EAST LAKE SPECIFIC PLAN AMENDMENT NO. 11

Water Supply Assessment

PREPARED FOR:

THE CITY OF LAKE ELSINORE
130 SOUTH MAIN STREET
LAKE ELSINORE, CA 92530

PREPARED BY:

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TABLE OF CONTENTS

Chapter **Page**

LIST OF FIGURES

Figure **Page**

LIST OF TABLES

Table **Page**

APPENDICES

0. EXECUTIVE SUMMARY

0.1 PURPOSE

This East Lake Specific Plan, Amendment No. 11 Water Supply Assessment for the Elsinore Valley Municipal Water District (EVMWD) is prepared in accordance with California Water Code (Water Code) Section 10910 et seq. (enacted as Senate Bill (SB) 610 (Costa) in 2001). In accordance with the SB 610 standard, this report evaluates whether EVMWD's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to EVMWD's existing and planned future water demands, including agricultural and manufacturing uses. The Temescal Division does not depend in any way on the supplies identified in the WSA that serve current and future water demands in the Elsinore Division, the entire demand of Temescal Division is met with supplies developed in that Division. Thus, the demand and supply numbers used in the WSA only corresponds to Elsinore Division and the Temescal Division is not discussed as part of this WSA.

This WSA represents an assessment of the District's committed demands, demands of the East Lake Specific Plan projects, and existing and projected water supplies. Nothing in this WSA constitutes a commitment to reserve water supplies to any specific development.

0.2 EVMWD SERVICE AREA

EVMWD provides water and wastewater services to its Elsinore Division, which encompasses an area of 96 square miles including the Cities of Lake Elsinore, Canyon Lake and Wildomar as well as portions of the City of Murrieta and unincorporated areas of Riverside County. The Elsinore Division has experienced substantial growth in recent years and the area's population is forecasted to further increase over the next 20-year horizon.

0.3 PROJECTED DEMANDS

EVMWD included a total water demand for the East Lake Specific Plan area of 5,401.23 acre-ft/year in EVWMD's service area water demand projections. The potable water demand of the land uses proposed by East Lake Specific Plan, Amendment No. 11 ranges from 4,601.99 to 5,651.39 acre/ft per year depending upon different build-out scenarios. However, this WSA shows that EVMWD projects surplus water supply over demand through 2040. This surplus is more than sufficient to address the small (approximately 250 acre-ft/year) increase in projected water demand for the East Lake Specific Plan under the worst-case scenario.

Future water requirements for EVMWD's service area are estimated using two methods and are shown in Table 0-1. The demand projection ranges between 46,100 and 51,800 acre-ft/year by year 2040. The population projection Method 2 had the most conservative estimates for water projection and therefore was used to develop the demand projections in the 2015 UWMP.

Table 0-1 Summary of Water Demands Projections

Year	Population-Based Method		Will Serve (acre-ft/yr)
	Method 1 (acre-ft/yr)	Method 2 (acre-ft/yr)	
2015	29,200	29,400	
2020	32,900	34,400	30,000
2025	36,500	38,800	34,700
2030	39,700	43,200	36,600
2035	42,800	47,400	38,800
2040	46,100	51,800	38,800
Build-Out (land use)	84,000		

Source: EVMWD 2016 Water System Master Plan, Table 3-16

The 2010 UWMP and the 2015 UWMP describe the methodology behind conservation requirements and goals which were established in the California Legislature's Water Conservation Act of 2009 (SBx7-7) to establish water conservation goals to be achieved by 2020. According to its 2010 UWMP, EVMWD selected a 2020 consumption target of 240 gallons per capita per day. In the 2010 UWMP, Method 2 was used and calculated a 2020 target of 244 GPCD. However, since the change in landscape area post-2010 is unavailable, EVMWD could not calculate the required target using Method 2 for the 2015 UWMP. Therefore, EVMWD changed methods and used Method 1 in the 2015 UWMP, which resulted in a target of 189 GPCD

Table 0-2 presents the estimated recycled water demand for in five-year increments from 2015 to 2040.

Table 0-2 Summary of Projected Potable and Recycled Water Demands

	2015	2020	2025	2030	2035	2040
Potable and Raw Water (acre-ft.)	21,333	34,400	38,800	43,200	47,400	51,800
Recycled Water Demand (acre-ft.)	1,236	1,805	1,805	1,805	1,805	1,805
TOTAL WATER DEMAND	22,569	36,205	40,605	45,005	49,205	53,605

Notes: Recycled water demand only includes metered customer and golf course irrigation demands. It does not include required flow to Lake Elsinore and Temescal Wash or Groundwater IPR availability.

Source: EVMWD 2015 Urban Water Management Plan, Table 4-3

0.4 PROJECT SUPPLIES

EVMWD obtains its potable water supplies from local groundwater from the Elsinore Basin, local surface water from Canyon Lake Reservoir, and imported water. Imported water purchased from Metropolitan Water District through WMWD (which accounts for approximately 57 percent of the supply from 1992-2013). Water is imported from the TVP connection, the Auld Valley Pipeline EM-17 connection, the conjunctive use program (CUP), and the Coldwater Basin (starting in August 2013). The imported water includes the transfer from WMWD. Table 0-3 shows the anticipated supply capacity for 2040 in normal, single dry, multiple dry and wet years.

Table 0-3 Summary of Future Water Supplies

Source		Year Online	Average Year Capacity (AFY)	Single Dry Year (AFY)	Multiple Dry-Years		
					Year 1 (AFY)	Year 2 (AFY)	Year 3 (AFY)
Imported Water	Skinner WTP via AVP	Existing	16,256	12,256[1]			
	Mills WTP via TVP	Existing	10,030	10,030			
	Total		**26,286**	**26,286**			
Surface Water	Canyon Lake WTP Natural Runoff	Existing	2,500	747	2,360	2,217	1,218
	Modify Canyon Lake Operations	2020	1,500	1,125			
	Total		**4,000**	**1,872**	**3,485**	**3,342**	**2,343**
Groundwater	Elsinore Basin	Existing	5,500	9,500[2]			
	Coldwater Basin	Existing	1,200	1,200			
	Meeks and Daley	2020-2025	6,223	6,223			
	Lee Lake Basin Groundwater	2015-2020	1,000	500			
	Bedford Basin Groundwater	2015-2020	1,300	1,045			
	Palomar Well Replacement	2015-2020	560	560			
	Warm Springs Groundwater	2015-2020	1,000	1,000			
	Temecula-Pauba Groundwater	2030-2035	2,000	2,000			
	Total		**18,783**	**22,028**			
Water Conservation	Enhanced Conservation	2020-2040	3,100	3,100			
	Total		**3,100**	**3,100**			
Recycled Water	IRP at Regional WRF	2035	5,700	5,415			
	Total		**5,700**	**5,415**			
Potable Water Supply Total			**57,869**	**54,702**	**56,314**	**56,172**	**55,172**
Recycled Water	Recycled Water Customers	2020	3,607	3,607			
	Total		**3,607**	**3,607**			
Potable Water and Recycled Water Supply Total			**61,476**	**58,309**	**59,921**	**59,779**	**58,779**

1) Average capacity reduced by 4,000 AFY during single dry years and multiple dry years for Conjunctive Use Program with WMWD
2) Average capacity increased by 4,000 AFY during single dry years and multiple dry years for Conjunctive Use Program with WMWD

Source: UWMP, Table 7-3

Table 0-4 presents a summary of the total available future recycled water production capacity that EVMWD may have access to based on the existing and future planned development.

Table 0-4 Projected Recycled Water Supplies

Water Supply	Additional Detail on Water Supply	Projected Recycled Water Supply Report To the Extent Practicable				
		2020	2025	2030	2035	2040 *(opt)*
		Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume
Recycled Water	Recycled Water from Horsethief WRF, Railroad Canyon WRF, Santa Rosa WRF,	2,061	3,607	3,607	3,607	3,607
Total		**2,061**	**3,607**	**3,607**	**3,607**	**3,607**

Source: 2015 UWMP, Table 6-15

0.5 COMPARISON OF DEMANDS AND SUPPLIES

Based on the existing water sources and listed future sources, considering the projected demands and planned water supplies as shown in EVMWD's 2015 UWMP, EVMWD has sufficient water to meet projected water demands for all developments with active will serves, plus the East Lake Specific Plan, Amendment No. 11, development over the next 20 years.

Based on the information and analyses contained in this WSA, it is concluded that EVMWD's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will be sufficient to meet the projected water demand associated with the Amendment No.11 to the East Lake Specific Plan, in addition to EVMWD's existing and planned future water demands, including agricultural and manufacturing uses.

1. INTRODUCTION

1.1 OVERVIEW OF THE LAW

In 2001, the California Legislature enacted two laws that are intended to improve the linkage between water supply planning and new development. California Water Code (Water Code) Section 10910 et seq. (enacted as Senate Bill (SB) 610 (Costa) in 2001) requires water suppliers to prepare a water supply assessment (WSA) for certain new developments (referred to as "projects"). The WSA must address whether the water provider's total projected water supply during normal, single dry, and multiple dry year periods over the next 20 years is adequate to meet the demand projected for the project plus existing and planned future uses. Section 66473.7 of the California Government Code (enacted as SB 221 (Kuehl) in 2001) requires the land use agency (i.e., the city or county) approving a subdivision (as defined in the code) to include as a condition for approval written verification (WV) that sufficient water supply is available. SB 610 and SB 221 are companion measures that seek to promote more collaborative planning between local water suppliers and cities/counties. Both statutes require detailed information regarding water availability to be provided to the city and county decision-makers prior to approval of specified large development projects. Because the East Lake Specific Plan, Amendment No. 11 project does not propose a subdivision that is currently at tentative tract map stage of land use planning, a WV is not yet required under SB 221 and EVMWD has not been requested to prepare a WV.

As defined in Section 10912 of the Water Code, a "project" is a development that is subject to the California Environmental Quality Act (CEQA) and is defined as follows:

1. A proposed residential development of more than 500 dwelling units.
2. A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
3. A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
4 A proposed hotel or motel, or both, having more than 500 rooms.
5. A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
6. A mixed-use project that includes one or more of the projects specified in this subdivision.
7. A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

Pursuant to SB 610, once a WSA is prepared it is incorporated into the environmental review document being prepared for the project under the California Environmental

Quality Act (CEQA) and becomes part of the administrative record for the CEQA process. (Water Code §10911(c).) This East Lake Specific Plan, Amendment No. 11 WSA has been prepared in accordance with the requirements of SB 610.

1.2 EVMWD SERVICE AREA

EVMWD provides water and wastewater services to its Elsinore Division and Temescal Division, which encompasses an area of 96 square miles as shown in Figure 1-1, including the cities of Lake Elsinore and Canyon Lake, and portions of the city of Murrieta and unincorporated areas of Riverside County. The Temescal Division does not depend in any way on the supplies identified in the WSA that serve current and future water demands in the Elsinore Division, the entire demand of Temescal Division is met with supplies developed in that Division. Thus, the demand and supply numbers used in the WSA only corresponds to Elsinore Division and the Temescal Division is not discussed as part of this WSA. The Elsinore Division has experienced substantial growth and its population is forecasted to increase by approximately 48 percent over the next 20-year projection. Along with such growth comes the need for expanded water supplies and ongoing measures to manage demand. This section contains the demographic forecasts of population and employment. The data is used in subsequent sections to estimate future water demands.

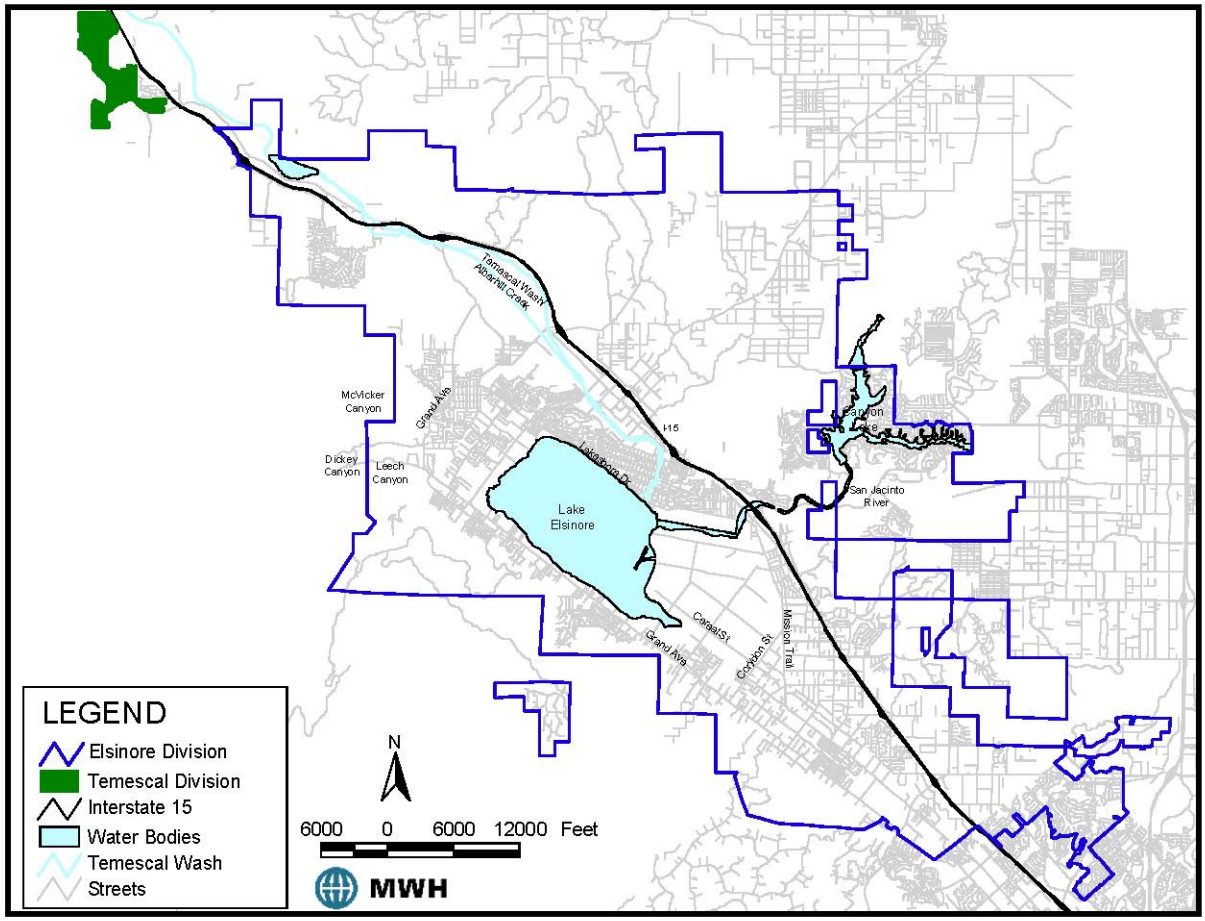
1.2.1 History of EVMWD

EVMWD was incorporated on December 23, 1950, under the provisions of the California Municipal Water District Act of 1911. The purpose of the District is to finance, construct, operate, and maintain water and wastewater systems serving properties within the District boundaries. At the time of its incorporation, the District was found to have too low of an assessed valuation to become a member of the Metropolitan Water District of Southern California (Metropolitan). Consequently, in 1954, EVMWD was annexed to the then newly formed Western Municipal Water District (WMWD), a member agency of Metropolitan.

A bond election was held in 1955 that provided $1,600,000 in capital funding for transmission, storage, treatment and limited distribution facilities for the importation and distribution of Metropolitan water within the EVMWD. Subsequent negotiations with the Temescal Water Company (TWC) resulted in the Railroad Canyon Storage Agreement (1955), which provided EVMWD with 3,000 acre-feet of storage in Railroad Canyon Reservoir.

During 1956 and 1957, construction proceeded on the loop feeder system in Improvement District No. 1. Also during this period, several small mutual water companies petitioned EVMWD to accept their physical facilities and operate them. These were Elsinore Valley Mutual, Kilmeny Lot Owner’s Mutual, Landowner’s Mutual, Grand Avenue Mutual, Lakeview Mutual, and Clayton Mutual water companies. The first delivery of Metropolitan water started on April 8, 1957.

Figure 1-1 EVMWD Service Area



In July 1962, Improvement District No. 2 encompassing the Meadowbrook area was formed, which increased the EVMWD service area by one-third. Services were extended to the El Cariso area by the formation of Improvement Districts 3A and 4, and to the Eucalyptus Grove area by the formation of Assessment District 65-1 under the Improvement Act of 1911. During 1967-68, Improvement District U-1 serving the Rancho Capistrano area was formed. The formation of Improvement District U-2 during 1967-68 serving the Canyon Lake Development was the initial step of providing sewer service within the EVMWD. In 1969, the assets of South Elsinore Mutual Water Company were purchased and the services in that area consolidated with regular operations. The acquisition of the TWC in 1989 increased the service area of EVMWD into the Temescal Valley. This portion of District's service area became the Temescal Division, while the remainder of the service area is the Elsinore Division. In July 2011, EVMWD acquired the Elsinore Water District (EWD) and their pipe network and other facilities northwest of Lake Elsinore.

Today, the residents within the EVMWD boundary are served by one of two water service agencies: EVMWD, and The Farm Mutual Water Company (FMWC). The FMWC is

located entirely within EVMWD boundaries, and obtains most of its water wholesale from EVMWD. EVMWD also provides wastewater and recycled water service to its customers.

As a Municipal Water District organized and operating pursuant to Water Code section 71000 et seq., EVMWD has the authority to act in its own name to make and enter into contracts; to incur debts, liabilities, or obligations; to issue bonds, notes, warrants and other evidences of indebtedness. EVMWD has the authority to collect revenues in the form of rates and charges for facilities and services provided. EVMWD has the power to levy ad valorem (property) taxes, and acquire property and rights-of-way by eminent domain procedures. EVMWD is also legally empowered, but does not currently, provide services for stormwater facilities, and fire protections facilities.

1.2.2 Demographic Forecasts

The Riverside County Center for Demographic Research (RCCDR) has developed population, household, and employment projections by census tract for Riverside County. These data are used to develop population, household, and employment projections for EVMWD's service area. Geographic Information System (GIS) layers of EVMWD's service area and the census tracts are used to determine which tracts fall within EVMWD's service area. If only a portion of a tract falls within EVMWD's service area, then estimates for population, households, and employment for that portion of the tract are pro-rated based on the total area of the census tract.

Table 1-1 shows the EVMWD service area population and employment projections and Figure 1-2 shows the population projections broken down into cities and unincorporated areas of the EVMWD service area (2015 UWMP). The employment projections only include the percent of the employment within EVMWD's service area. These percentages were assumed to be the same percentage as the percent of population in each City within EVMWD's service area.

Table 1-1 Population and Employment Forecasts

Year	2010	2015	2020	2025	2030	2035	2040
Population[1]	133,400	149,600	169,500	187,800	205,100	221,100	238,300
Employment	18,300	23,300	29,700	35,200	40,800	46,400	52,000

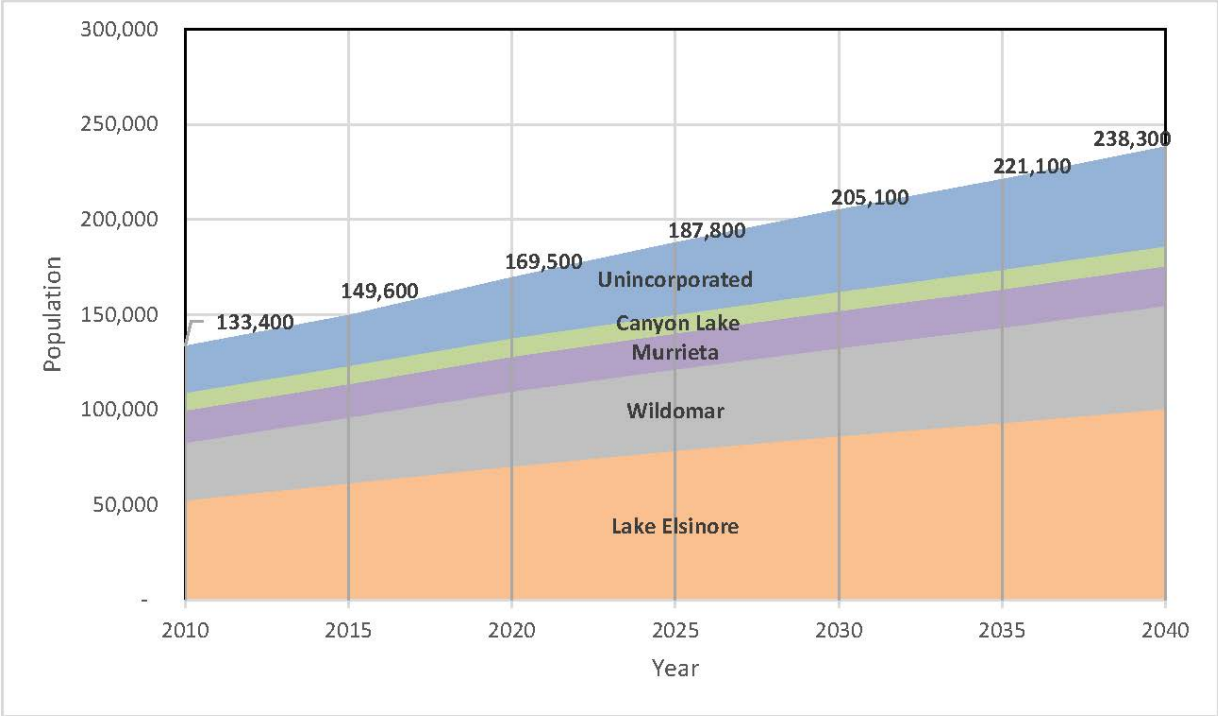
NOTES:

1) Population does not include the Temescal Division service area. The population for Temescal Division based on 2010 Census data is approximately 2,700, and population projections for Temescal Division are not expected to change in the future.
2) Employment forecasts for the Temescal Division and Unincorporated areas are not included in the employment projections since the employment in these areas is unknown.

