Luhdorff & Scalmanini Consulting Engineers, "2007 Santa Clarita Valley Water Report" (April 2008)

2007
Santa Clarita Valley Water Report

Castaic Lake Water Agency (CLWA)
CLWA Santa Clarita Water Division
Los Angeles County Waterworks District 36
Newhall County Water District
Valencia Water Company

April 2008

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

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Executive Summary

This annual report, which is the tenth in a series that began to describe water supply conditions in 1998, provides current information about the water requirements and water supplies of the Santa Clarita Valley. The report was prepared for the imported water wholesaler, Castaic Lake Water Agency (CLWA), and for the four local retail water Purveyors that serve the Valley: CLWA Santa Clarita Water Division, Los Angeles County Waterworks District 36, Newhall County Water District, and Valencia Water Company. These entities and representatives from the City of Santa Clarita and the County of Los Angeles Department of Regional Planning meet as required to coordinate the management of imported water with local groundwater, now augmented by recycled water, to meet water requirements in the Valley.

This report provides information about local groundwater resources, State Water Project (SWP) and other imported water supplies, water conservation, and recycled water. The report reviews the sufficiency and reliability of supplies in the context of existing water demand, with focus on actual conditions in 2007, and it provides a short-term outlook of water supply and demand for 2008.

ES.1 2007 Water Requirements and Supplies

In 2007, total water requirements in the Santa Clarita Valley were about 92,300 acre-feet (af), of which about 77,500 af (84 percent) were for municipal use and the remainder (14,800 af) was for agricultural and other (miscellaneous) uses, including individual domestic uses. Total demand in 2007 was about one percent higher than in 2006, less than what was estimated in the 2006 Water Report. Water requirements in 2007 remained consistent with projections in the 2005 Urban Water Management Plan (UWMP). Total water requirements in 2007 were met by a combination of about 46,500 af from local groundwater resources (about 31,700 af for municipal and about 14,800 af for agricultural and other uses), about 45,300 af of SWP and other imported water, and about 470 af of recycled water.

Of the 46,500 af of total groundwater pumping in the Valley in 2007, about 38,800 af were pumped from the Alluvium and about 7,700 af were pumped from the underlying, deeper Saugus Formation. Alluvial pumping represented about a 4,300 af decrease from 2006, and Saugus pumping was slightly higher than in 2006, by about 400 af. Neither pumping volume resulted in any notable overall change in groundwater conditions (water levels, water quality, etc.) in either

aquifer system. Imported water deliveries to the Purveyors increased by about 4,700 af from the previous year. Water uses and supplies in 2007 are summarized in the following Table ES-1.

Table ES-1
Santa Clarita Valley
Summary of 2007 Water Supplies and Uses
(acre-feet)

Municipal		
SWP and other Imported		45,332
Groundwater (Total)		31,690
Alluvium	*25,632*	
Saugus	*6,058*	
Recycled Water		470
Subtotal		**77,492**
Agriculture/Miscellaneous		
SWP and other Imported		-
Groundwater (Total)		14,768
Alluvium	*13,141*	
Saugus	*1,627*	
Subtotal		**14,768**
Total		***92,260***

In accordance with the California Urban Water Management Planning Act, the Valley-wide UWMP was updated in 2005 to extend projected water demands through 2030, and to describe the combination of local groundwater, imported water supplies from the State Water Project and other sources, local recycled water supplies, and other water supplies planned to meet those existing and projected water demands in the Valley. The 2005 UWMP describes the reliability of local groundwater resources and the adequacy of groundwater supplies to meet groundwater demand, including consideration of the impacts of perchlorate contamination on several municipal water supply wells. The 2005 UWMP also describes the plans and ongoing work for integrated control of perchlorate migration and full restoration of perchlorate-impacted groundwater supply.

Notable details about each component of water supply in the Valley, and about the water supply outlook for 2008, include the following.

ES.2 Alluvial Aquifer

The groundwater operating plan in the 2005 UWMP includes Alluvial pumping in the range of 30,000 to 40,000 acre-feet per year (afy) in average/normal years, and slightly reduced pumping (30,000 to 35,000 afy) in dry years. Pumping from the Alluvium in 2007 was 38,800 af, which is within the operating plan range for the Alluvium.

On a long-term basis, continuing through 2007, there is no evidence of any historic or recent trend toward permanent water level or storage decline. In general, throughout a large part of the basin, Alluvial groundwater levels have generally remained near historic highs during the last 30 years. Above average precipitation in late 2004 and 2005 resulted in significant water level recovery in the eastern part of the basin, continuing the overall trend of fluctuating groundwater levels within a generally constant range over the last 30 years. These ongoing data indicate that the Alluvium remains in good operating condition and can continue to support pumping in the operating range included in the 2005 UWMP, or slightly higher, without adverse results (e.g., long-term water level decline or degradation of groundwater quality.)

Based on an integration of water quality records from multiple wells completed in the Alluvium, there have been historical fluctuations in groundwater quality, typically associated with variations in precipitation and streamflow. However, like groundwater levels, there has been no long-term trend toward groundwater quality degradation; groundwater produced from the Alluvial aquifer remains a viable municipal and agricultural water supply.

In 2002, as part of ongoing monitoring of wells for perchlorate contamination, perchlorate was detected in one Alluvial well (the SCWD Stadium Well) located near the former Whittaker-Bermite facility. The detected concentration was slightly below the then-applicable Notification Level for perchlorate (6 μg/l, which was subsequently established as the Maximum Contaminant Level for perchlorate in October 2007), and the well has been inactivated for municipal water supply since the detection of perchlorate. In early 2005, perchlorate was detected in a second Alluvial well, VWC's Well Q2. Valencia's response plan for Well Q2 was to pursue permitting and installation of wellhead treatment, followed by return of the well to water supply service in October 2005. After nearly two years of operation with wellhead treatment, including regular monitoring specified by the State Department of Public Health (DPH), all of which resulted in no detection of perchlorate in Well Q2, Valencia requested that DPH allow treatment to be discontinued. DPH approved that request in August 2007, and treatment was subsequently

discontinued. DPH-specified monthly monitoring for perchlorate continues at Well Q2; there has been no detection of perchlorate since discontinuation of wellhead treatment. All other Alluvial wells operated by the Purveyors continue to be used for municipal water supply service; those wells near the Whittaker-Bermite property are sampled in accordance with drinking water regulations and perchlorate has not been detected. As detailed in the 2005 UWMP, the ongoing inactivation of one Alluvial well due to perchlorate contamination does not limit the Purveyors' ability to produce groundwater from the Alluvium in accordance with the groundwater operating plan in the 2005 UWMP.

The ongoing characterization and plan for control and cleanup of perchlorate in the Valley has focused on the Saugus Formation. In addition, however, on-site cleanup and control activities that began in 2006, and continued through 2007, include continuation of soil cleanup on the Whittaker-Bermite site, and continuation of pumping and treatment in the Northern Alluvium on the Whittaker-Bermite site. Expanded pumping and treatment, intended to effect perchlorate containment in the Northern Alluvium, became operational in October 2007.

ES.3 Saugus Formation

The groundwater operating plan in the 2005 UWMP includes pumping from the Saugus in the range of 7,500 to 15,000 afy in average/normal years; it also includes planned dry-year pumping from the Saugus of 21,000 to 35,000 afy for one to three consecutive dry years. The 2005 UWMP recognizes the results of basin yield analyses in 2004 and 2005 which found that such short-term pumping can be recharged during subsequent wet/normal years to allow groundwater levels and storage to recover, as it has in historical periods.

Pumping from the Saugus Formation was about 7,700 af in 2007; on average, Saugus pumping has been about 6,800 afy since 1980. Both rates remain near the lower end of the range included in the UWMP. As a result of long-term relatively low pumping from the Saugus Formation, groundwater levels in that aquifer have remained generally constant to slightly increasing over the last 35 to 40 years; those trends continued in 2007.

In 1997, ammonium perchlorate was discovered in four wells completed in the Saugus Formation in the vicinity of the former Whittaker-Bermite facility located generally toward the east, on the south side of the basin. All four of those impacted wells remain out of active supply service; one of them has been permanently sealed and destroyed. In 2006, a very low level of perchlorate was detected in another Saugus municipal well (NCWD's Well NC-13). That low level detection has been interpreted to not indicate anything new about the migration of

perchlorate; however, it has also prompted additional monitoring well installation and a focused study of the Saugus Formation in that area. Results are being integrated with other groundwater remediation efforts and reviewed by the State Department of Toxic Substances Control (DTSC). All other Saugus wells owned and operated by the Purveyors are available for municipal water supply service. As part of regular operation, those wells are sampled in accordance with drinking water regulations and perchlorate has not been detected. Despite the inactivated Saugus wells, the Purveyors still have sufficient pumping capacity in other wells to meet the planned normal range of Saugus pumping in the 2005 UWMP.

Work toward the ultimate remediation of perchlorate contamination, including the restoration of impacted groundwater supply continued to progress in 2007, with focus on installation of a jointly developed plan to "pump and treat" contaminated water from two wells to stop migration of the contaminant plume, and to deliver treated water to partially replace impacted well capacity. Environmental review of the project had been completed with adoption of a Mitigated Negative Declaration in September 2005. The Final Interim Remedial Action Plan was completed and approved by DTSC in January 2006. Construction of facilities and pipelines necessary to implement the pump and treat program and to also restore inactivated well capacity began in November 2007. Construction is scheduled to be completed by the end of 2008, followed by operational start-up.

ES.4 Imported Water

Historically comprised of only its SWP Table A Amount, CLWA's imported water supplies now consist of a combination of SWP water and water acquired from the Buena Vista Water Storage District in Kern County. CLWA's contractual Table A Amount is 95,200 af of water from the SWP. Under the 2007 Water Acquisition Agreement with the Buena Vista Water Storage District (Buena Vista) and the Rosedale-Rio Bravo Water Storage District (Rosedale-Rio Bravo), Buena Vista's high flow Kern River entitlements (and other acquired waters that may become available) are captured and recharged within the Rosedale-Rio Bravo's service area on an ongoing basis. CLWA will receive 11,000 af of these supplies annually through either exchange of Buena Vista's and Rosedale-Rio Bravo's SWP supplies or through direct delivery of water to the California Aqueduct via the Cross Valley Canal.

CLWA's final allocation of SWP Table A for 2007 was 60 percent, or 57,120 af. The total available imported water supply in 2007 was 72,336 af, comprised of the 57,120 af of Table A supply, 11,000 af purchased from Buena Vista/Rosedale Rio Bravo, and 4,216 af of 2006 carryover delivered in early 2007. CLWA deliveries were 45,332 af to the Purveyors, 8,200 af to

the Rosedale-Rio Bravo Water Banking and Exchange Program, and 6,071 af to Devil's Den Ranch.

CLWA has two groundwater banking agreements with the Semitropic Water Storage District in Kern County. In accordance with those agreements, over a ten-year period (until 2012/13), CLWA can withdraw up to 50,870 af of its Table A water that was stored in 2002 and 2003 to meet future Valley demands when needed. In addition to the banking in Semitropic, CLWA finalized an agreement with the Rosedale-Rio Bravo Water Storage District in 2005 and can now bank up to 20,000 afy of surplus Table A Amount in that District's Water Banking and Exchange Program. In addition to 20,000 af previously banked in both 2005 and 2006, CLWA banked 8,200 af of water in 2007. In accordance with the provisions of that agreement, CLWA can withdraw up to a total of 42,900 af of that water, at a rate up to 20,000 afy, to meet Valley water demands when needed. Additionally, as part of the Buena Vista Water Acquisition Agreement, CLWA is entitled to 22,000 af of water that was stored in the Rosedale Rio-Bravo Water Banking and Exchange Program in 2005 and 2006 on CLWA's behalf. With the addition of those supplies, CLWA now has a recoverable total of 64,900 af in the Rosedale Rio-Bravo Water Banking and Exchange Program.

Since SWP water deliveries are subject to reduction when dry conditions occur in Northern California, the UWMP includes programs, like the Semitropic and Rosedale-Rio Bravo programs, for enhancing water supply reliability during such occurrences. A capital improvement program funded by CLWA has been established to provide facilities and additional water supplies needed to firm up SWP water supplies during times of drought.

ES.5 Recycled Water

Recycled water service was initiated in July 2003 in accordance with CLWA's Draft Reclaimed Water System Master Plan (2002). The amount of recycled water used for irrigation purposes, at a golf course and in roadway median strips, was approximately 470 af in 2007. CLWA completed programmatic CEQA analysis in early 2007 for full implementation of the recycled water system as outlined in the Master Plan.

ES.6 2008 Water Supply Outlook

In 2008, total water demands are expected to be about 95,800 af, consistent with the growth rate and related water demand projections in the 2005 UWMP. It is expected that water demands in

2008 will continue to be met with a generally similar mix of water supplies comprised of local groundwater, supplemental SWP and other imported water, and recycled water.

As of February 22, 2008, the allocation of water from the SWP is 35 percent of CLWA's Table A Amount, or 33,320 af. Combined with local groundwater from the two aquifer systems (42,500 af), total Flexible Storage Account (6,060 af), net carryover of SWP Table A allocation from 2007 (12,146 af), annual acquisition through the Buena Vista Water/Rosedale Rio-Bravo Water Acquisition Agreement (11,000 af), and recycled water (500 af), the total available water supplies for 2008 are nearly 106,000 af. As a result, CLWA and the Purveyors anticipate having more than adequate supplies to meet all water demands in 2008.

In August 2007, a federal court ruled that certain operational changes were required of the SWP in order to protect the endangered Delta smelt. Thereafter, DWR prepared an update to its 2005 SWP Delivery Reliability Report, which is issued biennially to indicate how much SWP water is available during varying hydrologic scenarios (i.e., normal and dry years). The Draft SWP Delivery Reliability Report 2007, issued in December 2007, by DWR reduces the long-term reliability of SWP supply from 77 percent to 66-69 percent. The discussion of SWP supply should be tempered, though, by noting that while the Draft SWP Delivery Reliability Report 2007 represents a reasonable scenario with respect to long-term reliability, recent reductions in supply close the gap between the available supply and demand in the future, thereby making the CLWA service area more subject to shortages in certain dry years. Accordingly, the reduction in SWP supply reinforces the need to continue diligent efforts to conserve potable water and increase the use of recycled water, both to meet the goals in the 2005 UWMP and to maximize utilization of potable water supplies. CLWA and the retail water Purveyors are working with Los Angeles County and the City of Santa Clarita in preparing a water conservation ordinance and the enforcement mechanisms to aggressively implement water use efficiency in the CLWA service area. In terms of short-term water supply availability, CLWA has determined that, while current operational changes of the SWP are in effect, there are sufficient supplemental water supplies, including SWP water, to augment local groundwater and other water supplies such that overall water supplies will be sufficient to meet projected 2008 water requirements as reflected herein.

In any given year, SWP supplies may be reduced due to dry weather conditions or regulatory factors. During such an occurrence, the remaining water demands are planned to be met by a combination of alternate supplies such as returning water from CLWA's accounts in the Semitropic Groundwater Storage Program and the Rosedale-Rio Bravo Water Banking and Exchange Program, deliveries from CLWA's flexible storage account in Castaic Lake Reservoir,

local groundwater pumping, short-term water exchanges, and participation in DWR dry-year water purchase programs in accordance with the 2005 Urban Water Management Plan. CLWA has now banked excess 2002 and 2003 SWP Table A water in the Semitropic Groundwater Storage Program; it has banked excess 2005 and 2006 SWP Table A water in the Rosedale-Rio Bravo Water Banking and Exchange Program; and it has banked water purchased in 2005 and 2006 through the Buena Vista/Rosedale-Rio Bravo Water Acquisition Agreement in the Rosedale-Rio Bravo Water Banking and Exchange Program. CLWA banked another 8,200 af in the Rosedale-Rio Bravo Water Banking and Exchange Program in 2007. CLWA can draw upon its accounts as needed, pursuant to the terms of the banking agreements. The banked excess 2002 and 2003 SWP Table A water in Semitropic represents nearly 51,000 af of recoverable water for drought water supply. The banked excess in 2005 and 2006, augmented by banked water acquired through the Buena Vista/Rosedale-Rio Bravo Water Acquisition Agreement in 2005, 2006 and 2007, now represent a total of 64,900 af of recoverable water for drought water supply from the Rosedale-Rio Bravo Banking and Exchange Program.

Drought periods may affect available water supplies in any single year and for a duration usually not longer than three consecutive years. It is important to note that hydrologic conditions vary from region to region throughout the state. Dry conditions in Northern California affecting SWP supply may not affect local groundwater and other supplies in Southern California, and the reverse situation can also occur (as it did in 2002 and 2003). For this reason, CLWA and the Purveyors have emphasized developing a water supply portfolio that is diverse, especially in dry years. Diversity of supply is considered a key element of reliability, giving Valley water Purveyors the ability to draw on multiple sources of supply to ensure reliable service during dry years, as well as during normal and wet years.

I. Introduction

1.1 Background

For most residents of the Santa Clarita Valley (Valley), domestic water service is provided by four retail water Purveyors. They are the Castaic Lake Water Agency's (CLWA) Santa Clarita Water Division (SCWD), Los Angeles County Waterworks District 36 (LA36), Newhall County Water District (NCWD), and Valencia Water Company (VWC). Together, the Purveyors provide water to about 68,000 service connections. Castaic Lake Water Agency (CLWA) contracts for State Water Project water delivered from Castaic Lake where it is treated, filtered, and disinfected at two treatment plants before distribution to the Purveyors. Staff of these entities meet regularly to coordinate the supply of water in the Valley. Their respective service areas are shown in Figure I-1.

Water supply for a small fraction of Valley residents is provided by individual private water supply wells. The locations, construction details, annual pumpage and other information about these private wells are not currently available. CLWA has been working with private well owners to receive information about their wells for incorporation in future reports and for planning purposes. Pumping as reported herein includes an estimate of groundwater pumped from private wells; it is expected that this estimate will be refined in the future as more information about the private wells is obtained.

In addition to municipal and individual private water uses in the Valley, there remains an agricultural water demand that is predominately dependent on local groundwater for its water supply. Accordingly, ongoing agricultural water requirements and the use of local groundwater to meet those requirements are considered in analyses and reports on water supplies such as this report.

Over the last 20 years, CLWA and the Purveyors have reviewed and reported on the availability of water supplies to meet all water requirements in the Valley. Those reports have also addressed local water resources, most notably groundwater, in the region. Past studies have assessed the condition of local groundwater aquifers, their hydrogeologic characteristics, aquifer storage capacity, operational yield and recharge rate, groundwater quality and contamination, and the ongoing conjunctive use of groundwater and imported water resources.

Other efforts have included developing drought contingency plans, coordinating emergency response procedures and implementing Valley-wide conservation programs. In 1985, the Purveyors prepared the area's first Urban Water Management Plan (UWMP.) Information in the plan was coordinated among CLWA and the Purveyors to provide accurate, comprehensive and consistent water supply and demand information for long term planning purposes. In accordance with the California Urban Water Management Planning Act, the Valley-wide UWMP was most recently updated in 2005 to extend water demand projections through 2030, and to describe the combination of local groundwater, imported water supplies from the State Water Project, local recycled water supplies, and planned other water supplies to meet the existing and projected water demands in the Valley. The 2005 UWMP describes the reliability of local groundwater resources and the adequacy of groundwater supplies to meet that component of overall water supply. The 2005 UWMP also describes the impacts of perchlorate contamination on several municipal water supply wells, and the plans and ongoing work for integrated control of perchlorate migration and full restoration of perchlorate-impacted groundwater supply.[1]

1.2 Purpose and Scope of the Report

The purpose of this report, which is the tenth in a series of annual water reports that began to describe water supply conditions in 1998, is to provide current information about the available water supplies and demands of the Santa Clarita Valley. CLWA and the Purveyors have prepared this series of reports in response to a request made by the Los Angeles County Board of Supervisors in 1998. Over the last few years, this series of reports has also served as an annual summary of groundwater conditions in the Valley in fulfillment of the commitment in the Santa Clarita Valley Groundwater Management Plan, adopted in 2003, to regularly report on implementation of that Plan. This report was prepared for Castaic Lake Water Agency, for CLWA's Santa Clarita Water Division, for Los Angeles County Waterworks District 36, for Newhall County Water District, and for Valencia Water Company. It continues a format for providing information regarding water uses and the availability of water supplies on an annual basis. It is intended to be a helpful resource for use by water planners and local land use planning agencies. This report is complemented by the more detailed UWMP for the area, which provides longer-term water supply planning over a 25-year period, and by a number of other technical reports, some of which are specifically referenced herein.

[1] The 2005 UWMP is currently subject of an ongoing legal challenge in the form of a petition for writ of mandate and complaint for declaratory and injunctive relief filed in February 2005 by California Water Impact Network and Friends of the Santa Clara River in Los Angeles County Superior Court. In August 2007, the Superior Court ruled in favor of CLWA and the retail water purveyors, affirming that the 2005 UWMP was properly prepared based on substantial evidence in the record. In October 2007, the Petitioners filed a notice of appeal and this appeal is pending.

1.3 Santa Clarita Valley Water Purveyors

As introduced above, four retail water Purveyors provide water service to most residents of the Santa Clarita Valley. Brief summary descriptions of those four Purveyors are as follows.

Castaic Lake Water Agency Santa Clarita Water Division has a service area that includes a portion of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Saugus, Canyon Country, and Newhall. Water is supplied from both groundwater and CLWA turnouts to about 27,900 service connections.

Los Angeles County Waterworks District 36 has a service area that encompasses approximately 7,635 acres in the Hasley Canyon area and the unincorporated community of Val Verde. LACWWD 36 has about 1,400 service connections. The District has traditionally obtained its full water supply from a connection to the CLWA's Castaic Conduit and continued to do so in 2007.

Newhall County Water District's service area includes portions of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Newhall, Canyon Country, Valencia, and Castaic. NCWD supplies water from both groundwater and CLWA turnouts to approximately 9,500 service connections.

Valencia Water Company's service area serves about 29,400 service connections in a portion of the City of Santa Clarita and in the unincorporated communities of Castaic, Newhall, Saugus, Stevenson Ranch, and Valencia. VWC supplies water from both groundwater and CLWA turnouts; VWC also delivers recycled water for a small amount of non-potable use.

1.4 The Upper Santa Clara River Hydrologic Area and East Groundwater Subbasin

The Upper Santa Clara River Hydrologic Area (HA), as defined by the California Department of Water Resources (DWR), is located almost entirely in northwestern Los Angeles County. The area encompasses about 654 square miles comprised of flat valley land (about 6 percent of the total area) and hills and mountains (about 94 percent of the total area) that border the valley area. The mountains include the Santa Susana and San Gabriel Mountains to the south and the Sierra Pelona and Leibre-Sawmill Mountains to the north. Elevations range from about 800 feet on the valley floor to about 6,500 feet in the San Gabriel Mountains. The headwaters of the Santa Clara

River are at an elevation of about 3,200 feet at the divide separating this hydrologic area from the Mojave Desert.

The Santa Clara River and its tributaries flow intermittently from Lang Station westward about 35 miles to Blue Cut, just west of the Los Angeles-Ventura County line, where it forms the outlet for the Upper Santa Clara River Hydrologic Area. The principal tributaries of the River in the Santa Clarita Valley are Castaic Creek, San Francisquito Creek, Bouquet Creek, and the South Fork of the Santa Clara River. In the Santa Clarita Valley, the Santa Clara River receives treated wastewater discharge from the Saugus and Valencia Water Reclamation Plants, which are operated by the Sanitation Districts of Los Angeles County.

The Santa Clara River Valley East Groundwater Subbasin, beneath the Santa Clarita Valley in the Upper Santa Clara River HA, is the source of essentially all local groundwater used for water supply in the Santa Clarita Valley. Below Blue Cut, the Santa Clara River continues westward through Ventura County to its mouth near Oxnard. Along that route, the River traverses all or parts of six groundwater basins in Ventura County (Piru, Fillmore, Santa Paula, Oxnard Forebay, Oxnard Plain and Mound) as shown in Figure I-2.

There are two primary precipitation gages in the Santa Clarita Valley, the Newhall-Soledad 32c gage and the Newhall County Water District gage (Figure I-3). The National Climatic Data Center (NCDC) and Los Angeles County Department of Public Works (LADPW) have maintained records for the Newhall-Soledad 32c gage since 1931. Newhall County Water District has maintained records for the NCWD gage since 1979. The cumulative records from these two gages correlate very closely, with the NCWD gage recording approximately 25 percent more precipitation than the Newhall-Soledad 32c gage. This is likely due to the location of the NCWD gage, which is at the base of the mountains rimming the southern edge of the Santa Clarita Valley.

