4.7	1.5	1.5	1.2	1.5	1.5	1.2	2.6	2.6	2.1
Sep-22	0.9	0.9	4.4	0.0	4.4	0.0	0.0	5.3	5.3	4.2	1.5	1.5	1.2	1.3	1.3	1.0	3.3	3.3	2.6
Oct-22	1.1	1.1	4.7	0.0	4.7	0.0	0.0	5.8	5.8	4.6	1.5	1.5	1.2	1.0	1.0	0.8	4.1	4.1	3.3
Nov-22	1.2	1.2	5.2	0.0	5.2	0.0	0.0	6.4	6.4	5.1	5.5	5.3	4.2	19.1	18.4	14.7	4.2	4.0	3.2
Dec-22	1.4	1.4	6.6	0.0	6.6	0.0	0.0	8.0	8.0	6.4	8.0	7.7	6.2	91.3	88.3	70.6	4.6	4.6	3.7
Jan-23	3.5	2.1	12.1	0.0	12.1	0.0	0.0	15.6	14.2	11.4	5.5	3.3	2.6	338.2	206.3	165.0	48.7	36.6	29.3
Feb-23	2.1	1.4	8.7	0.0	8.7	0.0	0.0	10.8	10.1	8.1	18.0	12.2	9.8	344.3	234.5	187.6	12.4	2.5	2.0
Mar-23	5.6	0.0	21.3	0.0	21.3	0.0	0.0	26.9	21.3	17.0	25.0	0.0	0.0	401.7	0.0	0.0	100.3	0.0	0.0
Apr-23	13.3	4.1	28.5	0.0	28.5	0.0	0.0	41.8	32.6	26.1	13.0	4.0	3.2	529.6	162.8	130.2	61.9	12.8	10.2
May-23	15.5	6.7	17.9	0.0	17.9	0.0	0.0	33.4	24.6	19.7	8.0	3.4	2.7	439.7	188.4	150.7	4.6	2.3	1.8
Jun-23	16.0	12.7	13.8	0.0	13.8	0.0	0.0	29.8	26.5	21.2	4.0	3.0	2.4	282.8	212.9	170.3	1.5	1.5	1.2
	62.9	33.9	133.2	0.0	133.2	0.0	0.0	196.1	167.1	133.7	93.5	45.4	36.3	2,453.3	1,118.2	894.3	253.1	79.2	63.3

1/ Raymond Basin Management Board computed the diversions and pumping credit. Los Angeles County Department of Public Works determined the spreading amounts.

2/ Based on 80% times amount Spread for all Parties

SUMMARY OF WATER DIVERSIONS, SPREAD AND PUMPING CREDIT^{3/}
(acre feet)

Month/Year	Arroyo Seco Area												TOTAL			
	Lincoln Avenue Water Company ^{4/}				City of Pasadena ^{5/}				TOTAL				EATON CANYON AND ARROYO SECO			
	Diverted	Spread	Credit ^{6/}		Diverted	Spread	Credit ^{6/}		Diverted	Spread	Credit ^{6/}		Diverted	Spread	Credit	
Jul-22	3.2	3.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.3	0.0	14.7
Aug-22	1.7	1.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	0.0	10.2
Sep-22	1.0	1.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.4	0.0	9.6
Oct-22	2.3	2.3	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.7	0.0	11.3
Nov-22	45.8	45.8	27.5	33.8	33.8	20.3	0.7	0.7	0.7	0.6	34.5	34.5	20.9	115.5	114.4	75.6
Dec-22	52.3	52.3	31.4	58.1	58.1	34.9	47.3	47.3	37.8	105.4	105.4	72.7	269.6	266.3	191.0	
Jan-23	85.6	85.6	51.4	523.6	523.6	314.2	73.1	73.1	58.5	596.7	596.7	372.7	1,090.3	942.7	632.4	
Feb-23	51.0	51.0	30.6	341.3	341.3	204.8	134.1	134.1	107.3	475.4	475.4	312.1	911.9	785.7	550.2	
Mar-23	118.3	118.3	71.0	540.0	540.0	324.0	49.7	49.7	39.8	589.7	589.7	363.8	1,261.9	729.3	451.8	
Apr-23	123.0	123.0	73.8	1,300.3	1,300.3	780.2	154.1	154.1	123.3	1,454.4	1,454.4	903.5	2,223.7	1,789.6	1,147.0	
May-23	117.0	117.0	70.2	840.4	840.4	504.2	166.9	166.9	133.5	1,007.3	1,007.3	637.7	1,610.0	1,343.0	882.8	
Jun-23	66.3	66.3	39.8	466.1	466.1	279.7	185.1	185.1	148.1	651.2	651.2	427.8	1,035.6	961.4	662.7	
	667.5	667.5	400.5	4,103.6	4,103.6	2,462.2	811.0	811.0	648.9	4,914.6	4,914.6	3,111.2	8,578.1	6,992.0	4,639.3	

