

Water Supply Study for the Lyons Canyon Project

January 2006

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1.0 INTRODUCTION

This Water Supply Study (Study) provides a water supply and demand assessment for the Lyons Canyon project (project). The project does not meet the definition of a “project” requiring a Water Supply Assessment pursuant to the requirements of Senate Bill 610 (Costa; Chapter 643, Stats. 2001) (SB 610). However, this Water Supply Study provides an analysis consistent with a Water Supply Assessment including a discussion of relevant Water Code sections.

1.1 Lyons Canyon Project

The proposed Lyons Canyon project is a residential development project which includes 93 single-family residential lots, and 1 condominium lot proposed for development with 93 senior condominium units. The project proposed would dedicate 128.87 acres of undisturbed open space. The undisturbed natural areas will provide a natural setting for the neighborhoods and will preserve the majority of on-site oak trees, riparian areas, and significant ridgelines. An additional 36.29 acres will be disturbed open space (i.e. graded cut and fill-slope areas, detention/debris basin lots, and on-site trails). A 1.39 acre active park is also proposed in the southwest portion of the project.

It is anticipated that the overall project will be developed over a period of five years. Construction is expected to begin in late 2006 or early 2007.

1.2 Purpose of the Water Supply Study

The purpose of this Study is to provide an analysis of whether there are sufficient projected water supplies to meet the projected demands of the project. Specifically, this Study evaluates whether the total projected water *supply* determined to be available for the project during normal, single dry, and multiple dry water years over the next 20 years, will meet the projected water *demand* associated with the proposed project, in addition to existing and planned future water uses, including agriculture and manufacturing uses.

1.3 Castaic Lake Water Agency

The project site is located within the service area of the Castaic Lake Water Agency (CLWA). However, the project site is not located within a defined service area for any of the local water purveyors. Valencia Water Company (VWC) provides the nearest water service to properties north of the project site, while Newhall County Water District (NCWD) provides water service to properties south of the site. The project applicant is currently determining which local water service agency would serve the project but the project would likely be served by VWC.

CLWA is a public water agency that serves an area of 195 square miles in Los Angeles and Ventura counties. CLWA is a water wholesaler that provides about half of the water that Santa Clarita households and businesses use. CLWA operates two potable water treatment plants, storage facilities, and over 17 miles of transmission pipelines. CLWA supplements local groundwater supplies with State Water Project (SWP) water from Northern California. This water is treated and delivered to the local water retailers, including VWC and NCWD. The

other two retail purveyors served by CLWA are Los Angeles County Water District #36, and the Santa Clarita Water Division.

CLWA also delivers highly treated recycled water from one of the two water reclamation plants in the Santa Clarita Valley owned by the Sanitation Districts of Los Angeles County, in order to meet non-potable water demands (golf course and landscape irrigation, etc.).

1.4 Valencia Water Company

The VWC's service area includes a portion of the City of Santa Clarita and the unincorporated communities of Castaic, Newhall, Saugus, Stevenson Ranch, and Valencia. VWC supplies water from both groundwater wells and CLWA turnouts to an estimated 28,296 service connections.¹ VWC also delivers recycled water for some non-potable uses.

1.5 Newhall County Water District

The NCWD service area lies in three distinct geographical areas of the Santa Clarita Valley: Newhall, Pinetree, and Castaic. NCWD's has approximately 9,010 service connections which are spread over a 34-square mile area.² The NCWD supplies water from both groundwater wells and CLWA-imported water. In 2004, water demand for the NCWD was 11,217 acre-feet (AF), or 13 percent of the total CLWA 2004 demand, with 5,896 AF supplied by SWP water and the balance provided by local groundwater.³

1.6 Reliance on CLWA's 2005 UWMP to Document Water Supply and Demand

CLWA released their 2005 Urban Water Management Plan (2005 UWMP) in November of 2005. The information and conclusions provided herein rely upon the 2005 UWMP and associated conclusions related to water supply.

The projected water demand associated with the proposed Lyons Canyon project was accounted for in the 2005 UWMP. The timing of the project places it within the timeframe for calculating "planned future uses" within the 2030 water supply projection included in the 2005 UWMP. Information regarding the projected demand of the Lyons Canyon project included in the 2005 UWMP is incorporated into this Study by reference.

This Study documents the water demand for existing uses, planned future uses, and the proposed development. Water Code §10910(c)(2) states that if 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 a Water Supply Assessment. Therefore, this Study incorporates the requested information from the 2005 UWMP.

¹ Castaic Lake Water Agency (CLWA) et al., Santa Clarita Valley Water Report 2004. May 2005.

² Castaic Lake Water Agency (CLWA) et al., Santa Clarita Valley Water Report 2004. May 2005.

³ Castaic Lake Water Agency (CLWA) et al., Santa Clarita Valley Water Report 2004. May 2005.

The following list identifies additional documentation that has been relied upon in the preparation of this Study. The referenced documents are incorporated into this Study as if fully set forth herein.