The Santa Clarita Valley is characterized as having an arid climate. Historically, intermittent periods of less-than-average precipitation have typically been followed by periods of greater-than-average precipitation in a cyclical pattern, with each wetter or drier period typically lasting from one to five years. Long-term precipitation records for the Newhall-Soledad 32c gage are illustrated in Figure I-3. The long-term average precipitation is 17.9 inches (1931-2007). Figure I-3 also shows the yearly departure from mean annual precipitation. In general, periods of less-than-average precipitation have been longer and more moderate than periods of greater-than-average precipitation. Recently, the periods from 1971 to 1976, 1984 to 1991 and 1999 to 2003 have been drier than average; the periods from 1977 to 1983 and 1992 to 1996 have been wetter

than average. More recently, wet conditions that began in late 2004, continued into early 2005, ultimately resulting in about 37 inches of measured precipitation, or slightly more than 200 percent of long-term average precipitation, in that year. Those significantly wet conditions contributed to substantial groundwater recharge and decreased water demand that year. In contrast, total precipitation in 2006 was slightly less than 14 inches, or about 4 inches below the long-term average, but water requirements were still about "normal" (as projected in the 2005 UWMP) and there were no dramatic changes in groundwater conditions, as described herein. 2007 was notably dry, with total precipitation slightly less than 6 inches, about 12 inches below normal. Despite that condition, however, water demand was about as estimated for average conditions in the 2005 UWMP, and not as great as the short-term projection in the 2006 Water Report. In 2008, precipitation has been near normal, at approximately 14 inches for the early part of the year.

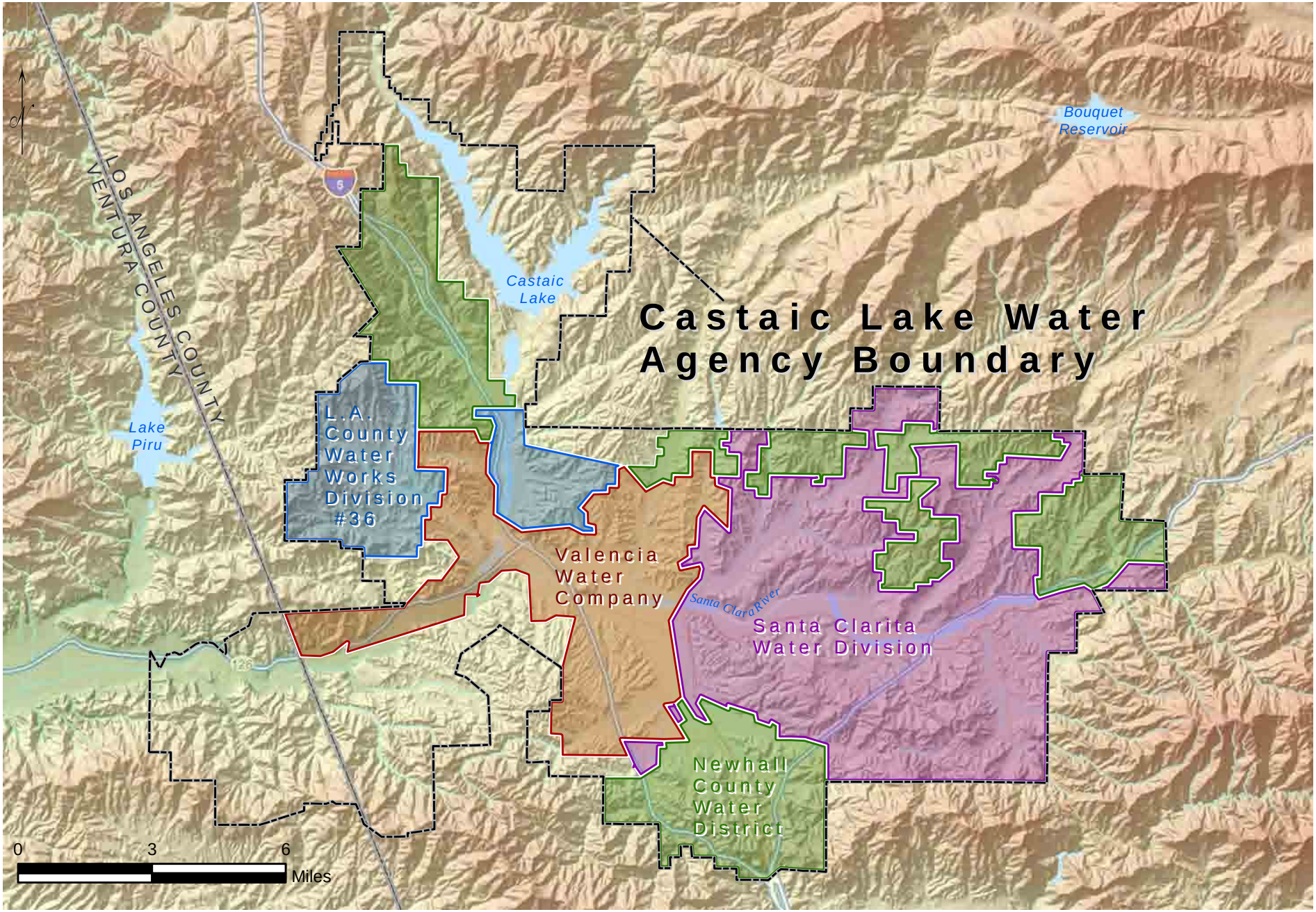

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Figure I-1
CLWA and Purveyor Service Areas

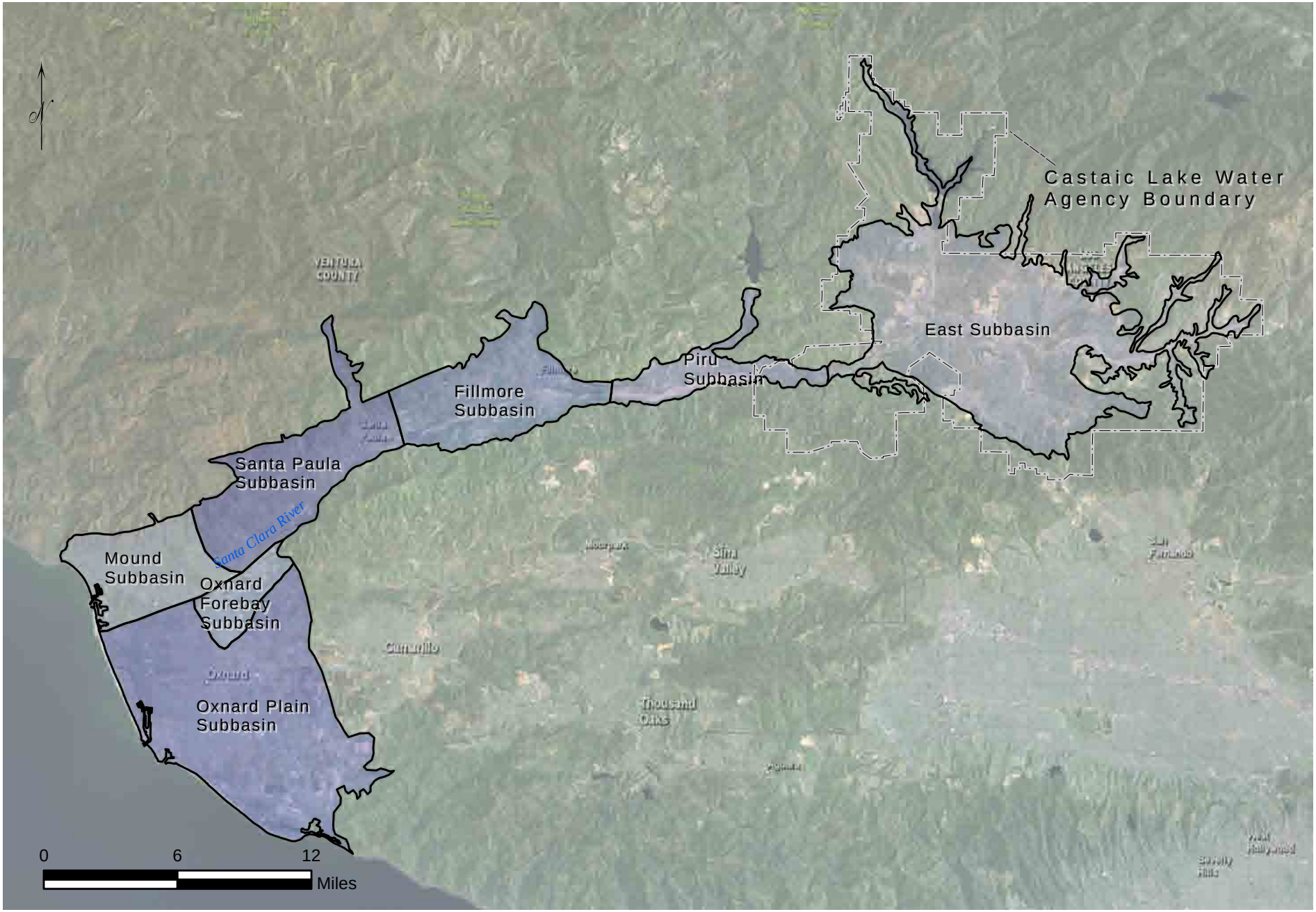

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Figure I-2
Santa Clara River Groundwater Subbasins

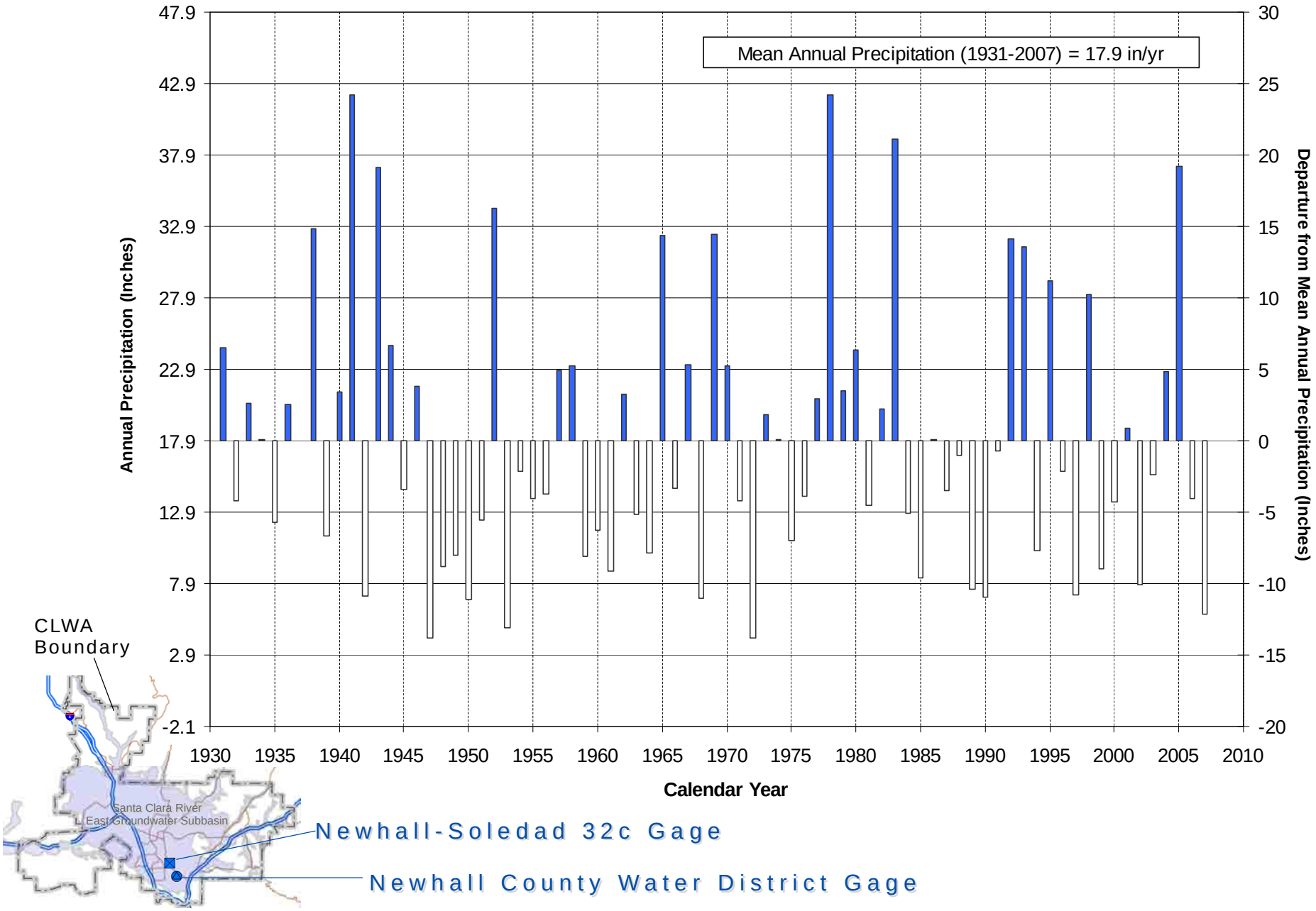

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Figure I-3
Annual Precipitation and Departure from Mean Annual Precipitation
Newhall-Soledad 32c Gage

II. 2007 Water Requirements and Supplies

In 2007, total water use in the Santa Clarita Valley was 92,300 af, an increase of 900 af from the previous year. Of the total water demand, 77,500 af (84 percent) were for municipal use and the remaining 14,800 af (16 percent) were for agricultural and other (miscellaneous) uses, including individual domestic uses. These total water demands were met by a combination of about 46,500 af from local groundwater resources (about 31,700 af for municipal supply and about 14,800 af for agricultural and other uses), about 45,300 af of SWP and other imported water, and about 470 af of recycled water.

Compared to the previous year, total water demand in the Santa Clarita Valley increased by about one percent in 2007. Actual water use in 2007 was less than the short-term projected water requirement of 99,000-102,000 acre-feet presented in last year's Water Report. The increase in water use in 2007 is attributed to an increase of about 800 municipal service connections, from 67,400 in 2006 to 68,200 in 2007 and a less than typical use of water for agricultural irrigation after a return to normal in 2006 following the extremely wet conditions of 2005. Water use in 2007 was somewhat inconsistent with the analysis of weather impacts on water usage in the 2005 Urban Water Management Plan, in that water requirements were not significantly above the average projections in the 2005 UWMP. As summarized in that Plan, examination of historical water use patterns in the Valley since 1980, when State Water Project deliveries began, shows that weather variations have influenced water use by nine to ten percent of normal, or average, use. In hotter, dry years, water demands have been as much as nine percent higher than normal while in cooler, wet years, water demands have been as much as ten percent less than normal. In 2005, extended and significantly wet conditions resulted in a water demand that was about six percent below the average projection in the 2005 UWMP. In 2006 and 2007, although precipitation was below average, total water requirements for all uses in the Valley were basically the same as the average projections in the 2005 UWMP.

The uses of local and imported water supplies to meet municipal water requirements since 1980, when the importation of SWP water began, are summarized in Table II-1. Water supply utilization by each individual municipal Purveyor is tabulated in Tables II-2 through II-5 for the same period of time. Notable with regard to municipal water requirements is that, through 2006, total municipal demand (77,500 af) was slightly below (by about 1,200 af) the projections in the 2005 UWMP.

Water supply utilization for all agricultural and other non-municipal uses is summarized in Table II-6 and tabulated by three categories of agricultural and other users in Table II-7. The latter category of Small Private Domestic, Irrigation and Golf Course Uses in Table II-7 includes an estimated 500 af of small private pumping from the Alluvium.

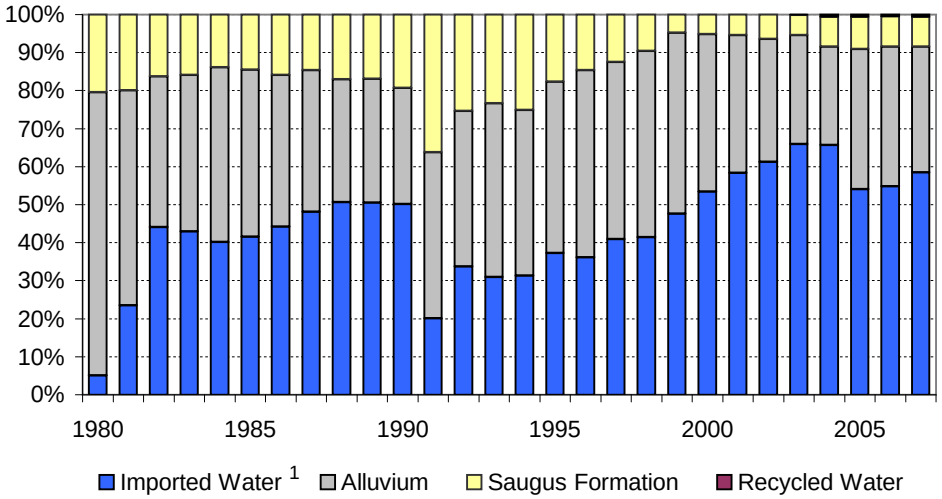
Water supply utilization for all uses in the Santa Clarita Valley, again for the period 1980 to present, is summarized in Table II-8. The trends in utilization of local groundwater and imported water, complemented by the recent addition of recycled water, are graphically illustrated in Figure II-1. As can be seen by inspection of Table II-8 and Figure II-1, total water use in the Valley has nearly linearly increased since the early 1980's, with some weather-related fluctuations in certain years. The resultant increase in total water demand, since the inception of supplemental SWP importation, has been from about 37,000 acre-feet in 1980 to the mid-80,000 acre-feet per year range through 2000-2005, to slightly more than 92,000 acre-feet in 2007. As can also be seen by inspection of Table II-8 and Figure II-1, most of that increase in water demand has been met with increasing importation of SWP water, most recently complemented by other imported water as discussed herein. Since the early 1990's, following a decade of decreased groundwater use during the initial period of SWP importation, total groundwater pumping has fluctuated from year to year, but has remained within a fairly narrow range of about 38,000 to 50,000 acre-feet per year through 2007.

Table II-1
Water Supply Utilization by Municipal Purveyors*
(Acre-Feet)

* includes CLWA-SCWD, LACWD 36, NCWD and VWC

Year	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	*Recycled Water*	**Total**
1980	1,125	16,625	4,569	-	**22,319**
1981	5,816	14,056	4,950	-	**24,822**
1982	9,659	8,684	3,569	-	**21,912**
1983	9,185	8,803	3,398	-	**21,386**
1984	10,996	12,581	3,809	-	**27,386**
1985	11,823	12,519	4,140	-	**28,482**
1986	13,759	12,418	4,975	-	**31,152**
1987	16,285	12,630	4,962	-	**33,877**
1988	19,033	12,197	6,404	-	**37,634**
1989	21,618	13,978	7,217	-	**42,813**
1990	21,613	13,151	8,302	-	**43,066**
1991	7,968	17,408	14,417	-	**39,793**
1992	13,911	16,897	10,458	-	**41,266**
1993	13,393	19,808	10,151	-	**43,352**
1994	14,389	20,068	11,531	-	**45,988**
1995	16,996	20,590	8,087	-	**45,673**
1996	18,093	24,681	7,373	-	**50,147**
1997	22,148	25,273	6,752	-	**54,173**
1998	20,254	23,898	4,706	-	**48,858**
1999	27,282	27,240	2,728	-	**57,250**
2000	32,579	25,216	3,193	-	**60,988**
2001	35,369	22,055	3,267	-	**60,691**
2002	41,768	22,097	4,360	-	**68,225**
2003	44,419	19,397	3,581	50	**67,447**
2004	47,205	18,590	5,701	420	**71,916**
2005	38,034	26,025	5,948	418	**70,425**
2006	40,646	27,189	5,872	419	**74,126**
2007	45,332	25,632	6,058	470	**77,492**

Percent Contribution of Water Supplies

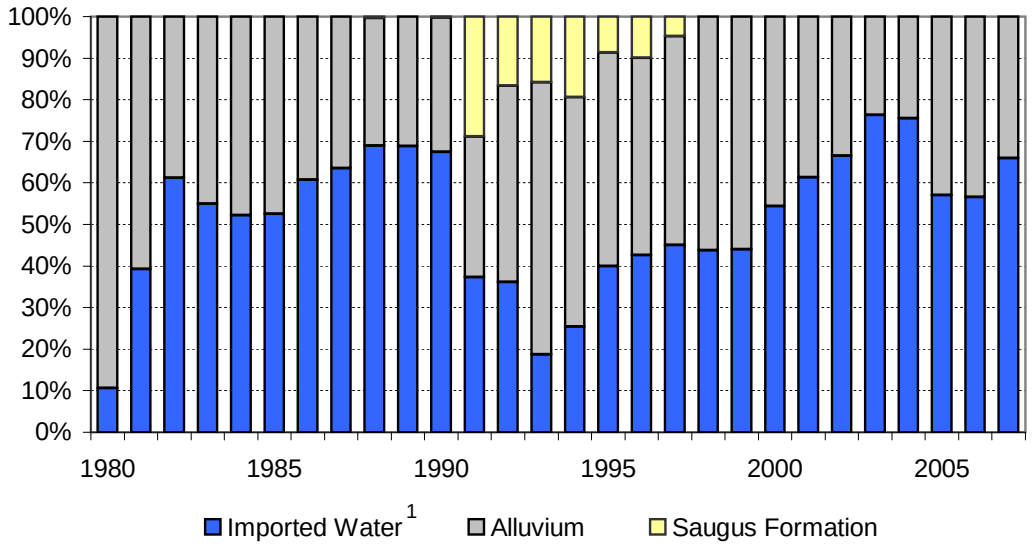


1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.

Table II-2
Water Supply Utilization by CLWA Santa Clarita Water Division
(Acre-Feet)

Year	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	**Total**
1980	1,125	9,460	0	**10,585**
1981	4,602	7,109	0	**11,711**
1982	6,454	4,091	0	**10,545**
1983	5,214	4,269	0	**9,483**
1984	6,616	6,057	0	**12,673**
1985	6,910	6,242	0	**13,152**
1986	8,366	5,409	0	**13,775**
1987	9,712	5,582	0	**15,294**
1988	11,430	5,079	63	**16,572**
1989	12,790	5,785	0	**18,575**
1990	12,480	5,983	40	**18,503**
1991	6,158	5,593	4,781	**16,532**
1992	6,350	8,288	2,913	**17,551**
1993	3,429	12,016	2,901	**18,346**
1994	5,052	10,996	3,863	**19,911**
1995	7,955	10,217	1,726	**19,898**
1996	9,385	10,445	2,176	**22,006**
1997	10,120	11,268	1,068	**22,456**
1998	8,893	11,426	0	**20,319**
1999	10,772	13,741	0	**24,513**
2000	13,751	11,529	0	**25,280**
2001	15,648	9,896	0	**25,544**
2002	18,921	9,513	0	**28,434**
2003	20,668	6,424	0	**27,092**
2004	22,045	7,146	0	**29,191**
2005	16,513	12,408	0	**28,921**
2006	17,146	13,156	0	**30,302**
2007	20,669	10,686	0	**31,355**

Percent Contribution of Water Supplies



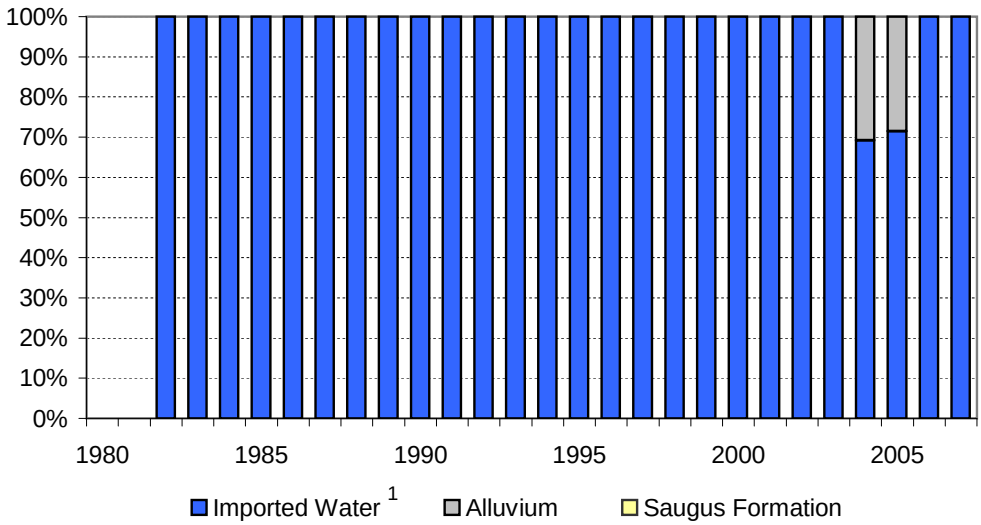
1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.

