5.0 ENVIRONMENTAL IMPACT ANALYSIS

21. UTILITIES AND SERVICE SYSTEMS—WATER SUPPLY AND SERVICE

1. INTRODUCTION

This section of the Draft EIR analyzes the Project's potential impacts on water supply and related infrastructure. The section provides an estimate of the water demand generated by the Project and assesses whether there is sufficient water supply and infrastructure capacity to meet that demand, in addition to the demand associated with the existing and planned future land uses within the Valencia Water Company (VWC) service area and the Santa Clarita Valley (Valley) overall. Water supply and demand were analyzed using data provided in the Water Supply Assessment (WSA) for the Project prepared by VWC, dated December 2014, and found in **Appendix 5.21A** of this Draft EIR, which is based in part on water demand projections provided in a technical memorandum by GSI Water Solutions, Inc. (GSI technical memorandum), dated May 16, 2014, and found in **Appendix 5.21B**. The analysis also uses data from the *Water Supply and Demand Technical Report* (Water Report) prepared by Cardno ENTRIX, dated February 2015 and provided in **Appendix 5.21C**. In addition, a "will serve" letter from VWC, dated March 6, 2014, is provided in **Appendix 5.21D**. Finally, data from both the adopted 2010 Urban Water Management Plan (2010 UWMP) and the 2013 Santa Clarita Valley Water Report, dated June 2014, are incorporated into the Draft EIR where appropriate; these reports are included as **Appendices 5.21E** and **5.21F**, respectively.

Please refer to the Executive Summary of this Draft EIR for a detailed summary of this section.

2. EXISTING SETTING

a. Regulatory Setting

Numerous federal, state, regional, and local adopted plans and regulations governing water supply are pertinent to the proposed Project. These plans and regulations are briefly described below. The Water Report found in **Appendix 5.21C** of this Draft EIR provides a more in-depth discussion of the regulatory setting.

(1) Federal Regulations

(a) Safe Drinking Water Act

The Safe Drinking Water Act (42 U.S.C. Section 300F *et seq*.) grants the U.S. Environmental Protection Agency (USEPA) the authority to set drinking water standards. Drinking water standards apply to public water systems, which includes the VWC system. There are two categories of drinking water standards: (a) the National Primary Drinking Water Regulations; and (b) the National Secondary Drinking Water Regulations. The National Primary Drinking Water Regulations are legally enforceable standards that apply to public water systems, and protect drinking water quality by limiting the levels of specific contaminants that can adversely affect public health and are known or anticipated to occur in water. The National Secondary Drinking Water Regulations are non-mandatory guidelines for certain substances that do not present a risk to public health.

(2) State Regulations

(a) Safe Drinking Water Act

The State Safe Drinking Water Act (Health & Safety Code Sections 116270 *et seq*.) was passed to build on and strengthen the federal Act. The State Act authorizes the State's Department of Public Health (DPH) to protect the public from contaminants in drinking water by establishing maximum contaminant levels (MCLs) that are at least as stringent as those developed by the USEPA under the federal Act.

(b) California Water Code

The California Water Code contains provisions that control almost every consideration of water and its use. Division 2 of the California Water Code provides that the State Water Resources Control Board (State Water Board) must consider and act upon all applications for permits to appropriate waters. Division 6 of the Water Code controls conservation, development, and utilization of the State's water resources, and Division 7 addresses water quality protection and management.

California is divided into nine regions governed by Regional Water Quality Control Boards (Regional Boards), which implement and enforce provisions of the California Water Code and the federal Clean Water Act (CWA) under the oversight of the State Water Board, and their chief regulatory focus is the protection of surface and groundwater quality. The Los Angeles Regional Water Quality Control Board (Region 4) (LA Regional Board) is the Board with regulatory jurisdiction over the Project Site.

(c) Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act (Water Code Sections 13000 *et seq*.) establishes the principal California legal and regulatory framework for water quality control and is embodied in the Water Code. The Water Code authorizes the State Water Board to implement the provisions of the federal CWA.

(d) Water Conservation Act of 2009

The Water Conservation Act (Water Code Section 10608) (SBX7-7) requires all water suppliers to increase water use efficiency. This legislation sets an overall goal of reducing per capita urban water use, compared to 2009 use, by 20 percent by December 31, 2020. The State must make incremental progress towards this goal by reducing per capita water use by at least 10 percent on or before December 31, 2015. Each urban retail water supplier must develop urban water use targets and an interim urban water use target by July 1, 2011.

Agricultural water suppliers also are required to implement efficient water management practices including adoption of agricultural management plans by December 31, 2012, and updated plans by December 31, 2015, and every five years thereafter. Effective 2013, agricultural water suppliers not in compliance with these planning requirements are ineligible for state water grants or loans.

(e) Water Supply Assessments and Written Verifications of Water Supply

State legislation has improved the link between water supply and land use planning. Senate Bill 610 (Water Code Sections 10910 *et seq*.) (SB 610) requires the preparation of a water supply assessment for projects within cities and counties that propose any of the following:

- Residential developments of more than 500 dwelling units;
- Shopping centers or business establishments employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- Commercial office buildings employing more than 1,000 persons or having more than 250,000 square feet of floor space;
- Hotels, motels, or both, having more than 500 rooms;

- Industrial, manufacturing, or processing plants, or industrial parks planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- Mixed-use projects that include one or more of the projects specified in Water Code Section 10912, subdivision (a); or
- Projects that would demand an amount of water equivalent to or greater than the amount of water required by a 500-dwelling-unit project.

SB 610 provides that when environmental review of certain development projects is required, the public water system that is to serve the development must complete a water supply assessment. The water supply assessment evaluates water supplies that are or will be available in normal, single-dry, and multiple-dry years during a 20-year planning horizon, and determines whether such supplies can meet existing and planned future demands, including the demand associated with a proposed project.

Senate Bill 221 (Government Code Sections 66455.3 and 66473.7) (SB 221) requires a city, county, or local agency to include a condition to any tentative subdivision map that a sufficient water supply must be available to serve the subdivision. The term "sufficient water supply" is defined as the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year planning horizon that would meet the subdivision project's estimated water demand, and the demand from existing and planned future water uses (including agricultural and industrial uses) within the specified service area (Water Verification). SB 221 also requires verification of projected water supplies to be based on entitlement contracts, capital outlay programs, and regulatory permits and approvals.

Urban water suppliers can use their most recent UWMP as a foundational document in completing SB 610 water supply assessments and SB 221 Water Verifications.[1]

(f) California Urban Water Management Planning Act

The California Urban Water Management Planning Act (Water Code Sections 10610–10656) requires certain urban water suppliers, including VWC, that provides water to 3,000 or more customers, or provides over 3,000 acre-feet (af) of water annually, to make every effort to ensure the appropriate level of reliability in its water

[1] *California Department of Water Resources, Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan, 2011. (This is the latest guidebook because the next UWMP is not due until 2015.), www.water.ca.gov/urbanwatermanagement/, accessed March 10, 2015.*

service to meet the needs of its customers during normal, dry, and multiple-dry years. The Act requires reliability information be reported in the UWMP, which must be updated every five years, and describes the required contents of a UWMP, as well as how urban water suppliers should adopt and implement UWMPs.

State and local agencies and the public frequently use UWMPs to determine if agencies are planning adequately to reliably meet water demands in various service areas. As such, UWMPs serve as an important element in documenting water supply availability and reliability for purposes of complying with state laws, SB 610 and SB 221, which link water supply sufficiency to certain land-use development project approvals.

The 2010 UWMP provides information on water usage/demand, water supply sources, and water reliability planning within the Castaic Lake Water Agency (CLWA) service area (which includes VWC's service area). The 2010 UWMP also provides groundwater information; water quality data over the planning horizon; and water management tools that maximize local resources and minimize imported water supplies. The 2010 UWMP also evaluates the reliability of water supplies within the specified service area, including a water shortage contingency plan and development of a plan in case of an interruption of water supplies.

Finally, water conservation, or demand management, is addressed in the 2010 UWMP on both a local level (i.e., by each water retailer in the Valley) and on a Valley-wide level. A variety of conservation methods are implemented in the Valley and include water use audits, rebates for water-efficient appliances, water loss monitoring and control, public education, and other customized incentives.[2] VWC requires projects to comply with adopted best management practices (BMPs) regarding water conservation. Their program identifies water saving techniques, methods, landscape designs, and internal water use practices intended to achieve VWC's long-term conservation goals described in the 2010 UWMP.[3]

(g) Delta Plan

Water supplies in California are based largely around the Sacramento-San Joaquin Delta (Delta). Water from northern California surface waters and snowmelt travels to and through the Delta to Central Valley urban and agricultural users and to southern California through aqueducts, dams, and other infrastructure. The Sacramento-San Joaquin Delta

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[2] 2010 UWMP*, Section 7.*

[3] *VWC will serve letter, Keith Abercrombie, General Manager, Valencia Water Company, March 6, 2014; see* ***Appendix 5.21D*** *of this Draft EIR.*

Reform Act (Water Code Sections 85000, *et seq*.) established the Delta Stewardship Council (Delta Council) with the primary goal of developing and implementing an enforceable, long-term management plan for the Delta (Delta Plan). The Delta Plan's coequal goals of providing a more reliable water supply for California while restoring the Delta ecosystem are the foundation of all state water management policies.

As required by statute, the Delta Plan adopts a science-based adaptive management strategy to manage decision making in the face of uncertainty (Water Code Section 85308(f)). The law requires that the Delta Plan be updated every 5 years, and each update is intended to build on an evolving base of knowledge, direct near- and mid-term actions, and preserve and protect longer-term opportunities.

(h) Groundwater Management Act

Assembly Bill 3030 (AB 3030; Water Code Sections 10750-10756) provides a systematic procedure for an existing local agency to develop a groundwater management plan. The law provides such an agency with the powers of a water replenishment district, including the power to raise revenue for the payment of facilities to manage the groundwater basin (extraction, recharge, conveyance, quality).

(i) Groundwater Monitoring

Groundwater monitoring (Water Code Section 10920, SBX7-6) requires that local agencies monitor the elevation of their groundwater basins to help better manage the resource during both normal water years and drought conditions.

(j) California Water Plan

Water Code Sections 10004 through 10013 describe the components and characteristics of the California Water Plan. The plan addresses the coordinated control, protection, conservation, development, and utilization of the State's water resources. Updated every five years, the most recent water plan is the *California Water Plan Update 2013*, released in October 2014.

(k) California Drinking Water Standards

State drinking water standards are based on federal standards and are listed in Title 22 of the California Code of Regulations. The California Department of Public Health administers the state drinking water standards.

(l) California Water Recycling Standards

The California Legislature has developed state requirements for the production, discharge, distribution, and use of recycled water. These requirements are contained in the California Code of Regulations, Title 22, Division 4, Chapter 3, Reclamation Criteria, Sections 60301 through 60475, and Title 17. The California Department of Public Health administers the state recycling water standards.

(m) California Green Building Standards Code

The California Green Building Standards Code, commonly referred to as the CALGreen Code, is set forth in CCR Title 24, Part 11, and establishes voluntary and mandatory standards pertaining to the planning and design of sustainable site development and water conservation, among other issues. Under the CALGreen Code, all water closets (i.e., flush toilets) are limited to 1.28 gallons per flush, and urinals are limited to 0.5 gallon per flush. In addition, maximum flow rates for faucets are established as follows: 2.0 gallons per minute (gpm) at 80 pounds per square inch (psi) for showerheads; 1.5 gpm at 60 psi for residential lavatory faucets; and 1.8 gpm at 60 psi for kitchen faucets.

(n) California Groundwater Legislation

In September 2014, Governor Edmund G. Brown, Jr. signed three companion bills (Senate Bill 1168, Assembly Bill 1739, and Assembly Bill 1319), resulting in the enactment of the Sustainable Groundwater Management Act. The Act applies to groundwater basins in California and provides a comprehensive groundwater sustainability management program. The Act is inapplicable to adjudicated groundwater basins (except for annual reporting) and low and very low priority basins, although the new law encourages such basins to adopt groundwater sustainability plans. It also exempts high and medium priority groundwater basins if the local agency can demonstrate that the basin is already sustainably managed pursuant to current management or operation activities.

The new law, effective January 31, 2015, requires the California Department of Water Resources (DWR) to prioritize groundwater basins as either high or medium priority, and to adopt regulations authorizing local “groundwater sustainability agencies” to prepare and adopt “groundwater sustainability plans.” Those basins that are subject to overdraft conditions must adopt a groundwater sustainability plan by January 31, 2020, and those basins that are not in overdraft must be managed by a groundwater sustainability plan by January 31, 2022. If a local agency has not formed a groundwater sustainability agency by June 30, 2017, the State Water Board may designate the basin as probationary, adopt an interim sustainability plan, and impose cost recovery.

The groundwater sustainability plans can require, among other things, groundwater well registration, measurement of groundwater extractions, and the filing of annual reports; it can also impose well spacing requirements, extraction limits, and extraction allocations. The completed groundwater sustainability plan must be submitted to DWR for review, and DWR must evaluate the plan within two years of its submission and issue a plan assessment, including recommended corrective actions.

The new law requires a city or county planning agency, before adopting or substantially amending a general plan, to consider groundwater sustainability plans or other related plans or programs. The overall goal of the new law is to achieve groundwater sustainability in high and medium priority basins over the long-term.

Proposition 1, California's most recent $7.5 billion water bond, was placed on the November 2014 ballot, passed by a wide margin by California voters, and created the 2014 Water Quality, Supply, and Infrastructure Act. This new law provides financial support for the recently passed Sustainable Groundwater Management Act and implements the three objectives of the California Water Action Plan: reliable water supplies, restoration of important species and habitat, and water infrastructure.

(3) Regional Regulations

(a) Castaic Lake Water Agency's Adopted Groundwater Management Plan

CLWA, a wholesale public water agency serving the Valley, has adopted the *Groundwater Management Plan* (GWMP) that contains four management objectives, or goals, for the basin, including: (a) development of an integrated surface water, groundwater and recycled water supply to meet existing and projected demands for municipal, agricultural and other water uses; (b) assessment of basin conditions to determine a range of operational yield values that use local groundwater conjunctively with supplemental State Water Project (SWP) supplies and recycled water to avoid groundwater overdraft; (c) preservation of groundwater quality, and active characterization and resolution of groundwater contamination problems, including perchlorate; and (d) preservation of interrelated surface water resources, which includes managing groundwater in a manner that does not adversely impact surface and groundwater discharges or quality to downstream basins.

The GWMP includes a collaborative and integrated approach to several of the aspects of water resource management. United Water Conservation District in Ventura County manages surface water and groundwater resources in seven groundwater basins, all located in Ventura County. CLWA, the retail purveyors, and United Water Conservation District have: (a) integrated their database management efforts; (b) developed and utilized

a numerical groundwater flow model for analysis of groundwater basin yield and containment of groundwater contamination; and (c) continued to monitor and report on the status of basin conditions, and on geologic and hydrologic aspects of the overall stream-aquifer system.

The adopted GWMP includes 14 elements intended to accomplish the basin management objectives listed above. In summary, the plan elements include:

- Monitoring of groundwater levels, quality, production and subsidence;
- Monitoring and management of surface water flows and quality;
- Determination of basin yield and avoidance of overdraft;
- Development of regular and dry-year emergency water supply;
- Continuation of conjunctive use operations;
- Long-term salinity management;
- Integration of recycled water;
- Identification and mitigation of soil and groundwater contamination, including involvement with other local agencies in investigation, cleanup, and closure;
- Development and continuation of local, state and federal agency relationships;
- Groundwater management reports;
- Continuation of public education and water conservation programs;
- Identification and management of recharge areas and wellhead protection areas;
- Identification of well construction, abandonment, and destruction policies; and
- Provisions to update the groundwater management plan.

Ongoing work related to the GWMP and UWMP planning efforts have produced the *Analysis of Groundwater Basin Yield, Upper Santa Clara River Groundwater Basin, East Subbasin, Los Angeles County, California* (August 2005) (2005 Basin Yield Report) and the *Analysis of Groundwater Supplies and Groundwater Basin Yield, Upper Santa Clara River Groundwater Basin, East Subbasin* (August 2009) (2009 Basin Yield Update). The primary determinations made in those reports are that: (a) both the Alluvial aquifer and the Saugus Formation are sustainable sources at the operational groundwater plan yields referenced in the Santa Clarita Valley UWMPs over the next 25 years; (b) the yields are not overstated

and will not deplete or "dry up" the groundwater basin; and (c) there is no need to reduce the yields shown in the 2010 UWMP. Additionally, both reports conclude that neither the Alluvial aquifer nor the Saugus Formation is in an overdraft condition or projected to become overdrafted. Refer to **Appendix 5.21G** of this Draft EIR for the 2005 Basin Yield Report and **Appendix 5.21H** for the 2009 Basin Yield Update.

(4) County Regulations

(a) County of Los Angeles General Plan

As discussed in more detail in **Section 5.11**, Land Use and Planning, of this Draft EIR, the County of Los Angeles (County) General Plan (General Plan) directs future growth and development in the County's unincorporated areas and establishes goals, policies, and objectives that pertain to the entire County. The current General Plan, adopted in 1980, includes a Conservation and Open Space Element that sets policy regarding water resources and water supply. Relevant policies focus on the establishment of water conservation, recycling, and water replenishment programs, and encouragement of water conservation features such as use of reclaimed wastewater. The General Plan also includes a Water and Waste Management Element that sets policy regarding water supply and distribution, flood protection, water conservation, sewerage, water reclamation, and solid waste disposal.

As discussed further in **Section 5.11**, Land Use and Planning, of this Draft EIR, the County released a draft General Plan update, entitled Los Angeles County General Plan 2035 (Draft General Plan), in January 2014 and a Draft EIR addressing the Draft General Plan in June 2014. This Draft General Plan contains a new Public Services and Facilities Element that includes a section on drinking water, with stated goals of increased water conservation efforts and increased local water supplies through the use of new technologies.

The General Plan policy consistency analysis provided in **Section 5.11**, Land Use and Planning, of this Draft EIR indicates the Project would be consistent with relevant General Plan polices related to water conservation and supply.

(b) Santa Clarita Valley Area Plan: One Valley One Vision 2012

As discussed in greater detail in **Section 5.11**, Land Use and Planning, of this Draft EIR, the County's recently updated Santa Clarita Valley Area Plan: One Valley One Vision 2012 (Area Plan), serves as a long-term guide for development in the Valley Planning Area over the next 20 years. The Area Plan ensures consistency between the General Plans of the County and the City of Santa Clarita (City) in order to achieve common goals. The Area Plan includes several policies related to water supply within its Conservation and

Open Space and Land Use Elements. These policies address water conservation and promote measures to increase water supplies. Several of the polices were included as mitigation measures in the Area Plan Program EIR (SCH No. 2008071119) to be implemented by the City and County, as appropriate.

The Area Plan policy consistency analysis provided in **Section 5.11**, Land Use and Planning, of this Draft EIR, indicates the Project would be consistent with applicable Area Plan polices related to water supply and conservation.

(c) County Development Monitoring System

The County General Plan includes provisions known as the Development Monitoring System (DMS) to give the County planning agency—the Regional Planning Commission and/or Department of Regional Planning (collectively referred to herein as the County Planning Agency)—information about the existing capacity of available specified public services in the four major Urban Expansion Areas of the General Plan (Antelope Valley, Santa Clarita Valley, Malibu/Santa Monica Mountains, and East San Gabriel Valley).[4] The primary purpose of DMS is to ensure that new development in Urban Expansion Areas will occur in a manner consistent with stated DMS policies and will pay for the expansion costs that it generates. To accomplish this purpose, the DMS is used to determine the availability of certain public services, including water service, on an individual and cumulative basis; analyze the expansion costs to certain public service providers; and work towards ensuring that the expansion costs of new development are paid for by that development. For further information with regard to the County's DMS, please see **Section 4.1**, Environmental and Regulatory Setting, of this Draft EIR.

(i) Project Subject to DMS

The Project is located within the Santa Clarita Valley, an Urban Expansion Area within DMS, and includes a subdivision map application (Vesting Tentative Tract Map (VTTM) 53295). Therefore, the Project is subject to a DMS analysis or its equivalent.

(ii) DMS Infrastructure/Service Provisions

The Project Initial Study provided general information concerning the availability of water service, and the Initial Study determined that an EIR would be required. The Water Report provided in **Appendix 5.21C** of this Draft EIR supports this water supply and service section. The Water Report provides up-to-date water supply, demand, and service

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[4] *See Resolution of the Board of Supervisors of the County of Los Angeles Relating to Plan Amendment Case No. SP 86-173, adopted on April 21, 1987.*

information based in part on data provided by the Santa Clarita Valley water providers (i.e., CLWA, VWC, and the other retail purveyors in the Valley).

(iii) DMS Access Provisions

As stated above, DMS includes analysis of the access factors associated with a development project in an Urban Expansion Area. Under DMS, where applicable, a project must be located within reasonable proximity to commercial development and job opportunities (generally within 5 miles) and served by an acceptable level of road service. If it is determined that the project is not located in proximity to commercial and employment facilities, mitigation measures set forth in DMS must be considered and applied prior to any approval of the project.

As applied, the Project satisfies the DMS access requirements because the site is located nearly adjacent to the Six Flags Magic Mountain Theme Park, and within 0.25 mile from Castaic Junction and the Valencia Commerce Center, and approximately 0.25 mile from the Valencia Industrial Park. All of these existing development areas are served by County or other public services and provide substantial commercial services and job opportunities.

(iv) DMS Data and Criteria

The DMS scenario would entail build-out of the near-term subdivision projects listed in the County's DMS plus the Project. However, for purposes of this analysis, this Draft EIR relies on updated water demand and supply data provided by CLWA and the four retail purveyors, which is contained in the adopted 2010 UWMP and the 2013 Santa Clarita Valley Water Report (June 2014). The Draft EIR also relies on VWC's updated water demand and supply data from the Project's WSA. This data is used in lieu of a DMS buildout scenario because:

(1) The data is provided by CLWA and the four retail purveyors that serve water to the Santa Clarita Valley—in other words, those agencies/entities are the "service providers" that provide the County with water demand/supply data as referenced in the DMS;

(2) The data is considered current and the best available information from CLWA and the purveyors;

(3) The data provides water service and capacity information and County staff considers the information to be equivalent to the data called for in the County's DMS as it relates to water supplies;

(4) The data is based on a comparison of the historical and projected population data for areas served by the retail purveyors in the Santa Clarita Valley (representing the total CLWA service area) to the population projections from the Area Plan for the Santa Clarita Valley—and those projections generally align with one another; and

(5) The data encompasses a broader cumulative development scenario than is provided by the County's DMS data. This approach ensures that all cumulative water demand within the Santa Clarita Valley is accounted for when assessing water supplies and demand for the broader CLWA service area, which encompasses the service area of VWC and the three other retail purveyors in the Valley.

As applied to water supplies, the DMS criteria provides that the County Planning Agency must determine if a project will be provided with an acceptable level of water supply and must base its determination upon the following data:

(1) The current water consumption (or demand) in af or gallons within the service area boundaries;

(2) The current capacity of the service provider to supply water (in af per year [afy]);

(3) The deficit or surplus within the service provider's area, calculated by determining the difference between capacity and usage (demand);

(4) The anticipated usage (demand) of water by new development on a per unit basis; and

(5) The programmed schedule of the service provider to expand its capacity in the future.

(d) County of Los Angeles Resolutions and Ordinances

In August 2008, the County Board of Supervisors declared a Countywide water supply and conservation alert and (a) urged the County residents, businesses, local water purveyors, and cities to intensify water conservation efforts to achieve an overall reduction in water demand of 15 to 20 percent; (b) directed all County departments to evaluate water usage and immediately implement conservation measures to reduce consumption by a target amount of 10 percent; (c) urged local water purveyors and cities to accelerate and intensify public outreach campaigns; (d) urged cities to update and adopt water wasting ordinances and prepare for enforcement of the ordinances, if necessary; and (e) encouraged County residents to reduce their water consumption. In response to this directive, the Board readopted such provisions in the Los Angeles County Code, imposing

water conservation requirements for the Los Angeles County area, such as prohibiting the wash down of driveways and sidewalks, limiting the hours and duration of watering any lawn or landscaping, and prohibiting water runoff into adjoining streets. In addition, the Los Angeles County Code includes regulations for designing, installing, and maintaining water-efficient landscapes in new projects.

In November 2008, the County Board of Supervisors also adopted a Green Building Program, in part to improve design and construction techniques that promote water conservation. The Green Building Program, originally codified in Titles 21 and 22 of the County Code, included a Green Building Standards Ordinance, Drought-Tolerant Landscaping Ordinance, and Low Impact Development (LID) Ordinance, which collectively required water-efficient construction techniques and appliances, the use of drought-tolerant plants, and the preservation of watersheds, drainage paths, water supplies, and natural resources through compliance with development standards identified in the LID Standards Manual and Green Building and Sustainability Guidelines for the County of Los Angeles. In 2013, in response to mandates set forth in the CALGreen Code, the County adopted the Los Angeles County Green Building Standards Code (Title 31), which adopts and incorporates by reference specified provisions of the 2013 CALGreen Code.[5] The purpose of Title 31 is to facilitate sustainability via planning and design, as well as water efficiency and conservation, among other issues. Title 31 also references County Code Chapter 12.84, which provides LID requirements that address water conservation. Title 31 is currently being revised to provide clarity for the development community, ensure consistency with the State and other local agencies, and advance sustainable construction standards in the County.