- Santa Clarita Valley Water Report 2004, Castaic Lake Water Agency, Santa Clarita Water Division, Los Angeles County Waterworks District #36, Newhall County Water District, and Valencia Water Company, May 2005
- 2005 Urban Water Management Plan, Castaic Lake Water Agency, Newhall County Water District, Santa Clarita Water Division and Valencia Water Company, November 2005
- 2001 Update Report, Hydrogeologic Conditions in the Alluvial and Saugus Formation Aquifer Systems, Richard C. Slade & Associates LLC, July 2002
- Hydrogeologic Investigation, Perennial Yield and Artificial Recharge Potential of the Alluvial Sediments in the Upper Santa Clara River Valley of Los Angeles County, California, Prepared for Upper Santa Clara Water Committee and Castaic Lake Water Agency, Richard C. Slade, 1986
- Castaic Lake Water Agency, Capital Improvement Program, Kennedy-Jenks Consultants, 2003
- Excerpts from Working Draft of 2005 State Water Project Reliability Report, California Department of Water Resources, May 2005
- Water Supply Contract Between the State of California Department of Water Resources and the Castaic Lake Water Agency, 1963 (plus amendments, including the "Monterey Amendment," 1995, and Amendment No. 18, 1999, the transfer of 41,000 acre-feet of entitlement from Kern County Water Agency to Castaic Lake Water Agency)
- 2002 Point of Delivery Agreement Among the Department of Water Resources of the State of California, Castaic Lake Water Agency and Kern County Water Agency (Semitropic Groundwater Storage Program)

2.0 WATER SUPPLY STUDY

Based on the information contained in the 2005 UWMP and other supporting information relied upon in the preparation of this Study, there will be a sufficient water supply available when the Lyons Canyon project is ready for occupancy, in addition to existing and other planned future uses.

As shown below in Table 1, the Lyons Canyon project will require approximately 180-185 acre-feet per year (AFY) at build-out (there could be minor variations due to differences in VWC's and NCWD's water duty factors).

Table 1. Estimated Project Water Demand

Land Use Categories	Proposed Project	Duty Factor (AFY) ¹		Water Use (rounded)	
		VWC	NCWD	VWC	NCWD
Single Family Residential Units	93	0.67	0.90	62	84
Multi-Family Residential Units	93	0.56	0.30	52	28
Parks	1.39	3	3	4	4
Open Space	36.29	1	1	36	36
Roadway Landscaping/Major Circulation	10.04	3	3	30	30
Total				184	182
<i>Notes:</i>					
1. Factors provided by VWC and NCWD. Factors are per unit for residential units and per acre for the balance of the project components shown.					

2.1 Average/Normal Year, Single Dry Year and Multiple Dry Year Water Study

Table 2 below provides a summary of the current and planned water supplies and banking programs as identified by CLWA. Table 3 provides CLWA’s projected average/normal water year water supplies and demands, and Tables 4 and 5 provide the projected single and multiple dry year water supplies and demands. The water supply and demand analysis provided in the 2005 UWMP takes into account the available water supplies and water demands for CLWA’s service area to assess the region’s ability to satisfy demands through the year 2030. Diversity of supply allows CLWA and the purveyors the option of drawing on multiple sources of supply in response to changing conditions, such as varying climatic conditions (average/normal years, single dry years, multiple dry years), natural disasters, and contamination, such as perchlorate.

Table 2. Current and Planned Water Supplies and Banking Programs¹ (Acre-Feet)

	2005	2010	2015	2020	2025	2030
EXISTING SUPPLIES						
Wholesale (Imported)	70,380	73,660	75,560	76,080	77,980	77,980
SWP Table A Supply ²	65,700	67,600	69,500	71,400	73,300	73,300
Flexible Storage Account ³ (CLWA)	4,680	4,680	4,680	4,680	4,680	4,680
Flexible Storage Account ^{3,4} (Ventura County)	0	1,380	1,380	0	0	0
Local Supplies						
Groundwater	40,000	46,000	46,000	46,000	46,000	46,000
Alluvial Aquifer	35,000	35,000	35,000	35,000	35,000	35,000
Saugus Formation	5,000	11,000	11,000	11,000	11,000	11,000
Recycled Water	1,700	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	112,080	121,360	123,260	123,780	125,680	125,680

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**Table 2. Current and Planned Water Supplies and Banking Programs¹ (Acre-Feet)
(continued)**

	2005	2010	2015	2020	2025	2030
EXISTING BANKING PROGRAMS³						
Semitropic Water Bank ⁵	50,870	50,870	0	0	0	0
Total Existing Banking Programs	50,870	50,870	0	0	0	0
PLANNED SUPPLIES						
Local Supplies						
Groundwater	0	10,000	10,000	20,000	20,000	20,000
Restored Wells (Saugus Formation)	0	10,000	10,000	10,000	10,000	10,000
New Wells (Saugus Formation)	0	0	0	10,000	10,000	10,000
Recycled Water ⁶	0	0	1,600	6,300	11,000	15,700
Transfers						
Buena Vista-Rosedale ⁷	0	11,000	11,000	11,000	11,000	11,000
Total Planned Supplies	0	21,000	22,600	37,300	42,000	46,700
PLANNED BANKING PROGRAMS³						
Rosedale-Rio Bravo	0	20,000	20,000	20,000	20,000	20,000
Additional Planned Banking	0	0	20,000	20,000	20,000	20,000
Total Planned Banking Programs	0	20,000	40,000	40,000	40,000	40,000

Notes:

1. The values shown under "Existing Supplies" and "Planned Supplies" are supplies projected to be available in average/normal years. The values shown under "Existing Banking Programs" and "Planned Banking Programs" are either total amounts currently in storage, or the maximum capacity of program withdrawals.
2. SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 AF by percentages of average deliveries projected to be available, taken from Table 6-5 of DWR's "Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report" (May 2005).
3. Supplies shown are total amounts that can be withdrawn, and would typically be used only during dry years.
4. Initial term of the Ventura County entities' flexible storage account is ten years (from 2006 to 2015).
5. Supplies shown are the total amount currently in storage, and would typically be used only during dry years. Once the current storage amount is withdrawn, this supply would no longer be available and in any event, is not available after 2013.
6. Recycled water supplies based on projections provided in Chapter 4, Recycled Water of the 2005 UWMP.
7. CLWA is in the process of acquiring this supply, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy under which it will not approve potential annexations unless additional water supplies are acquired. Currently proposed annexations have a demand for about 4,000 AFY of this supply which, if approved, would leave the remaining 7,000 AFY available for potential future annexations. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.