Table II-3
Water Supply Utilization by Los Angeles County Waterworks District 36
(Acre-Feet)

Year	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	**Total**
1980	0	-	-	**0**
1981	0	-	-	**0**
1982	145	-	-	**145**
1983	207	-	-	**207**
1984	240	-	-	**240**
1985	272	-	-	**272**
1986	342	-	-	**342**
1987	361	-	-	**361**
1988	434	-	-	**434**
1989	457	-	-	**457**
1990	513	-	-	**513**
1991	435	-	-	**435**
1992	421	-	-	**421**
1993	465	-	-	**465**
1994	453	-	-	**453**
1995	477	-	-	**477**
1996	533	-	-	**533**
1997	785	-	-	**785**
1998	578	-	-	**578**
1999	654	-	-	**654**
2000	800	-	-	**800**
2001	907	-	-	**907**
2002	1,069	-	-	**1,069**
2003	1,175	-	-	**1,175**
2004	854	380	-	**1,234**
2005	857	343	-	**1,200**
2006	1,289	-	-	**1,289**
2007	1,406	-	-	**1,406**

Groundwater purchased from Los Angeles County Honor Farm

Percent Contribution of Water Supplies

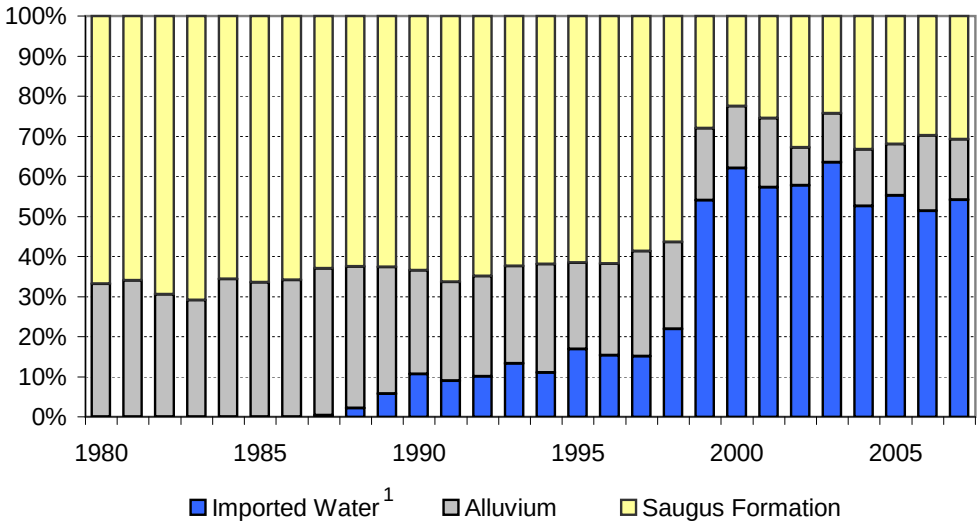


1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.

Table II-4
Water Supply Utilization by Newhall County Water District
(Acre-Feet)

Year	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	**Total**
1980	0	1,170	2,363	**3,533**
1981	0	1,350	2,621	**3,971**
1982	0	1,178	2,672	**3,850**
1983	0	1,147	2,787	**3,934**
1984	0	1,549	2,955	**4,504**
1985	0	1,644	3,255	**4,899**
1986	0	1,842	3,548	**5,390**
1987	22	2,127	3,657	**5,806**
1988	142	2,283	4,041	**6,466**
1989	428	2,367	4,688	**7,483**
1990	796	1,936	4,746	**7,478**
1991	675	1,864	4,994	**7,533**
1992	802	1,994	5,160	**7,956**
1993	1,075	1,977	5,068	**8,120**
1994	906	2,225	5,103	**8,234**
1995	1,305	1,675	4,775	**7,755**
1996	1,213	1,803	4,871	**7,887**
1997	1,324	2,309	5,168	**8,801**
1998	1,769	1,761	4,557	**8,087**
1999	5,050	1,676	2,622	**9,348**
2000	6,024	1,508	2,186	**9,718**
2001	5,452	1,641	2,432	**9,525**
2002	5,986	981	3,395	**10,362**
2003	6,572	1,266	2,513	**10,351**
2004	5,896	1,582	3,739	**11,217**
2005	5,932	1,389	3,435	**10,756**
2006	5,898	2,149	3,423	**11,470**
2007	6,478	1,806	3,691	**11,975**

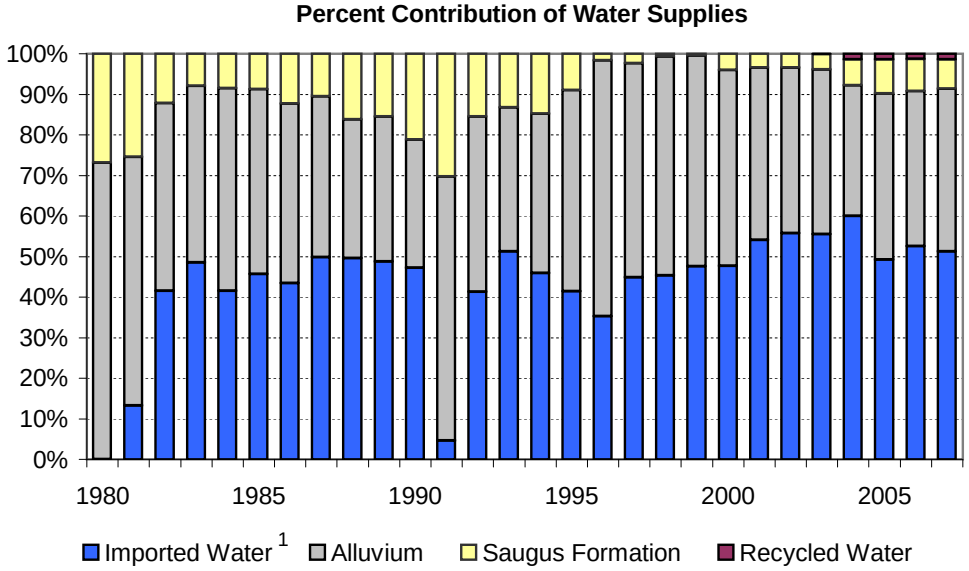
Percent Contribution of Water Supplies



1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.

Table II-5
Water Supply Utilization by Valencia Water Company
(Acre-Feet)

Year	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	*Recycled Water*	**Total**
1980	0	5,995	2,206	-	**8,201**
1981	1,214	5,597	2,329	-	**9,140**
1982	3,060	3,415	897	-	**7,372**
1983	3,764	3,387	611	-	**7,762**
1984	4,140	4,975	854	-	**9,969**
1985	4,641	4,633	885	-	**10,159**
1986	5,051	5,167	1,427	-	**11,645**
1987	6,190	4,921	1,305	-	**12,416**
1988	7,027	4,835	2,300	-	**14,162**
1989	7,943	5,826	2,529	-	**16,298**
1990	7,824	5,232	3,516	-	**16,572**
1991	700	9,951	4,642	-	**15,293**
1992	6,338	6,615	2,385	-	**15,338**
1993	8,424	5,815	2,182	-	**16,421**
1994	7,978	6,847	2,565	-	**17,390**
1995	7,259	8,698	1,586	-	**17,543**
1996	6,962	12,433	326	-	**19,721**
1997	9,919	11,696	516	-	**22,131**
1998	9,014	10,711	149	-	**19,874**
1999	10,806	11,823	106	-	**22,735**
2000	12,004	12,179	1,007	-	**25,190**
2001	13,362	10,518	835	-	**24,715**
2002	15,792	11,603	965	-	**28,360**
2003	16,004	11,707	1,068	50	**28,829**
2004	18,410	9,862	1,962	420	**30,654**
2005	14,732	12,228	2,513	418	**29,891**
2006	16,313	11,884	2,449	419	**31,065**
2007	16,779	13,140	2,367	470	**32,756**

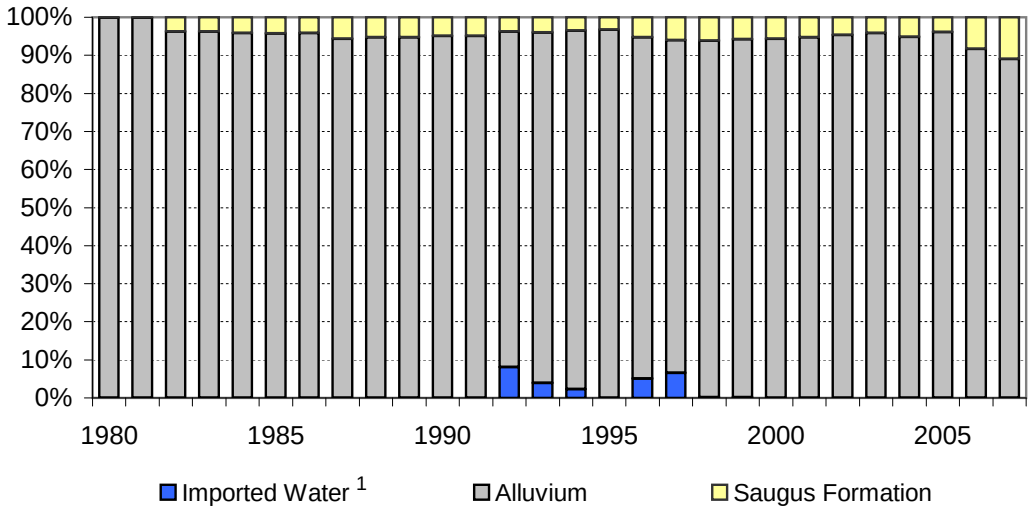


1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.

Table II-6
Water Supply Utilization for Agricultural and Other Uses
(Acre-Feet)

Year	*Imported Water* [1]	*Alluvium*	*Saugus Formation*	**Total**
1980	0	14,831	20	**14,851**
1981	0	16,737	20	**16,757**
1982	0	13,184	521	**13,705**
1983	0	11,483	454	**11,937**
1984	0	14,737	640	**15,377**
1985	0	12,828	575	**13,403**
1986	0	11,787	510	**12,297**
1987	0	10,012	599	**10,611**
1988	0	9,451	524	**9,975**
1989	0	9,743	542	**10,285**
1990	0	10,725	559	**11,284**
1991	0	9,779	500	**10,279**
1992	987	10,694	466	**12,147**
1993	443	10,318	459	**11,220**
1994	311	13,065	494	**13,870**
1995	6	13,874	473	**14,353**
1996	780	13,757	813	**15,350**
1997	1,067	14,326	993	**16,386**
1998	12	12,750	849	**13,611**
1999	20	16,166	988	**17,174**
2000	3	14,721	887	**15,611**
2001	0	15,489	873	**16,362**
2002	0	16,179	800	**16,979**
2003	0	14,203	626	**14,829**
2004	0	14,787	803	**15,590**
2005	0	12,280	505	**12,785**
2006	0	15,872	1,440	**17,312**
2007	0	13,141	1,627	**14,768**

Percent Contribution of Water Supplies



1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.

Table II-7
Individual Water Supply Utilization by Agricultural and Other Users
(Acre-Feet)

	Newhall Land and Farming			***Los Angeles County Honor Farm***			***Small Private Domestic, Irrigation and Golf Courses Uses***		
Year	*Alluvium*	*Saugus Formation*	**Total**	*Alluvium*	*Imported Water* [1]	**Total**	*Alluvium* [2]	*Saugus Formation* [3]	**Total**
1980	11,331	20	**11,351**	3,000	0	**3,000**	500	0	**500**
1981	13,237	20	**13,257**	3,000	0	**3,000**	500	0	**500**
1982	9,684	20	**9,704**	3,000	0	**3,000**	500	501	**1,001**
1983	7,983	20	**8,003**	3,000	0	**3,000**	500	434	**934**
1984	11,237	20	**11,257**	3,000	0	**3,000**	500	620	**1,120**
1985	9,328	20	**9,348**	3,000	0	**3,000**	500	555	**1,055**
1986	8,287	20	**8,307**	3,000	0	**3,000**	500	490	**990**
1987	6,512	20	**6,532**	3,000	0	**3,000**	500	579	**1,079**
1988	5,951	20	**5,971**	3,000	0	**3,000**	500	504	**1,004**
1989	6,243	20	**6,263**	3,000	0	**3,000**	500	522	**1,022**
1990	8,225	20	**8,245**	2,000	0	**2,000**	500	539	**1,039**
1991	7,039	20	**7,059**	2,240	0	**2,240**	500	480	**980**
1992	8,938	20	**8,958**	1,256	987	**2,243**	500	446	**946**
1993	8,020	20	**8,040**	1,798	443	**2,241**	500	439	**939**
1994	10,606	20	**10,626**	1,959	311	**2,270**	500	474	**974**
1995	11,174	20	**11,194**	2,200	6	**2,206**	500	453	**953**
1996	12,020	266	**12,286**	1,237	780	**2,017**	500	547	**1,047**
1997	12,826	445	**13,271**	1,000	1,067	**2,067**	500	548	**1,048**
1998	10,250	426	**10,676**	2,000	12	**2,012**	500	423	**923**
1999	13,824	479	**14,303**	1,842	20	**1,862**	500	509	**1,009**
2000	11,857	374	**12,231**	1,644	3	**1,647**	1,220	513	**1,733**
2001	12,661	300	**12,961**	1,604	0	**1,604**	1,224	573	**1,797**
2002	13,514	211	**13,725**	1,602	0	**1,602**	1,063	589	**1,652**
2003	10,999	122	**11,121**	2,273	0	**2,273**	931	504	**1,435**
2004	10,991	268	**11,259**	2,725	0	**2,725**	1,071	535	**1,606**
2005	8,648	6	**8,654**	2,499	0	**2,499**	1,133	499	**1,632**
2006	11,477	934	**12,411**	3,026	0	**3,026**	1,369	506	**1,875**
2007	9,968	971	**10,939**	2,085	0	**2,085**	1,088	656	**1,744**

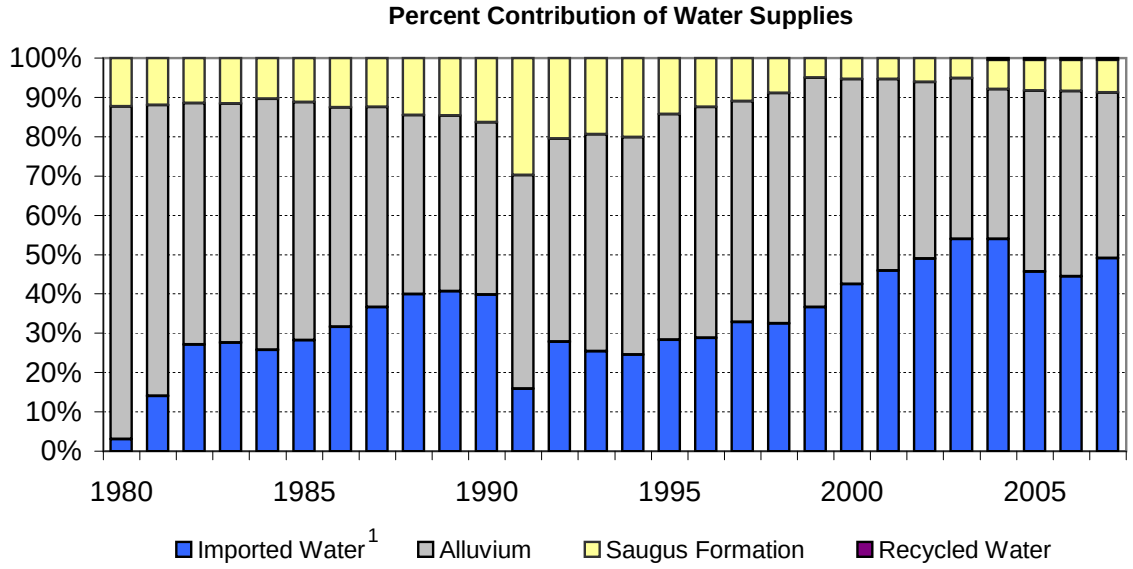
1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.

2. Robinson Ranch Golf Course irrigation and estimated private pumping.

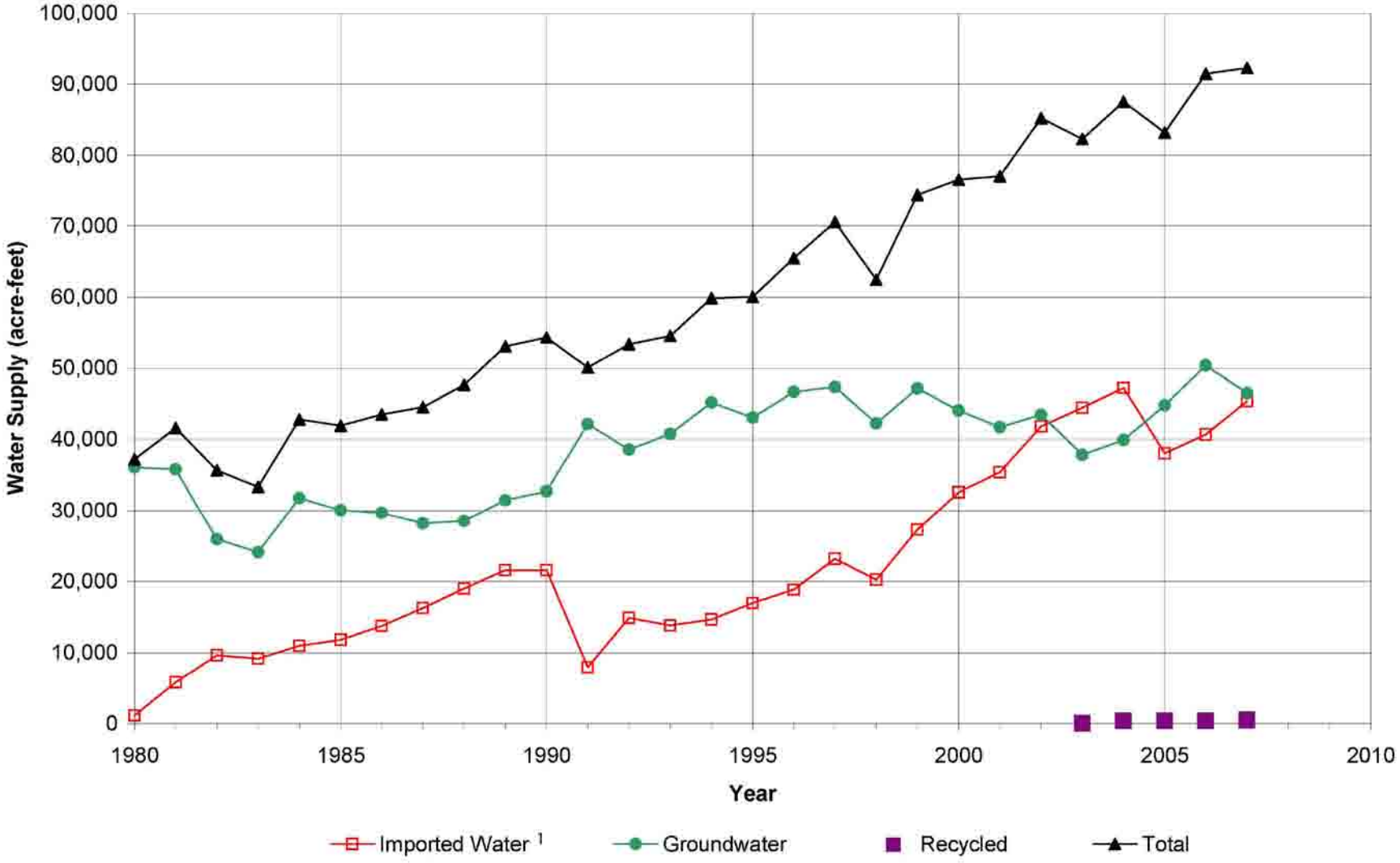
3. Valencia Country Club and Vista Valencia Golf Course irrigation.

Table II-8
Total Water Supply Utilization for Municipal, Agricultural and Other Uses
(Acre-Feet)

Year	*Imported Water*[1]	*Alluvium*	*Saugus Formation*	*Recycled Water*	**Total**
1980	1,125	31,456	4,589	-	**37,170**
1981	5,816	30,793	4,970	-	**41,579**
1982	9,659	21,868	4,090	-	**35,617**
1983	9,185	20,286	3,852	-	**33,323**
1984	10,996	27,318	4,449	-	**42,763**
1985	11,823	25,347	4,715	-	**41,885**
1986	13,759	24,205	5,485	-	**43,449**
1987	16,285	22,642	5,561	-	**44,488**
1988	19,033	21,648	6,928	-	**47,609**
1989	21,618	23,721	7,759	-	**53,098**
1990	21,613	23,876	8,861	-	**54,350**
1991	7,968	27,187	14,917	-	**50,072**
1992	14,898	27,591	10,924	-	**53,413**
1993	13,836	30,126	10,610	-	**54,572**
1994	14,700	33,133	12,025	-	**59,858**
1995	17,002	34,464	8,560	-	**60,026**
1996	18,873	38,438	8,186	-	**65,497**
1997	23,215	39,599	7,745	-	**70,559**
1998	20,266	36,648	5,555	-	**62,469**
1999	27,302	43,406	3,716	-	**74,424**
2000	32,582	39,937	4,080	-	**76,599**
2001	35,369	37,544	4,140	-	**77,053**
2002	41,768	38,276	5,160	-	**85,204**
2003	44,419	33,599	4,207	50	**82,276**
2004	47,205	33,377	6,503	420	**87,505**
2005	38,034	38,305	6,453	418	**83,210**
2006	40,646	43,061	7,312	419	**91,438**
2007	45,332	38,773	7,684	470	**92,260**



1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.



1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.

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Figure II-1
Total Water Supply Utilization
Santa Clarita Valley

III. Water Supplies

Prior to 1980, local groundwater extracted from the Alluvium and the Saugus Formation was the sole source of water supply in the Santa Clarita Valley. Since 1980, local groundwater supplies have been supplemented with imported SWP water supplies, augmented in 2007 by acquisition of additional supplemental water from the Buena Vista Water Storage District. Those water supplies were also augmented by the initiation of deliveries from CLWA's recycled water program in 2003. This section describes the groundwater resources of the Santa Clarita Valley, SWP and other imported water supplies, and CLWA's recycled water program.

3.1 Groundwater Basin Yield

The groundwater basin generally beneath the Santa Clarita Valley, identified in the State Department of Water Resources' Bulletin 118 as the Santa Clara River Valley Groundwater Basin, East Subbasin (Basin No. 4-4.07), is comprised of two aquifer systems. The Alluvium generally underlies the Santa Clara River and its several tributaries, and the Saugus Formation underlies practically the entire Upper Santa Clara River area. The mapped extent of the Santa Clara River Valley East Subbasin in DWR Bulletin 118 and its relationship to the extent of the CLWA service area are illustrated in Figure III-1. The subbasin boundary approximately coincides with the outer extent of the Alluvium and Saugus Formation.

A 2001 Update Report on both the Alluvium and Saugus Formation Aquifers (Slade, 2002), which updated analyses and interpretation of hydrogeologic conditions from earlier reports (Slade, 1986 and 1988), included extensive detail on major aspects of the groundwater basin. Notable parts of the Update Report relative to groundwater supply included findings that:

- Analysis of historical groundwater levels and production indicates that there have been no conditions that would be illustrative of groundwater overdraft.

- Utilization of operational yield (as opposed to perennial yield) as a basis for managing groundwater production would be more applicable in this basin to reflect fluctuating utilization of groundwater in conjunction with imported SWP water.

- Operational yield of the Alluvium would typically be 30,000 to 40,000 afy for wet and normal rainfall years, with an expected reduction into the range of 30,000 to 35,000 afy in dry years.

- Operational yield of the Saugus Formation would typically be in the range of 7,500 to 15,000 afy on a long-term basis, with possible short-term increases during dry periods into a range of 15,000 to 25,000 afy, and to 35,000 afy if dry conditions continue.

Following on the 2001 Update Report, the groundwater component of overall water supply in the Valley derives from a groundwater operating plan to meet water requirements (municipal, agricultural, small domestic) while maintaining the basin in a sustainable condition (i.e., no long-term depletion of groundwater or interrelated surface water). This operating plan also addresses groundwater contamination issues in the basin, all consistent with the adopted Groundwater Management Plan. The groundwater operating plan is based on the concept that pumping can vary from year to year to generally rely on increased groundwater use in dry periods and increased recharge during wet periods, and to collectively assure that the groundwater basin is adequately replenished through various wet/dry cycles.

