Water Supply Assessment

for the

City of Colton's Hub City Center

Prepared by:

West Valley Water District

855 West Base Line Road
Rialto, CA 92377

Prepared for:

City of Colton
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Board Approved on September 5, 2013

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Chapter I – Introduction

This Water Supply Assessment (WSA) has been prepared for City of Colton's Hub City Center in accordance with the provisions of Senate Bill No. 610 (SB 610). California Water Code references are provided throughout this document where relevant.

SB 610

For projects meeting certain criteria, a public water system supplier must prepare and approve a WSA that contains three parts:

- Explicit identification of existing and anticipated water supply entitlements, water rights and water service contracts, demonstrated by contracts, Capital Improvement Programs, and permit applications.
- If no water has been received from the source identified to supply the project, other competing purveyors that receive water from this source must be identified.
- If groundwater is a proposed supply, factors such as adjudicated rights, groundwater management practices and historical pumping must be presented to establish proper use of the resource.

The latest adopted Urban Water Management Plan (UWMP) may be utilized to provide the information required for the WSA. If the demands expected from the proposed project are not accounted for in the UWMP, a discussion must be included with regard to whether the water system's total projected water supplies during normal, single dry and multiple dry years over a 20 year period from the date of the report, will meet the projected demand of the proposed project in addition to the system's existing and projected future uses.

On the basis of the WSA, the public water supplier is required to provide "written verification" of "sufficient water supplies." The verification must consider the following factors:

- The availability of water over the next 20 years.
- The applicability of any urban water shortage contingency analysis prepared per Water Code Section 10632.
- The reduction in water supply allocated to a specific use by an adopted ordinance.
- The amount of water that can be reasonably relied upon from other water supply projects, such as conjunctive use, reclaimed water, water conservation, and water transfer.

In November 2012 the District adopted the Amended Final 2010 San Bernardino Valley Regional Urban Water Management Plan (RUWMP), as is required for water suppliers providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet per year (af/yr).

The RUWMP projected water supplies to meet future demands through the year 2035. It assessed the projected demand and supply and concluded that the District has, and will have, an adequate water supply to meet all demands within their service area to 2035.

The RUWMP contains the following information as required by Water Code Section 10910 for WSAs:

- A detailed description of each groundwater basin that supplies the District with potable water.
- Copies of the court decrees and judgments for each groundwater basin.
- A detailed description and analysis of the amount and location of groundwater pumped by the District for each groundwater basin for the last five years.
- A detailed description and analysis of the amount and location of the groundwater projected to be pumped from each groundwater basin by the District.
- An analysis of the sufficiency of each groundwater basin to meet the District's projected amounts to be pumped under normal, single dry year, and multiple dry year conditions for the next 20 years (2015 - 2035) in five-year increments.

This Water Supply Assessment incorporates information and direct citations from the RUWMP. Additional information can be found in the adopted plan.

Project Overview

The City of Colton's Hub City Center (Development) proposes a development that will contain a mix of 8 land uses, just north of Interstate 10 Freeway in the City of Colton, California. The location of the development can generally be described as being bound by San Bernardino Avenue on the north, Hermosa Avenue on the east, Interstate-10 Freeway on the south, and the City boundary between Rialto and Colton on the west.

The development proposes land uses that include business park, open space/habitat, open space/park, retail, retail mixed use, office mixed use, and residential on 373.20 acres. West Valley Water District's service area is west of Pepper Avenue to the City of Colton's boundary and therefore this assessment only calculates the demands within the District's service area.

The water demand projected for this mixed use development is approximately, 894 af/yr and includes the demands for 275 residential units. The District's 2012 Water Master Plan calculated that the demand for an equivalent dwelling unit (EDU) within the District was 750 gallons per day (gpd). Based on this information, the projected demand for this Development is greater than the amount of water required by a 500 dwelling unit project.

Chapter II – Water Supply Assessment

Determination of a Project

California Water Code section 10910

(a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act Division 13 (commencing with Section 21000) of the Public Resources Code, under Section 21080 of the Public Resources Code shall comply with this part.

As defined in Section 10912(a) (7) of the California Water Code, *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,* must prepare a WSA. As discussed in the Project Overview section above, the land uses proposed for the City of Colton's Hub City Center would have a water demand in excess of 500 dwelling units and therefore is required to prepare a WSA.

Preparer

California Water Code section 10910

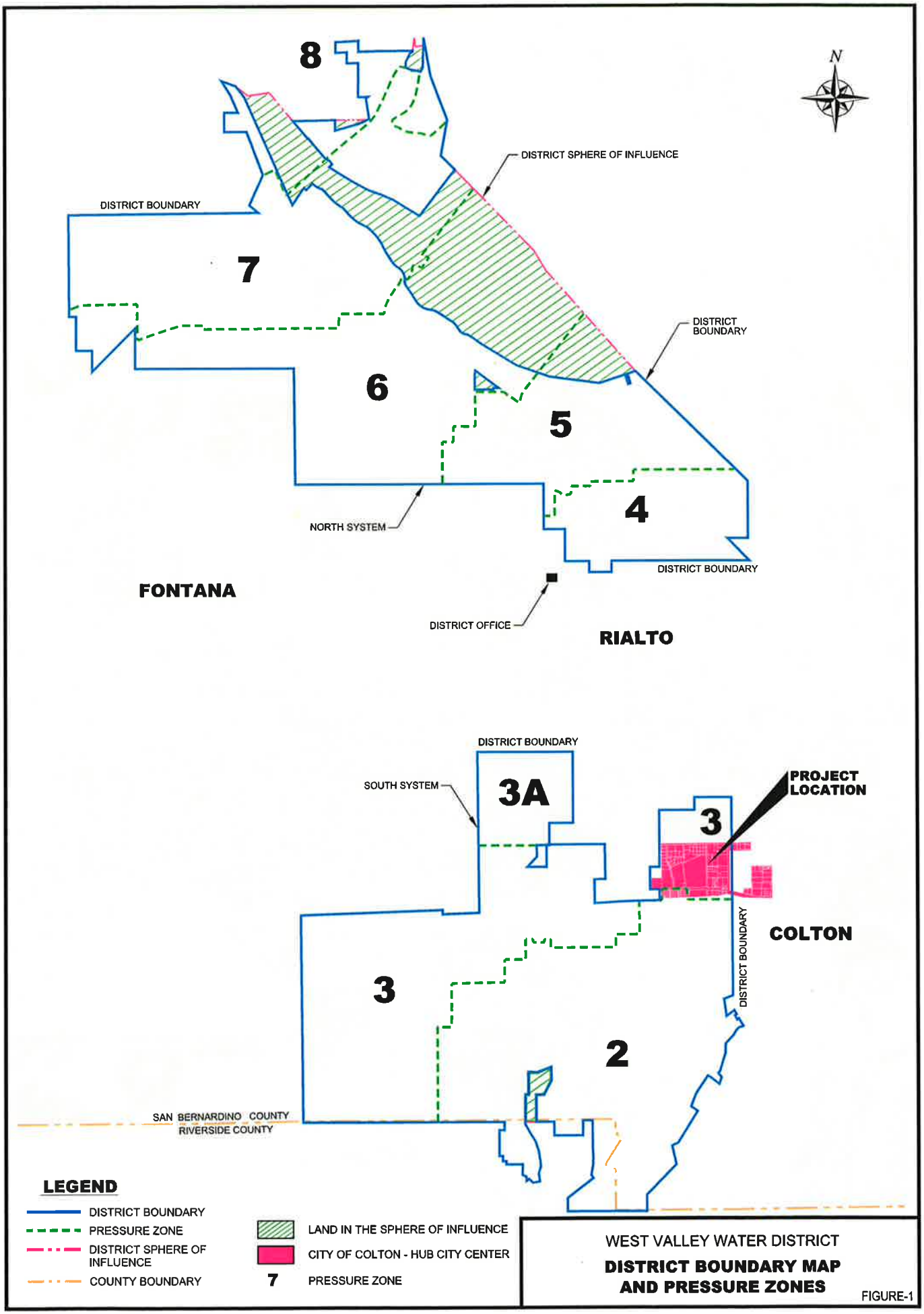
(b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined in Section 10912, that may supply water for the project. If the city or county is not able to identify any public water system that may supply water for the project, the city or county shall prepare the water assessment required by this part after consulting with any entity serving domestic water supplies whose service area includes the project site, the local agency formation commission, and any public water system adjacent to the project site.