Source: Castaic Lake Water Agency et al. 2005. 2005 Urban Water Management Plan, prepared by Black & Veatch, Nancy Clemm, Kennedy/Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini Consulting Engineers, Reiter/Lowry Consultants, and Richard Slade and Associates, L.L.C. November. Table 3-1.

Table 3. Projected Average/Normal Year Supplies and Demands (Acre-Feet)

	2010	2015	2020	2025	2030
EXISTING SUPPLIES					
Wholesale (Imported)	67,600	69,500	71,400	73,300	73,300
SWP Table A Supply ¹	67,600	69,500	71,400	73,300	73,300
Flexible Storage Account (CLWA) ²	0	0	0	0	0
Flexible Storage Account (Ventura County) ²	0	0	0	0	0
Local Supplies					
Groundwater	46,000	46,000	46,000	46,000	46,000
Alluvial Aquifer	35,000	35,000	35,000	35,000	35,000
Saugus Formation	11,000	11,000	11,000	11,000	11,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	115,300	117,200	119,100	121,000	121,000
EXISTING BANKING PROGRAMS					
Semitropic Water Bank ²	0	0	0	0	0
Total Existing Banking Programs	0	0	0	0	0
PLANNED SUPPLIES					
Local Supplies					
Groundwater	0	0	0	0	0
Restored Wells (Saugus Formation) ²	0	0	0	0	0
New Wells (Saugus Formation) ²	0	0	0	0	0
Recycled Water ³	0	1,600	6,300	11,000	15,700
Transfers					
Buena Vista-Rosedale ⁴	11,000	11,000	11,000	11,000	11,000
Total Planned Supplies	11,000	12,600	17,300	22,000	26,700
PLANNED BANKING PROGRAMS					
Rosedale-Rio Bravo ²	0	0	0	0	0
Additional Planned Banking ²	0	0	0	0	0
Total Planned Banking Programs	0	0	0	0	0
Total Existing and Planned Supplies and Banking	126,300	129,800	136,400	143,000	147,700
Total Estimated Demand (w/o conservation) ⁵	100,050	109,400	117,150	128,400	138,300
Conservation ⁶	(8,600)	(9,700)	(10,700)	(11,900)	(12,900)
Total Adjusted Demand	91,450	99,700	106,450	116,500	125,400

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Table 3. Projected Average/Normal Year Supplies and Demands (Acre-Feet) (continued)

Notes:

- SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 AF by percentages of average deliveries projected to be available (71% in 2010 and 77% in 2025/2030), taken from Table 6-5 of DWR's "Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report" (May 2005).
- Not needed during average/normal years.
- Recycled water supplies based on projections provided in Chapter 4, Recycled Water of the 2005 UWMP.
- CLWA is in the process of acquiring this supply, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy under which it will not approve potential annexations unless additional water supplies are acquired. Currently proposed annexations have a demand for about 4,000 AFY of this supply which, if approved, would leave the remaining 7,000 AFY available for potential future annexations. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.
- Demands are for uses within the existing CLWA service area. Demands for any annexations to the CLWA service area will be added if and when such annexations are approved. Currently proposed annexations have a demand for about 4,000 AFY and, given supplies CLWA is in the process of acquiring, potential future annexations with demands up to an additional 7,000 AFY could eventually be approved (see Footnote 4).
- Assumes 10 percent reduction on urban portion of total demand resulting from conservation best management practices, as discussed in Chapter 7 of the 2005 UWMP.

Source: Castaic Lake Water Agency et al. 2005. 2005 Urban Water Management Plan, prepared by Black & Veatch, Nancy Clemm, Kennedy/Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini Consulting Engineers, Reiter/Lowry Consultants, and Richard Slade and Associates, L.L.C. November. Table 6-2.

Table 4. Projected Single Dry Year Supplies and Demands (Acre-Feet)

	2010	2015	2020	2025	2030
EXISTING SUPPLIES					
Wholesale (Imported)	9,860	9,860	8,480	9,480	9,480
SWP Table A Supply ¹	3,800	3,800	3,800	4,800	4,800
Flexible Storage Account (CLWA)	4,680	4,680	4,680	4,680	4,680
Flexible Storage Account (Ventura County) ²	1,380	1,380	0	0	0
Local Supplies					
Groundwater	47,500	47,500	47,500	47,500	47,500
Alluvial Aquifer	32,500	32,500	32,500	32,500	32,500
Saugus Formation	15,000	15,000	15,000	15,000	15,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	59,060	59,060	57,680	58,680	58,680
EXISTING BANKING PROGRAMS					
Semitropic Water Bank ³	17,000	0	0	0	0
Total Existing Banking Programs	17,000	0	0	0	0

Table 4. Projected Single Dry Year Supplies and Demands (Acre-Feet) (continued)