Source: 2015 Water System Master Plan, Table 3-7 and Table 3-8.

Population within the Elsinore Division is projected to increase from 149,600 in 2015 to 238,300 in 2040 (2.4 percent per annum). Employment is projected to increase from 23,300 in 2015 to 52,000 in 2035 (4.9 percent per annum).

Figure 1-2 Projected Population and Demand within the EVMWD Service Area



Source: EMWD 2016 Water System Master Plan, Figure 3-5

1.3 THE EAST LAKE SPECIFIC PLAN, AMENDMENT NO. 11

The East Lake Specific Plan is located within the City of Lake Elsinore, in the southwest portion of Riverside County, as shown in Figure 1-3, Regional Location. East Lake is accessible from Interstate 15, Highway 74 (Ortega Highway), and major roadways including Diamond Drive, Mission Trail, Bundy Canyon, Lakeshore Drive, and Grand Avenue. The site is approximately a one-hour drive from metropolitan Orange County to the west, and forty-five minutes from the City of Riverside to the north. The Orange County beach communities can access the site via State Route 74 or the 241 Toll Road connecting to State Route 91. San Diego County is approximately one-hour and fifteen-minutes from Lake Elsinore. (Figure 1-3, Regional Map and Figure 1-4, Vicinity Map)

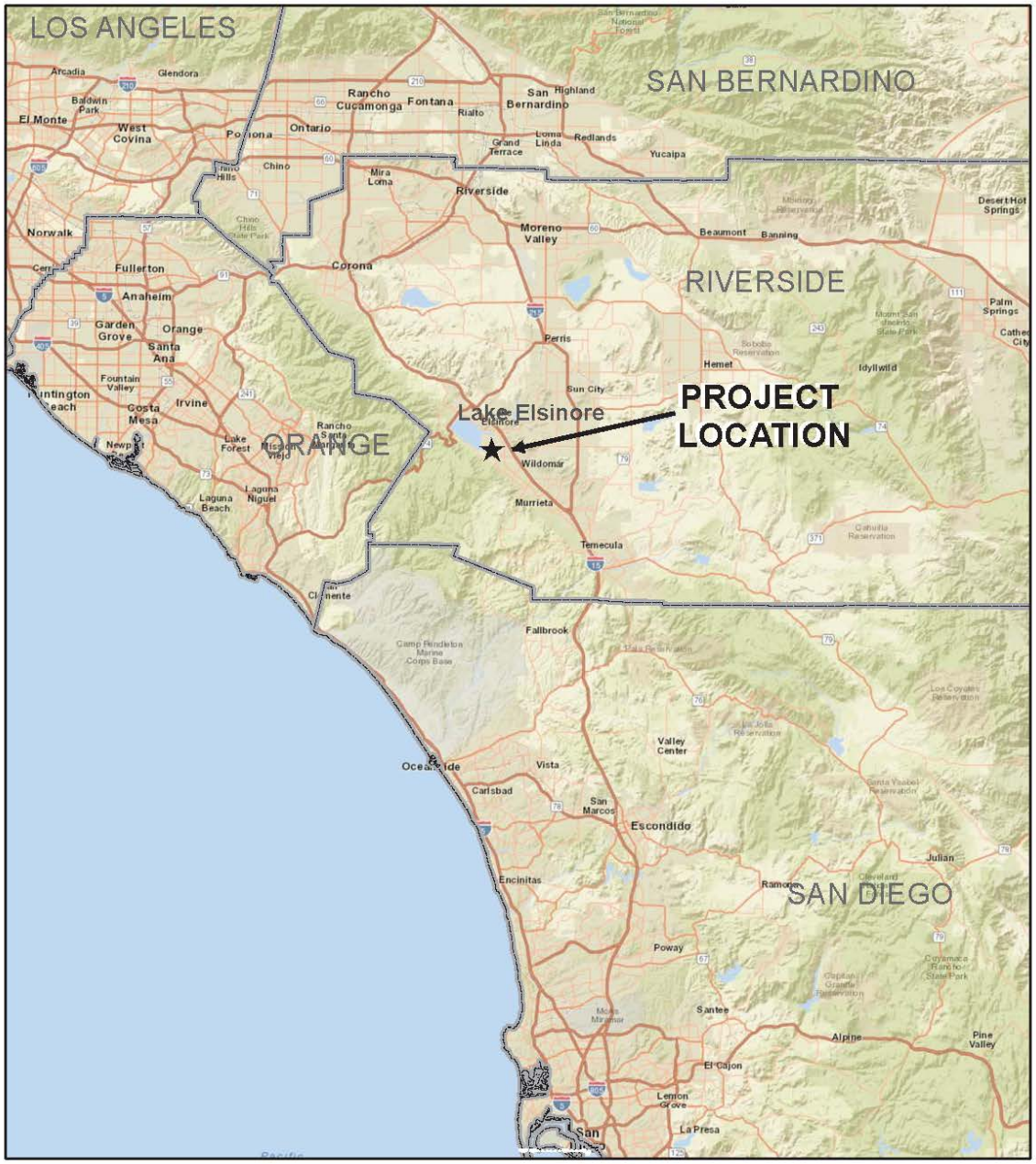


FIGURE 2-3
REGIONAL MAP

Prepared by:
City of Lake Elsinore GIS
March 7, 2017
Data Sources:
County of Riverside GIS
City of Lake Elsinore GIS
Stateplane NAD 83

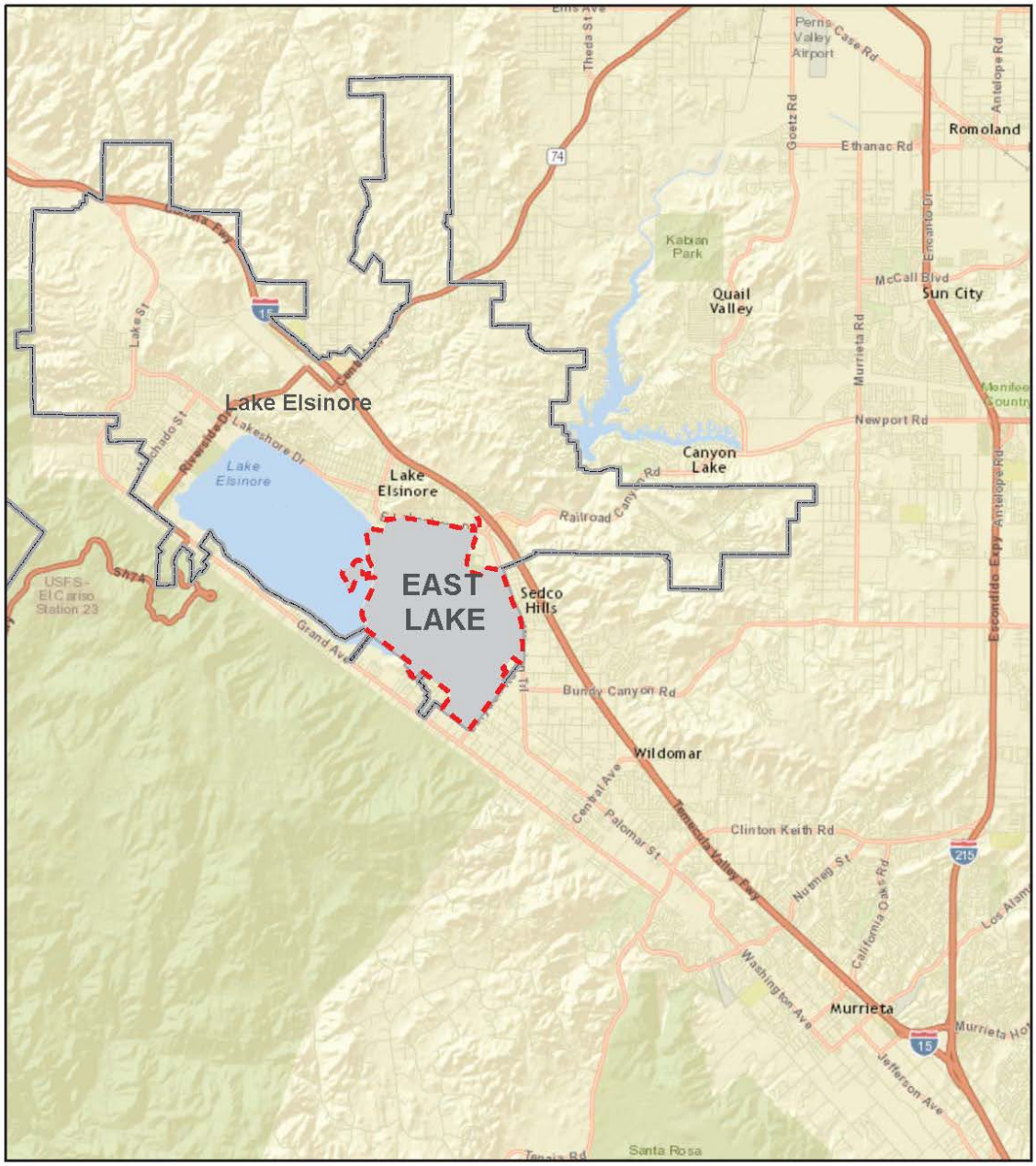


FIGURE 2-4
VICINITY MAP

Prepared by:
City of Lake Elsinore GIS
March 7, 2017
Data Sources:
County of Riverside GIS
City of Lake Elsinore GIS
Stateplane NAD 83

Land use allocation within The East Lake Specific Plan is based on eight development areas or "Planning Areas," which have been designated to provide further definition of the Land Use Plan (Figure 1-5). Furthermore, the Planning Areas were created to reflect logical clusters of integrated development.

Actual land uses developed in the ELSP will not be determined until the site plan Design Review and/or subdivision stage, and may result in slight differences from the actual yield allocated to a particular Planning Area as presented below, or changes to the Planning Area boundaries shown in Figure 1-5, The East Lake Specific Plan Land Use Map. Additionally, the conceptual land uses described below may also change as detailed site planning occurs. The use allocations (i.e., non-residential SF and number of dwelling units) are shown in Table 1-2, East Lake Specific Plan Development Targets by Planning Area.

Table 1-2 East Lake Specific Plan Development Targets by Planning Area

Planning Area	Acres	Development Target
Planning Area 1	**707.5**	
Golf Course (The Links at Summerly)		1
Hotel[1]		1 (90 rooms)
Residential Neighborhood		1,979 dwelling units
Preservation/Mitigation[11]		110.43 acres
Planning Area 2[2]	**310.6**	
Active Recreation 2 Uses[5, 7]		0-1
Commercial/Industrial		290,000 sq. ft.
Hotel[1]		1 (150 rooms)
Residential within Mixed Use Overlay		600 dwelling units
Restaurants		30,000 sq. ft.
Planning Area 3[3]	**603.7**	
Active Recreation 1 Uses[4, 6]		0-1
Active Recreation 2 Uses[5, 7]		1-2
Commercial		100,000 sq. ft.
Hotel[1]		1 (150 rooms)
Restaurants		30,000 sq. ft.
Skydive Airport[6]		1
Outdoor Concert Venue (10,000 attendees maximum) [6]		0-1
Preservation/Mitigation[11]		20.46 acres
Planning Area 4	**98.2**	
Residential Neighborhood		311 dwelling units
Park		1
Preservation/Mitigation[11]		11.73
Planning Area 5	**422.6**	
Preservation/Mitigation[11]		422.6 acres
Planning Area 6	**425.2**	
Active Recreation 1 Uses[4, 6, 10]		0-1
Active Recreation 2 Uses[5, 7, 10]		0-1
Action Sports 1 Uses[6, 8]		1
Action Sports 2 Uses[6. 9]		1

Planning Area	Acres	Development Target
Outdoor Concert Venue (10,000 attendees maximum)		0-1
Commercial		10,000 sq. ft.
Hotel[1]		1 (150 rooms)
Restaurants		7,500 sq. ft.
Preservation/Mitigation[11]		70.18 acres
Planning Area 7	**187.7**	
Action Sports Uses		8.3 acres
Preservation/Mitigation[11]		174.4 acres
Planning Area 8	**196.7**	
Commercial		58,000 sq. ft.
Residential within Mixed Use Overlay		750 dwelling units

NOTES:

1. Maximum total of 4 hotels with a maximum of 540 rooms.
2. If developed pursuant to the VTTM 34017 (Waterbury) Overlay, Planning Area 2 Development Target will be 2,229 dwelling units, up to 250,000 square feet of Commercial uses and up to 10,000 square feet of restaurants.
3. If developed pursuant to the VTTM 34017 (Waterbury) Overlay, Planning Area 3 Development Target will be up to 75,000 square feet of Commercial uses, up to 20,000 square feet of restaurants, one hotel (maximum 150 rooms), one Active Recreation #1 and one Active Recreation #2 (or two Active Recreation #2 in place of the one Active Recreation #1 allocated for this Planning Areas).
4. Active Recreation 1 – Allows for uses with more intense weekend trip generating land uses (e.g., baseball/field sports complex)
5. Active Recreation 2 – Includes less intense trip generating land uses (e.g., water park, cable ski park, hockey rink.)
6. Maximum of 1 of these facilities within ELSP.
7. Maximum of 3 of these facilities within ELSP.
8. Action Sports 1 – Motocross sports facility with up to 20,000 spectators per event.
9. Action Sports 2 – Motorsports Race Track with minimum trip generation/parking needs.
10. Either one Active Recreation #1 or one Active Recreation #2 facility is permitted in Planning Area 6.
11. All Preservation/Mitigation acreages are approximate totals. Actual acreage set aside for Preservation/Mitigation purposes may vary from listed totals.

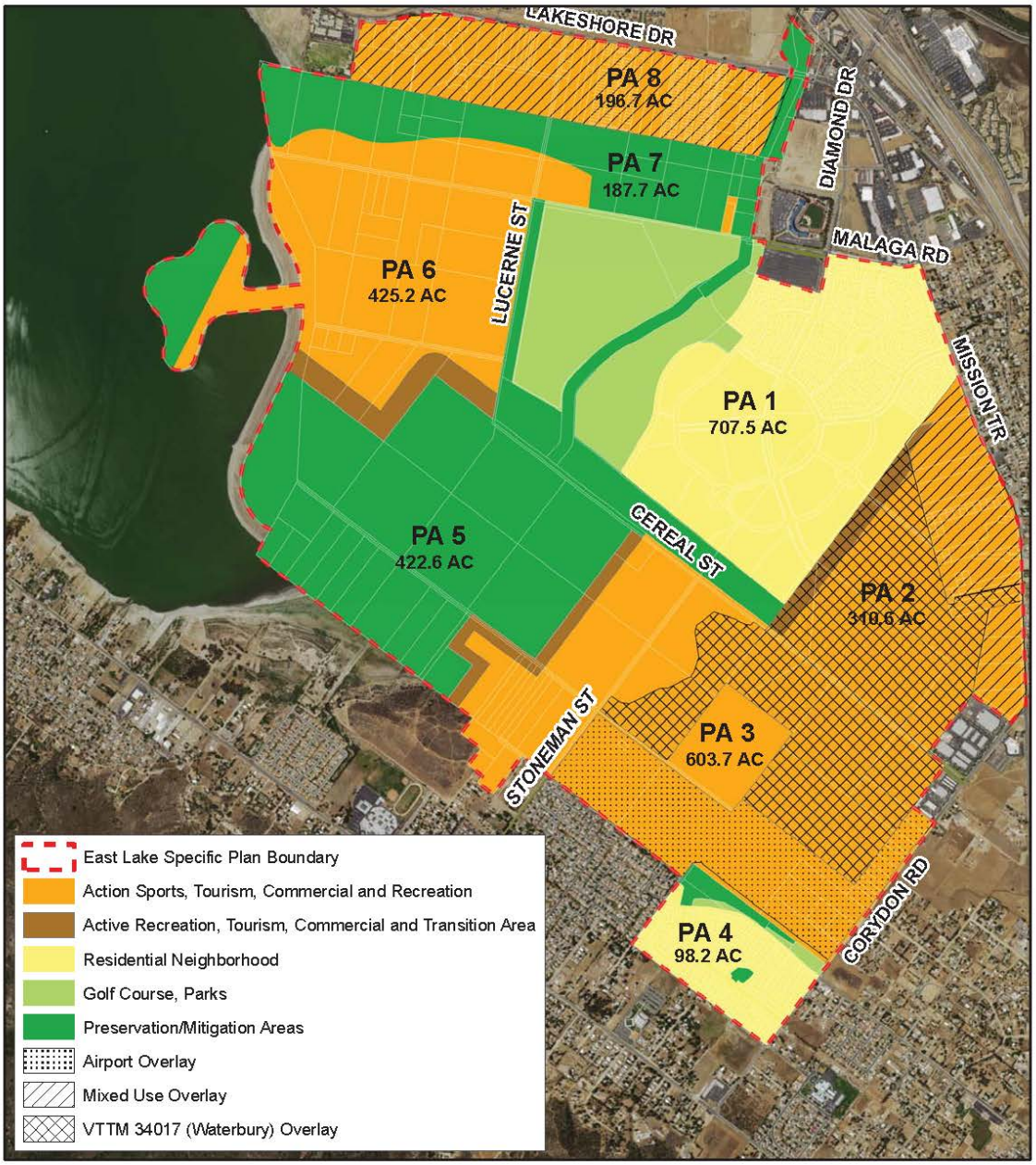


FIGURE 2-5
EAST LAKE SPECIFIC PLAN, AMD 11
LAND USE PLAN

Prepared by:
City of Lake Elsinore GIS
March 7, 2017
Data Sources:
County of Riverside GIS
City of Lake Elsinore GIS
Stateplane NAD 83

1.4 OBJECTIVE

The purpose of this Water Supply Assessment is to evaluate whether EVMWD's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the East Lake Specific Plan, Amendment No. 11 project, in addition to EVMWD's existing and planned future water demands, including agricultural and manufacturing uses, as required by SB 610. Nothing in this WSA constitutes a commitment to reserve water supplies to any specific development.

1.5 DOCUMENTATION

Various information and analyses were utilized for the preparation of this WSA. Based on a review of EVMWD's current Urban Water Management Plan (UWMP 2015), the projected demands of the East Lake Specific Plan, Amendment No.11 project were not specifically identified in the UWMP. However, the urban growth and projected water demands associated with East Lake Specific Plan, Amendment No.11 project falls within the forecasted growth and projected water demands that are generally identified in the District's 2015 UWMP. Accordingly, the District's 2015 UWMP was utilized as a key source document in preparing this WSA. The UWMP demands were based on RCCDR growth projections and include the most recent demand analysis for the EVMWD service area through 2040. A WSA was prepared specifically for the John Laing Homes Community ("Summerly") within the East Lake Specific Plan (ELSP) in October 2003; a District-wide WSA was prepared in August 2005 and a WSA was prepared for Diamond Specific Plan WSA (northeast of ELSP) was prepared in November 2009. This East Lake Specific Plan, Amendment No. 11 WSA is an update of the information presented in those WSA's.

2. WATER DEMANDS

This section discusses existing and future potable and recycled water demands in EVMWD's Elsinore Division and the projected demand for the East Lake Specific Plan, Amendment No. 11 project.

2.1 EXISTING WATER DEMANDS

EVMWD served a total of 42,691 potable service connections in December 2015, with an average annual demand of approximately 21,070 acre-feet per year (acre-ft/yr).[1] In addition, EVMWD has an existing recycled water system, serving non-potable water customers from water reclamation facilities (WRF) located in the Railroad Canyon and Horsethief Canyon regions. EVMWD also supplies recycled water from its Regional WRF to maintain water levels in Lake Elsinore and for supporting uses along Temescal Creek. Some flows from the southern section of the system, specifically the Cal Oaks area, are conveyed to Rancho California Water District (RCWD) for treatment at its Santa Rosa WRF

2.1.1 Historical Water Consumption

EVMWD's historical potable water consumption is presented in Table 2-1. The historical potable water consumption represents approximately 93.4 percent of the total production from EVMWD's potable water sources: groundwater wells, surface water treated at Canyon Lake Water Treatment Plant (WTP), and imported water purchased from Metropolitan Water District of Southern California (Metropolitan). EVMWD receives imported water from the Western Municipal Water District (WMWD), which is conveyed to the Elsinore Division through EVMWD's Temescal Valley Pipeline (TVP) and through the Auld Valley Pipeline (AVP) that is owned by the Eastern Municipal Water District (EMWD).

Table 2-1 Historic Potable Water Consumption

Year	Consumption		Number of Service Connections	Demand per Connection (acre-ft/yr/Connection)
	Annual (acre-ft/yr)[2]	Daily (MGD)		
1996	17,848	15.9	22,868	0.780
1997	19,195	17.1	23,790	0.807
1998	17,953	16.0	24,576	0.731
1999	21,902	19.6	25,453	0.860
2000	23,392	20.9	26,358	0.887
2001	21,915	19.6	27,427	0.799
2002	24,251	21.7	28,861	0.840
2003	24,851	22.2	31,537	0.788
2004	26,939	24.1	33,374	0.807

[1] Source: 2015 UWMP, Table 2-1

Year	Consumption		Number of Service Connections	Demand per Connection (acre-ft/yr/Connection)
	Annual (acre-ft/yr)[2]	Daily (MGD)		
2005	27,584	24.6	34,735	0.794
2006	30,995	27.7	36,000	0.861
2007	33,600	30.0	36,866	0.911
2008	30,240	27.0	37,597	0.804
2009	25,952	23.2	37,930	0.684
2010	22,206	19.8	38,243	05.81
2011	22,372	20.0	38,442	0.582
2012	24,050	21.5	40,440	0.595
2013	24,261	21.7	41,159	0.589

Source: EVMWD 2016 Water System Master Plan, Table 3-4

The difference between water production and consumption (billed to customers) is defined as non-revenue water. AWWA (American Water Works Association) defines non-revenue water as the sum of Unbilled Authorized Consumption (water for firefighting, flushing, etc.) plus Apparent Losses (customer meter inaccuracies, unauthorized consumption and systematic data handling errors) plus Real Losses (system leakage and storage tank overflows).

