Prepared for
Elsinore Valley Municipal Water District

Diamond Specific Plan Water Supply Assessment

November 2009

MWH®

BUILDING A BETTER WORLD

FINAL REPORT

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Executive Summary

PURPOSE

This Diamond Development 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). This report documents EVMWD's ability to meet existing and planned future water demands within EVMWD's Elsinore Division over a 20-year period.

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 and Canyon Lake, as well as portions of the City of Murietta and unincorporated areas of Riverside County. The Elsinore Division is rapidly growing with population forecasted to increase by approximately 74 percent between 2005 and 2030.

PROJECTED DEMANDS

EVMWD has projected water demands for existing and planned future developments. Planned future developments are determined by either the current will-serve list of developments or another written agreement between EVMWD and a developer. Recycled water deficit is future recycled water demands that need to be supplemented with potable water. **Table ES-1** presents the estimated potable water demand for normal, wet, and dry years for both average day demands (ADD) and maximum day demands (MDD). The current will-serve list is provided in **Appendix C**.

Table ES-1
Summary of Potable Water Demands

Demand Category	Normal Year (acre-ft/yr)	Wet Year (acre-ft/yr)	Dry Year (acre-ft/yr)
Existing Demands	32,700	29,600	35,500
Inactive Account Demands	800	700	900
Will-Serve Demands (Future)	1,000	900	1,100
Recycled Water Conversions (Future)	(1,200)	(1,100)	(1,300)
Summerly Development (Future)	600	500	700
Diamond Development (Future)	400	370	430
Recycled Water Deficit	100	0	200
Total Annual Demand (acre-ft/yr)	**34,400**	**30,970**	**37,530**
Average Day Demand (mgd)	**30.7**	**27.6**	**33.5**
Maximum Day Demand (mgd)	**62.5**	**56.2**	**67.7**

Table ES-2 presents the estimated recycled water demand for normal, wet, and dry years for both average day demands (ADD) and maximum day demands (MDD).

Table ES-2
Summary of Recycled Water Demands

Demand Category	Normal Year (acre-ft/yr)	Wet Year (acre-ft/yr)	Dry Year (acre-ft/yr)
Existing Demands	430	390	470
Recycled Water Conversions (Future)	1,200	1,100	1,300
Total Annual Demand (acre-ft/yr)	**1,630**	**1,490**	**1,770**
Average Day Demand (mgd)	**1.5**	**1.3**	**1.6**
Maximum Day Demand (mgd)	**4.1**	**3.4**	**4.1**

PROJECTED SUPPLIES

EVMWD obtains its potable water supplies from local groundwater from the Elsinore Basin, local surface water from Canyon Lake, and imported water. Imported water is obtained from the Metropolitan Water District of Southern California (Metropolitan) and delivered to EVMWD through the Auld Valley and Temescal Valley Pipelines. EVMWD plans to construct the 20-inch diameter pipeline from Diamond & Summerly Wells to Cereal 1 & Corydon Wells for blending, as well as equipping Terra Cotta Well, and drilling the Palomar Well replacement by 2012. **Table ES-3** summarizes the existing and planned potable water supplies in normal, single dry, multiple dry and wet years.

Table ES-3
Summary of Existing and Future Potable Water Sources

Water Supply Source	Capacity (mgd)	Average Year (acre-ft/yr)	Single Dry Year (acre-ft/yr)	Multiple-Dry Years (acre-ft/yr)	Single Wet Year (acre-ft/yr)
Existing Supplies					
Canyon Lake (Natural Runoff)	7.0	4,900	2,500	3,000	8,000
Groundwater (Extraction)	15.4	3,700	11,300	10,000	3,400
Groundwater (Injection)	(6.8)	(6,100)	0	0	(6,900)
TVP	12.7	12,700	10,200[1]	10,200[1]	12,700
AVP	24.2	22,500	18,000[2]	18,000[2]	22,500
Total - Existing Supplies	**59.3**	**43,800**	**42,000**	**41,200**	**46,600**
Future Supplies					
Cereal 1 & Corydon (including Injection)	3.8	1,900	1,000	800	1,600
Terra Cotta Well[1] (including Injection)	1.7	1,400	1,900	1800	1,400
Palomar Replacement	0.7	(100)	1,000	800	0
TVP Pumping Station	13.8	12,900	0[3]	0[3]	12,900
Total - Future Supplies	**20.0**	**16,100**	**3,900**	**3,400**	**15,900**
Total	**79.3**	**59,900**	**45,900**	**44,600**	**62,500**

[1] It is assumed that 80% of 12,700 (83% of TVP capacity) is available during dry year & multiple dry years.
[2] It is assumed that 80% of 22,600 (83% of AVP capacity) is available during dry year & multiple dry years.
[3] As the existing imported water capacities are not being utilized. During future scenario, it is assumed that no additional supply is available during single dry and multiple dry years

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

Table ES-4
Maximum Available Future Recycled Water Production Capacity

Source	Projected Average Flows	
	(mgd)	(acre-ft/yr)
Horsethief WRF (existing)	0.5	600
Railroad Canyon WRF (existing)	1.2	1,300
Regional WRF (existing)	8.0	9,000
Santa Rosa WRF (existing)	1.5	1,700
Temecula Valley Regional WRF (existing)	12.0	13,400
Total	**23.2**	**26,000**

[1] The maximum recycled water supply that EVMWD is entitled to under the agreement with RCWD is 1.54 mgd, but cannot be greater than the raw wastewater that EVMWD sends to Southern WRF.
[2] EMWD has the option to sell the recycled water to EVMWD on an as-needed basis.

COMPARISON OF DEMANDS AND SUPPLIES

The existing and planned supplies are sufficient to meet existing and currently committed future maximum day demands including Diamond development over a 20-year period with a surplus of 16.8 million gallons per day (mgd). This surplus is sufficient to support the demand of approximately 16,800 additional equivalent dwelling units.

EVMWD has the following existing supplies: surface water from Canyon lake WTP, groundwater supplies, imported water from Metropolitan through EMWD through the AVP and from Metropolitan through Western MWD through TVP. The additional supplies EVMWD is pursuing is the construction of pipeline from Diamond and Summerly to Cereal 1 and Corydon, Palomar replacement, Terra Cotta well and TVP pump station. Based on the existing water sources and listed future sources, EVMWD has sufficient water to meet projected water demands for all developments with active will serves, plus the Diamond Specific Plan.

APPROVAL

This report was approved by the EVMWD Board of Directors on November 12, 2009.

Section 1
Introduction

BACKGROUND

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 projected water supply 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 agency approving a subdivision (as defined in the code) to include as a condition for approval written verification that a sufficient water supply is available. SB 610 and SB 221 are companion measures which 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.

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.

A similar definition for a "subdivision" is included in Government Code Section 66473.7.

A SB 610 assessment is typically prepared as part of the CEQA process for approval of a new development. This Diamond Specific Plan WSA for the Elsinore Valley Municipal Water District (EVMWD) is prepared in accordance with SB 610. This report was approved by the EVMWD Board of Directors on November 12, 2009.

EVMWD SERVICE AREA

EVMWD provides water and wastewater services to its Elsinore Division which encompasses an area of 96 square miles as shown in **Figure 1-1**, including the Cities of Lake Elsinore and Canyon Lake, as well as portions of the City of Murietta and unincorporated areas of Riverside County. The Elsinore Division is rapidly growing with population forecasted to increase by approximately 74 percent between 2005 and 2030. Along with the rapid growth comes the need for more water. This section contains the demographic forecasts of population and employment. The data is used in subsequent sections to estimate future water demands.

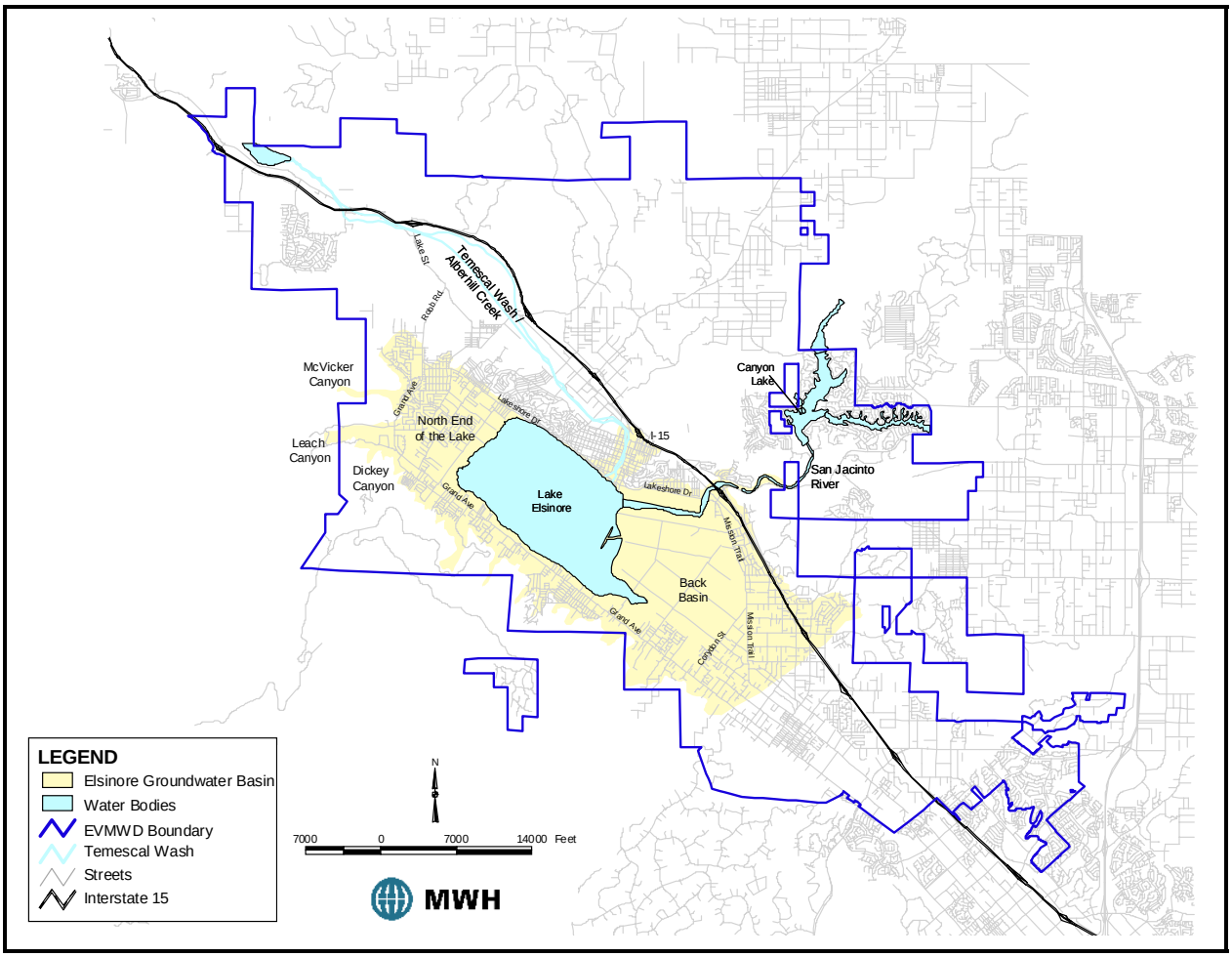

Figure 1-1
EVMWD Service Area

History of EVMWD

EVMWD was incorporated on December 23, 1950, under the provisions of the California Municipal Water District Act of 1911. The purposes of the District are to finance, construct, operate, and maintain water and wastewater systems serving properties within the District boundaries. EVMWD was formed for the purpose of protecting local water supplies and

importing supplemental water to alleviate water shortages. At the time, 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.

In July 1962, Improvement District No. 2 encompassing the Meadowbrook area was formed into, 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 for cash 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 is designated the Temescal Division, while the remainder of the service area is the Elsinore Division.

Today, the residents within the EVMWD boundary are served by one of three water service agencies: EVMWD, the Elsinore Water District (EWD), and the Farm Mutual Water Company. The latter two are located entirely within EVMWD boundaries, and obtain most of their water wholesale from EVMWD.

As a Special District, 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* taxes, and acquire property and rights-of-way by eminent domain procedures. EVMWD is also legally empowered to construct, operate, and maintain sewage, waste, reclamation, and storm water disposal facilities; and to acquire, construct, operate, and maintain fire protection facilities. However, EVMWD does not exercise this latter power.

Demographic Forecasts

Riverside County Center for Demographic Research has compiled historical population and employment by census tract for selected historical years and projected them to 2005, 2010, 2015, 2020, 2025, and 2030, which has been adopted by Southern California Association of Governments (SCAG) in 2006. EVMWD adapted this data to reflect those portions of each census tract that are contained within the EVMWD boundaries. The graph in **Figure 1-2** plots the trends for these variables from 2005 through 2030 for available years. Data for key points are summarized in **Table 1-1**.

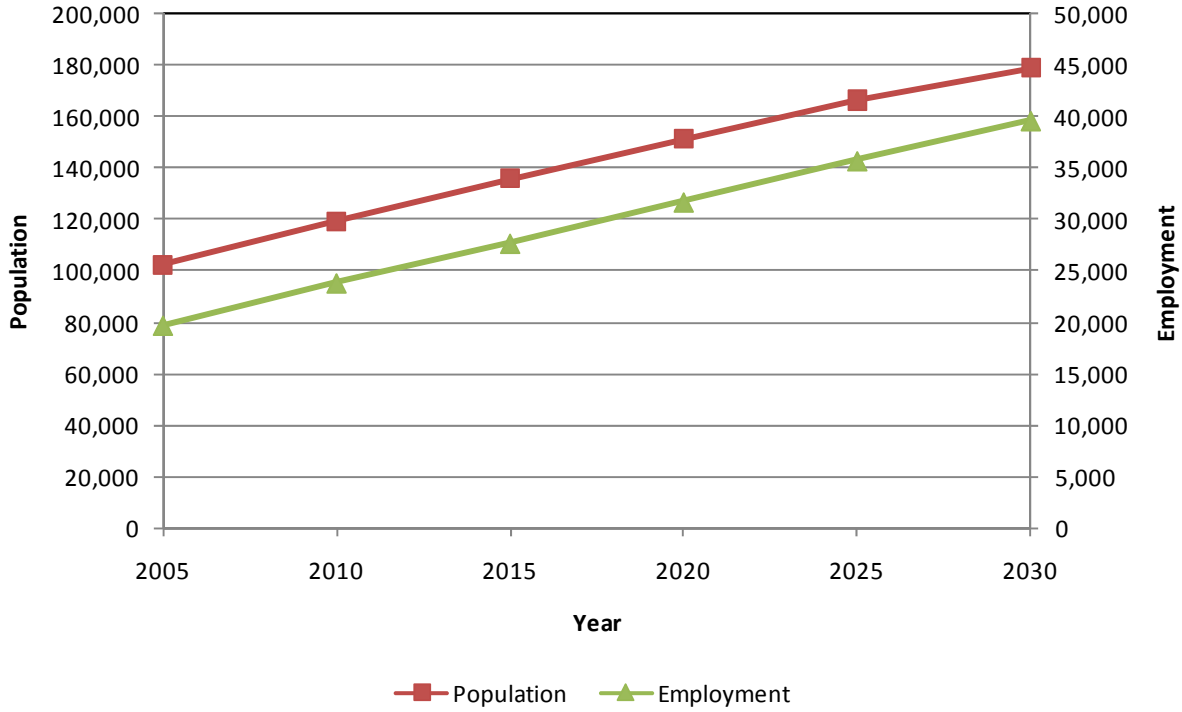

Figure 1-2
Projected Population and Employment within the EVMWD Service Area

Table 1-1
Population and Employment Forecasts

Year	2005	2010	2015	2020	2025	2030
Population	102,603	119,488	136,102	151,394	166,436	178,907
Employment	19,763	23,870	27,710	31,712	35,713	39,602

Source: SCAG, 2006

Population within the Elsinore Division is projected to increase from 102,603 in 2005 to 119,488 in 2010 (3.3 percent per annum). The population projected average growth rate from 2005 to 2030 is approximately 3.0 percent per annum. Employment is projected to increase from 19,763 in 2005 to 23,870 in 2010 (4.2 percent per annum). The projected average growth rate for employment from 2005 to 2030 is 4.0 percent per annum.

DIAMOND SPECIFIC PLAN

The Diamond Specific Plan is an 87.2 acre (81.6 acres of mixed-use and 5.6 acres of road) master planned mixed-use development of commercial, office, educational, entertainment and residential uses located in the southeast portion of Lake Elsinore. The majority of the Diamond Specific Plan, which is currently approximately 30 percent developed, resides within the East Lake Specific Plan (see **Figure 1-3** and **Appendix B** for the Diamond Specific Plan project site location). The project is intended to be developed in five phases over a period of 7 to 10 years depending on economic conditions. The Diamond Specific Plan will consist of 600 residential dwelling units (DUs), 897,000 square feet (SF) of commercial-retail space and a 150 room hotel, as shown in **Table 1-2**. A density of 18 DU/acre and a floor to area ratio (FAR) 0.40 is targeted. FAR is calculated based on the total floor area in SF of all enclosed nonresidential structures divided by the total land area of the specific development. Based on the size of the proposed development, a WSA is required under SB 610.

Figure 1-3
Diamond Specific Plan Project Location

Table 1-2
Diamond Specific Plan Land-Use Plan

Specific Plan Land Use Category	Anticipated Land Uses	Dwelling Units (DU)/ Square Footage (SF)	Target Density/FAR[1]
Mixed Use[2]	Retail/Restaurants/ Hotel/Office/ Entertainment/ Stadium (existing)[3]/ Education Center/ Residential/ Lake/Plazas/ Trails	897,000 SF 150 Rooms[4] 600 DU[5]	18 DU/acre /0.40

[1] FAR is calculated based on the total floor area SF of all enclosed nonresidential structures divided by the total land area of the Specific Plan. Parking structures and other ancillary structures are not included in the FAR calculation. The FAR of a particular development/planning area may exceed the General Plan allowed and target FAR provided the overall FAR for the Project Site does not exceed the General Plan FAR.

[2] Permits a variety of regional serving commercial uses including retail, office, medical, entertainment, hotel with conference rooms and comparable uses. Residential units may be incorporated in mixed use structures or as free standing units, provided that the total vehicle trips attributable to the exclusive development of commercial uses in the area are not exceeded.

[3] Existing floor area of the Diamond stadium (50,000 SF) is in addition to the maximum floor area as shown in the Table above.

[4] The SF of the approximately 150 room hotel is not included in the total Mixed Use SF (897,000 SF).