	2010	2015	2020	2025	2030
PLANNED SUPPLIES					
Local Supplies					

Groundwater	10,000	10,000	20,000	20,000	20,000
Restored Wells (Saugus Formation)	10,000	10,000	10,000	10,000	10,000
New Wells (Saugus Formation)	0	0	10,000	10,000	10,000
Recycled Water ⁴	0	1,600	6,300	11,000	15,700
Transfers					
Buena Vista-Rosedale ⁵	11,000	11,000	11,000	11,000	11,000
Total Planned Supplies	21,000	22,600	37,300	42,000	46,700
PLANNED BANKING PROGRAMS					
Rosedale-Rio Bravo ⁶	20,000	20,000	20,000	20,000	20,000
Additional Planned Banking ⁷	0	20,000	20,000	20,000	20,000
Total Planned Banking Programs	20,000	40,000	40,000	40,000	40,000
Total Existing and Planned Supplies and Banking	117,060	121,660	134,980	140,680	145,380
Total Estimated Demand (w/o conservation) ^{8,9}	110,100	120,300	128,900	141,200	152,100
Conservation ¹⁰	(9,500)	(10,700)	(11,700)	(13,100)	(14,200)
Total Adjusted Demand	100,600	109,600	117,200	128,100	137,900
<i>Notes:</i>					
<ol style="list-style-type: none"> SWP supplies are calculated by multiplying CLWA's Table A Amount of 95,200 AF by percentages of single dry deliveries projected to be available for the worst case single dry year of 1977 (4% in 2010 and 5% in 2025/2030), taken from Table 6-5 of DWR's "Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report" (May 2005). Initial term of the Ventura County entities' flexible storage account is ten years (from 2006 to 2015). The total amount of water currently in storage is 50,870 AF, available through 2013. Withdrawals of up to this amount are potentially available in a dry year, but given possible competition for withdrawal capacity with other Semitropic banking partners in extremely dry years, it is assumed here that about one third of the total amount stored could be withdrawn. Recycled water supplies based on projections provided in Chapter 4, Recycled Water of the 2005 UWMP. CLWA is in the process of acquiring this supply, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy under which it will not approve potential annexations unless additional water supplies are acquired. Currently proposed annexations have a demand for about 4,000 AFY of this supply which, if approved, would leave the remaining 7,000 AFY available for potential future annexations. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area. Rosedale-Rio Bravo Water Banking and Recovery Program online in 2006, based on completing CEQA and subsequent adoption by CLWA Board of Directors. Assumes additional planned banking supplies available by 2014. Assumes increase in total demand of 10 percent during dry years. Demands are for uses within the existing CLWA service area. Demands for any annexations to the CLWA service area will be added if and when such annexations are approved. Currently proposed annexations have a demand for about 4,000 AFY and, given supplies CLWA is in the process of acquiring, potential future annexations with demands up to an additional 7,000 AFY could eventually be approved (see Footnote 5). Assumes 10 percent reduction on urban portion of total normal year demand resulting from conservation best management practices ([urban portion of total normal year demand x 1.10] * 0.10), as discussed in Chapter 7 of the 2005 UWMP. 					
<i>Source:</i> Castaic Lake Water Agency et al. 2005. 2005 Urban Water Management Plan, prepared by Black & Veatch, Nancy Clemm, Kennedy/Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini Consulting Engineers, Reiter/Lowry Consultants, and Richard Slade and Associates, L.L.C. November. Table 6-3.					

Table 5. Projected Multiple Dry Year Supplies and Demands¹ (Acre-Feet)

	2010	2015	2020	2025	2030
EXISTING SUPPLIES					

Wholesale (Imported)	32,010	32,910	32,570	32,570	32,570
SWP Table A Supply ²	30,500	31,400	31,400	31,400	31,400
Flexible Storage Account (CLWA) ³	1,170	1,170	1,170	1,170	1,170
Flexible Storage Account (Ventura County) ³	340	340	0	0	0
Local Supplies					
Groundwater	47,500	47,500	47,500	47,500	47,500
Alluvial Aquifer	32,500	32,500	32,500	32,500	32,500
Saugus Formation ⁴	15,000	15,000	15,000	15,000	15,000
Recycled Water	1,700	1,700	1,700	1,700	1,700
Total Existing Supplies	81,210	82,110	81,770	81,770	81,770
EXISTING BANKING PROGRAMS					
Semitropic Water Bank ³	12,700	0	0	0	0
Total Existing Banking Programs	12,700	0	0	0	0
PLANNED SUPPLIES					
Local Supplies					
Groundwater	6,500	6,500	6,500	6,500	6,500
Restored Wells (Saugus Formation) ⁴	6,500	6,500	5,000	5,000	5,000
New Wells (Saugus Formation) ⁴	0	0	1,500	1,500	1,500
Recycled Water ⁵	0	1,600	6,300	11,000	15,700
Transfers					
Buena Vista-Rosedale ⁶	11,000	11,000	11,000	11,000	11,000
Total Planned Supplies	17,500	19,100	23,800	28,500	33,200
PLANNED BANKING PROGRAMS					
Rosedale-Rio Bravo ^{7,8}	5,000	15,000	15,000	15,000	15,000
Additional Planned Banking ^{8,9}	0	5,000	15,000	15,000	15,000
Total Planned Banking Programs	5,000	20,000	30,000	30,000	30,000
Total Existing and Planned Supplies and Banking	116,410	121,210	135,570	140,270	144,970
Total Estimated Demand (w/o conservation) ^{10,11}	110,100	120,300	128,900	141,200	152,100
Conservation ¹²	(9,500)	(10,700)	(11,700)	(13,100)	(14,200)
Total Adjusted Demand	100,600	109,600	117,200	128,100	137,900