3/ Arroyo Seco and Millard Canyon spreading calculated in accordance with procedures in Attachment A to July 9, 2003 meeting minutes and Raymond Basin Area Spreading Methodology.

4/ Includes La Vina Canyon weir spreading.

5/ All Pasadena diverted and spread data to Arroyo Seco, Millard Canyon and Behner are preliminary and subject to revision.

6/ Based on 60% times amount diverted and spread for Lincoln Avenue Water Company and City of Pasadena (Arroyo Seco & Millard Canyon). Remaining 40% spread for general benefit of basin, as shown on page C-3.

7/ Based on 80% times amount spread for City of Pasadena (Behner Wash Water)

SUMMARY OF WATER DIVERSIONS, SPREAD AND PUMPING CREDIT ^{8/}
(acre feet)

Month/Year	Other Spread			Total Raymond Basin Spread	General Benefit	
	Los Angeles County Department of Public Works	City of Sierra Madre	Raymond Basin Spread		Kinneloa Irrigation District, Las Flores Water Company, City of Pasadena and Rubio Canyon Land & Water Association	Arroyo Seco Area General Benefit ^{10/}
	Eaton Grounds	Santa Anita	Little Santa Anita Canyon and street runoff		Eaton Canyon Area General Benefit ^{9/}	
Jul-22	0.0	0.0	46.6	65.9	3.2	1.3
Aug-22	0.0	20.0	19.3	52.5	2.3	0.7
Sep-22	0.0	4.0	16.1	32.5	2.3	0.4
Oct-22	0.0	3.0	17.5	35.2	2.5	0.9
Nov-22	19.0	0.0	29.7	163.1	6.8	31.8
Dec-22	100.0	3.0	31.1	400.4	21.7	44.2
Jan-23	932.0	209.0	425.4	2,509.1	52.1	243.7
Feb-23	577.0	15.0	542.8	1,920.5	51.9	156.9
Mar-23	654.0	72.0	919.9	2,375.2	4.3	263.3
Apr-23	644.0	361.0	860.0	3,654.6	42.4	569.3
May-23	499.0	129.0	662.5	2,633.5	43.7	383.0
Jun-23	15.0	175.0	553.1	1,704.5	48.8	213.0
	3,440.0	991.0	4,124.0	15,547.0	282.0	1,908.5

8/ Raymond Basin Management Board computed the diversions and pumping credit.

9/ Based on 20% times amount Kinneloa Irrigation District, Las Flores Water Company, City of Pasadena and Rubio Canyon Land & Water Association diverted in Eaton Canyon Area, as shown on page C-1.

10/ Based on 40% times amount Lincoln Avenue Water Company and City of Pasadena diverted in Arroyo Seco Area and 20% of Behner Wash Water, as shown on page C-2.

APPENDIX D

Groundwater Extraction Data

APPENDIX D
RAYMOND BASIN GROUNDWATER PRODUCTION SUMMARY
JULY 2022-JUNE 2023
 (acre-feet)

PARTY NAME	YTD (AF)												
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
Monk Hill Basin													
La Canada Irrigation District	0.0	0.1	0.0	0.2	0.2	0.0	0.0	0.0	0.5	0.0	0.0	0.2	1.1
Las Flores Water Company	18.0	18.5	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.7
Lincoln Avenue Water Company	102.0	191.7	166.9	165.2	127.5	112.5	83.5	104.1	85.1	119.0	14.0	83.9	1355.4
Pasadena Cemetery Association	9.0	5.2	10.7	1.7	4.9	2.2	0.5	1.3	0.2	1.7	0.0	6.8	44.3
Pasadena, City of	262.6	252.7	245.2	196.4	247.8	178.9	160.2	163.1	292.6	343.7	132.2	180.2	2655.5
Rubio Canon Land & Water Assoc.	178.1	195.3	169.1	161.0	123.7	103.2	74.7	113.0	92.0	118.7	146.6	138.1	1613.4
Valley Water Company ^{1/}	120.2	118.9	105.4	102.7	7.6	0.1	3.1	9.3	0.3	51.4	123.3	128.0	770.3
Subtotals	689.8	782.5	706.5	627.1	511.7	396.8	322.1	390.7	470.6	634.6	416.1	537.2	6485.7
Prior Year	584.9	622.8	560.7	392.9	311.6	275.8	328.2	359.0	422.6	434.9	611.7	634.1	5539.2

