Final

2015 Urban Water Management Plan

for the

San Lorenzo Valley Water District

Prepared by

WSC
WATER SYSTEMS CONSULTING, INC.

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LIST OF TERMS AND ACRONYMS

Acronym, Term or Abbreviation	Definition
AF	Acre-feet
AFY	Acre-feet per year
AMBAG	Association of Monterey Bay Area Governments
AWWA	American Water Works Association
BMP	Best Management Practice
CAW	California American Water Company
CCF	Hundred Cubic Feet
CDDW	California Division of Drinking Water
CII	Commercial, Industrial, and Institutional
CIMIS	California Irrigation Management Information System
County	County of Santa Cruz
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
DMM	Demand Management Measure
DOF	California Department of Finance
DWR	California Department of Water Resources
EPA	Environmental Protection Agency
ETo	Reference Evapotranspiration

Acronym, Term or Abbreviation	Definition
GAC	Granular activated carbon
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GPCD	gallons per capita per day
gpm	Gallons per minute
HCF	Hundred Cubic Feet
HECW	High Efficiency Clothes Washer
HET	High Efficiency Toilets
IRWMP	Integrated Regional Water Management Plan
ITP	Independent Technical Panel
IWA	International Water Association
LAFCO	Local Agency Formation Commission
MCLs	Maximum Contaminant Levels
MG	Million Gallons
MGD	Million Gallons per Day
MGY	Million Gallons per Year
NRW	Non-Revenue Water
SB7	Senate Bill x 7-7
SB7 Guidebook	the California Department of Water Resources' *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*
SCCWD	Santa Cruz City Water District
SGMA	Sustainable Groundwater Management Act
SLVWD	San Lorenzo Valley Water District
SWRCB	State Water Resources Control Board
SVWD	Scotts Valley Water District
SWTR	Surface Water Treatment Rule
TAZ	Transportation Analysis Zone
TDS	Total Dissolved Solids
UWMP	Urban Water Management Plan
UWMP Act	Urban Water Management Planning Act
UWMP Guidebook	DWR's *Guidebook to Assist Water Suppliers in the Preparation of a 2015 Urban Water Management Plan*
WEWAC	Water Education–Water Awareness Committee
WRF	Water Reclamation Facility
WTP	Water Treatment Plant

EXECUTIVE SUMMARY

The San Lorenzo Valley Water District (SLVWD or District) has prudently monitored and managed its water resources for many years. Faced with increasingly restrictive budgets, low population growth, limited resources, and its commitment to protecting the environmental health of the watershed and serving the needs of the communities it serves, the District has fostered a management style which is pro-active rather than reactive, with an emphasis on actions that achieve practical results. This philosophy is the foundation for the District's development of the Urban Water Management Plan (UWMP). The 2010 UWMP was also completed and accepted by the Department of Water Resources (DWR) in 2015. That plan includes significantly more data and analysis above and beyond what was required by the DWR. For those who are interested in more detail, please visit the District website: http://slvwd.com/_PubDocs.htm.

The District has undertaken the preparation of this document to evaluate current water supply and demand and to plan for needed expansion and improvements through the year 2035. The purposes of the UWMP are to assess current and future water use trends in the community, describe the sources of water supply and the water system, and document the water demand management measures in place to balance supply and demand. Although the effects of climate change are not specifically evaluated in this document, the District is taking measures to plan for and implement projects which will mitigate the long term effects of climate change. This UWMP assumes that present water production can be increased to meet increased demands associated with the expected increase in population and in case of prolonged drought associated with climate change. The District is actively working to ensure water reliability during extended dry periods through the following efforts:

- **Santa Margarita Groundwater Sustainability Agency Formation**

  The District is working with a multi-stakeholder group, primarily consisting of adjacent water agencies and the County of Santa Cruz, to form a Groundwater Sustainability Agency for the shared Santa Margarita Groundwater Basin. The Department of Water Resources recently accepted the stakeholder group's application to re-draw the boundary of the Santa Margarita Groundwater Basin to more accurately reflect the reality of the geology and topography delineating the aquifer. The stakeholder group is currently working on the Memorandum of Understanding (MOU), and other official documents, which will lead to agreements to sustainably manage the Santa Margarita and Lompico Groundwater Basin.