Table 5. Projected Multiple Dry Year Supplies and Demands¹ (Acre-Feet) (continued)

<p><i>Notes:</i></p> <ol style="list-style-type: none"> 1. Supplies shown are annual averages over four consecutive dry years (unless otherwise noted). 2. SWP supplies are calculated by multiplying CLWA’s Table A Amount of 95,200 AF by percentages of deliveries projected to be available for the worst case four-year drought of 1931-1934 (32% in 2010 and 33% in 2025/2030), taken from Table 6-5 of DWR’s “Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report” (May 2005). 3. Based on total amount of storage available divided by 4 (4-year dry period). Initial term of the Ventura County entities’ flexible storage account is ten years (from 2006 to 2015). 4. Total Saugus pumping is the average annual amount that would be pumped under the groundwater operating plan, as summarized in Table 3-6 of the 2005 UWMP $([11,000 + 15,000 + 25,000 + 35,000]/4)$. 5. Recycled water supplies based on projections provided in Chapter 4, Recycled Water of the 2005 UWMP. 6. CLWA is in the process of acquiring this supply, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA’s annexation policy under which it will not approve potential annexations unless additional water supplies are acquired. Currently proposed annexations have a demand for about 4,000 AFY of this supply which, if approved, would leave the remaining 7,000 AFY available for potential future annexations. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area. 7. Rosedale-Rio Bravo Water Banking and Recovery Program online in 2006, assuming CEQA complete and adoption by CLWA Board of Directors. 8. Average dry year period supplies could be up to 20,000 AF for each program depending on storage amounts at the beginning of the dry period. 9. Assumes additional planned banking supplies available by 2014. 10. Assumes increase in total demand of 10 percent during dry years 11. Demands are for uses within the existing CLWA service area. Demands for any annexations to the CLWA service area will be added if and when such annexations are approved. Currently proposed annexations have a demand for about 4,000 AFY and, given supplies CLWA is in the process of acquiring, potential future annexations with demands up to an additional 7,000 AFY could eventually be approved (see Footnote 6). 12. Assumes 10 percent reduction on urban portion of total normal year demand resulting from conservation best management practices $([\text{urban portion of total normal year demand} \times 1.10] \times 0.10)$, as discussed in Chapter 7 of the 2005 UWMP. <p><i>Source:</i> Castaic Lake Water Agency et al. 2005. 2005 Urban Water Management Plan, prepared by Black & Veatch, Nancy Clemm, Kennedy/Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini Consulting Engineers, Reiter/Lowry Consultants, and Richard Slade and Associates, L.L.C. November. Table 6-4.</p>
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CLWA’s demands vary from year to year depending on local hydrologic and meteorologic conditions, with demands generally increasing in years of below-average local precipitation and decreasing in years of above-average local precipitation. According to the 2005 UWMP (and shown in Table 3), CLWA’s 2010 average year demand (without conservation) is estimated to be 100,050 AF and 138,300 AF by 2030 (without conservation).⁴ In 2001, CLWA signed the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU). By signing the MOU, CLWA became a member of the California Urban Water Conservation Council (CUWCC) and pledged to implement all cost-effective Best Management Practices (BMPs) for water conservation. CLWA has estimated that conservation measures within the service area can reduce total water demands by about 10 percent of the urban portion of total demand. As shown in the tables and stated in the 2005 UWMP, based on conservative water supply and demand assumptions over the next 25 years in combination with conservation of

⁴ Castaic Lake Water Agency et al. 2005. 2005 Urban Water Management Plan, prepared by Black & Veatch, Nancy Clemm, Kennedy/Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini Consulting Engineers, Reiter/Lowry Consultants, and Richard Slade and Associates, L.L.C. November.

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non-essential demand during certain dry years, CLWA and the retail water purveyors will be able to deliver a reliable water supply to its customers.

As shown in Table 2, in 2002 CLWA stored 24,000 AF of its Table A Amount in an account in the Semitropic Water Storage District's Groundwater Storage Program in Kern County⁵ and in 2004, CLWA stored 32,522 AF of available 2003 Table A Amount water in a second Semitropic account.⁶ In accordance with the terms of CLWA's storage agreements with Semitropic, 90 percent of the banked amount, or a total of 50,870 AF (see Table 2), is recoverable through 2013 to meet CLWA water demands when needed. Each account has a term of ten years for the water to be withdrawn and delivered to CLWA.⁷ Current operational planning includes use of the water stored in Semitropic for dry year supply.

Also shown in Table 2 is CLWA's planned participation in an additional banking program (the Rosedale-Rio Bravo Water Banking Program). The initial offering from the Rosedale-Rio Bravo project, a water banking and exchange program, is for storage and pumpback capacity of 20,000 AFY, with up to 100,000 AF of storage capacity.