The majority of the Development is located west of Pepper Avenue, and is within the water service area of the West Valley Water District (District). The Development is arranged into 24 planning areas on 373.20 acres. Twenty of the planning areas, on approximately 257.81 acres (not including major roadways) are located within the District. Planning Areas 21 through 24 are located outside of West Valley Water District's service area and would be served by the City of Colton. *Figure-1 depicts the project location within the Districts service area boundary.*

Inclusion in an UWMP

California Water Code section 10910

(c) (1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).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7 PRESSURE ZONE
WEST VALLEY WATER DISTRICT
DISTRICT BOUNDARY MAP AND PRESSURE ZONES
FIGURE-1

The 2010 RUWMP is the most recently adopted UWMP by the District and outlines water supplies that will be used by the District to fulfill projected future demand. To project future water demands within the District, parcels are assigned a water usage rate per acre based on land use designations from City and County General Plans. The District's 2010 RUWMP utilized water usage rates per acre from the District's 2004 Water Master Plan and from demands from anticipated new developments to estimate future water demands for the 20 year planning period within the plan.

In 2008, a WSA was performed for the Colton Super Block development which occupied the same location as the proposed Development. That assessment projected a demand of 1,245 af/yr based on the anticipated land uses at the time. That project was one of the anticipated new developments at the time the 2010 RUWMP was prepared, and therefore the projected water demand associated with that project was included as part of the most recently adopted UWMP.

Projected Demands

California Water Code section 10910

(c) (2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

The projected water demand for the Hub City Center was based on the Land Use Plan Map dated April 18, 2013 (Figure-2) and from data contained in the Planning Area Detail Summary dated July 25, 2013 provided by the City's Consultant (see Appendix A). The data within the Planning Area Detail Summary outlines the Planning Areas within the development, the acreage and land use for each area and the targeted density of the residential dwelling units.

The Development consists of 24 planning areas and major street rights of ways on 373.20 acres of land. West Valley Water District's service area is west of Pepper Avenue to the City of Colton's boundary and therefore, twenty of the planning areas, on approximately 258 acres, are located within the District's service area. Planning areas 21 through 24 are located outside of the District's service area and will have water supplied to them from the City of Colton's water distribution system.

Planning areas 1 through 20 contain 8 land uses including retail business park, open space/park, open space/habitat, retail mixed use, office mixed use and residential. The residential designated areas will include medium density residential (4 dwelling units per acre) and medium-1 residential units (11 dwelling units per acre) for a total of 275 dwelling units. The District's 2012 Water Master Plan calculated that the current usage per EDU within the District was 750 gpd per EDU and therefore this demand was utilized for the residential demand for this development. Planning Areas 3, 6, 11 and 18 are designed as open space/habitat areas that will contain native cover and therefore is anticipated to have no water demand associated with it.