- **San Lorenzo Conjunctive Use and Baseflow Enhancement Plan**

  The District is collaborating with the County Water Resources Division on a Proposition 1 planning grant to develop a *San Lorenzo Watershed Conjunctive Use and Baseflow Enhancement Plan* (Plan) to improve water resource efficiency, thereby benefiting essential

local fisheries, wildlife and the community. The Plan will provide guidance for diverting excess winter surface flow in the San Lorenzo River Watershed to meet water supply needs, resting groundwater wells, and providing active, passive, and/or in-lieu groundwater recharge. During the dry season, the augmented groundwater will be used to meet demands and reduce stream diversions. The District anticipates that conjunctive use of surface and groundwater will lead to increased stream baseflow during summer and other critical times benefitting fisheries, and will also contribute to increased storage, recovery, and sustainable management of the Santa Margarita Groundwater Aquifer.

- **Felton Water System Infrastructure Improvement, Micro-Hydro Energy Efficiency Project, and Streamflow Enhancement on Fall Creek.**

The District's Capital Improvement Plan has identified the Felton System as a priority for the District's next capital improvement project. The project will improve efficiencies in the Felton system by increasing the use of Bull and Bennett Creeks, increasing the bypass flows in Fall Creek, improving baseflow in the San Lorenzo River, and incorporating a micro-hydro energy plant adjacent to the surface water treatment plant in Felton. This project will have multiple benefits including decreasing the District's carbon footprint.

- **Zayante Creek Large Wood Project**

The District is collaborating with the Santa Cruz County Health Services Agency, Environmental Health Services, Water Resources Division, the City of Santa Cruz, State and Federal agencies, and the Resource Conservation District of Santa Cruz County to install large wood into the creek bed on District property in the Upper Zayante Watershed. In addition to the many benefits to riparian and instream fish habitat, this project will build up the streambed, slow the water in the creek and allow for more percolation into the groundwater aquifer adding to aquifer storage and improving baseflow in the San Lorenzo Watershed.

- **Santa Margarita Aquifer Injection or In-lieu Recharge Project**

The District is partnering with both the City of Santa Cruz Water Department and Scott's Valley Water District to evaluate options to actively recharge the Santa Margarita Groundwater Basin. This could include utilizing stormwater runoff to actively inject water into the aquifer and/or to serve customers in groundwater areas to allow wells to rest and recover.

This UWMP is consistent with the goals and policies presented in the District's Water Supply Master Plan (Johnson, May 2009) and works in conjunction with that plan to provide adequate water resources to meet the District's future planned growth.

The District's UWMP has been prepared in accordance with the Urban Water Management Planning Act (UWMP Act). The UWMP Act is defined by the California Water Code, Division 6, Part 2.6, and Sections 10610 through 10657. The UWMP Act became part of the California Water Code (CWC) with the passage of Assembly Bill 797 during the 1983-1984 regular session of the California legislature. The UWMP Act requires every urban water supplier that provides water for municipal purposes to more than 3,000 connections, or supplies more than 3,000 acre-feet (AF) of water annually, to adopt and submit a plan every five years to the California Department of Water Resources (DWR). Subsequent assembly bills have amended the UWMP Act. This plan serves as a long-range planning document for water supply and includes the following sections:

1. Introduction and Overview
2. Plan Preparation
3. System Description
4. Baselines and Targets
5. System Water Use
6. System Supplies
7. Water Supply Reliability
8. Water Shortage Contingency Planning
9. Demand Management Measures
10. References

In summary, based on the water supply and demand analysis provided in this UWMP, and with continued proactive management of its water resources, the District's water supply is adequate to meet both current and future water demands as shown in Table E-0-1.

E-0-1 Future Water Supply and Demand Summary, AFY

	2020	2025	2030	2035
Supply totals (AFY)[(1)]	2,107	2,132	2,180	2,216
Demand totals (AFY)[(2)]	2,107	2,132	2,180	2,216
Difference (AFY)	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

[1] Based on combined well production capabilities and pumping records from 2000-2015. See Sections 6 and 7 for more information on how these values were estimated.
[2] Demand totals are calculated by multiplying projected population by 84 GPCD (the District's SB7 water use target)

1 INTRODUCTION AND OVERVIEW

The California Water Code requires urban water suppliers within the state to prepare and adopt Urban Water Management Plans (UWMPs) for submission to the California Department of Water Resources (DWR). The UWMPs, which are required to be filed every five years, must satisfy the requirements of the Urban Water Management Planning Act (UWMP Act) of 1983, including amendments that have been made to the Act and other applicable regulations. The UWMP Act requires urban water suppliers servicing 3,000 or more connections, or supplying more than 3,000 acre-feet (AF) of water annually, to prepare an UWMP. Thus, the San Lorenzo Valley Water District (SLVWD or District) is required to prepare an UWMP.