The average volume of non-revenue water per year is shown in Table 2-2. On average, EVMWD lost approximately 1,686 acre-ft/yr of non-revenue water over the 2009-2013 period. The non-revenue water volume decreased over this period, with the non-revenue volume in 2012 and 2013 being about half of what it was in 2009-2011. The non-revenue water in 2010 appears to be an outlier, since it is twice as large as the non-revenue water in 2009 and 2011.

Table 2-2 Non-Revenue Waters

Year	Water Produced (acre-ft/yr)	Water Consumed (acre-ft/yr)	Non-Revenue Water (acre-ft/yr)
2009	27,815	25,952	1,863
2010	25,837	22,206	3,631
2011	23,733	22,372	1,361
2012	24,742	24,050	692
2013	25,142	24,261	881
Average	25,454	23,768	1,686

Source: EVMWD 2016 Water System Master Plan, Table 3-5

The EVMWD 2015 UWMP identifies water uses by water use sector. There is no raw water delivered to any customers, and all water is treated to drinking water quality before distribution. Table 2-3 summarizes the water use by sector in the 2015 calendar year.

Table 2-3 2015 Demands for Potable and Raw Water - Actual

Use Type	Additional Description (as needed)	2015 Actual	
		Level of Treatment When Delivered	Volume (AF)
Single-Family		Drinking Water	13,620
Single-Family	Mobile Home Park	Drinking Water	71
Multi-Family		Drinking Water	762
Multi-Family	Condominium	Drinking Water	27
Commercial		Drinking Water	3,021
Institutional/Governmental		Drinking Water	1,095
Landscape	Residential Landscape Irrigation	Drinking Water	1
Sales/Transfers/Exchanges to other agencies	Sales to Farm Mutual Water Company	Drinking Water	539
Other	Hydrants	Drinking Water	354
Other	EVMWD Use	Drinking Water	47
Losses	Fiscal Year 2013-2014 Losses	Drinking Water	1,796
	TOTAL		**21,333**
Source: EVMWD 2015 UWMP, Table 4-1			

2.1.2 Existing Per Capita Water Use

EVMWD's 2016 Water System Master Plan (WSMP) uses two alternative methods to calculate the average existing per capita water use for EVMWD's service area from 2009 through 2013. One method uses the annual production divided by the population for each year using the Department of Water Resources (DWR) methodology. The other method separates the consumption between residential use and commercial use, and multiplies these respective factors by the projections. Both methods use the annual water production value instead of the water consumption value to incorporate nonrevenue water in the calculations and demand projections.

2.1.2.1 Method 1

As shown in Table 2-4, the first method estimates that the existing per capita water use is approximately 167 gallons per capita per day (GPCD). The population for each year is calculated using the DWR methodology, which calculates a factor between the most recent census population and the number of connections. This factor is then multiplied by the known number of connections for each year to estimate the population for each year. In the 2010, the census population was 133,400 and the number of connections was 38,243. Therefore, there are 3.49 people per connection. This factor is multiplied by the number of connections for each year to estimate the population. The calculated per capita demand for the five-year average from 2003-2007 reported in the 2015 UWMP was 242 GPCD. The current five-year average 167 GPCD is 69 percent of the five-year average from the 2015 UWMP. These reductions are likely due to the District's conservation efforts and the under prediction of the 2010 population. Since the population for the 2016 WSMP

is larger than the 2010 estimated population, the GPCD is smaller than the 2015 UWMP values.

Table 2-4 Existing Per Capita Water Use for the Service Area – Method 1

Year	Population	Annual Production (acre-ft/yr)	Production (MGD)	Gallons Per Capita Demand (GPCD)
2009	132,200	27,815	24.8	188
2010	133,400	25,837	23.1	173
2011	134,100	23,733	21.2	158
2012	141,100	24,742	22.1	156
2013	143,600	25,142	22.4	156
Annual Production (gallons per day)		**25,454**	**22.7**	**167**
Source: EVMWD 2016 Water System Master Plan, Table 3-9				

2.1.2.2 Method 2

An alternative method to determine the average existing per capita water use is to separate the water use from residential use and commercial-industrial-institutional (CII) use. The consumption (billing) data obtained from EVMWD includes the customer classes specifying whether the meter is for residential, commercial, institutional, or hydrant. The data is sorted into a residential class using the residential category, and a commercial-industrial-institutional class, which includes the categories commercial, institutional, and hydrant. The percentages of water consumption for 2009-2013 for the residential and the CII classes were calculated to be 75 percent and 25 percent, respectively, Table 2-5 presents billing data over the 2009-2013 period.

Table 2-5 Billing Data (acre-ft/yr) from 2009-2013

Year	CII			Residential	Total	Percent CII	Percent Residential
	Commercial	Hydrant	Institutional				
2009	4,800	66	2,157	19,112	26,138	27%	73%
2010	3,770	73	1,772	16,769	22,386	25%	75%
2011	3,711	94	1,553	17,103	22,464	24%	76%
2012	4,081	214	1,747	18,005	24,050	25%	75%
2013	4,140	289	1,651	18,178	24,261	25%	75%
Total	20,502	736	8,880	89,166	119,299	25%	75%
Source: EVMWD 2016 Water System Master Plan, Table 3-10							

Using these percentages, the residential water demand for 2009-2013 is estimated to be 19,090 acre-ft/year. Based on an average population from 2009-2013 of 136,900 people, the residential water demand per capita is 125 GPCD.

The CII (employment-based) water demand for 2009-2013 is estimated to be 6,364 acre-ft/year. Using the RCCDR employment of 18,300 in 2010, the water demand per employee is 310 gallons per employee per day (GPED).

2.1.3 Existing Recycled Water Demands

EVMWD currently has non-potable (recycled) water customers in four hydraulically separated recycled water systems: Wildomar service area, Regional service area, Horsethief service area and Railroad Canyon service area.

The southern section of the EVMWD service area discharges sewer to Santa Rosa WRF. EVMWD has the right to recycled water supply for the amount of waste water that is discharged from EVWMD's service area and treated at the Santa Rosa WRF. The recycled water from Santa Rosa WRF is conveyed through TVWRF and served to Wildomar Service area customers via four existing turnouts. The existing average demand (2011-2015) for these four turnouts is 0.3 mgd. The Wildomar service area has some large potential customers, including the Summerly Golf Course (SGC). The Wildomar service area has a large seasonal pattern, with much greater demands in the summer than the winter months. The Wildomar service area has sufficient near-term supply (1.3 mgd) to meet the seasonal existing and future recycled water demands. However, the Wildomar service area is deficient to provide peak hour demands. The peak hour demands occur during the night hours, when non-potable irrigation occurs.

The Regional WRF has a capacity of 7.5 mgd and is planned for expansion to 12 mgd in the near future. The Regional Water Reclamation Facility (WRF) discharges its recycled water effluent to maintain the level of Lake Elsinore usually during normal and dry years and the remaining portion (minimum is 0.5 mgd per EVMWD's permit) into the Temescal Wash. Based on a settlement agreement between EVMWD and the City of Lake Elsinore, EVMWD must release water into Lake Elsinore when the water surface elevation is less than 1,240 feet. Based on hydrologic analyses prepared for EVMWD and the Lake Elsinore-San Jacinto Watershed Authority (LESJWA), maintaining the level of Lake Elsinore requires an average of about 5,900 acre-ft/yr of replenishment water and up to 10,300 acre-ft/yr during dry years. EVMWD was issued a NPDES permit for the Regional WRF that allows it to treat up to 8 mgd and discharge up to 7.5 mgd into Lake Elsinore for lake stabilization, 0.5 mgd to Temescal Wash for wetland enhancement and any remaining effluent for recycled water use. (2015 UWMP) The recycled water demand to customers in the Regional service area is very low, with just a few offices requiring small irrigation demands. Since the flows to the Regional WRF are planned to increase, EVMWD will have surplus recycled water (after discharge requirements to Lake Elsinore and Temescal Creek are met) that will be available for recycled water use. However, since the recycled water demands are low in the Regional service area, the recycled water would need to be piped to another area, such as Wildomar service area, to meet recycled water needs. Flows at the RWRF are expected to increase to approximately 30 million gallons per day (mgd) (or 33,000 AFY) as build out approaches. Reserving approximately 10,600 AFY to protect riparian habitat and environmental enhancement, approximately 20,000 AFY of recycled water will be available for the purposes of indirect potable reuse

(IPR) by build out in the Elsinore Groundwater Basin (2015 UWMP). However, if this recycled water is not used for IPR, it would be released to the Temescal Wash or into Lake Elsinore.

The Horsethief service area recycled water customers are served from the wastewater treated at Horsethief WRF that has a capacity of 0.5 mgd. The Horsethief WRF has a consistent, average effluent of 0.36 mgd. The average demand in the Horsethief service area is 0.17 mgd. Historically, the Horsethief service area had a sufficient amount of supply to meet the recycled water demand. However, in the summer of 2016, there was a shortage of recycled water and irrigation well water needed to be supplied to meet the recycled water needs. Due to existing demands and projected future demands from new developments, the Horsethief WRF is planned to be upsized to a capacity.

The Railroad Canyon service area recycled water demands are served by the wastewater treated at the Railroad Canyon WRF. The Railroad Canyon WRF has an operational capacity of 1.12 mgd and an average effluent flow of 0.67 mgd. The Railroad Canyon service area has an average demand of 0.68 mgd. The service area customers include the Canyon Hills community and the Canyon Lake Golf Course (CLGC). The Railroad Canyon WRF is incapable of meeting all recycled water demands during the summer months, so the Railroad Canyon service area supply is supplemented with EVMWD potable water or recycled water purchased from EMWD.

The historical recycled water demand for the last four years is summarized in Table 2-6.

Table 2-6 Historic Average Daily Recycled Water Demands

Year	Wildomar (mgd)	Regional (acre-ft/year)	Horsethief (mgd)	Railroad Canyon (mgd)	Total Demands (acre-ft/yr)
2012	0.27	N/A	0.169	0.71	1.149
2013	0.29	N/A	0.164	0.71	1.164
2014	0.40	N/A	0.188	0.76	1.348
2015	0.32	N/A	0.158	0.57	1.048
Average	0.32	N/A	0.170	0.69	1.177
Source: EVMWD 2016 Recycled Water System Master Plan, Table 2-1, Table 3-7, Table 4-2					

2.2 FUTURE WATER DEMANDS

For the purposes of this WSA, EVMWD's future water demands are comprised of the existing potable and recycled water demands as well as projected future potable and recycled water demands.

2.2.1 Demand Projections for EVMWD's Service Area (Population Methodology)

Future water requirements for EVMWD's service area are estimated using both methods and are shown in Table 2-7. Method 1 multiplies the average factor of 167 GPCD by the population projections developed in Table 1-1 to determine the projected demands. Method 1 assumes that the per capita water use for future customers is at the current rate. Method 2 multiplies the projected residential GPCD by the population projections to obtain a population-based water demand, and multiplies the projected CII GPED by the projected employment figures derived from RCCDR to obtain an employee-based water demand. Method 2 also assumes the GPCD and GPED factors will remain constant. The total water demand is calculated by adding the residential-based and employment-based demands and is presented in Table 2-7. As seen in Table 2-7, Method 2 has more conservative demand projections than Method 1.

The 2010 UWMP and the 2015 UWMP describe the methodology behind conservation requirements and goals which were established in the California Legislature's Water Conservation Act of 2009 (SBx7-7) to establish water conservation goals to be achieved by 2020. According to its 2010 UWMP, EVMWD selected a 2020 consumption target of 240 gallons per capita per day. In the 2010 UWMP, Method 2 was used and calculated a 2020 target of 244 GPCD. However, since the change in landscape area post-2010 is unavailable, EVMWD could not calculate the required target using Method 2 for the 2015 UWMP. Therefore, EVMWD changed methods and used Method 1 in the 2015 UWMP, which resulted in a target of 189 GPCD.

Table 2-7 Residential- and Employment-Based Demand Projections

Year	Projections		Method 1	Method 2		
	Population	Employee	Total Demand (acre-ft/year)	Residential-Based Demand (acre-ft/year)	CII (Employment-Based) Demand (acre-ft/year)	Total Demand (acre-ft/ year)
2010	136,100	18,300	25,500	19,100	6,400	25,500
2015	152,800	23,200	29,200	21,300	8,100	29,400
2020	172,600	29,700	32,900	24,100	10,300	34,400
2025	191,100	35,200	36,500	26,700	12,200	38,900
2030	208,300	40,800	39,700	29,100	14,200	43,300
2035	224,300	46,400	42,800	31,300	16,100	47,400
2040	241,000	52,000	46,100	33,700	18,100	51,800

Source: EVMWD 2016 Water System Master Plan, Table 3-11

The demand projection ranges between 46,100 and 51,800 acre-ft/year by year 2040. The population projection Method 2 had the most conservative estimates for water projection and therefore was used to develop the demand projections in the 2015 UWMP.

The demand projections are summarized in Table 2-8. The projected demands for each water use sector type was kept in proportion to the 2015 distribution of demands, besides the water losses that are kept constant.

Table 2-8 Demands for Potable and Raw Water - Projected

Use Type	Additional Description (as needed)	Projected Water Use (AF)				
		2020	2025	2030	2035	2040-opt
Single-Family		22,730	25,797	28,865	31,793	34,860
Single-Family	Mobile Home Park	118	134	150	165	181
Multi-Family		1,271	1,443	1,614	1,778	1,950
Multi-Family	Condominium	45	51	57	63	69
Commercial		5,042	5,722	6,403	7,052	7,733
Institutional/Governmental		1,827	2,074	2,320	2,556	2,802
Landscape	Residential Landscape Irrigation	2	3	3	3	4
Sales/Transfers/Exchanges to other agencies	Sales to Farm Mutual Water Company	900	1,021	1,142	1,258	1,380
Other	Hydrants	590	670	750	826	906
Other	EVMWD Use	78	89	100	110	120
Losses	Fiscal Year 2013-2014 Losses	1,796	1,796	1,796	1,796	1,796
	TOTAL	**34,400(1)**	**38,800**	**43,200**	**47,400**	**51,800**

NOTE: (1) The 20 percent reduction by 2020 would be a total demand of 35,500 AF

Source: EVMWD 2015 UWMP, Table 4-2

2.2.2 Water Demand Projections – Known Development

An alternative way to project demand is to create a relationship between equivalent dwelling units (EDUs) and the anticipated demand per EDU. EDUs are representative of the number of people per housing units. However, EDUs also apply to commercial developments to anticipate demand. For example, a new commercial business could represent multiple EDUs depending on the projected demand for that business. It is anticipated that each EDU has a demand of approximately 500 gpd per EDU. This demand per EDU value was determined from the previous water duty factors and has been used by EVMWD in anticipating the demand for future developments. A 500 gpd per EDU can be compared with the data from the previous years by evaluating the typical people per household and the residential GPCD. The persons per household, or EDU, in 2013 for Lake Elsinore was 3.54 according to the 2013 Department of Finance report, and the residential consumption from 2009 to 2013 averaged 125 GPCD as discussed previously in this section. Multiplying the persons per household per EDU by the average GPCD equals 440 gpd per EDU. Therefore, 500 gpd per EDU is a slightly conservative value but confirmed by the 2009 to 2013 data.

This relationship between demand and EDUs cannot be applied to all vacant parcels, since the EDUs per vacant parcel are currently unknown for all vacant parcels. However, if a development is planned, the EDUs associated with the development can be used to estimate the demand. Table 2-9 shows the Specific Plan developments that already have anticipated EDUs associated with them. From the anticipated EDU data, demands can be projected by assigning a factor between EDU and demand. The development data also includes a phasing and completion date for the developments, and therefore the anticipated demand can be projected. Table 2-9 is a summary of the development data and the anticipated phasing of the projects, and a more detailed table that presents estimated EDUs and project type is provided in **Appendix B**. The phasing of the development data ends in 2035.

Table 2-9 Demand Projects by Development

Reference Number (1)	Project Name	Projected Growth (acre-ft/yr)				
		2020	2025	2030	2035	Total
1	Alberhill Villages	-	1,121	1,121	1,681	3,923
2	Alberhill Ranch	280	280	252	-	812
4	Alberhill Ranch	30	-	-	-	30
5	Alberhill Ranch	560	560	560	560	2,242
6	Saddleback Estates	132	-	-	-	132
7	Renaissance	198	-	-	-	198
8	JBJ Ranch	112	63	-	-	175
9	HC Ranch	112	224	-	-	336
11	Spring Meadows Ranch	280	388	-	-	668
12	Ortega	59	-	-	-	59
13	Rancho Fortunado I	56	-	-	-	56
14	Tract 31896	73	-	-	-	73
15	Auto Zone Center Phase 1 & 2	38	-	-	-	38
16	Clinton Keith/Elizabeth Lane	15	-	-	-	15
18	Oak Springs Ranch (312 Apts)	175	-	-	-	175
19	Tres Lagos Senior Housing	70	-	-	-	70
20	Wildomar Square	70	-	-	-	70
21	Central Retail Car Wash	3	-	-	-	3
22	Elmore Ranch	168	154	-	-	322
23	Alberhill Ranch ‘Terraces”	43	-	-	-	43
25	Summerly	83	-	-	-	83
26	Summerly	43	-	-	-	43
27	Summerly	84	-	-	-	84
28	Summerly	36	-	-	-	36
29	Summerly	6	-	-	-	6
30	Summerly	43	-	-	-	43
33	Pardee Homes	123	-	-	-	123
35	Pardee Homes	52	-	-	-	52
36	Monte Vista/Canyon Drive	39	-	-	-	39
37	Tr 33543 (Waite & Cherry)	6	-	-	-	6
38	Jae Park	1	-	-	-	1
39	Tract 36497	38	-	-	-	38

Reference Number [1]	Project Name	Projected Growth (acre-ft/yr)				
		2020	2025	2030	2035	Total
40	Rainbow Village Retirement Community	-	81	-	-	81
42	Colinas Del Oro	136	-	-	-	136
44	Lennar Homes	31	-	-	-	31
47	Tract 31479	-	29	-	-	29
48	Andalusia II	25	-	-	-	25
49	Greer Ranch	6	-	-	-	6
50	Cornerstone Community Church	30	-	-	-	30
51	Mobile Home Park	3	-	-	-	3
52	Wake Rider Beach Resort	-	3	-	-	3
53	La Estrella/David Lane	16	-	-	-	16
54	Rancho Fortunado II	-	28	-	-	28
55	10 Single Family Homes	-	6	-	-	6
56	NW Corner of Elizabeth & Prelipp	-	94	-	-	94
57	Tract 32035	27	-	-	-	27
58	Family Dollar Store	2	-	-	-	2
59	Bundy Canyon RV Storage Sales Office	-	2	-	-	2
61	Walmart	-	13	-	-	13
62	Villa Sienna Apartments	-	95	-	-	95
65	Fairway Business Park	-	14	-	-	14
66	LE Assisted Living, LLC	-	20	-	-	20
69	Senior Living Apts	-	112	-	-	112
70	Baxter Village	-	84	-	-	84
71	Baxter Village	-	28	-	-	28
72	Marrelli Rd/Scenic Crest Dr	-	75	-	-	75
73	Little Valley Road	-	124	-	-	124
74	North Ranch	45	-	-	-	45
77	Westpark Promenade	-	180	-	-	180
79	South Shore II	82	-	-	-	82
80	Terracina	263	-	-	-	263
82	Inland Valley Medical	-	56	-	-	56
83	Hoover Ranch	29	-	-	-	29
85	Subway	14	-	-	-	14
87	Stable Lands Retail Center	-	28	-	-	28
88	Canyon Hills Estates	-	169	-	-	169
89	Retail	-	28	-	-	28
90	Fisherman's Wharf	6	-	-	-	6
91	Orchard Street	2	-	-	-	2
92	Pardee Homes – PA 32B	41	-	-	-	41
93	Faith Bible Church	3	-	-	-	3
94	Sunwood Lakeview	91	-	-	-	91
95	East Lake Business Park/19,800 sf	-	28	-	-	28
96	Pier-Line St, Retail, Hotel, Condo, SFR	-	168	-	-	168
97	The Summit	184	-	-	-	184
98	Residential Live/Work, Hotel	-	15	-	-	15
99	Tractor Supply Company Retail Store	-	11	-	-	11

Reference Number [1]	Project Name	Projected Growth (acre-ft/yr)				
		2020	2025	2030	2035	Total
101	School	31	-	-	-	31
102	Alberhill Ranch	56	61	-	-	117
103	Lakeshore Point SFR	81	-	-	-	81
105	Diamond Sports Arena	-	67	-	-	67
106	Canyon Hills	47	-	-	-	47
107	Pasadena Industrial Park	8	-	-	-	8
108	Circle K Remodel	3	-	-	-	3
109	Summerly	39	-	-	-	39
110	Summerly	36	-	-	-	36
113	Oak Creek Canyon	200	-	-	-	200
114	Elm St	8	-	-	-	8
124, 125, 126, 127, 128	Southshore	-	275	-	-	275
Total		**4,572**	**4,682**	**1,933**	**2,242**	**13,429**

[1] The reference numbers are the reference numbers from development data provided by EVMWD.