The groundwater operating plan, summarized in Table III-1, is as follows:

Alluvium – Pumping from the Alluvial Aquifer in a given year is related to local hydrologic conditions in the eastern Santa Clara River watershed. Pumping is expected to typically range between 30,000 and 40,000 afy during normal and above-normal rainfall years. Due to hydrogeologic constraints in the eastern part of the basin, pumping is expected to be typically reduced to between 30,000 and 35,000 afy during locally dry years.

Saugus Formation – Pumping from the Saugus Formation in a given year is related to the availability of other water supplies, particularly from the SWP. During average-year conditions within the SWP system, Saugus pumping is expected to typically range between 7,500 and 15,000 afy. Planned dry-year pumping from the Saugus Formation is expected to range 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. Such high pumping is expected to typically 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.

Table III-1
Groundwater Operating Plan for the Santa Clarita Valley

Aquifer	Groundwater Production (af)			
	Normal Years	**Dry Year 1**	**Dry Year 2**	**Dry Year 3**
Alluvium	30,000 to 40,000	30,000 to 35,000	30,000 to 35,000	30,000 to 35,000
Saugus	7,500 to 15,000	15,000 to 25,000	21,000 to 25,000	21,000 to 35,000
Total	**37,500 to 55,000**	**45,000 to 60,000**	**51,000 to 60,000**	**51,000 to 70,000**

In 2004, as part of analyzing the restoration of perchlorate-impacted groundwater supply in the Valley, a numerical groundwater flow model was developed and calibrated for use in analyzing the response of the groundwater basin to long-term operation at the operational yields noted above, with focus on perchlorate extraction and the control of perchlorate migration in the basin. That groundwater flow model was then utilized in 2005 to specifically analyze the sustainability of groundwater supplies in both the Alluvium and the Saugus Formation through a long-term (78 year) hydrologic period that was selected to examine groundwater basin response to variations in pumping in accordance with the operating plan. Resultant projections of groundwater levels, groundwater storage, and surface water flows showed the basin to respond in a long-term sustainable manner, with no chronic depletion of groundwater levels, storage, or stream flows. The analysis of groundwater sustainability was summarized in a Basin Yield Report (CH2M Hill and LSCE, 2005), which included the following findings:

- The groundwater basin has historically been, and continues to be, in good operating condition and not in overdraft conditions, as indicated by historical data.

- The groundwater plan is sustainable over varying hydrologic conditions, because it is feasible to intermittently exceed a long-term average yield for one or more years without creating long-term adverse impacts to the groundwater system and the Santa Clara River.

- The groundwater operating plan for the Alluvium and the Saugus Formation can be used for long-term water supply planning purposes. In particular, although increased pumping from the Saugus Formation during dry periods can be expected to cause short-term declines in groundwater levels, it is not projected to cause permanent declines in groundwater discharges or streamflow. Saugus groundwater levels can be expected to

recover to pre-drought conditions when pumping is reduced in subsequent wet to normal years.

- The strategy around which the groundwater operating plan was designed (maximizing the use of Alluvial Aquifer and imported water during years of normal or above-normal availability of these supplies, while limiting the use of the Saugus Formation during these periods, then temporarily increasing Saugus pumping during years when SWP supplies are significantly reduced because of drought conditions) is viable on a long-term basis.

- The historical observations of basin conditions and the model simulations together support the historical and ongoing confidence that groundwater can continue to be a sustainable source of water supply under the groundwater operating plan.

3.2 Alluvium – General

The spatial extent of the aquifers used for groundwater supply in the Valley, the Alluvium and the Saugus Formation, are illustrated in Figure III-1. Geologic descriptions and hydrogeologic details related to both aquifers are included in several technical reports including Slade (1986, 1988 & 2002), CH2M Hill (2005) and LSCE (2005), and in the 2005 Urban Water Management Plan.

Consistent with the 2001 Update Report (Slade), the 2005 Basin Yield Report (CH2M Hill and LSCE), and the 2005 UWMP, the management practice of the Purveyors continues to be to rely on groundwater from the Alluvium for part of the overall municipal water supply, whereby total pumping from the Alluvium (by municipal, agricultural, and small private pumpers) is in accordance with the groundwater operating plan, 30,000 to 40,000 afy in wet and normal years, with possible reduction to 30,000 to 35,000 afy in dry years. Such operation will maximize use of the Alluvium because of the aquifer's ability to store and produce good quality water on a sustainable basis, and because the Alluvium is capable of rapid recovery of groundwater storage in wet periods. As with many groundwater basins, it is possible to intermittently exceed a long-term average yield for one or more years without long-term adverse effects. Higher pumping for short periods may temporarily lower groundwater storage and related water levels, as has been the case in the Alluvium several times since the 1930's. However, subsequent decreases in pumping limit the amount of water level decline. Normal to wet-period recharge results in a rapid return of groundwater levels to historic highs. Historical groundwater data collected from the Alluvium over numerous hydrologic cycles continue to provide assurance that groundwater elevations, if locally lowered during dry periods, recover in subsequent average or wet years.

Such water level response to rainfall is a significant characteristic of permeable, porous, alluvial aquifer systems that occur within large watersheds. In light of these historical observations, complemented by the long-term sustainability analysis using the numerical groundwater flow model, there is ongoing confidence that groundwater will continue to be a sustainable source of water supply at the rates of pumping described in the Basin Yield Report, now incorporated in the 2005 UWMP.

Long-term adverse impacts to the Alluvium could occur if the amount of water extracted from the aquifer were to exceed the amount of water that recharges the aquifer over an extended period. However, the quantity and quality of water in the Alluvium and all significant pumping from the Alluvium are routinely monitored, and no long-term adverse impacts have ever been evident. Ultimately, the Purveyors have identified cooperative measures to be taken, if needed, to ensure sustained use of the aquifer. Such measures include but are not limited to the continuation of conjunctive use of imported SWP surface water with local groundwater, artificial recharge of the aquifer with local runoff or other surface water supplies, financial incentives discouraging extractions above a selected limit, expanded use of other water supplies such as recycled water, and expanded implementation of demand-side management, including conservation.

3.2.1 Alluvium – Historical and Current Conditions

Total pumping from the Alluvium in 2007 was about 38,800 af, a decrease of 4,300 af from the preceding year. Total Alluvium pumping was within the groundwater operating plan range. Of the total Alluvial pumping in 2007, about 25,650 af (66 percent) was for municipal water supply, and the balance, about 13,150 af (34 percent), was for agriculture and other smaller uses, including individual domestic uses. In a longer-term context, there has been a change in municipal/agricultural pumping distribution since SWP deliveries began in 1980, toward a slightly higher fraction for municipal water supply (from about 50 percent to more than 60 percent of Alluvial pumpage), which reflects the general land use changes in the area. Ultimately, on a long-term average basis since the beginning of imported water deliveries from the SWP, total Alluvial pumping has been almost 31,700 afy, which is at the lower end of the range of operational yield of the Alluvium. That average has been higher over the last decade, about 38,900 afy, which remains within the range of operational yield of the Alluvium. The overall historic record of Alluvial pumping is illustrated in Figure III-2.

Groundwater levels in various parts of the basin have historically exhibited different responses to both pumpage and climatic fluctuations. During the last 20 to 30 years, depending on location,

Alluvial groundwater levels have remained nearly constant (generally toward the western end of the basin), or have fluctuated from near the ground surface when the basin is full, to as much as 100 feet lower during intermittent dry periods of reduced recharge (generally toward the eastern end of the basin). For illustration of the various groundwater level conditions in the basin, the Alluvial wells have been grouped into areas with similar groundwater level patterns, as shown in Figure III-3. The groundwater level records have been organized into hydrograph form (groundwater elevation vs. time) as illustrated in Figures III-4 and III-5. Also shown on these plots is an annual marker indicating whether the year had a below average amount of rainfall. The wells shown on these plots are representative of the areas, showing the range of values (highest to lowest elevation) through the area, and containing a sufficiently long-term record to illustrate trends over time.

The 'Mint Canyon' area, located at the far eastern end of the groundwater basin, and the nearby 'Above Saugus WRP' and 'Bouquet Canyon' areas generally exhibit similar groundwater level responses. Those parts of the Alluvium have historically experienced a number of alternating wet and dry hydrologic conditions (Figure III-4) during which groundwater level declines have been followed by returns to high or mid-range historic levels. As shown in Figure III-6, the Purveyors decreased total Alluvial pumping from the 'Mint Canyon' area steadily from 2000 through 2003, and correspondingly increased pumping in the 'Below Saugus WRP', and 'Below Valencia WRP' areas. In spite of a continued period of below-average precipitation from 1999 to 2003, that progressive decrease in pumping resulted in a cessation of groundwater level decline in the 'Mint Canyon Area'. Subsequent wet conditions in late 2004, continuing into 2005, resulted in full recovery of groundwater storage. With such high groundwater levels, pumping in the 'Mint Canyon' area was increased in 2005 and 2006, with no significant change in groundwater levels in 2005 and a slight decrease in 2006. Partly in response to decreased pumping in that area in 2007, groundwater levels slowed their decrease, leveled off, or increased in late 2007 and early 2008 with the onset of seasonal precipitation.

In the 'Bouquet Canyon' area, pumping has remained relatively constant for the last ten years, and water levels have fluctuated with consecutive wet or dry years. During and since the most recent wet conditions of 2004 and 2005, water levels have been within historic mid-range levels. This groundwater level response to wet/dry years and pumping is typical for these areas of the basin. When water levels are low, well yields and pumping capacities in these areas can be impacted. The affected Purveyors typically respond by increasing use of Saugus Formation and imported (SWP) supplies, as shown in Table II-8. The Purveyors also shift a fraction of the Alluvial pumping that would normally be supplied by these eastern areas to areas further west,

where well yields and pumping capacities remain fairly constant because of smaller groundwater level fluctuations.

In the western parts and lower elevations of the Alluvium, groundwater levels respond to pumping and precipitation in a similar manner, but to an attenuated or limited extent of those situated in the eastern, higher elevations areas. As shown in the western group of hydrographs in Figure III-5, groundwater level fluctuations become more subtle moving westward and lower in the Valley. The 'Below Saugus WRP' area, along the Santa Clara River immediately downstream of the Saugus Water Reclamation Plant, and the 'San Francisquito Canyon' area generally exhibit similar groundwater level trends. In this middle part of the basin, historical groundwater levels were lower in the 1950's and 60's than current levels. Groundwater levels in this area notably recovered as pumping declined through the 1960's and 1970's. They have subsequently sustained generally high levels for much of the last 30 years, with three dry-period exceptions: mid-1970's, late 1980's to early 1990's, and the late 1990's to early 2000's. Recoveries to previous high groundwater levels followed both of the short dry-period declines in the 1970's and 1990's. More recently, groundwater levels recovered significantly in both areas, to historic highs, following a wetter-than-average year in 2004 and significantly wet 2005. Since 2005, pumping has remained relatively constant in the 'Below Saugus WRP' area, while 'San Francisquito Canyon' area pumping has been double the amount of previous years. Coupled with the dry 2006-2007 period, water levels had seen varying degrees of decline until they leveled off with the onset of a 'near-normal' amount of seasonal precipitation in 2008.

The 'Castaic Valley' area is located along Castaic Creek below Castaic Lake. Below that and along the Santa Clara River, downstream of the Valencia Water Reclamation Plant, is the 'Below Valencia WRP' area, where discharges of treated effluent from the Valencia WRP to the Santa Clara River contribute to groundwater recharge. In the 'Castaic Valley' area, groundwater levels continue to remain fairly constant, with slight responses to climatic and other fluctuations, since the 1950's (Figure III-5). Small changes in groundwater levels in 2007 were consistent with other short-term historical fluctuations. The long-term, generally constant trend remained through 2007. The 'Below Valencia WRP' area groundwater levels exhibit slight, if any, response to climatic fluctuations, and have remained fairly constant since the 1950's despite, over the last 20 years, a notable increase in pumping that continued through 2007 in that area (Figure III-5 and III-6).

In summary, depending on the period of available data, all the history of groundwater levels in the Alluvium shows the same general picture: recent (last 30 years) groundwater levels have exhibited historic highs; in some locations, there are intermittent dry-period declines (resulting

from use of some groundwater from storage) followed by wet-period recoveries (and associated refilling of storage space). On a long-term basis, whether over the last 27 years since importation of supplemental SWP water, or over the last 40 to 50 years (since the 1950's - 60's), the Alluvium shows no signs of water level-related overdraft, i.e., no trend toward decreasing water levels and storage. Consequently, pumping from the Alluvium has been and continues to be sustainable, well within the operational yield of that aquifer on a long-term average basis, and also within the operating yield in almost every individual year.

3.3 Saugus Formation – General

Saugus wells operated by the Purveyors are located in the southern portion of the basin south of the Santa Clara River (Figure III-7). Consistent with the 2001 Update Report (Slade) and the 2005 Basin Yield Report (CH2M Hill and LSCE), the Purveyors utilize the Saugus in accordance with the groundwater operating plan, in the range of 7,500 to 15,000 afy in average/normal years, with planned dry-year pumping of 15,000 to 35,000 afy for one to three consecutive dry years, when shortages to CLWA's SWP water supplies could occur. Such high pumping would be followed by periods of lower pumping (7,500 to 15,000 afy in average/normal years as noted above) in order to allow recharge to recover water levels and storage in the Saugus. Maintaining the substantial volume of water in the Saugus Formation is an important strategy to help maintain water supplies in the Santa Clarita Valley during drought periods.

3.3.1 Saugus Formation – Historical and Current Conditions

Total pumping from the Saugus in 2007 was about 7,700 af, or about 400 af more than in the preceding year. Of the total Saugus pumping in 2007, most (nearly 6,100 af) was for municipal water supply, and the balance (1,600 af) was for agricultural and other irrigation uses. Historically, groundwater pumping from the Saugus peaked in the early 1990's and then steadily declined through the remainder of that decade. Since then, Saugus pumping had been in the range of about 4,000 to 6,500 afy, with the increase to about 7,300 af in 2006. On a long-term average basis since the importation of SWP water, total pumping from the Saugus Formation has ranged between a low of about 3,700 afy (in 1999) and a high of nearly 15,000 afy (in 1991); average pumping from 1980 to present has been about 6,800 afy. These pumping rates remain well within, and generally at the lower end of the range of operational yield of the Saugus Formation. The overall historic record of Saugus pumping is illustrated in Figure III-8.

Unlike the Alluvium, which has an abundance of wells with extensive water level records, the water level data for the Saugus Formation are limited by both the distribution of the wells in that Formation and the periods of water level records. The wells that do have water level records extending back to the mid-1960's indicate that groundwater levels in the Saugus Formation were highest in the mid-1980's and are currently higher than they were in the mid-1960's (Figure III-9). Based on these data, there is no evidence of any historic or recent trend toward permanent water level or storage decline.

Consistent with the 2001 Update Report (Slade), the 2005 Basin Yield Report (CH2M Hill and LSCE), and the 2005 UWMP, the Purveyors continue to maintain groundwater storage and associated water levels in the Saugus Formation so that supply is available during drought periods, when Alluvial pumping might be reduced and/or SWP supplies also decreased. The period of increased pumping during the early 1990's is a good example of this management strategy. Most notably, in 1991, when SWP deliveries were substantially reduced, increased pumping from the Saugus made up almost half of the decrease in SWP deliveries. The increased Saugus pumping over several consecutive dry years (1991-1994) resulted in short-term declining groundwater levels, reflecting the use of water from storage. However, groundwater levels subsequently recovered when pumping declined, reflecting recovery of groundwater storage in the Saugus Formation.

3.4 Imported Water

CLWA obtains water supplies from the State Water Project (SWP), which is owned and operated by the California Department of Water Resources (DWR). CLWA is one of 29 contractors holding long-term SWP contracts with DWR. SWP water originates as rainfall and snowmelt in northern and central California. Runoff is stored in Lake Oroville, which is the project's largest storage facility. The water is then released from Lake Oroville down the Feather River to the Sacramento River and through the Sacramento-San Joaquin Delta. Water is diverted from the Delta into the Clifton Court Forebay, and then pumped into the 444-mile long California Aqueduct. SWP water is temporarily stored in San Luis Reservoir, which is jointly operated by DWR and the U.S. Bureau of Reclamation. Prior to delivery to CLWA, SWP supplies are stored in Castaic Lake, located at the end of the West Branch of the California Aqueduct.

CLWA's service area covers approximately 195 square miles (124,800 acres), including the City of Santa Clarita and surrounding unincorporated communities. CLWA obtains SWP water from a SWP terminal reservoir, Castaic Lake. The water is treated, filtered and disinfected at CLWA's Earl Schmidt Filtration Plant and Rio Vista Water Treatment Plant, which have a

combined treatment capacity of 86 million gallons per day. Treated water is delivered from the treatment plants by gravity flow to each of the four Purveyors through a distribution network of pipelines and turnouts. At present, CLWA delivers water to the four Purveyors through 25 potable turnouts as schematically illustrated in Figure III-10.

In 2007, CLWA fulfilled the following major accomplishments in order to enhance, preserve, and strengthen the quality and reliability of existing and future supplies:

- continued participation in a long-term water banking program with Rosedale-Rio Bravo Water Storage District and delivered 8,200 af of water into storage, as recommended in the UWMP,
- continued implementation of the AB 3030 Groundwater Management Plan,
- continued implementation of the water conservation Best Management Practices,
- completed design and commenced construction of treatment and distribution facilities for restoration of groundwater supply wells impacted by perchlorate contamination,
- continued cooperative effort with the U.S. Army Corps of Engineers for characterization studies of the former Whittaker-Bermite site and in a task force effort with the City of Santa Clarita, local legislators, and state agencies to effect the cleanup and remediation of all aspects of the former Whittaker-Bermite site, including perchlorate contamination of local groundwater,
- completed design and construction of the temporary Honby Pipeline and continued design of the Honby Pipeline Phase II,
- completed construction of the Sand Canyon Reservoir and placed the Sand Canyon Pipeline, Pump Station and Reservoir in service,
- continued recycled water service, and
- certified an Environmental Impact Report for the Recycled Water Master Plan.

3.4.1 State Water Project Table A Supplies

Each SWP contractor has a specified water supply amount shown in Table A of its contract that currently totals approximately 4.1 million af. The term of the CLWA contract is through 2038 and is renewable after that year. Although the SWP has not been fully completed, the SWP can deliver all of the 4.1 million af of Table A Amounts during certain wet years.

CLWA has a contractual Table A Amount of 95,200 af per year of water from SWP.[1] On November 29, 2006, the initial allocation for 2007 was announced as 60 percent and it remained unchanged for the year. CLWA's final allocation of Table A Amount for 2007 was 60 percent, or 57,120 af.

In addition to its Table A Amount, CLWA has access to 4,684 af of "flexible storage" in Castaic Lake. In 2005, CLWA also negotiated an agreement with the Ventura County SWP contractors to allow CLWA to utilize their flexible storage account of 1,376 af. In combination, this provides total flexible storage of 6,060 af, which is maintained in Castaic Lake for use in a future dry period or an emergency. This amount was available in 2007, but was not utilized due to other available supplies.

As delineated in Table III-2, with the 60 percent Table A allocation and other supplies, including 4,216 af of carryover from 2006, CLWA had total available supply of 72,336 af in 2007. CLWA deliveries were 45,332 af to the Purveyors, 6,071 af to Devil's Den Ranch and 8,200 af to Rosedale-Rio Bravo Water banking, leaving about 12,146 af of Table A Amount available for carryover to 2008.

In 2005, CLWA completed an agreement to participate in a long-term water banking program with Rosedale-Rio Bravo Water Storage District in Kern County. CLWA delivered 20,000 af of its Table A water into storage in both 2005 and 2006. CLWA delivered another 8,200 af into that storage account in 2007. This long-term program will allow the storage of 100,000 af at any one time, and will provide significant dry year reliability for the Santa Clarita Valley.

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[1] Of CLWA's 95,200 af annual Table A Amount, 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. 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) ("Friends"). On appeal, the Court of Appeal 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 as well and prepare a revised EIR. CLWA was not prevented from using any water that is part of the 41,000 afy transfer. Under the jurisdiction of the Los Angeles County Superior Court, CLWA prepared and circulated a revised Draft EIR for the transfer. CLWA approved the revised EIR in late 2004 ("2004 EIR") and lodged the EIR with the Los Angeles Superior Court. Thereafter, the case was dismissed with prejudice (i.e., permanently).

In January 2005, two new challenges to CLWA's 2004 EIR were filed in the Ventura County Superior Court by the Planning and Conservation League ("PCL") and by the California Water Impact Network ("CWIN"); these cases were consolidated and transferred to Los Angeles County Superior Court, Planning and Conservation League v. Castaic Lake Water Agency (Los Angeles County Superior Court,) ("PCL Action"). In May 2007, a final Statement of Decision was filed by the trial court in the PCL Action. It included a determination that the transfer is valid and cannot be terminated or unwound. The trial court did find one defect in the 2004 EIR, requiring Judgment to be entered against CLWA. The defect, however, did not relate to the environmental conclusions reached in the 2004 EIR. CLWA has been ordered to set aside its certification of the 2004 EIR, correct the defect and report back to the Court. The Writ issued by the Court as part of the Judgment specifically states that the Judgment does not call for CLWA to set aside the transfer. In July 2007, Petitioners filed a Partial Notice of Appeal and CLWA subsequently filed a Notice of Cross Appeal. The matter is currently pending before the Second District Court of Appeal, Division Four. It is expected that all briefs will be filed, and the matter argued and submitted to the Court of Appeal for a decision by the end of 2008.

3.4.2 Other Imported Water Supplies

In early 2007, CLWA finalized a Water Acquisition Agreement with the Buena Vista Water Storage District (Buena Vista) and the Rosedale-Rio Bravo Water Storage District (Rosedale-Rio Bravo) in Kern County. Under this Program, Buena Vista's high flow Kern River entitlements (and other acquired waters that may become available) are captured and recharged within Rosedale-Rio Bravo's service area on an ongoing basis.[2] CLWA will receive 11,000 af of these supplies annually through either exchange of Buena Vista's and Rosedale-Rio Bravo's SWP supplies or through direct delivery of water to the California Aqueduct via the Cross Valley Canal.

3.4.3 Imported Water Supply Reliability

The Department of Water Resources issued its Draft State Water Project Delivery Reliability Report 2007. This report is intended to assist SWP contractors in assessing the adequacy of the SWP component of their overall supplies. The report is updated with new information and calculations of delivery reliability every two years. The Draft addresses the effect of interim remedies ordered by a federal court to protect the endangered Delta smelt under the federal Endangered Species Act and potential climate change. The injunction will be in force until a new Biological Opinion (BO) is in place. DWR would then be required to obtain a take permit that would incorporate mitigation requirements; however, impacts on water supply reliability are not expected to be greater than those incorporated in the injunction. The Reliability Report, factoring in these items, reduced the long-term reliability from 77 percent to 66-69 percent during normal year hydrology. CLWA staff reassessed the impact of the Reliability Report on the CLWA reliability analysis contained in the Agency's 2005 UWMP. It concluded that current and anticipated supplies are available to meet anticipated water supply needs. Once a BO is completed, CLWA will confirm with DWR that the current reliability assessment is applicable.

Groundwater banking and conjunctive use offer significant opportunities to improve water supply reliability for CLWA. Groundwater banking is the process of storing available supplies of water in groundwater basins during wet years or when supplemental water is otherwise available. During dry periods, or when imported water supply availability is reduced, banked

[2] A CEQA action was filed by California Water Impact Network (CWIN) in November 2006 challenging the adequacy of CLWA's EIR on the acquisition of 11,000 af from the Buena Vista Water Storage District and Rosedale-Rio Bravo Water Storage District. In November 2007, a Los Angeles Superior Court ruled in favor of CLWA on all points. In January 2008, CWIN filed a notice of appeal and at present the matter is pending.

water can be recovered from groundwater storage to replace, or firm up, the imported water supply deliveries.

As described herein, CLWA has entered into two groundwater banking programs and now has, in aggregate, over 115,000 acre-feet of recoverable water in banked groundwater storage outside the local groundwater basin. The first component of overall groundwater banking is the result of two 10-year agreements between CLWA and Semitropic Water Storage District whereby, in dry years, CLWA can withdraw up to 50,870 af of 2002 and 2003 SWP Table A water that it stored in Semitropic to meet Valley demands when needed. More recently, after banking 8,200 acre-feet of its SWP Table A water in 2007 in the long-term Rosedale-Rio Bravo Water Banking and Exchange Program in Kern County, CLWA now has a recoverable total of 64,900 acre-feet in that groundwater storage bank (i.e., 75,200 af less contractual losses)

Conjunctive use is the purposeful integrated use of surface water and groundwater supplies to maximize water supply from the two sources. CLWA and the Purveyors have been conjunctively utilizing local groundwater and imported (SWP) surface water since the initial importation of SWP water in 1980. The groundwater banking programs described above allow CLWA to firm up the imported water component of conjunctive use in the Valley by storing surplus SWP and other water, in wet years, in groundwater basins outside the Valley, thus allowing recovery and importation of that water as needed in dry years to maintain a greater overall amount of imported surface water to be used conjunctively with local groundwater, further supporting the sustainable use of local groundwater at the rates in the groundwater operating plan.