The purpose of the UWMP is for water suppliers to evaluate their long-term resource plans and establish management measures to ensure adequate water supplies are available to meet existing and future demands. The UWMP provides a framework to help water suppliers maintain efficient use of urban water supplies, continue to promote conservation programs and policies, ensure that sufficient water supplies are available for future beneficial use, and provide a mechanism for response during drought conditions.

The UWMP is a valuable planning tool used for multiple purposes including:

- Serving as a valuable resource to the communities the District serves and other interested parties regarding water supply and demand, conservation and other water related information;
- Meeting a statutory requirement of the California Water Code (CWC);
- Providing a key source of information for Water Supply Assessments (WSAs) and Written Verifications of Water Supply;
- Supporting regional long-range planning documents including District and County General Plans;
- Providing a standardized methodology for water utilities to assess their water resource needs and availability;
- Serving as a critical component of developing Integrated Regional Water Management Plans (IRWMPs); and
- Providing a resource for regional involvement in the California Water Plan.

This plan, which was prepared in compliance with the CWC and as set forth in the 2015 guidelines and format established by the DWR, constitutes the District's 2015 UWMP.

2 PLAN PREPARATION

This plan was prepared following guidance from DWR's *Guidebook to Assist Water Suppliers in the Preparation of a 2015 Urban Water Management Plan* (UWMP Guidebook): (California Department of Water Resources, March 2016), DWR Urban Water Management Plans Public Workshops and Webinars, *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* (SB7 Guidebook) (California Department of Water Resources, February 2016), and the 2015 DWR Review Sheet Checklist (Appendix A).

The 2015 UWMPs must be submitted to DWR by the water purveyors by July 1, 2016. Usually, UWMPs are due on December 31 of years ending in '0' and '5', but a six-month extension has been granted for submittal of the 2015 UWMPs. The draft 2015 UWMP Guidebook became available in November 2015 and was finalized in February 2016. DWR's 2015 UWMP schedule is summarized in Table 2-1.

Table 2-1 DWR Schedule

Date	Event/Task
November, 2015	Draft Guidebook released
December, 2015	Workshops
January, 2016	Final Draft Guidebook released
March, 2016	Final Guidebook, materials and tools released
July, 2016	UWMPs due to DWR

A DWR Review Sheet checklist is provided in Appendix A as a reference for the various sections within this UWMP that address the requirements of the UWMP Act.

Table 2-2 summarizes changes to the UWMP Act since 2010 that have been addressed in this UWMP.

Table 2-2 Summary of Changes in the UWMP Act Since 2010

Change	CWC Section	Legislative Bill	Summary
Demand Management Measures	10631 (f)(1) and (2)	AB 2067, 2014	Requires water suppliers to provide narratives describing their water demand management measures, as provided. Requires retail water suppliers to address the nature and extent of each water demand management measure implemented over the past 5 years and describe the water demand management measures that the supplier plans to implement to achieve its water use targets.
Submittal Date	10621 (d)	AB 2067, 2014	Requires each urban water supplier to submit its 2015 plan to the Department of Water Resources by July 1, 2016.

Change	CWC Section	Legislative Bill	Summary
Electronic Submittal	10644 (a) (2)	SB 1420, 2014	Requires the plan, or amendments to the plan, to be submitted electronically, including any standardized forms, tables, or displays specified by the department.
Standardized Forms	10644 (a) (2)	SB 1420, 2014	Requires the plan, or amendments to the plan, to include any standardized forms, tables, or displays specified by the department.
Water Loss	10631 (e) (1) (J) and (e) (3) (A) and (B)	SB 1420, 2014	Requires a plan to quantify and report on distribution system water loss.
Estimating Future Water Savings	10631 (e) (4)	SB 1420, 2014	Provides for water use projections to display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans, when that information is available and applicable to an urban water supplier.
Voluntary Reporting of Energy Intensity	10631.2 (a) and (b)	SB 1036, 2014	Provides for an urban water supplier to include certain energy related information, including, but not limited to, an estimate of the amount of energy used to extract or divert water supplies.
Defining Water Features	10632	AB 2409, 2010	Requires urban water suppliers to analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.