COLTON'S HUB CITY CENTER

Land Use Plan

Alternative A

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Community Planning and Design
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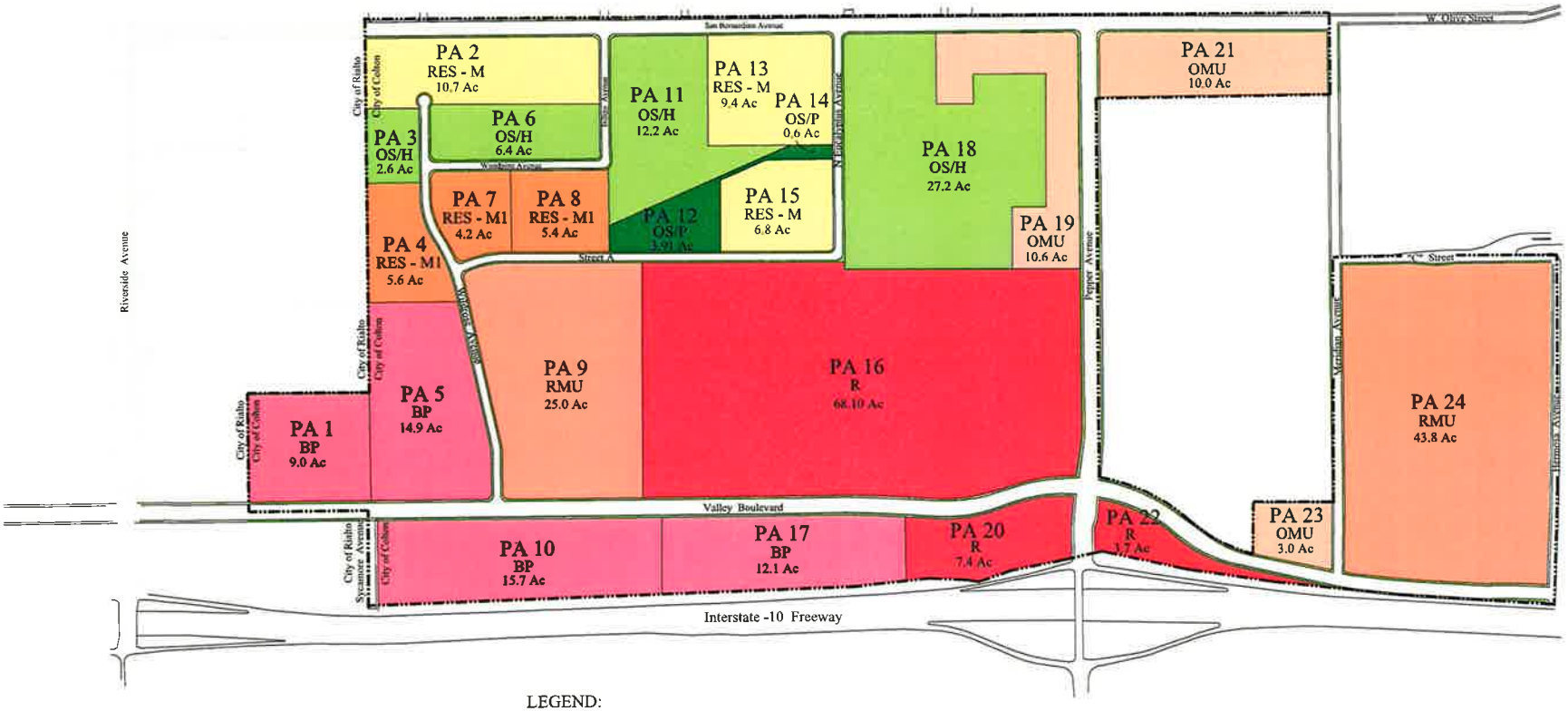
Tustin, CA 92602

Date: April 18, 2013



LEGEND:

RES-M	(Medium)	R	Retail	OS/P	Open Space / Park
RES-M1	(Medium - 1)	OMU	Office Mixed Use	OS/H	Natural Habitat
RMU	Retail Mixed Use	BP	Business Park		

Planning Areas 12 and 14 are designed as open space/park areas that will be irrigated. Table 1 shows the proposed Development's land uses, total acreage, the number of dwelling units and the projected demands.

Table 1. Estimated Water Demand for the City Of Colton's Hub City Center

Planning Area	Type of Land Use	Total Acreage	Target Density (du/ac)	Target Dwelling Units	Residential Demand (gpd/EDU)	Water Use (gpm/Ac)	Annual Demand (af/yr)
1	Business Park	9.00				2.43	35.28
2	Res-Medium	10.70	4	43	750		35.96
3	OS/Habitat	2.60				0	0.00
4	Res-Medium-1	5.60	11	62	750		51.75
5	Business Park	14.90				2.43	58.40
6	OS/Habitat	6.40				0	0.00
7	Res-Medium-1	4.20	11	46	750		38.81
8	Res-Medium-1	5.40	11	59	750		49.90
9	Retail Mixed Use	25.00				2.62	105.65
10	Business Park	15.70				2.43	61.54
11	OS/Habitat	12.20				0	0.00
12	OS/Park	3.91				2.43	15.33
13	Res-Medium	9.40	4	38	750		31.59
14	OS/Park	0.60				2.43	2.35
15	Res-Medium	6.80	4	27	750		22.85
16	Retail	68.10				2.43	266.93
17	Business Park	12.1				2.43	47.43
18	OS/Habitat	27.2				0	0
19	Office Mixed Use	10.6				2.43	41.55
20	Retail	7.40				2.43	29.01
21	Office Mixed Use	*Not within District's service area and not part of the Water Supply Assessment					
22	Retail	*Not within District's service area and not part of the Water Supply Assessment					
23	Office Mixed Use	*Not within District's service area and not part of the Water Supply Assessment					
24	Retail Mixed Use	*Not within District's service area and not part of the Water Supply Assessment					
		257.81		**275**		**24.49**	**894.32**

The projected demand for this development is based on the 258 acres within the District's service area and is estimated to be 894.32 af/yr. As stated above, the Colton Super Block Development projected a demand of 1,245 af/yr. This new land use plan for the City of Colton's Hub City Center results in an overall reduction to the estimated water demand by 351 af/yr. Therefore the projected water demand for this project was accounted for in the 2010 RUWMP. The District demonstrated in the 2010 RUWMP that sufficient supplies are available. The District incorporated the requested information from the 2010 RUWMP in preparing this assessment.

Water Supplies

California Water Code section 10910

(d)(1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.

(2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), shall be demonstrated by providing information related to all of the following:

(A) Written contracts or other proof of entitlement to an identified water supply.

(B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.

(C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.

(D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

District Overview

The District currently obtains water from three different sources: surface water from Lytle Creek, surface water supplies via the State Water Project (SWP), and groundwater from wells in 5 different groundwater basins. Table 2 shows the minimum and maximum amount of water the District is entitled to (water rights) for each supply source. These limits are discussed further below. The contracts and entitlements for District water supplies are enclosed as attachments to the 2010 RUWMP.

Table 2. District Maximum Water Rights

Supply Source	Maximum Water Rights[1]	Estimated Annual Production (afy)
Lytle Basin	12,105 gpm – export out of Lytle Creek Region with full use of Lytle Creek surface water No Limit – if used within the Lytle Creek Region	5,000 – 10,000
North Riverside Basin	No Limit	3,000 – 5,000
Rialto Basin	No Limit - normal conditions 3,067 to 6,134 acre feet per year (minimum to maximum) – drought conditions	3,067 – 10,000
Bunker Hill Basin	No Limit	15,000 - 25,000
Chino Basin	No Limit - as long as the replenishment costs are paid by the District	1,000 – 3,000
Lytle Creek Surface Flows	5,500 acre feet per year - normal conditions 3,000 acre feet per year - drought conditions	3,000 – 5,500
State Water Project[2]	No Limit – Projected normal usage 7,000 afy	7,000

[1] Water rights represent the maximum amount of water the District is entitled to for each supply source.

[2] State Project Water amounts are influenced by supply availability and the Districts ability to treat the supply.

Surface Water

Surface water supplies are received from the North Fork Lytle Creek, Middle Fork Lytle Creek, and South Fork Lytle Creek. The District and its predecessors have been utilizing Lytle Creek surface flows for water supply for more than 130 years. Surface water from Lytle Creek was adjudicated under the 1924 Judgment No. 17,030 from Superior Court of San Bernardino County and is managed by the Lytle Creek Water Conservation Association.