Source: 2016 Water System Master Plan, Table 3-12

2.2.3 Water Demand Projections – Land Use Methodology

Future production requirements for EVMWD's service area are also estimated based on land use classifications and water duty factors. A water duty is the average daily water use of a given land use type (in gallons per day per acre). Establishing water duty factors for EVMWD's service area requires consumption data within the system, locations of water meters, and existing and future land use designations. A discussion of the development of water duty factors using GIS software is presented in the following paragraphs.

2.2.3.1 Assigning Average Demand and Land Use Types

Water consumption data and the spatial location of water meters in the system are used to establish existing water duty factors. Using GIS processes such as geocoding, a link is established between the spatial location of the water meters and the water consumption data using assessor parcel numbers (APN) and addresses. A three-year average (2011-2013) demand is developed for these meters. General Plan Land Use shapefiles are obtained from the cities within EVMWD's service area and Riverside County. Based on their spatial locations within the service area, a land use type is assigned to each meter. Land use designations are also assigned to all parcels within EVMWD's service area.

The currently vacant parcels are identified in the General Plan Land Use shapefile, and aerial photography is reviewed to confirm vacant parcels. Table 2-10 shows the land use classifications within the service area, and summarizes the vacant and occupied acreage

for each land use within the system. Of the 62,300 acres that encompass the EVMWD service area, approximately two-thirds are currently vacant.

Table 2-10 Land Use Classifications and Acreage

Land Use Category [1]	Total Area (acres)	Occupied Area (acres)	Current Will Serve Development Area[2] (acres)	Vacant Area (acres)
Business Park	663	192	70	401
Commercial Office	834	292	102	440
General Commercial	1,158	375	385	398
High Density Residential (12-24 du/ac)	608	344	123	141
Limited Industrial	1,059	361	68	630
Low Density Residential (0.5 – 2 du/ac)	4,288	2,307	310	1,671
Low Medium Density Residential (2-4 du/ac)	9,421	5,138	1,523	2,760
Medium Density Residential (4-6 du/ac)	2,532	2,117	6	409
Medium High Density Residential (6-12 du/ac)	1,387	594	382	411
Mixed Use (24 du/ac)	1,105	365	171	569
Mountainous Residential (<0.1 du/ac)	10,840	1,403	233	9,204
Neighborhood Commercial	82	40	20	42
Open Space – Recreation/Slopes	4,294	552	419	3,322
Open Space Conservation	2,011	766	0	1,245
Public Institutional	4,324	3,723	147	454
Specific Plan	12,202	1,971	2,827	7,404
Tourist Commercial	156	108	0	48
Very Low Density Residential (0.1-0.5 du/ac)	4,279	1,882	661	1,737
TOTAL	**61,243**	**22,530**	**7,427**	**31,285**

(1) All land use classifications are based on EVMWD General Plan Land Use
(2) Will serve data provided by EVMWD

Source: 2016 Water System Master Plan, Table 3-13

2.2.3.2 Water Duty Factors

After designating land use types for every parcel, the meters with consumption data are overlaid on the parcels to associate consumption with the land use types and the acreage of each parcel. An existing water duty factor for each land use type is calculated by dividing the ADD demand in gpd by the area (in acres) for each parcel using the existing land use. The gpd per acre for all parcels for each land use is then averaged to determine the land use water duty factor and the statistical distribution is reviewed. Once water duty factors are developed, they are compared with values generated in the last Master Plan for EVMWD. Table 2-11 contains the planning water duty factors from the 2002 and 2007 Master Plan, and the current calculated and planning water duty factors for this report. This report uses 2015 Water Duty Factor (WDF) Planning values to project build-out demands.

Table 2-11 Water Duty Factors

Land Use Type	Water Duty Factors (gpd/acre)			
	2002 WDF	2007 WDF	2015 WDF Calculated	2015 WDF Planning
Business Park	900	1,200	900	1,200
Commercial Office	2,200	3,000	1,100	2,500
General Commercial	1,700	2,500	1,500	2,500
Limited Industrial	700	900	700	900
Neighborhood Commercial	1,000	1,000	1,800	1,800
Open Space – Recreation/Slopes	200	2,000	2,300	2,300
Open Space Conservation	0	0	0	0
Public Institutional	1,200	2,300	1,700	1,700
Specific Plan			2,400	2,000
Tourist Commercial	750	2,500	2,200	2,500
Mountainous Residential (<0.1 du/ac)	150	250	700	250
Very Low Density Residential (0.1-0.5 du/ac)	200	400	400	400
Low Density Residential (0.5 – 2 du/ac)	650	800	1,000	1,000
Low Medium Density Residential (2-4 du/ac)	1,400	2,000	2,000	2,000
Medium Density Residential (4-6 du/ac)	1,500	2,300	2,300	2,300
Medium High Density Residential (6-12 du/ac)	1,750	3,000	2,100	2,700
Mixed Use (24 du/ac)	1,700	2,300	1,600	2,300
High Density Residential (12-24 du/ac)	1,750	5,000	1,900	3,500

Source: 2016 Water System Master Plan, Table 3-14

2.2.3.3 Build Out Water Demand Projections – Land Use Methodology

Using the planning water duty factors described previously in this section, build out water demand projections are estimated based on General Plan Land Use designations. Planning water duty factors presented in Table 2-11 are used to estimate build-out demand from currently vacant parcels. Parcels that are currently vacant are assigned a land use based on the General Plan, and then the corresponding water duty factor is applied to create a demand for each vacant parcel based on the area. Table 2-12 shows the calculation of demand from the existing vacant parcels.

Table 2-12 Vacant Land Demand Calculation

Land Use Type	Vacant Area (acres)	Water Duty Factor (gdp/acre)	Demand (MGD)	Demand (acre-ft/yr)
Business Park	401	1,200	0.48	539
Commercial Office	440	2,500	1.10	1,232
General Commercial	398	2,500	1,00	1,115
Limited Industrial	630	900	0.57	635
Neighborhood Commercial	42	1,800	0.07	84
Open Space – Recreation/Slopes	3,322	2,300	7,64	8,559
Open Space Conservation	1,245	0	0	0
Public Institutional	454	1,700	0.77	864
Specific Plan	7,404	2,000	14.81	16,588
Tourist Commercial	48	2,500	0.12	134
Mountainous Residential (<0.1 du/ac)	9,204	250	2.30	2,578
Very Low Density Residential (0.1-0.5 du/ac)	1,737	400	0.69	778
Low Density Residential (0.5 – 2 du/ac)	1,671	800	1.34	1,498
Low Medium Density Residential (2-4 du/ac)	2,760	2,000	5.52	6,184
Medium Density Residential (4-6 du/ac)	409	2,300	0.94	1,054
Medium High Density Residential (6-12 du/ac)	411	2,700	1.11	1,243
Mixed Use (24 du/ac)	569	2,300	1.31	1,467
High Density Residential (12-24 du/ac)	141	3,500	0.49	553
Total	**31,285**		**40.28**	**45,105**

Source: 2016 Water System Master Plan, Table 3-15

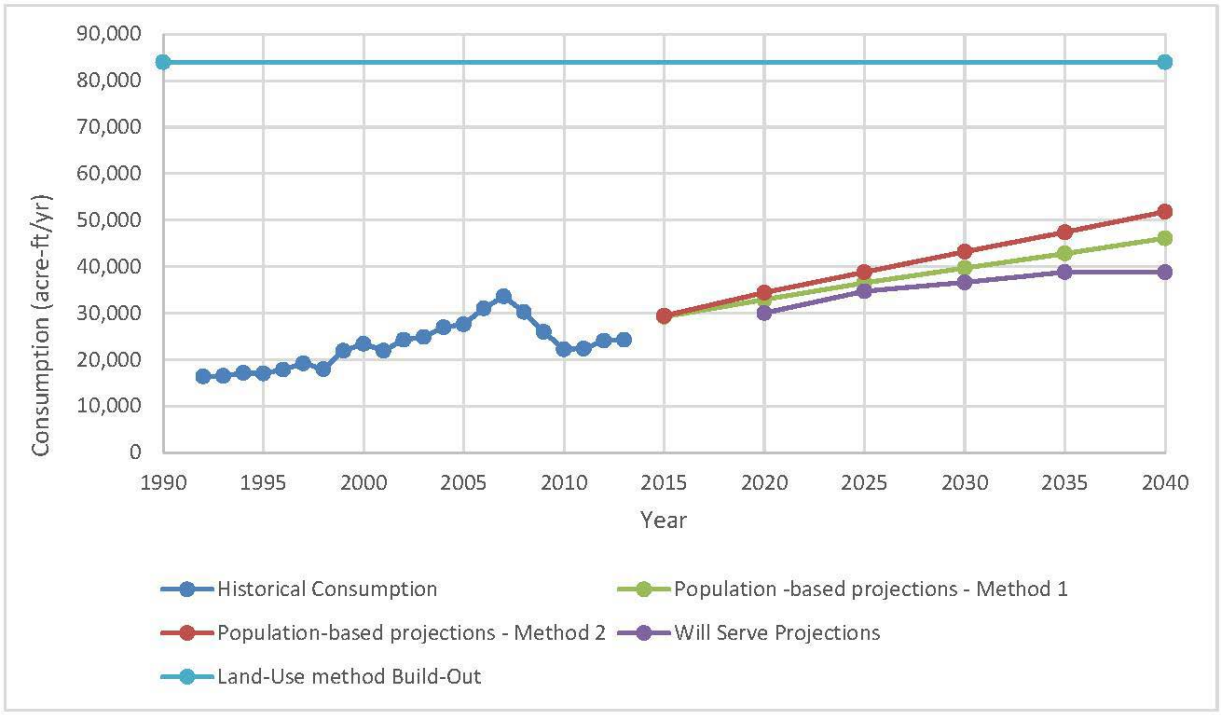
As shown on Table 2-12, the additional demand generated from the vacant parcels equals roughly 40.3 MGD. This additional demand was added to the existing demand and will serve developments to get the final build-out demand for the system. The final build-out demand for the system is equal to 84,000 acre-ft/yr, which is the 45,100 acre-ft/yr demand for currently vacant parcels added to the 13,400 acre-ft/yr that will serve customers, which is added to the 25,500 acre-ft/yr for existing demands. Table 2-13 and Figure 2-1 summarize the demand projections using the alternative methods.

Table 2-13 Summary of Demand Projections

Year	Population-Based Method		Will Serve (acre-ft/yr)
	Method 1 (acre-ft/yr)	Method 2 (acre-ft/yr)	
2015	29,200	29,400	
2020	32,900	34,400	30,000
2025	36,500	38,800	34,700
2030	39,700	43,200	36,600
2035	42,800	47,400	38,800
2040	46,100	51,800	38,800
Build-Out (land use)	84,000		

Source: EVMWD 2016 Water System Master Plan, Table 3-16

Figure 2-1 Summary of Demand Projections



Source: EMWD 2016 Water System Master Plan, Figure 3-8

2.2.3.4 Adopted East Lake Specific Plan (Thru Amendment No. 10) Demand Projections

The East Lake Specific Plan was approved on June 8, 1993. Subsequently, ten amendments were processed and nine were approved. The East Lake Specific Plan was included in EVMWD's projected water demands. The data contained above in Table 2-9 and Table 2-12 was used in determining the future water requirements for EVMWD's service area. As shown in Table 2-14, EVMWD projects a total water demand for the East Lake Specific Plan (thru Amendment No. 10) of 5,401.23 acre-ft/year.

Table 2-14 EVMWD's Estimated East Lake Specific Plan Water Demand

Data from Table 2-9 Demand Projects by Development						
Reference Number [1]	**Project Name**	**Projected Growth (acre-ft/yr)**				
		2020	**2025**	**2030**	**2035**	**Total**
25	Summerly[2]	83	-	-	-	83
26	Summerly[2]	43	-	-	-	43
27	Summerly[2]	84	-	-	-	84
28	Summerly[2]	36	-	-	-	36
29	Summerly[2]	6	-	-	-	6
30	Summerly[2]	43	-	-	-	43
109	Summerly[2]	39	-	-	-	39
110	Summerly[2]	36	-	-	-	36
	Subtotal	**370**	**-**	**-**	**-**	**370**

Data from Table 2-12 Vacant Land Demand Calculation				
Land Use Type	**Vacant Area (acres)**	**Water Duty Factor (gdp/acre)**	**Demand (MGD)**	**Demand (acre-ft/yr)**
Specific Plan	2,245.8	2,000	4.49	5,031.23
Subtotal	2,245.8	2,000	4.49	5,031.23

TOTAL WATER DEMAND FOR EAST LAKE SPECIFIC PLAN	**5,401.23**

[1] The reference numbers are the reference numbers from development data provided by EVMWD.
[2] The total acreage of the Summerly project is 706.7 acres.

Source: 2016 Water System Master Plan, Table 3-12

However, utilizing the Water Duty Factors set forth in Table 2-11 and the adopted land use designations of the currently adopted East Lake Specific Plan, to calculate the total water demand of the specific plan results in an estimated water demand of 4,709.77 acre-ft/year as shown in Table 2-15.

Table 2-15 Current East Lake Specific Plan (Thru Amendment No. 10)
Water Demand by Adopted Land Use

Land Use Type	Acreage	Water Duty Factor (gpd/acre)	Demand (MGD)	Demand (acre-ft/yr)
Low-Medium Density Residential (up to 6 DU/Ac)[1]	775.37	2,300	1.78	1,997.61
Medium Density Residential (up to 14 DU/Ac)[2]	230.04	2,700	0.62	695.73
High Density Residential (Up to 22 DU/Ac)[3]	85.55	3,500	0.30	335.38
Residential Mixed Use	24.72	2,300	0.06	63.68
Tourist Commercial	24.21	2,500	0.06	67.81
General Commercial	39.86	2,500	0.10	111.63
Limited Industrial	4.95	900	0.004	4.99
Airport Use Area[4]	162.37	900	0.15	163.69
Recreation[5]	492.66	2,300	1.13	1,269.26
Open Space	821.67	0	0	0
Floodway	285.10	0	0	0
TOTAL	**2,946.50**		**4.20**	**4,709.77**

[1.] WDF from "Medium Density Residential (4-6 du/ac)" land use type
[2.] WDF from "Medium High Density Residential (6-12 du/ac)" land use type
[3.] WDF from "High Density Residential (12-24 du/ac)" land use type
[4.] WDF from "Limited Industrial" land use type
[5.] WDF from "Open Space – Recreation/Slopes" land use type.

Source: EVMWD 2016 Water System Master Plan, Table 3-14

2.2.4 Future Recycled Water Demands

EVMWD has a recycled water network that delivers non-potable recycled water to customers in four different service areas. Three of the service areas are supplied by EVMWD owned water reclamation facilities (WRF), and one recycled water service area is supplied from the Santa Rosa WRF owned by Rancho California Water District. EMWD supplies recycled water to the Canyon Lake Golf Course in the Railroad Canyon service area during peak summer demands. All three of EVMWD's water reclamation facilities are capable of producing recycled water quality water.

The Regional Water Reclamation Facility (WRF) discharges its recycled water effluent to maintain the level of Lake Elsinore usually during normal and dry years and the remaining portion (minimum is 0.5 mgd per EVMWD's permit) into the Temescal Wash. Based on a settlement agreement between EVMWD and the City of Lake Elsinore, EVMWD must release water into Lake Elsinore when the water surface elevation is less than 1,240 ft. Based on hydrologic analyses prepared for EVMWD and the Lake Elsinore-San Jacinto Watershed Authority (LESJWA), maintaining the level of Lake Elsinore requires an average of about 5,900 acre-ft/yr of replenishment water and up to 10,300 acre-ft/yr

during dry years. EVMWD was issued a NPDES permit for the Regional WRF that allows it to treat up to 8 mgd and discharge up to 7.5 mgd into Lake Elsinore for lake stabilization, 0.5 mgd to Temescal Wash for wetland enhancement and any remaining effluent for recycled water use.

Table 2-16 summarizes the existing and projected potable water and recycled water demands. The recycled water projection demands in Table 2-16 include only metered customers and golf course use demands, and does not include the recycled water used for surface water augmentation for Lake Elsinore and Temescal Wash, or the available recycled water for groundwater IPR. The estimated recycled water demand remains constant from 2020-2040 in Table 2-16 since it is currently unknown what new developments will add to the recycled water demand after 2020. However, the estimated water projection for these new demands is captured in the potable water supply. Therefore, if recycled water is used as developments are established, the potable water demand will decrease and the recycled water use will increase.

Table 2-16 Total Water Demands

	2015	2020	2025	2030	2035	2040
Potable and Raw Water (acre-ft.)	21,333	34,400	38,800	43,200	47,400	51,800
Recycled Water Demand (acre-ft.)	1,236	1,805	1,805	1,805	1,805	1,805
TOTAL WATER DEMAND	22,569	36,205	40,605	45,005	49,205	53,605

Notes: Recycled water demand only includes metered customer and golf course irrigation demands. It does not include required flow to Lake Elsinore and Temescal Wash or Groundwater IPR availability.

Source: EVMWD 2015 Urban Water Management Plan, Table 4-3

2.2.5 East Lake Specific Plan, Amendment No. 11 Demands

As described in Section 2, the East Lake Specific Plan, Amendment No. 11 project would accommodate a wide variety of unique sporting and recreational venues and supporting uses including commercial, restaurant, hotel, and open-space uses while also accommodating residential uses within a specific plan area of approximately 2,950 acres. The proposed project‘s demands presented in Table 2-17 are based on water duty factors contained in EVMWD’s 2016 Water Sewer Master Plan. Three development scenarios are shown in Table 2-17 to account for the development flexibility of amended specific plan. These development scenarios are:

- Scenario 1 - Development pursuant to all of the base land use designations shown on Figure 1-5.
- Scenario 2 - Development pursuant to the base land use designations, except where Figure 1-5 shows land use overlays.
- Scenario 3 – Development of Scenario 2 except in Planning Area 2 where the VTTM 34017 (Waterbury) Overlay is replaced with Alternative Mixed Use and Industrial Overlays.

The total average potable water demand for the East Lake Specific Plan, Amendment No. 11 land uses ranges from 4,601.99 to 5,651.39 depending upon the mix of uses that is ultimately developed, as shown in Table 2-17. At this time, it is assumed that The Links at Summerly Golf Course and many of the potential action sports and active recreation uses will utilize recycled water as currently available or when available to them in the future (convert from potable). These potential recycled water demands (resulting in offsets for potable demand) for the proposed projects are not accounted separately under this WSA. Additionally, although Table 2-17 identifies 758.92 acres of "Preservation/Mitigation Areas" a minimum of 770 acres will ultimately set aside for preservation/mitigation uses. This increase in preservation/mitigation acreage will result in a further reduction in potable water demand in the East Lake Specific Plan.

Table 2-17 East Lake Specific Plan, Amendment No. 11 Potable Water Demand Projections

Land Use Type	Acreage	Water Duty Factor (gpd/acre)	Demand (MGD)	Demand (acre-ft/yr)
Scenario 1 - Development of Base Designations				
Action Sports, Tourism, Commercial and Recreation[1]	1,429.87	2,300	3.29	3,683.82
Active Recreation, Tourism, Commercial and Transition Area[1]	83.46	2300	0.19	215.03
Residential Neighborhood[2]	465.65	2,300	1.07	1,199.67
Golf Course/Parks	214.60	2,300	0.49	552.87
Preservation/Mitigation Areas	758.92	0	0	0
TOTALS	**2,952.50**		**5.05**	**5,651.39**
Scenario 2 - Development with Overlays Developed				
Action Sports, Tourism, Commercial and Recreation[1]	559.54	2,300	1.29	1,441.57
Active Recreation, Tourism, Commercial and Transition Area[1]	83.46	2,300	0.19	215.03
Residential Neighborhood[2]	465.65	2,300	1.07	1,199.67
Golf Course/Parks	214.60	2,300	0.49	552.87
Preservation/Mitigation Areas	758.92	0	0	0
Airport Overlay[3]	162.40	900	0.15	163.72
Mixed Use Overlay	313.77	2,300	0.72	808.38
VTTM 34017 (Waterbury) Overlay	394.16	500	0.20	220.75
TOTALS	**2,952.50**	**12,900**	**4.11**	**4,601.99**
Scenario 3 - Development with Overlays and Alternative PA 2 Overlays Developed				
Action Sports, Tourism, Commercial and Recreation[1]	829.70	2,300	1.91	2.137.57
Active Recreation, Tourism, Commercial and Transition	83.46	2,300	0.19	215.03

Land Use Type	Acreage	Water Duty Factor (gpd/acre)	Demand (MGD)	Demand (acre-ft/yr)
Area[1]				
Residential Neighborhood[2]	465.65	2,300	1.07	1,199.67
Golf Course/Parks	214.60	2,300	0.49	552.87
Preservation/Mitigation Areas	758.92	0		
Airport Overlay[3]	162.40	900	0.15	163.72
Mixed Use Overlay	313.77	2,300	0.72	808.38
PA 2 Addition Mixed Use Overlay	24.00	2,300	0.06	61.83
PA 2 Industrial Overlay[3]	100.00	900	0.09	100.81
TOTALS	**2,952.50**		**4.68**	**5,239.81**

[1] WDF from "Open Space – Recreation/Slopes" land use type.
[2.] WDF from "Medium Density Residential (4-6 du/ac)" land use type.
[3] WDF from "Limited Industrial" land use type

Source: EVMWD 2016 Water System Master Plan, Table 3-14

2.3 SUMMARY OF FUTURE DEMANDS

This section has described the historical water demand, the population projections, existing and future land use, and the projected future water demands for EVMWD. Table 2-18 summarizes the existing demands, peaking factors, and demand projections. The MDD peaking factor is chosen by taking the highest MDD to ADD ratio from 2009-2013. Since the highest MDD to ADD ratio from 2009-2013 was 1.74, EVMWD chose a MDD value of 1.75 to use. The PHD value was obtained by taking the largest PHD over the seven days of SCADA data received during the calibration period. Since the largest PHD factor was 1.98, EWMVD chose a PHD to MDD factor of 2.0. The existing system ADD demand was determined by taking the average production from 2009 to 2013. The average production value was used instead of consumption value to account for non-revenue water.