PARTY NAME	YTD (AF)												
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
Pasadena Sub- w/30% Reduction													
Alhambra, City of	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Arcadia, City of	51.8	52.3	47.7	49.0	51.5	55.9	58.9	41.6	53.8	58.4	61.4	59.1	641.3
California-American Water Co.	170.2	172.2	216.0	167.3	97.0	94.2	176.5	147.1	212.8	173.0	177.8	220.6	2,024.7
Huntington Library & Art Gallery	28.6	34.6	37.2	28.5	6.1	9.7	2.6	3.7	3.2	7.2	15.7	19.0	196.1
Kinneloa Irrigation District	61.5	62.7	69.4	47.2	29.7	33.8	42.8	38.6	39.9	49.1	22.7	7.1	504.4
Pasadena, City of	465.4	415.4	726.6	470.5	383.9	367.8	243.0	225.4	225.5	212.1	0.3	69.9	3,805.9
San Gabriel County Water Dist.	83.3	80.0	68.3	81.1	76.0	50.6	37.0	34.7	28.8	53.2	78.6	77.3	748.9
Sunny Slope Water Company	122.3	129.4	114.7	104.2	79.2	81.1	73.2	74.0	71.3	80.1	91.0	94.4	1,114.8
Subtotals	983.2	946.6	1,279.8	947.8	723.5	693.1	634.0	565.0	635.2	633.1	447.5	547.4	9,036.1
Prior Year	723.5	863.0	925.2	824.4	700.6	687.8	722.6	689.8	667.3	833.4	1,022.6	1,066.8	9726.9

PARTY NAME	YTD (AF)												
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
Western Unit Totals													
Prior Year	1,308.4	1,485.8	1,485.9	1,217.3	1,012.2	963.6	1,050.9	1,048.7	1,089.9	1,268.2	1,634.3	1,700.9	15,218.8

PARTY NAME	YTD (AF)												
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
Santa Anita Subarea													
Arcadia, City of	12.4	79.6	289.3	208.9	16.0	5.0	0.4	163.3	171.1	114.4	309.5	364.7	1,734.5
Sierra Madre, City of	214.9	218.3	202.8	188.6	154.6	149.5	121.4	128.7	115.8	142.1	174.8	177.8	1,989.1
Subtotals	227.3	297.9	492.1	397.5	170.6	154.5	121.7	292.0	286.9	256.5	484.2	542.4	3,723.5
Prior Year	493.7	467.5	450.6	422.1	262.9	178.9	157.7	164.3	499.9	549.1	577.9	369.0	4,593.7

PARTY NAME	YTD (AF)												
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
RAYMOND BASIN TOTALS													
Prior Year	1,802.1	1,953.3	1,936.5	1,639.4	1,275.1	1,142.5	1,208.6	1,213.0	1,589.8	1,817.3	2,212.2	2,070.0	19,859.7

PARTY NAME	IMPORTED WATER SPREAD / INJECTIONS (July 22 to June '23)												
	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
Valley Water Company	1.3	5.7	0.0	0.0	0.0	0.0	88.9	0.0	0.0	0.0	0.0	0.0	95.9
Lincoln Avenue Water Company	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
City of Sierra Madre	341.0	340.5	117.7	328.5	22.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,150.1

^{1/} Production adjustment in March 2022 and April 2022 reduced total water produced in FY 21-22 by 0.7 AF