The District has the right to divert and export out of the Lytle Creek Region up to 2,290 gpm when it is available. The District also has the right to purchase an additional 1,350 gpm from Lytle Creek flows through an agreement with the City of San Bernardino. The City of San Bernardino is not able to utilize their surface water flows. The District projects to use up to 5,500 afy from Lytle Creek surface flows during normal conditions and a minimum of 3,000 afy during extended drought conditions.

Surface water from Lytle Creek is treated at the District's 14.4 mgd Oliver P. Roemer Water Filtration Facility (WFF). The District also utilizes Lytle Creek surface water flows for groundwater recharge in the Lytle Creek Basin.

State Water Project

San Bernardino Valley Municipal Water District (SBVMWD) is the fifth largest State Water Contractor, with an annual maximum entitlement of 102,600 acre-feet of "Table A" water through 2035. The "Table A" amount is each contractor's proportionate share, or "allocation," of the SWP water supply. However, actual deliveries of SWP water each year vary, based on the amount of precipitation, snowpack, runoff, water in storage, pumping capacity from the Delta, and legal/regulatory constraints on SWP operation. State Water Project supplies for the District are received from SBVMWD through the Lytle Turnout off the San Gabriel Feeder Pipeline.

The District utilizes SWP supplies for groundwater recharge and to produce potable water at the District's WFF. A future expansion of the WFF, which involves the construction of membrane filtration, will enable the District to treat an additional 6.0 mgd (6,700 afy) of State Water Project supplies. Upon completion of the WFF expansion, the District would have the ability to treat up to 20.4 mgd. The District has been utilizing State Water Project supplies through the Lytle Turnout since 1999.

Groundwater Supplies

California Water Code section 10910

(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin

or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.

Groundwater is a major source of water supply for the San Bernardino Valley. Groundwater sources are adjudicated or are managed in concert with local surface water. This section provides a description of local surface water and groundwater basins utilized by the District.

The San Bernardino Basin Area

The San Bernardino Basin Area (SBBA) was defined by and adjudicated in gross by the *Western Judgment* in 1969. The SBBA has a surface area of approximately 140.6 square miles and lies between the San Andreas and San Jacinto faults. The basin is bordered on the northwest by the San Gabriel Mountains and Cucamonga fault zone; on the northeast by the San Bernardino Mountains and San Andreas Fault zone; on the east by the Banning fault and Crafton Hills; and on the south by a low, east-facing escarpment of the San Jacinto fault and the San Timoteo Badlands. Alluvial fans extend from the base of the mountains and hills that surround the valley and coalesce to form a broad, sloping alluvial plain in the central part of the valley. The SBBA encompasses the Bunker Hill subbasin (8.02-06) defined by DWR and includes a small portion of the Yucaipa Basin (8-02.07) and the Rialto-Colton Basin (8-02.04) as defined by DWR. The SBBA also encompasses surface water. (2010 RUWMP)

The *Western Judgment* established the natural safe yield of the SBBA to be a total of 232,100 af for both surface water diversions and groundwater extractions. Of this amount, agencies within the San

Bernardino Valley Municipal Water District (SBVMWD) service area are allocated 167,238 afy. San Bernardino agencies are allowed to extract more than 167,238 afy from the SBBA, but extractions over 167,238 af require import and recharge by the SBVMWD of a like amount of water. The Western-San Bernardino Watermaster provides an annual accounting of the total extractions as compared to the safe yield. In years when total extractions are greater than the safe yield, the replenishment obligation is triggered. In years when total extractions are less than the safe yield, it results in a "credit". (2010 RUWMP).

Bunker Hill Basin

The District and its predecessors have been utilizing the Bunker Hill Basin for over 50 years. The Bunker Hill Basin was adjudicated by the 1969 Judgment No.117,628 of the Court of Orange County and is managed by a court appointed Watermaster (SBVMWD and Western Municipal Water District). SBVMWD's primary function is to plan and develop a long-range water supply for water agencies within the Upper Santa Ana River Basins. These two agencies have adopted a Regional Water Facilities Master Plan that manages the Bunker Hill Basin.

The District has two existing wells in the Bunker Hill Basin within the defined area of the 1924 Judgment. In addition to these wells, the District has a contract with SBVMWD for 5,000 afy from the Bunker Hill Basin through the Baseline Feeder pipeline.

Lytle Creek Basin

Lytle Creek subbasin is not mapped in DWR Bulletin 118-2003: however, the subbasin is an integral part of the Upper Santa Ana Valley Groundwater Basin and a major recharge area for both the Bunker Hill and Rialto-Colton subbasins. Historically, local agencies have recognized Lytle Creek subbasin as a distinct groundwater subbasin (IRWMP 2007). For the 2010 RUWMP the Bunker Hill and Lytle Creek subbasins were generally considered as one groundwater basin-the SBBA.

Lytle Creek subbasin is adjoined on the west by the Rialto-Colton subbasin along the Lytle Creek fault, and on the east and southeast by the Bunker Hill subbasin along the Loma Linda fault and Barrier G. The northwestern border of the subbasin is delineated by the San Gabriel Mountains, and runoff from the mountains flows south/southeast through Lytle and Cajon Creeks into the basin (2010 RUWMP). Numerous groundwater barriers are present within Lytle Creek subbasin, resulting in six compartments within the subbasin. The basin is highly porous and easily replenished during heavy precipitation years. The depth to groundwater in the basin varies from 50 feet to 400 feet depending on whether it is a drought cycle or wet cycle.

The District and its predecessors have been utilizing the Lytle Creek Basin for water supply for nearly 100 years. The Lytle Creek Basin was adjudicated under the 1924 Judgment No. 17,030 from the Superior Court of San Bernardino County and is managed by the Lytle Creek Water Conservation Association (made up of the successors to the stipulated parties of the judgment). The District has existing wells in the Lytle Creek Basin, and the right to pump and export 12,105 gpm out of the Lytle Creek Region if diverting the full allotment (2,290 gpm) of surface flow from Lytle Creek. If flows from the Creek are low and the District is receiving a portion of their allotment, they can pump the

difference from the wells to a combined maximum of 14,395 gpm from the basin, depending on how much water is available to pump and how much water is available to divert from Lytle Creek. The District has no restrictions on how much it can pump and serve within the Lytle Creek Region.