[5] The SF of the residential portion of the Mixed Use designation is not included in the total Mixed Use SF. Allowed residential development is based on density. Density is considered Gross Density, calculated based on the number of DU divided by the total land area of the Specific Plan. The Density of a particular development/planning area may exceed the General Plan allowed and target density provided the overall Density for the Project Site does not exceed the General Plan density.

OBJECTIVE

The purpose of this water supply assessment is to evaluate EVMWD's water supplies and determine its ability to meet the existing and planned future demands (including the Diamond Specific Plan) in the EVMWD service area, with existing and planned water supplies for the next 20 years, as required by SB 610.

DOCUMENTATION

Based on a review of EVMWD's current Urban Water Management Plan (UWMP, 2005), the projected demands of the Diamond Specific Plan were not specifically identified in the UWMP. The UWMP demands were based on 2002 SCAG growth projections. The Water Distribution System Master Plan (WDSMP, 2008) includes the most recent demand analysis for the EVMWD service area through 2030. Although the WDSMP did not include a detailed evaluation of water supplies, it did evaluate EVMWD's ability to meet peak summer demands. Water demands for the East Lake Specific Plan were included in the WDSMP; however, the Diamond Specific Plan increases the development density and projected water demands compared to the East Lake Specific Plan. The Elsinore Basin Groundwater Management Plan (GWMP, 2003), which was adopted in March 2005, evaluated the ability of EVMWD to meet projected demands in the future and recommended specific actions to manage the groundwater basin. In addition, a WSA was prepared specifically for the John Laing Homes Community Area (Southerly at Lake Elsinore) in October 2003 and a District-Wide WSA in August 2005. This Diamond Specific Plan WSA is an update of the information presented in both those WSAs.

This water supply assessment is written in compliance with SB 610. Since the Diamond Specific Plan area's projected demands were not accounted for in the latest UWMP, this document includes an evaluation of EVMWD's (a "public water system" that would be responsible for the

project's water supplies) water supply availability during normal, single dry, and multiple dry years. **Section 4** of this WSA determines if EVMWD's water supplies will meet EVMWD's projected water demands (both existing and planned future) including the Diamond Specific Plan over a 20-year period.

ACKNOWLEDGEMENTS

MWH would like to acknowledge and thank all of the District staff for their support and assistance in completing this water supply assessment with special thanks to Ronald Young, General Manager; Noms Brandt, Assistant General Manager; Paul Carver, District Engineer; Julius Ma, Water Resources Manager; and Imad Baiyasi, Senior Engineer.

PROJECT STAFF

The following MWH staff was involved in the preparation of this water supply assessment.

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Staff Engineer:	Philip Wegge
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REPORT OVERVIEW

The sections and appendices of this report are organized as follows:

Section 1 provides an overview of the water supply assessment background, objectives and scope of work.

Section 2 evaluates the EVMWD's existing and projected water demands.

Section 3 summarizes the EVMWD's existing and planned future water supply sources.

Section 4 provides a comparison of EVMWD's projected water demands and supplies. Conclusions and recommendations based on the assessment of EVMWD's water supplies are also included.

Appendix A contains a list of references used for this WSA.

Appendix B provides figures illustrating the Diamond Specific Plan project site location.

Appendix C contains a list of the will-serve developments and associated equivalent dwelling units (EDUs).

Appendix D contains the Elsinore Groundwater Basin bulletin.

Table 1-3
Abbreviations

Abbreviation:	Description:
Acre-ft/yr	Acre-feet per Year
ADD	Average Day Demand
AVP	Auld Valley Pipeline
BBGSP	Back Basin Groundwater Storage Project
CAFR	Comprehensive Annual Financial Report
CEQA	California Environmental Quality Act
CFD	Community Facilities District
CFS	Cubic Feet per Second
DU	Dwelling Unit
EDU	Equivalent Dwelling Unit
EMWD	Eastern Municipal Water District
EVMWD	Elsinore Valley Municipal Water District
EWD	Elsinore Water District
FAR	Floor to Area Ratio
FT	Foot
FY	Fiscal Year
GAL	Gallon
GPD	Gallons per Day
GWMP	Groundwater Management Plan
HP	Horsepower
IRP	Integrated Resources Planning
MDD	Maximum Day Demand
Metropolitan	Metropolitan Water District of Southern California
MG	Million Gallons
MGD	Million Gallons per Day
MSL	Mean Elevation Above Sea Level
O&M	Operation and Maintenance
PEIR	Program Environmental Impact Report
POA	Property Owners Association
PS	Pump Station
RCWD	Rancho California Water District
SB	Senate Bill
SCAG	Southern California Association of Governments
SF	Square Feet
SWP	State Water Project
TDS	Total Dissolved Solids
TVEDP	Temecula Valley Effluent Disposal Pipeline
TVP	Temescal Valley Pipeline
TWC	Temescal Water Company
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
Water Code	California Water Code
WDSMP	Water Distribution System Master Plan
WMWD	Western Municipal Water District
WSA	Water Supply Assessment
WSDM	Water Shortage Drought Plan
WRF	Water Reclamation Facility
WRMP	Water Resources Master Plan
WTP	Water Treatment Plant

Section 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 Diamond Development.

EXISTING WATER DEMANDS

EVMWD serves a total of 38,099 potable service connections, with an average annual demand of approximately 32,700 acre-feet per year (acre-ft/yr). In addition, EVMWD has an existing recycled water system, serving non-potable water customers from water reclamation facilities (WRF) located in the Canyon Lake and Horsethief Canyon regions. EVMWD also supplies recycled water from its Regional WRF to maintain the level of Lake Elsinore and discharge into the Temescal Wash.

Existing Potable Water Demands

EVMWD's historical potable water demands (for active accounts) are presented in **Table 2-1** . The historical potable water demands are calculated using 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). Imported water is conveyed through the Temescal Valley Pipeline (TVP) that Western Municipal Water District (WMWD) owns and through the Auld Valley Pipeline (AVP) that Eastern Municipal Water District (EMWD) owns.

The historical annual water demand was normalized to remove the effects of cool wet years and hot dry years by computing the trended demand per service connection. Multiplying the normalized consumption per connection by the number of connections gives the "normal" demand for each year. The variation between the actual and normal water demands represents the range in demand due to weather variations and water conservation. Based on the water usage trends, EVMWD's existing "normal" average demand is approximated at 32,700 acre-ft/yr. Dry year annual demands are estimated to be 8.5 percent above average year annual demands, and wet year annual demands are estimated to be 9.4 percent below average year demands. A maximum day demand (MDD) to average day demand (ADD) peaking factor of 2.0 is used based on EVMWD's 2008 Water Distribution System Master Plan (WDSMP). Based on a 2.0 MDD/ADD peaking factor, EVMWD's existing MDD is 58.4 million gallons per day (MGD). **Figure 2-1** shows the historical potable water demand and the normalized demand.

Table 2-1
Historic Potable Water Demands

Year[1]	Actual Potable Demands (acre-ft/yr)[2]	Number of Active Service Connections[2]	Demand per Connection (acre-ft/yr)	Normalized Demand per Connection (acre-ft/yr)	Normalized Potable Demands[3] (acre-ft/yr)
1996	17,848	22,029	0.810	0.8319	18,300
1997	19,195	22,781	0.843	0.8340	19,000
1998	17,953	23,704	0.757	0.8361	19,800
1999	21,902	24,717	0.886	0.8382	20,700
2000	23,392	25,668	0.911	0.8403	21,600
2001	21,915	26,671	0.822	0.8424	22,500
2002	24,251	28,176	0.861	0.8444	23,800
2003	24,851	29,876	0.832	0.8465	25,300
2004	26,939	31,553	0.854	0.8486	26,800
2005	27,584	33,418	0.825	0.8507	28,400
2006	31,713	35,544	0.892	0.8528	30,300
2007	33,792	37,367	0.904	0.8549	31,900
2008	29,729	38,099	0.780	0.8570	32,700

[1] 1996-2005 demands based on EVMWD 2008 WDSMP and 2006-2008 demands based on EVMWD spreadsheet (March 2009).
[2] Based on active service connections from EVMWD 2004 and 2008 Comprehensive Annual Financial Report (CAFR).
[3] Flows are normalized based on the number of service connections that year and the linear trend of usage per service connection.

Existing Recycled Water Demands

EVMWD currently has non-potable (recycled) water customers in the Canyon Hills, Canyon Lake, and Horsethief Canyon regions. Recycled water customers in the Canyon Hills and Canyon Lake regions are served with tertiary-treated recycled water from the Railroad Canyon WRF. Recycled water customers in Horsethief Canyon are served with tertiary-treated recycled water from Horsethief Canyon WRF. The entire effluent flow from these two plants is used for non-potable irrigation demands, except during wet weather flows when effluent from the Railroad Canyon WRF is discharged into on-site percolation ponds or the influent is bypassed around the Railroad Canyon WRF and sent to the Regional WRF for treatment and disposal. The excess effluent from Horsethief Canyon WRF that is not used for recycled water irrigation is sent to the Regional WRF for treatment and disposal as well. The existing recycled water demands in the Canyon Hills/Canyon Lake and Horsethief Canyon regions are approximately 396 acre-ft/yr and 33 acre-ft/yr, respectively. The Regional WRF discharges its 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. The historical recycled water demand for the last four years is summarized in **Table 2-2.**

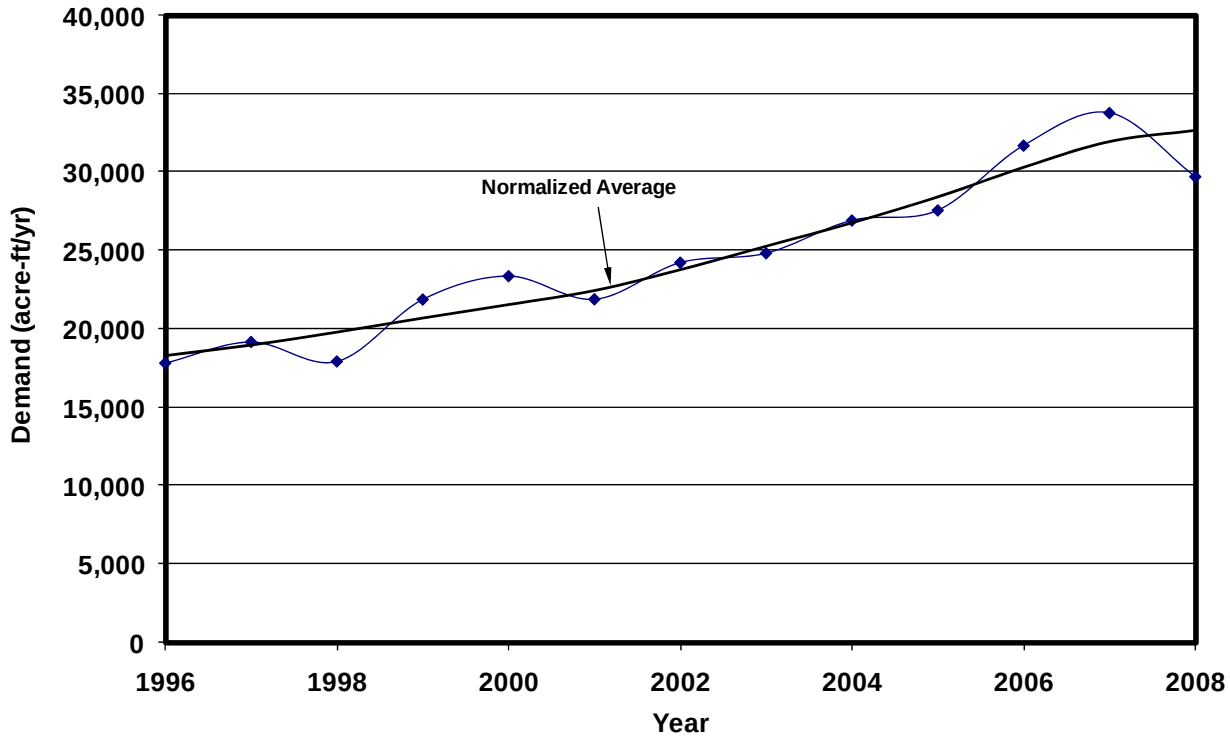

Figure 2-1
Historical Potable Water Demands

Table 2-2
Historical Recycled Water Demands

Year	Horsethief Canyon (acre-ft/yr)[1,2]	Canyon Hills/Canyon Lake (acre-ft/yr)[1,3]	Total Demands (acre-ft/yr)
2005	24	343	**367**
2006	24	340	**364**
2007	30	452	**482**
2008	33	396	**429**

[1] EVMWD actual water sales (EVMWD, March 2009)
[2] Based on 9 customers (as of September 2009).
[3] Based on 42 customers (as of September 2009).

FUTURE WATER DEMANDS

EVMWD future water demands are comprised of the existing potable and recycled water demands as well as planned future development water demands (both potable and recycled).

Future Potable Water Demands

The methodology used to determine EVMWD's future potable water demand stems from EVMWD existing obligations to developers. In determining EVMWD obligations to provide future water, the most current (as of October 2009) will-serve list is used (see **Appendix C**). Will-serve letters are written commitments to provide water services to a development that are valid for a fixed time period (normally two years) and are subject to a set of conditions. All development, whether it be one single family home or a multi-phase large scale home development, within EVMWD service area is required to obtain a will-serve letter. EVMWD has committed to serve through will-serve letters (EVMWD, October 2009) a total of 61 developments with an approximate total of 1,750 equivalent dwelling units (EDUs). If a development has been partially completed, then the portion of the development that has been completed is accounted for in the existing demands and the portion of the development that has not been completed is accounted for in the will-serve list. A typical single-family home is considered to be one EDU having a demand of 500 gallons per day (gpd). Conversion factors for each land-use category to EDUs are similar to the factors developed for the WDSMP as shown in **Table 2-3**. Thus, the total average will-serve potable demand is approximated to be 1,000 acre-ft/yr. It is assumed that all of the will-serve demand will be potable with no recycled water.

Proposed developments that have not obtained a will-serve letter or other written agreement that commits EVMWD to serving a particular development are not included in the future demand projections. In addition, developments without will-serve letters that are 500 units (DUs) or larger would need separate water supply assessments to confirm EVMWD's ability to meet the developments' projected demand. However, adoption of a water supply assessment does not guarantee that a proposed development will receive a will-serve letter from EVMWD, and only a will-serve letter or other written agreement confirms EVMWD's ability to provide water to the development because EVMWD would determine at that time of application if sufficient existing and future supply capacity exists to approve the development.

EVMWD total service connections contain both active and inactive accounts. Active accounts are considered to have existing demand associated with them for water service provided by EVMWD. Inactive accounts are not considered to have existing demand though they are connected to EVMWD's water system. All inactive accounts are assumed to become active in the future as a more conservative approach in accounting for future demands, thus the inactive accounts have a future water demand associated with themselves. Each inactive account is assumed to equal one EDU and to have a duty factor of 500 gpd/EDU. Based on the inactive accounts (1,377) as of October 14, 2009 (EVMWD), it is projected that the total average inactive account potable demand is approximately 800 acre-ft/yr.

Table 2-3
Water Duty Factors

Land Use Category	Water Duty Factor[1]	Duty Factor Unit	Conversion to EDU	EDU Conversion Unit
Low Density Residential	750	gpd/DU	1.5	DU/EDU
Medium Density Residential	500	gpd/DU	1.0	DU/EDU
High Density Residential[2]	350	gpd/DU	0.7	DU/EDU
General Commercial	2,500	gpd/acre	5.0	acre/EDU
School	4,000	gpd/acre	8.0	acre/EDU
Parks/Landscaping	4,000	gpd/acre	8.0	acre/EDU
Hotels/Inn	100	gpd/room	0.2	room/EDU

[1] Based on EVMWD WDSMP (2008).
[2] A range of 12-24 DU/acre is assumed (EVMWD WDSMP, 2008).

There is an existing developer agreement between EVMWD and Laing - CP Lake Elsinore, LLC (Laing) regarding facilities and facilities' fees associated with the Summerly Development. Currently, Laing has been credited by EVMWD with approximately 73.7 percent per EDU of the fees associated with obtaining source of supply source for the development. Thus, a portion (73.7 percent) of the Summerly Development's total future water demand is entitled to water provided by EVMWD. The Summerly Development consists of 1,484 EDUs with an assumed water duty factor of 500 gpd/EDU; using the above methodology, the future average (potable) water demand is approximately 600 acre-ft/yr.

A portion of the existing potable water demand will be converted to recycled water in future phases. Phase 1 and 1a are planned to be constructed within the next five years with a conversion of approximately 1,200 acre-ft/yr (EVMWD Deviation Letter, June 2009). There is a golf course as part of the Summerly Development (Phase 1) that currently uses a mixture of its own private well water and potable water supplied by EVMWD. It is assumed that the entire golf course will be converted to recycled water (approximately 300 acre-ft/yr) in the future and is included in the 1,200 acre-ft/yr total.

It is projected that the EVMWD future average potable water demand is 33,900 acre-ft/yr, which is an increase of approximately 3.7 percent over existing demands as shown in **Table 2-4**. The future potable MDD is projected to be approximately 59.7 mgd.

Table 2-4
Potable Water Future Demand Projections (without Diamond Development)

Demand Category	ADD (acre-ft/yr)	MDD (MGD)[1]	Wet Year Demand (acre-ft/year)[2]	Dry Year Demand (acre-ft/yr)[2]
Existing Demands	32,700	58.4	29,600	35,500
Inactive Account Demands (Future)[3]	800	1.4	700	900
Will-Serve Demands (Future)[4]	1,000	1.8	900	1,100
Summerly Development (Future)[5]	600	1.1	500	700
Recycled Water Conversions (Future)[6]	(1,200)	(3.0)	(1,100)	(1,300)
Total Demand	**33,900**	**59.7**	**30,600**	**36,900**

[1] An ADD to MDD peaking factor of 2.0 is used (EVMWD District-Wide WSA, 2005).
[2] Based on historical potable water demands, wet and dry year demands differ by 9.4 and 8.5 percent of average demands, respectively.
[3] Calculated based on inactive accounts (1,377) as of October 14, 2009 (EVMWD) with an assumed EDU of 1,377. A water duty factor of 500 gpd/EDU is assumed.
[4] Calculated based on EVMWD's Will-Serve list (EVMWD, October 2009) with total EDUs of approximately 1,750. A water duty factor of 500 gpd/EDU is assumed.
[5] Approximately 73.7 percent of the total Summerly Development potable demands due to the fee credit that EVMWD has issued the developer (EVMWD and Laing Developer's Agreement, 2008).
[6] According to the Deviation Letter from EVMWD to the State Water Resources Control Board on June 1, 2009, the future recycled water conversion demand (phase 1 and 1a) is approximately 1,200 acre-ft/year. There are existing users that currently use potable water to irrigate. These existing potable water users will be converted to recycled water in the future. The Summerly (Golf Course) demand (approximately 300 acre-ft/yr) is included in the total. An ADD to MDD peaking factor of 2.77 is used (Kennedy-Jenks Wildomar Recycled Water Master Plan, 2004) since the majority of this demand is used for irrigation.