(5) Previously Adopted Plans and Mitigation

(a) Newhall Ranch RMDP/SCP and EIS/EIR

The Project Site is included in the project area for the Applicant's Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan (RMDP/SCP), shown in **Figure 3-5**, RMDP/SCP Project Area, in **Section 3.0**, Project Description, of this Draft EIR, which covers certain aspects of resource management for the Project and other nearby developments. As discussed in greater detail in **Section 4.1**, Environmental and Regulatory Setting, the RMDP component of the Newhall Ranch RMDP/SCP project is a conservation, mitigation, and permitting plan for the long-term management of sensitive biological resources and development-related infrastructure in the River and tributary drainages within the 11,999-acre Specific Plan area and along the

[5] *The County's 2008 ordinances are being repealed, and the more recently adopted Title 31 requirements will apply to this Project.*

extension of Magic Mountain Parkway through the Project Site. The SCP component of the Newhall Ranch RMDP/SCP project is a conservation and management plan to permanently protect and manage a system of preserves designed to maximize the long-term persistence of the San Fernando Valley spineflower (*Chorizanthe parryi ssp. Fernandina*) (spineflower), a federal candidate and state-listed endangered plant species. The SCP encompasses the Specific Plan area, the Valencia Commerce Center planning area, and the Project Site, in order to conduct conservation planning and preserve design on the Project Applicant's land holdings in Los Angeles County that contain known spineflower populations.

The Newhall Ranch RMDP/SCP project was the subject of a joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR) (SCH No. 2000011025) by the U.S. Army Corps of Engineers (Corps) and the California Department of Fish and Wildlife (CDFW).[6,7] At the time CDFW certified the EIR portion of the EIS/EIR in December 2010, it also adopted the Mitigation Monitoring and Reporting Plan (MMRP) for the RMDP/SCP project. This regulatory plan, required under CEQA, describes the mitigation measures, monitoring, and/or reporting plan for the Newhall Ranch RMDP/SCP project (including the Entrada South Project Site). The Newhall Ranch RMDP/SCP EIS/EIR determined that impacts to water supply would be less than significant.

b. Factors Affecting Existing Water Supply and Demand Conditions

Numerous factors affect water usage/demand and sources of supply to meet demand. Primary factors include climate/weather, climate change, area demographics and population, economic conditions, and environmental and regulatory constraints. Each of these factors is described below.

(1) Climate

The Santa Clarita Valley is characterized as having a generally semi-arid climate. Summers are dry with temperatures reaching 110°F, while winter temperatures reach as low as 20°F. The region is subject to wide variations in annual precipitation. Historically, intermittent periods of below-average precipitation typically have been followed by periods of above-average precipitation in a cyclical pattern, with each wetter or drier period typically lasting from one to five years. The longer-term precipitation records for the Newhall-Soledad 32c rain gauge show long-term average precipitation at 17.7 inches (1931–2012).

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[6] *Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan, Final Joint Environmental Impact Statement and Environmental Impact Report, June 2010.*

[7] *The California Department of Fish and Game was officially renamed the California Department of Fish and Wildlife as of January 1, 2013.*

In general, periods of below average precipitation have been longer and more moderate than periods of above-average precipitation. More recently, the dry or below average period that started in 2006 has continued through 2014, with all but two years (2008 and 2010) having below average rainfall. Average rainfall in 2012, 2013, and 2014 was significantly below average with about 9.0, 3.7, and 6.51 inches, respectively. In 2013, the lowest amount of precipitation since 1931 was recorded.[8] During these overall drier-than-average conditions, water demand in 2007 through 2010 was below that projected in the 2005 UWMP, and actual demand in 2011 was below the short-term projection in the 2010 Water Report.[9]

Climatic conditions can adversely affect water supplies. For example, in January 2014, Governor Brown declared a statewide drought emergency due to record dry conditions and an extremely low Sierra snowpack. In addition, on January 31, 2014, DWR announced that the 29 agencies, which contract with DWR for SWP supplies (including CLWA), would receive zero percent of their 2014 water allocations unless precipitation and changes in water storage levels warrant an increased allocation. On April 18, 2014, the allocations were increased to 5 percent, but this remains the lowest overall allocation in SWP history.[10]

In February 2014, in response to Governor Brown's declaration, the Santa Clarita Valley Water Committee, whose members comprise CLWA, the City of Santa Clarita, the County, and all four retail water purveyors, announced a local water supply alert triggering a set of water conservation measures to reduce overall local water consumption by 20 percent.[11]

On July 15, 2014, the State Water Board approved an emergency regulation for statewide urban water conservation (intended to reduce outdoor urban water use). The emergency regulation stays in effect for 270 days, unless extended by the State Water Board due to ongoing drought conditions. On March 17, 2015, the State Water Board expanded and extended its emergency water conservation regulations.[12]

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[8] *Refer to **Appendix 5.21C** of this Draft EIR for the Water Report for further discussion.*

[9] *2013 Santa Clarita Valley Water Report, June 2014, provided in **Appendix 5.21F** of this Draft EIR.*

[10] *Refer to **Appendix 5.21C** of this Draft EIR for the Water Report for further discussion.*

[11] *CLWA, Santa Clarita Valley Water Committee Declares Alert, Activated Conservation Plan, 2014, available at http://clwa.org/docs/publications/1695, accessed March 10, 2015.*

[12] *Refer to California Drought, State Water Board Expands and Extends Emergency Water Conservation Regulations, March 17, 2015; available at http://ca.gov/drought/topstory/top-story-26.html, accessed April 7, 2015 and incorporated by reference.*

In August 2014, the Santa Clarita Valley Water Committee, consistent with the State Water Board, adopted a Water Conservation Action Plan. The prohibited activities listed in the Action Plan are mandatory and include washing any driveways or sidewalks with a hose; runoff caused by over-irrigating landscaping; washing a motor vehicle using a hose without a shut-off nozzle; and non-recirculating fountains and decorative features. Restrictions on outdoor irrigation also were identified.

As of April 1, 2015, Governor Brown announced statewide mandatory water reductions, stating that such actions will save water, increase enforcement to prevent wasteful water use, streamline the State's drought response, and invest in new technologies that will make California more drought resilient. The Governor's action is in response to an extremely low snowpack, decreased water levels in most of the State's reservoirs, and continuing severe drought conditions (with the possibility that current drought conditions could stretch into 2016 and beyond).[13]

(2) Climate Change

A topic of growing concern for water planners and managers is global climate change and its potential effects on California's future water supplies.[14]

The Global Warming Solutions Act (Assembly Bill 32) requires California to reduce GHG emissions to 1990 levels by 2020 and to reduce GHG emissions to 80 percent below 1990 levels by 2050. It also requires biennial reports on climate change impacts for several issues, including impacts associated with water resources.

The *California Water Plan Update 2005*, prepared by DWR, contained the first-ever assessment of potential climate change impacts in a California Water Plan. Volume 1, Chapter 4 of the plan, entitled Preparing for an Uncertain Future, lists the potential impacts of global climate change based on more than a decade of scientific studies on the subject. Additionally, in July 2006, DWR prepared a report entitled *Progress on Incorporating Climate Change into Management of California's Water Resources*. That report

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[13] *Refer to California Drought, Governor Brown Directs First Statewide Mandatory Water Reductions, April 1, 2015; available at http://ca.gov/drought/topstory/top-story-29.html, accessed April 7, 2015 and incorporated by reference. See also Governor Edmund G. Brown Jr.'s Executive Order B-29-15, April 1, 2015; available at http://gov.ca.gov/docs/4.1.15_Executive_Order.pdf, accessed April 7, 2015 and incorporated by reference.*

[14] *Refer to* ***Appendix 5.21I*** *for a survey of scientific literature that addresses the intersection of global climate change and water resources, and this Draft EIR's determination regarding the effect of global climate change on California's water supply, particularly the supply needed to meet the demand of the proposed Project.*

demonstrated how various analytical tools could be used to address issues related to climate change.

The Climate Action Team was also formed. To help unify analysis across topic areas, the Climate Action Team worked with scientists from the California Applications Program's California Climate Change Center to select a set of future climate projections to be used for analysis. In the report *Using Future Climate Projections to Support Water Resources Decision Making in California* (April 2009) (Climate Projections Report), the Climate Action Team selected six different global climate change models to evaluate climate change impacts, assuming two different greenhouse gas emission levels (a high end and a low end), for a total of 12 scenarios. The results of the study indicated that climate change already has been observed; in the last 100 years air temperatures have risen about one degree Fahrenheit and there has been a documented greater variance in precipitation, with greater extremes in both heavy flooding and severe droughts. Another key finding is that increases in air temperature are expected to have significant impacts on watersheds that traditionally receive at least some of their precipitation in the form of snow. The report provides an overview of the advances that DWR has made since 2006 toward using future climate projection information to support decision making by quantifying possible impacts to water resources for a range of climate scenarios.

Climate change also poses several issues related to the availability and reliability of imported SWP water supplies. Reduction of snowpack patterns (the source of the SWP's water supply in Lake Oroville) and changes in hydrologic patterns, sea level, rainfall intensity, and statewide water demands are all possible should climate change prove to be increasing over time. Computer models (such as CALVIN) have been developed to show water planners what types of effect climate change could have on water supply, and DWR has committed to continue to update and refine these models based on ongoing scientific data collection, and to incorporate this information into future California Water Plans, so agencies like CLWA and the retail purveyors can plan accordingly.

The *California Water Plan Update 2009* also evaluated multiple future climate condition scenarios. These changing hydrological conditions could affect future planning efforts, which are typically based on historic conditions. Due to changes in temperature and precipitation, the *California Water Plan Update 2009* identified probable effects, including decreases in snowpack, greater extremes in flooding and droughts, increased sea level rise, and increased water demand.

In addition, the *California Water Plan Update 2013*, finalized in October 2014, provides up-to-date information on climate change effects on California's water resources and water systems. The 2013 update identifies and recommends statewide regional

climate adaptation strategies and investment in a diverse set of actions that reduce the risk and consequences posed by climate change.

The State Water Project Final Delivery Reliability Report 2011 (2011 SWP Delivery Reliability Report), prepared by DWR, updates estimates of the current (2011) and future (2031) SWP delivery reliability and incorporates regulatory requirements for the SWP and the federal Central Valley Project operations in accordance with U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) Biological Opinions. Estimates of future SWP reliability reflect potential effects of climate change and its effects on the State's water resources, particularly the SWP's ability to deliver water.

The 2011 SWP Delivery Reliability Report is issued every two years, and is intended to assist SWP contractors in assessing the delivery reliability of the SWP component of their overall water supplies. The stability and reliability of SWP water deliveries can be threatened by physical factors affecting facilities or water quality anywhere in the SWP system. The Delta is particularly vulnerable. For the SWP, climate change has the potential to simultaneously affect availability of source water, ability to convey water, and users' demands for water.

The State Water Project Final Delivery Reliability Report 2013 (2013 SWP Delivery Reliability Report) continues DWR's efforts to assess the effects on the SWP from climate change, including decreased water availability with reduced snowpack, increased SWP water demands, and sea level rise.[15] The updated 2013 report presents estimates of the SWP's delivery reliability for future conditions (2033), and these estimates reflect hydrologic changes that could result from climate change.[16] Refer to **Appendix 5.21J** of this Draft EIR for DWR's 2013 SWP Delivery Reliability Report.

(3) Area Demographics and Population

The 2010 UWMP, jointly prepared by CLWA and the retail purveyors, describes historic and current water demands and the methodology used to project future demands within the CLWA service area. Water demand is divided into demographic sectors such as residential, industrial/construction, commercial, institutional/government, and agriculture customers, and for environmental and other uses, such as fire protection and landscaping.

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[15] *DWR, State Water Project Delivery Reliability Report (2013), Ch. 3, Factors that Affect Water Delivery Reliability, December 2013, www.water.ca.gov/news/newsreleases/2013/121013drr2013_report.pdf, accessed March 10, 2015.*

[16] *DWR, State Water Project Delivery Reliability Report (2013), Ch. 6, Future SWP Water Delivery Reliability (2033), December 2013, www.water.ca.gov/news/newsreleases/2013/121013drr2013_report.pdf, accessed March 10, 2015.*

Since there are only four retail purveyors in the CLWA service area, there is close coordination and exchange of data between CLWA, the purveyors, and County and City staff representatives. The purveyors maintain demand data to ensure they have an adequate water supply and the necessary infrastructure to provide water service. Each of the four retail purveyors also provided existing and projected water demands within their respective service areas based on customer type and deliveries (by af) for 2010 through 2050 for inclusion in the 2010 UWMP.

The adopted 2010 UWMP also provides historical population estimates based on data from the Southern California Association of Governments (SCAG), the California Department of Finance, and the U.S. Census Bureau as prescribed by DWR. SCAG is responsible for providing and updating land use planning and demographic forecasts for Los Angeles County. Total demand trend on water supplies within the Santa Clarita Valley is expected to continue to rise because of population, economic activity, environmental and water quality needs, and regulatory requirements.

Based on the adopted UWMP, total population in the CLWA service area in 2050 is projected at approximately 512,000 residents and is estimated to grow at an average annual rate of about 1.5 percent over the 40-year planning period from 2010 to 2050. The UWMP's population estimate is consistent with population build-out projections developed through a process referred to as One Valley One Vision, a joint planning effort between the County and the City, which resulted in the publication of the Santa Clarita Valley Area Plan: One Valley One Vision 2012 and the City of Santa Clarita General Plan.

(4) Economic Conditions

During an economic recession, there is a major downturn in development and a subsequent slowing of the projected demand in water. The projections in the adopted UWMP do not attempt to forecast recessions or reductions in water demand due to such economic conditions. Instead, such conditions are accounted for over the course of the lengthy 40-year planning horizon of the UWMP, and the fact that UWMPs must be updated every five years in accordance with the California Urban Water Management Planning Act. Therefore, no speculation is made about existing or future downturns in economic conditions affecting the Santa Clarita Valley.

(5) Environmental and Regulatory Constraints

The Delta provides important habitat for fish species listed as threatened or endangered under either the federal Endangered Species Act or the California Endangered Species Act, or both. Several resource agencies have taken action to protect these species. Regulatory requirements based on Biological Opinions issued by USFWS and NMFS are particularly important to the coordinated operations of the SWP and the Central

Valley Project.[17] These Biological Opinions include terms that affect the SWP's water delivery reliability primarily by restricting SWP pumping levels under certain conditions in the Delta.[18] The SWP operational restrictions set forth in the Biological Opinions continue to be imposed and were used by DWR in its analysis supporting the 2011 and 2013 SWP Delivery Reliability Reports.[19]

c. Water Agencies of the Santa Clarita Valley

The CLWA water service area includes four retail water purveyors: (a) CLWA's Santa Clarita Water Division (SCWD); (b) Newhall County Water District (NCWD); (c) Los Angeles County Waterworks District 36 (LACWWD 36); and (d) VWC, the operator of the public water system that would provide water to the Project Site. CLWA and the four retail purveyors coordinate the management of imported water, local groundwater, and recycled water to meet water demands in the Santa Clarita Valley. Specifically, CLWA and the four retail purveyors evaluate the long-term water demands within the broader CLWA service area based on Los Angeles County and City of Santa Clarita plans and proposed development projects; and compare County and City plans and projects against existing and projected water supplies. This water demand and supply data is incorporated into the latest UWMP for the Santa Clarita Valley.

(1) Castaic Lake Water Agency

CLWA contracts with DWR to acquire, sell, and distribute SWP water to the retail water purveyors in the Santa Clarita Valley.[20] CLWA's authority also includes: (a) acquiring water from the State; (b) distributing such water wholesale through a transmission system to be acquired or constructed by CLWA; (c) recycling water; (d) selling water at retail within certain boundaries; and (e) exercising other related powers.[21]

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[17] *The California Department of Fish and Game, now Department of Fish and Wildlife, issued consistency determinations for the federal Biological Opinions under section 2080.1 of the California Fish and Game Code. The consistency determinations stated that the Biological Opinions were consistent with the California Endangered Species Act. The consistency determinations allowed incidental take of species listed under both the federal Endangered Species Act and the California Endangered Species Act to occur during SWP and Central Valley Project operations without requiring DWR or the U.S. Bureau of Reclamation to obtain separate state-issued Incidental Take Permits.*

[18] *DWR. State Water Project Delivery Reliability Report (2013).*

[19] *See DWR's 2013 State Water Project Delivery Reliability Report, Chap. 3; and San Luis & Delta-Mendota Water Authority v. Jewell, No. 11-1587, 9th Cir. Mar. 13, 2014.*

[20] *See California Water Code Appendix sections 103-1 and 103-15.*

[21] *See California Water Code Appendix sections 103-1 and 103-15.*

The CLWA service area, which comprises approximately 195 square miles (124,800 acres), serves incorporated and unincorporated areas in, or adjacent to, the Santa Clarita Valley. Most of this service area is within the geographic boundary of Los Angeles County, but it also extends into a small portion of eastern Ventura County. The CLWA service area includes largely urban areas, such as the City of Santa Clarita, other smaller communities, and rural areas. **Figure 5.21-1**, Castaic Lake Water Agency and Valencia Water Company Service Areas, on page 5.21-23 depicts the CLWA and VWC service areas.

CLWA's water supply is comprised of wholesale imported water, groundwater, and recycled water. CLWA obtains its water supply for wholesale purposes principally from the SWP and has a water supply contract with DWR for 95,200 afy of SWP Table A Amount. “Table A” is a term used in the SWP water supply contracts between DWR and its 29 wholesale agencies. The “Table A Amount” is the maximum amount of water to which a SWP contractor has a contract right to request for delivery each year of the highest priority water available under the SWP contractor’s water supply contract. The Table A Amount is not equivalent to actual deliveries of water in any given year, and the water actually available for delivery in any given year may be an amount less than the SWP contractor’s Table A Amount, depending upon hydrologic conditions, the amount of water in storage, operational constraints, requirements imposed by regulatory agencies to meet environmental water needs, the amount of water requested by other SWP contractors, climatic conditions, and other factors. As discussed below, CLWA maintains other non-SWP imported supplies, such as water from Buena Vista–Rosedale (11,000 afy) and Yuba County Water Agency (850 afaf in critically dry years).

CLWA is able to meet approximately half of the Santa Clarita Valley’s urban demand with imported water. However, as noted, the availability of SWP supply is variable and can fluctuate from year-to-year depending on precipitation, regulatory and legislative restrictions, and operational constraints. SWP supply is also subject to significant restrictions (and reductions) in dry years.

CLWA receives its SWP water from the West Branch of the California Aqueduct, which terminates at Castaic Lake. SWP water from Castaic Lake 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 122 million gallons per day (mgd). Treated water is delivered from the treatment plants to each of the four retail purveyors through a distribution network of pipelines and turnouts.

Currently, CLWA delivers water to the four retail purveyors through 26 potable water turnouts. CLWA and the retail purveyors meet the balance of their water demands with local groundwater and recycled water.

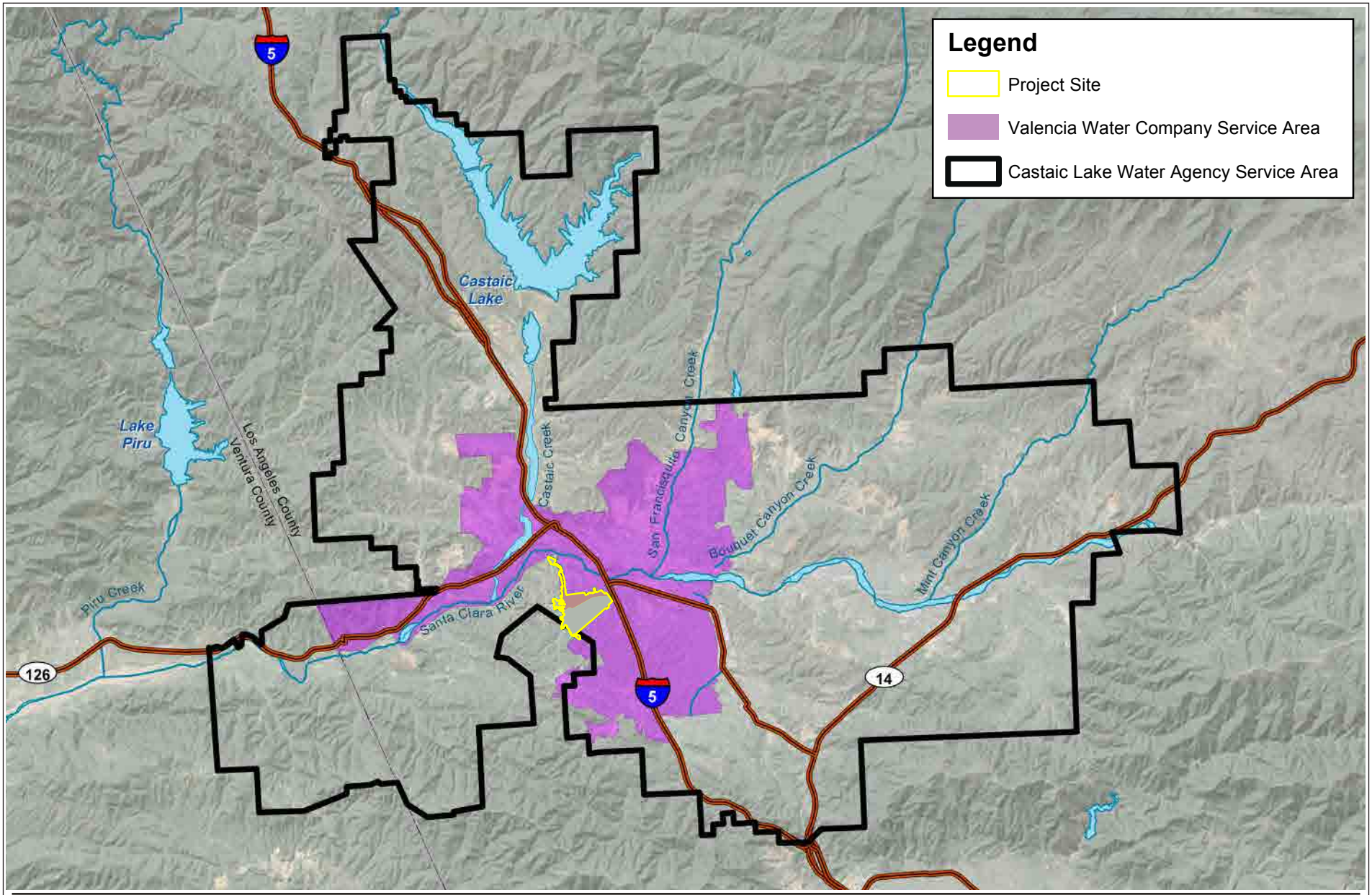

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Figure 5.21-1
Castaic Lake Water Agency and Valencia Water Company Service Areas

Source: Cardno ENTRIX, 2014.

CLWA and the retail purveyors have evaluated the long-term water demands within the CLWA service area based on applicable County and City plans, and have compared these demands against existing and potential water supplies. Results indicate that as the Santa Clarita Valley's water demands utilize increased proportions of imported water supplies, conjunctive use, water conservation, water transfers, recycled water, and water banking will become increasingly more important water management elements for CLWA's long-term water supply strategy.

(2) Retail Water Suppliers

Four retail water purveyors provide water service to most residents of the Santa Clarita Valley. A description of the service areas of the purveyors is provided below.

- **Los Angeles County Waterworks District 36 (LACWWD 36)** service area encompasses approximately 6,600 acres in the Hasley Canyon area and the unincorporated community of Val Verde. LACWWD 36 obtains its water supply from CLWA and from local groundwater.

- **Newhall County Water District (NCWD)** service area includes portions of the City of Santa Clarita and unincorporated portions of the County in the communities of Newhall, Canyon Country, Valencia, and Castaic. The District supplies water from local groundwater and CLWA imported water.

- **CLWA's Santa Clarita Water Division (SCWD)** service area includes portions of the City of Santa Clarita and unincorporated portions of the County in the communities of Canyon Country, Newhall, and Saugus. SCWD supplies water from local groundwater and CLWA imported water.

- **VWC** service area includes a portion of the City of Santa Clarita and unincorporated portions of the County in the communities of Castaic, Newhall, Saugus, Stevenson Ranch, and Valencia. VWC supplies water from local groundwater and CLWA imported water and delivers a small amount of recycled water for non-potable use. **Figure 5.21-1**, Castaic Lake Water Agency and Valencia Water Company Service Areas, illustrates the VWC service area.

As of 2013, the retail purveyors provide water to about 70,900 service connections in the Santa Clarita Valley. **Table 5.21-1**, Retail Water Purveyor Service Connections for the Santa Clarita Valley, on page 5.21-25 shows the breakdown of service connections for each purveyor.

Table 5.21-1
Retail Water Purveyor Service Connections for the Santa Clarita Valley

Retail Water Purveyor	Connections
CLWA SCWD	29,700
LACWWD 36	1,350
NCWD	9,700
Valencia Water Company	30,800
Total	**71,550**

Source: 2013 Santa Clarita Valley Water Report, June 2014.

d. Santa Clarita Valley Existing and Projected Water Supplies

The principal components of the Santa Clarita Valley water supply are imported water from the SWP, other imported water from Kern County, and local groundwater from the Alluvial aquifer and the Saugus Formation. Since 2003, these water supplies have been augmented by the initiation of CLWA deliveries of recycled water. In addition, CLWA has storage programs planned for use during drier years when imported supplies are limited. These storage programs improve reliability of the CLWA/purveyor supplies by enabling existing supplies that are not needed in wetter years to be stored for use in drier years. CLWA also funds a capital improvement plan to provide facilities and additional water supplies needed to firm-up imported water supplies in dry years. While these firming supplies do not increase the overall supply available to meet service area demand, they enhance reliability of the water supplies available to the retail purveyors within the broader CLWA service area in a given year. Each of these water sources is discussed in greater detail below.

(1) State Water Project

The SWP, owned and operated by DWR, is a state-constructed, multi-purpose water supply, storage, and conveyance system. The SWP was authorized by the California Legislature in 1959, with construction of most initial facilities completed by 1973; other facilities have been constructed since then, and still others are either under construction or planned to be built, as needed.[22] SWP facilities—pumping and power plants; reservoirs, lakes, and storage tanks; canals, tunnels, and pipelines—capture, store, and convey water to 29 public water agencies known as "SWP contractors." CLWA obtains the majority of its imported water supplies from the SWP.