The projected demands for each phasing period (2015, 2020, etc.) was calculated using the population method and the developer data list. Since population Method 2 has more conservative projected demands, Method 2 will be used to estimate the demand projections. The projected demands will be distributed to the model by first adding the demands for the will serve customers. The demands for the will serve customers will be distributed to the appropriate junctions in the system model. Since the demands for the will serve are smaller than the population method, the remaining demand for each phasing period will be distributed amongst all the nodes currently with demands to represent population infill. For example, in 2020 the additional demand of 4,572 acre-ft/year from Table 2-9 will be added to the model. With the addition of this demand, the model will have a total demand of 30,000 acre-ft/yr (25,454 + 4,572 = 30,000). Since the population method has a projection of 34,400 acre-ft/yr for 2020, the remaining 4,400 acre-ft/yr will be distributed to all nodes with demands.

Table 2-18 Summary of Existing Demands, Peaking Factors and Demand Projections

Year	Annual Demand (acre-ft/yr)	ADD (MGD)	MDD (MGD)	PHD (MGD)
Peaking Factor		1.0	1.75	3.5
Existing	25,454	22.7	39.8	79.5
2015	29,400	26.2	45.9	91.9
2020	34,400	30.7	53.7	107.5
2025	38,800	34.6	60.6	121.2
2030	43,200	38.6	67.5	135.0
2035	47,400	42.3	74.0	148.1
2040	51,800	46.2	80.9	161.8
Build-Out	84,000	75.0	131.2	262.4
Source: EVMWD 2016 Water System Master Plan, Table 3-17				

As shown in Table 2-14, above, EVMWD included a total water demand for the East Lake Specific Plan area of 5,401.23 acre-ft/year in EVWMD's service area water demand projections. Table 2-17 shows that the potable water demand of the land uses proposed by East Lake Specific Plan, Amendment No. 11 ranges from 4,601.99 to 5,651.39 acre/ft per year depending upon different build-out scenarios. However, actual demand is expected to be lower than these totals because although Table 2-17 identifies 758.92 acres of "Preservation/Mitigation Areas" a minimum of 770 acres will ultimately set aside for preservation/mitigation uses. This increase in preservation/mitigation acreage will result in a further reduction in potable water demand in the East Lake Specific Plan.

3. WATER SUPPLY SOURCES

3.1 POTABLE WATER

The following section outlines EVMWD's current and projected water supplies based on information contained in its most recently adopted UWMP (2015 UWMP), the 2015 Water System Master Plan (WSMP), and the Ground Water Management Plan (GWMP).

EVMWD has three primary sources of potable water supply:

- Local groundwater pumped from District-owned wells (which accounts for approximately 33 percent of the supply from 1992-2015 years).
- Surface water from Canyon Lake Reservoir and treated by the Canyon Lake Water Treatment Plant (which accounts for approximately 10 percent of the supply from 1992-2015).
- Imported water purchased from Metropolitan Water District through WMWD (which accounts for approximately 57 percent of the supply from 1992-2013). Water is imported from the TVP connection, the Auld Valley Pipeline EM-17 connection, the conjunctive use program (CUP), and the Coldwater Basin (starting in August 2013).

In addition, EVMWD has access to several additional water sources through its acquisition of the Temescal Water Company assets in 1989. These consist of groundwater from the Bunker Hill, Rialto-Colton, Riverside North, Bedford, Coldwater, and Lee Lake Basins, and surface water from Temescal Creek and several tributary creeks.

EVMWD has a recycled water network that delivers non-potable recycled water to customers in four different service areas. Three of the service areas are supplied by EVMWD owned water reclamation facilities (WRF), and one recycled water service area is supplied from the Santa Rosa WRF owned by Rancho California Water District. EMWD supplies recycled water to the Canyon Lake Golf Course in the Railroad Canyon service area during peak summer demands. All three of EVMWD's water reclamation facilities are capable of producing recycled water quality water.

3.2 GROUNDWATER

EVMWD has access to groundwater from three main sources – Elsinore Basin, Temescal Valley groundwater basins and Bunker Hill/Riverside groundwater basins.

3.2.1 Elsinore Basin Groundwater

The Elsinore Groundwater Basin is the major source of potable groundwater supply for

EVMWD, and private groundwater producers. The Elsinore Basin is located in a graben (a down-dropped geologic block) created by two major fault zones: the Glen Ivy Fault Zone to the northeast and the Wildomar Fault Zone to the southeast. The groundwater basin encompasses approximately 25 square miles of valley fill including Lake Elsinore, which covers about 5.6 square miles (3,600 acres) of the basin. The surface water drainage area tributary to the basin consists of 42 square miles of mountain and valley area. Major streams include McVicker Canyon, Leach Canyon, Dickey Canyon, and the San Jacinto River, which drain into Lake Elsinore and provide a portion of the basin recharge. Figure 3-1 presents the location of the groundwater basin, the tributary watershed that drains into the basin, surrounding streams and other bodies of water.

Water rights for the Elsinore Groundwater Basin are not adjudicated. According to the GWMP, approximately 99 percent of groundwater produced by the basin is pumped by EVMWD which serves a 96 square mile area in western Riverside County. Local pumpers with private wells only account for less than one percent of basin production (2015 UWMP).

The California Department of Water Resources has designated the Elsinore Basin as Basin No. 8-4 and is located within the Santa Ana River watershed. Information on the basin from DWR Bulletin 118 California's Groundwater (January 2006) including a description of the basin is presented in **Appendix C**.

EVMWD prepared a groundwater management plan (GWMP) for the Elsinore Basin pursuant to the California Water Code § 10750 *et seq*. This plan was adopted by the EVMWD Board of Directors on March 24, 2005. The GWMP presents detailed information on the Elsinore Basin including a plan to reduce the overdraft and improve groundwater supply reliability. The GWMP identified conjunctive use projects (CUP) as an important element of basin management. Direct recharge projects that utilize the groundwater basin as a storage facility and allow for the extraction of stored water for use during drought and high demand periods were identified, designed, and constructed. These direct recharge projects were funded by Metropolitan as part of a groundwater storage program. During any fiscal year (beginning on July 1st and ending on June 30th) Metropolitan may deliver up to 3,000 acre-ft of water for storage in the Elsinore Basin. EVMWD's dual-purpose wells are used to inject these deliveries in the Elsinore Basin. Metropolitan may also extract up to 4,000 acre-ft of water stored in the Elsinore Basin as part of the Groundwater Storage Program, provided that much amount of water is stored by MWD in the Elsinore Basin. During a fiscal year when stored Metropolitan deliveries are extracted, supply from the EVMWD's imported water sources is reduced by an equal amount (EVMWD 2016 Water System Master Plan).

The GWMP also summarizes inflows to the Elsinore Basin which include infiltration of local precipitation, runoff from the surrounding watershed, infiltration from the San Jacinto River prior to reaching Lake Elsinore, and return flows from either irrigation or domestic use. Groundwater inflows are estimated to average 5,500 acre-ft/yr based on a 41-year (1961-2001) hydrologic analysis conducted for the GWMP. This natural inflow is roughly equal to the average yield of the basin because there are no natural outflows from the

basin. Groundwater pumping to meet water demands accounts for essentially the entire outflow from the basin. Active groundwater management and conjunctive use programs have been implemented by EVMWD to balance the Elsinore Basin inflows and outflows. DWR Bulletin 118 does not identify the Elsinore Basin to be in a state of overdraft.

EVMWD's acquisition of the Temescal Water Company (TWC) in August 1989 resulted in EVMWD becoming the majority shareholder (57.85 percent) in the Meeks and Daley water rights. This stock provides EVMWD with water rights, production/conveyance capacity (such as "canal carrying rights" in the Gage Canal and the Riverside Canal), and rights to the Palm Avenue Well that is located in Grand Terrace, Riverside County. The construction of Seven Oaks Dam in 1998 has allowed for capture of "new conservation" water as defined in the Judgment. (Western Municipal Water District, City of Riverside et al. 2013). In addition, Meeks and Daley would have the right to a one-time amount of approximately 1,448 acre-ft of water that was stored in the San Bernardino Basin Area (SBBA) during the 1998 to 2012 period. Starting in 2013, based on the proportional share (3.38%) of the total new conservation water, Meeks and Daley's water rights increased to 8,091 acre-ft/yr in the Bunker Hill Basin. Since EVMWD receives 57.85 percent of the Meeks and Daley water rights, this new water conservation increases EVMWD's water right entitlement to 4,680.6 acre-ft/yr from Bunker Hill Basin.

A part of the 1969 Judgment, Meeks and Daley has an annual base right of 836 acre-ft/yr to extract water from the Colton Basin. 801 acre-ft and 35 acre-ft of the base right water volumes can be delivered for use in Riverside County and San Bernardino County, respectively. For the period 1989-2013, the total average yearly extraction was 551.5 acre-ft from the Colton Basin, representing 66 percent of the base water right amount. For the cited period, the total amount of unused water was 8,289 acre-ft. Since EVMWD receives 57.86 percent of the Meeks and Daley water rights, EVMWD receives 484.6 acre-ft/yr from the Colton Basin.

EVMWD can extract water from the Riverside Basin area at an annual base right of 1,263 acre-ft/yr. The total water right amount can be delivered for use in Riverside County. For the period 1989-2013, total average yearly extraction was 849.6 acre-ft/yr, representing 67 percent of the base right amount. For the cited period, the total amount of unused water was 13,100 acre-ft.

In summary, EVMWD has a total of 6,428.2 acre-ft/yr of water rights in San Bernardino/Riverside groundwater basins as a part of the acquisition of Temescal Water Company, as shown in Table 3-1. Therefore, with the Meeks and Daley groundwater rights and the safe yield from the Coldwater and Elsinore Basin, EVMWD has the rights or safe yield of 13,128.2 acre-ft/yr. Presently, EVMWD does not have the infrastructure available to deliver water available from Meeks and Daley groundwater basins to its service area in the Elsinore Division. Therefore, as a part of the Exchange Agreement with WMWD, EVMWD committed all of its water rights (6,279 AF/yr), except for the Seven Oaks' New Water Conservation volumes, to WMWD.

Table 3-1 EVMWD 2015 Groundwater Wells Rights/Safe Yield

Source	Total Water Right or Safe Yield (acre-ft/yr)	EVMWD Allowed Water Right or Safe Yield (acre-ft/yr)
Meeks and Daley from Bunker Hill Basin (EVMWD has 57.85 percent ownership)	7,833.2	4,531.4
Meeks and Daley Seven Oaks New Water Conservation volumes in Bunker Hill Basin (EVMWD has 57.85 percent ownership)	257.8	149.2
Meeks and Daley base right from Colton Basin (EVMWD has 57.85 percent ownership)	836	484.6
Riverside Basin	1,263	1,263
Coldwater Basin	1,200	1,200
Elsinore Basin	5,500	5,500
TOTAL		**13,128.2**
Source: 2015 UWMP, Table 6-1		

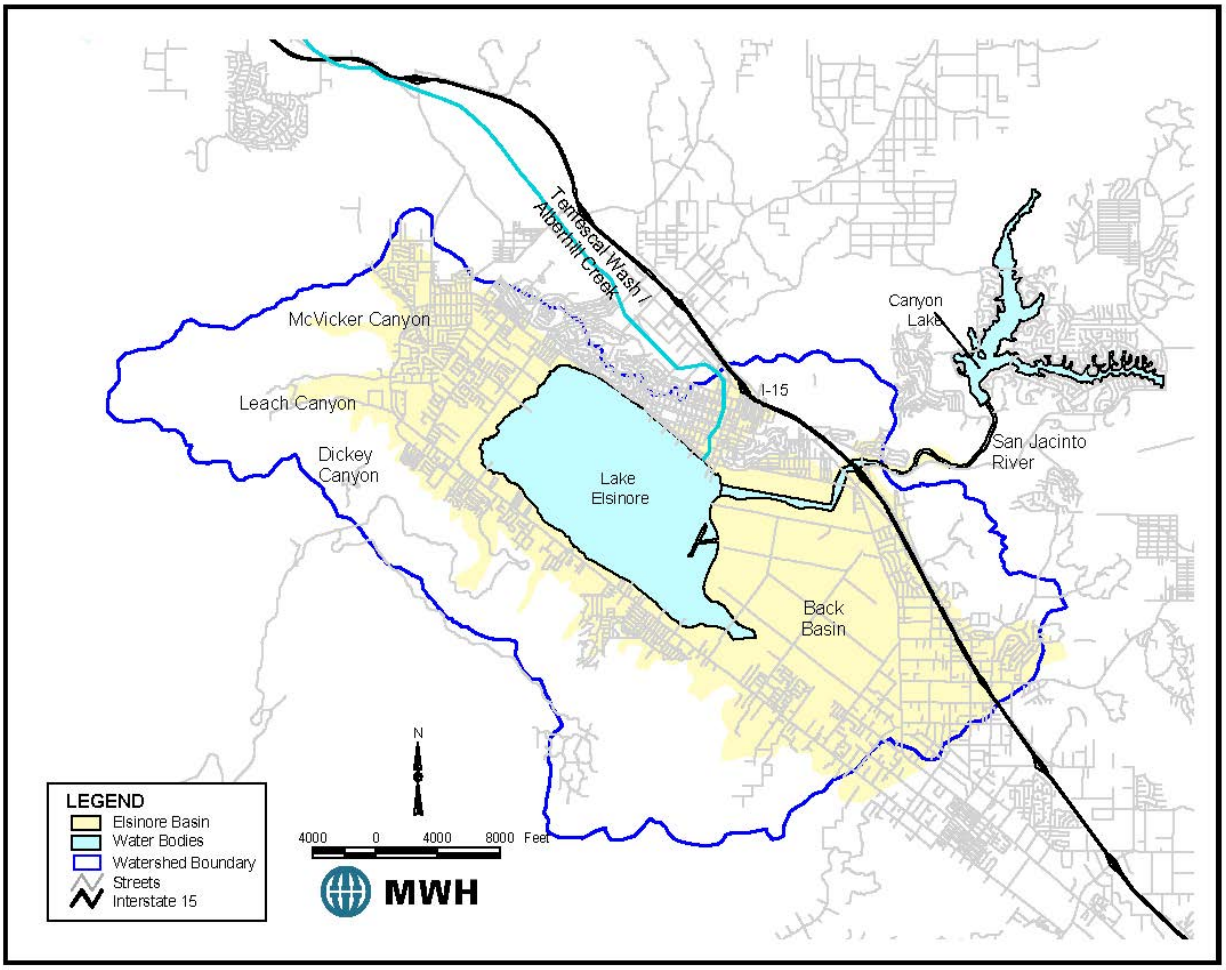
3.2.2 Historical Groundwater Pumping

Groundwater production accounts for approximately 33 percent of EVMWD's total supplies. In the Elsinore Basin, EVMWD has 12 operating potable groundwater wells with a total production capacity of 20,808 acre-ft/yr as presented in Table 3-2. All of the wells are powered by electricity. Two of the wells (Mayhew and Station 71 wells) are within the TDSA. Terra Cotta Well is the most recently equipped production well and began production in 2014. Table 3-3 summarizes the groundwater production from the Elsinore Groundwater Basin and the Coldwater Groundwater Basin, which serves the TDSA.

Table 3-2 Existing Active EVMWD Groundwater Wells Production Capacity

Groundwater Well	Capacity (acre-ft/yr)
Cereal No. 1 Well	2,258
Cereal No. 3 Well	2,258
Cereal No. 4 Well	2,339
Corydon St. Well	1,452
Diamond Well (A2)	2,581
Joy St. Well	968
Lincoln St. Well	968
Machado St. Well	1,936
Mayhew Well(1)	968
Station 71 Well(1)	403
Summerly (C5) Well	2,742
Terra Cotta Well	1,936
Total	**20,808**
(1) In TDSA service area Source: 2015 UWMP, Table 6-2	

Figure 3-1 Elsinore Groundwater Basin



Source: EMWD 2015 UWMP, Figure 6-1

Table 3-3 EVMWD Groundwater Volume Pumped

Groundwater Type	Location or Basin Name	2011	2012	2013	2014	2015
Alluvial Basin	Elsinore Groundwater Basin	2,588	5,211	5,540	8,708	3,627
Alluvial Basin	Coldwater Groundwater Basin	552	548	705	1,135	424
	TOTAL	**3,140**	**5,758**	**6,244**	**9,843**	**4,051**
Source: 2015 UWMP, Table 6-3						

All well water is chloraminated for disinfection before discharge to the distribution system. All of the wells utilize constant speed pumps and they have been tested within the last three years by SCE (besides Cereal No. 1 and Joy St. Well which were last tested on October 2006 and April 2009, respectively) regarding their operations and efficiencies.

Lincoln Street, Joy St., and Machado wells are all blended together to comply with the arsenic maximum containment level. Cereal 1 and Corydon Street wells stopped production in October 2008 due to high arsenic, but EVMWD constructed a pipeline in 2011 from the Diamond and Summerly wells to blend with the Cereal No. 1 and Corydon Street wells to comply with the arsenic maximum containment level. Cereal No.1 and Corydon Street wells began production again in May 2013. Cereal No.3 and No.4 wells are treated at the Back Basin Groundwater Water Treatment Plant (BBGWTP) for arsenic removal.

EVMWD owns and operates the Back Basin Groundwater Treatment Plant (BBGWTP). The BBGWTP was built in 2008 for arsenic treatment and removal to meet the maximum contaminant level (MCL) of 10.0 ug/L for arsenic in accordance with department of drinking water standards. Located on Malaga Road, the BBGWTP includes a ferric chloride coagulation system, media filters, tank, and electrical and instrumentation. The plant has treatment capacity of 3,500 gpm (5.0 mgd).

3.2.3 Surface Water

The second water supply source for EVMWD is surface water obtained from Canyon Lake, also referred to as the Railroad Canyon Reservoir. Canyon Lake was constructed in 1928 by the Temescal Water Company (TWC) to store water for agricultural use in the area. Formed by Railroad Canyon Dam, Canyon Lake impounds water from the San Jacinto River, Salt Creek and local surface runoff. With a spillway elevation of 1381.76 feet above mean sea level (msl), the reservoir originally had a capacity of about 12,000 acre-feet. However, it is assumed that siltation has decreased the capacity of the lake. Based on information in EVMWD's 2007 Water Distribution System Master Plan, it is estimated that Canyon Lake's current storage capacity is approximately 4,600 acre-feet (1,500 MG) of useful storage volume due to siltation. The Railroad Canyon Storage Agreement between EVMWD and TWC that was approved in October 1955 allowed EVMWD to store approximately 3,000 acre-feet of water in Canyon Lake and treat that water at the Canyon Lake Water Treatment Plant (WTP) before distribution. In August 1989, EVMWD acquired the assets and water rights of the TWC including Canyon Lake. The Canyon Lake Property Owners Association (POA) leases the surface rights to the lake and fringe land around the lake for recreational purposes under an agreement dating from 1968. The lease agreement between EVMWD and the Canyon Lake POA requires that the minimum lake elevation be kept at 1,372 ft msl at any time of the year. EVMWD typically discontinues operation of its WTP if the lake level is expected to drop below 1,372 ft. If the level falls below 1,372 feet, EVMWD could purchase imported water to maintain the minimum lake elevation. Failure to maintain minimum lake levels costs EVMWD 1/365 of that year's annual costs to the Canyon Lake POA per day the lake level drops below 1,372 ft.

Hydrologic data documenting the inflows to Canyon lake is limited to the period 1992-2015. The United States Geological Survey (USGS) maintains gauging stations on the San Jacinto River (and Salt Creek upstream of Canyon Lake. During periods of high runoff, Canyon Lake fills and spills into the San Jacinto River where it flows into Lake

Elsinore.

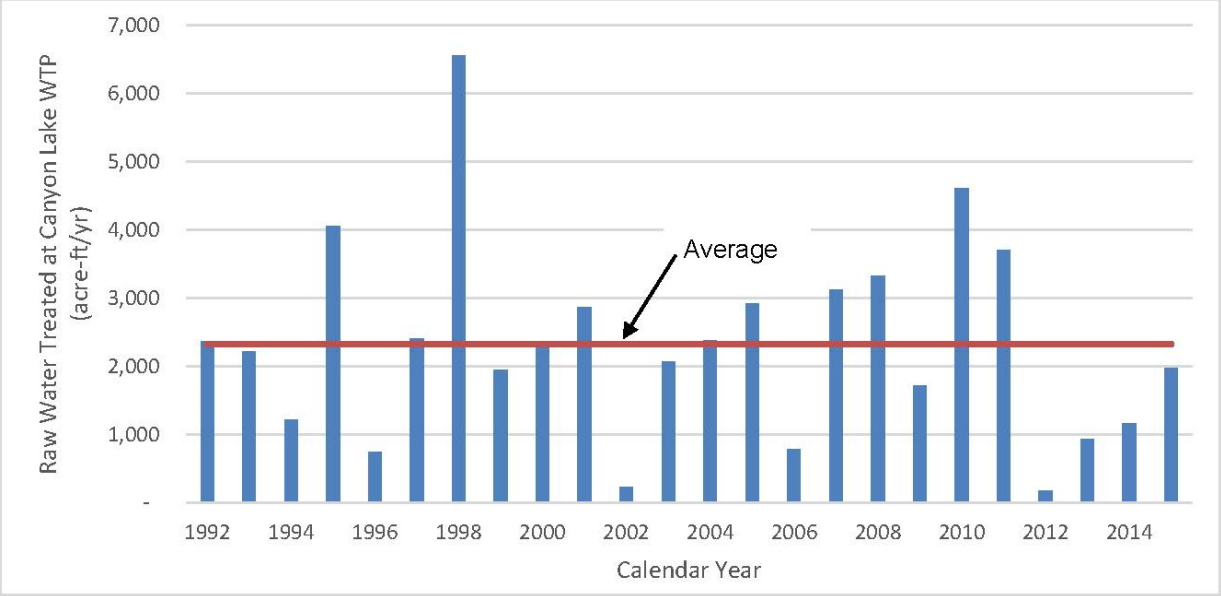
Through the acquisition of the TWC, EVMWD has the rights to divert up to 12,000 acre-ft/yr of natural drainage from the San Jacinto River from about December 1 to about June 1 of each season and store that water in the Railroad Canyon Reservoir pursuant to Water Rights License 1533. A subsequent license allows the diversion 2.4 cfs of San Jacinto River water from about April 1 to about May 31 of each season pursuant to Water Rights License 6327. In settlement of litigation regarding the release of water into Lake Elsinore, EVMWD and the City of Lake Elsinore agreed that EVMWD would not treat more than 8,000 acre-ft/yr (about 7.1 mgd continuous flow) of San Jacinto River flows in any water year at EVMWD's Canyon Lake Water Treatment Plant. This 8,000 acre-ft/yr limit applies only to San Jacinto River runoff and excludes any imported water conveyed in the river channel (2015 UWMP).