Monthly Production Table

Party Name	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Total Well Production
Monk Hill Subarea													
<i>La Canada Irrigation District</i>													
Well No. 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Well No. 6	0.00	0.12	0.00	0.17	0.16	0.00	0.00	0.00	0.45	0.00	0.00	0.24	1.14
Total Production													1.14
<i>Las Flores Water Company</i>													
Well No. 2	17.98	18.50	9.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.68
Total Production													45.68
<i>Lincoln Avenue Water Company</i>													
Well No. 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02
Well No. 5	47.04	59.84	43.40	44.33	7.22	0.00	0.00	0.03	0.00	13.81	3.43	0.00	219.10
Well No. 6	54.98	131.89	123.48	120.83	120.32	112.48	83.54	104.00	85.12	105.23	10.53	83.87	1,136.27
Total Production													1,355.39
<i>Pasadena, City of</i>													
Ventura	0.00	0.00	4.18	7.97	0.00	0.00	0.00	0.00	0.48	5.88	0.06	0.00	18.57
Arroyo	149.94	142.91	136.32	107.96	148.66	158.10	156.26	162.84	173.14	221.13	132.03	180.15	1,869.44
Windor	0.05	0.00	0.08	0.01	0.03	0.00	0.03	0.02	0.08	0.00	0.00	0.00	0.30
Pasa 52	112.58	109.83	104.66	80.44	99.09	20.79	3.90	0.20	118.93	116.69	0.06	0.06	767.23
Sheldon 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Production	262.57	252.74	245.24	196.38	247.78	178.89	160.19	163.06	292.63	343.70	132.15	180.21	2,655.54
<i>Pasadena Cemetary Association</i>													
Well No. 2-3	9.03	5.24	10.86	1.70	4.93	2.17	0.51	1.30	0.21	1.71	0.08	6.80	44.34
Total Production													44.34
<i>Rubio Canon Land & Water Association</i>													
Well 4	71.85	77.68	67.83	63.62	48.47	40.12	28.57	44.17	35.11	45.96	56.22	53.93	633.53
Well 7	106.20	117.59	101.29	97.42	75.19	63.06	46.17	68.79	56.85	72.75	90.41	84.12	979.84
Total Production													1,613.37
<i>Valley Water Company</i>													
Well No. 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Well No. 2	80.81	78.30	73.36	72.11	0.06	0.05	2.67	9.25	0.17	44.50	103.25	99.48	564.01
Well No. 3	3.64	6.70	0.04	0.04	7.52	0.04	0.36	0.04	0.05	6.40	16.27	28.47	69.57
Well No. 4	35.70	33.93	32.01	30.53	0.05	0.02	0.04	0.03	0.05	0.51	3.76	0.08	136.71
Total Production													770.29

Monthly Production Table

Party Name	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Total Well Production
Pasadena Subarea													
Alhambra, City of													
Well No. 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Production													0.00
Arcadia, City of													
Chapman 7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rancho 6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hugo Reid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Colorado	51.84	52.26	47.69	48.97	51.47	55.94	58.87	41.62	53.76	58.37	61.41	59.10	641.30
Total Production													641.30
California-American Water Company													
Oak Knoll	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Patton	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lamanda Park - Destroyed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oswego	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Winston	66.83	65.92	83.02	65.16	24.07	35.61	70.70	36.43	78.82	70.02	71.96	89.18	757.72
Lombardy	103.41	106.27	132.94	102.13	72.97	58.61	105.81	110.62	133.95	102.97	105.87	131.44	1,266.99
Well No. 7 (acquired 9/21/21)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Well No. 8 (acquired 9/21/21)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Well No. 1 (acquired 9/21/21)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Production													2,024.71
Huntington Library & Art Gallery													
Orlando	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Canyon	28.64	26.75	24.11	25.17	0.00	0.00	0.00	0.00	0.00	3.71	9.79	6.03	124.20
Roscoe Moss	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.31	0.40
Buddy Moss	0.00	7.79	13.12	3.30	6.10	9.66	2.57	3.69	3.22	3.53	5.88	12.64	71.50
Total Production													196.10
Kinneloa Irrigation District													
Wilcox	7.37	11.23	11.01	0.34	1.62	0.76	0.55	0.58	0.54	0.25	0.29	0.01	34.55
Wagner	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K-3	54.11	51.46	58.37	46.88	28.10	33.00	42.28	38.03	39.37	48.81	22.43	7.05	469.89
Total Production													504.44