[22] *DWR Bulletin 132-10, Management of the California State Water Project (June 2013).*

SWP water originates as rainfall and snowmelt in the Feather River watershed in northern California. Runoff from the watershed is stored in Lake Oroville, then released from Lake Oroville down the Feather River to the Sacramento River and through the Delta, then diverted from the Delta and ultimately pumped into approximately 700 miles of aqueducts. CLWA's SWP supplies are stored in Castaic Lake, a terminal reservoir located at the end of the West Branch of the California Aqueduct. CLWA then delivers its SWP supplies to the local retail water purveyors through an extensive transmission pipeline system.

(a) SWP Water Supply Contracts—SWP Water Supplies

(i) Table A Water

In the early 1960s, DWR began entering into individual SWP water supply contracts with urban and agricultural public agencies (SWP contractors) located throughout northern, central, and southern California. Since 1968, DWR has monitored and recorded annual precipitation and runoff, because precipitation, snowpack, and the rate and amount of snowmelt help determine how much water the SWP can deliver in any given year.[23] The current combined maximum Table A amount is 4,172 thousand af per year (taf/year). Of this amount, 4,133 taf/year is the maximum Table A water available for delivery from the Delta. The maximum Table A amount is the basis for apportioning water supply and costs to the SWP contractors. Once the total amount of water to be delivered is determined for a given year, all available water is allocated in proportion to each contractor's annual maximum SWP Table A contract amount. Thus, Table A amounts do not necessarily represent actual water deliveries, but rather a means to calculate each contractor's proportionate share of the total amount of SWP water available in a given year.

Table A water is given first priority for delivery over other types of SWP water. Each contractor has some flexibility in managing the Table A supply allocated to it in a given year. A contractor may take delivery of that supply for direct use or storage within its service area, store that water outside its service area for later withdrawal and use within its service area, or carry over a portion of that supply for storage on an as-available-basis in SWP reservoirs, for delivery the following year.

(ii) Other Types of SWP Water

Each long-term water supply contract describes several types of SWP water that are available to SWP contractors to supplement their Table A water: (a) Article 21 water; (b) carryover water; and (c) turnback pool water.

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[23] *DWR Bulletin 132-10, Management of the California State Water Project (June 2013).*

Article 21 water (so named because it is described in Article 21 of the water supply contracts) is water that SWP contractors may receive on a short-term basis in addition to their Table A water, if they request it. Article 21 water is used by many SWP contractors to help meet demands when Table A allocations are less than 100 percent. The availability and delivery of Article 21 water cannot interfere with normal SWP operations.

Carryover water is SWP water that is allocated to a SWP contractor and approved for delivery to that contractor in a given year, but not used by the end of the year. This water is exported from the Delta, but instead of being delivered to the SWP contractor, it is stored in the SWP's share of the San Luis Reservoir, when space is available, for the contractor to use in the following year.

SWP contractors may offer a portion of their Table A water that has been allocated in the current year and exceeds their needs to a "turnback pool," where another contractor may purchase it. Contractors that sell their extra Table A water in a turnback pool receive payments from contractors that buy this water through the turnback pool.

The availability of Article 21 water and turnback pool water is uncertain. When available, these supplies provide additional water that CLWA may be able to use, either directly to meet demands or for later use after storage in its groundwater banking programs. To the extent CLWA is able to make use of these supplies when available, CLWA can improve the reliability of its SWP supplies beyond the amounts reflected in the adopted 2010 UWMP for the Santa Clarita Valley.

While not specifically provided for in the SWP water supply contracts, in single-dry years, DWR has created dry year water purchase programs for contractors needing additional supplies. Through these programs, water is purchased by DWR from willing sellers in areas that have available supplies and is then sold by DWR to contractors willing to purchase those supplies. The availability of these supplies is uncertain. However, CLWA's access to these supplies when they are available can improve the reliability of its dry-year supplies beyond the amounts reflected in the adopted 2010 UWMP.

(b) Factors Affecting SWP Table A Supplies

While Table A identifies the maximum amount of Table A water a SWP contractor may request, the amount of SWP water actually available and allocated to SWP contractors each year is dependent on a number of factors and can vary and be reduced significantly from year-to-year. The primary factors affecting SWP water delivery reliability include the availability of water at the source of supply in northern California, regulatory

restrictions on SWP operations, and the effects of climate change.[24] Uncertainty also exists because of the potential for interruptions in conveying SWP supplies from the Delta (*e.g.*, earthquakes, Delta levee failure). DWR and other agencies are engaged in ongoing efforts to reduce risks to the Delta and enhance emergency response capabilities.[25]

DWR accounts for the various factors affecting and reducing SWP water delivery reliability in its computer modeling, which simulates the expected SWP deliveries under estimated existing and future conditions. Specifically, DWR calculates the water delivery reliability of the SWP using the CalSim-II computer model, which simulates existing and future operations of the SWP. DWR's modeling is based on 82 years of historical data (water years 1922–2003), rainfall, and runoff, and the data have been adjusted to reflect 2013 current and future levels of development in the source areas. The resulting data is used to forecast the probable amount of water available to the SWP under current and future conditions (with the effects of climate change factored into the modeling for future conditions).

DWR's most current published estimate of SWP delivery reliability is found in the 2013 SWP Delivery Reliability Report. As used by DWR, the term "water delivery reliability" refers to the annual amount of SWP water that can be expected to be delivered with a certain frequency, or in other words, the probability that a certain amount of water will be delivered by the SWP in a given year.

(c) SWP Table A Supply Assessment

The SWP Delivery Reliability Report, prepared every two years by DWR as part of the Monterey Amendments settlement agreement, informs SWP contractors, city and county planning departments, regional and metropolitan planning departments, and the public about key factors important to the operation of the SWP and the reliability of its water deliveries. Commencing in 2002, DWR has prepared and disseminated reliability reports for 2002, 2005, 2007, 2009, and 2011. The reliability reports are used for water planning purposes. For example, CLWA used DWR's 2009 reliability report and DWR's estimates of

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[24] *Please refer to DWR's State Water Project Delivery Reliability Report 2013, Chapter 3, for a detailed discussion of the factors affecting estimates of existing and especially future SWP water delivery reliability. In addition, the* 2010 UWMP *for the Santa Clarita Valley summarizes various factors that combine to affect and reduce SWP water delivery reliability (see* 2010 UWMP*, Section 3). Also, please see Appendix D to the* 2010 UWMP *for a more detailed discussion of these factors. Further, the Project's Water Report prepared by Cardno-ENTRIX and provided in* ***Appendix 5.21C*** *(see Section 4, Water Supplies) contains a thorough discussion of these SWP constraints.*

[25] *Please refer to DWR's State Water Project Delivery Reliability Report 2013, Chapter 3, for an in-depth discussion of the actions being taken by DWR and other agencies to reduce risks to the Delta and enhance emergency response capabilities.*

SWP water delivery reliability in preparing and adopting the 2010 UWMP for the Santa Clarita Valley.

The 2013 SWP Delivery Reliability Report is the most current report and includes DWR's estimates of SWP water delivery reliability under both existing (2013) and future (2033) conditions. According to the 2013 reliability report, many of the same challenges to SWP operations that were identified in the 2011 reliability report remain; for example, like the 2011 report, the 2013 report shows reductions in SWP Delta exports and Table A deliveries due to the operational restrictions imposed on the SWP by Biological Opinions issued by USFWS in December 2008 and NMFS in June 2009, and Delta water quality and flow restrictions from the State Water Board's water quality control plan for the Delta. Estimates of future reliability also reflect potential effects of climate change and sea level rise.

(d) DWR Analysis Results

According to the 2010 UWMP for the Santa Clarita Valley, which relied on the 2009 reliability report, DWR's estimates that the SWP can deliver a total Table A supply of 60 percent of the total maximum Table A amounts on a long-term average basis under both current (2009) and future (2029) conditions. In the worst-case single-dry year, DWR estimates that the SWP can deliver a total Table A supply of 7 percent of the total maximum Table A amounts under current conditions, and 11 percent under future conditions. During multiple year dry periods, DWR estimates that the SWP can deliver a total Table A supply averaging 34-36 percent of the total maximum Table A amounts under current conditions and 28-32 percent under future conditions.

As updated by the 2013 reliability report, DWR estimates that for all contractors combined, the SWP can deliver a total Table A supply of 62 percent of the total maximum Table A amounts on a long-term average basis under current (2013) conditions, and 58 percent under future (2033) conditions.[26] In the worst-case single-dry year, DWR estimates that the SWP can deliver a total Table A supply of 12 percent of the total maximum Table A amounts under current conditions, and 11 percent under future conditions. During multiple year dry periods, DWR estimates that the SWP can deliver a

[26] *See the Water Report provided in **Appendix 5.21C** of this Draft EIR (referencing DWR 2013 State Water Project Delivery Reliability Report, Chap. 5, Table 5-4, and Chap. 6, Table 6-3). On average, the dry-period deliveries of Table A water are lower in the 2013 report than in the 2009 and 2011 reports. According to DWR, the change is due to model refinements discussed in detail in the technical memorandum accompanying the 2013 reliability report (see 2013 Reliability Report, Chapter 5, p. 41).*

total Table A supply averaging 30-31 percent of the total maximum Table A amounts under current conditions and 24-31 percent under future conditions.[27]

(e) DWR Analysis Results for SWP Supplies Under Current (2013) Conditions

The 2013 SWP Delivery Reliability Report included the information presented in **Table 5.21-2**, Average and Dry-Period SWP Table A Deliveries Under Current Conditions and Resulting Deliveries to CLWA, on page 5.21-31, which provides estimated average and dry-period Table A deliveries for current conditions (2013) and compares those figures to those in the 2009, 2011, and 2013 reliability reports.

As shown on **Table 5.21-2**, Average and Dry-Period SWP Table A Deliveries Under Current Conditions and Resulting Deliveries to CLWA, applying the 2013 reliability report SWP Table A delivery percentages under current conditions to CLWA's Table A amount of 95,200 af, results in approximately 59,024 af under average year conditions, 11,424 af under single-dry year conditions, and 28,560 af (on average) under multiple-dry year conditions.

[27] *Id. According to DWR, the multiple year dry period shows much lower Table A deliveries in the 2013 report than in the 2009 and 2011 reports, and the change is due to modeling refinements and reclassification of 1975 as a wet year rather than an above-normal year as was used in the 2009 and 2011 reports. Because 1975 is now considered a wet year, there are higher State Water Board requirements to be met, which leads to lower reservoir levels and lesser deliveries (see 2013 Reliability Report, Chapter 6, p. 48).*

Table 5.21-2
Average and Dry-Period SWP Table A Deliveries Under Current Conditions and Resulting Deliveries to CLWA

	SWP Table A Delivery (Percent of Maximum Table A Amount)[a]					
	Long-Term Average	**Single Dry Year (1977)**	**2-Year Drought (1976–1977)[b]**	**4-Year Drought (1931–1934)**	**6-Year Drought (1987–1992)**	**6-Year Drought (1929–1934)[c]**
2009 Report[d,e]	2,483 (60%)	302 (7%)	1,496 (36%)	1,402 (34%)	1,444 (35%)	1,398 (34%)
2011 Report[e]	2,524 (61%)	377 (9%)	1,571 (38%)	1,455 (35%)	1,461 (35%)	1,433 (35%)
2013 Report[e]	2,553 (62%)	495 (12%)	1,269 (31%)	1,263 (31%)	1,176 (28%)	1,260 (30%)
CLWA Table A Delivery (2013)[f]	59,024	11,424	28,560	28,560	28,560	28,560

[a] *Maximum total statewide Table A Amount is 4,133 thousand af/year (taf/yr).*

[b] *Droughts are analyzed using the historical drought-period precipitation and runoff patterns from 1922–2003 as a reference, although existing 2013 conditions (e.g., land use, water infrastructure) are also accounted for in the modeling.*

[c] *For reference, the worst multi-year drought on record was the 1929–1934 drought, although the brief drought of 1976–1977 was more intensely dry.*

[d] *The 2009 reliability report results are shown here because that was the report utilized in the most current* 2010 UWMP *for the Santa Clarita Valley.*

[e] *Maximum statewide Table A amounts expressed in taf/yr*

[f] *CLWA's maximum Table A amount expressed in af/yr.*

Source: 2009, 2011, and 2013 SWP Delivery Reliability Reports.

(f) DWR Analysis Results for SWP Supplies Under Future (2033) Conditions

The 2013 SWP Delivery Reliability Report included the information presented in **Table 5.21-3**, Average and Dry-Period SWP Table A Deliveries Under Future Conditions and Resulting Deliveries to CLWA, on page 5.21-32, which provides estimated average and dry-period Table A deliveries for future conditions (2033) and compares those figures to those in the 2009, 2011, and 2013 reliability reports.

As shown on **Table 5.21-3**, Average and Dry-Period SWP Table A Deliveries Under Future Conditions and Resulting Deliveries to CLWA, under updated future conditions (2033), average SWP delivery amounts may decrease from 60 percent to 58 percent of the maximum Table A amounts as compared to earlier estimates in the 2009, 2011, and 2013 reports. In addition, in single-dry years, SWP delivery amounts remain the same (11 percent) in the 2009–2013 reports. Also, in multiple-dry periods, the 2013 report shows

Table 5.21-3
Average and Dry-Period SWP Table A Deliveries Under Future Conditions and Resulting Deliveries to CLWA

	SWP Table A Delivery (Percent of Maximum Table A Amount)[a]					
	Long-Term Average	**Single Dry Year (1977)**	**2-Year Drought (1976–1977)[b]**	**4-Year Drought (1931–1934)**	**6-Year Drought (1987–1992)**	**6-Year Drought (1929–1934)[c]**
2009 Report[d,e]	2,487 (60%)	458 (11%)	1,570 (38%)	1,431 (35%)	1,308 (32%)	1,480 (36%)
2011 Report[e]	2,465 (60%)	441 (11%)	1,457 (35%)	1,401 (34%)	1,226 (30%)	1,365 (33%)
2013 Report[e]	2,400 (58%)	453 (11%)	978 (24%)[f]	1,263 (31%)	1,055 (26%)	1,251 (30%)
CLWA Table A Delivery (2013)[g]	55,216	10,472	26,656	26,656	26,656	26,656

[a] *Maximum Table A Amount is 4,133 thousand af/year (taf/yr).*

[b] *Droughts are analyzed using the historical drought-period precipitation and runoff patterns from 1922–2003 as a reference, although existing 2013 conditions (e.g., land use, water infrastructure) are also accounted for in the modeling.*

[c] *For reference, the worst multi-year drought on record was the 1929–1934 drought, although the brief drought of 1976–1977 was more intensely dry.*

[d] *The 2009 reliability report results are shown here because that was the report utilized in the most current* 2010 UWMP *for the Santa Clarita Valley.*

[e] *Maximum statewide Table A amounts expressed in taf/yr*

[f] *This drought period shows much lower Table A deliveries in the 2013 report than in the 2009 and 2011 reports because of modeling refinements and DWR's reclassification of 1975 as a wet year.*

[g] *CLWA's maximum Table A amount expressed in af/yr.*

Source: 2009, 2011, and 2013 SWP Delivery Reliability Reports.

that SWP delivery amounts would decrease in reliability from 24 percent to 31 percent of the maximum Table A amounts as compared to earlier estimates from the 2009 and 2011 reports (30 percent to 38 percent).

Also, as shown on **Table 5.21-3**, Average and Dry-Period SWP Table A Deliveries Under Future Conditions and Resulting Deliveries to CLWA, applying the 2013 reliability report SWP Table A delivery percentages under future conditions to CLWA's Table A amount of 95,200 af, results in approximately 55,216 af under average year conditions, 10,472 af under single-dry year conditions, and 26,656 af (on average) under multiple-dry year conditions.

(2) Groundwater Supplies

(a) Santa Clara River Valley East Subbasin—Basin No. 4-4.07

The local groundwater basin, identified in DWR's Bulletin 118 as the Santa Clara River Valley East Subbasin (Basin No. 4-4.07), is comprised of two aquifer systems, the Alluvium (also referred to as the Alluvial aquifer) and Saugus Formation. The Alluvium generally underlies the Santa Clara River (River) and its tributaries. The Saugus Formation underlies practically the entire Upper Santa Clara River area.

The basin area encompasses about 654 square miles. The River and its tributaries flow intermittently within the basin area. The principal tributaries in the Santa Clarita Valley are Castaic Creek, San Francisquito Creek, Bouquet Creek, and the South Fork of the Santa Clara River. In addition to tributary inflow, the River receives treated wastewater discharge from the Saugus and VWC Water Reclamation Plants (WRP), which are operated by the Santa Clarita Valley Sanitation District of Los Angeles County (Valley Sanitation District).

Figure 5.21-2, Santa Clara River Valley East Subbasin, on page 5.21-34 illustrates the mapped extent of the basin and its relationship to the CLWA service area and the two existing WRPs in the Valley. The mapped basin boundary approximately coincides with the outer extent of the Alluvium and Saugus Formation. **Figure 5.21-3**, Upper Santa Clara River Hydrologic Area, on page 5.21-35 depicts the hydrologic area of the basin in relation to the Project.

Within an aquifer, the amount of groundwater in storage is the total volume of water that exists in underground storage at a particular time and that could become readily available for extraction by wells.[28] The Alluvium generally underlies the River and its tributary drainages to maximum depths of about 200 feet. The Alluvium and its tributary drainages have a total area of approximately 16,410 acres (or about 25.6 square miles).[29]

Groundwater within the Alluvium occurs under unconfined (water table) conditions. Therefore, the amount of groundwater in storage is constantly changing and is strongly

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[28] *Richard C. Slade & Associates LLC, 2001 Update Report, Hydrogeologic Conditions in the Alluvial and Saugus Formation Aquifer Systems, July 2002 (Slade 2002). Refer to **Appendix 5.21K** of this Draft EIR for the Slade 2002 report.*

[29] *Richard C. Slade, 1986, Hydrogeologic Investigation of Perennial Yield and Artificial Recharge Potential of the Alluvial Sediments in the Santa Clarita River Valley of Los Angeles County, California, December 1986 (Slade 1986). Refer to **Appendix 5.21L** of this Draft EIR for the Slade 1986 report.*

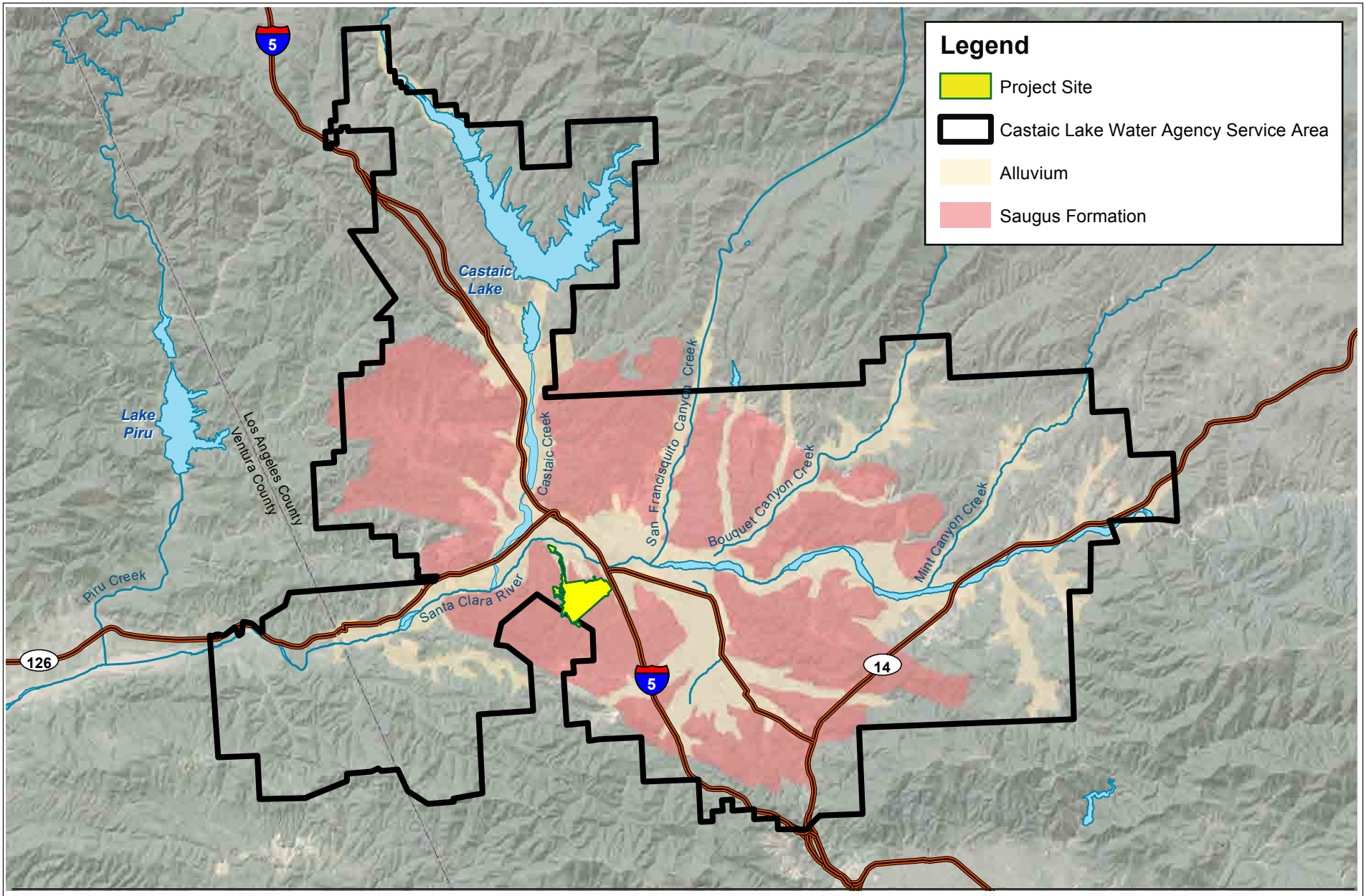

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Figure 5.21-2
Santa Clara River Valley East Subbasin

Source: Cardno ENTRIX, 2014.

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Figure 5.21-3
Upper Santa Clara River Hydrologic Area

Source: Cardno ENTRIX, 2014.

influenced by local rainfall and recharge (highly variable factors in southern California).[30] The amount of groundwater in storage within the Alluvium has varied considerably over the past approximate 60 to 70 years as the local climate has experienced periods of higher than average rainfall (wet years) and lower than average rainfall (dry years).[31]

For example, in April 1945, at the end of a 10 to 11 year period of above-average rainfall, groundwater elevations were at their highest recorded levels and the amount of groundwater in storage was calculated to be approximately 201,000 af.[32] Conversely, in November 1965, at the end of a severe 21-year dry period, groundwater levels in the Alluvium were at their lowest recorded levels and the amount of groundwater in storage in the Alluvium was calculated at approximately 107,000 af.[33] In the fall 1985, groundwater in storage was approximately 176,400 af.[34] Groundwater in storage within the Alluvium in spring 2000 (a period for which widespread water level data were available) was calculated at about 161,000 af.[35] The above data represents the best available information concerning the amount of groundwater in storage within the Alluvium.[36]

The Saugus Formation underlies a large portion of the Santa Clara River Valley area of Los Angeles County, to depths from approximately 1,500 feet to about 5,000 feet. The Saugus Formation's total surface area is approximately 37,390 acres (or about 58.42 square miles).[37] The amount of groundwater in storage within the Saugus Formation is approximately 1,650,000 af.[38]

Groundwater in both the Alluvium and Saugus Formation is recharged from several sources. The Alluvium is recharged chiefly by infiltration of runoff waters in the River and its tributaries, with additional natural recharge from percolation of rainfall to the Valley floor and subsurface inflow. Additional recharge is from percolation of excess irrigation water

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[30] *Slade 2002.*

[31] *Slade 2002.*

[32] *Slade 2002; Slade 1986, Table 8.*

[33] *Slade 2002; Slade 1986, Table 8.*

[34] *Slade 2002; Slade 1986, Table 8.*

[35] *Slade 2002; Table 4.4.*

[36] *California's Groundwater Bulletin 118, January 2006, Santa Clara River Valley Groundwater Basin, Santa Clara River Valley East Subbasin, www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/4-4.07.pdf, accessed March 10, 2015.*

[37] *Richard C. Slade, Hydrogeologic Assessment of the Saugus Formation in the Santa Clara Valley of Los Angeles County, California, 1988 (Slade 1988). Refer to* ***Appendix 5.21M*** *of this Draft EIR for the Slade 1988 report.*

[38] *Slade 2002.*

applied to urban landscaping and of reclaimed water discharged into the River from upstream water reclamation plants.

Recharge to the Saugus Formation is primarily from infiltration of rainfall on the exposed formation and percolation of water from the overlying Alluvium.[39] Discharge from the aquifer system is through pumping for municipal supply and agricultural irrigation purposes and outflow to the River in the western portion of the basin.[40]

Prior to 1980, local groundwater pumped from the Alluvium and 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, which were augmented in 2007 by CLWA's acquisition of additional imported water from the Buena Vista Water Storage District and Rosedale–Rio Bravo Water Storage District in Kern County. Since 2003, CLWA's imported water supplies have been augmented further by deliveries from CLWA's recycled water program.

(i) Groundwater Basin Yield

The groundwater basin's yield is based on the concept that pumping can vary from year-to-year within operational ranges that are based on long-term historic pumping records and groundwater modeling data. This operational yield allows for increased groundwater use in dry periods and increased recharge during locally wet periods, thereby collectively assuring that the basin is adequately replenished through various wet/dry cycles.