The actual amount that the District can extract from the basin yearly is dependent on the availability of groundwater within the basin. In the past, they have pumped between 10,000 afy in normal years and an estimated 5,000 afy in the most severe drought periods. Due to drought conditions, the District has been preparing to shift its main source of supply from the Lytle Creek Basin to the Bunker Hill Basin, which is not affected as much during droughts. The District plans to drill additional wells in the Bunker Hill Basin to meet future demands.

Rialto-Colton Basin

The Rialto-Colton subbasin underlies a portion of the upper Santa Ana Valley in southwestern San Bernardino County and northwestern Riverside County. This subbasin is about 10 miles long and varies in width from about 3.5 miles in the northwestern part to about 1.5 miles in the southeastern part. This subbasin is bounded by the San Gabriel Mountains on the northwest, the San Jacinto fault on the northeast, the Badlands on the southeast, and the Rialto-Colton fault on the southwest (2010 RUWMP).

The District and its predecessors have been utilizing the Rialto Basin for water supply for more than 80 years. The Rialto Basin was adjudicated under the 1961 Decree No. 81,264 from the Superior Court of San Bernardino County. Groundwater storage capacity of the basin is about 210,000 af (DPW 1934), with an estimated 120,000 af for the Rialto portion of the sub-basin and about 93,000 af for the Colton portion. The basin shows quick rises of water levels during high precipitation years and slower decline over several years.

Under normal conditions, when the basin is not in adjudication, the District has unlimited extraction rights. During drought conditions when the adjudication is in effect, the District's extraction right ranges from 3,067 afy in the most severe drought periods to a maximum of 6,134 afy. Existing wells in the Rialto Basin have the capacity to extract up to 10,000 afy during normal conditions.

North Riverside Basin

The North Riverside Basin is part of the 1969 Judgment No. 117,628, under the Bunker Hill Basin. The Riverside Groundwater Basin is a large alluvial fill basin that is bounded by major faults and topographic barriers. Recharge to the basin occurs by the underflow from basins to the north, contributions from the Santa Ana River, and from percolation of surface water runoff from the surrounding uplands, in particular the Box Spring Mountains to the east. The District, which has no limits or restrictions on groundwater pumping in the basin, has been utilizing the North Riverside Basin for water supply for more than 60 years.

Chino Basin

The District and its predecessors have been utilizing the Chino Basin for water supply for over 40 years. The Chino Basin was adjudicated by the 1978 Judgment No. 164,327 of the Court of San Bernardino County and is managed by the court appointed Chino Basin Watermaster. The Judgment declares that the safe yield of the Chino Basin is 140,000 acre-feet. The purpose and objective of the Chino Basin Watermaster is to *"establish a legal and practical means for making the maximum reasonable beneficial use of the waters of Chino Basin by providing the optimum economic, long-term, conjunctive utilization of surface waters, ground waters and supplemental water, to meet the requirements of water users having rights in or dependent upon Chino Basin"*.

The District has a minimum of approximately 1,000 afy of extraction rights from the Chino Basin. Extractions above this amount must be replenished by the Metropolitan Water District through a program with the Chino Basin Watermaster. There is no maximum limit to pumping within the Chino Basin, as long as the replenishment charges are paid by the District.

The Chino Basin consists of about 235 square miles of watershed. The Chino Basin is an alluvial valley that is mainly flat from east to west and slopes from the north to the south at a one to two percent grade. Elevations in the valley range from 2,000 to 500 feet at Prado Dam. It is one of the largest groundwater basins in Southern California with about 18,300,000 af of groundwater storage capacity (DWR 1971). This storage capacity could be utilized for conjunctive use of supplemental water, under the Chino Basin Watermaster's control and regulation.

Historic groundwater production and groundwater purchased by the District is shown in Table 3. The amounts shown in this table do not represent the actual quantity of each water supply source that was available but rather what was used.

Table 3. Groundwater Volume Pumped (afy)

Supply Source	2005	2006	2007	2008	2009
SBBA incl. Lytle Creek and Bunker Hill Basins	9,336	9,611	9,104	10,378	8,513
SBBA Purchased from SBVMWD	4,326	3,402	2,153	2,966	2,568
Chino Basin	0	0	0	0	0
Rialto-Colton Basin	2,187	2,782	3,013	2,711	3,742
North Riverside Basin	2,161	2,968	3,876	1,775	2,118
Total	**18,010**	**18,763**	**18,146**	**17,830**	**16,941**

Based on projected demands the anticipated groundwater production for future years is detailed in Table 4. District water supply and demand projections provided throughout this document reflect information contained in the 2010 RUWMP.

Table 4. Groundwater Volume Projected to be Pumped (afy)

Supply Source	2015	2020	2025	2030	2035
SBBA incl. Lytle Creek and Bunker Hill Basins	7,000	10,000	15,000	18,000	20,000
SBBA Purchased from SBVMWD	5,000	5,000	5,000	5,000	5,000
Chino Basin	0	900	900	900	900
Rialto-Colton Basin	4,000	6,000	6,000	6,000	6,000
North Riverside Basin	2,000	2,000	2,500	3,000	4,000
Total	**18,000**	**23,900**	**29,400**	**32,900**	**35,900**

District, Projected Additional Production Supplies

Currently, only the Lytle Creek Basin and Lytle Creek surface water has been fully utilized by the District as a water supply source. The District does not at this time plan to develop any new sources of water supply, other than the water supply sources listed in Table 2. Over time, the District intends to utilize a greater amount from each existing source, up to their legal rights and availability from each water supply source.

Capital Improvement Program

The District's 2004 and 2012 Water Master Plans recommend drilling new groundwater wells, the rehabilitation and upgrading of existing wells, expanding the Oliver P. Roemer WFF and the construction of a new WFF.

Local Water Management

In 2007 an Integrated Regional Water Management Plan (IRWMP) was developed to address major water management issues in the SBBA. SBVMWD leads this planning effort with several regional agencies and stakeholders also participating.

The IRWMP contains three Basin Management Objectives:

1. Maximize conjunctive use and increase reliability during drought periods by collecting and recharging storm and flood flows;
2. Reduce risk of liquefaction; and
3. Protect groundwater quality.

The IRWMP includes a multi-step process which results in an annual SBBA Management Plan:

1. Collect groundwater data (groundwater levels, water quality, storage)
2. Evaluate compliance with Judgments, accords, and agreements
3. Choose water spreading targets
4. Choose water extraction targets
5. Draft Annual management plan, entitled *Regional Water Management Plan,* for approval by the Valley District and Western Board of Directors
6. Recommend any new projects to help achieve objectives

IRWMP stakeholders formed the Basin Technical Advisory Committee (known as the BTAC) to develop the annual water management plan. The BTAC works cooperatively and strives to make decisions by consensus. The District is an active participant in this planning process.