Future Recycled Water Demands

EVMWD currently serves customers in Canyon Hills/Canyon Lake and Horsethief Canyon regions with recycled water. EVMWD plans to expand its non-potable water system in the Wildomar, Tuscany Hills, and Summerly (Golf Course) regions in a couple phases, with delivery of recycled water from Rancho California Water District (RCWD) and EMWD. The future average recycled water demand is projected to increase by approximately 1,630 acre-ft/yr. The entire demand will constitute potable to recycled water conversions that will be occur within the next five years. (EVMWD Deviation Letter, June 2009). Recycled water demands for irrigation are assumed to have an ADD to MDD peaking factor of 2.77 based on evapotranspiration and rainfall patterns (Kennedy-Jenks Wildomar Recycled Water Master Plan, 2004).

There is an existing developer agreement between EVMWD and Pardee Homes regarding facilities and facilities' fees associated with the Canyon Hills Development (Cottonwood Hills Specific Plan). Currently, Pardee Homes has been credited by EVMWD with approximately 100 percent per EDU of the fees associated with obtaining reclaimed water for the development. Thus, EVMWD shall provide the Canyon Hills Development with 100 percent of total projected future reclaimed water demand. The Canyon Hills Development consists of 4,146 EDUs and based on the Canyon Hills Water/Sewer Master Plan (MetroPointe Engineers, 2000) the projected reclaimed water demand is approximately 420 acre-ft/yr. However, there are 42 reclaimed water customer users (as of September 2009) in the Canyon Hills/Canyon Lake region, of which it is assumed to include 100 percent of the Canyon Hills Development. Therefore, the

Canyon Hills Development reclaimed water demand is assumed to be already existing and accounted for in Table 2-2.

It is projected that the EVMWD future recycled water demands will increase in the future due to recycled water conversions in the Wildomar, Tuscany Hills, and Summerly (Golf Course) areas as shown in **Table 2-5**.

Table 2-5
Recycled Water Future Demand Projections (without Diamond Development)

Demand Category	ADD (acre-ft/yr)	MDD (MGD)[1]	Wet Year Demand (acre-ft/year)[2]	Dry Year Demand (acre-ft/yr)[2]
Existing Demands	430	1.1	390	470
Inactive Account Demands (Future)[3]	0	0.0	0	0
Will-Serve Demands (Future)[4]	0	0.0	0	0
Recycled Water Conversions (Future)[5]	1,200	3.0	1,100	1,300
Summerly Development (Future)[6]	0	0.0	0	0
Total Demand	**1,630**	**4.1**	**1,490**	**1,770**

[1] An ADD to MDD peaking factor of 2.77 is used (Kennedy-Jenks Wildomar Recycled Water Master Plan, 2004).
[2] Based on historical potable water demands, wet and dry year demands differ by 8.5 and 9.4 percent of average demands, respectively.
[3] It is assumed that all of the inactive account demands are potable and none are recycled.
[4] It is assumed that all of the will-serve demands are potable and none are recycled.
[5] According to the Deviation Letter from EVMWD to the State Water Resources Control Board on June 1, 2009, the future recycled water conversion demand (phase 1 and 1a) is approximately 1,200 acre-ft/year. There are existing users that currently use potable water to irrigate. These existing potable water users will be converted to recycled water in the future. The Summerly (Golf Course) demand (approximately 300 acre-ft/yr) is included in the total.
[6] Based on the agreement between EVMWD and Laing - CP Lake Elsinore, LLC (Laing), Laing has a potable water fee credit of approximately 73.7 percent. However, Laing does not have a recycled water fee credit, thus, it is assumed that the Summerly Development has zero recycled water demand in the future. The Summerly (Golf Course) is existing and assumed to be converted to recycled water in the future (see note 5).

Diamond Development

The proposed Diamond development consists of 600 DUs of residential, 897,000 square feet of commercial, and a 150 room hotel. The anticipated land uses include: retail, restaurants, office, entertainment, an existing stadium, education center, lake, plazas, trails, residential and hotel. A targeted density of 18 DU per acre and a floor to area ratio (FAR) of 0.40 are proposed. In order to determine the average (potable) water demands, the Diamond development is simplified into three land-use categories: high density residential, general commercial, and hotel as shown in **Table 2-6**. Future potable water demands are calculated by applying a water duty factor, as shown in Table 2-3, to each specific land-use type of the Diamond Development. It is assumed that all Diamond Development demands are potable and none are recycled. The average potable water demand for the Diamond Development is approximately 400 acre-ft/yr as shown in Table 2-6. The wet and dry year demands for the Diamond Development are also shown in Table 2-6 by assuming historical potable wet and dry year water demand percentages that are below and above average demands by 9.4 percent and 8.5 percent, respectively.

Table 2-6
Diamond Development Potable Water Demand Projections

Land-Use Category	ADD (acre-ft/yr)	MDD[1] (MGD)	Wet Year Demand (acre-ft/yr)[2]	Dry Year Demand (acre-ft/yr)[2]
High Density Residential[3]	240	0.4	220	260
General Commercial[4]	140	0.2	130	150
Hotel[5]	20	0.0	20	20
Total Demand	**400**	**0.6**	**370**	**430**

[1] An ADD to MDD peaking factor of 2.0 is used (EVMWD WDSMP, 2008).
[2] Based on historical potable water demands, wet and dry year demands are 9.4 percent below and 8.5 percent above average demands, respectively.
[3] A water duty factor of 350 gpd/DU is used.
[4] A water duty factor of 2,500 gpd/acre is used.
[5] A water duty factor of 100 gpd/room is used.

SUMMARY OF FUTURE DEMANDS

Combining the existing and future potable water demands yields a total future average potable water demand of 33,900 acre-ft/yr without the Diamond Development and 34,300 acre-ft/yr with the Diamond Development, as shown in **Table 2-7** and **Table 2-8**. Combining the existing and future recycled water demands yields a total future average recycled water demand of 1,630 acre-ft/yr with and without the Diamond Development (assumption that there is no recycled water demand in the Diamond Development) as shown in **Table 2-9.** Wet year demands are assumed to be 9.4 percent lower than ADD and dry year demands are assumed to be 8.5 percent higher than ADD. **Table 2-10** summarizes EVMWD's total future water demands with the Diamond Development.

Table 2-7
Summary of Existing and Future Potable Water Demand (with Diamond Development)

Demand Category	ADD (acre-ft/yr)	MDD[1] (MGD)	Wet Year Demand (acre-ft/yr)[2]	Dry Year Demand (acre-ft/yr)[2]
Existing Demands	32,700	58.4	29,600	35,500
Inactive Account Demands (Future)[3]	800	1.4	700	900
Will-Serve Demands (Future)[4]	1,000	1.8	900	1,100
Recycled Water Conversions (Future)[5]	(1,200)	(3.0)	(1,100)	(1,300)
Summerly Development (Future)[6]	600	1.1	500	700
Diamond Development (Future)	400	0.6	370	430
Total Demand	**34,300**	**60.3**	**30,970**	**37,330**

[1] An ADD to MDD peaking factor of 2.0 is used (EVMWD WDSMP, 2008).
[3] Based on historical potable water demands, wet and dry year demands differ by 9.4 and 8.5 percent of average demands, respectively.
[3] Calculated based on inactive accounts (1,377) for both the Elsinore and Temescal Divisions of EVMWD as of October 14, 2009 (EVMWD) with an assumed EDU of 1,377. A water duty factor of 500 gpd/EDU is assumed.
[4] Calculated based on EVMWD's Will-Serve list (EVMWD, October 2009) with an EDU of approximately 1,750. A water duty factor of 500 gpd/EDU is assumed.
[5] According to the Deviation Letter from EVMWD to the State Water Resources Control Board on June 1, 2009, the future recycled water conversion demand (phase 1 and 1a) is approximately 1,200 acre-ft/year. There are existing users that currently use potable water to irrigate. These existing potable water users will be converted to recycled water in the future. The Summerly (Golf Course) demand (approximately 300 acre-ft/yr) is included in the total. An ADD to MDD peaking factor of 2.77 is used (Kennedy-Jenks Wildomar Recycled Water Master Plan, 2004) since the majority of this demand is used for irrigation.
[6] Approximately 73.7 percent of the total Summerly Development potable demands due to the fee credit that EVMWD issued the developer (EVMWD and Laing Developer's Agreement, 2008).

Table 2-8
Summary of Future Potable Water Demand

Demand Category	ADD (acre-ft/yr)	MDD (MGD)[1]	Wet Year Demand (acre-ft/yr)[2]	Dry Year Demand (acre-ft/yr)[2]
With Diamond Development	34,300	60.3	30,970	37,330
Without Diamond Development	33,900	59.7	30,600	36,900

[1] An ADD to MDD peaking factor of 2.0 is used (EVMWD WDSMP, 2008).
[2] Based on historical potable water demands, wet and dry year demands are 9.4 percent below and 8.5 percent above average demands, respectively.

Table 2-9
Summary of Existing and Future Recycled Water Demands (with Diamond Development)

Demand Category	ADD (acre-ft/yr)	MDD[1] (MGD)	Wet Year Demand (acre-ft/yr)[2]	Dry Year Demand (acre-ft/yr)[2]
Existing Demands	430	1.1	390	470
Inactive Account Demands (Future)[3]	0	0.0	0	0
Will-Serve Demands (Future)[4]	0	0.0	0	0
Recycled Water Conversions (Future)[5]	1,200	3.0	1,100	1,300
Summerly Development (Future)[6]	0	0.0	0	0
Diamond Development (Future)[7]	0	0.0	0	0
Total Demand	**1,630**	**4.1**	**1,490**	**1,770**

[1] An ADD to MDD peaking factor of 2.77 is used (Kennedy-Jenks Wildomar Recycled Water Master Plan, 2004).
[3] Based on historical potable water demands, wet and dry year demands differ by 9.4 and 8.5 percent of average demands, respectively.
[3] It is assumed that all of the inactive account demands are potable and none are recycled.
[4] It is assumed that all of the will-serve demands are potable and none are recycled.
[5] According to the Deviation Letter from EVMWD to the State Water Resources Control Board on June 1, 2009, the future recycled water conversion demand (phase 1 and 1a) is approximately 1,200 acre-ft/year. There are existing users that currently use potable water to irrigate. These existing potable water users will be converted to recycled water in the future. The Summerly (Golf Course) demand (approximately 300 acre-ft/yr) is included in the total.
[6] Based on the agreement between EVMWD and Laing - CP Lake Elsinore, LLC (Laing), Laing has a potable water fee credit of approximately 73.7 percent. However, Laing does not have a recycled water fee credit, thus, it is assumed that the Summerly Development has zero recycled water demand in the future. The Summerly (Golf Course) is existing and assumed to be converted to recycled water in the future (see note 5).
[7] It is assumed that all of the Diamond Development demands are potable and none are recycled.

Table 2-10
Summary of Future Demands with Diamond Development

Demand Category	ADD (acre-ft/yr)	MDD (MGD)	Wet Year Demand (acre-ft/yr)[1]	Dry Year Demand (acre-ft/yr)[1]
Potable Demands[2]	34,300	60.3	30,970	37,330
Recycled Demands[3]	1,630	4.1	1,490	1,770
Total Demand	**35,930**	**64.4**	**32,460**	**39,100**

[1] Based on historical potable water demands, wet and dry year demands are 9.4 percent below and 8.5 percent above average demands, respectively.
[2] An ADD to MDD peaking factor of 2.0 is used (EVMWD WDSMP, 2008).
[3] An ADD to MDD peaking factor of 2.77 is used (Kennedy-Jenks Wildomar Recycled Water Master Plan, 2004).

Section 3
Water Supply Sources

The following section outlines EVMWD's current and projected water supplies based on information contained in the UWMP, the Water Resources Master Plan (WRMP), and the GWMP. This includes a description of the capacity of each water supply source in average/normal year, wet year, single dry year and multiple dry years and a discussion of EVMWD's plans for future water supply development. In addition, the ability of each source to meet current and projected maximum day demand is identified

As required by Water Code Section 10910(d), this section identifies EVMWD's existing water supply entitlements, water rights, or water service contracts, and describes the quantities of water received in prior years by EVMWD under these agreements. EVMWD is relying on the Metropolitan Water District of Southern California (Metropolitan) "Report on Metropolitan's Water Supplies" dated March 25, 2003; IRP dated 2004 and 2005 UWMP for the reliability of imported water supplies. Metropolitan adopted Water Shortage Drought Plan (WSDM) to plan for shortages during dry and multiple dry years and this has been accounted in this section for the available supply from Metropolitan during dry year and multiple dry years. This Metropolitan report is incorporated into this water supply assessment by reference. EVMWD has adopted the same definitions for single and multiple dry years as used in the Metropolitan report.

EXISTING POTABLE WATER SUPPLIES

EVMWD obtains its potable water supplies from local groundwater, local surface water from Canyon Lake, and imported water. The locations of these sources are presented in **Figure 3-1**. **Table 3-1** summarizes EVMWD's available water supplies to meet peak demands during average/normal, single-dry, multiple-dry, and wet years. **Table 3-2** summarizes the available water supplies to meet average annual demands during average/normal, single-dry, multiple-dry, and wet years.

For this report, the following definitions are adopted for average/normal, single-dry, multiple-dry, and wet years:

- Average/normal year – Statistical average of 50 years of historical hydrologic observations.
- Single dry year – A repeat of the 1977 hydrologic conditions, except where noted.
- Multiple dry years – A repeat of the 1990 – 1992 multi-year drought condition that occurred twice in the past 77 years.
- Wet year – A repeat of the 1998 above normal hydrologic condition.

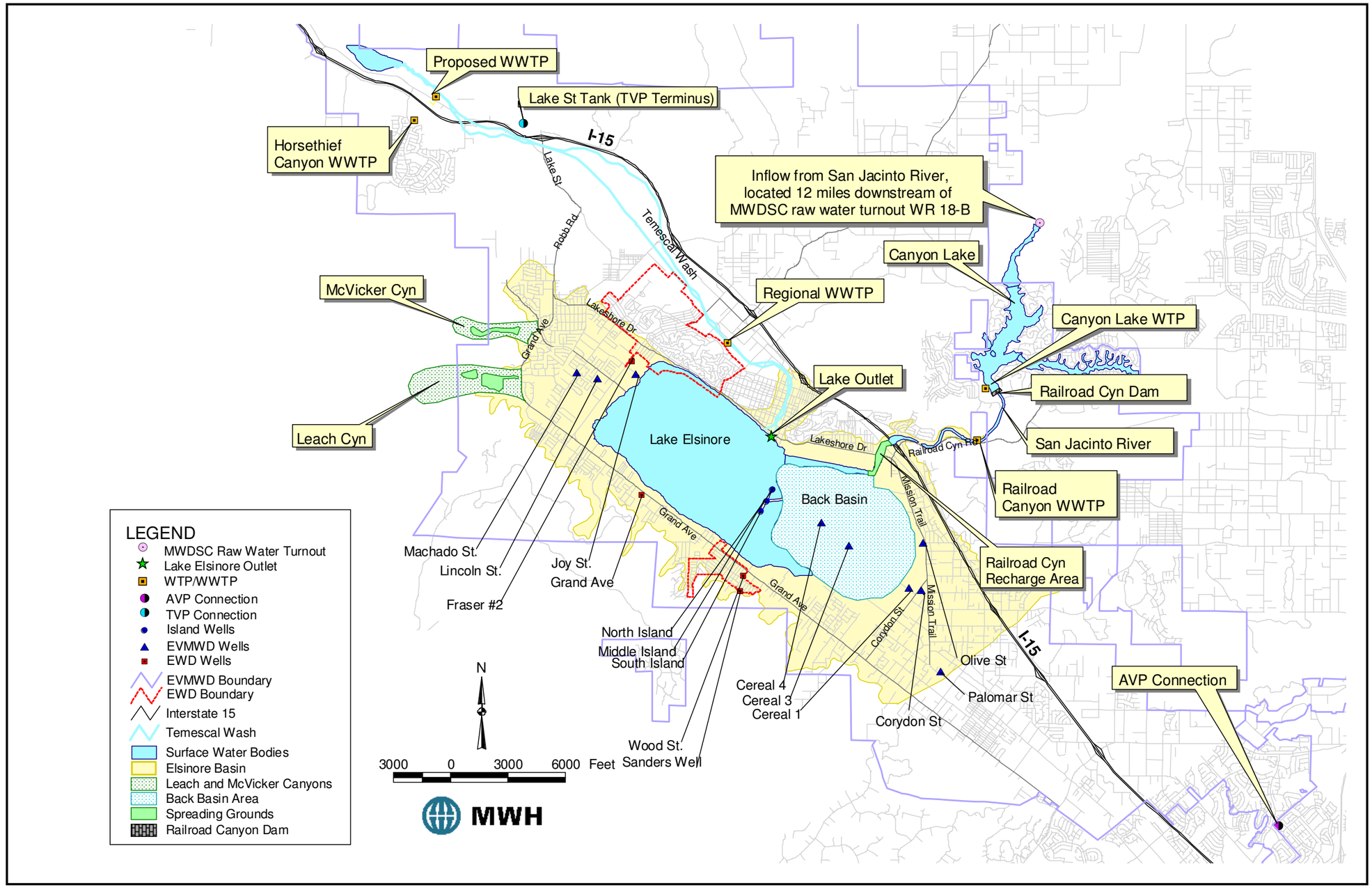

Figure 3-1
Existing Water Supply Sources

Figure 3-2 graphs the annual production of each supply source for the period 1992 to 2008. During this period, groundwater production has been relatively stable averaging about 8,600 acre-ft/yr. However, over the past few years with the implementation of Back Basin groundwater storage projects, EVMWD has progressed in reducing groundwater pumping close to the natural recharge. Surface water supplies are highly variable and dependent on local runoff conditions. Imported water deliveries have increased significantly in the last five years in response to growth trends.

Table 3-1
Available Existing Water Supplies for Maximum Day Demands

Water Supply Source	Units are in mgd					Comments
	Capacity	Average Year	Single-Dry Year	Multiple-Dry Years	Single Wet Year	
Canyon Lake	7.0	7.0	7.0	7.0	7.0	Assumes WTP is operational in all years
Groundwater	15.4	15.4	15.4	15.4	15.4	Full well capacity
TVP	12.7	12.7	12.7	12.7	12.7	12.7 mgd capacity of TVP without pumping
AVP	24.2	24.2	24.2	24.2	24.2	Source can be used at full capacity
Total Potable Supplies	**59.3**	**59.3**	**59.3**	**59.3**	**59.3**	

Source: Final Groundwater Management Plan (MWH, 2005b).