The reports supporting the basin yield were completed by Richard C. Slade, a consulting engineer with expertise in groundwater hydrology. In 2002, Slade completed the 2001 Update report,[41] which updated the analysis of the hydrogeologic conditions of the Alluvial and Saugus Formation aquifer systems from his earlier reports.[42] The 2001 Update report included the following findings relative to groundwater supply:

(a) Analysis of historical groundwater levels and production indicates that there have been no conditions that would be illustrative of groundwater overdraft;

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[39] *Slade 2002; California's Groundwater Bulletin 118, January 2006, Santa Clara River Valley Groundwater Basin, Santa Clara River Valley East Subbasin.*

[40] *Slade 2002; California's Groundwater Bulletin 118, January 2006, Santa Clara River Valley Groundwater Basin, Santa Clara River Valley East Subbasin.*

[41] *Slade 2002.*

[42] *Slade 1986 (Alluvium); Slade 1988 (Saugus Formation).*

(b) The 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 the fluctuating utilization of groundwater in conjunction with imported SWP water;

(c) The 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; and

(d) The 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.

CLWA and the four purveyors utilized the above data in completing the 2000 and 2005 versions of the Santa Clarita Valley UWMPs. Both UWMPs relied on the above data to formulate a cooperative "groundwater operating plan" for the basin, which is described in further detail below.

(ii) Groundwater Operating Plan

The groundwater component of overall water supply in the Santa Clarita Valley is derived from a groundwater operating plan developed by CLWA and the retail purveyors over the past 15 years to meet water demands (municipal, agricultural, and small domestic), while maintaining the basin in a sustainable condition (i.e., no long-term depletion of groundwater or interrelated surface water). As stated, the groundwater operating plan is based on the concept that pumping can vary from year-to-year to allow increased groundwater use in dry periods and increased recharge during wet periods. This assures that the groundwater basin is adequately replenished through various wet/dry cycles. The operating yield concept has been quantified as ranges of annual pumping volumes to capture year-to-year pumping fluctuations in response to both hydrologic conditions and customer demand.

Groundwater production under the groundwater operating plan is summarized in **Table 5.21-4**, Groundwater Operating Plan for the Santa Clarita Valley, on page 5.21-39. The plan addresses both the Alluvium and Saugus Formation.

The operating plan for the Alluvial aquifer involves pumping in a given year, based on local hydrologic conditions in the eastern Santa Clara River watershed. Pumping ranges between 30,000 and 40,000 afy during normal/average and above-normal rainfall years. However, due to hydrogeologic constraints in the eastern part of the basin, pumping

Table 5.21-4
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**

Source: 2009 Basin Yield Update, 2010 UWMP*, 2013 Santa Clarita Valley Water Report, June 2014.*

is reduced to between 30,000 and 35,000 afy after the first dry year and the multiple locally-dry years thereafter.

The operating plan for the Saugus Formation involves pumping in a given year and is tied directly to the availability of other water supplies, particularly from the SWP. During normal/average year conditions within the SWP system, Saugus pumping ranges between 7,500 and 15,000 afy. Planned dry-year pumping ranges between 15,000 and 25,000 afy during a drought year and can increase to between 21,000 and 25,000 afy if SWP deliveries are reduced for two consecutive years and between 21,000 and 35,000 afy if SWP deliveries are reduced for three consecutive years. Such pumping is 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 cause groundwater levels and storage volumes to recover after the higher pumping during dry years. For reference to the groundwater operating plan historical and projected groundwater pumping by retail water purveyor, please refer to **Table 5.21-5,** Historical Groundwater Production by the Retail Water Purveyors (Santa Clara River Valley East Subbasin), on page 5.21-40, and **Table 5.21-6**, Projected Groundwater Production (Normal Year), on page 5.21-41.

Table 5.21-5
Historical Groundwater Production by the Retail Water Purveyors (Santa Clara River Valley East Subbasin)

Basin	Groundwater Pumped[a] (af)										
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
CLWA Santa Clarita Water Division											
Alluvium	9,513	6,424	7,146	12,408	13,156	10,686	11,878	10,077	10,607	10,195	10,192
Saugus Formation	0	0	0	0	0	0	0	0	0	0	0
LA County Waterworks District #36											
Alluvium	0	0	380	343	0	0	0	0	0	0	0
Saugus Formation	0	0	0	0	0	0	0	0	0	0	794
Newhall County Water District											
Alluvium	981	1,266	1,582	1,389	2,149	1,806	1,717	1,860	2,323	3,216	2,631
Saugus Formation	3,395	2,513	3,739	3,435	3,423	3,691	4,195	3,868	4,173	4,389	4,081
Valencia Water Company											
Alluvium	11,603	11,707	9,862	12,228	11,884	13,140	14,324	12,459	13,054	12,775	12,770
Saugus Formation	965	1,068	1,962	2,513	2,449	2,367	1,770	2,836	2,995	265	302
Total	**26,457**	**22,978**	**24,671**	**32,316**	**33,061**	**31,690**	**33,884**	**31,100**	**33,152**	**30,840**	**30,770**
Alluvium	22,097	19,397	18,970	26,368	27,189	25,632	27,919	24,396	25,984	26,186	25,593
Saugus Formation	4,360	3,581	5,701	5,948	5,872	6,058	5,965	6,704	7,168	4,654	5,177
% of Total Municipal Water Supply	**39%**	**34%**	**34%**	**46%**	**45%**	**35%**	**45%**	**44%**	**52%**	**48%**	**44%**

[a] *Pumping for municipal and industrial uses only. Does not include pumping for agricultural and miscellaneous uses.*

Source: 2013 Santa Clarita Valley Water Report, June 2014.

Table 5.21-6
Projected Groundwater Production (Normal Year)

	Range of Groundwater Pumping[a,b,c] (af)							
Purveyor	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
LACWWD 36								
Alluvium	0	0	0	0	0	0	0	0
Saugus Formation	500	500	500	500	500	500	500	500
NCWD								
Alluvium	1,825	1,825	1,825	1,825	1,825	1,825	1,825	1,825
Saugus Formation	4,400	4,400	4,400	4,400	4,400	4,400	4,400	4,400
SCWD								
Alluvium	10,500	10,500	10,500	11,500	11,500	11,500	11,500	11,500
Saugus Formation	2,850	3,350	3,350	3,350	3,350	3,350	3,350	3,350
VWC								
Alluvium	11,675	12,675	13,675	14,675	15,675	16,675	17,675	18,675
Saugus Formation	2,850	3,350	3,350	3,350	3,350	3,350	3,350	3,350
Total Purveyor								
Alluvium	**24,000**	**25,000**	**26,000**	**28,000**	**29,000**	**30,000**	**31,000**	**32,000**
Saugus Formation	**10,600**	**11,600**	**11,600**	**11,600**	**11,600**	**11,600**	**11,600**	**11,600**
Agricultural and Other[d]								
Alluvium	14,500	13,500	12,500	10,100	9,100	8,100	7,100	6,600
Saugus Formation	900	900	900	900	900	900	900	900
Total Basin								
Alluvium	**38,500**	**38,500**	**38,500**	**38,100**	**38,100**	**38,100**	**38,100**	**38,600**
Saugus Formation	**11,500**	**12,500**	**12,500**	**12,500**	**12,500**	**12,500**	**12,500**	**12,500**

[a] *The range of groundwater production capability for each purveyor varies based on a number of factors, including each purveyor's capacity to produce groundwater, the location of its wells within the Alluvium and Saugus Formation, local hydrology, availability of imported water supplies, and water demands.*

[b] *To ensure sustainability, the purveyors have committed that the annual use of groundwater pumped collectively in any given year will not exceed the groundwater operating plan as described in the 2005 Basin Yield Report and the 2009 Basin Yield Update, and reported annually in the Santa Clarita Valley Water Reports. As noted in the discussion of the purveyors' operating plan for groundwater in Table 3-6 of the 2005 UWMP, the "normal" year quantities of groundwater pumped from the Alluvium and Saugus Formation are 30,000 to 40,000 afy and 7,500 to 15,000 afy, respectively.*

[c] *The distribution of pumping does not represent a formal allocation of water resources among the retail purveyors.*

[d] *Agricultural and other small private well pumping, including Newhall Land, Robinson Ranch Golf Course, Wayside Honor Rancho, Valencia Golf Course and proposed Palmer Golf Course.*

Source: 2010 UWMP.

(iii) Update to Groundwater Basin Yield

In 2004, CLWA and the purveyors assisted in developing a numerical groundwater flow model for use in analyzing the response of the groundwater basin to long-term operation at the operational yields used in the 2000 UWMP. That groundwater flow model was used in 2005 to analyze the sustainability of groundwater supplies in both the Alluvium and the Saugus Formation, utilizing a long-term (78 year) hydrologic period. The model used this period to examine groundwater basin response to variations in groundwater pumping. The pumping variations used in the modeling were based on the CLWA/purveyor groundwater operating plan.

CLWA and the purveyors acknowledge that the groundwater basin in the Valley is unadjudicated, meaning that none of the purveyors have adjudicated water rights that dictate their water supply. Absent cooperation and coordination between CLWA and the purveyors, a purveyor's available groundwater supply would be limited only by the purveyor's ability to access the groundwater supplies. Therefore, to ensure sustainability, CLWA and the purveyors have committed that the annual use of groundwater pumped collectively in any given year will not exceed that set forth in the CLWA/purveyor groundwater operating plan, described above.

Utilizing the pumping ranges reflected in the groundwater operating plan, the model projections of groundwater levels, groundwater storage, and surface water flows show 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 the 2005 Basin Yield Report, which included the following findings:

(a) The groundwater basin historically has been, and continues to be, in good operating condition (and not in a state of overdraft), based on the best available data.

(b) The CLWA/purveyor groundwater operating 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 aquifer system or the Santa Clara River.

(c) The CLWA/purveyor groundwater operating plan for the Alluvium and the Saugus Formation can be used for long-term water supply 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 stream

flow and that Saugus groundwater levels can be expected to recover to pre-drought conditions when pumping is reduced in subsequent wet to normal years.

(d) The strategy around which the CLWA/purveyor groundwater operating plan was designed is viable on a long-term basis (i.e., maximize the use of the Alluvial aquifer and imported water during years of average or above-average availability of these supplies, and limit use of the Saugus Formation during these periods, then temporarily increase Saugus pumping during years when SWP supplies are significantly reduced because of dry-year conditions).

(e) 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 CLWA/purveyor groundwater operating plan.

In April 2009, the purveyors in Santa Clarita Valley determined that an updated analysis was needed to further assess groundwater development potential and possible augmentation of the CLWA/purveyor groundwater operating plan, partly in preparation for the 2010 UWMP, and partly in response to uncertainties associated with future SWP delivery reliability. As a result, the *2009 Basin Yield Update* was completed.

The primary objective of the *2009 Basin Yield Update* was to evaluate the planned utilization of groundwater by the Santa Clarita Valley purveyors, while considering potential impacts on traditional supplemental water supplies from the SWP, and recognizing ongoing pumping by others for agricultural and other private water supply. This objective also included the sustainability of the groundwater resources and the physical ability to extract groundwater at desired rates. Another objective of the *2009 Basin Yield Update* was to investigate and describe potential impacts of expected climate change on the groundwater basin and its yield.

The *2009 Basin Yield Update* analyzed, with the numerical groundwater flow model, two groundwater operating plans: (a) 2008 Operating Plan to reflect currently envisioned pumping rates and distribution throughout the Valley, including fluctuations through wet/normal and dry years, to achieve a desired amount of water supply that, in combination with anticipated supplemental water supplies, can meet existing and projected water demands in the Valley; and (b) potential Operating Plan that envisions potentially increased utilization of groundwater during both wet/normal and dry years.

The *2009 Basin Yield Update* determined that the 2008 Operating Plan would not cause detrimental short- or long-term effects to the groundwater and surface water resources in the Valley; and, therefore, is sustainable. Consistent with actual operating

experience and empirical observations of historical basin response to groundwater pumping, the modeling analysis indicated that that 2008 Operating Plan would be expected to have local difficulty in achieving the amount of Alluvial pumping called for in the eastern end of the basin during locally dry periods. This condition is particularly evident if several decades of predominantly below-normal rainfall years were to occur in the future such as occurred during much of the five decades from the mid-1920s through the mid-1970s. In other words, while the basin as a whole can sustain the pumping encompassed in the 2008 Operating Plan, local conditions in the Alluvium in the eastern end of the basin can be expected to repeat historical groundwater level declines during dry periods, necessitating a reduction in desired Alluvial aquifer pumping due to decreased well yield and associated actual pumping capacity. The modeling analysis also indicated that reductions in pumping from the Alluvial aquifer can be made up by redistributing pumping in an equivalent amount in other parts of the basin without disrupting basin-wide sustainability or local pumping capacity. For the Saugus Formation, the modeling analysis indicated that the aquifer can sustain the pumping encompassed in the 2008 Operating Plan.

Model simulations were conducted to validate Alluvial aquifer pumping redistribution assumptions. Model simulations of the 2008 Operating Plan, with pumping redistribution, indicates that westerly redistribution of 1,600 afy of Alluvial pumping from the eastern end of the basin would help, but not eliminate, the desired pumping regime. The model simulation also showed that the residual unachievable pumping in the east end of the basin, about 4,500 afy, could be redistributed to other areas of the basin with minimal impact on groundwater levels. In this case, total Alluvial pumping in the basin could remain near the upper end of the 2008 Operating Plan range of 30,000 to 35,000 afy. Conversely, absent any additional efforts to redistribute pumping, the total Alluvial pumping capacity during extended dry periods would likely fall toward the lower end of the 2008 Operating Plan range (toward 30,000 afy).

(iv) Alluvium

Adequacy of Supply. As stated in the adopted UWMP, for municipal water supply, with existing wells and pumps, the three retail water purveyors with Alluvial wells (NCWD, SCWD, and VWC) have a combined pumping capacity from active wells of nearly 42,000 gallons per minute (gpm), which translates into a current full-time Alluvial source capacity of approximately 67,000 afy. Alluvial pumping capacity from all the active municipal supply wells is summarized in **Table 5.21-7,** Active Municipal Groundwater Source Capacity—Alluvial Aquifer Wells, on page 5.21-45. The locations of the municipal Alluvial wells throughout the basin are illustrated in **Figure 5.21-4**, Municipal Alluvial Wells Throughout the Basin, on page 5.21-47.

Table 5.21-7
Active Municipal Groundwater Source Capacity—Alluvial Aquifer Wells

Well	Pump Capacity (gpm)	Max Annual Capacity (af)	Normal Year Production[a] (af)	Dry Year Production[a] (af)
NCWD				
Castaic 1	650	1,040	350	250
Castaic 2	450	720	100	100
Castaic 4	270	430	100	0
Castaic 7	1,450	2,330	300	200
Pinetree 1	300	480	150	0
Pinetree 3	550	880	350	300
Pinetree 4	400	640	300	200
Pinetree 5	550	880	300	200
NCWD Subtotal	*4,620*	*7,400*	*1,950*	*1,250*
SCWD				
Clark	600	960	700	700
Guida	1,000	1,610	1,300	1,200
Honby	950	1,530	1,000	700
Lost Canyon 2	850	1,370	300	0
Lost Canyon 2A	825	1,330	300	0
Mitchell 5A	950	1,530	500	200
Mitchell 5B	700	1,120	800	300
N. Oaks Central	1,275	2,050	850	700
N. Oaks East	950	1,530	800	700
N. Oaks West	1,300	2,290	800	700
Sand Canyon	1,050	1,690	200	0
Santa Clara	1,500	2,420	1,200	1,200
Sierra	1,500	2,420	1,100	700
Valley Center	1,200	1,930	1,200	1,200
SCWD Subtotal	*14,650*	*23,580*	*11,050*	*8,300*
VWC				
Well D	1,050	1,690	880	880
Well E-15	1,400	2,250	800	800
Well N	1,250	2,010	650	650
Well N7	2,500	4,030	1,160	1,160
Well N8	2,500	4,030	1,160	1,160
Well Q2	1,200	1,930	1,100	1,100
Well S6	2,000	3,220	1,000	1,000
Well S7	2,000	3,220	500	500
Well S8	2,000	3,220	500	500

Table 5.21-7 (Continued)
Active Municipal Groundwater Source Capacity—Alluvial Aquifer Wells

Well	Pump Capacity (gpm)	Max Annual Capacity (af)	Normal Year Production[a] (af)	Dry Year Production[a] (af)
Well T7	1,200	1,930	750	750
Well U4	1,000	1,610	800	800
Well U6	1,250	2,010	800	800
Well W9	800	1,290	1,000	1,000
Well W10	1,500	2,420	800	800
Well W11	1,000	1,610	950	950
VWC Subtotal	*22,650*	*36,470*	*12,850*	*12,850*
Total Purveyors	**41,920**	**67,450**	**25,850**	**22,400**

[a] *Production amounts simulated in the 2009 Basin Yield Update.*
Source: 2010 UWMP.

In terms of adequacy and availability, the combined active Alluvial groundwater source capacity of municipal wells, approximately 67,000 afy, is more than sufficient to meet the current and potential future municipal, or urban, component of groundwater supply from the Alluvium, which in the near term is about 24,000 to 26,000 afy of the total planned Alluvial pumping of 30,000 to 40,000 afy. The higher individual and cumulative pumping capacities are primarily for operational reasons (i.e., to meet daily and other fluctuations from average day to maximum day and peak hour system demands). As noted above, the balance of Alluvial pumping in the groundwater operating plan is for agricultural and other non-municipal, including small private, pumping.

Sustainability. Depending on the period of available data, 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 30 years since importation of supplemental SWP water, or over the last 40 to 50 years (since the 1950s to 1960s), the Alluvium shows no chronic trend toward decreasing water levels and storage, and thus shows no symptoms of water level-related overdraft. Consequently, pumping from the Alluvium has been and continues to be sustainable, and well within the operational yield of that aquifer on a long-term average basis.

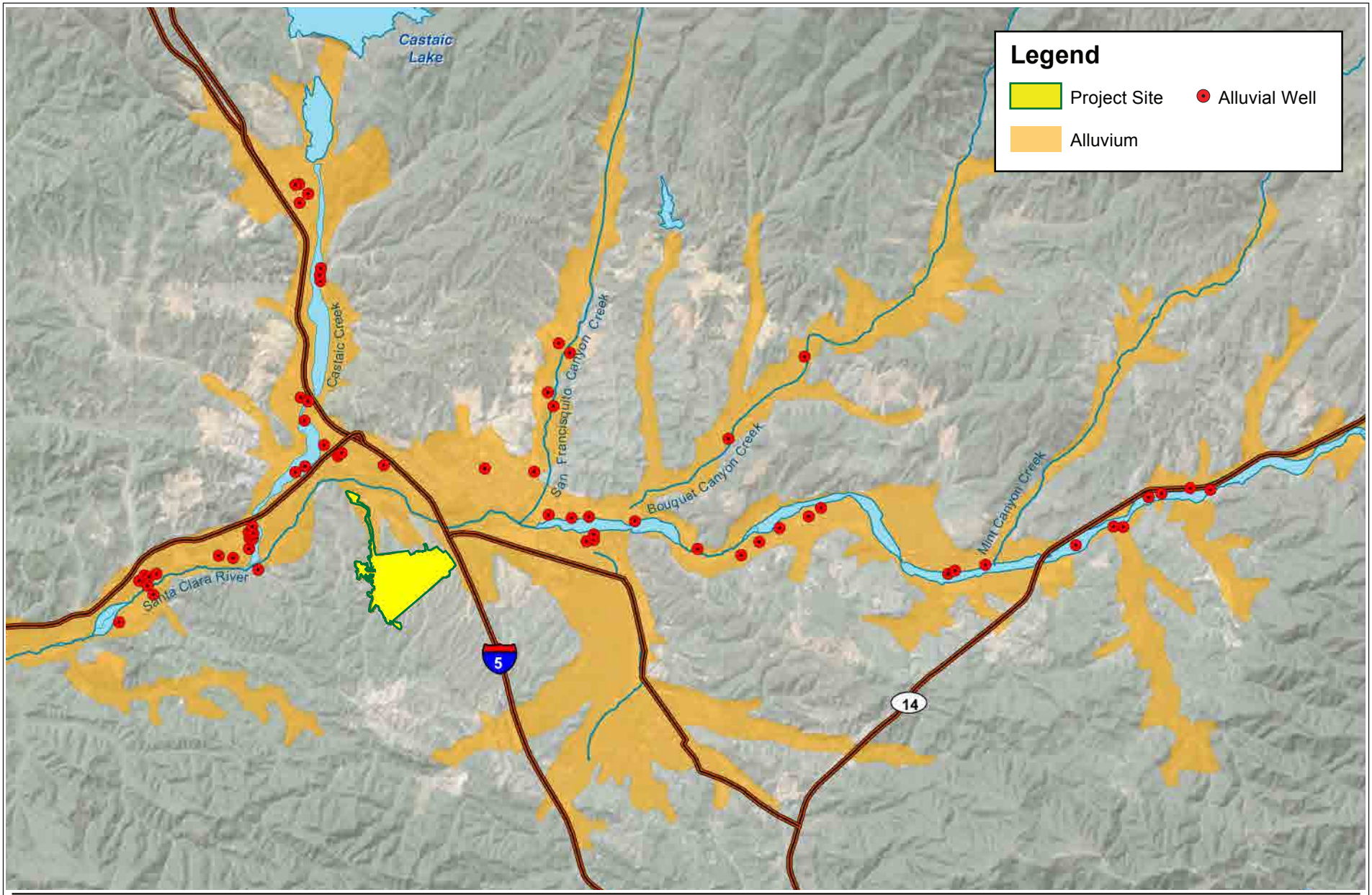

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Figure 5.21-4
Municipal Alluvial Wells Throughout the Basin

Source: Cardno ENTRIX, 2014.

(v) Saugus Formation

Adequacy of Supply. The three retail water purveyors with Saugus wells (NCWD, SCWD, and VWC) have a combined pumping capacity from active wells of nearly 17,000 gpm, which translates into a full-time Saugus source capacity of about 27,000 afy. Saugus pumping capacity from all the active municipal supply wells is summarized in **Table 5.21-8**, Municipal Groundwater Source Capacity—Saugus Formation Wells, on page 5.21-49. The locations of the active municipal Saugus wells are illustrated on **Figure 5.21-5**, Municipal Saugus Wells Throughout the Basin, on page 5.21-50. The capacities in **Table 5.21-8**, Municipal Groundwater Source Capacity—Saugus Formation Wells, include two Saugus wells contaminated by perchlorate (Saugus 1 and 2), which were recently returned to service with treatment facilities for use of the treated water for municipal supply under permit from the State Department of Public Health. The capacities also reflect the most recent replacement well, VWC's Well 207. Excluded from these capacities is VWC's Well 201, which was impacted by the detection of perchlorate in 2011. This well represents a total of 2,400 gpm of pumping capacity (for a dry-year production capacity of 3,777 afy). VWC has removed Well 201 from service, and continues to explore options to replace the capacity from Well 201.

In terms of adequacy and availability, the combined active Saugus groundwater source capacity of municipal wells of 27,000 afy is more than sufficient to meet the planned use of Saugus groundwater in normal years of 7,500 to 15,000 afy. This currently active capacity is more than sufficient to meet water demands, in combination with other sources.

To supplement near term dry-year supplies, VWC's Well 201 could readily be brought back into service by utilizing treatment technologies already used effectively in the Santa Clarita Valley. In 2005, VWC's Well Q2 was restored to service in October 2005, 6 months after perchlorate was detected in the well in April 2005. In addition, in 2005, there was no third-party funding initially available to pay for the cost of putting the well back into service; and VWC negotiated a separate agreement with the Whittaker-Bermite property owners to pay for the cost. However, in May 2007, the perchlorate litigation settlement agreement was executed, and it established a "Rapid Response Fund" to treat additional wells that could be become impacted by perchlorate.

When the capacity of VWC's Well 201 is restored or replaced, the Saugus Formation groundwater source capacity of municipal wells would be increased to 31,000 afy. To accommodate longer-term dry-year needs, additional Saugus wells are planned by 2020 and expected to have a combined capacity of 10,000 afy.

Table 5.21-8
Municipal Groundwater Source Capacity—Saugus Formation Wells

Well	Pump Capacity (gpm)	Max. Annual Capacity (af)	Normal Year Production[a] (af)	Dry Year Production[a] (af)
NCWD				
12	2,400	3,870	1,765	2,494
13	2,250	3,630	1,765	2,494
NCWD Subtotal	*4,650*	7,500	3,530	4,988
Valencia Water Company				
159	500	800	50	50
160	2,000	3,220	500	830
205	2,700	4,350	1,211	4,038
206	2,500	4,030	1,175	3,500
207	2,500	4,030	1,175	3,500
VWC Subtotal	10,200	16,430	4,111	11,918
SCWD				
Saugus 1	1,100	1,770	1,772	1,772
Saugus 2	1,100	1,770	1,772	1,772
SCWD Subtotal	2,200	3,540	3,544	3,544
Total Purveyors	**17,050**	**27,470**	**11,185**	**20,450**

[a] *Production amounts simulated in the 2009 Basin Yield Update.*
Source: 2010 UWMP.

Sustainability. The overall groundwater operating plan (see **Table 5.21-4,** Groundwater Operating Plan for the Santa Clarita Valley) and specific distribution of Saugus pumping (see **Table 5.21-8**, Municipal Groundwater Source Capacity—Saugus Formation Wells) were found to produce sustainable Saugus groundwater conditions based on the following: (a) long-term stability of groundwater levels, with no sustained declines; (b) groundwater levels slightly below historic Saugus levels, in response to greater long-term utilization of the Saugus; and (c) maintenance of sufficiently high Saugus groundwater levels to ensure achievement of planned individual pumping capacities (see **Table 5.21-8**, Municipal Groundwater Source Capacity—Saugus Formation Wells). Thus, the groundwater operating plan for the Saugus, with fairly low pumping in wet/normal years and increased pumping through dry periods, reflects sustainable groundwater supply rates.