Other sources of water for Canyon Lake include untreated imported water from Metropolitan connections WR-18A (Colorado River water) and WR-31 (State Water Project water). Each of these two imported water connections has a capacity of 69 cfs (44.6 mgd). EVMWD could purchase the imported water from Metropolitan through WMWD, which would be discharged into the San Jacinto River near Nuevo and flow downstream to Canyon Lake. EVMWD has not purchased water from the Metropolitan connection WR-18A since 1989 because the high TDS in Colorado River supply adversely affects wastewater effluent quality. Construction of Metropolitan connection WR-31 was completed in December 2003.

Historical records show that approximately 11 percent of the volume of water discharged by WMWD into the San Jacinto River is lost due to percolation before the water reaches Canyon Lake and thus only approximately 89 percent of any water purchased from these connections reaches the lake (2015 UWMP). Therefore, releases from WR-31 are typically performed during the wet season when the river has natural flow to minimize the loss of water through percolation. The San Jacinto River is not a continuous source of water supply to Canyon Lake. It is typically more economically favorable to purchase treated water from MWD Auld Valley Pipeline than to purchase raw water from WMWD and treat it at Canyon Lake Water Treatment Plant during the dry season.

The Canyon Lake WTP, which is located near the southwest abutment of Canyon Lake, provides conventional treatment to surface water impounded in the lake. The treatment plant has a design capacity of 9 mgd (13.9 cfs), although running the plant at a capacity greater than 7 mgd (10.9 cfs) adversely affects the water quality. Thus, a maximum supply of 7 mgd is considered for this analysis as being available from the Canyon Lake WTP. From 1992 to 2015, the average treatment from the Canyon Lake WTP was 2,322 acre-ft/yr, and the yearly treated water is depicted on Figure 3-2. From 2011 to 2015, the Canyon Lake WTP treated approximately 1,600 acre-ft/yr (1.4 mgd) of water. Water treatment during 2002 and 2012-2015 was low than normal due to construction at the Canyon Lake WTP.

Figure 3-2 Canyon Lake WTP Production



Note: The plant was not operational in 2002 and 2012 due to construction at the WTP

3.2.4 Treated Imported Water

Metropolitan was formed in 1928 by an act of the State Legislature to provide supplemental water for its member agencies in Southern California. Western Municipal Water District (WMWD) was formed in 1954 under the Municipal Water District Act of 1911 to bring supplemental water from Metropolitan to growing western Riverside County. Following WMWD's annexation to Metropolitan, EVMWD annexed to Western's service area in 1954. As a member agency of Western, EVMWD purchases treated imported Metropolitan water from WMWD through the Auld Valley Pipeline (AVP) and the Temescal Valley Pipeline (TVP). The AVP and the TVP are located on the southeastern and northwestern end of EVMWD's distribution system, respectively (2015 UWMP).

3.2.4.1 Auld Valley Pipeline

EVMWD entered into the Water Facility Capacity Agreement for the AVP with the EMWD on November 21, 1986. The water purchased from EMWD is treated at MWD's Skinner Filtration Plant, which blends primarily Colorado River water and a small amount of SWP Water. The purchased water is pumped through the Auld Valley Pipeline (AVP) through the Metropolitan Connection EM-17 and into the 1434 zone by the Auld Valley Booster Pumps and into the 1650 zone through the California Oaks Booster Pumps Station. The booster stations are located at the District's southeast border on Hancock Avenue east of California Oaks Road. EVMWD has the rights to purchase or acquire a maximum flow rate of 37.5 cubic feet per second (cfs) (24.2 mgd or 27,100 acre-ft/yr) from EMWD through the Metropolitan Connection EM-17 although this flow rate cannot be achieved

hydraulically. To reserve capacity for maximum day demand conditions, it is assumed EVMWD will be able to obtain 83 percent of source capacity (annual capacity divided by 1.2), or 31.1 cfs (20.0 mgd or 22,500 acre-ft/yr) from the AVP on an annual basis during average year and wet years. This factor provides reserve capacity to meet maximum day demands and is based on the difference between maximum day and maximum month demands. (EVMWD 2016 Water System Master Plan)

3.2.4.2 Temescal Valley Pipeline

In addition to the AVP, EVMWD imports water from the TVP. The TVP delivers imported water from WMWD which is SWP Water treated at MWD's Mills Filtration Plant. Conveyed water is transferred to the TVP from the Mills Gravity Pipeline, which is owned and operated by WMWD, at the Woodcrest vault. The connection point is located in Corona at the intersection of Temescal Canyon Road and La Gloria Street located northwest of the EVMWD service boundary, and was completed in February 2002. Through a series of transfers, EVMWD has the capacity for 21 cfs (15,200 acre-ft/yr) in the TVP. The TVP was designed to convey 41 cfs with the construction of a proposed booster pumping station, although the current hydraulic capacity of the TVP is 19.6 cfs (12.7 mgd or 14,190 acre-ft/yr) based on gravity flow from the Mills Gravity Pipeline. Therefore, EVMWD will be able to obtain a capacity of 26,296 acre-ft/year (23.4 mgd) during average year and wet years. (2015 UWMP)

On August 23, 2001, EVMWD entered into a reciprocal use agreement with WMWD that provided EVMWD with a conditional right to use 9 cfs of capacity in the Mills Gravity Pipeline. In return for the imported water capacity, EVMWD granted WMWD entitlement to water acquired from the Meeks and Daley rights. This agreement is automatically extended annually unless terminated by either party in accordance with termination provision of the agreement. Separate leasing agreements between EVMWD and WMWD in 2002 provided EVMWD with the ability to lease up to 12 cfs from the Mills Gravity Pipeline. Therefore, EVMWD can obtain up to 21 cfs (15,200 acre-ft/yr) from the TVP, although additional pumping capacity would be required for flow greater than 19.6 cfs. (EVMWD 2016 Water System Master Plan)

3.2.5 Recycled Water

The EVMWD sewer system collects and sends flows to four reclamation plants: Regional WRF, Railroad Canyon WRF, Horsethief Canyon WRF, and RCWD Santa Rosa WRF. Of these four facilities, EVMWD owns and operates all but the Santa Rosa WRF. Flows from EVMWD's Southern Division are treated at the RCWD Santa Rosa WRF, while all flow treated by the other three WRFs is collected by the EVMWD sewer system. Approximately 90 percent of the wastewater from the EVWMD service area is collected and treated in EVWMD facilities, with the other 10 percent sent to the Rancho California Water District (RCWD).

3.2.6 Regional WRF

The Regional WRF is located adjacent to Lake Elsinore, at Chaney Street and Treleven Road. The plant treats the majority of the flow that is generated in the service area, and primarily treats flows from the city of Lake Elsinore. The plant was dedicated in 1986 at a capacity of 2 MGD. Several expansions and improvements were completed over the years, and currently the plant has an average flow capacity of 8.0 MGD and peak flow capacity of 17.6 MGD, and treats flows using an extended aeration process. Treatment processes used in the Regional WRF include an influent lift station, headworks with bar screens and grit removal, oxidation ditches, clarifiers, filter influent lift stations, tertiary filters, ultraviolet (UV) disinfection, and biosolids dewatering. The wastewater effluent is treated with tertiary treatment and phosphorus removal to Title 22 requirements and then discharged to Temescal Wash and/or Lake Elsinore. The annual average flow at the Regional WRF in 2015 was 6.5 mgd. EVMWD is planning to expand the plant to 18.2 MGD by 2040.

The effluent from the Regional WRF is discharged to Temescal Wash and Lake Elsinore under the CA order No. R8-2013-0019, NMPDES No. CA8000027.

3.2.7 Railroad Canyon WRF

Railroad Canyon is a scalping plant that treats flows from EVMWD's Canyon Lake area. Flows above what can be handled at the plant and all waste activates sludge (WAS) produced at the plant are sent from Railroad Canyon WRF to the Regional WRF. The Railroad Canyon WRF average flow capacity is currently 1.3 MGD, but the operational capacity is about 1.12 MGD to remain below the discharge limits for total inorganic nitrogen. The WRF, which was built in 1984, is located north of Railroad Canyon Rd, west of Canyon Hills Fire Station and a mile east of Highway 15. The effluent from Railroad Canyon WRF receives tertiary treatment and meets Title 22 requirements for recycled water use. The average flow to Railroad Canyon WRF is approximately 0.68 MGD. However, in January 2016 a diversion structure was constructed to divert additional flows from the Tuscany sewer division to the Railroad Canyon WRF. The flows to the Railroad Canyon WRF is anticipated to increase by 0.24 MGD.

3.2.8 Horsethief Canyon WRF

Horsethief Canyon WRF currently treats an average flow of 0.36 MGD, with a maximum daily flow of 0.55 MGD. The WRF, which is currently undergoing an expansion to 0.8 MGD, is currently rated to treat 0.5 MGD. Effluent is sent first to headworks consisting of grit chambers and a mechanical screening facility. From the headworks, flow enters an oxidation ditch and then to one of two circular clarifier tanks. From the clarifiers, the effluent is treated with anthracite-sand filters and finally sent through chlorine contact chambers before being discharged to a reclaimed water storage facility for use in landscape spray irrigation. The effluent from Horsethief Canyon WRF receives tertiary treatment and meets Title 22 requirements for recycled water use.

3.2.9 RCWD Santa Rosa WRF

The Santa Rose WRF is owned by the RCWD and is not part of the EVMWD system. The WRF was constructed in 1989 and can treat 5 MGD of wastewater. The Santa Rosa WRF has capacity to treat up to 1.54 MGD of EVMWD's wastewater flow. In 2016, EVMWD, WMWD, and RCWD entered in a Joint Powers Authority (JPA) that allows EVMWD to treat a minimum of 2.0 MGD of wastewater flows to the Santa Rosa WRF. The WRF employs biological treatment followed by clarification, filtration, and disinfection. The treated effluent is ultimately sent for reuse. A portion of the EVMWD collection system discharges to the RCWD collection system. Table 3-4 summarizes the recycled water production from 1999 through 2015.

Table 3-4 Historical Recycled Water Available Production

Year	Horsethief Canyon WRF (AFY)	Railroad Canyon WRF (AFY)	Regional WRF (AFY)	RCWD Santa Rosa WRF (AFY)	Total Production (AFY)
1999	246	1,042	4,145	896	6,329
2000	291	1,064	4,156	896	6,408
2001	358	1,042	4,246	907	6,553
2002	426	1,019	4,178	1,322	6,934
2003	527	986	4,582	1,400	7,494
2004	482	986	4,996	1,434	7,898
2005	470	840	6,307	1,535	9,163
2006	482	941	6,195	1,411	9,029
2007	448	930	5,948	1,411	8,738
2008	437	885	6,195	1,109	8,626
2009	426	784	5,489	1,112	7,685
2010	426	784	5,489	919	8,400
2011	434	929	6,513	903	8,779
2012	415	797	6,194	925	8,332
2013	409	821	6,496	943	8,669
2014	395	835	6,390	854	8,473
2015	386	604	6,372	872	8,234
Source: 2015 UWMP, Table 6-6					

3.3 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

In summary, EVMWD has four sources of water supply:

- Local groundwater pumped from District-owned wells (which accounts for approximately 33 percent of the supply from 1992-2015 years).
- Surface water from Canyon Lake Reservoir and treated by the Canyon Lake Water Treatment Plant (which accounts for approximately 10 percent of the supply from 1992-2015).

- Imported water purchased from Metropolitan Water District through WMWD (which accounts for approximately 57 percent of the supply from 1992-2013). Water is imported from the TVP connection, the Auld Valley Pipeline EM-17 connection, the conjunctive use program (CUP), and the Coldwater Basin (starting in August 2013). The imported water includes the transfer from WMWD.
- Recycled Water from the Horsethief, Railroad Canyon, Santa Rosa, and Regional WRF.

Table 3-5 and Table 3-6 show the 2015 water supply and the projected water supply amounts. The total rights available to EVMWD through the transfers with WMWD are added to the Purchased or Imported Water category. Although the groundwater wells have a total capacity of 20,808 acre-ft/yr, a safe yield from the Elsinore Basin is 5,500 acre-ft/yr, and therefore the projected groundwater volume from the Elsinore Basin will remain at 5,500 acre-ft/yr. The existing safe yield in the Coldwater Basin is 1,200 acre-ft/yr. Future groundwater well supply projects are not in the Elsinore Basin or Coldwater Basin, and therefore the capacity increases from 6,700 acre-ft/yr to 10,560 acre-ft/yr (assuming a future capacity of 3,860 acre-ft/yr in the Bedford, Lee Lake, and Warm Springs Basin). Ideally, the Canyon Lake WTP could operate at a capacity of 7,800 acre-ft/yr. However, the recent drought has reduced the Canyon Lake WTP to an average treatment of approximately 2,322 acre-ft/yr. It is assumed in the future that the natural runoff to be treated at the Canyon Lake WTP would remain around 2,500 acre-ft/ yr. In 2020, modifications to the Canyon Lake operations will allow for an additional supply of 1,500 acre-ft/yr. Although potable water and recycled water supply are combined in Table 3-6, this is an inaccurate picture of the available supply since the potable water and recycled water system are separate. Both of these supply come from different sources. Table 3-7 and Table 3-8 provides a breakdown of potable water and recycled water supply sources. Table 3-7 includes the recycled water used for Indirect Potable Reuse (IPR) since that is considered a potable water supply.

The recycled water future projections are based off the expected expanded inflow/capacity of the WRF. The Railroad Canyon is projected to divert additional flow to the Railroad Canyon WRF to meet high demand periods. In 2016, a diversion structure was completed to divert wastewater along the Tuscany Division to the Railroad Canyon WRF, which has increased wastewater supply to the Railroad Canyon WRF. The diversion is anticipated to increase the supply to the Railroad Canyon WRF to reach the operational capacity of the Railroad Canyon WRF at 1.12 MGD (1,255 acre-ft/yr). The Horsethief WRF is planning on being expanded from 0.5 MGD to 0.8 MGD (900 acre-ft/yr) to meet future recycled water demands in the Horsethief area. To address the seasonal high demands in the Wildomar system, EVMWD is considering diverting additional flow to the Santa Rosa WRF to increase their available recycled water supply from the TVRWP. Currently, EVMWD is diverting an annual average of 0.8 MGD of wastewater to Santa Rosa WRF, but is planning to increase the diverted flow to 1.3 MGD (1,456) by 2020 and to 2.0 MGD (2,240 acre-ft/yr) by 2040. Therefore, there is an expected recycled water capacity of 3,607 acre-ft/yr to be used for non-potable supply, although the average yearly use is projected to be 2,061 acre-ft/yr since there will be a much higher demand during the summer months and a lower demand during the winter

months. The reasonably available volume and total right of recycled water increases starting in 2035 to account for the additional flow available from Regional WRF after the agreement to maintain Lake Elsinore levels and Temescal Wash discharges are met. The excess recycled water could be used to address future recycled water customers or potentially groundwater IPR depending on feasibility.

Table 3-5 Supplies – Actual 2015

Water Supply	Additional Detail on Water Supply	2015	
		Actual Volume	Water Quality
Purchased or Imported Water	Imported water from AVP and TVP	15,318	Drinking Water
Groundwater	Local groundwater supply from Elsinore Basin and Coldwater Basin	4,051	Drinking Water
Surface Water	Surface water from Canyon Lake Water Treatment Plant	1,964	Drinking Water
Transfers	Transfers with Western MWD through the TVP. (does not represent additional supplies available to EVMWD)		Drinking Water
Recycled Water	Does not include water used for Temescal Wash or Lake Elsinore replenishment.	1,236	Recycled Water
	Total	**22,569**	
Source: 2015 UWMP, Table 6-12			

Table 3-6 Supplies – Projected

Water Supply	Additional Detail on Water Supply	Projected Recycled Water Supply Report To the Extent Practicable				
		2020	2025	2030	2035	2040 *(opt)*
		Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume
Purchased or Imported Water	AVP and TVP	26,286	26,286	26,286	26,286	26,286
Groundwater	Elsinore, Coldwater, Bedford, Lee Lake, Meeks and Daley, Temecula-Pauba, and Warm Springs Basin	10,560	16,783	16,783	16,783	16,783
Surface water	Canyon Lake WTP	4,000	4,000	4,000	4,000	4,000
Other	Conservation	1,145	1,720	2,295	2,870	3,100
Recycled Water	Recycled Water from Horsethief WRF, Railroad Canyon WRF, Wildomar, and	2,061	3,607	3,607	9,307	9,307

Water Supply	Additional Detail on Water Supply	Projected Recycled Water Supply Report To the Extent Practicable				
		2020	2025	2030	2035	2040 *(opt)*
		Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume
	IPR flow from Regional WRF. Does not include water used for Temescal Wash or Lake Elsinore replenishment					
Total		**44,052**	**52,396**	**52,971**	**61,246**	**61,476**
Source: 2015 UWMP, Table 6-13						

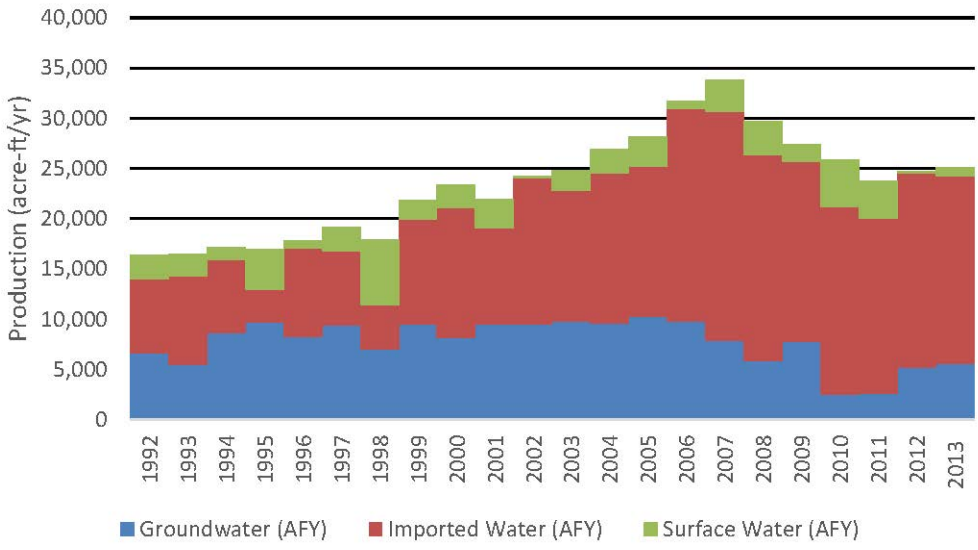
Table 3-7 Water Supplies – Projected Potable Water Supplies

Water Supply	Additional Detail on Water Supply	Projected Recycled Water Supply Report To the Extent Practicable				
		2020	2025	2030	2035	2040 *(opt)*
		Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume
Purchased or Imported Water	AVP and TVP	26,286	26,286	26,286	26,286	26,286
Groundwater	Elsinore, Coldwater, Bedford, Lee Lake, Temecula-Pauba, and Warm Springs Basin	10,560	16,783	16,783	18,783	18,783
Surface water	Canyon Lake WTP	4,000	4,000	4,000	4,000	4,000
Other	Enhanced Conservation	1,145	1,720	2,295	2,870	3,100
Recycled Water	IPR				5,700	5,700
Total		41,991	48,789	49,364	57,639	57,869
Source: 2015 UWMP, Table 6-14						

Table 3-8 Water Supplies – Projected Recycled Water Supplies

Water Supply	Additional Detail on Water Supply	Projected Recycled Water Supply Report To the Extent Practicable				
		2020	2025	2030	2035	2040 *(opt)*
		Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume
Recycled Water	Recycled Water from Horsethief WRF, Railroad Canyon WRF, Santa Rosa WRF,	2,061	3,607	3,607	3,607	3,607
Total		**2,061**	**3,607**	**3,607**	**3,607**	**3,607**
Source: 2015 UWMP, Table 6-15						

Figure 3-3 Historical Water Production by Source



Source: EMWD 2016 Water System Master Plan, Figure 3-1

Table 3-9 Historic EVMWD Water Production

Year	Groundwater (AFY[(1)])	Imported Water (AFY)	Surface Water (AFY)	Total (AFY)
1992	6,618	7,387	2,360	16,365
1993	5,467	8,821	2,217	16,505
1994	8,617	7,302	1,218	17,137
1995	9,696	3,243	4,055	16,994
1996	8,262	8,839	747	17,848
1997	9,418	7,374	2,404	19,195
1998	7,029	4,373	6,551	17,953
1999	9,549	10,405	1,948	21,902
2000	8,181	12,914	2,297	23,392
2001	9,494	9,552	2,869	21,915
2002	9,523	14,503	226	24,251
2003	9,834	12,958	2,059	24,851
2004	9,599	14,966	2,374	26,939,
2005	10,282	14,931	2,923	28,136,
2006	9,786	21,146	781	33,719
2007	7,852	22,822	3,118	35,799
2008	5,904	20,502	3,321	31,735
2009	7,787	17,906	1,710	29,412
2010	2,529	18,693	4,615	27,847
2011	2,588	17,448	3,697	23,733
2012	5,211	19,353	178	24,742
2013	5,540	18,671	932	25,142,,
Average (1992-2013)	**7,671**	**13,369**	**2,391**	**23,431**
Percent of Total Water Production	**33%**	**57%**	**10%**	

(1) Acre-feet per year
Source: EVMWD 2016 Water System Master Plan, Table 2-3

3.3.1 Water Supply Reliability

3.3.1.1 Constraints on Water Sources

EVMWD's water supplies are surface water from Canyon Lake, groundwater pumping, and imported water from Metropolitan Water District of Southern California (Metropolitan) via the Temescal Valley Pipeline (TVP) and Auld Valley Pipeline (AVP). EVMWD has developed a 2016 Integrated Resources Plan (IRP) with the goal of reducing imported water reliance on MWH. The Regional Board is currently implementing and/or validating each of the existing recommendations in the IRP. The future supply recommendations are included in Section 6. The constraints on water sources is broken down by source type; imported water supply, groundwater supply, and surface water supply reliability. Constraints can include quantity or quality declines in water.