Other planned supply programs include the Buena Vista Water Storage District/Rosedale-Rio Bravo Water Storage District Water Storage and Recovery Program. The initial offering from the Buena Vista-Rosedale program is up to 11,000 AFY of firm supply. This water supply would primarily meet the potential demands of future annexations to the CLWA service area and, currently, proposed annexations have a demand for about 4,000 AFY of this supply.⁸

Of CLWA's 95,200 AF of annual Table A Amount discussed in the tables above, 41,000 AFY was permanently transferred to CLWA in 1999 by Wheeler Ridge-Maricopa Water Storage District, a member unit of the Kern County Water Agency. With regard to availability, the 2005 UWMP provides a discussion of the appropriateness of relying on the 41,000 AFY, which includes: 1) the transfer was completed in 1999 and the Department of Water Resources has allocated and annually delivered water in accordance with the completed transfer; (2) the revised EIR for the transfer corrects the sole defect identified by the Court of Appeal (i.e., tiering off the Monterey

⁵ The Negative Declaration prepared by CLWA was challenged in *California Water Network v. Castaic Lake Water Agency* (Ventura County Superior Court Case Number CIV 215327), which held in favor of CLWA. That case is presently on appeal in the Second District Court of Appeal, Sixth Division, Case Number B177978. *Castaic Lake Water Agency et al. 2005. 2005 Urban Water Management Plan*, prepared by Black & Veatch, Nancy Clemm, Kennedy/Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini Consulting Engineers, Reiter/Lowry Consultants, and Richard Slade and Associates, L.L.C. November.

⁶ No legal challenge was made to CLWA's approval of this project or of the Negative Declaration for this project. *Castaic Lake Water Agency et al. 2005. 2005 Urban Water Management Plan*, prepared by Black & Veatch, Nancy Clemm, Kennedy/Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini Consulting Engineers, Reiter/Lowry Consultants, and Richard Slade and Associates, L.L.C. November.

⁷ Thereafter, the remaining amount of project water in the account is forfeited. *Castaic Lake Water Agency et al. 2005. 2005 Urban Water Management Plan*, prepared by Black & Veatch, Nancy Clemm, Kennedy/Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini Consulting Engineers, Reiter/Lowry Consultants, and Richard Slade and Associates, L.L.C. November.

⁸ *Castaic Lake Water Agency et al. 2005. 2005 Urban Water Management Plan*, prepared by Black & Veatch, Nancy Clemm, Kennedy/Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini Consulting Engineers, Reiter/Lowry Consultants, and Richard Slade and Associates, L.L.C. November.

Agreement EIR)⁹; (3) the Monterey Amendments settlement agreement expressly authorizes the operation of the SWP in accordance with the Monterey Amendments, which authorize the transfer; (4) the Court of Appeal refused to enjoin the transfer, and instead required preparation of a revised EIR; and (4) the transfer contract remains in full force and effect, and no court has ever questioned their validity or enjoined the use of this portion of CLWA's Table A amount.

3.0 IDENTIFICATION OF EXISTING WATER SUPPLY SOURCES

3.1 Annual Existing Water Supply Entitlements, Water Rights, or Water Service Contracts

Water Code §10910(d) requires 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. The identification of existing water supplies shall be demonstrated by providing information related to the following:

- written contracts or other proof of entitlement to an identified water supply;
- copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system;
- federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply; and,
- any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

The current water supply for the Santa Clarita Valley is derived from three primary sources:

1. Groundwater from the Alluvial Aquifer
2. Groundwater from the Saugus Formation
3. Imported SWP Water

In addition, recycled water is available. These sources are discussed below.

3.2 Groundwater

Slade (2002) updates prior reports and includes a detailed review of the groundwater resources available to VWC and NCWD to supply the project, including historic yields, estimated capacity, and projected future yield capacity. Groundwater is drawn from two aquifer systems within the Santa Clara River Valley East Sub-basin, one of several sub-basins identified along

⁹ CLWA's EIR prepared in connection with the 41,000 AFY water transfer was challenged in *Friends of the Santa Clara River v. Castaic Lake Water Agency* (Los Angeles County Superior Court, Case Number BS056954) ("Friends"). On appeal, the Court of Appeal, Second Appellate District held that since the 41,000 AFY EIR tiered off the Monterey Agreement EIR that was later decertified, CLWA would also have to decertify its EIR and prepare a revised EIR. CLWA approved the revised EIR in December 2004. Friends was dismissed permanently in February 2005. In January 2005, two new challenges to CLWA's EIR were filed.

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the Santa Clara River in Los Angeles and Ventura counties by updated Bulletin 118 of the California Department of Water Resources. The shallow aquifer system is designated the Alluvial Aquifer and the deeper aquifer is designated the Saugus Formation.

The following sub-parts respond to specific requirements of Water Code §10910(f):

Water Code §10910(f)(1). Review of relevant information contained in the urban water management plan.

The 2005 UWMP provides an overview description of the local Alluvial and Saugus Formation aquifer systems, as well as historical and projected production.

Water Code §10910(f)(2). Description of any groundwater basin or basins from which the proposed project will be supplied including information concerning adjudication and overdraft.

Slade (2002) Sections 2 through 5 describe two aquifer systems, the Alluvial Aquifer and the Saugus Formation, within the Santa Clara River Valley East Sub-basin (“Basin”) and provide a detailed description of the groundwater basins. They also provide an assessment of the operational yield and other parameters of production capacity. The Basin is about 22 miles long east to west and about 13-miles wide. Recent information on the thickness of the alluvium and the degree of potential draw down interference between adjacent Saugus Formation and Alluvial Aquifer wells has supported a re-calculation of groundwater in storage in the Saugus Formation to approximately 1.65 million AF.¹⁰ Neither aquifer system is in overdraft at the present time.¹¹ The Basin has not been adjudicated and has not been identified as overdrafted or projected to be overdrafted by the Department of Water Resources.

Water Code §10910(f)(3). Description and analysis of the amount and location of groundwater pumped by the public water system for the past 5 years from any groundwater basin from which the proposed project will be supplied.