Monthly Production Table

Party Name	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Total Well Production
Pasadena Subarea													
<i>Pasadena, City of</i>													
Copein 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sunset	174.62	175.94	170.18	169.21	163.98	144.18	19.81	22.88	0.24	0.05	0.04	63.73	1,104.86
Garfield	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Craig	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.06	5.29	5.40
Woodbury	0.05	0.31	186.47	0.08	0.00	0.00	0.00	0.00	0.28	0.09	0.07	0.09	187.44
Monte Vista	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jourdan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Villa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
New Chapman	61.22	10.53	152.34	83.15	0.00	0.00	0.00	0.00	0.28	0.04	0.04	0.06	307.66
Eaton 51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bangham	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Twombly	229.53	228.57	217.60	218.09	219.94	223.64	223.20	202.49	224.69	211.87	0.06	0.76	2,200.44
Wadsworth	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
Garfield Replacement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Explorer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Production													3,805.87
San Gabriel County Water District													
<i>San Gabriel County Water District</i>													
Well no. 16	83.29	80.02	68.25	81.12	76.04	50.61	36.97	34.70	28.80	53.16	78.60	77.30	748.86
Total Production													748.86
Sunny Slope Water Company													
<i>Sunny Slope Water Company</i>													
Well No. 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Well No. 6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Well No. 11	122.08	128.51	113.54	103.77	17.69	45.57	73.02	72.58	71.00	79.96	90.65	82.19	1,000.56
Well No. 12	0.18	0.87	1.14	0.43	61.51	35.56	0.17	1.38	0.28	0.18	0.30	12.20	114.20
Total Production													1,114.76
Santa Anita Subarea													
<i>Santa Anita Subarea</i>													
Arcadia, City of													
<i>Arcadia, City of</i>													
Orange Grove 01A	3.52	17.83	88.25	40.80	0.13	0.00	0.00	0.00	0.00	0.00	78.97	139.82	369.32
Orange Grove 02A	4.78	32.77	107.07	100.60	8.36	4.52	0.16	84.75	115.85	114.04	120.56	115.88	809.34
Orange Grove 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Orange Grove 6	4.05	28.99	94.00	67.54	7.49	0.43	0.19	78.59	55.25	0.35	109.95	108.96	555.79
Anoakia Well01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Production													1,734.45
Sierra Madre, City of													
<i>Sierra Madre, City of</i>													
Well No. 3	103.14	105.18	97.42	91.66	75.28	5.27	4.94	44.92	58.57	70.15	17.82	2.85	677.20
Well No. 4	1.26	1.56	3.30	1.01	1.59	68.41	55.59	19.84	1.55	1.15	52.78	87.97	296.01
Well No. 5	107.18	106.94	100.65	94.51	75.66	38.50	7.36	43.53	54.26	69.83	28.56	74.24	801.22
Well No. 6	3.34	4.63	1.44	1.37	2.06	37.34	53.49	20.37	1.39	0.93	75.60	12.69	214.65
Total Production													1,989.08

APPENDIX E

Change in Well Status

APPENDIX E

2022-23 WELL APPLICATIONS / CHANGE IN STATUS

Application No.	Applicant	Application Type	Well Name	Approval Date	Status
001	Michael Swanson	NW	470 Knight Way	1/15/2015	Incomplete
002	Lincoln Avenue Water Co.	NW	6	4/15/2015	Complete
003	San Gabriel County W.D.	DW	3	10/21/2015	Complete
004	San Gabriel County W.D.	NW	16	10/21/2015	Complete
005	Dr. Bradford & Judy Kolb	NW	737 Berkshire Ave	10/21/2015	Canceled
006	California American Water Co.	NW	Lamanda Well	2/4/2016	Complete
007	California American Water Co.	DW	Lamanda Well	4/19/2017	Complete
008	Rubio Canon Land & Water Assoc.	DW	2	1/16/2019	Complete
009	Rubio Canon Land & Water Assoc.	DW	6	1/16/2019	Complete
010	City of Pasadena	DW	Casitas Well No. 1	10/16/2019	Incomplete
011	City of Pasadena	DW	Monte Vista	1/15/2020	Incomplete
012	City of Pasadena	DW	Garfield	10/21/2020	Complete
013	City of Pasadena	NW	Garfield Replacement	10/21/2020	Incomplete
014	California American Water Co.	NW	Danford	withdrawn	Canceled
015	City of Pasadena	DW	Copelin Well	1/20/2021	Complete
016	City of Pasadena	NW	Explorer Well	10/20/2021	Incomplete
017	City of Pasadena	DW	Jourdan Well	7/20/2022	Incomplete