Table 3-2
Available Existing Water Supplies for Average Annual Demands

Water Supply Source	Units are in acre-ft/yr					Comments
	Capacity	Average Year	Single-Dry Year	Multiple-Dry Years	Single Wet Year	
Canyon Lake	8,000	4,900	2,500	3,000	8,000	
Groundwater Extraction	17,300	3,700	11,300	10,000	3,400	
Groundwater Injection	(7,600)	(6,100)	0.0	0.0	(6,900)	
TVP	14,200	12,700	10,200[1]	10,200[1]	12,700	12.7 mgd capacity of TVP without pumping
AVP	27,000	22,500	18,000[2]	18,000[2]	22,500	Source can be used at full capacity
Total Potable Supplies	**66,500**	**43,800**	**42,000**	**41,200**	**46,600**	

Source: Water Supply Optimization (MWH, 2009).
1 It is assumed that 80% of 12,700 (83% of TVP capacity) is available during dry year & multiple dry years.
2 It is assumed that 80% of 22,600 (83% of AVP capacity) is available during dry year & multiple dry years.

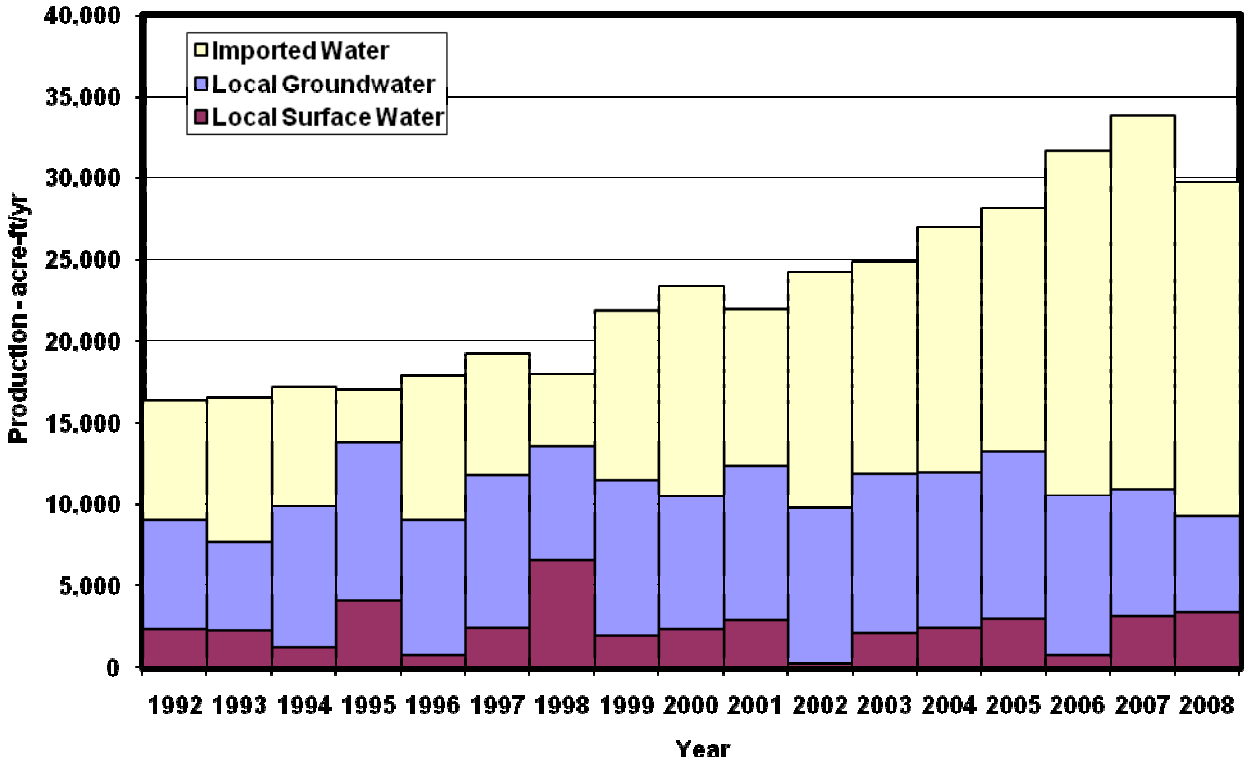

Figure 3-2
Historical Water Production by Source

Groundwater

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

Elsinore Basin Groundwater

The Elsinore Groundwater Basin is the major source of groundwater supply for EVMWD, Elsinore Water District (EWD) and other 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 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 3-3** presents the location of the groundwater basin, the tributary watershed that drains into the basin, surrounding streams and other bodies of water.

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 D**. The groundwater well locations are shown in Figure 3-1 and all wells are located within Elsinore Basin.

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 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. The GWMP also reported that the basin could be in a state of overdraft, currently estimated at about 4,400 acre-ft/yr. As population increases, water demands are also projected to increase. Without the implementation of the GWMP, the overdraft could reach 6,500 acre-ft/yr in year 2020 (MWH, 2005b). Measures that are planned to address the potential overdraft situation are discussed later in this section.

EVMWD has seven operating potable groundwater wells with a total capacity of 15.4 million gallons per day (mgd) as presented in **Table 3-3**. This includes the capacity of Diamond and Summerly Wells which were equipped in 2008. Joy Street, Lincoln Street and Machado wells are all blended together to comply with arsenic maximum containment level. The total of seven wells does not include Cereal 1 and Corydon Street wells which stopped production in 2008 due to high arsenic. Cereal 3 and 4 wells are treated at the Back Basin Treatment Plant for arsenic removal. EVMWD is planning to construct a pipeline from the Diamond and Summerly wells to blend with the Cereal 1 and Corydon Street wells to comply with the arsenic maximum containment level. The Palomar Street Well collapsed in 2006 and is out of service.

Groundwater supplied 20 to 44 percent of EVMWD demands in the past ten years. **Table 3-4** summarizes EVMWD's wells total production in the last seven years. Over the past few years EVMWD has made great efforts in implementing a plan to balance the amount of ground water pumping with amount of natural recharge in the groundwater basin to reduce the overdraft of the basin.

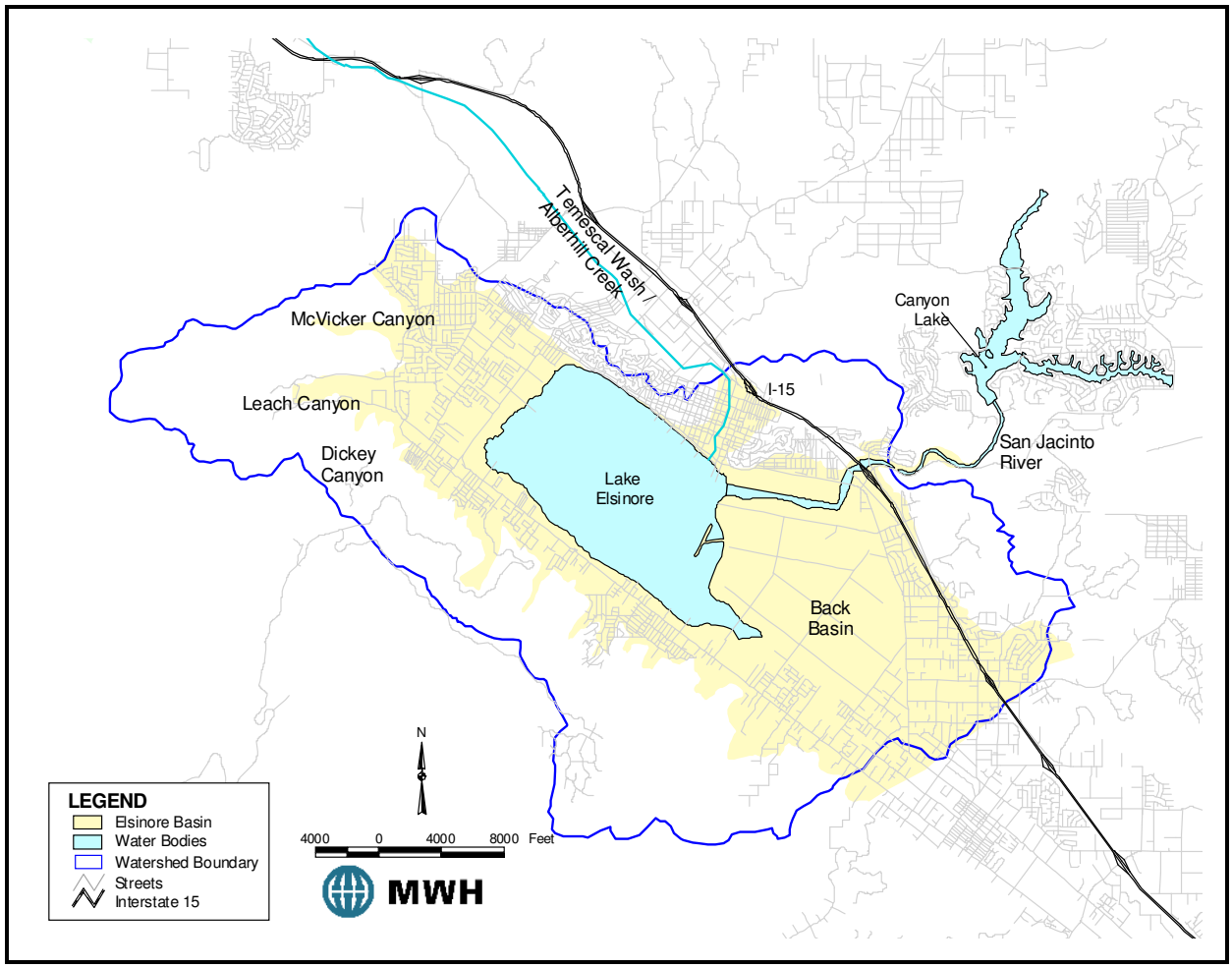

Figure 3-3
Elsinore Groundwater Basin

Table 3-3
Existing Active EVMWD Groundwater Wells Production Capacity

Groundwater Well	Capacity	
	(gpm)	(mgd)
Cereal St # 3	2,000	2.9
Cereal St # 4	2,000	2.9
Joy St	1,000	1.4
Lincoln St	800	1.2
Machado	1,250	1.8
Summerly	1,790	2.6
Diamond	1,780	2.6
Total	**10,620**	**15.4**

Source: Water Supply Optimization (MWH, 2009)

Table 3-4
EVMWD Groundwater Wells Production (2002-2008)

(Units are in acre-ft)

Groundwater Well	2002	2003	2004	2005	2006	2007	2008	Average (2002-2008)
Cereal St # 1	1,516	978	1,457	1,040	1,098	1,451	700	1,177
Cereal St # 3	1,758	1,309	888	1,919	2,300	914	130	1,317
Cereal St # 4	2,227	2,293	1,964	2,024	1,834	1,040	591	1,710
Corydon St	1,351	939	1,486	1,368	1,395	1,100	449	1,155
Joy St	0	1,160	1,353	1,230	1,202	1,048	728	960
Lincoln St	403	604	439	612	285	441	664	493
Machado	1,811	1,915	1,686	1,699	1,672	1,400	1,475	1,665
Palomar St	370	358	335	391	0	0	0	208
Olive St	4	0	0	0	0	0	0	1
31-Summerly Well	0	0	0	0	0	457	575	147
33-Diamond Well	0	0	0	0	0	0	592	85
Total - Potable	**9,441**	**9,555**	**9,606**	**10,284**	**9,786**	**7,852**	**5,904**	**8,918**

Reference: EVMWD Monthly Production Sheets provided by EVMWD staff. All data shown are for calendar years.
Source: EVMWD Elsinore basin status Report (MWH, 2008)

Water rights for the Elsinore Groundwater Basin are not adjudicated (MWH, 2005b). According to the GWMP, approximately 94 percent of groundwater produced by the basin is pumped by EVMWD, which serves a 96 mile square area in western Riverside County. Other groundwater producers include EWD and private well owners. EWD, which supplies water to customers in two detached service areas one located north of the lake with the City of Lake Elsinore and the Lakeland Village community, pumps approximately five percent of total groundwater production from the basin. Local pumpers with private wells only account for less than one percent of basin production (MWH, 2005b).

The GWMP identified conjunctive use projects as an important element of basin management. Conjunctive use is the coordinated operation of surface, imported and groundwater supplies to maximize supply reliability. 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. The construction of two wells, Summerly and Diamond, were funded by Metropolitan as part of a groundwater storage program. Under this program, during any fiscal year (beginning on July 1st and ending on June 30th) Metropolitan may deliver up to 3,000 acre-ft/yr of water for storage in the Elsinore Basin, the maximum storage amount is 12,000 acre-ft. The District's dual-purpose wells are used to inject these deliveries in the Elsinore Basin. In order to avoid simultaneous production and injection operations in the basin, all groundwater wells are turned off during periods of injection. Availability of water for injection under this program is contingent upon Metropolitan having surplus imported supplies. Based on recent water shortages and discussions with Metropolitan staff, it is assumed that surplus water for groundwater storage may only be available once every three years.

Imported water can only be used for groundwater storage during low demand periods when sufficient imported water and local surface water supplies treated at the Canyon Lake WTP are available to meet water system demands as well as storage needs.

As part of this program, during any fiscal year, Metropolitan may extract up to 4,000 acre-ft/yr of water stored in the Elsinore Basin as part of the Groundwater Storage Program. When stored Metropolitan deliveries are extracted, supply from the District's imported water sources is reduced by an equal amount.

Other Groundwater Supplies

EVMWD pumps groundwater from wells located in the Temescal Valley to serve users in its Temescal Division. Groundwater basins include the Lee Lake and Coldwater basins. This water is not currently used to meet demands in the Elsinore Division and is excluded from this analysis.

EVMWD's acquisition of the Temescal Water Company (TWC) in August 1989 resulted in its ownership of 51.9 percent of the stock in three mutual water companies – Meeks and Daley Water Company, Agua Mansa Water Company and Alta Mesa Water Company. This stock provides water rights and production/conveyance capacity from these three mutual water companies' to use its facilities and water supply sources. The TWC acquisition also provided EVMWD entitlements to "canal carrying rights" in the Gage Canal and the Riverside Canal, including rights to the Palm Avenue Well that is located in Grand Terrace, Riverside County. The mutual water companies also have rights to pump 7,833 acre-ft/yr of water from the San Bernardino Bunker Hill Basin of which 7,515 acre-ft/yr may be exported to Riverside County (Western-San Bernardino Watermaster, 2003). Through its shareholder ownership, EVMWD's annual allotment from the Bunker Hill Basin is approximately 3,900 acre-feet. In addition, EVMWD's stock ownership entitles it to groundwater in the unadjudicated Rialto-Colton and Riverside-North Basins. The WRDP (1997) estimated the total water available to EVMWD from these basins to be 7,152 acre-ft/yr (Montgomery Watson/Black & Veatch, 1997).

EVMWD also has an "exchange of assets" agreement with the WMWD to use up to 9 cfs (5.8 mgd or 6,516 acre-ft/yr) capacity in the Mills pipeline which conveys treated imported water from Metropolitan's Mills Water Treatment Plant. (Agreement dated August 23, 2001).

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 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 ft msl, the reservoir originally had a capacity of about 12,000 acre-ft. However, siltation has decreased the capacity of the lake. Based on information in the WDSMP, Canyon Lake's current storage capacity is approximately 4,600 acre-feet (1,500 MG). The lake is being dredged to restore a portion of the lost capacity. 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 1372 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 is required to purchase Metropolitan water to maintain the minimum lake elevation. During Fiscal Year 2001-02, the EVMWD purchased 1,055 acre-feet of imported water to maintain the level of the lake at the contractually specified level.

There is limited hydrologic data documenting the inflows to the lake. The United States Geological Survey (USGS) maintains gauging stations on the San Jacinto River (and Salt Creek upstream of Canyon Lake. Both gauges only have approximately nine year history. During periods of high runoff, Canyon Lake fills and spills into the San Jacinto River where it flows into Lake Elsinore. The USGS gauge on the San Jacinto River below Railroad Canyon Dam (No. 11070500) has an 89 year history (USGS, 2005). Over the last 30 years, significant spills from Canyon Lake occurred in 1980, 1983, 1993, 1995, 1998 and 2005.

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 (SDPW, 1935). 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 (SWRB, 1961). 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.

Other sources of water for Canyon Lake include untreated imported water from Metropolitan connections WR-18A (Colorado River water) and WR-31 (SWP 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. Because the cost of treating raw Metropolitan water is relatively expensive, it is typically more cost-effective to purchase treated water from the AVP or the TVP instead of purchasing untreated imported water from these sources. In addition, some percentage of the water released into the San Jacinto River percolates into the intervening groundwater basins before it reaches Canyon Lake. It is estimated that approximately 89 percent of any water purchased from these connections reaches the lake (MWH, 2009). Consequently, such releases are typically made in the wet season when the river has natural flows to minimize losses. In spite of the lack of recent use, EVMWD currently has

the ability to supplement its Canyon Lake supply with raw imported water in the event of a water shortage.

The Canyon Lake WTP is located north of Railroad Canyon Dam and has a design capacity of 9 mgd (13.9 cfs). However, running the plant at capacity greater than 7 mgd (10.9 cfs) adversely affects the treated water quality and quality can be maintained as long as plant is operated at a maximum flow of 7 mgd (10.9 cfs). Thus, a maximum supply of 7 mgd is considered for this study. Water from Canyon Lake is pumped to the treatment plant through the intake pumping station. The plant normally operates between April and October to provide additional water for summer demands (MWH, 2002). **Figure 3-4** graphs the amount of water treated at the Canyon Lake WTP for EVMWD in fiscal years 1992 to 2008. The figure shows that the average water treated at the Canyon Lake WTP and distributed to the EVMWD service area is approximately 2,578 acre-ft/yr. **Table 3-5** lists average year, wet year, and dry year flows to Canyon Lake, based on historical flows from natural runoff through the WTP from 1992 through 2008 (with 2002 excluded due to the plant modifications that year).