The Optimum Basin Management Plan prepared for the Chino Basin was developed to manage the basin by protecting and improving the water supplies and quantity. The Chino Basin Watermaster continues to work towards drought proofing the region, thus insuring that adequate water supplies will be available in both wet and dry years. Recharge of the Chino Basin is achieved by stormwater runoff from local mountains, imported water supplies from Metropolitan Water District, from recycled water and treated water supplies.

Supply Reliability

California Water Code section 10631

(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(1) An average water year.

(2) A single dry water year.

(3) Multiple dry water years.

Groundwater

Due to the size of the groundwater basins utilized by the District, a single dry year will not affect well production. The annual amount produced in past normal, single-dry, or a multiple-dry water years from a basin does not give an accurate representation of potential basin production. Factors such as lower system demand, cost of pumping, inoperable wells, pumping duration, replenishment costs, water quality, cost of supply and the ability to treat water all affect annual basin production numbers. Table 5 summaries the supplies anticipated to be available to the District during an average, single-dry, and multiple-dry year drought.

The 2010 RUWMP compared the regional water supplies against projected demands for the period from 2015 through 2035 during an average, single-dry and multiple dry water year condition and anticipates that adequate supplies will be available.

Table 5. Projected Water Supplies (afy)

	2015	2020	2025	2030	2035
Average/Normal Year	**48,000**	**56,000**	**61,000**	**65,500**	**65,500**
Groundwater Total	35,500	43,500	48,500	53,000	53,000
State Project Water	7,000	7,000	7,000	7,000	7,000
Local Surface Water	5,500	5,500	5,500	5,500	5,500
Single-Dry Year	**40,542**	**48,542**	**53,542**	**57,542**	**57,542**
SBBA incl. Lytle Basin	18,000	23,000	28,000	32,000	32,000
Chino Basin [1]	0	3,000	3,000	3,000	3,000
Rialto Basin	10,000	10,000	10,000	10,000	10,000
North Riverside Basin [1]	5,000	5,000	5,000	5,000	5,000
State Project Water	5,412	5,412	5,412	5,412	5,412
Local Surface Water	2,130	2,130	2,130	2,130	2,130
Multiple-Dry Year	**35,197**	**43,197**	**48,197**	**52,197**	**52,197**
SBBA incl. Lytle Basin	18,000	23,000	28,000	32,000	32,000
Chino Basin [1]	0	3,000	3,000	3,000	3,000
Rialto Basin	3,067	3,067	3,067	3,067	3,067
North Riverside Basin [1]	5,000	5,000	5,000	5,000	5,000
State Project Water	7,000	7,000	7,000	7,000	7,000
Local Surface Water	2,130	2,130	2,130	2,130	2,130

(1) Groundwater supplies available are based on projected usage; extractions may increase if needed from these basins.

State Water Project

The amount of SWP water delivered to State Water Contractors in a given year depends on a number of factors, including the demand for the supply, amount of rainfall, snowpack, runoff, water in storage, pumping capacity from the Delta, and legal/regulatory constraints on SWP operation. Water delivery reliability depends on three general factors: the availability of water, the ability to convey water to the desired point of delivery, and the magnitude of demand for the water (2010 RUWMP). The 2009 SWP Reliability Report was used to determine future SWP deliveries in the 2010 RUWMP. That report updated DWR's estimate of the 2009 and future (2029) water delivery reliability of the SWP. The report discusses factors having the potential to affect SWP delivery reliability:

Restrictions on SWP and Central Valley Project operations due to State regulation and federal biological opinions to protect endangered fish such as Delta smelt and spring-run salmon;

Climate change and sea level rise, which is altering the hydrologic conditions in the State;

The vulnerability of Delta levees to failure due to floods and earthquakes.

"Water delivery reliability" is defined as the annual amount of water that can be expected to be delivered with a certain frequency. SWP delivery reliability is calculated using computer simulations based on 82 years of historical data (2010 RUWMP).

The 2009 SWP Reliability Report recognizes continuing challenges to the ability of the SWP to deliver full contractual allotments of SWP water. For current conditions, the dominant factor for these reductions is the restrictive operational requirements contained in the federal biological opinions. Deliveries estimated for the 2009 Report expressly account for the operational restrictions of the biological opinions issued by the U.S. Fish and Wildlife Service in December 2008 and the National Marine Fisheries Service in June 2009 governing the SWP and Central Valley Project operations (2010 RUWMP).

For future conditions, the 2009 SWP Reliability Report conservatively assumes that the restrictions imposed by the biological opinions will still be in place, and includes the potential effects of climate change to estimate future deliveries. The changes in run-off patterns and amounts are included along with a potential rise in sea level. Sea level rise has the potential to require more water to be released to repel salinity from entering the Delta in order to meet the water quality objectives established for the Delta (2010 RUWMP).

The analyses in the 2009 SWP Reliability Report indicate that the SWP, using existing facilities operated under current regulatory and operational constraints and future anticipated conditions, and with all contractors requesting delivery of their full Table A amounts in most years, could deliver 60 percent of Table A amounts on a long-term average basis (2010 RUWMP).

In addition to the overall long-term average presented in the 2009 SWP Reliability Report, it also includes Delivery Reliability Reports (DRRs) for each of the individual SWP contractors based upon the unique conditions that impact each contractor. The DRR for SBVMWD indicated average reliability would be 62 percent in 2009 and will decrease slightly to 60 percent in 2029. Table 6 provides the projected SWP water available to SBVMWD over the next 25 years, based on the SBVMWD's maximum Table A amounts from 2010 to 2035 and the supply reliability analyses provided in the 2009 SWP Report and associated DRR (2010 RUWMP).

Table 6. Average and Dry Period State Water Project Deliveries from the Delta Under Current and Future Conditions

	Long Term Average	Single Dry Year 1977	6-year drought 1987-1992
Current (2009)	62% 63,612 (afy)	13% 13,338 (afy)	33% 33,858 (afy)
Future (2029)[1]	60% 61,560 (afy)	12% 12,312 (afy)	35% 35,910 (afy)

(1) The 2009 Reliability Report projects SWP supplies to 2029. The 2010 RUWMP covers the period from 2010 to 2035 and projects supplies during that time frame to be the same as in 2029.