3.5 Water Quality – General

Water delivered by the Purveyors consistently meets drinking water standards set by the Environmental Protection Agency (EPA) and the California Department of Public Health (DPH). An annual Consumer Confidence Report is provided to all Santa Clarita Valley residents who receive water from one of the four water retailers. There is detailed information in that report about the results of quality testing of the groundwater and treated SWP water supplied to the residents of the Santa Clarita Valley during 2007. Several constituents of particular local interest are discussed in more detail below.

Total Trihalomethanes

In 2002, the United States Environmental Protection Agency implemented the new Disinfectants and Disinfection Byproducts Rule. In part, this rule establishes a new MCL of 80 μg/l (based on

an annual running average) for Total Trihalomethanes (TTHM). TTHMs are byproducts created when chlorine is used as a means for disinfection. CLWA and the Purveyors implemented an alternative method of disinfection, chloramination, in 2005 to maintain compliance with the new rule and future regulations relating to disinfection byproducts. TTHM concentrations have remained significantly below the MCL since implementation of alternative disinfection.

Perchlorate

Perchlorate has been a water quality concern in the Valley since 1997 when it was originally detected in four Saugus wells operated by the Purveyors in the eastern part of the Saugus Formation, near the former Whittaker-Bermite facility. In late 2002, perchlorate was detected in a fifth municipal well, in this case an Alluvial well (SCWD's Stadium Well) also located near the former Whittaker-Bermite site. In early 2005, perchlorate was detected in a second Alluvial well (VWC's Well Q2) near the former Whittaker-Bermite site. In 2006, a very low concentration of perchlorate was detected in another Saugus well (NCWD's Well NC-13), near one of the originally impacted wells. However, that detection has been interpreted to not be an indication of continued perchlorate migration in a westerly direction. Subsequent monitoring well installation has been completed and a focused study of the Saugus Formation near this latest detection has been commenced. Results of this study and any subsequent recommended actions will be incorporated into the overall groundwater remediation and removal actions submitted by Whittaker-Bermite and reviewed by the State Department of Toxic Substances Control (DTSC) as discussed below.

Wells with perchlorate concentrations exceeding the then-applicable Action Level (18 µg/l) or, more recently, the then-applicable Notification Level (6 µg/l)[3] were removed from active water supply service. One of the Alluvial wells was returned to active water supply service, with treatment, in late 2005 as discussed below; the other impacted wells remain out of service. The 2005 UWMP specifically addressed the adequacy of groundwater supply in light of the inactivation of the impacted Alluvial and Saugus wells; and it addressed the plan and schedule for restoration of perchlorate-impacted wells, including the protection of existing non-impacted wells. As summarized in the 2005 UWMP, the inactivation of the impacted wells does not constrain the ability to meet the groundwater component of water supply in the Valley.

In 2000, CLWA and the impacted Purveyors had filed a lawsuit against Whittaker Corporation (the former owner of the contaminated property) and Santa Clarita LLC and Remediation Financial, Inc. (the owners of record at that time). The lawsuit sought to have defendants pay all necessary costs of response, removal of the contaminant, remedial actions, and any liabilities or

[3] The Maximum Contaminant Level (MCL) for perchlorate was set at 6 µg/l by the State Department of Public Health in October 2007.

damages associated with the contamination. An Interim Settlement and Funding Agreement was reached in 2003. Although that Agreement expired in January 2005, the parties, under DTSC oversight, jointly developed a plan to "pump and treat" contaminated water from two of the Purveyors' impacted wells to stop migration of the contaminant plume and to restore the municipal groundwater supply that has been impacted by perchlorate. The parties also continued negotiations intended to achieve a long term settlement to the litigation through 2006, and a final settlement was completed and executed in April 2007.

In 2007, the impacted Purveyors (SCWD, NCWD, and VWC) and CLWA continued working toward implementation of a jointly developed plan that will combine pumping from two of the impacted wells and a water treatment process to restore the impacted pumping capacity and control the migration of contamination in the aquifer. The development and implementation of a cleanup plan for the Whittaker-Bermite site and the impacted groundwater is being coordinated among CLWA, the impacted Purveyors, the State DTSC, and U.S. Army Corps of Engineers. DTSC is the lead agency responsible for regulatory oversight of the Whittaker-Bermite site.

In February 2003, DTSC and the impacted Purveyors entered into a voluntary cleanup agreement entitled *Environmental Oversight Agreement*. Under the Agreement, DTSC is providing review and oversight of the response activities being undertaken by the Purveyors related to the detection of perchlorate in the impacted wells. Under the Agreement's Scope of Work, the impacted Purveyors have prepared a Work Plan for sampling the production wells, prepared a report on the results and findings of the production well sampling, prepared a draft Human Health Risk Assessment, prepared a draft Remedial Action Workplan, completed the evaluation of treatment technologies, and completed an analysis to show the integrated effectiveness of a project to restore impacted pumping capacity, extract perchlorate for treatment, and control the migration of perchlorate in the Saugus Formation. Environmental review of that project was completed in 2005 with adoption of a mitigated Negative Declaration. The Final Interim Remedial Action Plan for containment and extraction of perchlorate was completed and approved by DTSC in January 2006. Design of the treatment facilities and related pipelines is complete. Construction of those facilities and pipelines to implement the pump and treat program and to also restore inactivated well capacity began in November 2007 and is scheduled to be completed, followed by operational startup, by the end of 2008.

On the Whittaker-Bermite site, soil remediation activities in operating unit subareas started in 2005. Groundwater pump and treat operations in the Northern Alluvium, which also started in 2005, continued through 2007. Expanded pumping, intended to effect perchlorate containment as well as treat 'hot spots' in the Northern Alluvium, became operational in October 2007. Also,

on the Whittaker-Bermite site, remediation work in the Saugus Formation has been initiated and expected to be underway in 2008. Additional objectives of this project include the reduction of further transport of contaminants to regional groundwater and reduction of the size of the contaminant mass in deep/perched zones.

As noted above, perchlorate was detected in a second Alluvial well, VWC's Well Q2, in early 2005. In response, Valencia removed the well from active service, and commissioned the preparation of an analysis and report assessing the impact of, and response to, the perchlorate contamination of that well. Valencia's response for Well Q2 was to obtain permitting for installation of wellhead treatment, followed by installation of treatment facilities and returning the well to water supply service in October 2005. After nearly two years of operation with wellhead treatment, including regular monitoring specified by the State Department of Public Health (DPH), all of which resulted in no detection of perchlorate in Well Q2, Valencia requested that DPH allow treatment to be discontinued. DPH approved that request in August 2007, and treatment was subsequently discontinued. DPH-specified monthly monitoring for perchlorate continues at Well Q2; there has been no detection of perchlorate since discontinuation of wellhead treatment.

3.5.1 Groundwater Quality – Alluvium

Groundwater quality is, of course, a key factor in assessing the Alluvial aquifer as a municipal and agricultural water supply. Groundwater quality details and long-term conditions, examined by integration of individual records from several wells completed in the same aquifer materials and in close proximity to each other, have been discussed in previous annual Water Reports and in the 2005 UWMP. There were no changes in groundwater quality in 2007 that would change any of the fluctuations, trends, or other groundwater quality conditions as illustrated in Figures III-11 and III-12. In summary, those conditions include: no long-term overall trend and, most notably, no long-term decline in Alluvial groundwater quality; a general groundwater quality "gradient" from east to west, with lowest dissolved mineral content to the east, increasing in a westerly direction; and periodic fluctuations in some parts of the basin, where groundwater quality has inversely varied with precipitation and stream flow. Those variations are typically characterized by increased mineral concentrations through dry, lower stream flow, and lower recharge conditions, followed by lower mineral concentrations through wetter, higher stream flow, higher recharge conditions.

The presence of long-term consistent water quality patterns, although intermittently affected by wet and dry cycles, supports the conclusion that the Alluvial aquifer remains a viable ongoing water supply source in terms of groundwater quality.

3.5.2 Groundwater Quality – Saugus Formation

As discussed above for the Alluvium, groundwater quality is a key factor in also assessing the Saugus Formation as a municipal and agricultural water supply. As with groundwater level data, long-term Saugus groundwater quality data are not sufficiently extensive to permit any sort of basin-wide analysis or assessment of pumping-related impacts on quality. However, integration of individual records from several wells has been used to examine general water quality trends. Based on those records, water quality in the Saugus Formation has not historically exhibited the precipitation-related fluctuations seen in the Alluvium. Based on available data over the last 50 years, groundwater quality in the Saugus has exhibited a slight overall increase in dissolved mineral content as illustrated in Figure III-13. More recently, several wells within the Saugus Formation have exhibited an additional increase in dissolved mineral content, similar to short-term changes in the Alluvium, possibly as a result of recharge to the Saugus Formation from the Alluvium. Dissolved mineral concentrations in the Saugus Formation remain below the Secondary (aesthetic) Upper Maximum Contaminant Level. Groundwater quality within the Saugus will continue to be monitored to ensure that degradation to the long-term viability of the Saugus as an agricultural or municipal water supply does not occur.

3.5.3 Imported Water Quality

CLWA operates two water treatment plants, the Earl Schmidt Filtration Plant located near Castaic Lake and the Rio Vista Water Treatment Plant located in Saugus. CLWA produces water that meets drinking water standards set by the U.S. EPA and DPH. SWP water has different aesthetic characteristics than groundwater with lower dissolved mineral concentrations (total dissolved solids) of approximately 280 to 314 mg/l, and lower hardness (as calcium carbonate) of 130 to 170 mg/l.

3.6 Recycled Water

Recycled water is available from two existing water reclamation plants operated by the Sanitation Districts of Los Angeles County. In 1993, CLWA prepared a draft Reclaimed Water System Master Plan that outlined a multi-phase program to deliver recycled water in the Valley. CLWA previously completed environmental review on the construction of Phase I of the project,

which will deliver 1,700 afy of water. Deliveries of recycled water began in 2003 for irrigation water supply at a golf course and in roadway median strips. In 2007, recycled water deliveries were 470 af.

Surveys conducted by CLWA indicate an interest for recycled water by existing water users as well as future development when it becomes available. In 2002, CLWA produced an updated Draft Recycled Water Master Plan. Overall, the program is expected to ultimately recycle up to 17,400 af of treated (tertiary) wastewater suitable for reuse on golf courses, landscaping and other non-potable uses, as set forth in the UWMP.

In 2007, CLWA completed California Environmental Quality Act (CEQA) analysis of the Recycled Water Master Plan (2002). This analysis consisted of a Program Environmental Impact Report (PEIR) covering the various options for a recycled water system as outlined in the Master Plan. The PEIR was certified by the CLWA Board in March 2007.

3.7 Santa Clara River

The Memorandum of Understanding (MOU) between the Santa Clarita Valley Purveyors and the United Water Conservation District, which manages surface and groundwater resources in seven groundwater basins in the Lower Santa Clara River Valley Area, was a significant accomplishment when it was prepared and executed in 2001. The MOU initiated a collaborative and integrated approach to data collection; database management; groundwater flow modeling; assessment of groundwater basin conditions, including determination of basin yield amounts; and preparation and presentation of reports, including continued annual reports such as this one for current planning and consideration of development proposals, and also including more technically detailed reports on geologic and hydrologic aspects of the overall stream-aquifer system. Meetings of the MOU participants have continued, and integration of the Upper (Santa Clarita Valley) and Lower (United WCD) Santa Clara River databases has been accomplished. As discussed above, a numerical groundwater flow model of the entire Santa Clarita groundwater basin was developed and calibrated in 2002-2004. Subsequent to its initial use in 2004 for assessing the effectiveness of various operating scenarios to restore pumping capacity impacted by perchlorate contamination (by pumping and treating groundwater for water supply while simultaneously controlling the migration of contaminated groundwater), the model was used in 2005 for evaluation of basin yield under varying management actions and hydrologic conditions. The results completed the determination of sustainable operating yield values for both the Alluvium and the Saugus Formation, which are now incorporated in the 2005 UWMP.

On occasion, issues have been raised about whether use and management of groundwater in the Santa Clarita Valley have adversely impacted surface water flows into Ventura County. Part of the groundwater modeling work has addressed the surface water flow question as well as groundwater levels and storage. While the sustainability of groundwater has logically derived primarily from projected long-term stability of groundwater levels and storage, it has also derived in part from modeled simulations of surface water flows and the lack of stream flow depletion by groundwater pumping. In addition, the long-term history of groundwater levels in the western and central part of the basin, as illustrated in Figures III-4 and III-5, supports the modeled analysis and suggests that groundwater has not been lowered in such a way as to induce infiltration from the river and thus impact surface water flows. Finally, long-term stream flow data gauged near the County line show notably higher flows from the Santa Clarita Valley into the uppermost downstream basin, the Piru Basin, over the last 30 to 35 years, as illustrated in Figure III-14.

Table III-2
2007 CLWA Imported Water Supply and Disposition
(acre-feet)

Supply		
Net 2006 Carryover to 2007 [1]		4,216
Buena Vista/Rosedale Rio-Bravo		11,000
2007 Final SWP Allocation [2]		57,120
Total 2007 Imported Water Supply		**72,336**
Disposition		
Purveyor Deliveries (Total)		45,332
CLWA SCWD	*20,669*	
Valencia Water Company	*16,779*	
Newhall County Water District	*6,478*	
Los Angeles County WWD 36	*1,406*	
CLWA/DWR/Purveyor Metering[3]		587
Rosedale – Rio Bravo Water Banking and Exchange Program		8,200
Devil's Den from Table A		4,424
Devil's Den from 2006 Carryover to 2007		1,647
2007 Table A Carryover to 2008[4]		12,146
Total 2007 Imported Water Disposition		**72,336**

1. Amount used by CLWA, based on final DWR delivery accounting; total 2006 carryover was 38,484 af.

2. Final 2007 allocation was 60% of contractual Table A amount of 95,200 acre-feet, which did not change from the intial allocation:

Initial allocation, November 29, 2006	60%

3. Reflects meter reading differences.

4. Total 2007 Table A carryover to 2008.

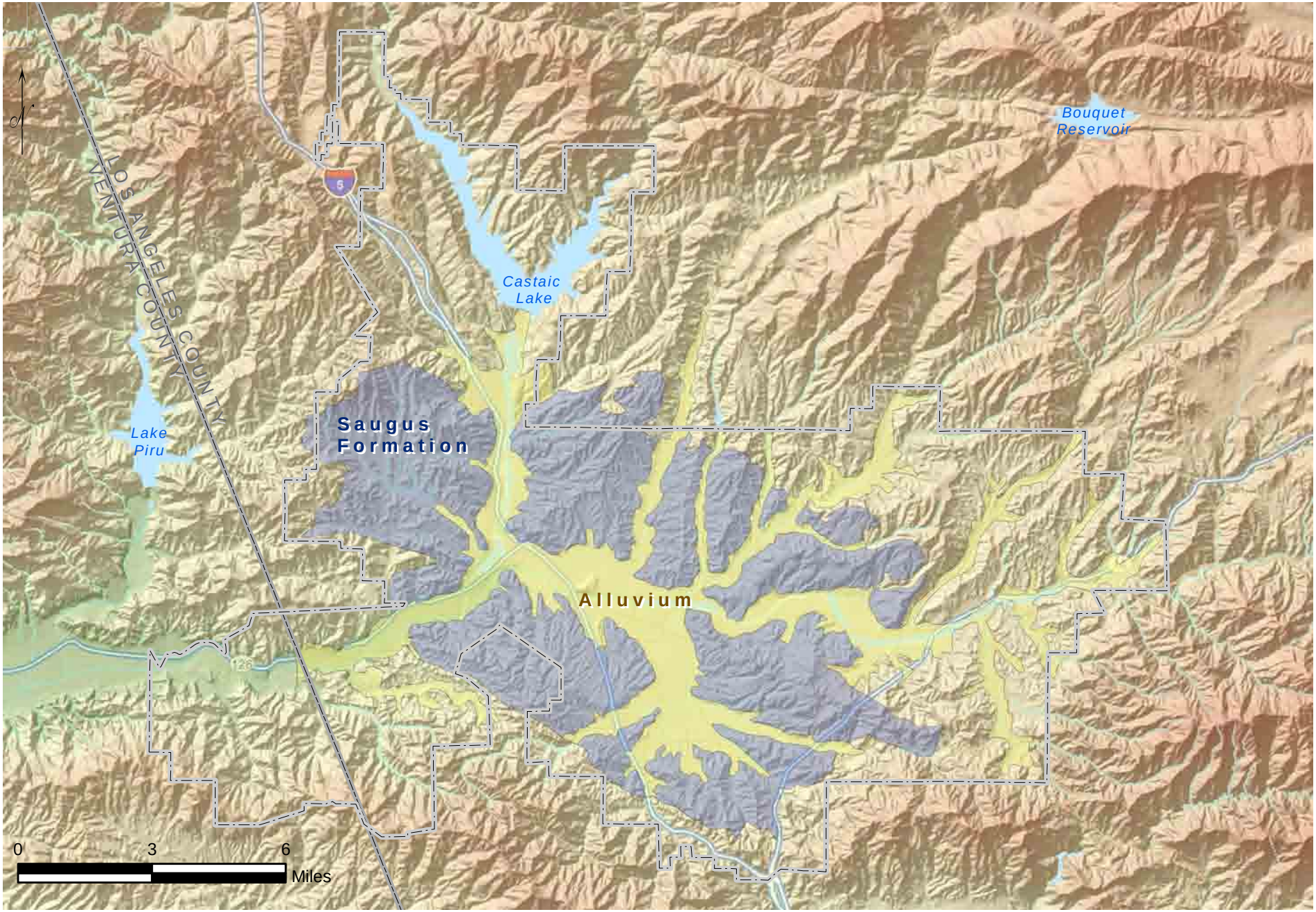

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Figure III-1
Alluvium and Saugus Formation
Santa Clara River Valley, East Groundwater Subbasin

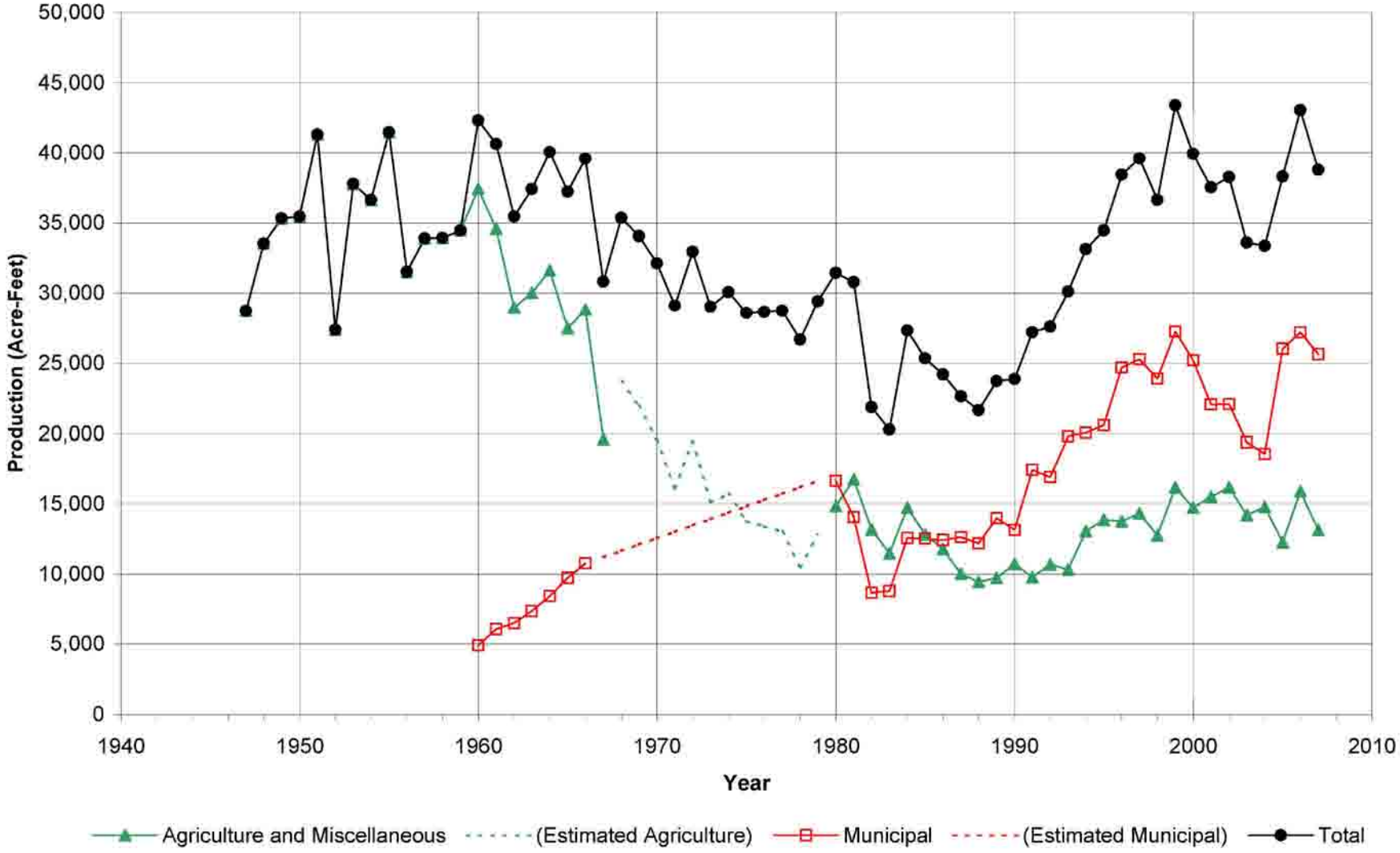

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Figure III-2
Groundwater Production - Alluvium
Santa Clara River Valley, East Groundwater Subbasin