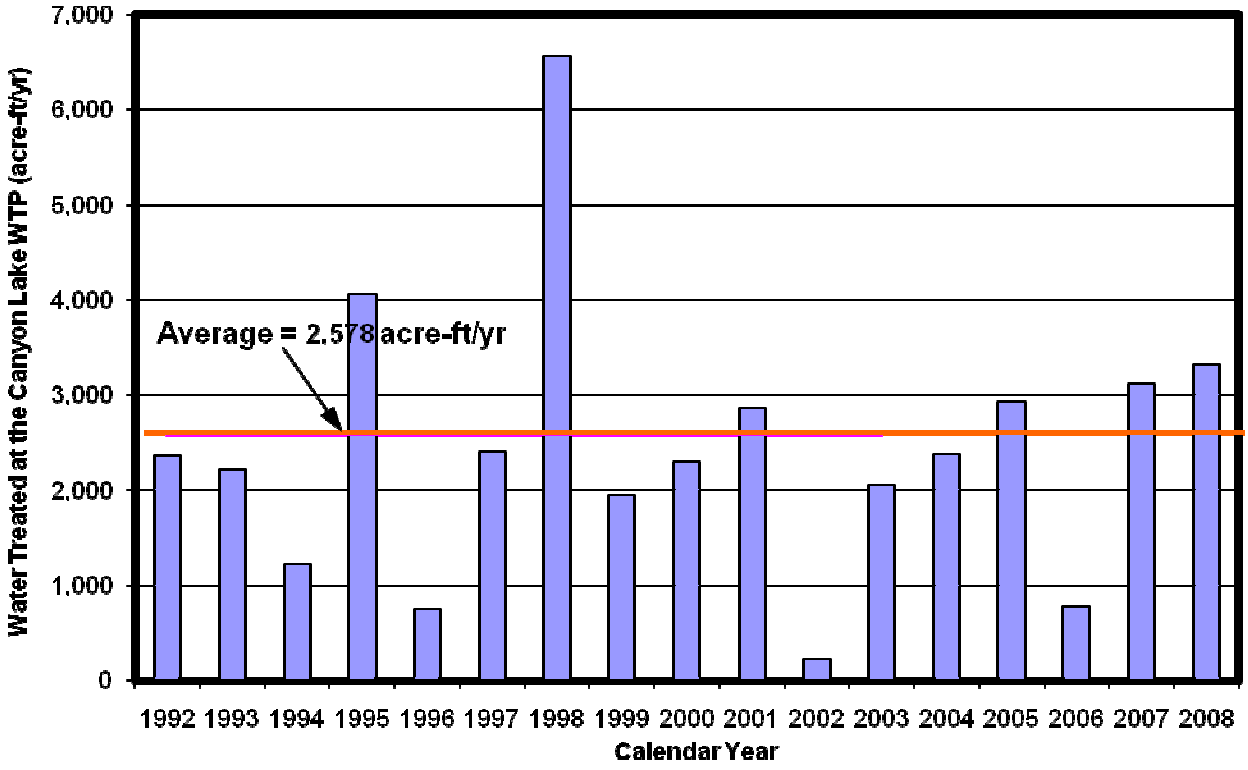

Figure 3-4
Canyon Lake WTP Production

Table 3-5
Summary of Historical Flows to Canyon Lake WTP, 1993 through 2008

Criteria	Annual Flows (acre-ft/yr)	Assumed Maximum Day Flows (mgd)
Average	2,578	7.0
Minimum	747	7.0
Maximum	6,551	7.0
Minimum, 3-Year Average	1,932	7.0

1. Maximum Day flows assume that the WTP is operated for four months a year, at a constant rate.
2. Year 2002 production is excluded because the WTP was not operational due to construction at the facility.

The data shown only reflects the natural runoff to Canyon Lake WTP; the Metropolitan connections provide an additional source of supply. However, for the purpose of this assessment, it is assumed that during dry years and multiple-dry years, additional water from MWD is not available for Canyon Lake. Based on the conjunctive use program, additional groundwater will be pumped during dry and multiple-dry years to offset the reduced surface water supply. EVMWD has the flexibility to fill Canyon Lake using the raw imported water and operate the Canyon Lake WTP at full capacity of 7 mgd when needed. However, that capacity is not accounted for the purpose of this assessment. The use of imported water to supplement local runoff is not included in the 8,000 acre-ft/yr limit imposed by the Lake Elsinore Settlement Agreement. Based on Metropolitan's reliability analysis, the imported water is fully reliable through 2025 (Metropolitan, 2003). In addition to its supply planning activities, Metropolitan is developing the draft Integrated resources Plan (MWD - IRP 2009). **Table 3-6** presents the anticipated surface water deliveries from the Canyon Lake WTP.

Table 3-6
Anticipated Surface Water Deliveries without Supplemental Imported Water

Water Year Type	San Jacinto River Water (acre-ft/yr)	Maximum Capacity (mgd)
Wet Year	6,550	7.0
Normal Year	2,590	7.0
Single Dry Year	750	7.0
Multiple Dry Years	1,930	7.0

Treated Imported Water

The 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.

Auld Valley Pipeline

EVMWD entered into the Water Facility Capacity Agreement for the AVP with the EMWD on November 21, 1986. Based on this agreement, EVMWD has the rights to purchase or acquire a maximum flow rate of 37.5 cfs (24.2 mgd or approximately 27,100 acre-ft/yr if used continuously) from EMWD through the Metropolitan Connection EM-17. EMWD sells imported water for the AVP to WMWD, which in turn sells the water to EVMWD through an Interagency Water Sales Agreement (September 14, 1988). 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 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. It is also assumed that EVMWD will be able to obtain 80% of 22,500, which equals 18,000 acre-ft/yr from the AVP on an annual basis during dry year and multiple dry years. This imported water is a blend of State Water Project (SWP) and Colorado River Aqueduct water. Prior to conveyance to the AVP, the water is treated at Metropolitan's R. A. Skinner Filtration Plant. It is then pumped into the Loop Zone and Cal Oaks Zone at the California Oaks Pumping Station located on Hancock Avenue.

Temescal Valley Pipeline

In addition to the AVP, EVMWD obtains imported water from the TVP through WMWD. The source of this water is SWP water that originates from Metropolitan's Mills Filtration Plant in Riverside. The Mills Gravity Pipeline (also known as the Woodcrest Pipeline), which is owned, operated and maintained by WMWD, runs westerly to its termination point near the intersection of Cajalco Road and Temescal Valley Road. According to the WDSMP, the EVMWD connection at the pipeline terminus has a design capacity of 41 cfs (26.5 mgd or approximately 29,700 acre-ft/yr). Water is transferred to the TVP from the Mills Gravity Pipeline at the Woodcrest vault, located in Corona at the intersection of Temescal Canyon Road and La Gloria Street, (MWH, 2006) completed in February 2002. 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 Woodcrest Pipeline. The TVP was designed to convey up to 41 cfs (26.5 mgd or 29,700 acre-ft/yr) with the construction of a booster pumping station. Like the AVP, it is assumed that EVMWD can obtain up to 83 percent of the current hydraulic capacity, or 12,700 acre-ft/yr from the TVP on an annual basis. It is also assumed that EVMWD will be able to obtain 80% of 12,700, which equals 10,200 acre-ft/yr from the TVP on an annual basis during dry year and multiple dry years. The TVP project was developed to provide additional water supplies from sources located north of the EVMWD service area. It includes an 8 MG terminal storage reservoir, transmission mains, and appurtenances.

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 (EVMWD 2001a, 2001b). This agreement is

automatically extended annually unless terminated by either party in accordance with termination provision of the agreement.

A separate lease agreement between EVMWD and WMWD provides EVMWD with the ability to use up to 5 cfs (3.2 mgd or 3,620 acre-ft/yr) of additional capacity from the Mills Gravity Pipeline on a temporary basis (EVMWD, 2001c). On August 8, 2002, the EVMWD Board of Directors approved an amendment to the lease agreement to lease an additional 7 cfs (4.5 mgd or 5,068 acre-ft/yr) from the Mills Pipeline, increasing the total lease capacity to 12 cfs (7.8 mgd or 8,688 acre-ft/yr) (EVMWD, 2002b). In addition to the lease capacity from the Mills Pipeline, EVMWD also has an "exchange of assets" with the Temescal Water Division to supply a capacity of 9 cfs (5.8 mgd or 6,516 acre-ft/yr) (EVMWD, 2002c). Thus, EVMWD can currently obtain up to 21 cfs (13.6 mgd or approximately 15,200 acre-ft/yr) of water from the TVP. However, it would require additional pumping capacity for supply greater than 14,200 acre-ft/yr.

Imported Water Supply Reliability

Metropolitan and its member agencies utilize an Integrated Resources Planning (IRP) approach to determine the appropriate level of supply reliability and establish cost-effective approaches to achieve that goal. The 1996 IRP process identified a Preferred Resource Mix that relied on a diverse mix of resources to achieve a goal of 100 percent reliability for full service water demands through 2020. The IRP established regional targets for conservation, local supplies, SWP supplies, Colorado River supplies, groundwater banking and water transfers. In 2004, the IRP Update was completed which extended the reliability outlook and resources plan to provide 100 percent reliability through the year 2030. As part of its update, Metropolitan increased its targets for conservation, water recycling and groundwater recovery, SWP and Colorado River supplies, and Central Valley storage and transfers. The goal of these increased targets are to ensure a minimum 10 percent planning reserve or buffer between supplies and demands in the event that certain supplies cannot be developed as planned. In addition to its supply planning activities, Metropolitan is developing the draft Integrated resources Plan (MWD - IRP 2009).

Additionally, Metropolitan developed the Water Surplus and Drought Management (WSDM) Plan. The WSDM Plan is based on the strategy of storing surplus supplies in wet periods for use during drought periods. It consists of five water surplus stages and seven water shortage stages that define progressive actions to be taken depending on available supplies. For example, in a Stage 1 shortage, Metropolitan would make withdrawals from Diamond Valley Lake storage. As the severity of shortage increases, Metropolitan would withdraw water from out-of-region storage, suspend deliveries to local long term storage and replenishment programs, withdraw water from groundwater storage and SWP terminal reservoirs and call for extraordinary conservation. Water allocations for full-service customers would not be implemented until a Stage 7 Shortage is reached. The overriding goal of the WSDM is to never reach a Stage 7 Shortage. Metropolitan staff provides its board of directors with status reports throughout each year on water supply and demand forecasts that are used to determine appropriate management actions. Based on its water supply development in conjunction with the WSDM Plan, Metropolitan's supplies for full-service deliveries are expected to be fully reliable through 2030.

Per Metropolitan's Regional Water Urban Water Management Plan (2005), Metropolitan indicates that its existing supplies are adequate to meet the projected demands in all hydrologic

conditions through 2030. Implementation of planned supplies increases reliability and maintains an adequate reserve. Based on Metropolitan's 2005 UWMP, it is assumed that imported water is fully reliable during average and wet years. In, dry years, if there is a shortfall of water supplies, Metropolitan may reduce deliveries to its member agencies including WMWD and EMWD. So, it is expected that WMWD will levy any surcharge deemed appropriate including those imposed on WMWD by Metropolitan. Based on Metropolitan's UWMP, Metropolitan supplies are fully reliable through year 2030 for full service deliveries. Therefore, it is assumed that Metropolitan will have sufficient supplies to meet all demands during wet and average years. It is assumed that in a single dry year and multiple dry year supplies from Metropolitan will be reduced by 20 percent from average year supplies.

PROJECTED POTABLE WATER SUPPLIES

Since EVMWD's population is expected to increase in the next 20 years, additional water supply sources are necessary to meet future potable water demands. The following section describes EVMWD's plans for future water supply development. Future supplies include the construction of a pump station that would increase the TVP capacity and plans to address Elsinore Groundwater Basin's overdraft condition through the implementation of the Back Basin Groundwater Storage Project (BBGSP) as part of the Elsinore Basin GWMP. **Table 3-7** provides a summary of these water supply sources and their annual average and maximum day capacities during average/normal, single-dry, multiple-dry, and wet years.

Table 3-7
Future Water Supply Sources

Water Supply Source	Average Year	Single-Dry Year	Multiple-Dry Years	Wet Year	Comments
Annual Average Demands (acre-ft/yr)					
Cereal 1 & Corydon	1,900	1,000	800	1,600	
Palomar Well Replacement	(100)	1,000	800	0	
Terra Cotta Well (North Basin Well)	1,400	1,900	1800	1,400	
Additional Capacity from TVP[1]	12,900	0	0	12,900	Up to full capacity of pipeline
Total	**16,100**	**3,900**	**3,400**	**15,900**	
Maximum Day Demands (Peaking Capacity – mgd)					
Cereal 1 & Corydon	3.8	3.8	3.8	3.8	
Palomar Well Replacement	0.7	0.7	0.7	0.7	One well at 500 gpm
Terra Cotta Well (North Basin Well)	1.7	1.7	1.7	1.7	One well at 1,200 gpm
Additional Capacity from TVP	13.8	13.8	13.8	13.8	Up to full capacity of pipeline
Total	**20.0**	**20.0**	**20.0**	**20.0**	

[1] As the existing imported water capacities are not being utilized. During future scenario, it is assumed that no additional supply of imported water form Metropolitan is available during single dry and multiple dry years.

Groundwater

Due to increasing potable and non-potable water demands, the Elsinore Groundwater Basin overdraft is reduced from the past with the implementation of groundwater storage projects. The GWMP and the BBGSP are designed to address the basin's overdraft condition, enhance water quality, and improve the water supply reliability by increasing EVMWD's available water supplies to meet future potable water demands.

Groundwater Management Plan

MWH prepared a Final Draft GWMP for EVMWD in June 2003 (MWH, 2003a). This document was subject to public review for more than one year. Following the required public hearings, the EVMWD Board of Directors adopted the GWMP on March 24, 2005. The main objective of the GWMP is to provide a guideline that resolves the overdraft problem in the Elsinore Groundwater Basin. Four alternatives are identified based on analysis of current and projected water supplies and demands. These alternatives aim to achieve a balanced groundwater basin through: 1) a conjunctive use program using 14 dual-purpose injection-extraction wells; 2) spreading basins in Leach and McVicker Canyons with the installation of five new extraction wells; 3) a combination of in-lieu recharge and water conservation; 4) use of recycled water for lake recharge; and 5) a basin monitoring program. The alternatives evaluated are as follows:

- Alternative 1 – Groundwater recharge by dual purpose injection/extraction wells
- Alternative 2 – Groundwater recharge by surface spreading
- Alternative 3 – In-lieu recharge and water conservation
- Alternative 4 – Combination of dual purpose wells, in-lieu recharge, increased water recycling and conservation

Alternative 4 was selected as the "recommended plan" because it includes water conservation and increased recycled water use for replenishment of Lake Elsinore in addition to groundwater replenishment using dual purpose wells. The total capital cost of the "preferred alternative" is $24.3 million. The GWMP provides a detailed breakdown of the capital cost, and annual operation and maintenance (O&M) costs (MWH, 2005b). **Table 3-8** summarizes the components of the "recommended plan," such as reliability, water quality, costs, compliance with regulatory standards, and water supplies.

Table 3-8
Summary of Groundwater Management Plan

Element	Description
Water Supplies	• 9 Existing EVMWD Wells • 4 Existing EWD Wells • Canyon Lake WTP • AVP Connection at 24.2 mgd • TVP Connection with new PS at 26.5 mgd • Equipping Joy Street Well as dual purpose • Conversion of 6 existing wells to dual purpose wells • 7 new dual purpose wells • 4 wells for peaking
Lake Replenishment	• up to 17.7 mgd of Recycled Water • 3 Island Wells
Special Projects (in addition to the peaking wells)	Dual Purpose Wells with imported water: • 3 deep wells north of Lake Elsinore • 6 deep wells south of Lake Elsinore • 5 shallow wells south of Lake Elsinore Other Facilities: • 30-inch diameter pipeline (4,000 feet) • 800 HP pumping station between Cal Oaks and the Back Basin
Basin Monitoring	• Water Quality • Groundwater levels • Groundwater production • Lake levels • Surface flow rates • Rainfall
Ability to Reduce Overdraft	• Groundwater balance is achieved. • 5,900 acre-ft/yr injected. • 600 acre-ft/yr in-lieu recharge. • Slightly increasing water levels. • Storage Deficit = 0 acre-ft/yr.
Funding	• Capital Cost $24 million. • Equitable distribution of investments. • Potential Grant Funding • District Funding.

Reference: Final Elsinore Basin GWMP (MWH, 2005b).

Terra Cotta Well

Three of the dual-purpose wells recommended in the GWMP would be located in the area north of Lake Elsinore, with one existing well converted to dual-purpose and the installation of two new dual-purpose deep wells. The Terra Cotta Well is one of the proposed deep wells in the area north of Lake Elsinore. Groundwater production has not been initiated at the Terra Cotta well as well is currently not equipped, though the well has been constructed. Approximately 1,200 gpm of additional supply capacity would be made available through this well. During winters of wet and average years, water will be injected into the groundwater basin, while water will be extracted from the groundwater basin during summers of average and dry years. Terra Cotta well was drilled in 2008 and is not equipped yet. The required permits for Equipping Terra Cotta Well and their status are summarized in **Table 3-9.** The budget for the Terra Cotta well construction and equipping was included in 2008-2009 budgets. The well is drilled and is estimated to be equipped by 2012.

Table 3-9
Required Permits for Terra Cotta Well Equipping

Agency	Permit or Approval	Approximate Processing Time	Current Status
California Environmental Quality Act (CEQA)	Mitigated Negative Declaration	150-180 days	Completed
California Regional Water Quality Control Board, Santa Ana Region	NPDES General Discharge Action Plan, notice of compliance during discharging of test water; Monitoring and Reporting Program, notice of compliance during discharging of test water	150-180 days	Not started
California Regional Water Quality Control Board, Santa Ana Region	Cooperative Agreement to Protect Water Quality and Encourage Conjunctive Use of Imported Water in the Santa Ana Basin	Negotiated Agreement	Completed
South Coast Air Quality Management District	Rule 403 Fugitive Dust compliance plan (Erosion, Siltation, Dust Control) for construction and operation	90-120 days	To be handled by Contractor
City of Lake Elsinore, Department of Public Services	Public Property Encroachment Permits for construction of well on City property and new pipelines in City streets	60-90 days	Not started
Department of Health Services, Drinking Water Branch	Amendment to Treated Water System Permit to tie new production wells into the existing distribution system	90-120 days	Not started

Pipeline Blending and Palomar Replacement

Due to higher arsenic level in the ground water pumped from Cereal 1 and Cereal 3, the wells are not operated currently. EVMWD has proposed a plan to construct pipeline from Diamond and Summerly to blend water from Cereal 1 and Corydon to comply with maximum containment level of arsenic. The 20-inch diameter pipeline is proposed to be constructed by year 2015 and will be used to blend the water from Diamond, Summerly with Cereal 1 and Corydon St Wells. With the construction of the pipeline, it will give EVMWD an additional pumping capacity of approximately 2,700 gpm from these two wells. The required permit for the 20-inch diameter pipeline is summarized in **Table 3-10.** The estimated budget of 700,000 is included in fiscal year 2009-2010 budget for the construction of blending pipeline. The pipeline construction is estimated to completed by 2012.