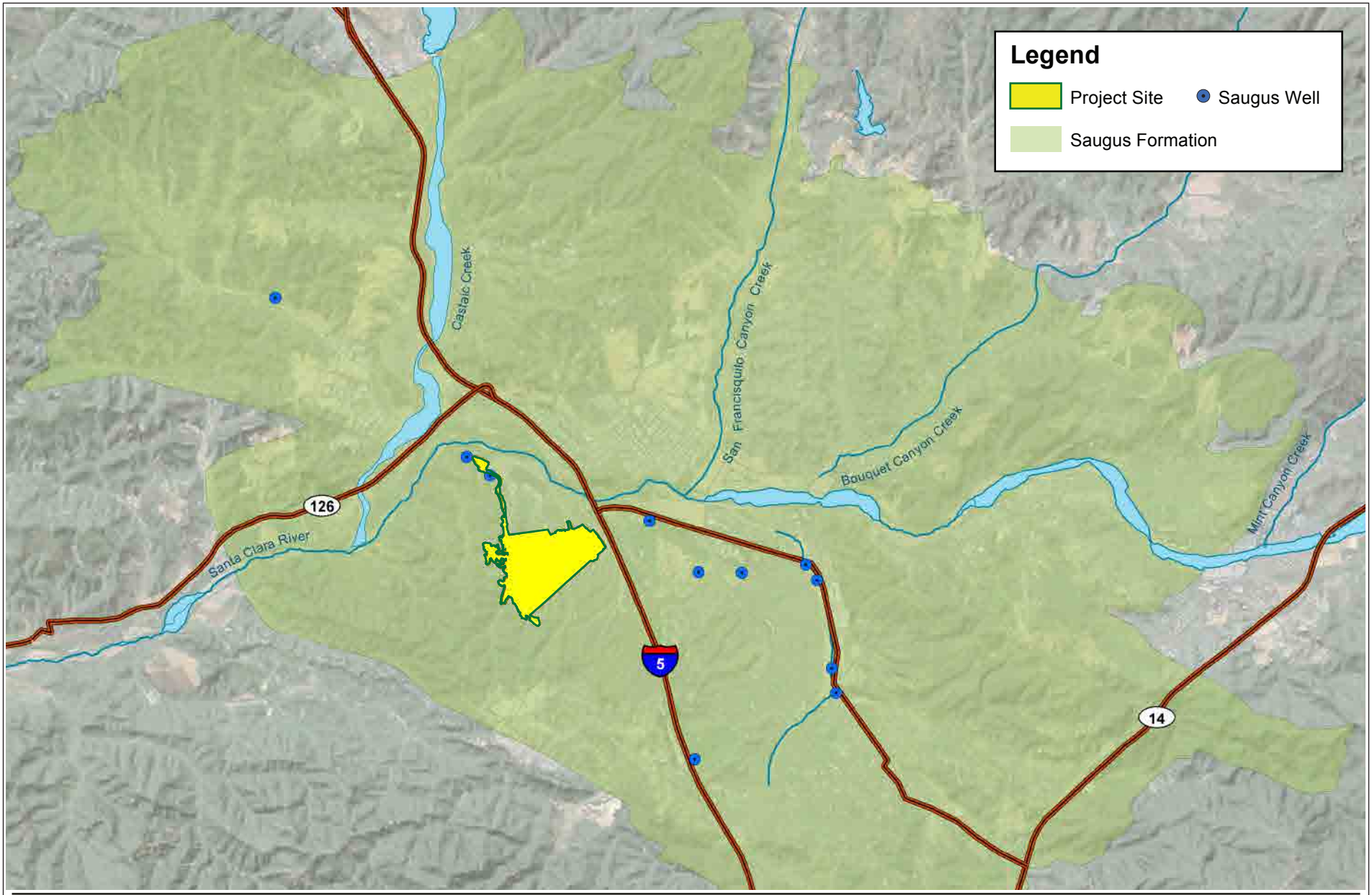

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Figure 5.21-5
Municipal Saugus Wells Throughout the Basin

Source: Cardno ENTRIX, 2014.

(vi) Groundwater Banking Programs

For the Santa Clarita Valley, groundwater banking programs involve storing available SWP and other imported water supplies during wet years in groundwater basins.

Water would be stored directly by surface spreading or injection, or indirectly by supplying surface water to farmers for their use in lieu of their intended groundwater pumping. During water shortages, the stored water could be pumped out and conveyed through the California Aqueduct to CLWA as the banking partner, or used by the farmers in exchange for their surface water allocations, which would be delivered to CLWA as the banking partner through the California Aqueduct.

CLWA has entered into four groundwater banking and water exchange programs with, in aggregate, more than 150,000 af of recoverable water outside the local groundwater basin. The first component of CLWA's groundwater banking program is the result of two agreements between CLWA and Semitropic Water Storage District whereby CLWA can withdraw up to 45,920 af of SWP Table A water that it stored in Semitropic to meet Santa Clarita Valley demands when needed in dry years (45,920 af is the net recoverable balance after originally banking 24,000 af in 2002 and 32,522 af in 2003, and withdrawing 4,950 af in 2009 for delivery in 2009 and 2010). In April 2011, Semitropic and CLWA extended the original agreements by 10 years to 2022/2024.

The second component of CLWA's groundwater banking program is with the Rosedale–Rio Bravo Water Storage District (RRBWSD) in Kern County. This program, the RRBWSD Water Banking and Exchange Program, has a recoverable total of 94,271 af in storage (including 1,006 af delivered in 2011, less contractual losses).

The third and fourth components of CLWA's groundwater program are the two-for-one banking plans that CLWA initiated with RRBWSD and West Kern Water District in 2011 that now have a total of 9,973 af of recoverable water.

These groundwater banking programs allow CLWA to firm-up the imported water component in the Valley by storing surplus SWP and other water, in wet years, in groundwater basins outside the Valley. This allows recovery and importation of that water as needed in dry years to maintain a greater overall amount of imported 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) Other Imported Supplies

Historically comprised of only SWP Table A Amount, CLWA's imported water supplies now consist of a combination of SWP water and imported water acquired from Kern County. This diversity in supply helps CLWA respond to dry year conditions through water banking programs where imported water could be stored or exchanged during wet years and withdrawn in dry years.

Water supplies (whether derived from local or imported water supplies) require treatment (filtration and disinfection) prior to distribution. 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 USEPA and the California Department of Public Health. In 2011, CLWA completed the expansion of the Rio Vista Treatment Plant from 30 mgd treatment capacity to 66 mgd. Eventually, its capacity is planned to be increased to 90 mgd as demands for treated water increase. Earl Schmidt Plant operates at a treatment capacity of 56 mgd. The current combined capacity of the two treatment plants is 122 mgd.

The following supplies are available to CLWA and the retail purveyors.

(a) Flexible Storage Account

As part of its water supply contract with DWR, CLWA has access to 4,684 af of the storage capacity within Castaic Lake. Any of this amount that CLWA borrows must be replaced by CLWA within 5 years of its withdrawal. CLWA manages this storage by keeping the account full in normal and wet years and then delivering that stored amount (or a portion of it) during dry periods. The account is refilled during the next year that adequate SWP supplies are available to CLWA to do so. In 2005, CLWA negotiated with Ventura County SWP contractor agencies to obtain the use of their Flexible Storage Account. This allows CLWA access to another 1,376 af of storage in Castaic Lake. CLWA access to this additional storage is available on a year-to-year basis through 2015. While it is expected that CLWA and Ventura County will extend the existing flexible storage agreement beyond the 2015 term, it is not assumed to be available beyond 2015 in the 2010 UWMP.

(b) Buena Vista/Rosedale–Rio Bravo Water Acquisition Project

In early 2007, CLWA finalized a Water Acquisition Agreement with the Buena Vista Water Storage District (Buena Vista) and 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. CLWA will receive 11,000 afy of these supplies (in all water

year types) either through direct delivery of water to the California Aqueduct via the Cross Valley Canal or by exchange of Buena Vista's and Rosedale–Rio Bravo's SWP supplies. CLWA began taking delivery of this supply in 2007. All imported water is delivered through SWP facilities to Castaic Lake. Then, from Castaic Lake, the water is treated at either CLWA's Earl Schmidt Filtration Plant or Rio Vista Water Treatment Plant and delivered to the retail water purveyors through transmission lines owned and operated by CLWA.

(c) Nickel Water

The Newhall Land and Farming Company has secured 1,607 af of water under contract with Nickel Family LLC in Kern County. The source is 100 percent reliable on a year-to-year basis, and not subject to the annual fluctuations that can occur to the SWP during dry-year conditions. The Nickel water is part of a 10,000 acre-foot quantity of annual water supply that Nickel obtained from Kern County Water Agency (KCWA) in 2001 pursuant to an agreement between Nickel, KCWA, and Olcese Water District (Olcese). Under that agreement, Nickel has the right to sell the 10,000 afy to third parties both within or outside Kern County. The water would be delivered through the KCWA and the SWP system. A point of delivery agreement between CLWA and DWR would be required to transmit the water between the KCWA and CLWA service areas. CLWA added this supply to the 2010 UWMP updated water supply/demand tables to reflect current information. The 2010 UWMP anticipated that this water supply will be available to VWC.

(d) Yuba Accord Agreement

As stated in the 2013 Santa Clarita Valley Water Report (June 2014), in 2008, CLWA entered into the Yuba Accord Agreement, which allows for the purchase of water from the Yuba County Water Agency through DWR to 21 SWP contractors (including CLWA) and the San Luis and Delta-Mendota Water Authority. Up to 850 af of non-SWP supply is available to CLWA in critically dry years. Under certain hydrologic conditions, additional water may be available to CLWA from this program. CLWA elected not to purchase any water from this source in 2012.

(e) Two-for-One Exchange Programs

In 2011, CLWA executed a two-for-one water exchange program with Rosedale–Rio Bravo where CLWA can recover 1 af of water for each 2 af delivered (less losses) as part of CLWA's dry year water supply reliability program. In 2011, CLWA delivered 15,602 af to the program and in 2012, delivered another 3,969 af. After program losses, CLWA has 9,509 af of recoverable water available during dry years. This program is at capacity.

CLWA also opened a two-for-one water exchange program with the West Kern Water District in Kern County and delivered 5,000 af in 2011, resulting in a recoverable

total of 2,500 af. No water was withdrawn from or contributed to the exchange programs in 2013. These programs were not in place at the time the 2010 UWMP was adopted; and, therefore, are not reflected in the analysis of available supplies in that document. They provide additional water that is available for use in the CLWA service area, however, and increase the overall reliability of CLWA's supplies.

(4) Recycled Water

Since 2003, existing local supplies have been augmented by the initiation of recycled water deliveries from CLWA's recycled water program. CLWA currently has a contract with the Valley Sanitation District for 1,700 afy of recycled water. Recycled water is available from two WRPs operated by the Valley Sanitation District. This supply is available in an average/normal year, a single-dry year, and in each year of a multiple-dry year period.

(a) Recycled Water Master Plan

The two existing WRPs in the Valley that provide recycled water to the CLWA (Saugus WRP and Valencia WRP) are situated within the CLWA service area.

The Saugus WRP has a current treatment capacity of 6.5 mgd (7,280 afy), and no future expansion is possible due to space limitations. The Valencia WRP has a current capacity of 21.6 mgd (24,192 afy). To accommodate long-term growth, the Valley Sanitation District has planned a 6 mgd expansion of the Valencia WRP as reflected in the Valley Sanitation District's 2015 Santa Clarita Valley Joint Sewerage System Facilities Plan and certified EIR. With this expansion, the capacity of the Valencia WRP would be increased to 27.6 mgd (30,912 afy), which the Valley Sanitation District expects to be needed by 2035. Thus, the total planned treatment capacity for both existing WRPs is 34.1 mgd (38,197 afy).

These existing, local treated wastewater resources can be reused in the form of recycled water. Recycled water enhances reliability by providing an additional source of supply and allows for more efficient use of CLWA's groundwater and imported water supplies.

In 2002, CLWA completed an updated Draft Recycled Water Master Plan. Overall, CLWA's 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 2010 UWMP, plus the addition of approximately 5,400 afy of recycled water

from the Newhall Ranch Specific Plan area, for a total of 22,800 afy.[43] Implementation of CLWA's recycled water plan is expected to occur over the next 40 years.

In summary, CLWA previously completed Phase I of its Recycled Water Master Plan, and this initial phase will ultimately deliver 1,700 afy of recycled water. Deliveries of recycled water began in 2003 for irrigation water supply at a golf course and in roadway median strips. In 2011, recycled water deliveries were 373 af, generally consistent with recycled water deliveries that have ranged between about 300 and nearly 500 afy over the past nine years.

In addition, CLWA and the retail purveyors are preparing the design of the second phase of the Recycled Water Master Plan that will take water from the Saugus WRP and distribute it to identified users to the north, across the Santa Clara River and then to the west and the east, which will include service to Santa Clarita Central Park. The environmental documentation for this phase was completed in July 2011. This phase will have a design capacity to increase recycled water deliveries by about 500 afy.[44]

There is also a new phase of the recycled water system in design that would extend the existing system southward from the intersection of Valencia Boulevard and The Old Road, south along Rockwell Canyon Road to the intersection of Orchard Village Road and Lyons Avenue, serving irrigation customers along its proposed alignment. Collectively, these phases will have design capacity to increase recycled water deliveries by about 1,500 afy.

As stated in the 2010 UWMP, CLWA's recycled water program, along with the Newhall Ranch development, is expected to ultimately recycle up to 22,800 af of treated (tertiary) wastewater suitable for reuse on golf courses, landscaping, and other non-potable uses.

Based on the Recycled Plan, reuse of the tertiary treated water from the two existing WRPs is anticipated at 15.5 mgd (17,400 afy) by year 2030. (There are no near-term benchmarks.) Because the 2010 UWMP extends to calendar year 2050, supplies in the Recycled Water Master Plan projected to be available by year 2030 have been assumed to be available through 2050.

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[43] 2010 UWMP*, Section 4.6.*

[44] *2013 Santa Clarita Valley Water Report, Section 3.6, June 2014, http://santaclaritawater.com/wp-content/uploads/2012/01/2013-Water-Report-Web.pdf, accessed March 10, 2015.*

(b) Recycled Water Supply and Demand

The use of wastewater effluent is limited by various state water laws, codes, and court decisions. These regulatory limitations are described in greater detail in CLWA's Recycled Water Master Plan.[45]

CLWA is currently approved to use 1,700 afy of recycled water. The total potential annual recycled water demand identified in the Recycled Water Master Plan that is cost effective to serve is approximately 22,800 afy. Of this total, 21,300 afy is projected use by purveyor customers. Implementation of the recycled water system is expected to occur over the next 40 years, after taking into account cost considerations.[46]

e. Water Quality

Existing water quality conditions for urban water uses in the CLWA service area are documented in annual Santa Clarita Valley Water Quality Reports (also referred to as Consumer Confidence Reports). An annual Water Quality Report is provided prior to July 1 to all Valley residents who receive water from one of the four local retail water purveyors in the CLWA service area. Each report includes detailed information about water quality testing results for the groundwater and treated SWP water supplied to the Valley residents. Water quality regulations are constantly changing as contaminants that are typically not found in drinking water are discovered and new standards are adopted. In addition, existing water quality standards are becoming more stringent in terms of allowable levels of pollutants in drinking water.

All groundwater produced by the retail water purveyors in the Valley meets or exceeds stringent drinking water quality regulations set by the USEPA and Department of Public Health, with the continuing oversight of the California Public Utilities Commission (CPUC). In addition, the quality of water supplies in the Santa Clarita Valley meets or exceeds all drinking water quality standards. The *Santa Clarita Valley 2013 Water Quality Report* contains detailed results of the most recently available water quality tests performed by CLWA and the purveyors.

CLWA receives and treats water from the SWP and other imported sources and sells the water (wholesale) to the four local retail purveyors. The purveyors combine local groundwater with treated imported water from CLWA for delivery to their customers.

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[45] *The* 2010 UWMP *also includes further information regarding the Recycled Water Master Plan, including its implementation plan (see Section 4, Recycled Water).*

[46] 2010 UWMP*, Section 4.6*

(LACWWD 36 currently exclusively takes imported water from CLWA, but anticipates bringing a groundwater well into production soon.) The quality of water received by individual customers varies depending on whether they receive imported water, groundwater, or a blend, which can vary over time.

(1) Groundwater Quality

As previously discussed, the local groundwater basin has two sources of groundwater, the Alluvial aquifer, the quality of which is primarily influenced by rainfall and stream flow, and the Saugus Formation, which is a much deeper aquifer and recharged primarily by rainfall and deep percolation from the partially overlying Alluvium.

Local groundwater does not have microbial water quality problems. Parasites, bacteria, and viruses are filtered out as the water percolates through the soil, sand, and rock on its way to the aquifer. Even so, to protect public health, disinfectants are added to local groundwater when it is pumped. Local groundwater has very little total organic carbon and generally has very low concentrations of bromide, minimizing potential for disinfection to produce by-products. Taste and odor problems from algae do not occur with groundwater. The mineral content of local groundwater is very different from SWP water. The groundwater is “hard” (has high mineral content) as it has high concentrations of calcium and magnesium (approximately 250 to 600 milligrams per liter (mg/L) total hardness as calcium carbonate, $CaCO_3$). Groundwater may contain higher concentrations of nitrates and chlorides when compared to SWP water. However, the groundwater of the Alluvial aquifer and Saugus Formation consistently meets drinking water standards set by USEPA and the California Department of Public Health.

(a) Alluvium/Saugus Formation

Groundwater quality is a key factor in assessing the Alluvium 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 Santa Clarita Valley Water Reports and in the 2010 UWMP. In summary, water quality in the Alluvium exhibits no long-term overall trends, most notably, no decline in Alluvial groundwater quality that exceeds historical conditions. Periodic fluctuations have occurred in some parts of the basin. 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.

Groundwater quality is also a key factor in assessing the Saugus Formation as a municipal and agricultural water supply. Based on individual well records, water quality in

the Saugus Formation has not historically exhibited the precipitation-related fluctuations seen in the Alluvium. Dissolved mineral concentrations in the Saugus Formation remain below the secondary (aesthetic) upper MCL. Groundwater quality within the Saugus will continue to be monitored to ensure that degradation to the long-term viability of the Saugus as a component of overall water supply does not occur.

(i) Perchlorate

Perchlorate is a regulated drinking water contaminant in California, with a Maximum Contaminant Level (MCL) of 6 micrograms per liter (µg/L). Perchlorate has been a water quality concern in the Santa Clarita Valley since 1997, when tests on a number of municipal water wells owned by CLWA's SCWD, NCWD, and VWC, located near the former Whittaker-Bermite facility, detected perchlorate in four of the purveyors' deep Saugus Formation municipal wells: NCWD-11, SCWD Saugus 1, SCWD Saugus 2, and VWC-157. These four wells were removed from active service, and NCWD-11 and VWC-157 have not been used for drinking water supplies since 1997. (As explained further below, the Saugus 1 and 2 wells were placed back in water supply service in January 2011.)

In November 2002, perchlorate was detected in a fifth municipal well; in this case, a shallow Alluvial aquifer well—SCWD Stadium—also located near the former Whittaker-Bermite site. In April 2005, perchlorate was detected in another shallow Alluvial supply well—VWC Q2. In 2006, perchlorate was detected in low concentrations in another Saugus well (NCWD's Well NC-13), near one of the originally impacted Saugus wells. In August 2010, perchlorate was detected at levels below the MCL further downgradient in an eighth well in the Saugus Formation, VWC's Well 201. The source of the perchlorate is believed to be the former Whittaker-Bermite site, given the proximity of the six impacted wells to the site, the fact that both groundwater and surface water flows from the site to the six wells, and the fact that the site is believed to have utilized perchlorate in its manufacturing operations.

(ii) Litigation and Settlement Agreements

In November 2000, CLWA, NCWD, SCWD, and VWC (Plaintiffs) filed a complaint in federal court against past owner Whittaker, and current owners Santa Clarita LLC (SCLLC) and Remediation Financial, Inc. (RFI) (collectively, Defendants), asserting that perchlorate released from the Whittaker-Bermite site contaminated some of Plaintiffs' water production wells. In July 2003, the federal court found that Defendants were liable for response costs

under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).[47]

In September 2003, the parties entered into an interim settlement agreement that stayed litigation to allow the parties to, among other things, develop an engineering solution to contain and abate the groundwater contamination and negotiate a final settlement agreement. As a condition for staying litigation activities, Defendants were required to reimburse CLWA for past monitoring and investigation costs and fund the development of the engineering solution. While the parties developed a groundwater abatement/ containment plan, they were unable to reach a final settlement agreement. The interim settlement agreement expired on January 31, 2005.

In July 2004, Defendants SCLLC and RFI filed a petition for chapter 11 bankruptcy protection and the pending litigation was halted under automatic stay bankruptcy provisions. The bankruptcy filing complicated settlement negotiations because any proposed settlement offer that involved SCLLC and RFI insurance proceeds—a substantial and important source of settlement funds—required bankruptcy court approval. After several rounds of negotiation, on April 19, 2005, Plaintiffs and Defendants reached an agreement in principle on damages that was subject to Defendants reaching a settlement funding agreement with their insurance carriers.

During the settlement process, VWC informed Defendants of the perchlorate contamination found in VWC's Well Q2. Whittaker agreed to provide $500,000 for the installation of a wellhead treatment unit. All capital as well as operating and maintenance costs for this treatment unit were funded by insurance companies representing the current and past owners of the property. Utilizing these funds, VWC installed a perchlorate removal system utilizing ion exchange technology. Six months after the initial detection of perchlorate, Well Q2 was returned to active service (on October 12, 2005). Subsequently in October 2007, DPH approved VWC's request to remove the treatment system as a result of two years of continuous operation without detection of perchlorate. Currently, Well Q2 remains in operation without any requirement for wellhead treatment.

In May 2007, CLWA and the purveyors announced a settlement of their lawsuit. CLWA and the purveyors estimate this settlement provides up to $100 million to be used for remediation. The underlying litigation was dismissed in August 2007.[48]

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[47] *Castaic Lake Water Agency v. Whittaker Corporation, 272 F.Supp.2d 1053 (Cal. C.D. 2003).*

[48] *Please refer to the following documents for further information: (a) Castaic Lake Water Agency Litigation Settlement Agreement (CLWA 2007); (b) Order Granting Joint Motion for Court Approval, Good Faith*
(Footnote continued on next page)

The Settlement Agreement provides funding to construct replacement wells, pipelines, and a treatment plant to remove perchlorate. The Settlement Agreement also provides funds to operate and maintain the treatment system for up to 30 years, which is estimated to cost as much as $50 million over the life of the project. The treatment plant has been designed by CLWA and the Settlement Agreement provides $1.7 million to reimburse CLWA for past expenditures. In addition, a $10 million "rapid response fund" will be established to allow the purveyors to treat wells that could become impacted by perchlorate contamination in the future. VWC received a total of $3.5 million under the Settlement Agreement, which included $2.5 million for past environmental claims and $1 million to close and abandon Well V-157 and drill replacement Well V-206.

Following the settlement, VWC and the other purveyors entered into two MOUs. These MOUs were necessary to implement the various obligations under the Settlement Agreement. The first MOU sets forth the rights among the purveyors to receive payments pursuant to the Settlement Agreement and clarifies project administration, which includes such things as project modification, future perchlorate detections, monitoring, payment of ongoing legal fees, dispute resolution, and other provisions described in the Settlement Agreement. The second MOU sets forth the operational plan and financial arrangements to deliver certain quantities of groundwater from the perchlorate treatment system and a future replacement well field that in total, would restore the water supply capacity impacted by perchlorate to SCWD and NCWD.

(iii) Impacted Well Capacity

The detection of perchlorate in Santa Clarita Valley groundwater supplies has raised concerns over the reliability of those supplies; in particular, the Saugus Formation where six wells have been impacted as a result of perchlorate. Planning and implementation of perchlorate remediation, and restoration of impacted well capacity, have been substantially completed. While work continues, non-impacted production facilities and new or restored wells can be relied upon for the quantities of water projected to be available from the Alluvial aquifer and Saugus Formation. CLWA, the retail water purveyors, California Department of Toxic Substances Control (DTSC), and the U.S. Army Corps of Engineers (Corps) continue to work closely on perchlorate remediation to reasonably ensure a prompt response to any significant changes in conditions.

The small group of wells that have been impacted by perchlorate represented a temporary loss of well capacity within the CLWA service area. Of the eight wells where

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Settlement Determination and Entry of Consent Order July 16, 2007; and (c) Stipulation to Dismiss Plaintiffs' Claims and Defendants' Counterclaim, August 20, 2007.

perchlorate has been detected, only one well is currently out of service and the other seven have been either treated and returned to service or have been replaced by new wells. **Table 5.21-9**, Status of Perchlorate Impacted Wells, on page 5.21-62 shows the status of all eight wells. CLWA and the purveyors developed an implementation plan to restore this well capacity. The plan includes the CLWA groundwater containment, treatment, and restoration project to prevent further downstream migration of perchlorate, the treatment of water extracted as part of that containment process, and the recovery of lost local groundwater production from the Saugus Formation.

As of October 2013, all Alluvial municipal supply wells continue to be in active supply service; all wells are sampled in accordance with drinking water regulations; and perchlorate has not been detected. Similarly, as of October 2013, all Saugus Formation municipal supply wells are in active service (except VWC Well 201, which is expected to be restored to water supply service in 2015). Those wells also are regularly sampled in accordance with drinking water regulations, and perchlorate has not been detected.