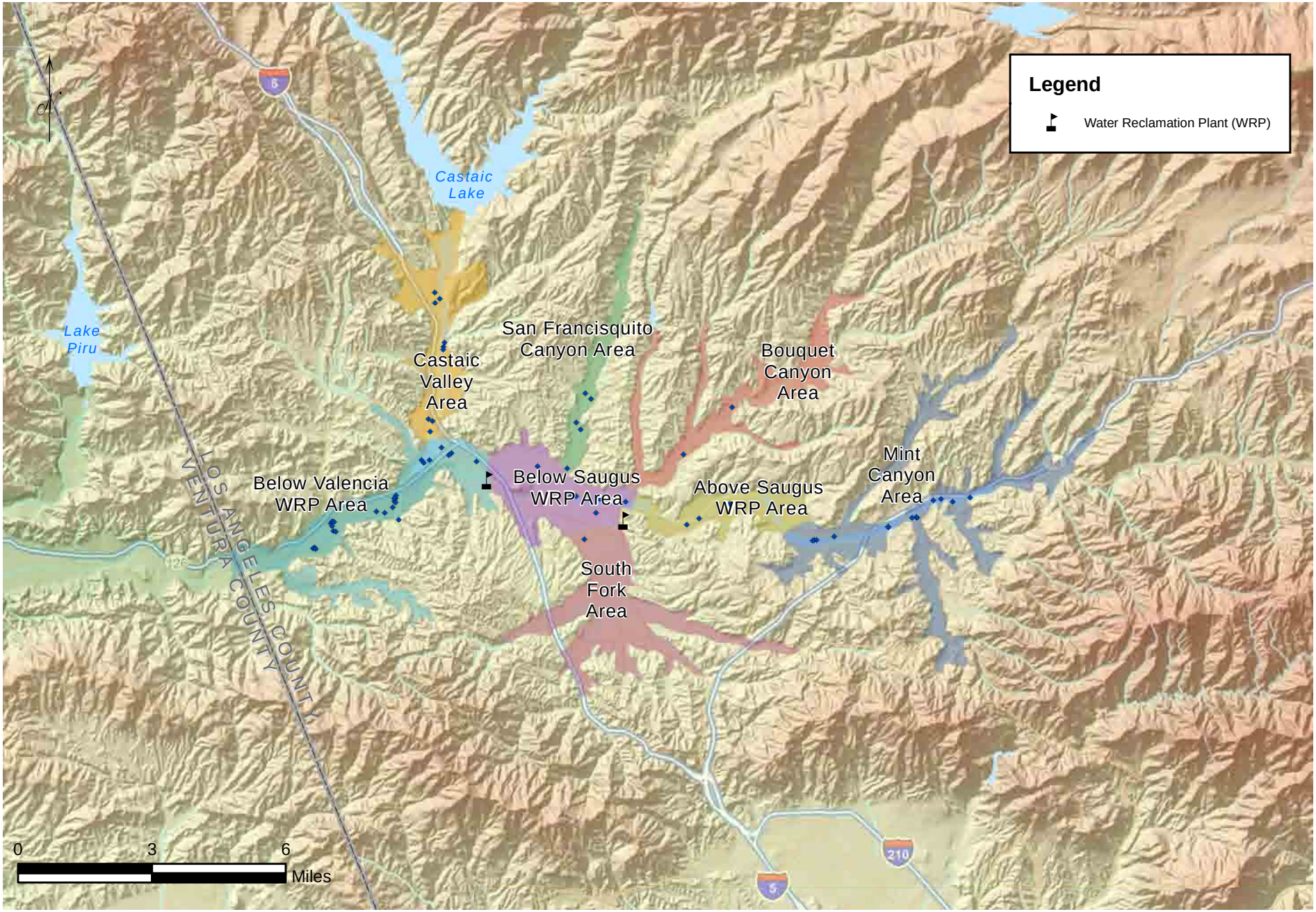

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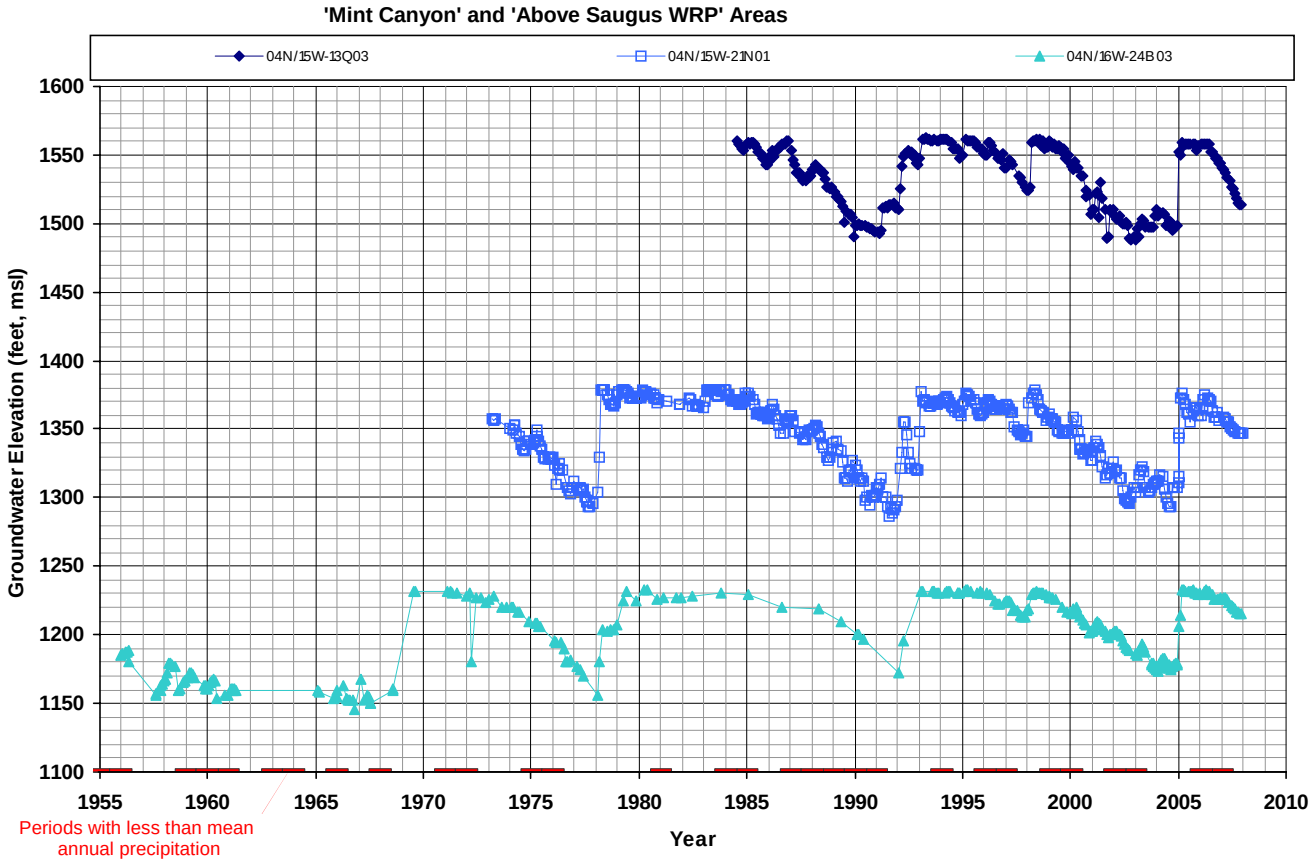
Figure III-3
Alluvial Well Locations By Area
Santa Clara River Valley, East Groundwater Subbasin



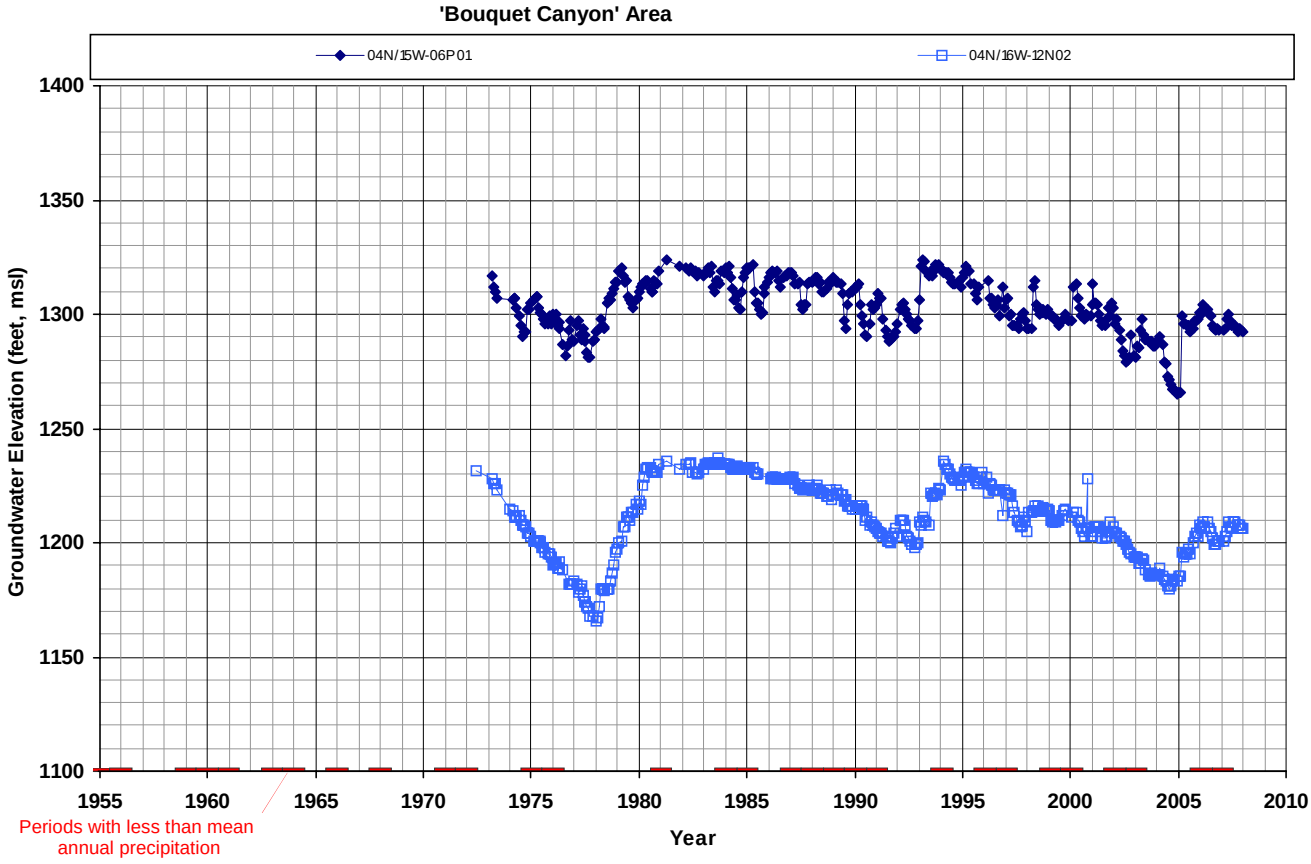


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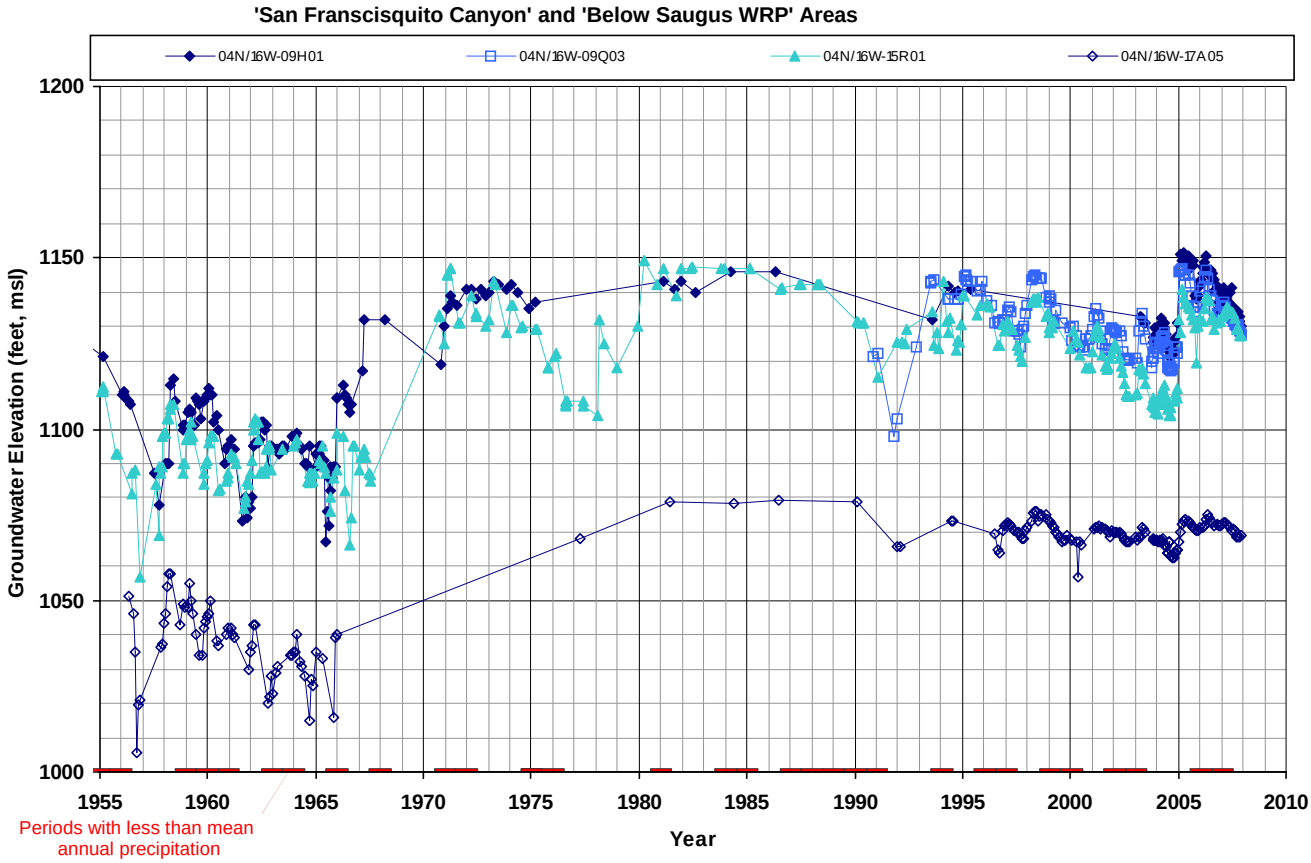
Figure III-4
Groundwater Elevations in Eastern Santa Clarita Valley Alluvial Wells



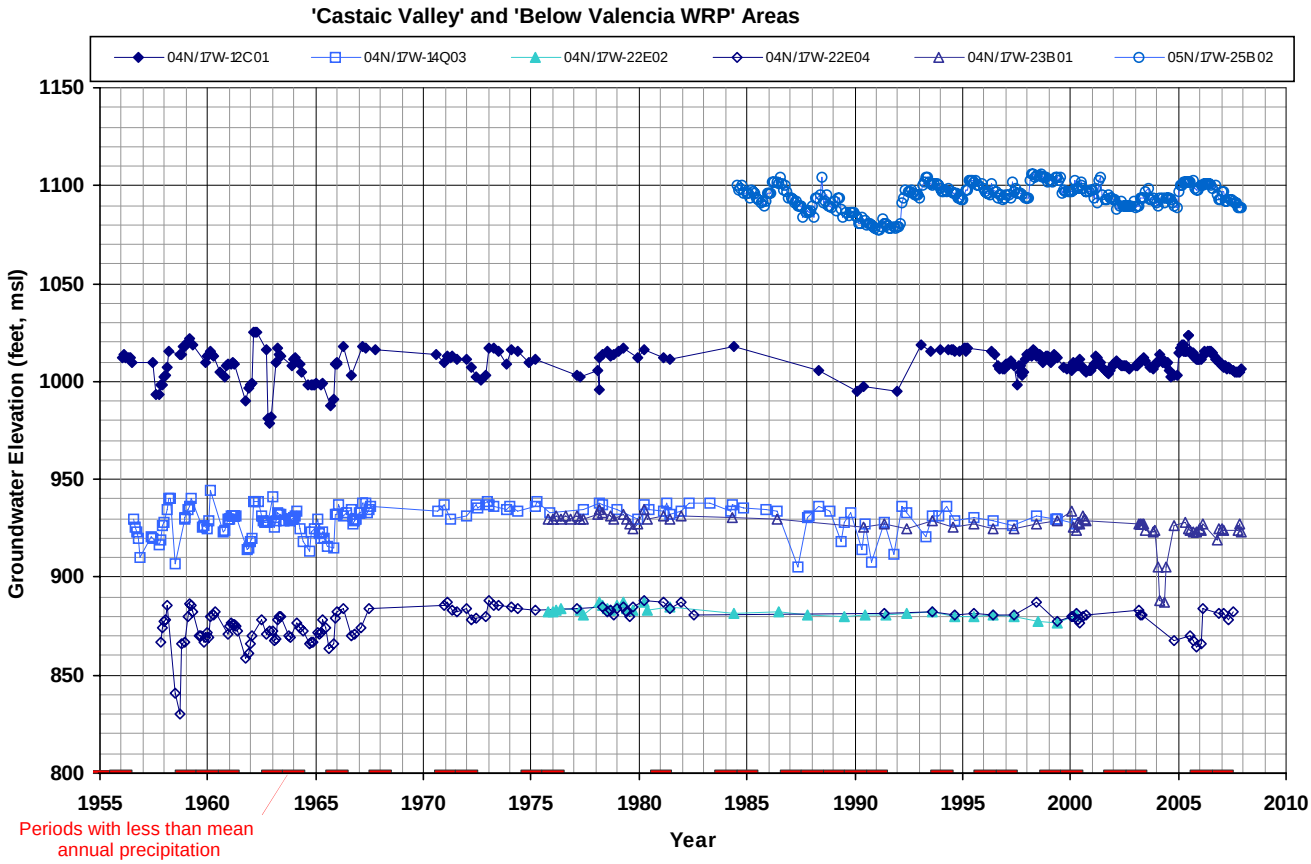


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Figure III-5
Groundwater Elevations in Western Santa Clarita Valley Alluvial Wells

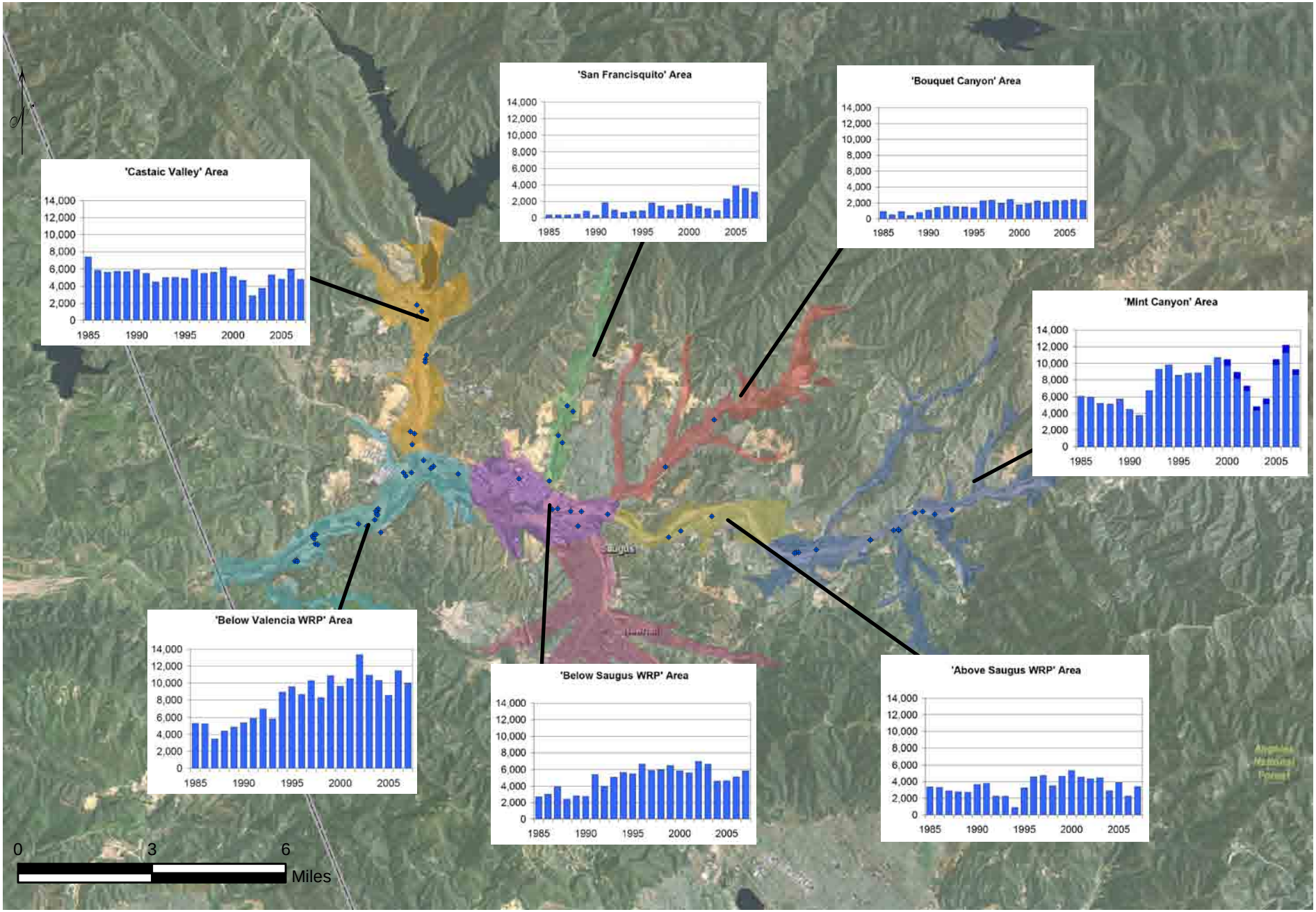

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Figure III-6
Annual Groundwater Production from Alluvium by Area (Acre-feet)
Santa Clara River Valley, East Groundwater Subbasin

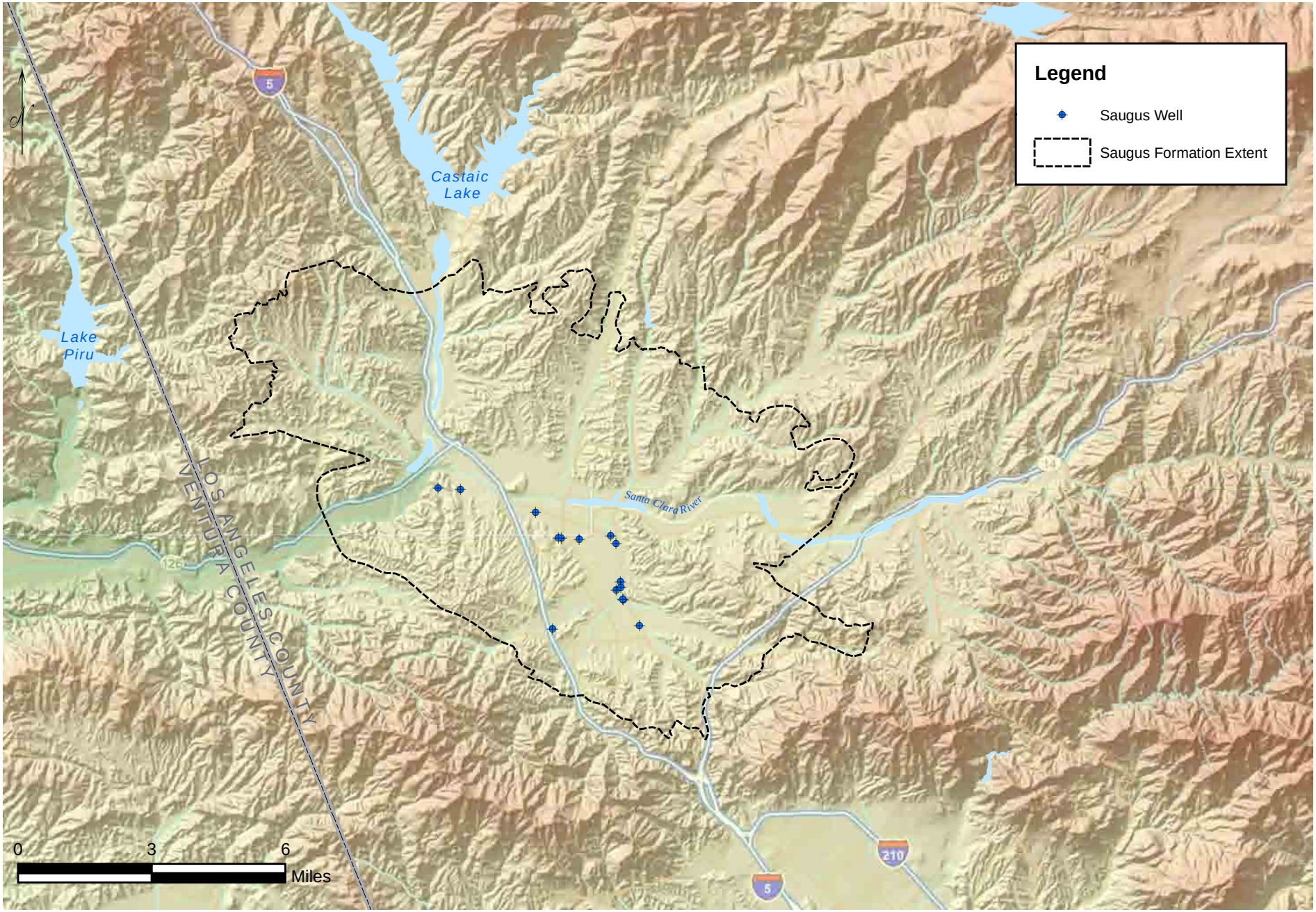

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Figure III-7
Saugus Well Locations
Santa Clara River Valley, East Groundwater Subbasin