Table 9. Water Deliveries – Projected 2015

Water Use Sectors	Metered		Not Metered		Total
	# of Accounts	Volume (afy)	# of Accounts	Volume (afy)	Volume (afy)
Single Family [1]	18,361	21,271			21,271
Multi-Family [1]					
Commercial [2]	771	4,209			4,209
Industrial	42	117			117
Institutional/Governmental [2]					
Landscape					
Agriculture	20	784			784
Other	3	246			246
Total without Conservation	19,197	26,627	-	-	26,627
Total with Conservation (assumed 10% by year 2015)	19,197	23,964	-	-	23,964

[1] Multi-Family residential uses and Single Family residential uses are accounted for together.

[2] Commercial and Institutional/Governmental have been combined.

Table 10. Water Deliveries – Projected 2020 and 2025

Water Use Sectors	2020 Metered		2025 Metered	
	# of Accounts	Volume (AFY)	# of Accounts	Volume (AFY)
Single Family [1]	19,116	27,486	19,902	32,097
Multi-Family [1]				
Commercial [2]	803	5,439	836	6,352
Industrial	44	151	46	177
Institutional/Governmental [2]				
Landscape				
Agriculture	21	1,013	21	1,183
Other	3	317	3	371
Total without Conservation	19,986	34,407	20,808	40,179
Total with Conservation (assumed 20% by year 2020)	19,986	27,526	20,808	32,143

[1] Multi-Family residential uses and Single Family residential uses are accounted for together.

[2] Commercial and Institutional/Governmental have been combined.

Table 11. Water Deliveries – Projected 2030 and 2035

Water Use Sectors	2030 Metered		2035 Metered	
	# of Accounts	Volume (afy)	# of Accounts	Volume (afy)
Single Family [1]	20,720	34,596	21,572	38,054
Multi-Family [1]				
Commercial [2]	870	6,847	906	7,531
Industrial	47	191	49	210
Institutional/Governmental [2]				
Landscape				
Agriculture	22	1,275	23	1,402
Other	4	399	4	439
Total without Conservation	21,663	43,308	22,554	47,636
Total with Conservation (assumed 20% by year 2020)	21,663	34,646	22,554	38,109

[1] Multi-Family residential uses and Single Family residential uses are accounted for together.

[2] Commercial and Institutional/Governmental have been combined.

Sufficiency Assessment

California Water Code section 10910

(c) (3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

Normal Water Year

The Normal/Average year is a year in the historical sequence that most closely represents median runoff levels and patterns. This section summarizes the District's water supplies available to meet demands over the 20-year planning period during an average/normal year and compares them to demands for the same period. In Table 12 below, demands are shown with the effects of the assumed demand reduction resulting from conservation actions associated with SBX7-7. Table 12 demonstrates that the District anticipates adequate supplies for years 2015 to 2035 under Normal conditions.

Table 12. Projected Average/Normal Year Supplies and Demands (afy)

Supply and Demand	2015	2020	2025	2030	2035
Imported State Project Water	7,000	7,000	7,000	7,000	7,000
Groundwater	35,500	43,500	48,500	53,000	53,000
Lytle Creek Surface Water	5,500	5,500	5,500	5,500	5,500
Total Supplies	**48,000**	**56,000**	**61,000**	**65,500**	**65,500**
Total Demands	23,964	27,526	32,143	34,646	38,109
Surplus/Deficit	**24,036**	**28,474**	**28,857**	**30,854**	**27,391**

Single Dry Water Year

The single-dry water year is generally the lowest annual runoff for a water source. The single-dry year may differ for various sources. The following table summarizes the District's water supplies available to meet demands over the 20-year planning period during a single-dry water year and compares them to demands for the same period. The demands during a single dry water year event are assumed to be 10 percent greater than during a normal year. Demands shown in Table 13 reflect the increase in demand along with the effects from conservation actions. Table 13 demonstrates that the District anticipates adequate supplies for years 2015 to 2035 under a single dry water year condition.

Table 13. Projected Single Dry Year Supplies and Demands (afy)

Supply and Demand	2015	2020	2025	2030	2035
Imported State Project Water	5,412	5,412	5,412	5,412	5,412
Groundwater	33,000	41,000	46,000	50,000	50,000
Lytle Creek Surface Water	2,130	2,130	2,130	2,130	2,130
Total Supplies	**41,442**	**48,542**	**53,542**	**57,542**	**57,542**
Total Demands	26,360	30,278	35,357	38,111	41,920
Surplus/Deficit	**14,182**	**18,264**	**18,185**	**19,431**	**15,622**

When there is a drought in Northern California, or if water supplies from Northern California are reduced as a result of restrictions on Delta pumping or other similar measures, State Water Project deliveries will be reduced or curtailed based on the available supplies. During this time, the District will obtain water supplies from their multiple groundwater sources and surface water diversions. Similarly, during periods of drought in Southern California when production in the groundwater basins has declined, the District will utilize State Water Project supplies to augment their groundwater supplies.

Multiple Dry Water Years

The multiple-dry year is generally the lowest annual runoff for a three year or more consecutive period. The multiple-dry year period may differ for various sources. This section summarizes the District's water supplies available to meet demands over the 20-year planning period during a multiple-dry year period and compares them to demands for the same period. The demands during a multiple-dry year period are assumed to be 10 percent greater than during a normal year. Demands shown in Table 14 reflect the increase in demand along with the effects from conservation actions. Table 14 demonstrates that the District anticipates adequate supplies for years 2015 to 2035 under multiple-dry year conditions.

Table 14. Projected Multiple-Dry Year Supplies and Demands (afy)

		2015	2020	2025	2030	2035
Multiple-Dry Year	Supply Totals	36,889	44,889	49,889	53,889	53,889
First Year	Demand Totals	26,360	30,278	35,357	38,111	41,920
Supply	**Surplus/Deficit**	**10,529**	**14,611**	**14,532**	**15,778**	**11,969**
Multiple-Dry Year	Supply Totals	36,570	44,570	49,570	53,570	53,570
Second Year	Demand Totals	26,360	30,278	35,357	38,111	41,920
Supply	**Surplus/Deficit**	**10,210**	**14,292**	**14,213**	**15,459**	**11,650**
Multiple-Dry Year	Supply Totals	35,197	43,197	48,197	52,197	52,197
Third Year	Demand Totals	26,360	30,278	35,357	38,111	41,920
Supply	**Surplus/Deficit**	**8,837**	**12,919**	**12,840**	**14,086**	**10,277**

The 2010 RUWMP compared the regional water supplies against projected demands for the period from 2015 through 2035 during normal, single-dry and multiple dry year conditions and anticipates that adequate supplies will be available.