Imported Water Supply Constraints

Per Metropolitan's Urban Water Management Plan (UWMP), Metropolitan indicates that its existing supplies are adequate to meet the projected demands in all hydrologic conditions through 2040 (Metropolitan, 2015). Implementation of planned supplies by Metropolitan increases reliability and maintains an adequate reserve. Based on Metropolitan's 2015 UWMP, it is assumed that imported water is fully reliable during average, dry, and wet years. Therefore, it is assumed that Metropolitan will have sufficient supplies to meet all demands during wet and average years.

EVMWD adopted a Groundwater Management Plan (GWMP) (MWH, 2006) in 2005 that identified conjunctive use projects as an important element of basin management. Direct recharge projects that utilize the groundwater basin for storage and allow for the extraction of the stored water for use during drought and high demand periods were identified, designed, and constructed. These direct recharge projects were funded by the Metropolitan as part of a groundwater storage program. During any fiscal year (beginning on July 1st and ending on June 30th) Metropolitan may deliver up to 3,000 acre-ft of water for storage in the Elsinore Basin. EVMWD's dual-purpose wells are used to inject these deliveries in the Elsinore Basin. Metropolitan may also extract up to 4,000 acre-ft of water stored in the Elsinore Basin as part of the Groundwater Storage Program. During a fiscal year when stored Metropolitan deliveries are extracted, instead of EVMWD extracting groundwater and pumping to Metropolitan, supply from the EVMWD's imported water sources is reduced by an equal amount.

Although Metropolitan has reported that it will be fully reliable until 2040, in order to plan for uncertainties associated with imported water supplies, this report assumes that Metropolitan will extract up to 4,000 acre-ft annually during single dry and multiple dry years from the Groundwater Storage Program. This is approximately 10 percent less than existing imported water supply capacity available to EVMWD.

EVMWD obtains all of its imported water supply from Metropolitan through Western MWD. Metropolitan recognizes the importance of the quality of its water supplies and, to the extent possible, is concentrating on maintaining the quality of its source water and developing water management programs that protect and enhance water quality. These management programs recognize that any contaminants that cannot be sufficiently controlled through protection of source waters must be handled through changed water treatment protocols or blending.

Imported Metropolitan water treated at Skinner Filtration Plant is conveyed to EVMWD through the AVP. The TDS content of this water supply, which is primarily Colorado River water, ranges between 440 to 640 mg/L. In 1999, Metropolitan adopted a policy to maintain the TDS concentration at 500 mg/L (secondary standards for drinking water) or less. This is being accomplished by blending the Colorado River water, which has TDS levels as high as 700 mg/l, with SWP water that has an average TDS of about 300 mg/L. Imported Metropolitan water treated at Mills Filtration Plan is conveyed to EVMWD through the TVP. The TDS content of this water supply has an average TDS of about 315

mg/L. Currently there are no restrictions on water supply due to imported water quality. Therefore, the biggest constraint in the imported water supply will be the availability of Metropolitan water supply, which is dependent on legal, environmental, and climatic changes.

Groundwater Supply Constraints

EVMWD is the largest groundwater producer in the Elsinore Basin accounting for approximately 99 percent of the total production. Groundwater supply from the Elsinore Basin is considered a reliable source of supply due to the long-term natural recharge of the groundwater basin. During a normal year, the well pumps are not operated regularly during winter months when demands are low. However, during dry years, the well pumps can be used to extract groundwater throughout the year increasing total extraction. EVMWD's conjunctive use program recharges imported water in the Elsinore Basin during wet years enhancing groundwater supply reliability. Conjunctive use and artificial recharge programs instituted by EVMWD over the past several years and continued implementation of such programs in the future is expected to result in satisfactory management of the Elsinore Basin. Therefore, the only quantity constraint on the groundwater system is that the pumped water from the Elsinore Basin and Coldwater Basin must remain at or below the safe yield of the basin, which is approximately 5,500 acre-ft/yr and 1,200 acre-ft/yr, respectively. EVMWD has a total well capacity of 20,800 acre-ft/yr, so EVMWD has capacity to meet the anticipated average year production of 6,700 acre-ft/yr.

The presence of nitrates and arsenic in groundwater is a concern in the Elsinore Basin. Nitrates are added to the groundwater via septic systems and agricultural discharges. Groundwater from the Elsinore Division system and the Temescal Division system had an average nitrate (as N) level of 4.5 mg/L. Based on studies conducted by EVMWD, there is no conclusive evidence that nitrate concentrations have been increasing in the groundwater basin over time. The Maximum Contaminant Level (MCL) and Maximum Contaminant Level Goal (MCLG) for nitrate (as N) and arsenic are 10 mg/L and 10 µg/L, respectively.

EVMWD is proactively investigating and has implemented solutions to mitigate high arsenic concentrations in groundwater. While the presence of arsenic in groundwater is likely to impact groundwater production, EVMWD has constructed arsenic treatment and removal facilities to address water quality issues. In addition, a blending pipeline blends production from Cereal 1 and Corydon wells with the production from Summerly and Diamond wells to reduce arsenic concentrations. Overall, the Elsinore Basin groundwater quality is considered to be good. EVMWD does not anticipate any groundwater quality to have adverse impacts on supply reliability. Groundwater is not expected to be impacted by any other factors such as legal, environmental, or climatic changes.

Local Surface Water Supply Constraints

Local inflows to the Canyon Lake are treated at the Canyon Lake Water Treatment Plant (CLWTP). The reliability of supplies at the CLWTP is dependent on local hydrology and is reduced during dry year conditions. A review of historical data indicates a reduction of up to 50 percent in available natural recharge at Canyon Lake during dry years from average or normal year flows. Supplemental raw water can be purchased from WR-31 to supplement the surface water to Canyon Lake. However, during dry periods supplemental raw water is not purchased due to the high amount of water lost through percolation through the San Jacinto River. Therefore, the biggest constraint to the local surface water supply is the hydrology and the annual natural flow to Canyon Lake, and when this flow is low, EVMWD typically purchases a greater amount of imported water from MWD.

Canyon Lake water has elevated concentration of disinfection by-product (DBP) precursors, mainly dissolved organic carbon (DOC) and bromide. As a result, when CLWTP is in operation, DBP concentrations above the current 80 µg/L regulatory limit for total trihalomethanes (TTHMs) have been reported. EVMWD is currently evaluating a new disinfection profile to meet the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) and Stage 2 D/DBP Rule. Canyon Lake has the highest Total Dissolved Solids (TDS) among all of EVMWD's water sources. The highest running annual average of TDS in treated water from Canyon Lake is 680 mg/L. However, salinity is not an issue in the Canyon Lake water as it is well below the secondary MCL of 1,000 mg/L for TDS and water from the plant is mixed with other lower salinity sources. With the proposed implementation of UV disinfection facilities at the WTP, it is expected that Canyon Lake water quality will not affect supply reliability at the WTP. Supply from Canyon Lake is not expected to be impacted by legal, water quality, or environmental factors.

3.3.1.2 Reliability by Type of Year

The reliability of the three sources of water are described below in Table 3-10. Table 3-10 is divided into three tables, one table for each supply source. The reliability of the imported water is dependent on MWD, and MWD has reported that it will be fully reliable until 2040. However, during dry years and multiple dry years, this UWMP assumes that Metropolitan will extract up to 4,000 acre-ft annually from the Groundwater Conjunctive Use Storage Program. Therefore, during the single dry year and multiple dry year, the imported water supply is decreased by 4,000 acre-ft/yr and the groundwater supply is increased by 4,000 acre-ft/yr. The groundwater supply is not affected by multiple dry years, and therefore the groundwater supply remains constant through single dry-years and multiple-dry years. The surface water flow is depended on dry-years and multiple-dry years, and therefore the historical data from 1992-2015 (only available hydrology inflow data) is evaluated to determine the available supply during a single-dry year and multiple-dry years. The definition of "average year", "single-dry year", and "multiple-dry year" is provided in below, along with an explanation of specific values for each source.

Table 3-10 Basis of Water Year Data

Imported Water			
Year Type	**Base Year**	**Available Supplies if Year Type Repeats**	
		Volume Available	**% of Average Supply**
Average Year	2000-2015	26,286	100%
Single	2000-2015	22,286	85%
Multiple-Dry Years - 1st Year	2000-2015	22,286	85%
Multiple-Dry Years - 2nd Year	2000-2015	22,286	85%
Multiple-Dry Years - 3rd Year	2000-2015	22,286	85%
Groundwater			
Year Type	**Base Year**	**Available Supplies if Year Type Repeats**	
		Volume Available	**% of Average Supply**
Average Year	2008-2015	6,700	100%
Single	2008-2015	10,700	160%
Multiple-Dry Years - 1st Year	2008-2015	10,700	160%
Multiple-Dry Years - 2nd Year	2008-2015	10,700	160%
Multiple-Dry Years - 3rd Year	2008-2015	10,700	160%
Surface Water			
Year Type	**Base Year**	**Available Supplies if Year Type Repeats**	
		Volume Available	**% of Average Supply**
Average Year	1992-2015	2,500	100%
Single	1996	747	30%
Multiple-Dry Years - 1st Year	1992	2,360	94%
Multiple-Dry Years - 2nd Year	1993	2,217	89%
Multiple-Dry Years - 3rd Year	1994	1,218	49%
Source: UWMP, Table 7-2			

Types of Years

Average Year

A year, or an averaged range of years, that most closely represents the average water supply available to the agency. The average year was developed for each of the three sources based on the below criteria:

1) Imported water – EVMWD has never reached their available capacity from imported water. Therefore, a base year of 2000-2015 was evaluated with the available capacity provided to EVMWD from MWD at 26,286 acre-ft/yr.

2) Groundwater – The average existing capacity used for groundwater will be 6,700 acre-ft/yr, which combines the safe yield for the Elsinore Basin (5,500 acre-ft/yr) and Coldwater Basin (1,200 acre-ft/yr) safe yield, which is 5,500 acre-ft/yr. The future average groundwater capacity will increase due to future projects and will equal the groundwater capacity values from **Table 6-13** (DWR Table 6-9 R).

3) Surface water – Natural inflow volumes using hydrology data from 1993-2015. In 2020, the average capacity will increase to 4,000 acre-ft/yr due to modifying the Canyon Lake operations.

4) Recycled water – Supply is based on historical average effluent from WRF flows from 2012-2015.

Single-Dry Year

The single-dry year is the year that represents the lowest water supply available to the agency. The single-dry year was developed for each of the three sources based on the below criteria:

1) Imported water – It is assumed that Metropolitan will extract 4,000 acre-ft/yr from the Groundwater Storage Program during single-dry and multiple-dry years, lowering the available supply of imported water to EVMWD.

2) Groundwater – Groundwater production will increase by the amount that Metropolitan extracts during dry-year and multiple-dry year demands. Therefore, the groundwater supply is increased by 4,000 acre-ft/yr during the dry-years and multiple dry-years. Dry year groundwater production for future groundwater sources is identified in the 2016 Integrated Resources Plan.

3) Surface water – Lowest supply from the Canyon Lake WTP from 1993-2015, which occurred in 1996, was 747 acre-ft. The dry year capacity value was increased by 1,125 acre-ft/yr from modifying the Canyon Lake operations.

4) Recycled water – The same as average year supply.

Multiple-Dry Year Period

The multiple-dry year period is the period that represents the lowest average water supply available to the agency for a consecutive multiple year period. The multiple-dry year was developed for each of the three sources based on the below criteria:

1) Imported water – It is assumed that Metropolitan will extract 4,000 acre-ft/yr from the Groundwater Storage Program during single-dry and multiple-dry years, lowering the available supply of imported water to EVMWD.

2) Groundwater – Groundwater production will increase by the amount that Metropolitan extracts during dry-year and multiple-dry year demands. Therefore, the groundwater supply is increased by 4,000 acre-ft/yr during the dry-years and multiple dry-years. Dry year groundwater production for future groundwater sources is identified in the 2016 Integrated Resources Plan.

3) Surface water – The three year average lowest supply from the Canyon Lake WTP from 1993-2015, not including years when Canyon Lake WTP was under construction. The three-year lowest average supply occurred from 1992 to 1994. The dry year capacity value was increased by 1,125 acre-ft/yr from modifying the Canyon Lake operations.

4) Recycled water – The same as average year supply.

Agencies with Multiple Sources of Water

EVMWD has three different sources of water with a different hydrology for each source, and therefore the base year for each source is evaluated separately.

3.3.1.3 Regional Supply Reliability

Due to the California drought and possible restrictions in imported water, alternative water supply options are being evaluated. EVMWD is doing feasibility studies on IPR for the Regional WRF. All of the recycled water developed from Regional WRF is currently used to meet contractual agreements to keep Lake Elsinore at a certain level and provide water for Temescal Wash. However, as population and wastewater demands increase, the Regional WRF is anticipated to have a surplus of recycled water after meeting both of these contractual agreements by 2025. Therefore, EVMWD is planning to use this surplus recycled water for conjunctive use or through IPR. EVMWD is currently conducting a groundwater feasibility study for IPR in the Elsinore Basin.

As described previously, EVMWD is planning on constructing or replacing six wells within the next five years (five new wells and one well replacement). Five new wells are in groundwater basins different than the Elsinore Groundwater Basin. Having groundwater supplies in different basins will provide a more reliable groundwater supply to EVMWD during dry year periods.

EVMWD is looking into increased recycled water supply to offset their imported potable water requirements. EVMWD is planning on increasing the capacity of Horsethief WRF by 0.3 MGD and recently started diverting increased amounts of wastewater flow to the Railroad Canyon WRF to increase the recycled water production from the Railroad Canyon WRF to meet peak summer demands. EVMWD has extended their contractual agreements with Eastern Municipal Water District (EMWD) and Rancho California Water District (RCWD) to receive recycled water through the Temescal Valley Recycled Water Pipeline (TVRWP). EVMWD formed a Joint Powers Agreement (JPA) that allows EVMWD to deliver wastewater to RCWD Santa Rosa WRF in exchange for recycled water through the TVRWP.

4. COMPARISON OF SUPPLY AND DEMAND

This section evaluates the available water supply with the projected water demands, for recycled water, and for potable water, under both annual average and maximum day demand conditions. This section demonstrates that EVMWD's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection are sufficient to meet the projected water demand associated with the proposed project, in addition to EVMWD's existing and planned future water demands, including agricultural and manufacturing uses. Proposed developments that have not obtained a will-serve letter or other written agreement that commits EVMWD to serve a particular development are not included in the future demand projections, including developments that may have had a WSA in the past. However, the urban growth and projected water demands associated with the East Lake Specific Plan, Amendment No. 11 projects fall within the forecasted growth and projected water demands that are generally identified in the District's 2015 UWMP.

4.1 WATER SUPPLY VERSUS DEMAND COMPARISON

The future average year, single-dry year, and multiple-dry year supply is compared with the projected future demand to confirm the reliability of the supply sources. The average year, single-dry year, and multiple-dry year supply for all EVMWD potable water and recycled water sources are shown in Table 4-1. Table 4-1 shows the anticipated supply capacity for 2040. Only the enhanced conservation has a changing supply value over time, while the remaining supply sources have a fixed supply. The 3,100 acre-ft/yr value in Table 4-1 for enhanced conservation is the 2040 "supply". The enhanced conservation supply for the planning horizons from 2020-2040 is included in Table 4-2.

Table 4-1 Summary of 2040 Future Projects Supply Capacity

Source		Year Online	Average Year Capacity (AFY)	Single Dry Year (AFY)	Multiple Dry-Years		
					Year 1 (AFY)	Year 2 (AFY)	Year 3 (AFY)
Imported Water	Skinner WTP via AVP	Existing	16,256	12,256[1]			
	Mills WTP via TVP	Existing	10,030	10,030			
	Total		**26,286**	**26,286**			
Surface Water	Canyon Lake WTP Natural Runoff	Existing	2,500	747	2,360	2,217	1,218
	Modify Canyon Lake Operations	2020	1,500	1,125			
	Total		**4,000**	**1,872**	**3,485**	**3,342**	**2,343**
Groundwater	Elsinore Basin	Existing	5,500	9,500[2]			
	Coldwater Basin	Existing	1,200	1,200			
	Meeks and Daley	2020-2025	6,223	6,223			

Source		Year Online	Average Year Capacity (AFY)	Single Dry Year (AFY)	Multiple Dry-Years		
					Year 1 (AFY)	Year 2 (AFY)	Year 3 (AFY)
	Lee Lake Basin Groundwater	2015-2020	1,000	500			
	Bedford Basin Groundwater	2015-2020	1,300	1,045			
	Palomar Well Replacement	2015-2020	560	560			
	Warm Springs Groundwater	2015-2020	1,000	1,000			
	Temecula-Pauba Groundwater	2030-2035	2,000	2,000			
	Total		**18,783**	**22,028**			
Water Conservation	Enhanced Conservation	2020-2040	3,100	3,100			
	Total		**3,100**	**3,100**			
Recycled Water	IRP at Regional WRF	2035	5,700	5,415			
	Total		**5,700**	**5,415**			
Potable Water Supply Total			**57,869**	**54,702**	**56,314**	**56,172**	**55,172**
Recycled Water	Recycled Water Customers	2020	3,607	3,607			
	Total		**3,607**	**3,607**			
Potable Water and Recycled Water Supply Total			**61,476**	**58,309**	**59,921**	**59,779**	**58,779**

1) Average capacity reduced by 4,000 AFY during single dry years and multiple dry years for Conjunctive Use Program with WMWD
2) Average capacity increased by 4,000 AFY during single dry years and multiple dry years for Conjunctive Use Program with WMWD

Source: UWMP, Table 7-3

Table 4-2 Enhance Conservation Supply Over Time

Source	2020	2025	2030	2035	2040
Enhance Conservation (acre-ft/yr)	1,145	1,720	2,295	2,870	3,100

Source: UWMP, Table 7-4

4.1.1 Projected normal water year supply and demand

The projected normal water year supply includes local groundwater and surface water as well as imported Metropolitan water sources. Projected water demand totals are based on demand forecasts presented in Section 2 – Water Demands. Projected supply totals are based on supply forecasts presented in **Section 3 –** Water Supply Sources. Table 4-3 provides the projected normal year supply and demand comparison until 2040. Current and anticipated future supplies are sufficient to meet the projected normal year water demand through 2040. Table 4-3 includes both the potable water and recycled

water supplies and demands. However, because the potable and recycled water systems are independent, Table 4-4 has been included to summarize only the potable water system and provide a more accurate comparison of the balance between potable supply and demand.

Table 4-3 Normal Year Supply and Demand Comparison

	2020	2025	2030	2035	2040
Supply Totals	44,052	52,396	52,971	61,246	61,476
Demand Totals	36,205	40,605	45,005	49,205	53,605
Difference	**7,847**	**11,791**	**7,966**	**12,041**	**7,871**
Source: UWMP, Table 7-5					

Table 4-4 Normal Year (Potable System Only) Water Supply and Demand Comparison

	2020	2025	2030	2035	2040
Supply Totals	41,991	48,789	49,364	57,639	57,869
Demand Totals	34,400	38,800	43,200	47,400	51,800
Difference	**7,591**	**9,989**	**6,164**	**10,239**	**6,069**
Source: UWMP, Table 7-6					

4.1.2 Projected Single and Multiple Dry-Year Supply and Demand

A comparison of supplies and demands reveals that supply is sufficient to meet demands for single dry year or multiple dry year requirements for all future horizons. As described in the Water Shortage Contingency Plan, dry years may prompt additional water conservation measures to ensure sufficient supply is maintained. Table 4-5 shows the projected single dry year supply and demand comparison until 2040, and Table 4-6 shows the projected multiple dry year supply and demand. Similarly to the normal year supply and demand comparison, Table 4-5 and Table 4-6 include both potable and recycled water supply and demand, while Table 4-7 and Table 4-8 show only potable water supply and demand caparisons for the single dry year and multiple dry year, respectively.