Table 3-10
Required Permits for 20-inch Diameter Blending Pipeline

Agency	Permit or Approval	Approximate Processing Time	Current Status
California Environmental Quality Act (CEQA)	Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report	150-180 days	Not started
California Regional Water Quality Control Board, Santa Ana Region	NPDES General Discharge Action Plan, notice of compliance during discharging of test water; Monitoring and Reporting Program, notice of compliance during discharging of test water	150-180 days	Not started
South Coast Air Quality Management District	Rule 403 Fugitive Dust compliance plan (Erosion, Siltation, Dust Control) for construction and operation	90-120 days	To be handled by Contractor
City of Lake Elsinore, Department of Public Services	Public Property Encroachment Permits for construction of well on City property and new pipelines in City streets	60-90 days	Not started
Department of Health Services, Drinking Water Branch	Amendment to Treated Water System Permit to tie new production wells into the existing distribution system	90-120 days	Not started

Palomar Well Replacement

Palomar well collapsed in 2008 and is apparently out of operation. District has proposed plan to replace this well by year 2015. Approximately 500 gpm of additional capacity will be available with through the replacement of this well. Environmental documentation has not begun for the

Palomar well replacement. The required permits for the Palomar well replacement and their status are summarized in **Table 3-11.** The Palomar well replacement is currently not budgeted and is estimated to be included in 2011-2012 budget to complete the well replacement construction before 2015.

Table 3-11
Required Permits for Palomar Well Replacement

Agency	Permit or Approval	Approximate Processing Time	Current Status
California Environmental Quality Act (CEQA)	Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report	150-180 days	Not Started
California Regional Water Quality Control Board, Santa Ana Region	NPDES General Discharge Action Plan, notice of compliance during discharging of test water; Monitoring and Reporting Program, notice of compliance during discharging of test water	150-180 days	Not started
California Regional Water Quality Control Board, Santa Ana Region	Waste Discharge Permit for injection of water in dual-purpose production wells	150-180 days	Not started
South Coast Air Quality Management District	Rule 403 Fugitive Dust compliance plan (Erosion, Siltation, Dust Control) for construction and operation	90-120 days	To be handled by Contractor
Riverside County Health Services Agency, Department of Environmental Health			
City of Lake Elsinore, Department of Public Services	Public Property Encroachment Permits for construction of well on City property and new pipelines in City streets	60-90 days	Not started
Department of Health Services, Drinking Water Branch	Amendment to Treated Water System Permit to tie new production wells into the existing distribution system	90-120 days	Not started

Treated Imported Water

Temescal Valley Pipeline Pumping Station

The TVP was designed to deliver up to 41 cfs (26.5 mgd). However, to achieve this capacity a pumping station is required to increase the hydraulic gradeline sufficiently to overcome the

increased headloss associated with the higher flow rate. EVMWD has budgeted for the construction of the pumping station as part of its FY 2011-12 budget. Preliminary design is ongoing and with final design to be completed in 2010-2011 and to be complete construction completed in FY 2011-12. EVMWD has already located a site for this pump station at this time.

EVMWD's total usage rights and lease capacity from the TVP connection on the Mills Gravity Pipeline is currently 21 cfs. There is currently unallocated capacity in the Mills Gravity Pipeline. EVMWD intends to contract for additional capacity in the Mills Gravity Pipeline with WMWD when the capacity is required, but has already begun discussions with WMWD about acquiring the needed capacity. This allows EVMWD to avoid the standby charge WMWD imposes on unused pipeline capacity.

EVMWD is currently preparing a program environmental impact report (PEIR) on the WDSMP. The Project-level impacts of the TVP Pump Station will be covered in the PEIR; EVMWD is in the process of preparing a tiered environmental document for the pump station. The required permits for the TVP pump station and their status are summarized in **Table 3-12**. The budget of $ 6,009,929 for the TVP Pump station was included in 2008-2009 budgets. The preliminary design of the pump station is currently in progress and will be followed by final design and construction, which is estimated to be completed by 2015.

Table 3-12
Required Permits for Temescal Valley Pipeline Pump Station

Agency	Permit or Approval	Approximate Processing Time	Current Status
CEQA	Environmental Impact Report	150-180 days	Ongoing (Master Plan Program EIR)
California Regional Water Quality Control Board, Santa Ana Region	NPDES General Discharge Action Plan, notice of compliance during discharging of test water; Monitoring and Reporting Program, notice of compliance during discharging of test water	150-180 days	Not started
South Coast Air Quality Management District	Rule 403 Fugitive Dust compliance plan (Erosion, Siltation, Dust Control) for construction and operation	90-120 days	To be handled by Contractor
City of Lake Elsinore, Department of Public Services	Public Property Encroachment Permits for construction of new pipelines in City streets	60-90 days	Not started – need depends on selected site

Other Imported Water Projects

Metropolitan is currently evaluating several alternatives to increase imported water treatment and conveyance capacity in Riverside County (Metropolitan, 2005). Potential projects under consideration include:

- Expansion of the Mills Filtration Plant – This project would require paralleling the Box Springs Feeder to the plant and paralleling the existing Woodcrest Pipeline to Corona.
- Construction of a new Lakeview Filtration Plant – This plant would be located near the Lakeview Mountains between Lake Perris and Diamond Valley Reservoir. A pipeline would convey water south to the existing Auld Valley Pipeline and a lateral would be constructed along Newport Road to convey water to the Canyon Lake area. This plant would likely treat SWP water.
- Construction of the Eagle Valley Filtration Plant – This plant would be constructed near Lake Mathews and would primarily treat Colorado River water unless Metropolitan delivers SWP water to Lake Mathews. Water from this plant would be conveyed to Orange County either through a pipeline along the Santa Ana River canyon or a tunnel under the Santa Ana Mountains. This facility would cross the Temescal Valley Pipeline south of Corona.
- Build a new pipeline from the Mills WTP off the Perris Valley Pipeline Extension

Metropolitan indicated that a new treatment plant is needed by 2018 to meet projected demands. Although this would not increase the short-term water supply of EVMWD, a new treatment plant would significantly improve EVMWD's long-term water outlook. The Lakeview Filtration Plant with a pipeline to the Auld Valley Pipeline and Canyon Lake would provide EVMWD with access to additional SWP water, thus improving the long-term supply and water quality for the District.

Water Supply Summary

EVMWD's existing water supplies are surface water from Canyon Lake, groundwater pumping, and imported water from Metropolitan via the TVP and AVP. A summary of supply capabilities of the existing and proposed water sources is presented in **Table 3-13**. Future water supply sources include implementation of the Back Basin Groundwater Storage Project, imported raw water from Metropolitan Connection WR-31, and imported treated water by adding a pump station on the TVP.

Table 3-13
Summary of Existing and Future Potable Water Sources

Water Supply Source	Capacity (mgd)	Average Year (acre-ft/yr)	Single Dry Year (acre-ft/yr)	Multiple-Dry Years (acre-ft/yr)	Single Wet Year (acre-ft/yr)
Existing Supplies					
Canyon Lake (Natural Runoff)	7.0	4,900	2,500	3,000	8,000
Groundwater - Extraction	15.4	3,700	11,300	10,000	3,400
Groundwater Injection	(6.8)	(6,100)	0	0	(6,900)
TVP	12.7	12,700	10,200	10,200	12,700
AVP	24.2	22,500	18,000	18,000	22,500
Total - Existing Supplies	**59.3**	**43,800**	**42,000**	**41,200**	**46,600**
Future Supplies					
Cereal 1 & Corydon (including Injection)	3.8	1,900	1,000	800	1,700
Terra Cotta Well[1] (including Injection)	1.7	1,400	1,900	1800	1,300
Palomar Replacement	0.7	(100)	1,000	800	0
TVP Pumping Station	13.8	12,900	0	0	12,900
Total - Future Supplies	**20.0**	**16,100**	**3,900**	**3,400**	**15,900**
Total	**79.3**	**59,900**	**45,900**	**44,600**	**62,500**

1 – Yield is included in BBGSP values.
2- It is assumed that 80% of 12,700 (83% of TVP capacity) is available during dry year & multiple dry years.
3-It is assumed that 80% of 22,600 (83% of AVP capacity) is available during dry year & multiple dry years.
4- As the existing imported water capacities are not being utilized. During future scenario, it is assumed that no additional supply is available during single dry and multiple dry years.

RECYCLED WATER SUPPLIES

EVMWD serves customers with recycled water for irrigation. In addition, EVMWD uses tertiary treated wastewater to maintain water levels in Lake Elsinore during "normal" and dry years.

Existing Recycled Water Supplies

EVMWD's non-potable demands are supplied by tertiary treated wastewater from the Regional WRF, Railroad Canyon WRF, and Horsethief WRF. Historically, EVMWD has used the treated effluent from Railroad Canyon WRF and Horsethief WRF for irrigation, except during storm events when the influent from Railroad Canyon WRF is bypassed to the Regional WRF and/or the effluent is discharged into percolation ponds. The Horsethief WRF is a peaking plant that balances supply with demand. If demand is low, supply is low and vice versa. Excess effluent from the Horsethief WRF that cannot be used for recycled water irrigation is sent to Regional

WRF. Effluent from the Regional WRF is typically discharged into the Temescal Wash and/or Lake Elsinore.

Table 3-14 summarizes the recycled water production as reported in EVMWD's 2008 Comprehensive Annual Financial Report (CAFR). It should be noted that a portion of the wastewater flows collected by EVMWD is diverted to the RCWD Santa Rosa WRF (Southern) for treatment and disposal.

Table 3-14
Historical Recycled Water Available Production

Year	Horsethief Canyon WRF (MGD)	Railroad Canyon WRF (MGD)	Regional WRF (MGD)	RCWD Santa Rosa WRF (MGD)[1]	Total Production (MGD)
1999	0.22	0.93	3.70	0.80	**5.65**
2000	0.26	0.95	3.71	0.80	**5.72**
2001	0.32	0.93	3.79	0.81	**5.85**
2002	0.38	0.91	3.73	1.18	**6.19**
2003	0.47	0.88	4.09	1.25	**6.69**
2004	0.43	0.88	4.46	1.28	**7.05**
2005	0.42	0.75	5.63	1.37	**8.18**
2006	0.43	0.84	5.53	1.26	**8.06**
2007	0.40	0.83	5.31	1.26	**7.80**
2008	0.39	0.79	5.53	0.99	**7.70**

Source: 2008 EVMWD Comprehensive Annual Financial Report.
[1] EVMWD influent portion only.

Railroad Canyon WRF and Horsethief Canyon WRF

The effluent from Railroad Canyon WRF and Horsethief Canyon WRF receives tertiary treatment and meets Title 22 requirements. The current rated capacity for Railroad Canyon WRF and Horsethief Canyon WRF are 1.2 mgd and 0.5 mgd, respectively. Based on normalized trends determined by the number of active accounts (EVMWD CAFR, 2008), in 2008 the historical flows are approximately 0.79 mgd to Railroad Canyon WRF and 0.39 mgd to Horsethief Canyon WRF. Most of the treated wastewater from Railroad Canyon WRF is directed to the Canyon Lake Golf Course during the summer months, with excess effluent either to on-site percolation ponds or bypassed to the Regional WRF. Treated recycled water from Horsethief Canyon is distributed to local landscape irrigation users with excess effluent sent to Regional WRF.

Regional WRF

The Regional WRF has a current rated capacity of 8 mgd. The wastewater effluent is treated with tertiary treatment to Title 22 requirements and then discharged to Temescal Wash and/or

Lake Elsinore. Based on normalized trends determined by the number of active accounts (EVMWD CAFR, 2008), in 2008 the historical flow is 5.65 mgd to Regional WRF.

Beginning in June 2002, effluent from the Regional WRF and from EMWD has been used for replenishing Lake Elsinore as part of a 2-year pilot test program. The purpose of this program was to evaluate the effects of using recycled water for lake replenishment as part of an overall lake management strategy. In March 2005, EVMWD received a revised NPDES permit from the Regional Board to discharge effluent into the lake.

In addition, EVMWD has an agreement with EMWD to purchase excess recycled water from EMWD for lake stabilization. Under this agreement, EVMWD can purchase between 5,000 and 30,000 acre-ft/yr of surplus effluent. This recycled water originates from EMWD's Moreno Valley and Perris Valley WRFs and normally only available during wet periods when EMWD's recycled water usage is low and its storage facilities are full; however, EVMWD usually only needs to augment Lake Elsinore during normal and dry years. This recycled water would be delivered to EVMWD through EMWD's Temescal Pipeline that parallels the San Jacinto River and terminates at Wasson Sill.

EMWD and RCWD

EMWD currently operates the Temecula Valley Regional WRF and RCWD operates the Santa Rosa WRF (Southern). The Temecula Valley Regional WRF has a current capacity to treat 12 mgd to Title 22 requirements and the Southern facility has the capacity to treat up to 1.54 mgd of EVMWD's wastewater flow. EMWD completed construction of the Temecula Valley Effluent Disposal Pipeline (TVEDP) that would convey effluent from the Temecula Valley Regional WRF and RCWD Santa Rosa WRF to Temescal Wash for disposal. This facility allows EMWD and RCWD to avoid costly nutrient removal facilities required for discharge to the Santa Margarita River. This pipeline passes through EVMWD's service area. Since EVMWD contributed approximately 0.99 mgd of flow in 2008 to RCWD (EVMWD CAFR, 2008), EVMWD is entitled to receive this amount of recycled water from this facility per an agreement between EVMWD, RCWD, and EMWD. Under this agreement, EVMWD is entitled to up to 1.54 mgd of recycled water via the TVEDP, but not more than the amount of raw wastewater that EVMWD conveys to RCWD's Santa Rosa WRF. In addition, under this agreement EMWD has the option to sell EVMWD additional recycled water through the TVEDP on an as-needed basis. EMWD currently retains and stores as much recycled water as possible within its system and is entitled to supply its customers before other agencies' are supply. Once its storage ponds are full, EMWD discharges water to Temescal Wash through the TVEDP (primarily in the winter months).

Future Recycled Water Supplies

EVMWD plans to utilize its existing recycled water supply capacity prior to constructing any additional facilities. Currently EVMWD is not using its entire recycled water supply capacity. Analysis of historical per connection water usage and wastewater production data (EVMWD CAFR, 2008) shows that approximately 34 percent of potable water usage becomes wastewater. By assuming 34 percent of the future potable water demand (as discussed in Section 2), the

generated wastewater flow of the future potable water demand can be determined, as shown in **Table 3-15.**

Table 3-15
Future Recycled Water Production based on Future Potable Water ADD

Supply Category	Horsethief Canyon WRF (MGD)[1]	Railroad Canyon WRF (MGD)[1]	Regional WRF (MGD)[1]	RCWD Santa Rosa WRF (MGD)[1,2]
Existing[3]	0.03	0.35	0.00	0.00
Inactive Accounts (Future)[4]	0.00	0.00	0.00	0.00
Will-Serve (Future)[5]	0.00	0.00	0.30	0.00
Summerly Development (Future)[6]	0.00	0.00	0.19	0.00
Diamond Development (Future)[7]	0.00	0.00	0.12	0.00
Total Supply	**0.03**	**0.35**	**0.61**	**0.00**

[1] A 34 percent potable water usage to generated wastewater flow is used.
[2] EVMWD influent portion only.
[3] Based on existing recycled water demand (see Section 2).
[4] Assumed that there will be a certain percentage of inactive accounts within EVMWD's service area in the future, thus it is more conservative to assume that there will no generated wastewater flow from those inactive accounts.
[5] The majority of will-serves are situated in the Regional WRF collection basin and the wastewater generated in the Horsethief Canyon and Southern basins is insignificant (1 AFY and 1 AFY, respectively).
[6] The Summerly Development is situated in the Regional WRF collection basin.
[7] The Diamond Development is situated in the Regional WRF collection basin.

The total available future recycled water production capacity that EVMWD may have access to is 23.2 mgd, as shown in **Table 3-16.**

Table 3-16
Maximum Available Future Recycled Water Production Capacity

Treatment Facility	Maximum Capacity (MGD)	Maximum Capacity (acre-ft/yr)
Horsethief WRF	0.5	600
Railroad Canyon WRF	1.2	1,300
Regional WRF	8.0	9,000
Santa Rosa WRF (Southern)[1]	1.5	1,700
Temecula Valley Regional WRF[2]	12.0	13,400
Total Supply	**23.2**	**26,000**

[1] The maximum recycled water supply that EVMWD is entitled to under the agreement with RCWD is 1.54 mgd, but cannot be greater than the raw wastewater that EVMWD sends to Southern WRF.
[2] EMWD has the option to sell the recycled water to EVMWD on an as-needed basis.

Section 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 and maximum day demand conditions. This section demonstrates that EVMWD has sufficient water supplies to meet existing and planned future demands which includes will serves list and inactive accounts.

RECYCLED WATER SUPPLY VERSUS DEMAND COMPARISON

The majority of potential recycled water demands can be supplied by a specific source, with no connectivity or intermingling of flows. Horsethief Canyon recycled water demands will be supplied from the existing Horsethief WRF. Canyon Lake recycled water demands will be supplied from Railroad Canyon WRF. Lake Elsinore replenishment water will be supplied from Regional WRF and Eastern MWD. The Wildomar, Tuscany Hills, Summerly, and the proposed Diamond Project's recycled water demands will be supplied from return flow from Rancho California WD's Santa Rosa WRF.

Table 4-1 compares recycled water demands and supplies on an annual and maximum day basis for the planned future demands. The supply data shown is from **Section 3**, and the demand data is as discussed in **Section 2**.

Railroad Canyon WRF will continue to meet Canyon Lake recycled water demand. Due to increased demands from the Canyon Hills development, EVMWD is planning to supplement Railroad Canyon WRF effluent with recycled water from Eastern MWD's system. The connection to Eastern MWD's Temecula Valley Effluent Disposal Pipeline (TVEDP) will not have guaranteed sufficient flows to meet the demand for conversion of existing potable water customers and new recycled water developments in the Wildomar, Summerly, and Tuscany Hills regions. EVMWD is guaranteed up to a maximum 1.54 MGD (1,725 acre-ft/yr) of flow from the TVEDP, but not more than EVMWD's wastewater generated flow to RCWD Santa Rosa WRF. Eastern MWD has the option of selling more recycled water to EVMWD on an as-needed basis after Eastern MWD's needs are met. If Eastern MWD does not have excess recycled water supply to sell to EVMWD, then excess recycled water demands will be met by potable water. The Wildomar recycled water system will require approximately 100 acre-ft/yr of potable make-up water in an average year. On the contrary, supplies show that there is sufficient recycled water generated at the Horsethief Canyon WRF to meet projected ADD and MDD recycled water demands in the Horsethief Canyon area.