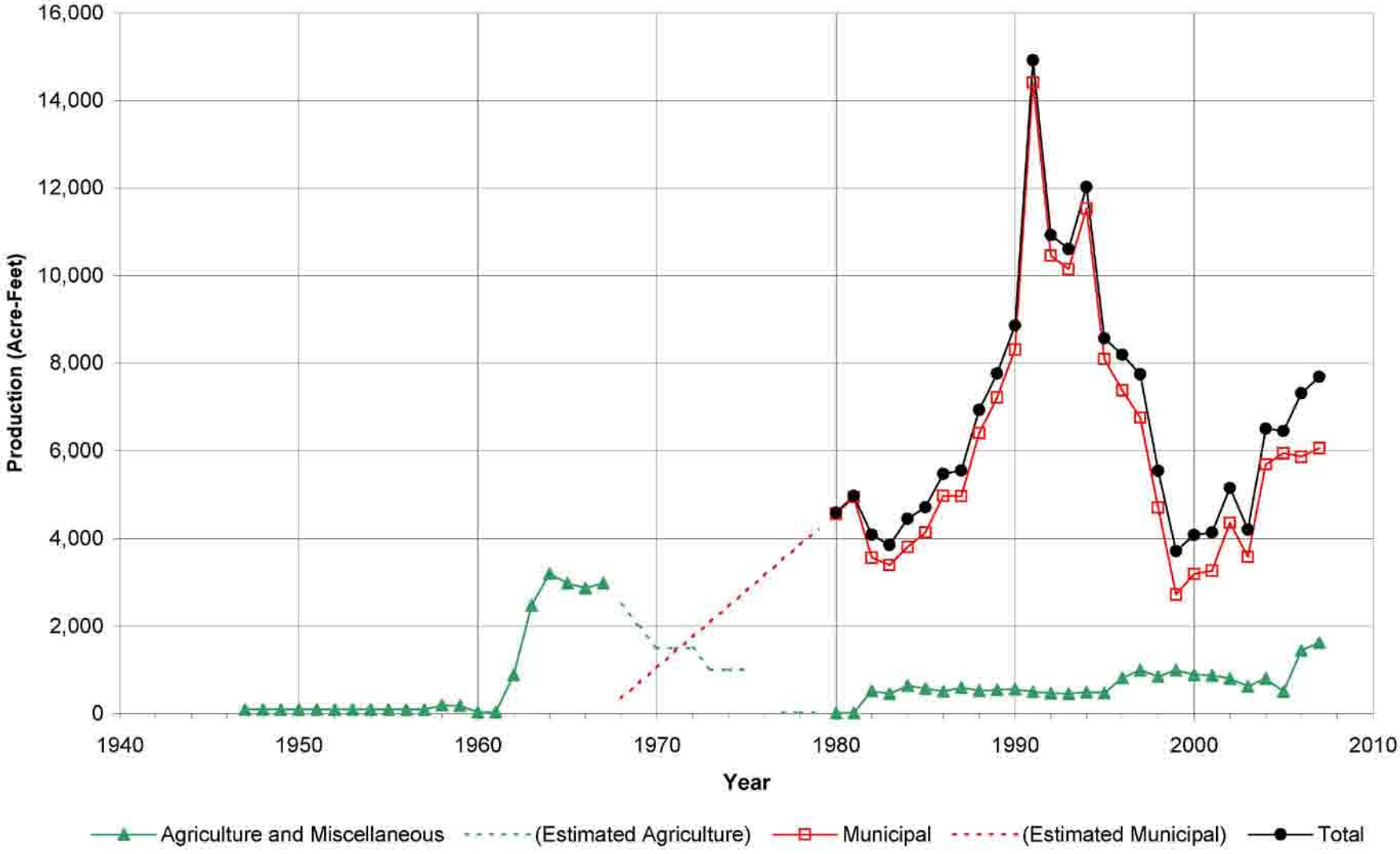

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Figure III-8
Groundwater Production - Saugus Formation
Santa Clara River Valley, East Groundwater Subbasin

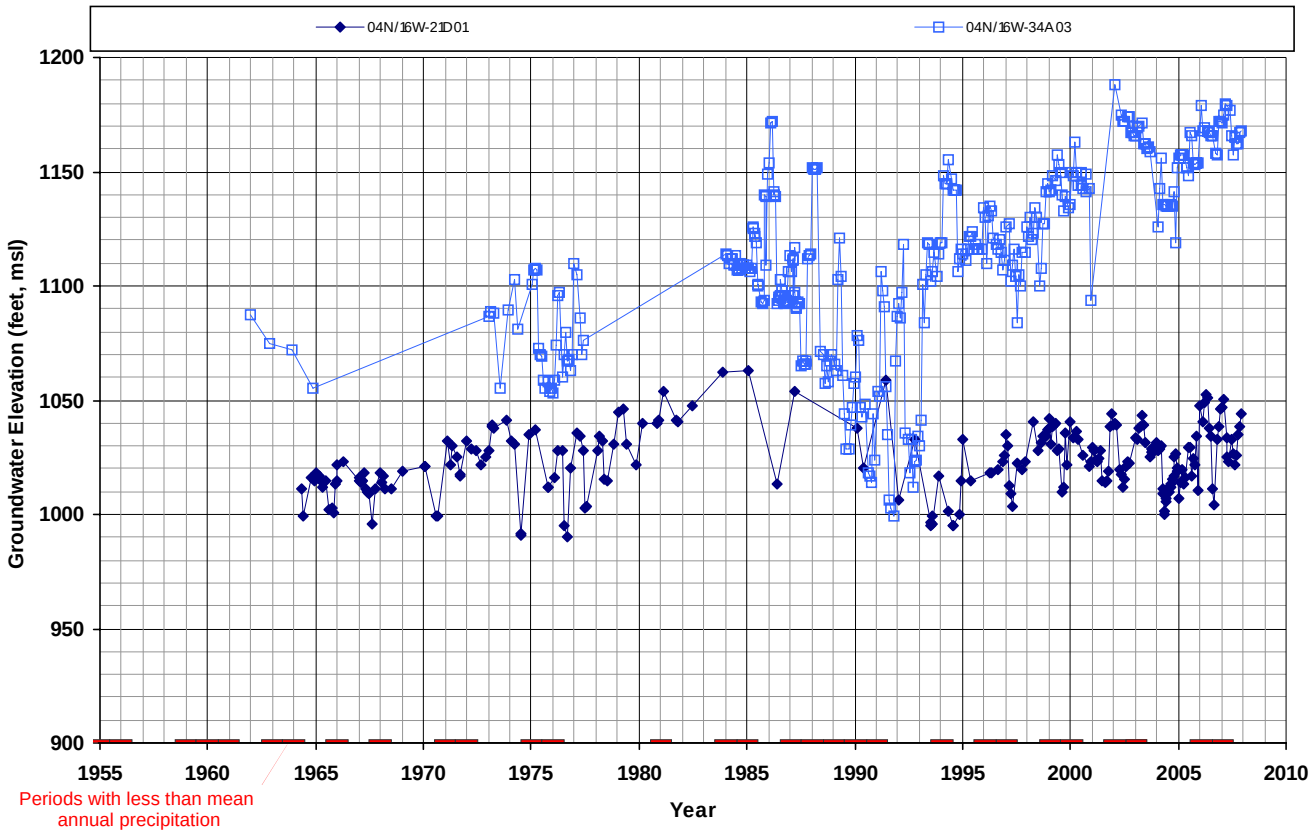

Figure III-9
Groundwater Elevations in Saugus Wells

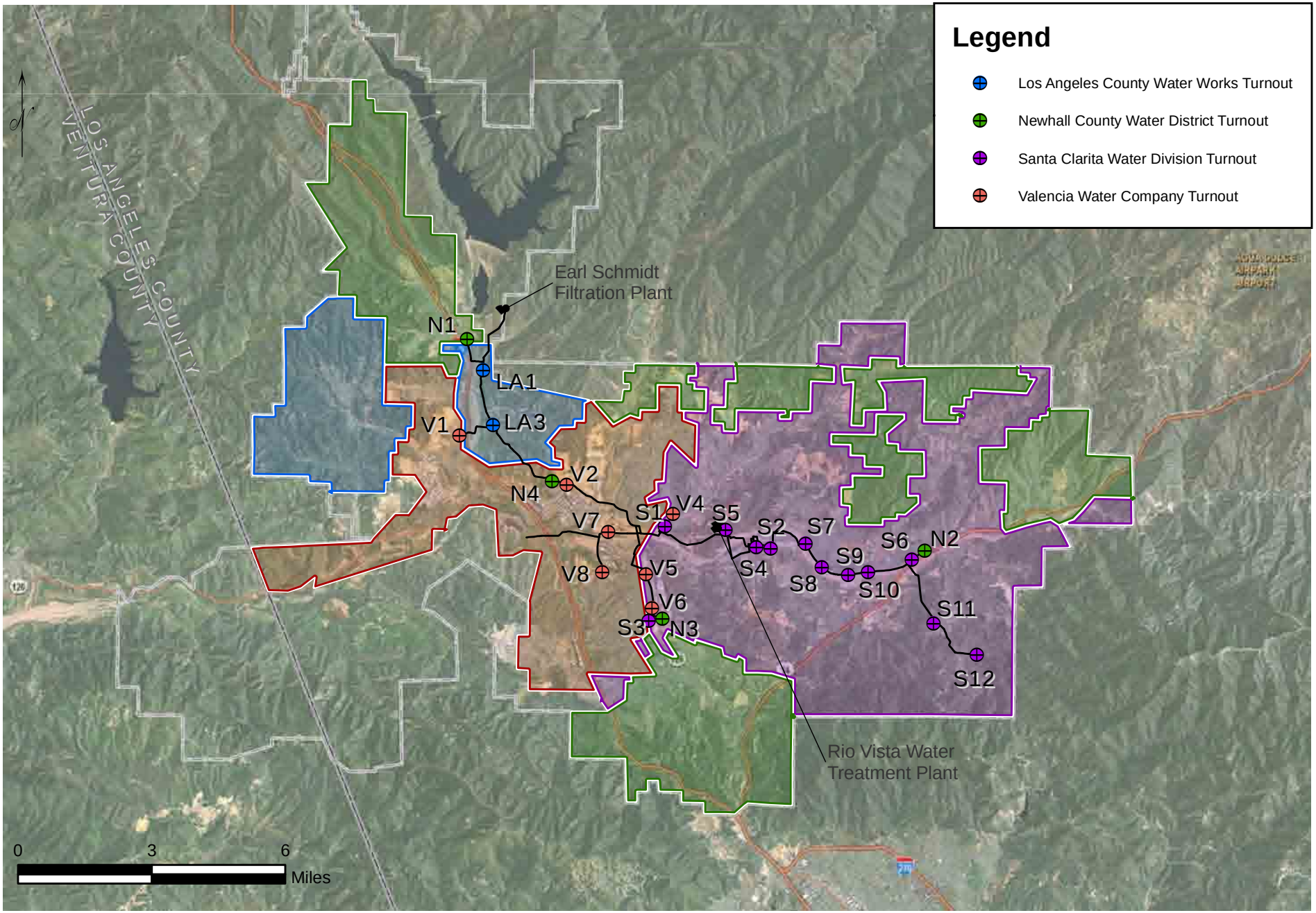

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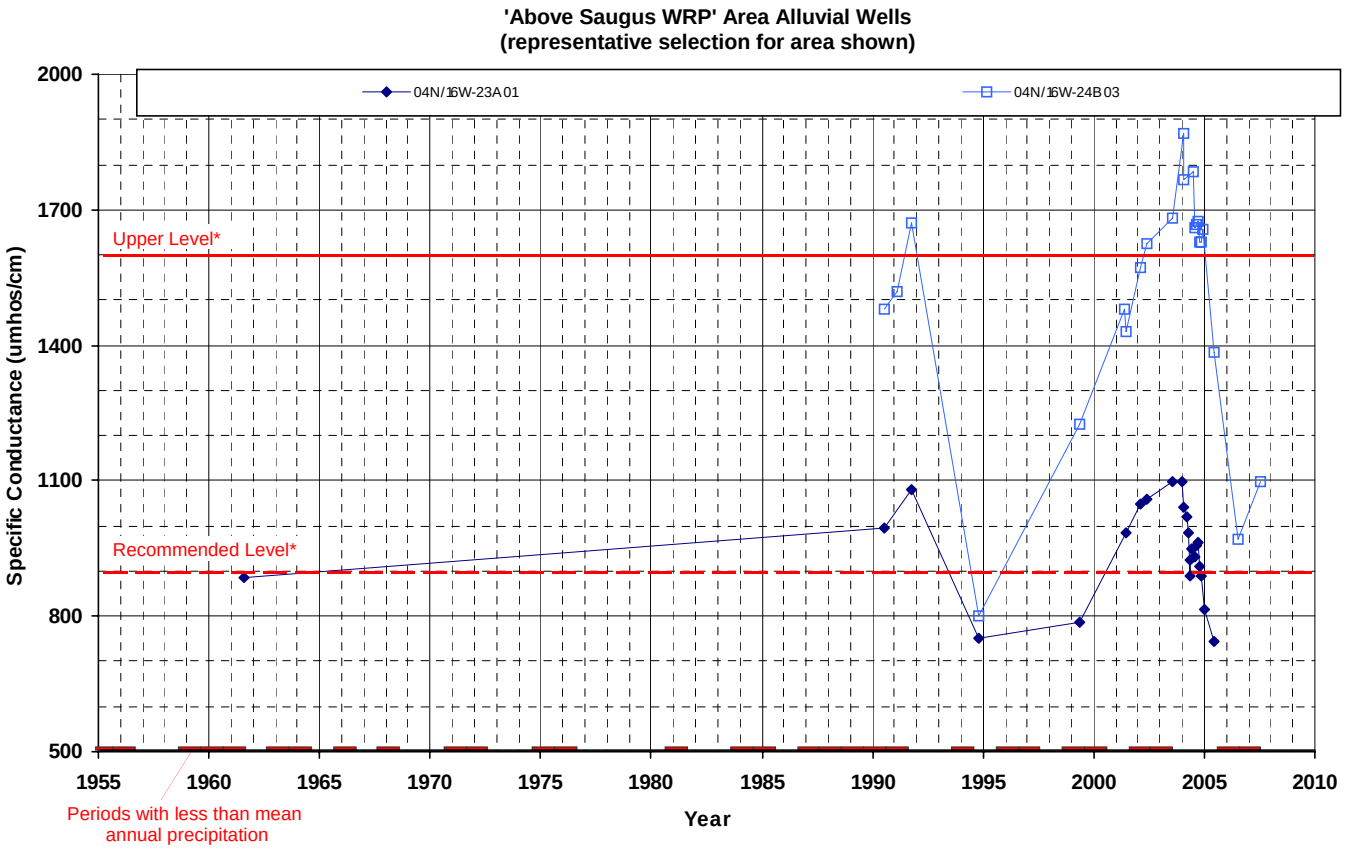
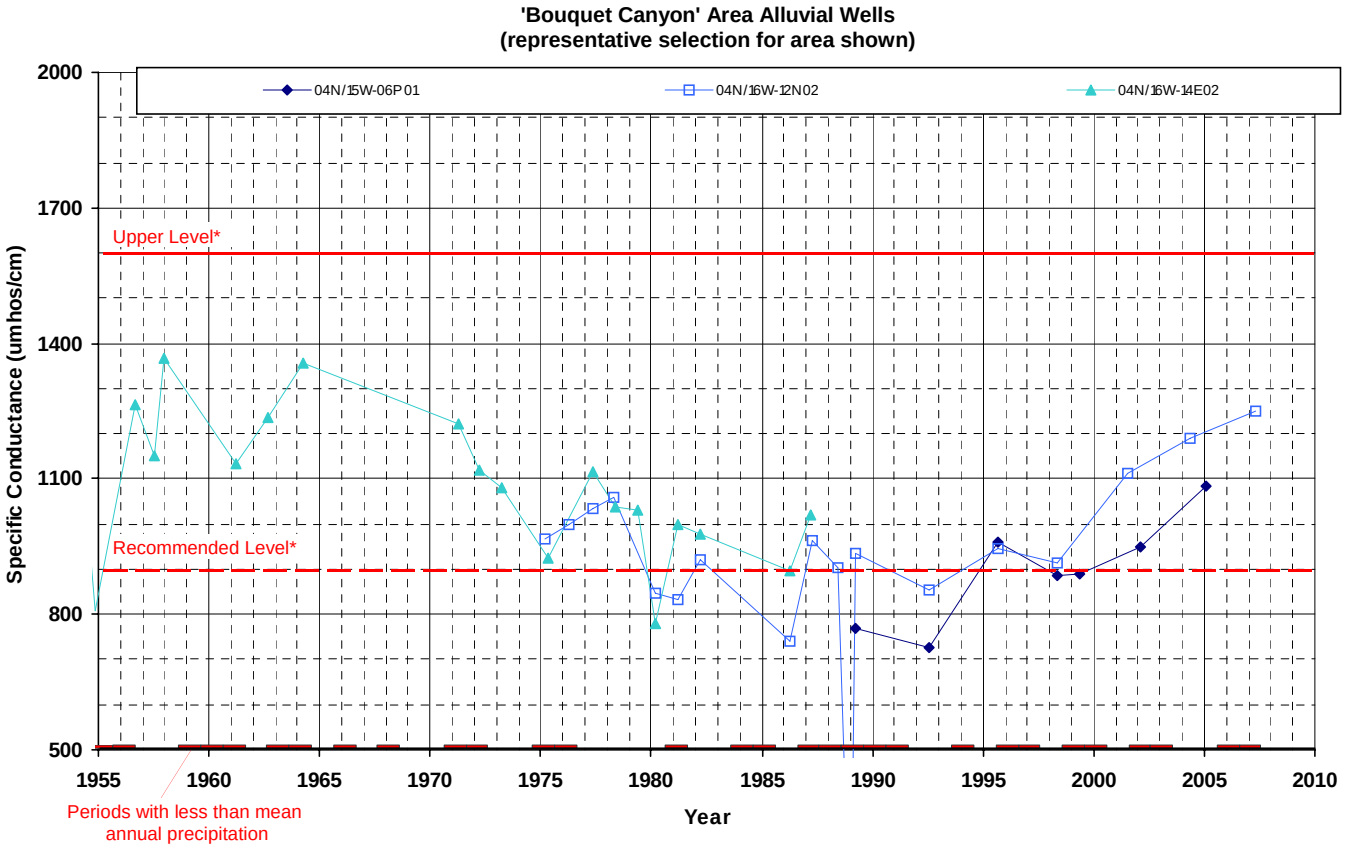
Figure III-10
Treated Water Distribution System
Castaic Lake Water Agency





*California Department of Public Health Secondary Maximum Contaminant Level

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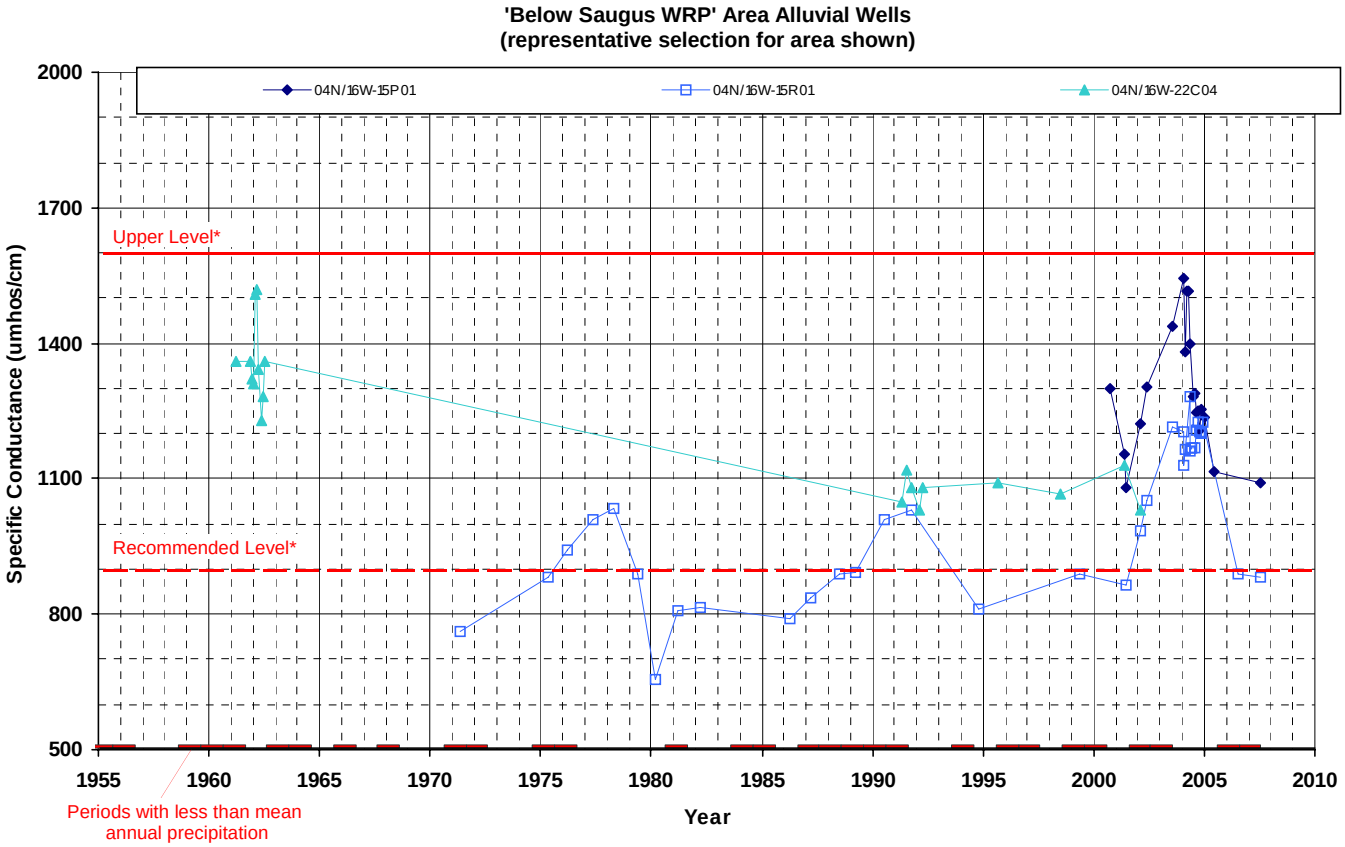
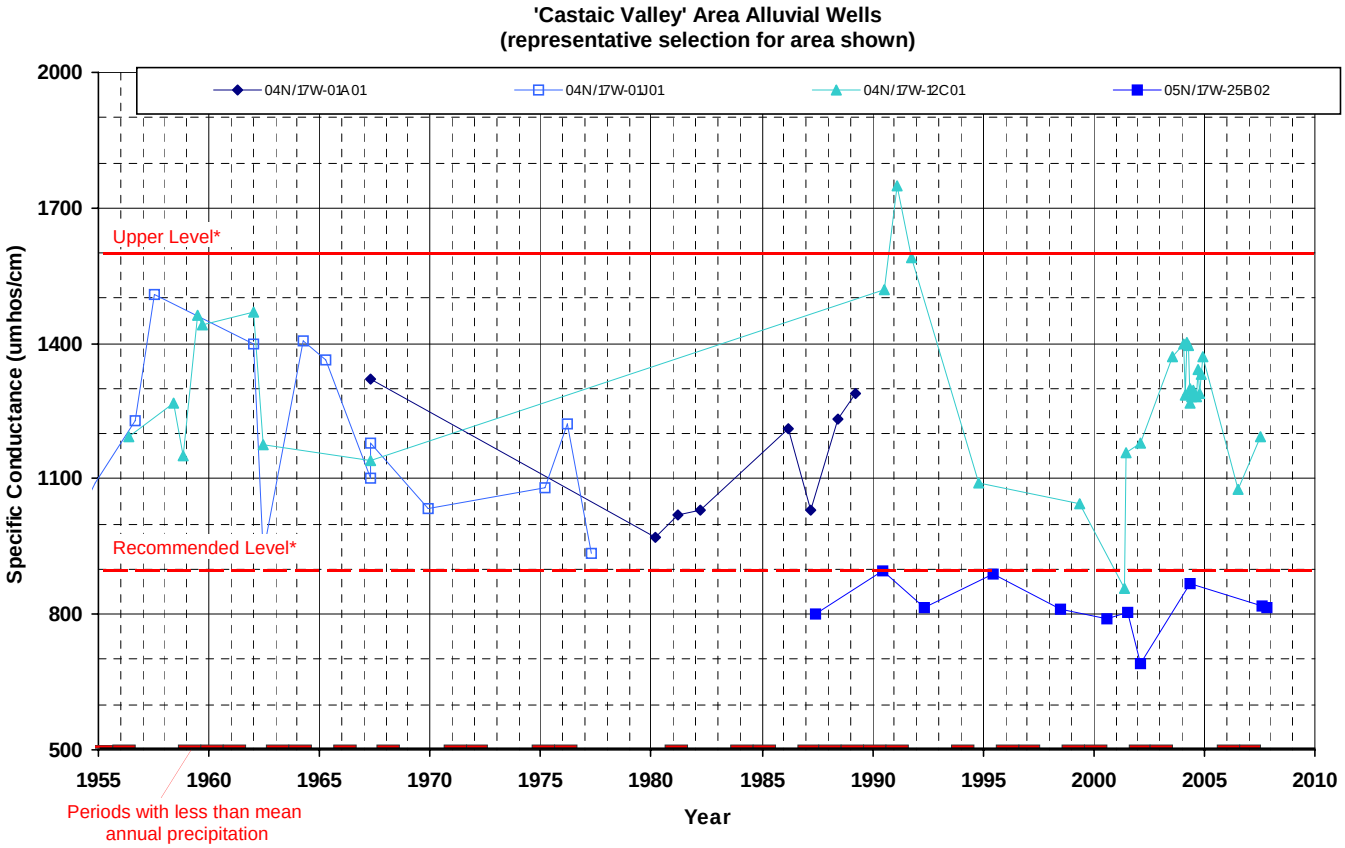
Figure III-11
Groundwater Quality in Eastern Santa Clarita Valley Alluvial Wells