Table 4-5 Single Dry Year Supply and Demand Comparison

	2020	2025	2030	2035	2040
Supply Totals	41,170	49,514	50,089	58,079	58,309
Demand Totals	36,205	40,605	45,005	49,205	53,605
Difference	4,965	8,909	5,084	8,874	4,704
Source: UWMP, Table 7-7					

Table 4-6 Multiple Dry Years Supply and Demand Comparison

		2020	2025	2030	2035	2040
First Year	Supply Totals	42,782	51,126	51,701	59,691	59,921
	Demand Totals	36,205	40,605	45,005	49,205	53,605
	Difference	**6,577**	**10,521**	**6,696**	**10,486**	**6,316**
Second Year	Supply Totals	42,640	50,984	51,559	59,549	59,779
	Demand Totals	36,205	40,605	45,005	49,205	53,605
	Difference	**6,435**	**10,379**	**6,554**	**10,344**	**6,174**
Third Year	Supply Totals	41,640	49,984	50,559	58,549	58,779
	Demand Totals	36,205	40,605	45,005	49,205	53,605
	Difference	**5,435**	**9,379**	**5,554**	**9,344**	**5,174**
Source: UWMP, Table 7-8						

Table 4-7 Potable Water Single Dry Year Supply and Demand Comparison

	2020	2025	2030	2035	2040
Supply Totals	39,109	45,907	46,482	54,472	54,702
Demand Totals	34,400	38,800	43,200	47,400	51,800
Difference	4,709	7,107	3,282	7,072	2,902
Source: UWMP, Table 7-9					

Table 4-8 Potable Water Multiple Dry Years Supply and Demand Comparison

		2020	2025	2030	2035	2040
First Year	Supply Totals	40,721	47,519	48,094	56,084	56,314
	Demand Totals	34,400	38,800	43,200	47,400	51,800
	Difference	**6,321**	**8,719**	**4,894**	**8,684**	**4,514**
Second Year	Supply Totals	40,579	47,377	47,952	55,942	56,172
	Demand Totals	34,400	38,800	43,200	47,400	51,800
	Difference	**6,179**	**8,577**	**4,752**	**8,542**	**4,372**
Third Year	Supply Totals	39,579	46,377	46,952	54,942	55,172
	Demand Totals	34,400	38,800	43,200	47,400	51,800
	Difference	**5,179**	**7,577**	**3,752**	**7,542**	**3,372**
Source: UWMP, Table 7-10						

In years when EVMWD is projected to have a surplus supply of water, EVMWD will elect to not purchase as much imported water from MWD so that EVMWD will not have a surplus of water. EVMWD will prioritize groundwater pumping, recycled water, and the Canyon Lake WTP to within their safe yield, and supply the remaining amount of required demand with imported water from MWD.

4.2 CONCLUSIONS

As shown in Table 2-14, above, EVMWD included a total water demand for the East Lake Specific Plan area of 5,401.23 acre-ft/year in EVWMD's service area water demand projections. Table 2-17 shows that the potable water demand of the land uses proposed by East Lake Specific Plan, Amendment No. 11 ranges from 4,601.99 to 5,651.39 acre/ft per year depending upon different build-out scenarios. Table 4-3 through Table 4-8 show that EVMWD projects surplus water supply over demand through 2040. This surplus is more than sufficient to address the small (approximately 250 acre-ft/year) increase in projected water demand for the East Lake Specific Plan under the worst-case scenario.

Based on the existing water sources and listed future sources, considering the projected demands and planned water supplies as shown in EVMWD's 2015 UWMP, EVMWD has sufficient water to meet projected water demands for all developments with active will serves, plus the East Lake Specific Plan, Amendment No. 11, development over the next 20 years.

APPENDIX A

References

City of Lake Elsinore, *Draft East Lake Specific Plan, Amendment No. 11,* February 2016

Elsinore Valley Municipal Water District, *Alberhill Villages and Alberhill Ridge Water Supply Assessment*, prepared by MWH, March 2012

Elsinore Valley Municipal Water District, *Elsinore Basin Groundwater Management Plan, Final Report*, March 2005

Elsinore Valley Municipal Water District, *Urban Water Management Plan, Final,* July 2011

Elsinore Valley Municipal Water District, *2015 Urban Water Management Plan, Final Report*, June 2016

Elsinore Valley Municipal Water District, *2016 Recycled Water System Master Plan*, August 2016

Elsinore Valley Municipal Water District, *2016 Water System Master Plan, Final Report*, August 2016

APPENDIX B
Developer Data Demand Projections

The Developer Data Demand Projections are taken from Appendix B of Elsinore Valley's 2016 Water System Master Plan.

Appendix B
Demand Projects by Development

Reference Number	Project Name	Project Type	Anticipated EDU's					Estimated Demand Associated with EDUs (Acre-ft/year)				
			2020	2025	2030	2035	Total	2020	2025	2030	2035	Total
1	Alberhill Villages	Residential	-	2,000	2,000	3,000	7,000	-	1,121	1,121	1,681	3,923
2	Alberhill Ranch	Residential	500	500	449	-	1,449	280	280	252	-	812
4	Alberhill Ranch	Residential	53	-	-	-	53	30	-	-	-	30
5	Alberhill Ridge	Residential	1,000	1,000	1,000	1,000	4,000	560	560	560	560	2,242
6	Saddleback Estates	Residential	236	-	-	-	236	132	-	-	-	132
7	Rennaisance	Residential	354	-	-	-	354	198	-	-	-	198
8	JBJ Ranch	Residential	200	112	-	-	312	112	63	-	-	175
9	HC Ranch	Residential	200	400	-	-	600	112	224	-	-	336
11	Spring Meadows Ranch	Residential	500	692	-	-	1,192	280	388	-	-	668
12	Ortega	Residential	105	-	-	-	105	59	-	-	-	59
13	Rancho Fortunado I	Residential	100	-	-	-	100	56	-	-	-	56
14	Tract 31896	Residential	131	-	-	-	131	73	-	-	-	73
15	Auto Zone Center Phase 1 & 2	Commercial	67	-	-	-	67	38	-	-	-	38
16	Clinton Keith / Elizabeth Lane	Commercial	26	-	-	-	26	15	-	-	-	15
18	Oak Springs Ranch (312 Apts)	Commercial	312	-	-	-	312	175	-	-	-	175
19	Tres Lagos Senior Housing	Commercial	125	-	-	-	125	70	-	-	-	70
20	Wildomar Square	Commercial	125	-	-	-	125	70	-	-	-	70
21	Central Retail Car Wash	Commercial	5	-	-	-	5	3	-	-	-	3
22	Elmore Ranch	Residential	300	274	-	-	574	168	154	-	-	322
23	Alberhill Ranch 'Terraces'	Residential	77	-	-	-	77	43	-	-	-	43
25	Summerly	Residential	148	-	-	-	148	83	-	-	-	83
26	Summerly	Residential	77	-	-	-	77	43	-	-	-	43
27	Summerly	Residential	150	-	-	-	150	84	-	-	-	84
28	Summerly	Residential	64	-	-	-	64	36	-	-	-	36
29	Summerly	Residential	10	-	-	-	10	6	-	-	-	6
30	Summerly	Residential	76	-	-	-	76	43	-	-	-	43
33	Pardee Homes	Residential	219	-	-	-	219	123	-	-	-	123
35	Pardee Homes	Residential	93	-	-	-	93	52	-	-	-	52
36	Monte Vista/Canyon Drive	Residential	70	-	-	-	70	39	-	-	-	39
37	Tr 33543 (Waite & Cherry)	Residential	10	-	-	-	10	6	-	-	-	6
38	Jae Park	Residential	1	-	-	-	1	1	-	-	-	1
39	Tract 36497	Residential	67	-	-	-	67	38	-	-	-	38
40	Rainbow Village Retirement Community	Residential	-	144	-	-	144	-	81	-	-	81
42	Colinas Del Oro	Residential	243	-	-	-	243	136	-	-	-	136
44	Lennar Homes	Residential	56	-	-	-	56	31	-	-	-	31
47	Tract 31479	Residential	-	51	-	-	51	-	29	-	-	29
48	Andalusia II	Residential	44	-	-	-	44	25	-	-	-	25
49	Greer Ranch	Residential	10	-	-	-	10	6	-	-	-	6
50	Cornerstone Community Church	Commercial	53	-	-	-	53	30	-	-	-	30
51	Mobile Home Park	Commercial	6	-	-	-	6	3	-	-	-	3
52	Wake Rider Beach Resort	Commercial	-	5	-	-	5	-	3	-	-	3
53	La Estrella / David Lane	Residential	28	-	-	-	28	16	-	-	-	16
54	Rancho Fortunado II	Residential	-	50	-	-	50	-	28	-	-	28
55	10 Single Family Homes	Residential	-	10	-	-	10	-	6	-	-	6
56	NW Corner of Elizabeth & Prelipp	Residential	-	167	-	-	167	-	94	-	-	94
57	Tract 32035	Residential	49	-	-	-	49	27	-	-	-	27
58	Family Dollar Store	Commercial	3	-	-	-	3	2	-	-	-	2
59	Bundy Canyon RV Storage Sales Office	Commercial	-	3	-	-	3	-	2	-	-	2
61	Walmart	Commercial	-	24	-	-	24	-	13	-	-	13
62	Villa Sienna Apartments	Commercial	-	170	-	-	170	-	95	-	-	95
63	403 Minthorn St	Commercial	-	-	-	-	-	-	-	-	-	-
64	7-11 & Retrofit Fuel Islands	Residential	-	-	-	-	-	-	-	-	-	-
65	Fairway Business Park	Commercial	-	25	-	-	25	-	14	-	-	14
66	LE Assisted Living, LLC	Commercial	-	35	-	-	35	-	20	-	-	20

Appendix B
Demand Projects by Development

Reference Number	Project Name	Project Type	Anticipated EDU's					Estimated Demand Associated with EDUs (Acre-ft/year)				
			2020	2025	2030	2035	Total	2020	2025	2030	2035	Total
67	Bundy Canyon Restaurant	Commercial	-	-	-	-	-	-	-	-	-	-
68	Professional/Offices Center	Commercial	-	-	-	-	-	-	-	-	-	-
69	Senior Living Apts	Commercial	-	200	-	-	200	-	112	-	-	112
70	Baxter Village	Other	-	150	-	-	150	-	84	-	-	84
71	Baxter Village	Other	-	50	-	-	50	-	28	-	-	28
72	Marrelli Rd/Scenic Crest Dr	Residential	-	134	-	-	134	-	75	-	-	75
73	Little Valley Road	Residential	-	221	-	-	221	-	124	-	-	124
74	North Ranch	Residential	81	-	-	-	81	45	-	-	-	45
75	Oak Springs Ranch	Residential	-	-	-	-	-	-	-	-	-	-
76	Nichols Commercial	Commercial	-	-	-	-	-	-	-	-	-	-
77	Westpark Promenade	Commercial	-	322	-	-	322	-	180	-	-	180
78	Spyglass Ranch	Residential	-	-	-	-	-	-	-	-	-	-
79	South Shore II	Residential	147	-	-	-	147	82	-	-	-	82
80	Terracina	Residential	469	-	-	-	469	263	-	-	-	263
81	Wal Mart & Retail Center	Residential	-	-	-	-	-	-	-	-	-	-
82	Inland Valley Medical	Commercial	-	100	-	-	100	-	56	-	-	56
83	Hoover Ranch	Residential	51	-	-	-	51	29	-	-	-	29
84	Sehremelis	Residential	-	-	-	-	-	-	-	-	-	-
85	Subway	Commercial	25	-	-	-	25	14	-	-	-	14
86	Rancon Monte Vista	Residential	-	-	-	-	-	-	-	-	-	-
87	Stable Lanes Retail Center	Commercial	-	50	-	-	50	-	28	-	-	28
88	Canyon Hills Estates	Residential	-	302	-	-	302	-	169	-	-	169
89	Retail	Residential	-	50	-	-	50	-	28	-	-	28
90	Fisherman's Wharf	Residential	10	-	-	-	10	6	-	-	-	6
91	Orchard Street	Residential	4	-	-	-	4	2	-	-	-	2
92	Pardee Homes - PA 32B	Residential	74	-	-	-	74	41	-	-	-	41
93	Faith Bible Church	Commercial	5	-	-	-	5	3	-	-	-	3
94	Sunwood Lakeview	Residential	163	-	-	-	163	91	-	-	-	91
95	East Lake BusinessPark/ 19,800 sf	Commercial	-	50	-	-	50	-	28	-	-	28
96	Pier-Line St, Retail, Hotel, Condo, SFR	Commercial	-	300	-	-	300	-	168	-	-	168
97	The Summit	Residential	328	-	-	-	328	184	-	-	-	184
98	Residential, Live/Work, Hotel	Commercial	-	26	-	-	26	-	15	-	-	15
99	Tractor Supply Company Retail Store	Residential	-	20	-	-	20	-	11	-	-	11
101	School	Commercial	56	-	-	-	56	31	-	-	-	31
102	Alberhill Ranch	Residential	100	108	-	-	208	56	61	-	-	117
103	Lakeshore Point SFR	Residential	144	-	-	-	144	81	-	-	-	81
105	Diamond Sports Arena	Commercial	-	120	-	-	120	-	67	-	-	67
106	Canyon Hills	Residential	84	-	-	-	84	47	-	-	-	47
107	Pasadena Industrial Park	Commercial	15	-	-	-	15	8	-	-	-	8
108	Circle K Remodel	Residential	5	-	-	-	5	3	-	-	-	3
109	Summerly	Residential	70	-	-	-	70	39	-	-	-	39
110	Summerly	Residential	64	-	-	-	64	36	-	-	-	36
113	Oak Creek Canyon	Residential	356	-	-	-	356	200	-	-	-	200
114	Elm St	Residential	15	-	-	-	15	8	-	-	-	8
124,125,126,127,128	Southshore	Residential	-	490	-	-	490	-	275	-	-	275
	Total		**8,159**	**8,355**	**3,449**	**4,000**	**23,963**	**4,572**	**4,682**	**1,933**	**2,242**	**13,429**

APPENDIX C

Elsinore Groundwater Basin Bulletin

Elsinore's Groundwater Basin characteristics, that were included as Appendix D of the Alberhill Villages and Alberhill Ridge Water Supply Assessment, prepared for the Elsinore Valley Municipal Water District, March 2012, are taken from California's Department of Water Resources Bulletin 118

Elsinore Groundwater Basin

- Groundwater Basin Number: 8-4
- County: Riverside
- Surface Area: 25,700 acres (40.2 square miles)

Basin Boundaries and Hydrology

The Elsinore Groundwater Basin underlies the Elsinore Valley in western Riverside County. The basin is bounded on the southwest by the Santa Ana and Elsinore Mountains along the Willard fault, a splay of the active Elsinore fault zone. The basin adjoins the Temecula Valley Groundwater Basin on the southeast at a low surface drainage divide. The basin is bounded on the northwest by the Temescal Subbasin of the Upper Santa Ana River Valley Groundwater Basin at a constriction in Temescal Wash. The basin is bounded on the northeast by nonwater-bearing rocks of the Peninsular Ranges along the Glen Ivy fault. Average annual precipitation ranges from 12 to 14 inches. Lake Elsinore lies in a closed basin formed between strands of the active Elsinore fault zone.

Hydrogeologic Information

Water Bearing Formations

The Elsinore Groundwater Basin contains alluvial fan, floodplain, and lucustrine deposits, which are underlain by alluvium of the Pauba Formation (DWR 1981). The maximum thickness of sedimentary deposits reaches 2,300 feet beneath Lake Elsinore (DWR 1981). Specific yield for the basin ranges from about 6 to 16 percent and averages about 7.6 percent (SWRB 1956).

Alluvial Fan, Floodplain, and Lacustrine Deposits. These deposits are Late Pleistocene to Holocene in age and form the surficial materials of the basin. Alluvial fan deposits of gravel, sand, silt, and clay are found near the western and northeastern edges of the basin emanating from the adjacent crystalline mountains. The interior of the valley contains floodplain deposits that reach a thickness of about 200 feet and contain stringers of sand and gravel in finer silt and clay. In the zone of inundation of Lake Elsinore, fine-grained lacustrine deposits of sand, silt, and clay reach 800 feet in thickness (DWR 1981). The lake deposits have a specific yield of about 6 percent, whereas the floodplain deposits range from 9 to 12 percent (DWR 1981).

Pauba Formation. The Pleistocene age Pauba Formation is a composed of alluvial sandstone and fanglomerate members (Morton and others 1999) that reach a maximum thickness of about 2,200 feet beneath lake Elsinore (DWR 1981). This is the principal water-bearing unit of the basin, with the most productive wells extracting from alluvial sand and gravel bodies that occur as stringers within less pervious silt- and clay–rich deposits. In general, sediments are coarser near the margins of the basin and become finer toward Lake Elsinore. Specific yield for the Pauba Formation averages about 9 percent (DWR 1981).

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Restrictive Structures

Groundwater movement in the basin is strongly influenced by faults cutting the alluvial and lacustrine sediments in Elsinore Groundwater Basin. Differences in groundwater elevation are found across the Wildomar, Willard, and Glen Ivy faults, indicating that they are barriers to groundwater flow (DWR 1953, SWRB 1956; DWR 1981). As many as 8 separate fault bounded blocks are interpreted in the basin and there appears to be little groundwater movement across these bounding faults (DWR 1981).

Recharge Areas

The principal recharge of the basin is from infiltration of stream flow through alluvial fan deposits near the edges of the basin and through gravel deposits along the course of the San Jacinto River. Other contributing sources include infiltration from unlined channels overlying the basin, underflow from saturated alluvium and fractures within the surrounding bedrock mountains and hills, and spreading of water in recharge basins (WE 2000).

Groundwater Level Trends

Groundwater levels within Elsinore Groundwater Basin declined more than 100 feet between 1927 and 1950 (DWR 1953). A hydrograph from one well shows that water level declined about 110 feet in the southern part of the basin from 1967 through 1985. However, a hydrograph from a well in the northern part of the basin shows a rise in water level of about 65 feet from 1963 through 1980. Under natural conditions, groundwater should flow generally toward Lake Elsinore; however, because faults cutting the sediments impede groundwater movement, groundwater flow is dominantly contained within fault blocks in the basin.

Groundwater Storage

Groundwater Storage Capacity. Total storage capacity is estimated to be about 27,000 af (SWRB 1956, DWR 1975), 1,840,000 af (DWR 1981), and 1,400,000 af (EVMWD 2001).

Groundwater in Storage. Groundwater in storage in 1964 and 1975 was estimated to be about 1,000,000 af (DWR 1981). About 245,000 af of available dry storage in 1999 (EVMWD 2001) suggests that about 1,155,000 af of groundwater in storage was available.

Groundwater Budget (Type C)

Mean subsurface inflow is estimated to be about 800 af/yr (SWRB 1956). Total extraction for 1978 is estimated to have been 8,081 af (DWR 1981).

Groundwater Quality

Characterization. Groundwater northeast of Lake Elsinore is calcium sulfate character, whereas groundwater southeast of the lake is calcium bicarbonate (SWRB 1956). Groundwater in the central part of the basin has sodium sulfate-bicarbonate character (DWR 1981). Springs and wells near the town of Elsinore yield water of sodium sulfate character (DWR 1981). The range of TDS content for 17 public wells is 290 to 680 mg/L and the average TDS content is 460 mg/L.

Last update 1/20/06

Impairments. Fluoride content exceeding recommended levels has been found in groundwater near the town of Elsinore (DWR 1953; SWRB 1967).

Water Quality in Public Supply Wells

Constituent Group[1]	Number of wells sampled[2]	Number of wells with a concentration above an MCL[3]
Inorganics – Primary	18	1
Radiological	20	0
Nitrates	18	0
Pesticides	20	0
VOCs and SVOCs	20	1
Inorganics – Secondary	18	4

[1] A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).
[2] Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.
[3] Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: to 5,400 gal/min (DWR 1978)	Average:
	Total depths (ft)	
Domestic	Range:	Average:
Municipal/Irrigation	Range: to 2,306 ft (DWR 1978)	Average:

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
US Geological Survey	Groundwater levels	1
US Geological Survey	Miscellaneous water quality	1
Department of Health Services and cooperators	Title 22 water quality	18

Basin Management

Groundwater management:	Elsinore Valley Municipal Water District has proposed a groundwater management plan.
Water agencies	
Public	Elsinore Valley Municipal Water District
Private	

Last update 1/20/06

References Cited

California Department of Water Resources (DWR). 1953. *Elsinore Basin Investigation.* Bulletin No. 9.

_____, Southern District. 1978. A Preliminary Evaluation of *Ground Water Conditions in the Vicinity of Lake Elsinore. Southern* District Technical Information Record 1080-A-1 34 p.

_____, Southern District. 1981. *Investigatin of Ground Water Supply for Stabilization of Level of Lake Elsinore, Riverside County.* District Report to Department of Parks and Recreation under Interagency agreement 162083. 45 p.

California State Water Resources Board (SWRB). 1956. *Santa Ana River Investigation:* State Water Resources Board Bulletin No. 15. 207 p. [nb: later published in 1959 as DWR Bulletin No. 15).

Eastern Valley Municipal Water District (EVMWD). 2001. Elsinore Valley Pilot Recharge Demonstration Project Grant Application.

Morton, D.M., Hauser, R.M., and Ruppert, K.R. 1999. *Preliminary digital geologic map of the Santa Ana 30'x60' quadrangle, southern California, version 1.0.* U.S. Geological Survey Open-File Report 99-172 15p., scale 1:100,000, 2 sheets.

Wildermuth Environmental (WE). 2000. *TIN/TDS Study Phase 2A.*

Errata

Updated groundwater management information and added hotlinks to applicable websites. (1/20/06)

Last update 1/20/06