Table 5.21-9
Status of Perchlorate Impacted Wells

Year Detected	Purveyor Well	Groundwater Aquifer	Action Taken	Status
1997	SCWD Saugus 1	Saugus	DPH approved return of well to service in January 2011; well in active service utilizing approved perchlorate treatment in compliance with the requirements of CLWA's amended water-supply permit.	In Service
1997	SCWD Saugus 2	Saugus	DPH approved return of well to service in January 2011; well in active service utilizing approved perchlorate treatment in compliance with the requirements of CLWA's amended water-supply permit.	In Service
1997	VWC Well 157	Saugus	Sealed and capacity replaced by new well.	Replaced
1997	NCWD Well 11	Saugus	Out of service, but a portion of its capacity has been replaced by a combination of imported water from CLWA and treated water from CLWA's Saugus Perchlorate Treatment Facility through a SWP turn-out.	Replaced
2002	SCWD Stadium Well	Alluvium	Sealed and capacity replaced by new well.	Replaced
2005	VWC Well Q2	Alluvium	Taken out of active water supply service, and wellhead treatment approved by DPH and installed to remove perchlorate. After 2 years of operation with no perchlorate detection, DPH approved removal of wellhead treatment in 2007; well remains in active service with no perchlorate detection.	In Service
2006	NCWD Well NC-13	Saugus	DPH approved annual monitoring; results always have been below the detection limit for reporting; well remains in service.	In Service
2010	VWC Well 201	Saugus	Well 201 is currently out of service pending additional monitoring and evaluation of remediation alternatives. Well capacity is not included in active groundwater sources delineated in Table 3-9 of the 2010 UWMP. VWC plans to seek remediation under the Settlement Agreement and either restore the impacted well capacity through wellhead treatment or replace the capacity with a new well.	Out of Service

Source: 2013 Santa Clarita Valley Water Report, June 2014.

(iv) Environmental Oversight Agreement/Saugus Perchlorate Treatment Facility

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 prepared a work plan for sampling the production wells, a report on the results and findings of the production well sampling, a draft Human Health Risk Assessment, a draft Remedial Action Workplan, an evaluation of treatment technologies and an analysis showing the integrated effectiveness of a project to restore impacted pumping capacity, extract perchlorate-impacted groundwater from two Saugus wells for treatment, and control the migration of perchlorate in the Saugus Formation.

The Final Interim Remedial Action Plan for containment and extraction of perchlorate was completed and approved by DTSC in January 2006. Design and construction of the treatment facilities and pipelines to implement the pump and treat program and to also restore inactivated municipal well capacity was completed in May 2010. Water from Saugus 1 and Saugus 2 was initially treated and discharged into the Santa Clara River. DPH issued an amendment to CLWA's operating permit in December 2010, and the wells were placed back in water supply service on January 25, 2011. The cost of the system is covered under the 2007 Settlement Agreement, which protects the public from paying for the remediation costs.

As part of the operation of CLWA's Saugus Perchlorate Treatment Facility, numerous monitoring tests are performed on a continuous basis to ensure the safety of the treated water leaving the new facility. Perchlorate samples are collected semi-weekly at several locations, including at the Saugus 1 and Saugus 2 wells, which have been restored to service. With this additional production at Saugus 1 and 2, the purveyors continue to have sufficient pumping capacity to meet the planned normal range of Saugus pumping as described in the 2010 UWMP. Restoration of VWC's Well 201 to water supply service by 2015 also will increase available production capacity from the Saugus Formation.

Under the direction of DTSC, Whittaker has submitted a comprehensive site-wide remediation plan for the contaminants of concern in soil and groundwater detected on the property. In 2008, DTSC approved the work plan for "Pilot Remediation of Saugus Aquifer Containment and Remediation," and the first phase of the work plan was completed in 2013.

In summary, work continues on multiple tasks to address groundwater contaminated by perchlorate stemming from past manufacturing activities on the former Whittaker-

Bermite site. CLWA and the local retail purveyors have restored or replaced the production capacity of the perchlorate-impacted supply wells (except for VWC Well 201, which is expected to be returned to water service in 2015), and they continue to work on the objectives of containing the downgradient migration of perchlorate.

The basin groundwater model estimated that perchlorate-contaminated groundwater would be contained and captured by pumping Saugus 1 and 2. Ultimately, however, the "pump and treat" program was delayed for about six years until it was finally operational in December 2010. The delays are attributable to the combination of litigation, settlement, permitting, and construction, which deferred actual implementation of the containment program. That time, combined with the preceding seven years since perchlorate first impacted water supply wells, resulted in a greater risk of downgradient migration of perchlorate in the Saugus Formation, which is interpreted to be the primary reason for the recent detection of perchlorate in VWC Well 201. Had the treatment program been implemented sooner, additional contamination might have been avoided. In any event, the possibility of additional contamination was addressed in the Settlement Agreement. It includes provisions for providing treatment to wells that are impacted by perchlorate not contained or captured by the original containment program.

(v) Treatment Technology

Effective technologies exist to treat perchlorate in water in order to meet drinking water standards. Single-pass ion exchange is the most common treatment method for perchlorate removal because it has been proven at full-scale to be simple and relatively low cost. For the Saugus Formation, CLWA and the purveyors, in cooperation with a technical group, selected the single-pass ion exchange treatment technology because it does not generate a concentrated perchlorate waste stream that would require additional treatment before discharge to a sanitary sewer or a brine line (if one is available). This technology is robust and reliable for use in drinking water systems. The DPH has approved operation of the perchlorate treatment plants currently in operation at the eleven southern California locations, including VWC, ranging up to 10,000 gpm.

Based on: (a) the results of CLWA's investigation of perchlorate removal technologies; (b) the technical group's evaluation; and (c) DPH approval of single-pass ion exchange for treatment in other settings, CLWA and the retail purveyors have implemented the single-pass ion exchange treatment technology for restoration of impacted well capacity at Saugus 1 and Saugus 2. The same single-pass ion exchange wellhead treatment is being considered for installation at the recently impacted VWC Well 201 to restore that impacted Saugus well capacity.

(2) Imported Water Quality

CLWA provides SWP and other sources of imported water to the Santa Clarita Valley. SWP water has different aesthetic characteristics than groundwater with lower dissolved mineral concentrations (total dissolved solids) of approximately 250 to 360 mg/L, and lower hardness (as calcium carbonate) of about 105 to 135 mg/L. Historically, the chloride content of SWP water has varied widely from over 100 mg/L to below 40 mg/L, depending on Delta conditions.

In anticipation of drought, CLWA and other SWP users began water banking programs where SWP water could be stored or exchanged during wet years and withdrawn in dry years. During the statewide drought from 2008 through 2010, a greater portion of water in the SWP has been this "pumped-in" water. As a result, water has been withdrawn from the banking programs. The pumped-in water has met all water quality standards established by DWR under its anti-degradation policy for the SWP. The pumped-in water serves to reduce the chloride concentration in SWP water.

Chloride concentrations at Castaic Lake (where SWP water is received) were analyzed in a technical report prepared for CLWA, entitled *State Water Project Chloride Modeling Analysis* (2012). The purpose of the study was to predict future chloride levels in SWP water imported to Santa Clarita Valley to assist in complying with the chloride Total Maximum Daily Load (TMDL). The modeling analysis was based on the 2009 SWP Delivery Reliability Report, which was the latest published report at the time and included the operational constraints of the 2008 and 2009 Biological Opinions for delta smelt and salmon and steelhead. Groundwater pumped-in water was also taken into account by this model. A "simulated case" forecasted chloride concentrations in Castaic Lake under low SWP allocations with an average range from 60 to 70 mg/L, and a high of 80 mg/L. These predicted chloride concentrations were overall lower than the historical range of 100 to 130 mg/L.

Based on the projected SWP operations and assuming the 2007 and 2008 chloride concentrations used in the model, these results suggest that the peak chloride levels recorded during the 1987 to 1992 drought are not likely to occur again. This is generally because high chloride concentrations in SWP deliveries occurred when Delta inflows were low, resulting in a relatively high salt water component to the water exported through the SWP. However, as a result of Delta water export limitations imposed by the Biological Opinions, diversions when Delta inflows are low is substantially reduced (or eliminated); therefore, future projected SWP deliveries with high chloride levels are not likely to reoccur.

The SWP water chemistry may fluctuate over time and is influenced by its passage through the Delta, where large amounts of organic material are present and salt water from

San Francisco Bay contributes bromide and chlorides. Chloride levels from the Delta elevate chloride locally, which is concerning for farmers that grow chloride sensitive crops, including strawberries and avocados. Additionally, bromide and total organic carbon may react with disinfectants such as ozone, chlorine, or disinfection by-products. All constituents in SWP water meet the federal and state MCL levels as reported in the Santa Clarita Valley Water Quality Report, but remain a management concern in the watershed.

(3) Water Quality Constituents of Interest

The following are constituents discussed in the 2010 UWMP that may impact water quality in the Valley. Perchlorate contamination and hardness are discussed in detail above and therefore are not included below. Further discussion of water quality is provided in **Section 5.10**, Water Quality, and the associated Water Report provided in **Appendix 5.21C** of this Draft EIR.

(a) Inorganic Compounds

Inorganic compounds such as salts and metals can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming. Metals and salts are tested in wells at least every three years and in Castaic Lake water every month. Small quantities of naturally occurring arsenic are found in Castaic Lake and in a few wells; however, arsenic levels in the Valley are below the MCL.

Elevated nitrogen concentrations (ammonia, nitrate, and nitrite) can cause impairments in warm water fish and wildlife habitat, along with contributing to eutrophic effects, such as algae growth and low dissolved oxygen. Principal sources of nitrogen to a watershed typically include discharges from WRPs and runoff from agricultural activities. Nitrates are tested at least annually, and the drinking water meets federal and state MCL standards.

High levels of chloride can cause water quality impairments in certain segments or reaches of the Santa Clara River. Irrigation of salt-sensitive crops, such as avocados and strawberries, with water containing elevated levels of chloride (salt) can result in reduced crop yields. Sources of chloride include water softeners, SWP and other imported water, and wastewater effluent. The Valley Sanitation District banned installation of all new automatic water softeners in 2003.

The Upper Santa Clara River (Reaches 5 and 6) were included on the CWA 303(d) list.[49] Effective May 5, 2005, the LA Regional Board adopted a chloride TMDL limit of 100 mg/L in the Upper Santa Clara River (Reaches 5 and 6). The Project Site is located within the Reach 5 watershed.

To comply with the chloride limit of 100 mg/L for treated wastewater in the Valley (or the modified limit of 117 mg/L, which would be conditioned upon construction of the Alternative Water Resources Management Plan facilities, discussed below), the Valley Sanitation District Board of Directors certified a Final EIR and approved the Final Santa Clarita Valley Sanitation District Chloride Compliance Facilities Plan (Final Facilities Plan) on October 28, 2013.[50,51] Approval of the Final Facilities Plan brings the Valley Sanitation District in compliance with the schedule for chloride treatment reduction.

The Final Facilities Plan evaluated a variety of alternatives and identified a recommended project: Alternative 4 (phased Alternative Water Resources Management) and, as a backup, Alternative 2 (microfiltration/reverse osmosis with brine disposal via deep well injection).[52] The Final Facilities Plan EIR indicates the LA Regional Board will reconsider the 100 mg/L standard and evaluate a standard of 117 mg/L based on certain actions by the Valley Sanitation District, including implementation of the Alternative Water Resources Management Plan. The Valley Sanitation District Board is expected to request from the LA Regional Board a deadline extension until 2019 to complete the Alternative Water Resources Management Plan facilities. The Valley Sanitation District is starting design and permitting efforts to implement the final approved project, consisting of ultraviolet (UV) disinfection, advanced treatment using reverse osmosis, and deep well injection for brine disposal.

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[49] *The term "303(d) list" is short for a list of impaired and threatened waters that the CWA requires all states to submit for USEPA approval every two years on even-numbered years. The states identify all waters where required pollution controls are not sufficient to attain or maintain applicable water quality standards, and establish priorities for development of TMDLs based on the severity of the pollution and the sensitivity of the uses to be made of the waters, among other factors (40 C.F.R. Section 130.7(b)(4)). States then provide a long-term plan for completing TMDLs (http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/overview.cfm, accessed April 9, 2014).*

[50] *County Sanitation Districts of Los Angeles County, Summary of Common Misconceptions and the Facts about Complying with the State's Chloride (Salt) Limit for the Santa Clarita Valley, www.lacsd.org/civica/filebank/blobdload.asp?BlobID=8680, accessed March 10, 2015.*

[51] *County Sanitation Districts of Los Angeles County, Final Santa Clarita Valley Sanitation District Chloride Compliance Facilities Plan, www.lacsd.org/wastewater/chloridefacplaneir/final_santa_clarita_valley_sanitation_district_chloride_compliance_facilities_plan_and_eir.asp, accessed March 10, 2015.*

[52] *County Sanitation Districts of Los Angeles County, Final Santa Clarita Valley Sanitation District Chloride Compliance Facilities Plan, Section 6, Alternatives Analysis, www.lacsd.org/civica/filebank/blobdload.asp?BlobID=8668, accessed March 10, 2015.*

(b) Disinfection By-Products

CLWA uses ozone and chloramines to disinfect its water. Disinfection by-products are generated by the interaction between naturally occurring organic matter and disinfectants such as chlorine and ozone. Ozone can also interact with bromide, a naturally occurring salt, to produce bromate. As a result, CLWA is required to analyze the water leaving its two treatment plants for bromate once a month. CLWA adjusts its operations as needed to ensure that no standards are exceeded, and to date the bromate MCL has never been violated.[53]

(c) Microbiological

Microbial contaminants, such as viruses and bacteria, can be naturally occurring or result from urban storm water runoff, sewage treatment plants, septic systems, agricultural livestock operations and wildlife. Water is tested throughout the systems weekly for total coliform bacteria and testing for *E. coli* occurs when coliform testing is positive; none has been detected in any drinking waters in 2010.. Bacteriological tests met federal and state requirements. Additional microbiological tests for the water-borne parasites were performed on Castaic Lake water, and none were detected.

(d) Radiological Tests

Radioactive compounds can be found in both ground and surface waters, and can be naturally occurring or be the result of oil and gas production and mining activities. Although naturally occurring radioactivity can be detected, the CLWA levels meet the federal and state MCL standards.

(e) Organic Compounds

Organic chemical contaminants, including synthetic and volatile organic chemicals, are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems. Organic compounds also include pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff and residential uses. Local wells are tested at least annually for volatile organic compounds (VOCs) and periodically for non-volatile synthetic organic compounds (SOCs). and levels comply with standards.

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[53] *Personal communication, Folsom 2013.*

f. Reliability Planning

CLWA and the retail purveyors have implemented a number of projects that are part of an overall program to provide the facilities needed to firm-up imported water supplies during dry years. The program involves 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 available water resources so that the overall reliability of water supply is maximized while utilizing local groundwater at a sustainable rate.

The available water supplies and demands for CLWA's service area were analyzed in the 2010 UWMP to assess the region's ability to satisfy demands during the following variable periods: (1) an average water year; (2) single-dry year; and (3) multiple-dry years. The 2010 UWMP summary tables show that existing and planned supplies are available to meet existing and projected demand under all such conditions for the projected planning period through 2050.

While many of the Santa Clarita Valley's available supply sources have some variability, the variability in SWP supplies has the largest effect on overall supply reliability. In any given year, SWP supplies may be reduced due to dry weather conditions or regulatory factors. As discussed above, during such an occurrence, the remaining water demands in the CLWA service area are planned to be met by a combination of alternate supplies such as return 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's dry-year water purchase programs.

Groundwater banking and conjunctive use offer significant opportunities to improve water supply reliability for CLWA. During dry periods, or when imported water supply availability is reduced, banked water can be recovered from groundwater storage to replace, or firm up, the imported water supply deliveries. CLWA and the purveyors have been conjunctively utilizing local groundwater and imported water since SWP water was imported to the Santa Clarita Valley beginning in 1980. SWP and other imported water supplies have supplemented the overall supply of the Santa Clarita Valley, which previously depended solely on local groundwater supplies.

Drought periods may affect available water supplies in any single year, but usually do not last longer than three consecutive years. 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 planning, giving CLWA and the purveyors the ability to draw on multiple sources of supply to ensure reliable service during dry years, as well as during average wet years.

As described above, CLWA has entered into groundwater banking and water exchange programs and has, in aggregate, approximately 150,000 af of recoverable water outside the local groundwater basin, which is available during drought conditions. The CLWA and purveyor reliability planning associated with each water source is discussed in further detail in Chapter 6 of the 2010 UWMP. CLWA and the purveyors have assessed the impact of DWR's 2013 SWP Delivery Reliability Report on the CLWA/purveyor water supply, and have determined that current anticipated supplies are available to meet existing and projected demands through the year 2050 consistent with the 2010 UWMP.[54]

g. Water Supply and Demand Comparisons

As described above, CLWA and the four retail purveyors have existing water supplies that include wholesale (imported) supplies, local groundwater, recycled water, and water from existing groundwater banking programs. Planned supplies also include new groundwater production and additional banking programs. This diversity of supply allows CLWA and the retail purveyors the option of drawing on multiple sources of supply in response to changing conditions, such as varying weather patterns (average/normal years, single-dry years, multiple-dry years), fluctuations in delivery amounts of SWP water, natural disasters, perchlorate-impacted wells, and other factors.

Tables provided below address available water supplies in the Santa Clarita Valley in average, single-dry, and multiple-dry years over the 40-year planning horizon studied in the adopted 2010 UWMP. As shown in the tables below, CLWA and the four retail purveyors have adequate supplies to meet all service area existing and projected demands during average, single-dry, and multiple-dry years through 2050.

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[54] *Personal communication., Keith Abercrombie, General Manager, Valencia Water Company, 2013; Dan Masnada, General Manager, Castaic Lake Water Agency, 2013.*

(1) Average Water Years

Table 5.21-10, Projected Average Year Supplies and Demands, on page 5.21-72 summarizes the water supplies available to meet demands over the 40-year planning period studied in the 2010 UWMP during an average year. As presented, the water supply is broken down into existing and planned water supply sources, including wholesale (imported) water, local supplies, and banking programs. Demands are shown with and without the urban demand reduction resulting from SBX7-7 water conservation objectives. As shown in **Table 5.21-10**, Projected Average Year Supplies and Demands, CLWA and the retail purveyors have adequate supplies to meet all service area existing and projected demands during an average year through 2050.

Note also Appendix C of the 2010 UWMP provides additional “retail purveyor” tables reflecting available supply and water demand broken down by each retail purveyor during the same weather conditions (average, single-dry, and multiple-dry) and same planning horizon as used in the adopted UWMP.

Table 5.21-10
Projected Average Year Supplies and Demands

Water Supply Sources	Supply (af)							
	2015	2020	2025	2030	2035	2040	2045	2050
EXISTING SUPPLIES								
Existing Groundwater[a]								
Alluvial Aquifer	24,000	24,000	24,000	25,000	25,000	25,000	25,000	25,000
Saugus Formation[b]	9,225	10,225	10,225	10,225	10,225	10,225	10,225	10,225
Subtotal Groundwater	*33,225*	*34,225*	*34,225*	*35,225*	*35,225*	*35,225*	*35,225*	*35,225*
Recycled Water[c]	325	325	325	325	325	325	325	325
Imported Water[d]								
State Water Project[e]	58,100	57,900	57,600	57,400	57,400	57,400	57,400	57,400
Flexible Storage Accounts	—	—	—	—	—	—	—	—
Buena Vista–Rosedale	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Nickel Water–Newhall Land	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607
Subtotal Imported	*70,707*	*70,507*	*70,207*	*70,007*	*70,007*	*70,007*	*70,007*	*70,007*
Banking Programs[f]								
Rosedale–Rio Bravo	—	—	—	—	—	—	—	—
Semitropic	—	—	—	—	—	—	—	—
Semitropic–Newhall Land	—	—	—	—	—	—	—	—
Subtotal Banking	—	—	—	—	—	—	—	—
Total Existing Supplies	**104,257**	**105,057**	**104,757**	**105,557**	**105,557**	**105,557**	**105,557**	**105,557**
PLANNED SUPPLIES								
Future Groundwater[g]								
Alluvial Aquifer	—	1,000	2,000	3,000	4,000	5,000	6,000	7,000
Saugus Formation	1,375	1,375	1,375	1,375	1,375	1,375	1,375	1,375
Subtotal Groundwater	*1,375*	*2,375*	*3,375*	*4,375*	*5,375*	*6,375*	*7,375*	*8,375*

Table 5.21-10 (Continued)
Projected Average Year Supplies and Demands

Water Supply Sources	Supply (af)							
	2015	2020	2025	2030	2035	2040	2045	2050
Recycled Water[c]	975	2,725	5,225	7,775	10,275	13,775	17,275	20,975
Banking Programs[f]	—	—	—	—	—	—	—	—
Total Planned Supplies	**2,350**	**5,100**	**8,600**	**12,150**	**15,650**	**20,150**	**24,650**	**29,350**
Total Existing and Planned Supplies	**106,607**	**110,157**	**113,357**	**117,707**	**121,207**	**125,707**	**130,207**	**134,907**
Demand (without conservation)[h]	80,070	88,484	96,898	105,312	113,726	122,140	130,554	138,968
20X2020 Reduction[i]	9,027	19,626	21,166	22,770	24,342	25,914	27,486	29,058
Reduction from Recycled Water[j]	1,300	3,050	5,550	8,100	10,600	14,100	17,600	21,300
Reduction from Water Conservation[k]	7,727	16,576	16,662	16,748	16,833	16,919	17,005	17,091
Demand with Conservation[l]	**72,343**	**71,908**	**80,236**	**88,564**	**96,892**	**105,220**	**113,549**	**121,877**

[a] *Existing groundwater supplies represent the quantity of groundwater anticipated to be pumped with existing wells. As indicated in Tables 3-8 and 3-9 and Tables 3-4 and 3-5 of the 2009 Basin Yield Update, individual purveyors may have well capacity in excess of quantities shown in this table. As indicated in Table 3-10, existing and planned groundwater pumping remain within the groundwater operating plan shown on Table 3-5.*

[b] *SCWD's existing Saugus 1 and Saugus 2 wells resumed production in 2011 with the completion of the perchlorate treatment facility.*

[c] *Recycled water projections from Table 4-3 of the 2010 UWMP.*

[d] *The 2010 UWMP relied on DWR's 2009 SWP Delivery Reliability Report; therefore, the water supply and demand data reflected above constitutes the best available information from an adopted plan.*

[e] *SWP Table A supply is approximately 60–61 percent (rounded) of CLWA's total maximum Table A amount of 95,200 af.*

[f] *Not needed in average/normal years.*

[g] *Planned groundwater supplies represent new groundwater well capacity that may be required by an individual purveyor's production objectives in the Alluvial aquifer and the Saugus Formation. As indicated in Table 3-10 of the 2010 UWMP, existing and planned groundwater pumping remain within the groundwater operating plan.*

[h] *Demand w/o Conservation data from Table 2-2 of the 2010 UWMP.*

Table 5.21-10 (Continued)
Projected Average Year Supplies and Demands

Water Supply Sources	Supply (af)							
	2015	2020	2025	2030	2035	2040	2045	2050

[i] *20x2020 Reduction for the Region from Table 2-22 of the 2010 UWMP.*

[j] *Recycled Water Reduction for the Region from Table 2-22 of the* 2010 UWMP*; does not include demands from Honor Rancho.*

[k] *Reduction from Water Conservation calculation for Region from Table 2-22 of the* 2010 UWMP*.*

[l] *Demand w/Conservation is Demand w/o Conservation minus Reduction from Water Conservation.*

Source: 2010 UWMP.

(2) Single-Dry Year

The water supplies and demand over the 2010 UWMP 40-year planning horizon were analyzed in the event of a single-dry year, similar to the drought that occurred in California in 1977. **Table 5.21-11**, Projected Single-Dry Year Supplies and Demands, on page 5.21-76 summarizes the existing and planned supplies available to meet demand during a single-dry year. Base demand (demand without conservation) during dry years was assumed to increase by 10 percent. Demands also are shown with the urban demand reduction resulting from SBX7-7 conservation objectives. As shown in **Table 5.21-11**, Projected Single-Dry Year Supplies and Demands, CLWA and the retail purveyors have adequate supplies to meet all service area existing and projected demands during a single-dry year through 2050.