Detailed information about the amount and location of groundwater pumped from both the Alluvial and Saugus aquifers is provided in Slade (2002). During the period 1996 to 2000, total production from the Alluvial Aquifer averaged approximately 39,400 AFY, with a low of 36,000 AFY (1998) and a high of 42,900 AFY (1999).¹² During the same period, total production from the Saugus Formation averaged 5,900 AFY, with a low of 3,700 (1999) and a high of approximately 8,300 (1996).¹³

¹⁰ Richard C. Slade & Associates LLC, 2001 Update Report, Hydrogeologic Conditions in the Alluvial and Saugus Formation Aquifer Systems, July 2002.

¹¹ Richard C. Slade & Associates LLC, 2001 Update Report, Hydrogeologic Conditions in the Alluvial and Saugus Formation Aquifer Systems, July 2002.

¹² Richard C. Slade & Associates LLC, 2001 Update Report, Hydrogeologic Conditions in the Alluvial and Saugus Formation Aquifer Systems, July 2002.

¹³ Richard C. Slade & Associates LLC, 2001 Update Report, Hydrogeologic Conditions in the Alluvial and Saugus Formation Aquifer Systems, July 2002.

Total pumpage from the Alluvial Aquifer in 2004 was approximately 33,800 AF, an increase of about 200 AF from the preceding year.¹⁴ Groundwater pumping from the Alluvial Aquifer has averaged approximately 36,500 AFY since 2000.¹⁵ Over the last two decades, since the inception of SWP deliveries in 1980, total pumpage from the Alluvium has ranged from a low of about 20,000 AFY (in 1983) to slightly more than 43,000 AFY (in 1999).¹⁶

Total pumpage from the Saugus Formation in 2004 was 6,500 AF, up from approximately 4,200 in the preceding year.¹⁷ Groundwater pumpage from the Saugus peaked in the early 1990s and then declined steadily; pumpage has remained stable, at an average of about 4,800 AFY, since 2000.¹⁸ On a long-term average basis since the importation of SWP water, total pumpage from the Saugus Formation has ranged from a low of about 3,700 AFY (in 1999) to a high of nearly 15,000 AFY (in 1991); average pumpage from 1980 to present has been about 7,000 AFY.¹⁹ These numbers are at the lower end of the estimated range of the operational yield of the Saugus Formation.

Water Code §10910(f)(4). Description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system from any basin from which the proposed project will be supplied.

Slade (2002) does not provide detailed descriptions and analysis of locations or yields of specific new wells that may be constructed in the future. The report, however, anticipates that new capacity and replacement wells can be located, designed, and operated within the Basin, both within the Alluvial Aquifer and the Saugus Formation, without creating undesirable conditions.²⁰

Water Code §10910(f) (5). 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.

Slade (2002) concludes that the Alluvial Aquifer has storage capacity of about 200,000 AF, with a sustainable operational yield ranging from 30,000 to 40,000 AFY. Slade (2002) also concludes that Alluvial Aquifer extractions should be reduced to 30,000 to 35,000 AFY during dry periods. The total annual groundwater production from the Alluvial Aquifer (urban and agricultural production) in past years has averaged approximately 35,000 AFY, about 10 percent higher than the “practical or perennial yield” without any evidence of undesirable conditions that might be an indication of aquifer overdraft.²¹

¹⁴ Castaic Lake Water Agency (CLWA) et al., Santa Clarita Valley Water Report 2004. May 2005.

¹⁵ Castaic Lake Water Agency (CLWA) et al., Santa Clarita Valley Water Report 2004. May 2005.

¹⁶ Castaic Lake Water Agency (CLWA) et al., Santa Clarita Valley Water Report 2004. May 2005.

¹⁷ Castaic Lake Water Agency (CLWA) et al., Santa Clarita Valley Water Report 2004. May 2005.

¹⁸ Castaic Lake Water Agency (CLWA) et al., Santa Clarita Valley Water Report 2004. May 2005.

¹⁹ Castaic Lake Water Agency (CLWA) et al., Santa Clarita Valley Water Report 2004. May 2005.

²⁰ Richard C. Slade & Associates LLC, 2001 Update Report, Hydrogeologic Conditions in the Alluvial and Saugus Formation Aquifer Systems, July 2002.

²¹ Richard C. Slade & Associates LLC, 2001 Update Report, Hydrogeologic Conditions in the Alluvial and Saugus Formation Aquifer Systems, July 2002.

The Saugus Formation has supplied about 7,500 to 15,000 AFY in normal weather years.²² Planned dry-year pumping ranges between 15,000 and 25,000 AFY during a drought year and can increase to between 21,000 and 25,000 AFY if SWP deliveries are reduced for two consecutive years, and between 21,000 and 35,000 AFY if SWP deliveries are reduced for three consecutive years.²³ No long-term continuous or permanent decline in either water levels or the amount of groundwater in storage has occurred under the historical range of pumping.²⁴ However, high pumping would be followed by periods of reduced (average-year) pumping, at rates between 7,500 and 15,000 AFY, to further enhance the effectiveness of natural recharge processes that would recover water levels and groundwater storage volumes after the higher pumping during dry years.²⁵