APPENDIX F

Foothill Conjunctive Use Program

APPENDIX F
FOOTHILL CONJUNCTIVE USE PROGRAM
Fiscal Year 2022-23

Party	Storage* @ 6/30/2022 ^{1/}	Added ^{2/} Transferred	Loss (1%)	Extracted	Storage* @ 6/30/2023
La Canada Irrigation District	0	0.0	0.0	0.0	0
Las Flores Water Co.	0	0.0	0.0	0.0	0
Lincoln Avenue Water Co.	0	0.0	0.0	0.0	0
Pasadena Cemetery	0	0.0	0.0	0.0	0
Rubio Canon Land & Water	0	0.0	0.0	0.0	0
Valley Water Co.	0	0.0	0.0	0.0	0
TOTAL	0	0.0	0.0	0.0	0
<p>* Rounding to the nearest acre foot ^{1/} 1,971 AF of CSP was converted into FHCUP as of July 1, 2005. ^{2/} FHCUP Storage Amounts based on individual agreements with FMWD.</p> <p style="text-align: center;">FHCUP Storage may vary according to Annual Operating Plan.</p>					

APPENDIX G

Jet Propulsion Laboratories
OU-1 System

APPENDIX G
Jet Propulsion Laboratories OU-1 System Operational Summary FY 2022-2023

STATE WELL NO./ OWNER DESIGNATION	DATE MONTH/YR	ACRE-FEET	METER READING	UNITS/ NOTES
INJECTION WELL NO. 1				
	Jun-22	-BEGINNING-	533,552,953	GALLONS
	Jul-22	6.94	535,812,772	
	Aug-22	5.76	537,689,847	
	Sep-22	5.55	539,496,701	
	Oct-22	4.70	541,026,643	
	Nov-22	2.50	541,840,084	
	Dec-22	3.69	543,042,008	
	Jan-23	2.67	543,910,614	
	Feb-23	5.17	545,594,788	
	Mar-23	10.69	549,078,762	
	Apr-23	9.22	552,083,047	
	May-23	8.07	554,712,888	
	Jun-23	7.30	557,090,668	
TOTAL ACRE FEET		72.26		

STATE WELL NO./ OWNER DESIGNATION	DATE MONTH/YR	ACRE-FEET	METER READING	UNITS/ NOTES
EXTRACTION WELL NO. 1				
	Jun-22	-BEGINNING-	54,035,320	GALLONS
	Jul-22	0.00	54,035,320	
	Aug-22	0.00	54,035,320	
	Sep-22	0.00	54,035,320	
	Oct-22	0.00	54,035,320	
	Nov-22	0.00	54,035,320	
	Dec-22	0.00	54,035,320	
	Jan-23	0.00	54,035,320	
	Feb-23	0.00	54,035,320	
	Mar-23	0.00	54,035,320	
	Apr-23	0.00	54,035,320	
	May-23	0.83	54,305,320	
	Jun-23	0.00	54,305,320	
TOTAL ACRE FEET		0.83		

STATE WELL NO./ OWNER DESIGNATION	DATE MONTH/YR	ACRE-FEET	METER READING	UNITS/ NOTES
INJECTION WELL NO. 2				
	Jun-22	-BEGINNING-	35,002,600	GALLONS
	Jul-22	4.86	36,596,200	
	Aug-22	6.42	38,677,800	
	Sep-22	4.31	40,083,400	
	Oct-22	5.42	41,848,500	
	Nov-22	3.46	42,976,000	
	Dec-22	4.42	44,416,800	
	Jan-23	3.94	45,700,300	
	Feb-23	6.29	47,748,800	
	Mar-23	6.67	49,922,300	
	Apr-23	8.20	52,595,700	
	May-23	8.25	55,284,900	
	Jun-23	7.53	57,737,700	
TOTAL ACRE FEET		69.77		

STATE WELL NO./ OWNER DESIGNATION	DATE MONTH/YR	ACRE-FEET	METER READING	UNITS/ NOTES
EXTRACTION WELL NO. 2				
	Jun-22	-BEGINNING-	716,116,773	GALLONS
	Jul-22	8.07	718,744,844	
	Aug-22	7.24	721,103,379	
	Sep-22	8.76	723,958,192	
	Oct-22	9.20	726,957,189	
	Nov-22	5.81	728,851,429	
	Dec-22	9.96	732,097,678	
	Jan-23	8.24	734,783,533	
	Feb-23	8.16	737,443,039	
	Mar-23	9.63	740,581,359	
	Apr-23	10.22	743,910,819	
	May-23	10.07	747,191,715	
	Jun-23	9.01	750,129,004	
TOTAL ACRE FEET		104.37		