Table 5.21-11
Projected Single-Dry Year Supplies and Demands

Water Supply Sources	Supply (af)							
	2015	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
EXISTING SUPPLIES								
Existing Groundwater[a]								
Alluvial Aquifer	20,300	20,250	20,200	21,050	21,050	21,025	21,000	20,650
Saugus Formation	20,400	20,400	20,400	20,400	20,400	20,400	20,400	20,400
Subtotal Groundwater	*40,700*	*40,650*	*40,600*	*41,450*	*41,450*	*41,425*	*41,400*	*41,050*
Recycled Water[b]	325	325	325	325	325	325	325	325
Imported Water[c]								
State Water Project[d]	11,900	11,000	10,000	9,100	9,100	9,100	9,100	9,100
Flexible Storage Accounts[e]	6,060	4,680	4,680	4,680	4,680	4,680	4,680	4,680
Buena Vista–Rosedale	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Nickel Water–Newhall Land	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607
Subtotal Imported	*30,567*	*28,287*	*27,287*	*26,387*	*26,387*	*26,387*	*26,387*	*26,387*
Banking Programs								
Rosedale–Rio Bravo[f]	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Semitropic[g]	15,000	15,000	—	—	—	—	—	—
Semitropic–Newhall Land[h]	4,950	4,950	4,950	4,950	4,950	4,950	4,950	4,950
Subtotal Banking	*39,950*	*39,950*	*24,950*	*24,950*	*24,950*	*24,950*	*24,950*	*24,950*
Total Existing Supplies	**111,542**	**109,212**	**93,162**	**93,112**	**93,112**	**93,087**	**93,062**	**92,712**
PLANNED SUPPLIES								
Future Groundwater[i]								
Alluvial Aquifer	200	1,250	2,300	3,850	4,850	5,875	6,900	7,750
Saugus Formation (Restored Wells)	825	3,777	3,777	3,777	3,777	3,777	3,777	3,750

Table 5.21-11 (Continued)
Projected Single-Dry Year Supplies and Demands

Water Supply Sources	Supply (af)							
	2015	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Saugus Formation (New Wells)	2,875	9,923	9,923	9,923	9,923	9,923	9,923	9,950
Subtotal Groundwater	*3,900*	*14,950*	*16,000*	*17,550*	*18,550*	*19,575*	*20,600*	*21,450*
Recycled Water[b]	975	2,725	5,225	7,775	10,275	13,775	17,275	20,975
Banking Programs[j]	—	—	10,000	10,000	20,000	20,000	20,000	20,000
Total Planned Supplies	**4,875**	**17,675**	**31,225**	**35,325**	**48,825**	**53,350**	**57,875**	**62,425**
Total Existing and Planned Supplies	116,417	126,887	124,387	128,437	141,937	146,437	150,937	155,137
Demand (without conservation)[k]	88,077	97,333	106,588	115,843	125,099	134,354	143,609	152,865
20X2020 Reduction[l]	9,027	19,626	21,166	22,770	24,342	25,914	27,486	29,058
Reduction from Recycled Water[m]	1,300	3,050	5,550	8,100	10,600	14,100	17,600	21,300
Reduction from Water Conservation[n]	7,727	16,576	16,662	16,748	16,833	16,919	17,005	17,091
Demand with Conservation[o]	**80,350**	**80,757**	**89,926**	**99,096**	**108,265**	**117,434**	**126,604**	**135,773**

[a] *Existing groundwater supplies represent the quantity of groundwater anticipated to be pumped with existing wells. As indicated in Tables 3-8 and 3-9 and Tables 3-4 and 3-5 of the 2009 Basin Yield Update, individual purveyors may have well capacity in excess of quantities shown in this table. As indicated in Table 3-11 of the* 2010 UWMP*, existing and planned groundwater pumping remain within the groundwater operating plan. SCWD's existing Saugus 1 and Saugus 2 wells resumed production in 2011 with the completion of the perchlorate treatment facility.*

[b] *Recycled water projections from Table 4-3 of the* 2010 UWMP*.*

[c] *The* 2010 UWMP *relied on DWR's 2009 SWP Delivery Reliability Report; therefore, the water supply and demand data reflected above constitutes the best available information from an adopted plan.*

[d] *SWP Table A supplies are calculated by multiplying CLWA's Table A amount of 95,200 af by percentages of single-dry year deliveries projected to be available on Table 6-4 (7 percent) and Table 6-13 (11 percent) of DWR's 2009 SWP Delivery Reliability Report. As suggested by DWR, SWP supplies for the 5-year increments between 2010 and 2030 are interpolated between these values.*

[e] *Includes both CLWA and Ventura County entities flexible storage accounts. Initial Term of agreement with Ventura County entities expires after 2015.*

[f] *CLWA has a maximum withdrawal capacity of 20,000 afy and a storage capacity of 100,000 af. As of 6/1/2011, there are 100,000 af of*

Table 5.21-11 (Continued)
Projected Single-Dry Year Supplies and Demands

Water Supply Sources	Supply (af)							
	2015	2020	2025	2030	2035	2040	2045	2050

recoverable water.

[g] *CLWA has 45,920 af of recoverable water as of June 1, 2011.*

[h] *Newhall Land has a maximum withdrawal capacity of 4,950 afy and a storage capacity of 55,000 af. As of December 31, 2013, there is 27,505 af of recoverable water. Delivery of stored water from the Newhall Land's Semitropic Water Banking and Exchange Program is available to VWC.*

[i] *Planned groundwater supplies represent new groundwater well capacity that may be required by an individual purveyor's production objectives in the Alluvial aquifer and the Saugus Formation, including 3,777 afy of restored capacity from VWC Well 201 and approximately 10,000 afy of new Saugus Formation well capacity. When combined with existing purveyor and non-purveyor groundwater supplies, total groundwater production is consistent with the 1977 single dry-year levels identified in Table 3-8 of the 2009 Basin Yield Update. As indicated in Table 3-11 of the 2010 UWMP, existing and planned groundwater pumping remain within the groundwater operating plan.*

[j] *Includes banking programs with 10,000 af of additional pumpback capacity by 2025 and a second additional 10,000 af by 2035.*

[k] *Demand w/o Conservation data from Table 2-2 of the 2010 UWMP. Includes a 10-percent increase in demand during dry years.*

[l] *20x2020 Reduction for the Region from Table 2-22 of the 2010 UWMP.*

[m] *Recycled Water Reduction for the Region from Table 2-22 of the 2010 UWMP; does not include demands from Honor Rancho.*

[n] *Reduction from Water Conservation calculation for Region from Table 2-22 of the 2010 UWMP.*

[o] *Demand with Conservation is Demand without Conservation minus Reduction from Water Conservation.*

Source: 2010 UWMP.

(3) Multiple-Dry Years

The water supplies and demand over the 2010 UWMP 40-year planning horizon were analyzed in the event of a four-year multiple-dry year event, similar to the drought that occurred in California during the years 1931 to 1934. **Table 5.21-12**, Projected Multiple-Dry Year Supplies and Demands, on page 5.21-80 summarizes the existing and planned supplies available to meet demand during multiple-dry years. Base demand (demand without conservation) during dry years was assumed to increase by 10 percent. Demands also are shown with the urban demand reduction resulting from SBX7-7 conservation objectives. As shown in **Table 5.21-12**, Projected Multiple-Dry Year Supplies and Demands, CLWA and the retail purveyors have adequate supplies to meet all service area existing and projected demands during multiple-dry years through 2050.

Table 5.21-12
Projected Multiple-Dry Year Supplies and Demands

Water Supply Sources	Supply (af)							
	2015	2020	2025	2030	2035	2040	2045	2050
EXISTING SUPPLIES								
Existing Groundwater[a]								
Alluvial Aquifer	20,425	20,425	20,425	21,825	21,825	21,825	21,825	21,325
Saugus Formation	19,700	19,700	19,700	19,700	19,700	19,700	19,700	19,700
Subtotal Groundwater	*40,125*	*40,125*	*40,125*	*41,525*	*41,525*	*41,525*	*41,525*	*41,025*
Recycled Water[b]	325	325	325	325	325	325	325	325
Imported Water[c]								
State Water Project[d]	32,900	32,900	33,000	33,000	33,000	33,000	33,000	33,000
Flexible Storage Accounts[e]	1,510	1,170	1,170	1,170	1,170	1,170	1,170	1,170
Buena Vista–Rosedale	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Nickel Water—Newhall Land	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607
Subtotal Imported	*47,017*	*46,677*	*46,777*	*46,777*	*46,777*	*46,777*	*46,777*	*46,777*
Banking Programs								
Rosedale–Rio Bravo[f]	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
Semitropic[g]	11,500	11,500	—	—	—	—	—	—
Semitropic–Newhall Land[h]	4,950	4,950	4,950	4,950	4,950	4,950	4,950	4,950
Subtotal Banking	*31,450*	*31,450*	*19,950*	*19,950*	*19,950*	*19,950*	*19,950*	*19,950*
Total Existing Supplies	**118,917**	**118,577**	**107,177**	**108,577**	**108,577**	**108,577**	**108,577**	**108,077**
PLANNED SUPPLIES								
Future Groundwater[i]								
Alluvial Aquifer	—	1,000	2,000	3,000	4,000	5,000	6,000	7,000
Saugus Formation (Restored Wells)	2,375	1,625	1,500	1,400	1,275	1,125	1,000	875

Table 5.21-12 (Continued)
Projected Multiple-Dry Year Supplies and Demands

Water Supply Sources	Supply (af)							
	2015	2020	2025	2030	2035	2040	2045	2050
Saugus Formation (New Wells)	2,250	10,325	10,450	10,550	10,675	10,825	10,950	11,075
Subtotal Groundwater	*4,625*	*12,950*	*13,950*	*14,950*	*15,950*	*16,950*	*17,950*	*18,950*
Recycled Water[b]	975	2,725	5,225	7,775	10,275	13,775	17,275	20,975
Banking Programs[j]	—	—	7,500	7,500	15,000	15,000	15,000	15,000
Total Planned Supplies	**5,600**	**15,675**	**26,675**	**30,225**	**41,225**	**45,725**	**50,225**	**54,925**
Total Existing and Planned Supplies	**124,517**	**134,252**	**133,852**	**138,802**	**149,802**	**154,302**	**158,802**	**163,002**
Demand (without conservation)[k]	88,077	97,333	106,588	115,843	125,099	134,354	143,609	152,865
20X2020 Reduction[l]	9,027	19,626	21,166	22,770	24,342	25,914	27,486	29,058
Reduction from Recycled Water[m]	1,300	3,050	5,550	8,100	10,600	14,100	17,600	21,300
Reduction from Water Conservation[n]	7,727	16,576	16,662	16,748	16,833	16,919	17,005	17,091
Demand with Conservation[o]	**80,350**	**80,757**	**89,926**	**99,096**	**108,265**	**117,434**	**126,604**	**135,773**

[a] *Existing groundwater supplies represent the quantity of groundwater anticipated to be pumped with existing wells. As indicated in Tables 3-8 and 3-9 and Tables 3-4 and 3-5 of the 2009 Basin Yield Update, individual purveyors may have well capacity in excess of quantities shown in this table. As indicated in Table 3-12, existing and planned groundwater pumping remain within the groundwater operating plan shown on Table 3-5. SCWD's existing Saugus 1 and Saugus 2 wells resumed production in 2011 with the completion of the perchlorate treatment facility.*

[b] *Recycled water projections from Table 4-3 of the* 2010 UWMP*.*

[c] *The* 2010 UWMP *relied on DWR's 2009 SWP Delivery Reliability Report; therefore, the water supply and demand data reflected above constitutes the best available information from an adopted plan.*

[d] *SWP Table A supplies are calculated by multiplying CLWA's Table A amount of 95,200 af by percentages of multiple-dry year deliveries projected to be available on Table 6-4 (34–36 percent) and Table 6-13 (28–32 percent) of DWR's 2009 SWP Delivery Reliability Report. As suggested by DWR, SWP supplies for the 5-year increments between 2010 and 2030 are interpolated between these values.*

[e] *Includes both CLWA and Ventura County entities flexible storage accounts. Initial Term of agreement with Ventura County entities expires after 2015.*

Table 5.21-12 (Continued)
Projected Multiple-Dry Year Supplies and Demands

Water Supply Sources	Supply (af)							
	2015	2020	2025	2030	2035	2040	2045	2050

[f] *CLWA has a maximum withdrawal capacity of 20,000 afy and a storage capacity of 100,000 af. As of 6/1/2011, there is 100,000 af of recoverable water.*

[g] *CLWA has 45,920 af of recoverable water as of 6/1/2011.*

[h] *Newhall Land has a maximum withdrawal capacity of 4,950 afy and a storage capacity of 55,000 af. As of December 31, 2013, there is 27,505 af of recoverable water. Delivery of stored water from the Newhall Land's Semitropic Water Banking and Exchange Program is available to VWC.*

[i] *Planned groundwater supplies represent new groundwater well capacity that may be required by an individual purveyor's production objectives in the Alluvial aquifer and the Saugus Formation, including 3,777 afy of restored capacity from VWC Well 201 and approximately 10,000 afy of new Saugus Formation well capacity. When combined with existing purveyor and non-purveyor groundwater supplies, total groundwater production is consistent with the 1931–1934 multiple dry-year levels identified in Table 3-8 of the 2009 Basin Yield Update. As indicated in Table 3-12 of the 2010 UWMP, existing and planned groundwater pumping remain within the groundwater operating plan.*

[j] *Includes banking programs with 10,000 af of additional pumpback capacity by 2025 and a second additional 10,000 af by 2035.*

[k] *Demand w/o Conservation data from Table 2-2 of the 2010 UWMP. Includes a 10% increase in demand during dry years.*

[l] *20x2020 Reduction for the Region from Table 2-22 of the 2010 UWMP.*

[m] *Recycled Water Reduction for the Region from Table 2-22 of the 2010 UWMP; does not include demands from Honor Rancho.*

[n] *Reduction from Water Conservation calculation for Region from Table 2-22 of the 2010 UWMP.*

[o] *Demand with Conservation is Demand without Conservation minus Reduction from Water Conservation.*

Source: 2010 UWMP.

h. County Development Monitoring System

The "retail purveyor" water supply and demand data (Appendix C of the 2010 UWMP) discussed above responds to the DMS criteria for determining an acceptable level of water supply by retail purveyor (VWC) in an average water year. Specifically, in Appendix C of the 2010 UWMP, Tables C-1 and C-2 reflect the average year existing and planned total water supplies broken down by retail purveyor, and Table C-3 compares average year demands to total supplies by retail purveyor, showing that in an average year, VWC's total existing and planned supplies exceed demand from 2015 through 2050.

Appendix C to the 2010 UWMP also includes a breakdown by retail purveyor of supplies available to meet demand over the 2010 UWMP 40-year planning horizon during a single-dry year. This information responds to the DMS criteria for determining an acceptable level of water supply by retail purveyor (VWC) in a single-dry year. Specifically, Tables C-4 and C-5 reflect the single-dry year existing and planned total water supplies broken down by retail purveyor, and Table C-6 compares single-dry year demands to total supplies by retail purveyor, showing that in a single-dry year, VWC's total existing and planned supplies exceed demand from 2015 through 2050.

Finally, Appendix C to the 2010 UWMP includes a breakdown by retail purveyor of supplies available to meet demand over the 2010 UWMP 40-year planning horizon during multiple-dry years. This information likewise responds to the DMS criteria for determining an acceptable level of water supply by retail purveyor (VWC) in a multiple-dry years. Specifically, Tables C-7 and C-8 reflect the multiple-dry year existing and planned total water supplies broken down by retail purveyor, and Table C-9 compares multiple-dry year demands to total supplies by retail purveyor. Table C-9 shows that in a multiple-dry year, VWC's total existing and planned supplies exceed demand from 2015 through 2050.

3. ENVIRONMENTAL IMPACTS

a. Methodology

This section identifies the Project's potential impacts on water supply, water distribution systems, and the CLWA and VWC service area capacity. The analysis is based in part on the Water Report for the Project prepared by Cardno ENTRIX (see **Appendix 5.21C** of this Draft EIR); and the data presented in the WSA for the Project prepared by VWC for the County (see **Appendix 5.21A** of this Draft EIR).

To complete the water supply analysis, VWC retained the services of GSI Water Solutions, Inc. (a consulting firm with expertise in groundwater and other water resources) to provide water demand projections for the Project. Please refer to **Appendix 5.21B** of this Draft EIR for the GSI technical memorandum.

To assess groundwater recharge, Geosyntec Consultants utilized an assessment methodology that accounted for recharge from the following three sources: (a) recharge from precipitation occurring over pervious Project areas; (b) recharge occurring below infiltrating LID best management practices (BMPs); and (c) recharge derived from irrigation of agricultural or landscaped areas of the watershed.[55] The work summarized below was performed to provide the basis for assessing groundwater recharge impacts.

Geosyntec Consultants estimated the change in groundwater recharge using the Project's water quality model output and the recharge estimate methods described below. The existing conditions consist of non-irrigated pervious areas and irrigated agricultural areas; and the Project conditions consist of impervious areas, non-irrigated pervious areas, LID BMP recharge areas, and irrigated landscaped areas. The total Project recharge volume was estimated for the existing and Project conditions by adding recharge from the above three sources. The difference between these volumes was calculated as equivalent to the change in the amount of groundwater recharge due to the Project.

Precipitation-Based Recharge in Pervious Watershed Areas. The proportion of average annual losses that is recharged over the long term (dry and wet years) is estimated to be 25 percent, although it could vary substantially in individual years. This recharge estimate is derived from the calibration of the continuous groundwater flow model (as updated) and accounts for the local climate patterns of the Valley.

Water quality model runoff results for pervious areas were isolated from runoff occurring from impervious areas to obtain the amount of losses associated with pervious areas. The 25 percent recharge estimate was applied to the average annual total losses to obtain the average annual volume recharged from the pervious areas for the existing and Project conditions. The proposed condition model used to estimate precipitation-based recharge does not incorporate BMPs.

Recharge in LID BMPs. Recharge under infiltrating LID BMPs was calculated similar to the calculation used for precipitation-based recharge and is estimated to be 100%. The deep percolation was assumed to be equal to the total losses because, unlike an undeveloped parcel of land, the ponded water present in the LID water quality facility during and after a storm provides a driving head such that water migrating past the root zone is likely to continue migrating deeper. The Project water quality model was run with and without BMPs to obtain the estimate of recharge below the proposed Project BMPs.

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[55] *See the Entrada South Water Quality Technical Report provided in* ***Appendix 5.10A*** *of this Draft EIR for further discussion and analysis.*

Irrigation-Derived Recharge. Project landscaped areas are expected to be irrigated efficiently, but a small amount of irrigation-derived recharge is likely to occur. Existing irrigation efficiency over agricultural areas has been analyzed and found to be less efficient than proposed landscape irrigation.

Irrigation-derived recharge was estimated by area-weighting land-use based irrigation recharge estimates for specific land use areas in the Project watershed, for the existing and proposed Project conditions. **Table 5.21-13**, Irrigation-Derived Recharge Estimates for Project Land Uses, below, summarizes land use-based values used to develop the area-weighted estimate of total recharge.[56]

Table 5.21-13
Irrigation-Derived Recharge Estimates for Project Land Uses

Land Use	Recharge	
	inches/year	af/acre/yr
Commercial	1	0.083
Education	1	0.083
Multi-Family Residential	2.2	0.183
Single-Family Residential	2.2	0.183
Parks (landscaped)	2.2	0.183
Open Space (landscaped)	2.2	0.183
Open Space (not landscaped)	0	0
Transportation (roads)	0	0
Irrigated Agriculture[a]	28.8	2.4

[a] *Applies to existing conditions only. The analysis in those references indicated that approximately 37 percent of the irrigation water applied to Newhall Ranch areas becomes groundwater recharge; the total recharge estimate per year is based on recent average application rates of irrigation water (6.5 acre-ft/acre/year).*

*Source: Geosyntec, 2014 (see the Entrada South Water Quality Technical Report provided in **Appendix 5.10A** of this Draft EIR).*

Geosyntec Consultants used the above groundwater recharge assessment methodology to evaluate whether the Project would substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would a net deficit in aquifer volume or a lowering of the local groundwater table level. This impact analysis is provided below.

[56] *See the Entrada South Water Quality Technical Report provided in **Appendix 5.10A** of this Draft EIR.*

b. Project Design Elements/Project Design Features

VWC would provide potable water to the Project. The Project would provide potable and non-potable (recycled) water infrastructure on-site that would connect to VWC's existing local water infrastructure, distribution, and supply system. The Project's system improvements take into account the necessary capacity and pressure to meet projected fire flow needs, which, although temporary and intermittent, tend to be greater than average daily domestic needs.

(1) Potable Water Infrastructure System

As shown in **Figure 3-17**, Project Potable Water System, in **Section 3.0**, Project Description, of this Draft EIR, the Project's potable water system would consist of a network of water lines, water tanks, booster pumps, and pressure reducing vales. Water storage for the Project would be provided by a proposed 4.0-million-gallon reservoir tank to be constructed on an existing tank site pad located adjacent to Westridge Parkway to the south of the Project's tract map site. This water tank would be located adjacent to an existing 4.0-million-gallon water tank.

As shown, the Project would be located within VWC's Zone 2 and Zone 3 water pressure zones. The portion of the site lying within VWC's Zone 2 would be served by the existing 4.0-million-gallon reservoir tank and the proposed 4.0-million-gallon reservoir tank. The portion of the site lying within VWC's Zone 3 would be served by an expanded booster station located next to the Zone 2 tanks. VWC has reviewed the Project, and after consultation, has determined it has sufficient infrastructure and delivery capacity to serve potable water to the Project.[57]

(2) Recycled Water Infrastructure System

Currently, recycled water is available from the Valencia WRP, located along The Old Road, just north of the Project Site. In addition, VWC presently delivers recycled water purchased from CLWA for irrigation of the golf course and other properties within the existing Westridge community, located immediately south of the Project Site. VWC has consulted with Dexter Wilson Engineering, reviewed plans to utilize CLWA's existing pump station and existing Zone 2 recycled water lines from the Valencia WRP, and identified points of connection to supply recycled water for irrigation purposes to the Project Site. **Figure 3-18**, Project Recycled Water System, in **Section 3.0**, Project Description, of this Draft EIR, depicts the Project's proposed recycled water system.

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[57] *See the VWC will serve letter, Keith Abercrombie, General Manager, Valencia Water Company, March 6, 2014 (**Appendix 5.21D**).*

The Project Site is located within VWC's Zones 1 through 4 recycled water pressure zones. As shown in **Figure 3-18**, Project Recycled Water System, in **Section 3.0**, Project Description, of this Draft EIR, existing recycled water lines within The Old Road, Magic Mountain Parkway, and Westridge Parkway would be the connection points to serve the Project Site. In addition, Project booster pumps and pressure reducing valves would be provided to connect the four pressure zones within the Project Siteand provide service within the different zones. Based on consultation with VWC, VWC has determined that it has sufficient existing and proposed recycled water infrastructure and delivery capacity to meet the recycled water needs of the Project.[58]

(3) Water Conservation

The Project would include design features with regard to water conservation to reduce water demand. In particular, the Project would comply with applicable provisions of the CALGreen Code (CCR Title 24) and the County's Green Building Standards Code (County Code Title 31), including the provision of water-efficient plumbing fixtures and appropriate water metering devices, as detailed below:

- Water-efficient toilets with a maximum 1.28 gallons per flush and urinals with a maximum 0.5 gallon per flush;
- Low-flow lavatory faucets with a maximum flow rate of 2.0 gpm at 80 psi for showerheads, 1.5 gpm at 60 psi for residential lavatory faucets, 1.8 gpm at 60 psi for residential kitchen faucets, and 2.2 gpm at 60 psi for non-residential kitchen faucets; and
- Separate submeters or metering devices for non-residential buildings/tenants meeting specified thresholds (e.g., buildings of 50,000 square feet or more; tenants using more than 100 gallons per day).

In addition, the Project would implement the CALGreen Code residential and non-residential mandatory water efficiency measures for outdoor water use, including:

- Automatic irrigation system controllers for landscaping with weather- or soil moisture-based controllers;
- Separate submeters or metering devices for landscaped areas meeting specified thresholds for non-residential development; and

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[58] *See the VWC will serve letter, Keith Abercrombie, General Manager, Valencia Water Company, March 6, 2014 (**Appendix 5.21D**).*

- Implementation of a water budget for irrigation use.

The Project also would comply with VWC's BMPs regarding water conservation, as required as a condition of service. VWC's program identifies water saving techniques, methods, landscape designs, and internal water use practices intended to achieve VWC's long-term conservation goals described in the UWMP.[59]

Implementation of these features would help the State meet requirements to achieve a 20-percent reduction in urban per-capita water use by the end of 2020 in accordance with SBX7-7.

Furthermore, as discussed further in **Section 5.4**, Biological Resources, of this Draft EIR, the Project would adhere to the following regulatory requirement, which also would serve to reduce water demand:

- At least 75 percent of the Project's landscaped area shall contain plants from the Los Angeles County Drought-Tolerant Plant List In accordance with the County's Green Building Standards Code (County Code Title 31).

(4) Additional Regulatory Compliance Measures

In addition, the following regulatory compliance measure would be implemented as part of the Project:

- Upon the issuance of building permits associated with each subdivision map allowing construction within the Entrada South Project Site, the Applicant shall pay Facility Capacity Fees to CLWA in accordance with CLWA policies and procedures.

c. Significance Thresholds

Based on Appendix G of the CEQA Guidelines, the Los Angeles County Department of Regional Planning has determined that a project would have a significant impact related to water supply and service if the following significance criteria are triggered:

Threshold 5.21-1: Would the project create water system capacity problems, or result in the construction of new water facilities or expansion of existing

[59] *See the VWC will serve letter, Keith Abercrombie, General Manager, Valencia Water Company, March 6, 2014 (**Appendix 5.21D**).*

facilities, the construction of which would cause significant environmental effects?

Threshold 5.21-2: Would the Project have sufficient reliable water supplies available to serve the project demands from existing entitlements and resources, considering existing and projected water demands from other land uses?

Threshold 5.21-3: Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Threshold 5.21-4: Would the project site be located in an area known to have an inadequate public water supply to meet domestic needs or to have an inadequate groundwater supply and proposes water wells?

Threshold 5.21-5: Would the project site be located in an area known to have an inadequate water supply and/or pressure to meet fire fighting needs?

d. Project Impacts

Threshold 5.21-1: Would the project create water system capacity problems, or result in the construction of new water facilities or expansion of existing facilities, the construction of which would cause significant environmental effects?

The Project would require installation of the potable and recycled water system infrastructure shown in the Project Description section of the Draft EIR. Installation of the potable and recycled water systems, including water tank construction, would occur in conjunction with Project development and would not disrupt adjacent land uses. All such improvements would be designed in accordance with the County Code, including the Fire Code, and constructed to the satisfaction of the Los Angeles County Department of Public Works, VWC, and the County Fire Department (as applicable). In addition, the trenching for the new potable and recycled water lines and service connections would be scheduled to minimize vehicle and water service interruptions to other properties. Therefore, the Project's construction impacts associated with installation of the Project's potable and recycled water system infrastructure improvements would be less than significant.