Table 4-1
Recycled Water Supply and Planned Demand

Demand Category	Average Year Demand	Wet Year Demand	Dry Year Demand	Source	Supply[1]
Annual Average Supply and Demand Comparison (acre-ft/yr)					
Existing Canyon Lake	400	360	430	Railroad Canyon WRF	880
Existing Horsethief Canyon	33	30	35	Horsethief Canyon WRF	440
Existing Potable to Recycled conversion	1,200	1,100	1,300	EMWD/RCWD WRF[2]	1,110
Total	**1,630**	**1,490**	**1,770**		**2,430**
Maximum Day Supply and Demand Comparison (mgd)[3]					
Existing Canyon Lake	0.99	0.90	1.07	Railroad Canyon WRF	0.79
Existing Horsethief Canyon	0.08	0.07	0.09	Horsethief Canyon WRF	0.39
Existing Potable to Recycled conversion	3.0	2.46	2.95	EMWD / RCWD WRF[2]	0.99
Total	**4.1**	**3.43**	**4.11**		**2.17**

[1] Supplies shown are based on existing and projected development.
[2] Flows from Rancho California WD are based on existing EVMWD wastewater treated at the Santa Rosa WRF. Remaining flows will be purchased from Eastern MWD.
[3] An ADD to MDD peaking factor of 2.77 is used (Kennedy-Jenks Wildomar Recycled Water Master Plan, 2004.

Potable Water Supply versus Demand Comparison

Projected potable water demands are calculated in **Section 2**. Here, they are compared with water supplies, showing that planned future water supplies (TVP Pumping Station, Terra Cotta Well, BBGSP) are needed to meet the future development with will serves under dry and multiple dry years. Additionally, with the implementation of these future supplies, there will be sufficient supply capacity to meet an additional 16,800 EDUs under average day demand conditions.

Potable Water Supply versus Committed Demands

Based on the findings in the recycled water mass balance, the annual committed potable water demands need to be adjusted for the following elements:

- Some existing potable customers served by recycled water in future

Revised potable demands are shown in **Table 4-2.** The recycled water deficit is calculated by taking the difference between the supply and demand for each demand category and corresponding supply source. For ADD, a recycled water deficit is experienced only for the recycled water conversions supplied by EMWD/RCWD WRF. Maximum day demands are based on a conservative peaking factor of 2.0 times average day demand, except for recycled water conversions in which case a 2.77 peaking factor is used. This MDD is adequate for planning purposes in all demand years. For MDD, a recycle200d water deficit is experienced for the Canyon Lake area supplied by Railroad Canyon WRF and for the recycled water conversions supplied by EMWD/RCWD WRF.

Table 4-2
Revised Potable Water Demands – Year 2030

Water Demand Component	Average Year	Wet Year	Dry Year
Annual Demand, acre-ft/yr			
Existing Demands	32,700	29,600	35,500
Inactive Accounts	800	700	900
Conversion to Recycled	(1,200)	(1,100)	(1,300)
Committed Future Demands (with will-serves)	1,000	900	1,100
Summerly Development	600	500	700
Diamond Development	400	370	430
Recycled Water Deficit	100	0	200
Total Annual Demand	**34,400**	**30,970**	**37,530**
Maximum Day Demand, mgd[1]			
Existing Demands	58.4	52.9	63.3
Inactive Accounts	1.4	1.3	1.5
Conversion to Recycled	(3.0)	(2.7)	(3.3)
Committed Future Demands (with will-serves)	1.8	1.6	2.0
Summerly Development	1.1	1.0	1.2
Diamond Development	0.6	0.5	0.7
Recycled Water Deficit	2.2	1.6	2.3
Total Maximum Day Demand	**62.5**	**56.2**	**67.7**

[1] An ADD to MDD peaking factor of 2.0 is used (EVMWD District-Wide WSA, 2005).

Comparing the adjusted potable water demands with existing supplies on an annual basis, as shown in **Table 4-3**, there is sufficient existing supplies to meet committed will serves demands and Diamond Valley development during average years, wet years, single dry and multiple dry years. Planned future water supplies will provide redundancy and support future growth.

Table 4-3
Comparison of Potable Supply and Projected Demand, Annual Basis
Year 2030

All values shown are in acre-ft/yr

Water Supply Source	Average Year	Single Dry Year	Multi-Dry Years	Single Wet Year
Canyon Lake WTP (Local Runoff)	4,900	2,500	3,000	8,000
Groundwater Extraction	3,700	11,300	10,000	3,400
Groundwater Injection	(6,100)	0	0	(6,900)
TVP	12,700	10,200	10,200	12,700
AVP	22,500	18,000	18,000	22,500
Total Potable Supplies	**43,800**	**42,000**	**41,200**	**46,600**
Potable Demands	**34,400**	**37,530**	**37,530**	**30,960**
Existing Supply Surplus	**9,400**	**4,470**	**3,670**	**15,640**
Cereal 1 and Corydon	1,900	1,000	800	1,600
Terra Cotta Well	1,400	1,900	1,800	1,400
Palomar Replacement	(100)	1,000	800	0
Additional Capacity from TVP	12,900	0	0	12,900
Total Supplies with Additional Sources	**59,900**	**45,900**	**44,600**	**62,500**
Supply Surplus with Additional Supplies	**25,500**	**8,370**	**7,070**	**31,540**

Conversely, for maximum day, there is not sufficient existing supply capacity to meet committed and future projected maximum day demands during dry and average years. There is a supply deficit of 8.4, and 3.2 mgd for maximum day demand for dry and average years, respectively. Diring wet year there is surplus supply of of 3.1 mgd for the maximum day demand. The maximum day demand and supply capacity comparison is shown in **Table 4-4**. Additional supply capacity is required to meet the maximum day demands during average, and dry years in 2030.

Proposed facilities to meet these deficiencies are also shown in Table 4-4. These facilities include the construction of the wells which will provide for additional total capacity of 6.2 mgd. Cereal 1 and Corydon will provide an additional capacity of 3.8 mgd. Palomar replacement provides capacity of 0.7 mgd. Terra Cotta Well, in the north Elsinore groundwater basin, will provide for an additional capacity of 1.7 mgd. Construction for the TVP Pumping Station will further provide for additional total capacity of 13.8 mgd. The proposed facilities have a total maximum day supply capacity of 20.0 mgd. With these facilities, there is a surplus of 16.8, 11.6, and 23.1 mgd for maximum day demand for average, dry, and wet years, respectively.

Consequently, EVMWD will need to develop additional water supply peaking capacity to meet this demand projection.

In addition to the BBGSP and imported raw water into the San Jacinto River, EVMWD is planning for additional supplies to meet future demands. These include a connection to the Riverside-Corona Feeder to use the existing Meeks and Daley water rights, an additional imported water connection with Eastern MWD and future recycled water supplies to offset potable demands. These facilities are expected to be constructed after 2015.

Table 4-4
Comparison of Potable Supply and Demand, Maximum Day Basis
Year 2030

All values shown are in mgd

Water Supply Source	Average Year	Single Dry Year	Multi-Dry Years	Single Wet Year
Canyon Lake	7.0	7.0	7.0	7.0
Groundwater	15.4	15.4	15.4	15.4
TVP	12.7	12.7	12.7	12.7
AVP	24.2	24.2	24.2	24.2
Total Potable Supplies	**59.3**	**59.3**	**59.3**	**59.3**
Projected Potable Demands	**62.5**	**67.7**	**67.7**	**56.2**
Supply Surplus (Deficit)	**(3.2)**	**(8.4)**	**(8.4)**	**3.1**
Cereal 1 and Corydon	3.8	3.8	3.8	3.8
Terra Cotta Well	1.7	1.7	1.7	1.7
Palomar Replacement	0.7	0.7	0.7	0.7
Additional Capacity from TVP[1]	13.8	13.8	13.8	13.8
Total Supplies with Additional Sources	**79.3**	**79.3**	**79.3**	**79.3**
Supply Surplus with Additional Supplies	**16.8**	**11.6**	**11.6**	**23.1**

[1] It is assumed that on 90% of imported water delivered during average here is available during dry and multiple dry years and thus, Additional capacity from TVP is not accounted for Dry and Multiple dry years.

Projected Remaining Supplies

As shown in Table 4-4, there is an insufficient existing water supply to meet all of EVMWD's projected water demands (based on MDD) in 2030, with a supply deficiency of 3.2 mgd for average years. EVMWD is taking steps on three future water sources – Cereal 1, Corydon and Palomar Wells, Terra Cotta Well and TVP Pumping Station, which adds additional supply capacity of 20.0 mgd. Therefore, when these three supplies are constructed, there is a supply surplus relative to committed demands of 16.8 mgd. This excess supply capacity can be used to supply future developments that do not currently have will-serve letters. The existing potable water supplies, plus these three proposed water sources, will be sufficient to meet the expected growth through 2030.

Based on Table 2-3, one EDU has a total annual average demand of 500 gal/day. Converting this to a maximum day demand (peaking factor of 2.0 for MDD), one EDU has a maximum day demand of 1,000 gal/day. Therefore, when Cereal 1, Corydon, Palomar Wells, Terra Cotta Well and TVP Pumping Station are completed, EVMWD has the supply capacity to meet the demands of an additional 16,800 EDUs beyond those that have already received will-serves.

CONCLUSIONS

EVMWD has the following existing supplies: surface water from Canyon lake WTP, groundwater supplies, imported water from Metropolitan through EMWD through the AVP and from Metropolitan through Western MWD through TVP. The additional supplies EVMWD is pursuing is the construction of pipeline from Diamond and Summerly to Cereal 1 and Corydon, Palomar replacement, Terra Cotta well and TVP pump station and purchase of recycled water from EMWD to meet recycled water demand. Based on the existing water sources and listed future sources, EVMWD has sufficient water to meet projected water demands for all developments with active will serves, plus the Diamond development

Appendix A
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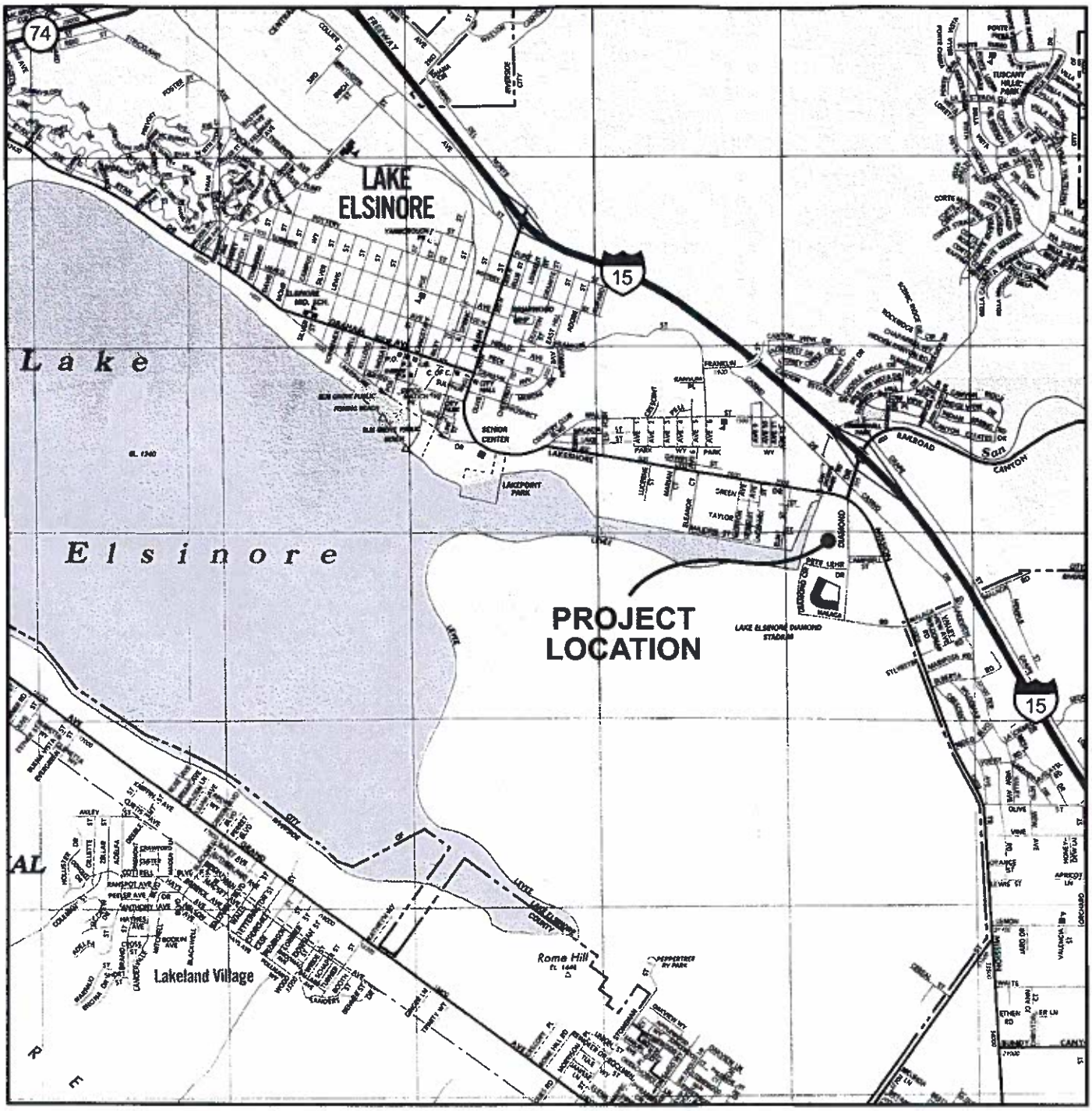
Appendix B
Diamond Specific Plan Project Site Location Figures

Diamond (as of March 2009) is a master planned, mixed-use development within the City of Lake Elsinore.



THE DIAMOND
PROJECT DESCRIPTION
FIGURE 2
PROJECT SITE VICINITY

EXISTING PROJECT SITE & SURROUNDING LAND USES

1 = Proposed Diamond Specific Plan Boundary

2 = The Diamond Specific Plan - Existing (Lake Elsinore Valley Center) Retail / Commercial

3 = Existing Baseball Stadium Complex

4 = The Diamond Specific Plan - Existing Vacant Lot

5 = Existing Stadium Surface Parking Lot

6 = Adjacent Existing Commercial Business

7 = Adjacent Existing Commercial Business

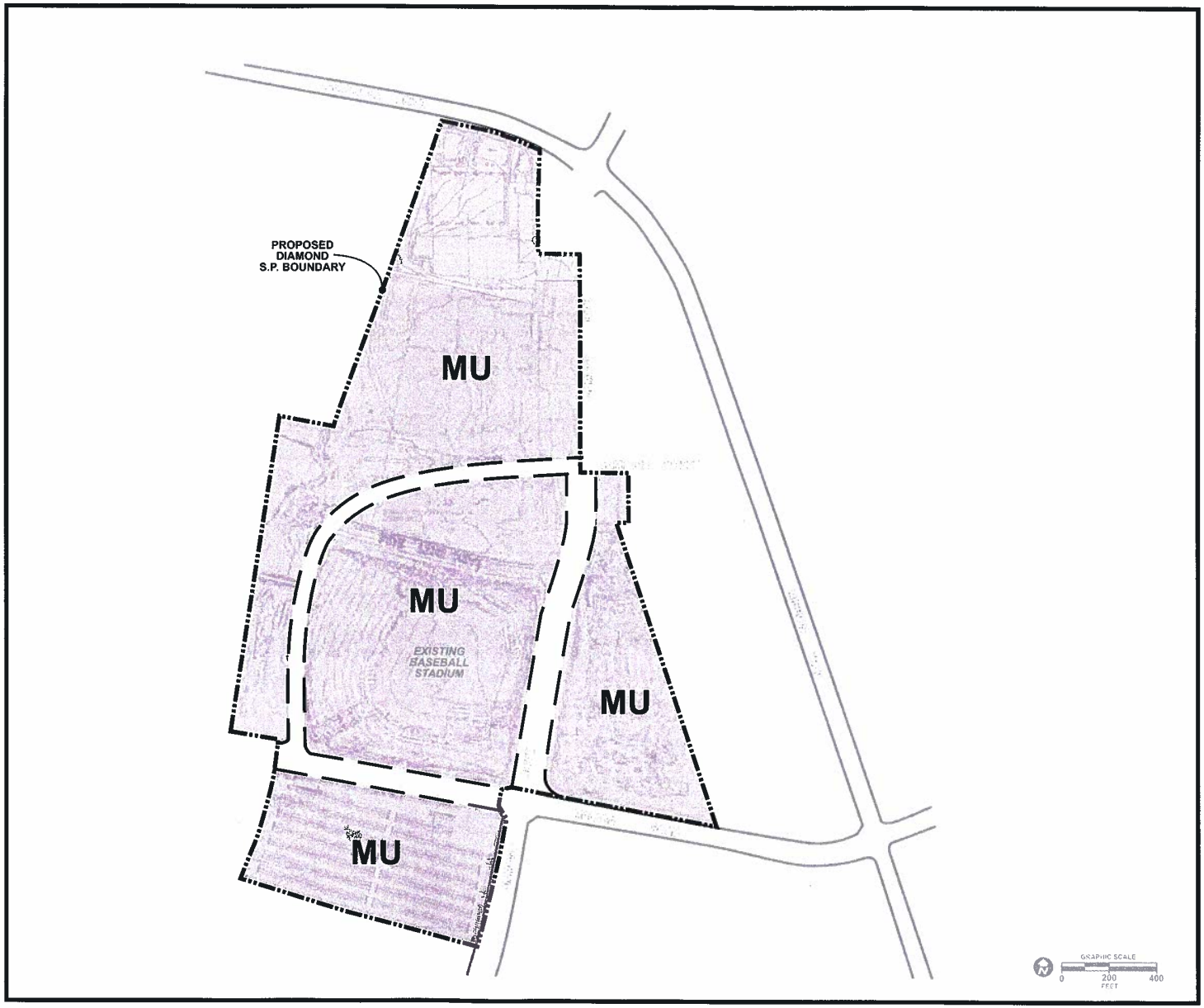
8 = Existing East Lake Specific Plan

9 = Adjacent Commercial / Retail Business

10 = Adjacent Existing Floodway

11 = Lake Elsinore

THE DIAMOND
PROJECT DESCRIPTION
FIGURE 3
THE DIAMOND SITE AERIAL



LAND USE

MU	=	Mixed-use	81.6
		Roads	5.6
			87.2 ac.

THE DIAMOND
PROJECT DESCRIPTION
FIGURE 5
THE DIAMOND LAND USE PLAN

Appendix C
Will-Serve List (as of October 2009)

All developments that EVMWD has committed to serve with potable water are included on the will-serve list.