Water Shortage Contingency Plan

California Water Code section 10632

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier: (a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage. (b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply. (c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster. (d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning. (e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply. (f) Penalties or charges for excessive use, where applicable. (g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments. (h) A draft water shortage contingency resolution or ordinance. (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

To offset the prolonged effects of drought periods, the District's Board of Directors adopted a Water Conservation Plan with Ordinance No. 68 on July 5, 1990 by adding Article No. 24 entitled "Water Conservation" to its water service regulations and a Water Shortage Contingency Plan with Ordinance No. 69 on February 6, 1992 which amended portions of the Water Conservation Plan. On May 1, 2003 the Board of Directors adopted Resolution No. 390, rescinding all previous resolutions, which established water service regulations, schedules of rates, and charges. Article No. 24 describes Water Conservation objectives and outlines four stages of action to be implemented during a water shortage. The District's Plan includes voluntary and Mandatory stages.

Determination

California Water Code section 10911

(c) The city or county may include in any environmental document an evaluation of any information included in that environmental document provided pursuant to subdivision (b). The city or county shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses. If the city or county determines that water supplies will not be sufficient, the city or county shall include that determination in its findings for the project.

The District's water supply is vulnerable to seasonal and climatic changes based upon precipitation patterns in both Southern and Northern California and may vary substantially from one year to the next. It is impossible to accurately predict the reliability of future SPW deliveries. Deliveries can be affected by several factors including, the amount and location of rain and snowfall in a given year, operational and environmental impacts, levee failures and earthquakes. All of these items affect the delivery and are recognized by the District, but are not within their control.

As with all water supplies in Southern California, the Districts sources are also vulnerable to chemical contamination. Based on current conditions water quality is not anticipated to affect the District's supply reliability. However, water quality issues are constantly evolving. The District will take action to protect and treat supply when needed, but it is well recognized that water quality treatment can have significant costs.

To achieve an acceptable level of reliability of supply within their system, the District plans and constructs facilities and water supply projects to meet the projected demands.

The District has verified that it has the water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection that will meet the projected demand associated with the proposed development, in addition to existing and planned future uses, including, but not limited to, agricultural and industrial uses.

Reservation of Authority

Nothing in this Water Supply Assessment shall be construed to create a right or entitlement to water service, or any specific level of service nor does it affect existing law concerning West Valley Water District's obligation to provide water service to its existing customers or to any potential future customers. **(See Government Code § 66473.7(m) and (n).)**

In addition, West Valley Water District specifically reserves its authority to impose reasonable terms and conditions or to refuse water service to any existing customers or to any potential future customers, in order to conserve water in the face of an existing or threatened water shortage. **(See Water Code § 350, et. seq.)**

Conditions of Approval

This assessment of reliable water supply is conditioned on the following:

1. The property owner will install water efficient devices and landscaping according to the requirements of the District's water use efficiency ordinance(s), if any, at the time of construction of the project to reduce the impact of this project on District water supplies.

2. Prior to project construction, the property owner is required to meet with District staff to develop a plan of service. The plan of service will include, but not be limited to, water and recycled water requirements to serve the project. If there is a change in the circumstances detailed in this water supply assessment, the District has the option to suspend the approval of this WSA.

3. This project is not located near any existing recycled water facilities; however, in the future it may be possible to serve this project with recycled water. District policy recognizes recycled water as a preferred source of water supply for all non-potable water demands, including, without limitation, irrigation of recreation areas, green-belts, open space, common areas, commercial landscaping and supply for aesthetic impoundment or other water features. The majority of landscaped areas in this project will be designed to use recycled water to the greatest extent possible.

   According to District requirements, the project may be conditioned to construct a recycled water system physically separated from the potable water system. This system will need to be constructed to the District's recycled water standards. The project may also be conditioned to construct off-site recycled water facilities. The District will make a determination on requirements for recycled water use and facilities during the design phase of the project.

4. This WSA will be reviewed every three (3) years until the project begins construction. The property owner shall notify the District when construction has begun. The review will ensure that the information included in this WSA remains accurate and no significant changes to the project or District's water supply have occurred. If the property owner has not contacted the District within three (3) years of approval of this WSA, it will be assumed that the proposed project no longer requires the estimated water demand calculated, the demand for this project will not be

considered in assessments for future projects, and the assessment provided by this document will become invalid.

5. (a) Based on present information the District has determined that it will be able to provide adequate water supplies to meet the potable water demand for this project in addition to existing and future uses. Water service will be guaranteed by the satisfaction of all rules and regulations of the District. The District reserves the right to revisit this water supply assessment in the event of a potential increase in water demand to the project.

   (b) This WSA is not a commitment to serve the project, but a review of District's supplies based on present information available.

   (c) Recycled water will be used to the greatest extent possible on the proposed project.

References

West Valley Water District, 2012. *Water Master Plan*. Prepared by: West Valley Water District (2012).

West Valley Water District, 2004. *Water Master Plan*. Prepared by: Engineering Resources of Southern California Inc. (2004).

West Valley Water District, 2011. *2010 San Bernardino Valley Regional Urban Water Management Plan.* Prepared by: Kennedy/Jenks Consultants. (2011).

Upper Santa Ana River Watershed, Integrated Regional Water Management Plan. Prepared by: GEI Consultants, Inc. (2007).

Colton's Hub City Center Specific Plan

PLANNING AREA DETAIL SUMMARY*

Prepared by: JHA Consulting, Inc.

7/25/2013

PA #	PA ACRES	LAND USE	Target Density	Target DU
PA1	9.00	BP		
PA2	10.70	RES-M	4 du/ac.	43
PA3	2.60	OS/H		
PA4	5.60	RES-M1	11 du/ac.	62
PA5	14.90	BP		
PA6	6.40	OS/H		
PA7	4.20	RES-M1	11 du/ac.	46
PA8	5.40	RES-M1	11 du/ac.	59
PA9	25.00	RMU		
PA10	15.70	BP		
PA11	12.20	OS/H		
PA12	3.91	OS/P		
PA13	9.40	RES-M	4 du/ac.	38
PA14	0.60	OS/P		
PA15	6.80	RES-M	4 du/ac.	27
PA16	68.10	R		
PA17	12.10	BP		
PA18	27.20	OS/H		
PA19	10.60	OMU		
PA20	7.40	R		
PA21	10.00	OMU		
PA22	3.70	R		
PA23	3.00	OMU		
PA24	43.80	RMU		
Major R/W's	54.89	N/A		
TOTAL	**373.20**			**275**

*Based on Land Use Plan dated April 18, 2013