*California Department of Public Health Secondary Maximum Contaminant Level

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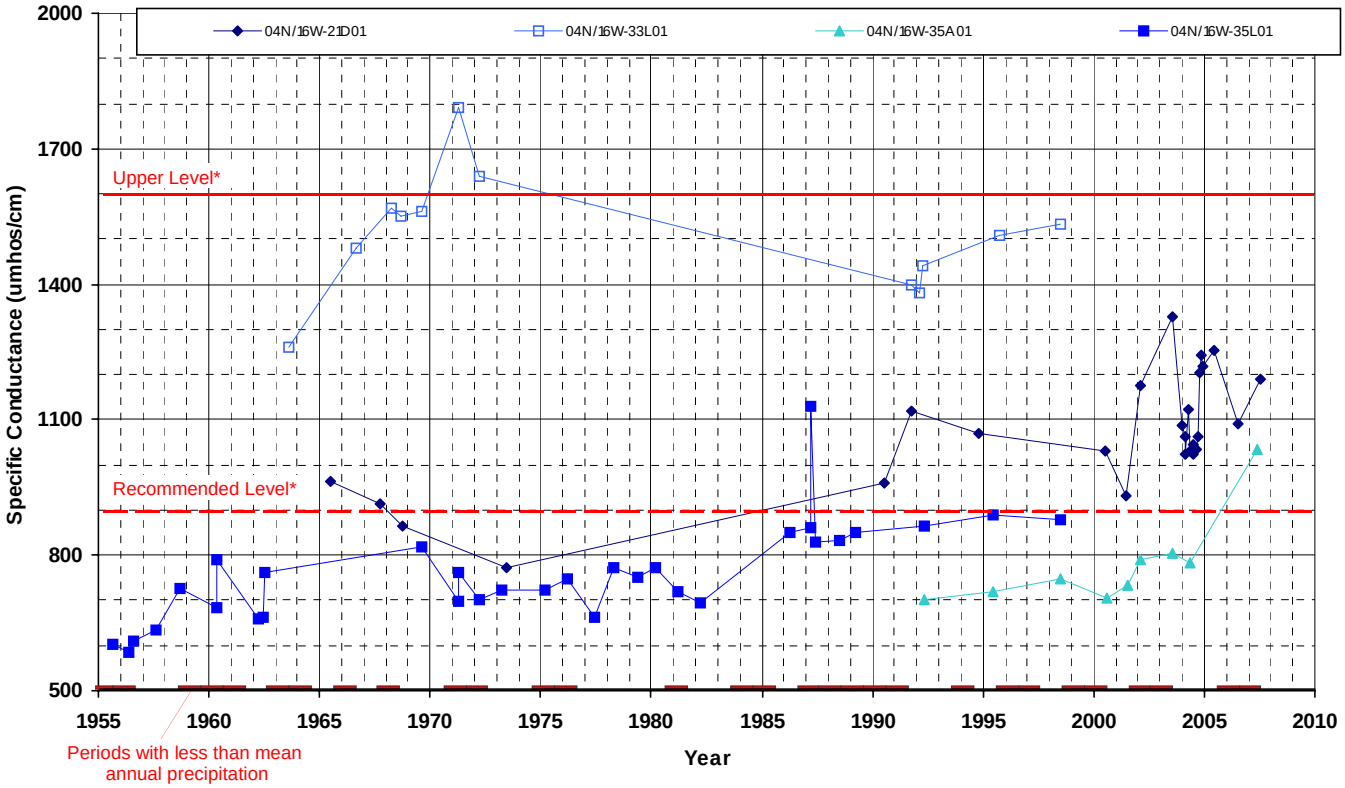
Figure III-12
Groundwater Quality in Western Santa Clarita Valley Alluvial Wells



*California Department of Public Health Secondary Maximum Contaminant Level

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Figure III-13
Groundwater Quality in Saugus Wells

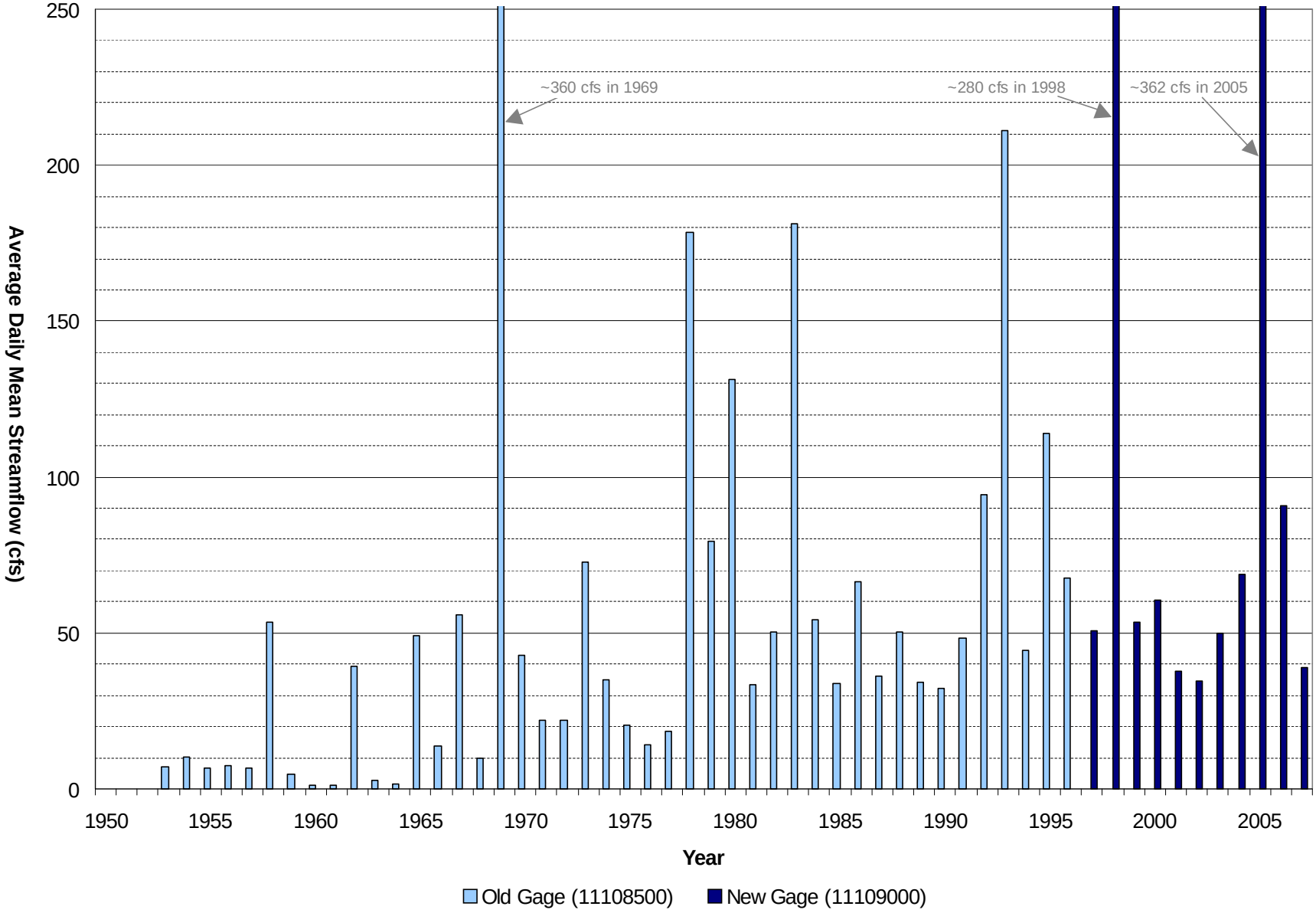

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Figure III-14
Annual Average of Daily Mean Streamflow
Santa Clara River at Los Angeles - Ventura County Line

IV. Summary of 2007 Water Supply and 2008 Outlook

As discussed above, total water demands in the Santa Clarita Valley were 92,300 af in 2007. This represented an increase of about one percent from total demand in 2006. Of the total demand in 2007, about 77,500 af were for municipal water supply, and the balance (14,800 af) was for agricultural and other uses, including individual domestic uses. As also discussed herein, the total demand in 2007 was met by a combination of local groundwater, SWP and other imported water, and by a small amount of recycled water.

The water demand in 2007 was the same as the average projection in the UWMP, but lower than the short-term projected demand that was estimated in the 2006 Water Report. For illustration, historical water use from 1980 through 2007 is plotted in Figure IV-1; also shown with that historical record are the projected total water demands in the UWMP through 2030. As discussed in the 2005 UWMP, year-to-year fluctuations in historical water demand have ranged from about ten percent below to about nine percent above the average or "normal" projection that would describe the long-term historical trend in the Valley's total water demand. The primary factor causing the year-to-year fluctuations is weather. In the short term, wetter years have typically resulted in decreased water demand, and drier years have typically resulted in higher water demand. Extended drier periods, however, have resulted in decreases in demand due to conservation and water shortage awareness. The decline in water demand toward the end of the 1987-92 drought is a good example of such reduced demand. A good recent example of wet-year effects on water demand was 2005, where extremely wet conditions resulted in total water requirements about six percent below the average projection in the UWMP.

The average water demand projection in the 2005 UWMP for 2008 is 95,800 acre-feet for all water uses in the Valley. In light of approximately normal hydrologic conditions of early 2008, and in light of the lack of precipitation-related effects on water demand over the last two years, water demand in 2008 is expected to be as projected in the 2005 UWMP.

It is expected that both municipal and agricultural water demands in 2008 will be met with a generally similar mix of water supplies as in previous years, notably local groundwater and imported SWP water, complemented by recycled water that will continue to supply a small fraction of total water demand.

As of February 22, 2008, the allocation of water from the SWP in 2008 is 35 percent of CLWA's Table A Amount, or 33,320 af. Combined with local groundwater from the two aquifer systems (42,500 af), total Flexible Storage Account water (6,060 af), net carryover SWP water from 2007 (12,146 af), annual acquisition from Buena Vista Water District (11,000 af), and recycled water (500 af), the total available water supplies for 2008 are nearly 106,000 af. Consequently, CLWA and the Purveyors anticipate having more than adequate supplies to meet all water demands in 2008. Projected 2008 water supplies and demand are summarized in Table IV-1.

In August 2007, a federal court ruled that certain operational changes were required of the SWP in order to protect the endangered Delta smelt. Thereafter, DWR prepared an update to its 2005 Reliability Report, which is issued biennially to indicate how much SWP water is available during varying hydrologic scenarios (i.e., normal and dry years). The Draft SWP Delivery Reliability Report 2007, issued in December 2007 by DWR, reduces the long term reliability of SWP supply from 77 percent to 66-69 percent. The discussion of SWP supply should be tempered, though, by noting that while the Draft SWP Reliability Report represents a reasonable scenario with respect to long term reliability, recent reductions in supply close the gap between the available supply and demand in the future, thereby making the CLWA service area more subject to shortages in certain dry years. Accordingly, the reduction in SWP supply reinforces the need to continue diligent efforts to conserve potable water and increase the use of recycled water, both to meet the goals in the 2005 UWMP and to maximize utilization of potable water supplies.

As discussed in Chapter V, CLWA and the retail water purveyors are working with Los Angeles County and the City of Santa Clarita in preparing a water conservation ordinance and the enforcement mechanisms to aggressively implement water conservation in the CLWA service area. In terms of short-term water supply availability, CLWA has determined that, while current operational changes of the SWP are in effect, there are sufficient supplemental water supplies, including SWP water, to augment local groundwater and other water supplies such that overall water supplies will be sufficient to meet projected 2008 water requirements as reflected herein.

In addition to the regular water supplies described above to meet projected demand in 2007, a total of nearly 51,000 af of recoverable water has been stored in the Semitropic Groundwater Storage Bank in Kern County. Nearly 64,900 af of recoverable water have also been stored in the long-term Rosedale-Rio Bravo Water Banking and Exchange Program, also in Kern County. Total recoverable water in Kern County storage banks is now more than 115,000 af. That component of overall water supply is separately reflected in Table IV-1 because it is intended for future dry-year supply and will not be used for 2008 water supply.

CLWA has implemented a number of projects that are part of an overall program to provide facilities needed to firm up imported water supplies during times of drought. These involve water conservation, surface and groundwater storage, water transfers and exchanges, water recycling, additional short-term pumping from the Saugus Formation, and increasing CLWA's imported supply. This overall strategy is designed to meet increasing water demands while assuring a reasonable degree of supply reliability.

Part of the overall water supply strategy is to provide a blend of groundwater and imported water to area residents to ensure consistent quality and reliability of service. The actual blend of imported water and groundwater in any given year and location in the Valley is an operational decision and varies over time due to source availability and operational capacity of Purveyor and CLWA facilities. The goal is to conjunctively use the available water resources so that the overall reliability of water supply is maximized.

For long-term planning purposes, water supplies and facilities are added on an incremental basis and ahead of need. It would be economically unsound to immediately, or in the short term, acquire all the facilities and water supplies needed for the next twenty to thirty years. This would unfairly burden existing customers with costs that should be borne by future customers. There are many ongoing efforts to produce an adequate and reliable supply of good quality water for Valley residents. Water consumers expect that their needs will continue to be met with a high degree of reliability and quality of service. To that end, CLWA's and the Purveyors' stated reliability goal is to deliver a reliable and high quality water supply for their customers, even during dry periods. Based on conservative water supply and demand assumptions contained in the 2005 UWMP for the next 25 years, in combination with conservation of non-essential demand during certain dry years, CLWA and the Purveyors believe implementing their water plan will successfully achieve this goal.

Table IV-1
2008 Water Supply and Demand
(acre-feet)

Projected 2008 Demand [1]		**95,800**
Available 2008 Water Supplies		
Local Groundwater		42,500
Alluvium [2]	*35,000*	
Saugus Formation [3]	*7,500*	
Imported Water		62,526
Table A Amount [4]	*33,320*	
Net Carryover from 2007 [5]	*12,146*	
Buena Vista/Rosedale-Rio Bravo[6]	*11,000*	
Flexible Storage Account (CLWA) [7]	*4,684*	
Flexible Storage Account (Ventura County) [7]	*1,376*	
Recycled Water		500
Total Available 2008 Supplies		**105,526**
Additional Dry Year Supplies [8]		
Semitropic Groundwater Storage Bank		50,870
2002 Account[9]	*21,600*	
2003 Account[9]	*29,270*	
Rosedale-Rio Bravo Water Banking and Exchange Program		64,898
2005 and 2006 Buena Vista/Rosedale-Rio Bravo Water Acquisition Agreement[10]	*22,000*	
2005 Banking of Table A[11]	*17,800*	
2006 Banking of Table A[11]	*17,800*	
2007 Rosedale Rio-Bravo Banking[11]	*7,298*	
Total Additional Dry Year Supplies		**115,768**

1. Interpolated from 2005 and 2010 projections in 2005 UWMP.

2. The Alluvium represents 30,000 – 40,000 afy of available supply under wet-normal conditions, and 30,000 – 35,000 afy under dry conditions. Available supply in 2008 is shown to be mid-range for average/wet conditions, or upper end of range for dry conditions.

3. The Saugus Formation represents 7,500 – 15,000 afy of available water supply under non-drought conditions, and up to 35,000 afy under increasingly dry conditions. Available supply in 2008 is shown to be limited to average/wet conditions; no short-term increase in Saugus Formation pumping is required or shown for 2008 water supply.

4. CLWA's SWP Table A amount is 95,200 af. The 2008 allocation, as of February 22, 2008, is 35 percent (33,320 af).

5. Amount used by CLWA in 2007; total carryover was 38,484 af.

6. 2007 annual supply from Buena Vista / Rosedale-Rio Bravo Water Acquisition Agreement.

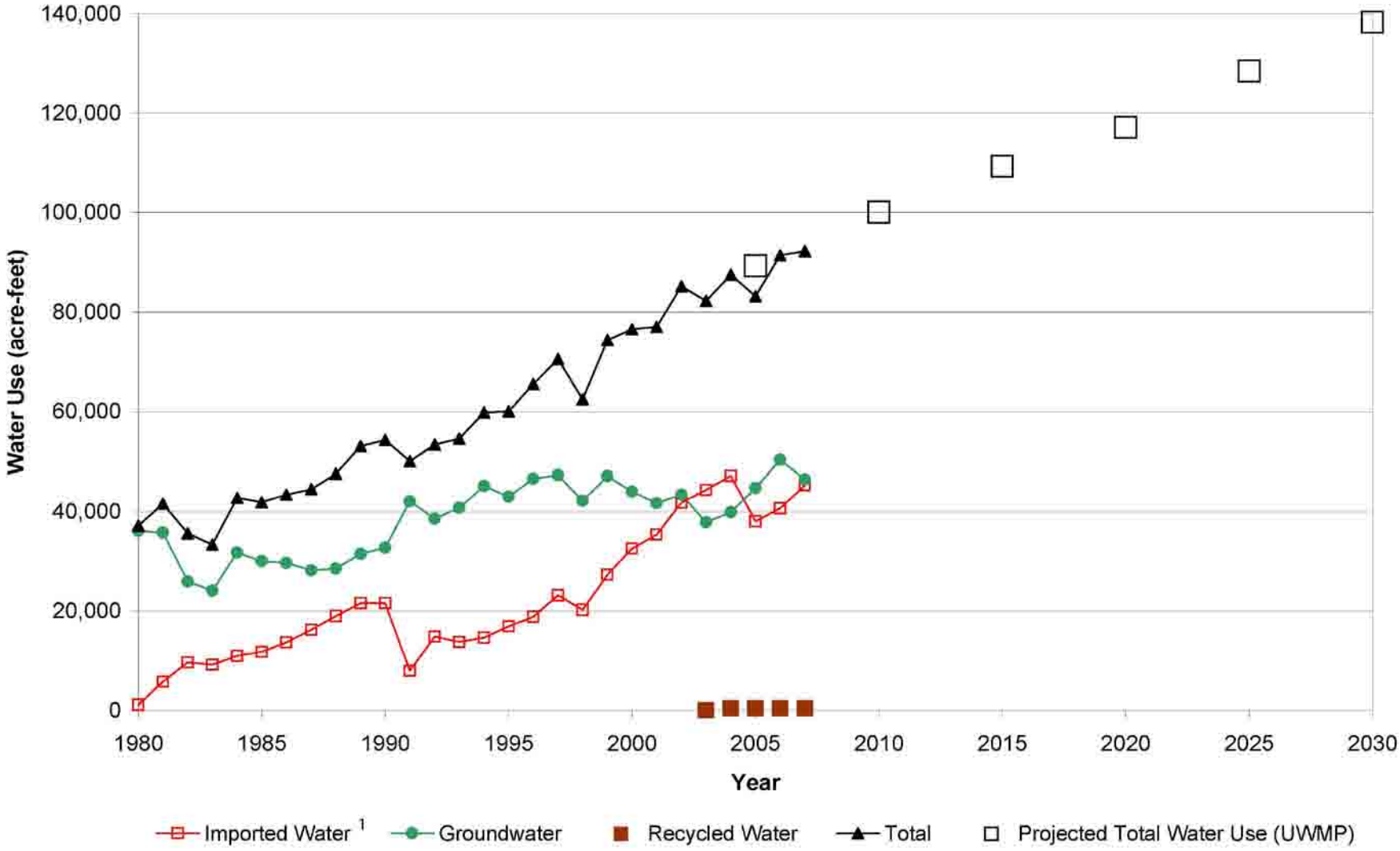
7. CLWA can directly utilize up to 4,684 af of storage capacity in Castaic Lake. By agreement in 2005, CLWA can also utilize 1,376 af of Ventura County SWP contractors' flexible storage capacity in Castaic Lake.

8. Does not include other reliability measures available to CLWA and the retail water Purveyors. These measures include short-term exchanges, participation in DWR's dry-year water purchase programs, local dry-year supply programs and other future groundwater storage programs.

9. Net recoverable water after banking 24,000 af and 32,522 af in 2002 and 2003, respectively.

10. Water stored in Rosedale-Rio Bravo Water Banking and Exchange Program pursuant to the Buena Vista/Rosedale-Rio Bravo Water Acquisition Agreement.

11. Net recoverable water after banking 20,000 af in 2005 and 2006, and banking 8,200 af in 2007.



1. Reflects State Water Project through 2006; includes imported water from State Water Project and Buena Vista WSD Agreement beginning in 2007.

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Figure IV-1
Historical and Projected Water Use
Santa Clarita Valley

V. Water Conservation

The California Urban Water Conservation Council (CUWCC) was formed in 1991 through the Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California. The urban water conservation Best Management Practices (BMPs) included in the MOU are intended to reduce California's long-term urban water demands. While the BMPs are currently implemented by the MOU signatories on a voluntary basis, they are specified as part of the Demand Management Measures section of the Urban Water Management Planning Act.

Water conservation can achieve a number of goals, such as:

- Meeting legal mandates
- Reducing average annual potable water demands
- Reducing sewer flows
- Reducing demands during peak seasons
- Meeting drought restrictions

CLWA signed the urban MOU in 2001 on behalf of its wholesale service area, and pledged to implement several BMPs at a wholesale support level (listed below). NCWD signed the MOU in 2002 and VWC signed the MOU in 2006, on behalf of their respective retail service areas. As separate MOU signatories and in their respective roles as retailers, NCWD is committed to implementing all BMPs that are feasible and applicable in their service areas. Efforts are made to coordinate with CLWA and the other Purveyors wherever possible to maximize efficiency and ensure the cost effectiveness of NCWD's conservation program.

In coordination with the Purveyors, CLWA has been implementing the following BMPs (which pertain to wholesalers) for several years (some prior to signing the MOU in 2001):

BMP 3	System Water Audits, Leak Detection and Repair
BMP 7	Public Information Programs
BMP 8	School Education Programs
BMP 10	Wholesale Agency Programs
BMP 11	Conservation Pricing
BMP 12	Water Conservation Coordinator

CLWA and the Purveyors have been implementing these BMPs valley-wide. Since 2001, CLWA has also instituted implementation of BMP 2 (Residential Plumbing Retrofits) and BMP 14 (Residential ULFT Replacement Programs) on behalf of the Purveyors.

In addition to these efforts, in September 2006 CLWA installed a weather station at its headquarters adjacent to the Rio Vista Water Treatment Plant. This station became part a network of over 120 automated weather stations in the state of California that make up the California Irrigation Management Information System (CIMIS). The Department of Water Resources (DWR) manages the system which has a primary purpose of making available to the public, free of charge, information useful in estimating crop water use for irrigation scheduling.

NCWD has initiated implementation of the remaining BMPs that are specific to retail water suppliers:

BMP 1	Water survey programs for single-family residential and multi-family residential customers
BMP 3	System water audits, leak detection and repair
BMP 4	Metering with commodity rates for all new connections and retrofit of existing connections
BMP 5	Large landscape conservation programs and incentives
BMP 6	High-efficiency clothes washing machine financial incentive programs
BMP 9	Conservation programs for commercial, industrial, and institutional (CII) accounts
BMP 11	Conservation pricing
BMP 12	Conservation coordinator
BMP 13	Water waste prohibition

Reports to the CUWCC on BMP implementation by CLWA and the Purveyors were included in the 2005 UWMP.

Additional savings are occurring Valley-wide due to state interior plumbing code requirements that have been in effect since 1992, as well as due to changes in lot size and reduction in exterior square footage of new housing and commercial developments. These have begun to impact overall demand in the Valley. The Valley's water suppliers continue to monitor water demand trends through time to assess those factors that are accounting for the reduction, and to attempt to quantify them.

Most recently with regard to water conservation, CLWA and the retail water Purveyors entered into an MOU in 2007 to prepare a Santa Clarita Valley Water Conservation Strategic Plan. The purpose of the plan is to prepare a comprehensive long-term conservation plan for the Santa Clarita Valley by adopting objectives, policies and programs designed to promote proven and cost effective conservation practices. A consultant has been hired to prepare the plan which will include significant input from stakeholders and the community at large. The plan will provide a detailed study of existing residential and commercial water use and will develop programs and projects that will result in more efficient delivery and use of water by valley residents. The plan is expected to be completed in 2008. In addition to this effort, the water Purveyors are working with City and County agencies to develop a landscape irrigation ordinance for the Santa Clarita Valley. This ordinance will focus primarily on new construction aimed at reducing overall water demands by requiring efficient landscape design and delivery systems. Implementation of the ordinance is expected in late 2008 or 2009, depending on review and adoption by the City and County.

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