Pending Will Serve Connections

Canyon Lake

UNPAID - ACTIVE WILL SERVE

ID:	Project	Connected EDUs Sewer	Connected EDUs Water	Pending EDUs Sewer	Pending EDUs Water
2243-1	Sudberry Properties: 29997 Canyon Hills Road, Lake Elsinore, Ca	0.00	0.00	3.79	4.50
		0.00	**0.00**	**3.79**	**4.50**
Total for Canyon Lake		**0.00**	**0.00**	**3.79**	**4.50**

Regional

PAID - CONNECTED IN FULL - FEES DUE

ID:	Project	Connected EDUs Sewer	Connected EDUs Water	Pending EDUs Sewer	Pending EDUs Water
1303-1	Regency Center, LP: 36068 Hidden Springs Rds, Suite K, Wildomar, CA	9.18	4.50	2.17	0.00
1605-1	China Buffet: 31712 Casino Drive, Suite B&C, Lake Elsinore, CA	4.34	12.50	23.03	0.00
2076-0	Hassan Paris Roostai: 31681 Riverside Drive, Lake Elsinore, CA	0.57	1.00	2.22	0.00
2167-1	Dana Te: 19980 Grand Avenue, Unit C, Lake Elsinore, CA	1.01	12.50	1.34	0.00
2201-0	Westmar Property Management , LLC: 23905 Clinton Keith Road, Suites 101 & 102, Wildomar, CA	7.18	1.60	7.18	0.00
851-1	Xiang Kaizhang: 31810 Grape Street, Unit C, Lake Elsinore, CA 92530	9.35	4.50	4.67	0.00
981-1	Yeun Jo: 31712 Casino Drive, #5A, Lake Elsinore	7.61	12.50	8.75	0.00
		39.23	**49.10**	**49.35**	**0.00**

PAID - NEVER CONNECTED

ID:	Project	Connected EDUs Sewer	Connected EDUs Water	Pending EDUs Sewer	Pending EDUs Water
1861-2	Southern CA Primary Care Medical: 31581 Canyon Estates Drive, Lake Elsinore, CA	0.00	0.00	4.92	2.60
2041-0	City of Lake Elsinore: 41725 Rosetta Canyon Drive, Lake Elsinore, CA	0.00	0.00	2.62	3.20
		0.00	**0.00**	**7.54**	**5.80**

PAID - PARTIALLY CONNECTED

ID:	Project	Connected EDUs Sewer	Connected EDUs Water	Pending EDUs Sewer	Pending EDUs Water
1156-12	Lennar Communities, Inc.: SW of Ramsgate Drive & Elsinore Hills Drive	128.00	128.00	62.00	62.00
1177-4	Centex Homes: Riverside Street East of Hwy 74	25.00	25.00	35.00	35.00
1183-0	Civil Solutions: Watkins Circle, Wildomar, CA	0.00	1.00	0.00	2.00
1298-0	Brandon Wesselink: 5 Lots Joy Avenue, Lake Elsinore, CA	0.00	2.00	0.00	3.00
1586-8	Castle & Cooke: Alberhill Ranch	160.00	160.00	60.00	60.00
1686-8	BEG, LLC c/o Cal National Bank: Palomar Street northerly of Clinton Keith, Wildomar, CA	41.00	41.00	3.00	3.00
1809-4	Elsinore Homes: Wildomar, CA 92530	26.00	26.00	7.00	7.00
1923-5	Pardee Construction Company: Canyon Hills	132.00	132.00	72.00	72.00

Pending Will Serve Connections

Regional

PAID - PARTIALLY CONNECTED

ID:	Project	Connected EDUs		Pending EDUs	
		Sewer	Water	Sewer	Water
1924-4	Pardee Construction Company: Canyon Hills	161.00	161.00	93.00	93.00
1927-5	Pulte Homes: Canyon Hills	145.00	145.00	129.00	129.00
1929-4	Centex Homes: Ramsgate Project	202.00	202.00	11.00	11.00
2012-9	K. Hovnanian: Westerly of McVicar Canyon Park Road, Lake Elsinore, CA	11.00	11.00	94.00	94.00
2013-8	K. Hovnanian: Easterly of McVicar Canyon Park Road, Lake Elsinore, CA	79.00	79.00	15.00	15.00
2037-5	Pardee Homes: Canyon Hills, PA 29	2.00	2.00	100.00	100.00
2038-7	Pardee Homes: Canyon Hills, PA 30A	7.00	7.00	151.00	151.00
2039-5	Pardee Homes: Canyon Hills, PA 30B	80.00	80.00	66.00	66.00
2082-4	Van Daele Development Carmel Oakmont 222, LLC: Clinton Keith btwn I-15 & George Avenue, Wildomar, CA	208.00	208.00	10.00	10.00
2165-2	Wesco Homes: Tiller Lane, Lake Elsinore, CA	3.00	3.00	45.00	45.00
686-0	James Heiser: 33168 & 33197 Friar Tuck Way, Lake Elsinore, CA 92530	0.00	1.00	0.00	1.00
763-5	Greystone Homes, Inc.: Machado Street/Grand Avenue, Lake Elsinore	72.00	72.00	25.00	25.00
801-3	Meeker Companies: South of Catt Road, East of Palomar, Wildomar, CA 92530	9.00	9.00	106.00	106.00
879-4	Canyon Village Estates, LLC: Canyon Drive, Lake Elsinore, CA 92530	19.00	19.00	31.00	31.00
915-0	George Roudenaz: 21347, 21357, 21359, 21361 Darby Street, Wildomar	0.00	2.00	0.00	2.00
951-0	Hagan Inv., Inc.: 1311 Heald Avenue, Lake Elsinore, CA	2.00	2.00	2.00	2.00
972-9	KB Home Coastal Inc.: Northwesterly corner of Corydon/Palomar Streets	214.00	214.00	19.00	19.00
		1,726.00	**1,732.00**	**1,136.00**	**1,144.00**

UNPAID - ACTIVE PLANNING LETTER

ID:	Project	Connected EDUs		Pending EDUs	
		Sewer	Water	Sewer	Water
1121-1	East West Bank: De Palma Road	0.00	0.00	0.00	0.00
1280-1	Lake Elsinore 521, LLC: Southerly of Wasson Canyon Road, Lake Elsinore	0.00	0.00	0.00	0.00
1822-1	Pacific Coast Land Consultants, Inc.: SW Corner of Catt Rd/Hidden Spgs Rd, Wildomar, CA	0.00	0.00	0.00	0.00
1899-1	Paul Peck & Associates: 12250 Temescal Canyon Road, Corona, CA 92883	0.00	0.00	0.00	0.00
2027-1	Sam Gregory: 405 S. Spring Street, Lake Elsinore, CA 92530	0.00	0.00	0.00	0.00
2123-1	David Horenstein: Southeasterly corner Clinton Keith/Hidden Springs Road, Wildomar	0.00	0.00	75.75	29.50
2131-0	Toyota Motor Sales, U.S.A., Inc.: Casino Drive, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2137-0	Milestone Wildomar, LLC: 36215 Jana Lane, Wildomar, CA	0.00	0.00	0.00	0.00

Pending Will Serve Connections

Regional

UNPAID - ACTIVE PLANNING LETTER

ID:	Project	Connected EDUs		Pending EDUs	
		Sewer	Water	Sewer	Water
2138-0	SB & O, Inc.: Clinton Keith Road/George Avenue, Wildomar, CA	0.00	0.00	0.00	0.00
2139-0	Kenny Robles: Palomar Street/Kilgore Lane, Wildomar, CA	0.00	0.00	0.00	0.00
2142-0	Holmes Ontiveros Holmes, Inc.: 21275 River Road, Perris, CA	0.00	0.00	0.00	0.00
2143-0	Kish North: Franklin St / Conklin Avenue, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2144-0	MDMG, Inc.: 32150 Clinton Keith Road, Wildomar, CA	0.00	0.00	0.00	0.00
2145-0	Mr. Benito Navarro: 30338 Baum Avenue, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2146-0	Palm Desert Development: Catt Road, Wildomar, CA	0.00	0.00	0.00	0.00
2147-0	Grace Properties, Inc.: Main Street, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2148-0	Carolyn Maguire: Corner of Lowell and Flint Streets	0.00	0.00	0.00	0.00
2151-0	Hall & Foreman, Inc.: Lakeshore Drive-East Lake Specific Plan, Lake Elsinore, Ca	0.00	0.00	0.00	0.00
2152-0	Hall & Foreman, Inc.: Between Lucerne & Margorie Streets, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2155-0	Corman Leigh Communities: Lakeshore Drive at Gunnerson Street, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2156-0	Ram Cam Engineering: 29301 Riverside Circle, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2157-0	City of Lake Elsinore: Spring & Sulphur Sts & Limited Avenue, Lake Elsinore	0.00	0.00	0.00	0.00
2159-0	FDC Corporation: Channing Way, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2162-0	Mayers & Associates Civil Engineering, Inc.: Canyon Hills & Kalanchoe Roads, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2163-0	Matthew Fagan Consulting Services: Grand Avenue, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2169-0	Jones, Cahl & Associates, Inc.: Northwest corner of Conard and Central Avenues, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2172-0	MDMG, Inc.: Corydon bwtn Melinda Ln and Bryant St, Wildomar, CA	0.00	0.00	0.00	0.00
2180-0	W. B. Allen Construction, Inc.: Mission Trail, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2181-0	Hazim Abdulzahra: 28781 Hwy 75, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2184-0	Tim Webb: 16910 Monterey Road, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2185-0	Tim Webb: 16930 Monterey Road, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2186-0	Tim Webb: 16890 Monterey Road, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2187-0	Beador Construction Company: 12360 Temescal Canyon Road	0.00	0.00	0.00	0.00

Pending Will Serve Connections

Regional

UNPAID - ACTIVE PLANNING LETTER

ID:	Project	Connected EDUs		Pending EDUs	
		Sewer	Water	Sewer	Water
2189-0	Mayers & Associates Civil Engineering, Inc.: Canyon Hills Road & Railroad Cyn Road, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2211-0	GreenbergFarrow: Wildomar Square, SW Corner Clinton Keith and I-15	0.00	0.00	0.00	0.00
2214-0	Choa Murrieta, LLC: 23825 Catt Road, Wildomar, CA	0.00	0.00	0.00	0.00
2218-0	City of Lake Elsinore: 32040 Riverside Street, Lake Elsinore, Ca	0.00	0.00	0.00	0.00
2226-0	WLC Architects, Inc.: Canyon Hills Road and future Angel Falls Road, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2229-0	Lake Elsinore Unified School District: 30100 Audelo Street, Lake Elsinore, CA	0.00	12.50	27.00	0.00
2236-0	KWC Engineers: 28857 Lake Street, Lake Elsinore, CA	0.00	0.00	0.00	0.00
2244-0	Pfeiler Associates: Northeast corner of Clinton Keith Rd & George Avenue, Wildomar, CA	0.00	0.00	6.42	13.50
2254-0	LNT Development, LLC: 35951 Salida Del Sol, Wildomar, CA	0.00	0.00	0.00	0.00
2257-0	Dan Morrar: 32374 Clinton Keith Road, Wildomar, CA	0.00	0.00	0.00	0.00
		0.00	**12.50**	**109.17**	**43.00**

UNPAID - ACTIVE WILL SERVE

ID:	Project	Connected EDUs		Pending EDUs	
		Sewer	Water	Sewer	Water
1060-3	GLJ West Development Company: 23491 Clinton Keith Road, Wildomar, CA 92595	0.00	0.00	187.20	19.20
1395-2	Cafh Order at Wildomar, Inc.: 21776 Palomar Street, Wildomar, CA	0.00	12.50	3.00	0.00
1468-1	Dennis Demontigny: 32956 Blackwell Blvd., Lake Elsinore, CA 92530	0.00	0.00	1.00	0.00
1685-4	BEG, LLC c/o Cal Natrional iBank: Palomar Street northerly of Clinton Keith, Wildomar, CA	0.00	0.00	42.00	42.00
1873-3	Rick Weir: 21795 Sedco Heights Drive, Lake Elsinore, CA	0.00	0.00	0.00	1.00
1884-1	Zenos Inc.: 12531 Palm Street, Lake Elsinore, CA	0.00	0.00	1.00	0.00
1933-1	Mark Santibanez: 32961 Ethlene Drive, Lake Elsinore, CA	0.00	0.00	1.00	1.00
1948-1	Joshua Stevens: 649 Lake Street, Lake Elsinore, CA	0.00	0.00	0.00	1.00
2010-2	Noel Saenz: Intersection of Sumner Avenue & Silver Street, Lake Elsinore, CA	0.00	0.00	1.00	1.00
2059-2	W. L. Homes LLC dba John Laing Homes: Westerly of Mission Trail, Lake Elsinore, CA	9.00	9.00	214.00	214.00
2070-1	Butterfield Village Mobile Home Park: 32900 Riverside Drive, Lake Elsinore, CA	0.00	12.50	3.00	0.00
2083-1	Augustine Development Corp.: Ulmer Street, Lake Elsinore, CA	0.00	0.00	1.00	0.00

Pending Will Serve Connections

Regional

UNPAID - ACTIVE WILL SERVE

ID:	Project	Connected EDUs		Pending EDUs	
		Sewer	Water	Sewer	Water
2085-1	Augustine Development Corp.: Mountain Street, Lake Elsinore, CA	0.00	0.00	1.00	1.00
2107-0	Megaland Engineers: Fairview Street, Lake Elsinore, CA	0.00	1.00	2.00	1.00
2119-1	Sake Engineering: 20420 Palomar Street, Wildomar, CA	0.00	0.00	0.00	0.00
2140-0	Miguel Ruiz: 112 Lowell Street, Lake Elsinore, CA	0.00	0.00	1.00	1.00
2150-0	Jeffrey M. Reilly: 31600 Shirley Drive, Lake Elsinore, CA	0.00	1.00	1.00	0.00
2154-3	Animal Friends of the Valleys, Inc.: 33751 Mission Trail, Wildomar, CA	0.00	0.00	17.19	5.50
2166-0	John Greer: 27950 Robert Street, Perris, CA	0.00	0.00	0.00	1.00
2170-0	Joshua Hobbs: 34709 White Street, Wildomar, CA	0.00	1.00	0.00	1.60
2171-0	Dr. Michael Mahan: 1502 Heald Avenue, Lake Elsinore, CA	0.00	0.00	1.00	1.00
2173-0	Wood Doctor Construction, Inc.: 20792 Palomar Street, Wildomar, CA	0.00	1.00	0.00	1.60
2174-0	Steve Dobihal: Lakeshore Drive, Lake Elsinore, CA	0.00	0.00	1.00	1.00
2175-0	Eliseo Sanchez: 183 S. Chestnut Street, Lake Elsinore, CA	2.00	1.00	0.00	1.60
2176-0	Pablo Delgado: 29855 Reid Street, Lake Elsinore, CA	0.00	0.00	1.00	0.00
2179-0	Michael A. Medofer: Robertston Street/Shrier Drive, Lake Elsinore, CA	0.00	0.00	1.00	0.00
2194-1	Recontrust Company: 32954 Pepper Drive, Lake Elsinore, CA 92530	0.00	0.00	1.00	1.00
2196-0	Donald Lowe: Claremont Street, Lake Elsinore, CA	0.00	0.00	0.00	1.60
2197-0	Joel Dangla Cruz: 132 E. Sumner Avenue, Lake Elsinore, CA	1.00	1.00	0.00	1.00
2202-0	Mike Schade: 34659 Jennifer Drive, Wildomar, CA	0.00	1.00	1.00	0.00
2204-0	Richard Luis Vera: 17280 A & B Grand Avenue, Lake Elsinore, CA	0.00	1.00	1.20	0.00
2207-1	K. Hovnanian Homes: Gateway Drive, West End CFD, Lake Elsinore, CA	0.00	0.00	110.00	110.00
2215-0	Pacific Coast Land Consultants: 16109 (16103) Grand Avenue, Lake Elsinore, CA	0.00	1.00	1.00	0.00
2224-0	Sergio Pelayo: 298 Moroni Avenue, Lake Elsinore, Ca 92530	1.00	0.00	0.00	1.00
2240-0	TR Design Group, Inc.: 32406 Clinton Keith Road, Wildomar, CA 92595	0.00	0.00	6.68	1.00
2242-0	KWC Engineers: 28857 Lake Street, Lake Elsinore, CA	0.00	0.00	10.54	13.50
2245-0	Pardee Homes: Agaliya Court, Lake Elsinore, Ca	0.00	0.00	8.00	8.00
2247-1	Coyote Development & Construction: 16081 Marian Avenue, Lake Elsinore, CA	0.00	1.00	1.00	0.00
2252-0	Mr. & Mrs. Eufers: 21404 Canyon Drive, Wildomar, CA	0.00	1.00	1.00	0.00

Pending Will Serve Connections

Regional

UNPAID - ACTIVE WILL SERVE

ID:	Project	Connected EDUs		Pending EDUs	
		Sewer	Water	Sewer	Water
2256-0	Leticia Cervantes: Country Club Blvd., Lake Elsinore, Ca	0.00	0.00	1.00	0.00
2258-0	Jose Cobian: 21953 Corydon Street, Lake Elsinore, CA	0.00	0.00	8.34	1.60
2259-0	Alex Palomares: 420 Lookout Street, Lake Elsinore, CA	0.00	0.00	0.00	1.00
2260-0	Escrow Chalet: 32330 Elsinore Heights Drive, Wildomar, CA 92595	0.00	0.00	0.00	1.00
884-1	Craft Restaurant Builders, Inc.: 23971 Clinton Keith Road, Suite A101, Wildomar, CA	0.00		19.36	3.00
900-2	Beazer Homes: Grand Ave/McVicar St., Wildomar, CA	0.00	0.00	108.00	108.00
		13.00	**45.00**	**758.51**	**547.20**
Total for Regional		**1,778.23**	**1,838.60**	**2,060.58**	**1,740.00**

Southern

PAID - PARTIALLY CONNECTED

ID:	Project	Connected EDUs		Pending EDUs	
		Sewer	Water	Sewer	Water
1662-10	KB Homes Coastal, Inc.: Clinton Keith Road	111.00	111.00	6.00	6.00
		111.00	**111.00**	**6.00**	**6.00**

UNPAID - ACTIVE WILL SERVE

ID:	Project	Connected EDUs		Pending EDUs	
		Sewer	Water	Sewer	Water
2203-1	Pamilla, LP: Southwesterly corner of Nutmeg & Jackson, Murrieta	0.00	0.00	47.04	1.00
		0.00	**0.00**	**47.04**	**1.00**
Total for Southern		**111.00**	**111.00**	**53.04**	**7.00**

Appendix D

Elsinore Groundwater Basin Bulletin

Elsinore's Groundwater Basin characteristics 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).

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.

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	

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Errata

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

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