STATE WELL NO./ OWNER DESIGNATION	DATE MONTH/YR	ACRE-FEET	METER READING	UNITS/ NOTES
INJECTION WELL NO. 3				
	Jun-22	-BEGINNING-	838,091,086	GALLONS
	Jul-22	6.70	840,275,161	
	Aug-22	2.67	841,143,716	
	Sep-22	6.95	843,406,914	
	Oct-22	5.14	845,080,472	
	Nov-22	3.11	846,094,891	
	Dec-22	7.60	848,570,118	
	Jan-23	7.91	851,148,857	
	Feb-23	12.38	855,183,040	
	Mar-23	11.40	858,897,742	
	Apr-23	16.22	864,182,140	
	May-23	16.91	869,690,819	
	Jun-23	8.64	872,504,676	
TOTAL ACRE FEET		105.63		

STATE WELL NO./ OWNER DESIGNATION	DATE MONTH/YR	ACRE-FEET	METER READING	UNITS/ NOTES
EXTRACTION WELL NO. 3				
	Jun-22	-BEGINNING-	1,120,077,802	GALLONS
	Jul-22	6.40	1,122,164,358	
	Aug-22	4.63	1,123,674,532	
	Sep-22	4.30	1,125,074,638	
	Oct-22	3.81	1,126,315,064	
	Nov-22	0.52	1,126,486,015	
	Dec-22	0.26	1,126,571,797	
	Jan-23	0.89	1,126,860,735	
	Feb-23	9.72	1,130,028,055	
	Mar-23	13.22	1,134,337,102	
	Apr-23	14.69	1,139,124,249	
	May-23	15.16	1,144,062,620	
	Jun-23	13.58	1,148,487,424	
TOTAL ACRE FEET		87.18		

STATE WELL NO./ OWNER DESIGNATION	DATE MONTH/YR	ACRE-FEET	METER READING	UNITS/ NOTES
EXTRACTION WELL NO. 4				
	Jun-22	-BEGINNING-	32,000,300	GALLONS
	Jul-22	5.04	33,643,200	
	Aug-22	4.74	35,187,600	
	Sep-22	4.27	36,580,500	
	Oct-22	3.50	37,720,600	
	Nov-22	3.47	38,850,800	
	Dec-22	5.38	40,604,800	
	Jan-23	5.35	42,349,400	
	Feb-23	6.46	44,453,500	
	Mar-23	6.15	46,456,900	
	Apr-23	9.60	49,585,700	
	May-23	9.42	52,654,900	
	Jun-23	8.49	55,422,300	
TOTAL ACRE FEET		71.87		

STATE WELL NO./ OWNER DESIGNATION	DATE MONTH/YR	ACRE-FEET	METER READING	UNITS/ NOTES
EXTRACTION WELL NO. 4				
	Jun-22	-BEGINNING-	32,000,300	GALLONS
	Jul-22	5.04	33,643,200	
	Aug-22	4.74	35,187,600	
	Sep-22	4.27	36,580,500	
	Oct-22	3.50	37,720,600	
	Nov-22	3.47	38,850,800	
	Dec-22	5.38	40,604,800	
	Jan-23	5.35	42,349,400	
	Feb-23	6.46	44,453,500	
	Mar-23	6.15	46,456,900	
	Apr-23	9.60	49,585,700	
	May-23	9.42	52,654,900	
	Jun-23	8.49	55,422,300	
TOTAL ACRE FEET		71.87		

NOTES:
 1
 2
 3

Extractions and Injection Summary FY 2022-2023						
Parameter	Units	EW/IN-1	EW/IN-2	EW/IN-3	EW-4	Total
Total Volume of Groundwater Extracted	Acres Feet	-	104.37	87.18	71.87	264.25
Total Volume of Groundwater Sent to Sewer	Acres Feet	-	-	-	-	0.00
Total Volume of Groundwater Rejected	Acres Feet	72.26	69.77	105.63	4.01	247.66
Mass of Perchlorate Removed	lbs.	0.00	3.21	20.32	0.05	27.54
Mass of Carbon Tetrachloride (CCl4) Removed	lbs.	0.00	0.11	0.26	0.05	0.42
Mass of Trichloroethene (TCE) Removed	lbs.	0.00	0.00	0.00	0.03	0.03

*Water removed for well maintenance