The subject of perchlorate contamination and its impact on groundwater supplies has been extensively discussed in CLWA's 2005 UWMP. As discussed in the 2005 UWMP, perchlorate was detected in four Saugus Formation production wells near the former Whittaker-Bermite site in 1997. As a result, these wells (SCWD's Wells Saugus 1 and Saugus 2, NCWD's Well NC-11, and VWC's Well V-157) have been removed from service. In 2002, perchlorate was detected in the SCWD Stadium well located directly adjacent to the Whittaker-Bermite site. This Alluvial well has also been removed from service. Since the detection of perchlorate and resultant inactivation of impacted wells, the purveyors have been conducting regular monitoring of active wells near the Whittaker-Bermite site. In April of 2005, the presence of perchlorate was detected in VWC's Well Q2, an Alluvial well located immediately northwest of the confluence of Bouquet Creek and the Santa Clara River. VWC removed the well from active service. Significant progress has been made toward characterizing the extent of perchlorate contamination and implementing the necessary measures for on-site clean-up and off-site groundwater containment and treatment. Restoration of all impacted capacity is anticipated in 2006.²⁶

²² Castaic Lake Water Agency et al. 2005. 2005 Urban Water Management Plan, prepared by Black & Veatch, Nancy Clemm, Kennedy/Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini Consulting Engineers, Reiter/Lowry Consultants, and Richard Slade and Associates, L.L.C. November.

²³ Castaic Lake Water Agency et al. 2005. 2005 Urban Water Management Plan, prepared by Black & Veatch, Nancy Clemm, Kennedy/Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini Consulting Engineers, Reiter/Lowry Consultants, and Richard Slade and Associates, L.L.C. November.

²⁴ Richard C. Slade & Associates LLC, 2001 Update Report, Hydrogeologic Conditions in the Alluvial and Saugus Formation Aquifer Systems, July 2002.

²⁵ Castaic Lake Water Agency et al. 2005. 2005 Urban Water Management Plan, prepared by Black & Veatch, Nancy Clemm, Kennedy/Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini Consulting Engineers, Reiter/Lowry Consultants, and Richard Slade and Associates, L.L.C. November.

²⁶ Castaic Lake Water Agency et al. 2005. 2005 Urban Water Management Plan, prepared by Black & Veatch, Nancy Clemm, Kennedy/Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini Consulting Engineers, Reiter/Lowry Consultants, and Richard Slade and Associates, L.L.C. November.

3.3 Sustainability of Existing Groundwater Supplies and Projected Supplies

Groundwater supplies were reviewed in the 2005 UWMP and evaluated as to whether supply projections were realistic for average and dry conditions. The 2005 UWMP makes the following findings:

1. Both the Alluvial Aquifer and the Saugus Formation are considered sustainable sources to meet the operating plan for the groundwater Basin.
2. The yields are not overstated and will not deplete or “dry up” the groundwater basin.
3. There is no need to reduce the yields for purposes of planning in the context of the 2005 UWMP.

Additionally, the 2005 UWMP has concluded that there are sufficient supplies to meet demand. Neither aquifer is in overdraft condition.

3.4 Recycled Water

Wastewater that has been highly treated and disinfected can be reused for landscape irrigation and other purposes. It is not suitable for use as potable water. In 1993, CLWA completed a *Draft Reclaimed Water System Master Plan* to use recycled water as a reliable water source to meet some non-potable demand within the Santa Clarita Valley. In 2002 a *Draft Recycled Water Master Plan* update was completed. Since 2003, CLWA’s local water supplies have been augmented by the initiation of deliveries from CLWA’s recycled water program. CLWA currently has rights to use 1,700 AFY of recycled water. The total annual recycled water demand is approximately 17,000 AFY.²⁷ According to the 2005 UWMP, implementation of the recycled water system is expected to occur over the next 25 years. CLWA is currently completing environmental documentation for the implementation of the Recycled Water Master Plan (RWMP), in which CLWA would develop and construct a recycled water system to serve the Santa Clarita Valley. The recycled water would be used for irrigation and other non-potable purposes, allowing for CLWA to more efficiently allocate its potable water and thereby increase the overall reliability of its water supplies.

3.5 State Water Project Water

Since 1980, local supplies in the Santa Clarita Valley have been supplemented with imported water from the SWP. Imported water obtained from the SWP through CLWA is, and will continue to be, the largest source of water for the Santa Clarita Valley. The SWP contractual entitlement, depending on annual allocation, currently meets more than half of local demand. The reliability of SWP supplies is subject to both annual hydrology and planned improvements to the system.

²⁷ The initial list of potential recycled water users was reduced by evaluating the potential users that would be most expensive to serve until potential users were approximately 17,000 AFY. Castaic Lake Water Agency et al. 2005. 2005 Urban Water Management Plan, prepared by Black & Veatch, Nancy Clemm, Kennedy/Jenks Consultants, Jeff Lambert, Luhdorff & Scalmanini Consulting Engineers, Reiter/Lowry Consultants, and Richard Slade and Associates, L.L.C. November.

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On May 25, 2005, DWR informed the SWP Contractors that it was in the process of updating the Reliability Report and provided a recommended set of analyses to be used for preparing 2005 UWMPs.²⁸ These updated analyses indicated that the SWP could deliver up to 77 percent of the total Table A Amounts on a long-term average basis. Assuming SWP reliability of 77 percent, CLWA's average/normal water year deliveries would be approximately 73,300 AFY (CLWA's Table A entitlement is 95,200 AFY). The single dry year deliveries, according to the DWR are forecasted to be approximately five percent of CLWA's Table A, or 4,800 AFY, and the multiple dry year deliveries could be approximately 33 percent, or 31,400 AFY. These forecasts vary slightly over the 2005 UWMP planning period as shown in the tables in section 2.1 above.

²⁸ Department of Water Resources, "Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report," May 2005.

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