The Project would increase overall water demand within the Project Site. However, the Project would be required to construct the necessary infrastructure improvements to accommodate the Project's water demand, in accordance with the County Code, Department of Public Works' conditions, VWC and County Fire Department design requirements. The water system infrastructure would include fire hydrants of the type and

location (both on-site and off-site) as determined by the County Fire Department. In addition, the water mains would be sized to accommodate the total domestic and fire flows. Further, Project infrastructure requirements would be designed in accordance with VWC requirements, and VWC's WSA confirms that it has the infrastructure and design capacity to ensure water service to the Project. Therefore, the Project's operational impacts on VWC's existing water system, infrastructure, and capacity would be less than significant.

Threshold 5.21-2: Would the Project have sufficient reliable water supplies available to serve the Project demands from existing entitlements and resources, considering existing and projected water demands from other land uses?

Threshold 5.21-4: Would the Project Site be located in an area known to have an inadequate public water supply to meet domestic needs or to have an inadequate groundwater supply and proposes water wells?

(1) Construction

A short-term demand for water would occur during Project construction, primarily in association with dust control, concrete mixing, cleaning of equipment, and other related construction activities. These activities would occur incrementally through Project build-out and be temporary in nature. The amount of water used during construction would vary depending on the conditions of the soil, weather, size of the area being worked, and site-specific operations, but is not expected to be substantial. VWC would provide water through a construction-metered connection from existing potable or recycled lines adjacent to the Project Site, and water tankers would deliver water for dust control to the development areas throughout Project construction as needed. Therefore, an adequate supply of water would be available during Project construction, and potential construction-related water supply impacts would be less than significant.

(2) Operation

The Project would increase overall demand for potable and recycled water. Specifically, as shown on **Table 5.21-14**, Summary of Entrada South Potable and Non-Potable (Recycled) Water Demands (afy), on page 5.21-91, the Project's total water demand is 1,143 afy, which includes 703 afy of potable water demand, and 440 afy of recycled water demand. As indicated above, the Applicant would be required to construct the potable and non-potable (recycled) infrastructure necessary to connect to VWC's existing system in order to accommodate Project demand, pursuant to County Code and other applicable requirements.

The Project's forecasted water demand is based on the methodology described in the GSI technical memorandum, provided in **Appendix 5.21B** of this Draft EIR. The water

Table 5.21-14
Summary of Entrada South Potable and Non-Potable (Recycled) Water Demands (afy)

Land Use	Potable	Non-Potable	Total
Residential	607	52	659
Nonresidential	94	76	170
Recreation, Arterials, Open Space	2	312	314
Total	**703**	**440**	**1,143**

*Source: GSI Technical Memorandum, provided **Appendix 5.21B** of this Draft EIR.*

demand factors are considered conservative because they do not account for the reductions in per-capita and acreage-based rates of water use achieved by the Project under existing state and local conservation and water use efficiency/reduction requirements and under measures imposed inside VWC's service area.

Further, VWC already has accounted for the Project's potable and non-potable water demand in the 2010 UWMP.[60] VWC's projected water demands for its service area, including the Project demand, are shown in **Table 5.21-15**, Summary of Projected Water Demands, on page 5.21-92. This table summarizes the projected total water demands by retail purveyor from 2015 through 2050 (demand without conservation and demand with conservation).

As shown on **Table 5.21-10**, Projected Average Year Supplies and Demands; **Table 5.21-11**, Projected Single-Dry Year Supplies and Demands; and **Table 5.21-12**, Projected Multiple-Dry Year Supplies and Demands, CLWA and the retail purveyors in the Santa Clarita Valley have adequate supplies to meet CLWA's service area demands during average, single-dry, and multiple-dry years throughout the 40-year planning period reflected in the 2010 UWMP. Because the Project demand, along with the projected water demands associated with existing and planned future land uses within the CLWA service area were included in the 2010 UWMP, CLWA and the retail purveyors have determined they have adequate supplies to meet demand throughout the 2010 UWMP 40-year planning period.[61]

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[60] *See the Water Report in **Appendix 5.21C** of this Draft EIR (referencing* 2010 UWMP*, pp. 2-3); and personal communication Keith Abercrombie, General Manager, Valencia Water Company, 2014.*

[61] *As indicated above, please refer to Appendix C of the* 2010 UWMP *for the breakdown by retail purveyor of supplies available to meet demands during average, single-dry, and multiple-dry years over the 40-year planning horizon reflected in the* 2010 UWMP*. Specifically, in Appendix C of the* 2010 UWMP*, Tables C-3 (average year), C-6 (single-dry year), and C-9 (multiple-dry years) show VWC's total existing and planned supplies exceed demand from 2015 through 2050.*

Table 5.21-15
Summary of Projected Water Demands

Water Demands	2015	2020	2025	2030	2035	2040	2045	2050	Annual Increase
LACWWD 36[a]	1,759	2,189	2,619	3,048	3,478	3,908	4,338	4,768	3.5%
NCWD	12,571	14,246	15,922	17,598	19,273	20,949	22,624	24,300	2.2%
SCWD	31,633	34,814	37,995	41,176	44,357	47,538	50,719	53,900	1.7%
VWC	34,107	37,235	40,362	43,490	46,617	49,745	52,872	56,000	1.6%
Total Demand without Conservation	80,070	88,484	96,898	105,313	113,725	122,141	130,553	138,968	1.8%
Total Demand with Conservation	72,343	71,908	80,236	88,564	96,892	105,220	113,549	121,877	1.9%

Summary of demands from 2010 UWMP*, Tables 2-3 to 2-6.*

Summary reflects projected demands in the CLWA service area, which includes the service areas of the four retail purveyors in the Santa Clarita Valley (see 2010 UWMP*, Figure 1-1).*

Demands exclude non-purveyor demands. Similarly, supplies evaluated in the 2010 UWMP *exclude non-purveyor supplies.*

The projected water demands are based on an average year. In dry years, the 2010 UWMP *includes a 10-percent increase in demand.*

[a] *LACWWD 36 included for purposes of providing regional completeness; however, it is not required to prepare an 2010 UWMP.*

Source: 2010 UWMP.

To comply with SB 610, VWC also completed a WSA for the Project in 2014 (see **Appendix 5.21A** of this Draft EIR). VWC's WSA evaluates its ability to meet the Project's increase in water demand, in addition to the demand associated with existing and planned future land uses within VWC's service area.

VWC has reported it has sufficient capacity to meet the Project's potable water demand (703 afy), in addition to the demand associated with the existing and planned future land uses within its service area (see VWC's WSA included as **Appendix 5.21A** to this Draft EIR). As to the Project's recycled water demand (440 afy), VWC would deliver recycled water (purchased from CLWA) through connections from existing recycled water lines adjacent to the Project Site. As stated above, the Project would be required to construct on- and off-site recycled water infrastructure improvements to accommodate Project demand, pursuant to the County Code, Department of Public Works, VWC and County Fire Department design requirements.

Table 5.21-16, Total Water Supply v. Estimated Demand, on page 5.21-94 summarizes the existing and planned water supplies available to VWC to meet its demand over the SB 610 20-year planning horizon under average, single-dry, and multiple-dry years. Demands are shown with and without conservation. As shown, water supplies within the VWC service area are projected to exceed demand under all conditions through 2035.

As discussed above, the aquifer system in the Santa Clarita Valley (Alluvium and Saugus Formation) has neither historically nor currently been overdrafted, and groundwater remains a viable water source blended with imported supplies to meet the water demand of the Project and the demands associated with existing and other planned future land uses within VWC's service area.

There are no proposed municipal supply wells to be installed as part of the Project. However, as stated, retail purveyors, including VWC, blend imported water with water from their own wells in the Alluvium and Saugus Formation in order to meet water demand within their respective service areas. The actual mix between imported water and groundwater distributed by the retail purveyors in their respective service areas (including the Project site) varies over time in response to a range of considerations.

Further, perchlorate in local groundwater supplies has not, and is not anticipated to, substantially affect the reliability of the local groundwater. As discussed in this Draft EIR, the 2010 UWMP, Chapter 5 and Appendix I, and the *2009 Basin Yield Update*, planning for remediation of perchlorate is substantially underway and restoration of impacted well capacity has largely occurred. However, non-impacted production facilities remain reliable

Table 5.21-16
Total Water Supply v. Estimated Demand

Condition	Supply (in af)				
	2015	2020	2025	2030	2035
Average Year					
Supply[a]	106,607	110,157	113,357	117,707	121,207
Demand w/o conservation	80,070	88,484	96,898	105,312	113,726
Demand w/conservation	(7,727)	(16,576)	(16,662)	(16,748)	(16,834)
Total Adjusted Demand[b]	72,343	71,908	80,236	88,564	96,892
Surplus	*34,264*	*38,249*	*33,121*	*29,143*	*24,315*
Single-Dry Year					
Supply[c]	116,417	126,887	124,387	128,437	141,937
Demand w/o conservation	88,077	97,333	106,588	115,843	125,099
Demand w/conservation	(7,727)	(16,576)	(16,662)	(16,748)	(16,834)
Total Adjusted Demand[b]	80,350	80,757	89,926	99,096	108,265
Surplus	*36,067*	*46,130*	*34,461*	*29,341*	*33,672*
Multiple-Dry Year					
Supply[c]	124,517	134,252	133,852	138,802	149,802
Demand w/o conservation	88,077	97,333	106,588	115,843	125,099
Demand w/conservation	(7,727)	(16,576)	(16,662)	(16,748)	(16,834)
Total Adjusted Demand[b]	80,350	80,757	89,926	99,096	108,265
Surplus	*44,167*	*53,495*	*43,926*	*39,706*	*41,537*

[a] *Average year supplies includes existing supplies, existing banking programs, and planned supplies, but the planned supplies do not include planned banking programs because they are not needed in average years. SWP supplies are based on multiplying CLWA's Table A amount of 95,200 af by DWR's percentages of average, single-dry, and multiple-dry year deliveries projected to be available by DWR in the 2013 SWP Delivery Reliability Report.*

[b] *Total adjusted demand is arrived at by subtracting demand with conservation from demand without conservation.*

[c] *Single-dry and multiple-dry year supplies include existing supplies, existing banking programs, planned supplies, and planned banking programs because banking programs are needed in dry years. SWP supplies are based on multiplying CLWA's Table A amount of 95,200 af by DWR's percentages of average, single-dry, and multiple-dry year deliveries projected to be available by DWR in the 2013 SWP Delivery Reliability Report.*

Source: SB 610 Water Supply Assessment, 2014, provided in ***Appendix 5.21A*** *of this Draft EIR.*

and consistent with projected availability from the Alluvial aquifer and Saugus Formation during the time necessary to restore perchlorate-impacted wells.

In addition, water delivered by the retail purveyors consistently meets drinking water standards set by the USEPA and California Department of Public Health, according to annual reports provided by the CLWA and retail purveyors.

Based on the analysis set forth in this Draft EIR and VWC's WSA for the Project, VWC's total projected water supplies available during the next 20 years will meet projected water demands associated with the Project and existing and other planned future land uses within the VWC service area. This determination is consistent with the 2010 UWMP findings.

Further, VWC will continue to make programmed investments in both its operations and water capacity in the future as needed.[62] At the same time, CLWA and the retail purveyors (including VWC) have regularly issued annual water reports since 1998. These reports review the sufficiency and reliability of the Valley's water supplies in the context of existing demand, and provide a short-term outlook of water supply and demand each year. These reports allow CLWA and retail purveyors to annually manage and monitor supplies to meet water demands in the Valley.[63]

In summary, VWC has sufficient reliable water supplies available to serve the Project in conjunction with existing and projected water demands within its service area. The Project Site is not located in an area known to have an inadequate public water supply to meet domestic needs or to have an inadequate groundwater supply.

Based on the above analysis, the Project's operational water supply impacts would be less than significant.

(3) County Development Monitoring System

The DMS water supply criteria focuses on whether a project will be provided with an acceptable level of water supply; and to make that determination, DMS assesses whether a deficit or surplus would occur within the water provider's service area boundaries, calculated by determining the difference between the provider's current water demand and

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[62] *Personal communication, Keith Abercrombie, General Manager, Valencia Water Company, September 2014. 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. (2013 Santa Clarita Valley Water Report, p. 4-5, June 2014.)*

[63] *The most current Santa Clarita Valley Water Report was issued in June 2014, and it provided water supply and demand data from 2013.*

its capacity to supply water. The DMS criteria also account for the new project's anticipated water demand (or usage).

As previously stated, the Project would generate a total water demand of 1,143 afy. VWC's WSA confirms that VWC has sufficient capacity to meet the Project's total water demand, in addition to the demand associated with the existing and planned future land uses within its service area. As shown in **Table 5.21-16**, Total Water Supply v. Estimated Demand, VWC has a surplus of water for the next 20-year horizon. Accordingly, the Project would be consistent with DMS policies as they relate to water supply.

Threshold 5.21-3: Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level?

The total groundwater recharge for the Project was calculated using the estimated average annual results from the Project's water quality model. As stated above, total Project recharge was calculated as a combination of precipitation-based recharge (i.e., Project Site pervious area recharge, LID BMP infiltration recharge, and irrigation recharge).

Precipitation-based recharge was calculated as 25 percent of the pervious area losses due to infiltration. Using model results, the calculations for the existing and developed conditions are provided in **Table 5.21-17**, Existing Condition Pervious Area Recharge, on page 5.21-97 and **Table 5.21-18**, Developed Condition Pervious Area Recharge, on page 5.21-98.

LID BMP recharge is calculated as the difference between average annual model results for the developed condition with BMPs and the developed condition without BMPs. This difference is the amount assumed to be captured and retained by the BMP. For the Project, this value is 122 afy.

The irrigation recharge is calculated based on total area in each land use category, multiplied by estimated recharge in inches per irrigated land use type. A summary of the estimated recharge for existing and developed conditions is shown on **Table 5.21-19**, Project Recharge from Irrigation, on page 5.21-98.

The total Project recharge for existing and developed conditions, calculated as the sum of the three recharge totals included above, is provided in **Table 5.21-20**, Summary of Total Project Recharge, on page 5.21-99.

Table 5.21-17
Existing Condition Pervious Area Recharge

Step	Parameter (per year)	Value
1	Average Annual Rainfall (in)	18.3
2	Average Annual Rainfall Volume (af)[a]	765.9
3	Average Annual Runoff Volume (af)[b]	64.9
4	Average Total Losses (af)[c]	701.0
5	Impervious Runoff Coefficient (storms >0.1")[d]	0.97
6	Losses from Impervious Areas (af)	0.7
7	Losses from Pervious Areas (af)[e]	700.3
8	Pervious Area Recharge (af)[f]	175.1

[a] *Calculated as 18.33 watershed inches over the Project, converted to af.*
[b] *For model result, please refer to Geosyntec, Water Quality Technical Report (2014), Table 7-1.*
[c] *Losses = Rainfall – Runoff*
[d] *Used to calculate losses from impervious areas, which are not recharged to groundwater. These losses are typically from evaporation.*
[e] *Pervious Area Losses = Total Losses – Losses from Impervious Areas*
[f] *Pervious Area Recharge is calculated as 25 percent of Pervious Area Losses.*
Source: Geosyntec, 2014 (see the Entrada South Water Quality Technical Report provided in ***Appendix 5.10A*** *of this Draft EIR).*

Although precipitation recharge would decrease in the developed condition due to the increase in impervious area, the predicted increase in recharge due to infiltration of stormwater runoff in the LID BMPs and the incidental recharge associated with irrigation of landscaped areas would increase groundwater recharge overall. In the developed condition, groundwater recharge is estimated to increase by 91 af (46 percent). Based on the above analysis, the Project's impact on groundwater recharge is considered less than significant.

Threshold 5.21-5: Would the project site be located in an area known to have an inadequate water supply and/or pressure to meet fire fighting needs?

Table 5.21-18
Developed Condition Pervious Area Recharge

Step	Parameter (per year)	Value
1	Average Annual Rainfall (inches)	18.3
2	Average Annual Rainfall Volume (af)[a]	765.9
3	Average Annual Runoff Volume (af)[b]	340.2
4	Average Total Losses (af)[c]	425.7
5	Impervious Runoff Coefficient (storms >0.1")[d]	1.0
6	Losses from Impervious Areas (af)	6.9
7	Losses from Pervious Areas (af)[e]	418.8
8	Pervious Area Recharge (af)[f]	104.7

[a] *Calculated as 18.33 watershed inches over the Project, converted to af.*
[b] *For model result for developed condition without BMPs, please refer to Geosyntec, Water Quality Technical Report (2014), Table 7-1.*
[c] *Losses = Rainfall – Runoff*
[d] *Used to calculate losses from impervious areas, which are not recharged to groundwater. These losses are typically from evaporation.*
[e] *Pervious Area Losses = Total Losses – Losses from Impervious Areas*
[f] *Pervious Area Recharge is calculated as 25 percent of Pervious Area Losses*

*Source: Geosyntec, 2014 (see the Entrada South Water Quality Technical Report provided in **Appendix 5.10A** of this Draft EIR).*

Table 5.21-19
Project Recharge from Irrigation

Land Use	Recharge	Existing Condition		Developed Condition	
	af/afy	Acre	afy	acre	afy
Commercial	0.083	0.0	0.0	47.2	3.9
Education	0.083	0.0	0.0	9.4	0.8
Multi-Family Residential	0.183	0.0	0.0	77.0	14.1
Single-Family Residential	0.183	0.0	0.0	71.4	13.1
Parks (landscaped)	0.183	0.0	0.0	8.4	1.5
Open Space (landscaped)	0.183	0.0	0.0	155.4	28.4
Open Space (not landscaped)	0	478.2	0.0	83.2	0.0
Transportation (roads)	0	13.6	0.0	49.4	0.0
Irrigated Agriculture	2.4	9.6	23.1	0.0	0.0
Total	**—**	**501.4**	**23.1**	**501.4**	**61.8**

*Source: Geosyntec, 2014 (see the Entrada South Water Quality Technical Report provided in **Appendix 5.10A** of this Draft EIR).*

Table 5.21-20
Summary of Total Project Recharge

Average Annual Recharge Estimate	Existing (af)	Developed (af)
Precipitation Recharge	175	105
LID BMP Recharge	0	122
Irrigation Recharge	23	62
Total Recharge	**198**	**289**

*Source: Geosyntec, 2014 (see the Entrada South Water Quality Technical Report provided in **Appendix 5.10A** of this Draft EIR).*

(4) On-Site Impacts

The Project's on-site potable water system would be designed to provide sufficient capacity, pressure, and other design specifications to meet Project fire flows required by the County Fire Department. In addition, the Project Site is not located in an area known to have an inadequate water supply and/or pressure to meet fire fighting needs. Therefore, impacts associated with water supply and fire flow would be less than significant. For a further discussion of potential impacts with respect to fire services, please refer to **Section 5.15**, Public Services—Fire Protection, of this Draft EIR.

(5) Off-Site Impacts

The Project's off-site infrastructure water-related improvements would be designed in accordance with the County Code, including the Fire Code, and would be constructed under the oversight of the Department of Public Works, VWC, and the County Fire Department.

In addition, as previously stated, the Project's potable water system would consist of water storage for the Project provided by a proposed 4.0-million-gallon water tank to be constructed on an existing tank site pad located adjacent to Westridge Parkway, to the south of the Project's tract map site. The new water tank would be located next to an existing 4.0-million-gallon water tank. The new water tank has been designed to meet VWC storage capacity requirements.[64] As such, the Project's off-site water-related infrastructure improvements would provide sufficient capacity, pressure, and other design

[64] *Personal communication, Keith Abercrombie, General Manager, Valencia Water Company, September 2014.*

specifications to meet Project storage and fire flows, in accordance with VWC requirements. Therefore, impacts associated with water supply and fire flow would be less than significant.

4. CUMULATIVE IMPACTS

The California Urban Water Management Planning Act (Water Code Sections 10610 et seq.) mandates that certain urban water suppliers prepare and adopt a UWMP at least once every five years. CLWA and VWC are urban water suppliers for purposes of the Act, and in 2011, each entity separately adopted the 2010 UWMP. The Act requires urban water suppliers to assess the availability and reliability of water supplies to meet total existing and projected water demand over a 20-year period in five-year increments; however, CLWA and the retail purveyors exceeded the requirements of the Act by developing the 2010 UWMP spanning a 40-year period.

The geographic boundary for this cumulative water impact analysis is the CLWA service area, which includes the VWC service area, as reflected in the 2010 UWMP. This geographic boundary was used because the Project Site is located within these two service area boundaries. As previously discussed, the 2010 UWMP indicates that a reliable water supply will be available to serve Santa Clarita Valley water customers during the planning horizon set forth in the UWMP. The Project's anticipated build-out year is 2024. The UWMP's projected 2025 water demand with conservation is estimated at 80,236 af during an average year and at 89,926 af during dry years. These estimates account for the Project water demand and are consistent with population growth projections prepared for the County's General Plan and the adopted Area Plan. Based on the 2010 UWMP, CLWA and the retail purveyors have determined there are sufficient water supplies available for existing and future development within the CLWA service area (including the VWC service area) for the planning horizon through 2050.

The findings in the WSA are supported by data found in Appendix C of the 2010 UWMP. In Appendix C, VWC's projected 2025 water demand with conservation is estimated at 33,714 af during an average year and at 37,750 af in dry years. These estimates account for the Project's water demand in addition to existing and other planned future land uses within VWC's service area. In 2025, VWC's average year supply of 47,377 af exceeds its demand with conservation (33,714 af). Under single-dry year conditions in 2025, VWC's supply of 51,831 af exceeds its demand with conservation (37,750 af). In 2025, under multiple-dry year conditions, VWC's supply of 56,161 af exceeds its demand with conservation (37,750 af). Thus, VWC has determined there are sufficient water supplies available to meet Project and existing and other planned development within its service area.

As to non-potable (recycled) water, the WSA reports that VWC can deliver recycled water (purchased from CLWA) to meet the Project's non-potable demand, in conjunction with existing and other planned future land uses within VWC's service area. From an infrastructure standpoint, VWC would require the Project to construct on- and off-site recycled water infrastructure improvements to accommodate Project demand, pursuant to all regulatory requirements and design standards.

In addition, CLWA and the retail purveyors continue to assess the status of perchlorate remediation and restoration of perchlorate-impacted groundwater supply within the CLWA service area as reflected in the 2010 UWMP and 2013 Santa Clarita Valley Water Report. As reported, in 2012, CLWA and the impacted retail purveyors implemented the plan that combines pumping from two of the impacted wells (Saugus 1 and 2) and a water treatment process to restore the impacted pumping capacity and control migration of perchlorate in the aquifer system. Relatedly, VWC is currently pursuing restoration options at Saugus Well 201 that are expected to result in either installation of wellhead treatment to bring Well 201 back into service, or to replace its capacity with a new well. Other ongoing efforts include development and implementation of the clean-up plan for the former Whittaker-Bermite site. Thus, CLWA and the purveyors have determined that the few remaining perchlorate-impacted wells do not impact the Valley purveyors' ability to meet existing and projected water demands.

Cumulative groundwater recharge impacts were also evaluated in the Project's Water Quality Technical Report prepared by Geosyntec Consultants (provided in **Appendix 5.10A** of this Draft EIR). In summary, Geosyntec made the following findings relative to cumulative groundwater recharge impacts:

(1) A number of studies, including those by CLWA and the retail purveyors, have documented long-term stability of groundwater levels in both the Alluvial aquifer and the Saugus Formation.

(2) This long-term (several decades) stability of the Alluvial aquifer and the Saugus Formation has occurred simultaneously with urban growth, as well as two extended periods of successive dry years.

(3) A calibrated model of surface water and groundwater interactions for the period 1975 to 2005 confirms that even with growth and increased water use, groundwater levels in the Alluvial aquifer and Saugus Formation have been relatively stable, indicating that recharge of the aquifers has kept pace with groundwater extraction.

(4) Future modeling scenarios incorporating planned development, including the Project and related cumulative development, through 2030 indicate continued long term stability of aquifer water levels.

Based on the above discussion, cumulative impacts on groundwater recharge are considered less than significant.

In summary, Project demand, in combination with the demand associated with other foreseeable development accounted for in the 2010 UWMP would not impair CLWA's or VWC's ability or capacity to provide existing and projected water service within their respective service areas.

(1) County Development Monitoring System

For DMS compliance purposes, as discussed above, VWC's WSA reports that VWC has sufficient capacity to meet the Project's potable demand (703 afy), in addition to the demand associated with the existing and planned future land uses within its service area. The above analysis is also consistent with DMS criteria as it relates to water supplies. Specifically, the analysis shows that VWC has adequate capacity to supply water to the Project in addition to the demands associated with existing and other planned future land uses within its service area. Accordingly, the Project is consistent with the DMS policies as they relate to water supplies.[65]

5. MITIGATION MEASURES

a. Newhall Ranch RMDP/SCP Mitigation Measures

The Newhall Ranch RMDP/SCP EIS/EIR determined that water supply and service impacts would be less than significant. Thus, no mitigation measures were required.

b. Entrada South Project-Level Mitigation Measures

Project impacts to VWC's available water supply and water delivery system would be less than significant. In addition, cumulative impacts on the water supplies and water delivery systems would be less than significant. Thus, no mitigation measures would be required.

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[65] *With enactment of the California Urban Water Management Planning Act, and laws linking water and land use planning (SB 610 and SB 221), the County has elected to rely on the water service providers'* 2010 UWMP *and the Project WSA in lieu of County DMS build-out data for the reasons specified in subsection 2.a.(4)(c),County Development Monitoring System, above.*

Measures designed to mitigate impacts related to biological resources, air quality, noise, and traffic that could result from installation of the proposed on- and off-site water infrastructure are addressed in the respective sections of this Draft EIR.

6. LEVEL OF SIGNIFICANCE AFTER MITIGATION

As indicated above, project and cumulative impacts on water supplies and water delivery systems would be less than significant, and no mitigation measures would be required.