2.1 COORDINATION

To prepare this UWMP, the District coordinated with multiple neighboring and stakeholder agencies. The coordination efforts were conducted to: 1) inform the agencies of the District's efforts and activities; 2) gather high quality data for use in the development of this UWMP; and 3) coordinate planning activities with other related regional plans and initiatives. On February 4, 2016, Staff attended a meeting with other Santa Cruz County urban water suppliers, local land use planning agencies, the Association of Monterey Bay Area Governments (AMBAG), and others to coordinate preparation of the UWMP. Changes in the plan since 2010, population and regional growth forecasts, existing and planned sources of water, and demand-side issues were discussed. Additionally, SLVWD hosted a Joint Board Meeting with Scotts Valley Water District in May 2016 to coordinate UWMP efforts. The coordination activities conducted by the District are summarized in Table 2-3. The coordination notification letters and meeting agendas can be found in Appendix B.

Table 2-3 Agency Coordination

Agency / Organization	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt
Water Suppliers						
City of Santa Cruz Water Dept.					X	X
Scotts Valley Water District			X	X	X	X
Big Basin Water Company					X	X
Soquel Creek Water District					X	X
Water Management Agencies						
Santa Cruz Co. Health Services Agency, Environmental Health Services, Water Resources Division					X	X
Other Relevant Public Agencies						
City of Scotts Valley				X		
AMBAG				X		
Santa Cruz Co. Board of Supervisors						X

2.2 PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

To fulfill the requirements of Water Code Section 10621(c), the District sent letters of notification of preparation of the 2015 UWMP to neighboring water agencies and Santa Cruz County 60 days prior to the public hearing. Copies of the 60-day notification letters are attached as Appendix B.

To fulfill the requirements of Water Code Section 10642 of the UWMP Act, the District made the draft 2015 UWMP available for public review and held a public hearing on November 3, 2016. The public hearing was noticed starting on October 17, 2016. The hearing notice is attached in Appendix B. In addition, the District maintained a copy of the draft UWMP in its office prior to the public hearing.

Verbal and written comments on the Final Draft 2015 UWMP taken into consideration as well as District responses are summarized in Appendix B.

The Final 2015 UWMP was formally adopted by the District's Board of Directors (Board) on November 3, 2016. A copy of the Adoption Resolution is included in Appendix C. A copy of the Final 2015 UWMP was sent to the California State Library, DWR (electronically using the WUEdata reporting tool), and other appropriate agencies within 30 days of adoption. The District will make the 2015 UWMP available for public review in its offices during normal hours no later than 30 days after the adoption of the plan by the District Board and filing with DWR.

The implementation of this plan shall be carried out as described unless significant changes occur between the adoption of this plan and the 2020 plan. If such significant changes do occur, the District will amend and readopt the plan as required by the CWC.

3 SYSTEM DESCRIPTION

3.1 SERVICE AREA DESCRIPTION AND BOUNDARIES

Established in 1941, SLVWD continues to serve several communities within the 136 square-mile San Lorenzo River watershed (Figure 3-1). The District owns, operates, and maintains three water systems that supply separate service areas from separate water sources (Figure 3-1). The North Service Area includes the unincorporated communities of Boulder Creek, Brookdale, and Ben Lomond. The South Service Area encompasses portions of the City of Scotts Valley and adjacent unincorporated neighborhoods. The Mañana Woods subdivision became part of the South Service Area as a result of the District's annexation of the Mañana Woods Mutual Water Company in July 2006. The Felton Service Area was acquired by the District from California American Water (CAW or Cal-Am) in September 2008 and includes the town of Felton and adjacent unincorporated areas. It was owned and operated by Citizen Utilities Company of California prior to 2002.

The District's legal boundaries encompass three service areas, referred to as North, South, and Felton systems, with a combined area of approximately 61 square miles (39,042 acres) (Figure 3-1). The District is designated as Public Water System (ID # CA4410014) as defined by the California Health and Safety Code. The individual areas are as follows:

- North Service Area (57 square miles or 36,648 acres)
- South Service Area (0.8 square mile or 511 acres)
- Felton Service Area (2.9 square miles or 1,884 acres)

The San Lorenzo River watershed extends 21 miles from the river's mouth at Monterey Bay in Santa Cruz to the river's headwaters along Santa Cruz County's northern boundary (Figure 3-1). The valley is framed by the crest of the Santa Cruz Mountains along the north and northeast (maximum elevation 3,200 feet above mean sea level [ft msl]), and Ben Lomond Mountain along the west (2,600 ft msl). The District's service areas range in elevation from approximately 200 ft msl near Felton to as high as 1,400 ft msl along the eastern flank of Ben Lomond Mountain.

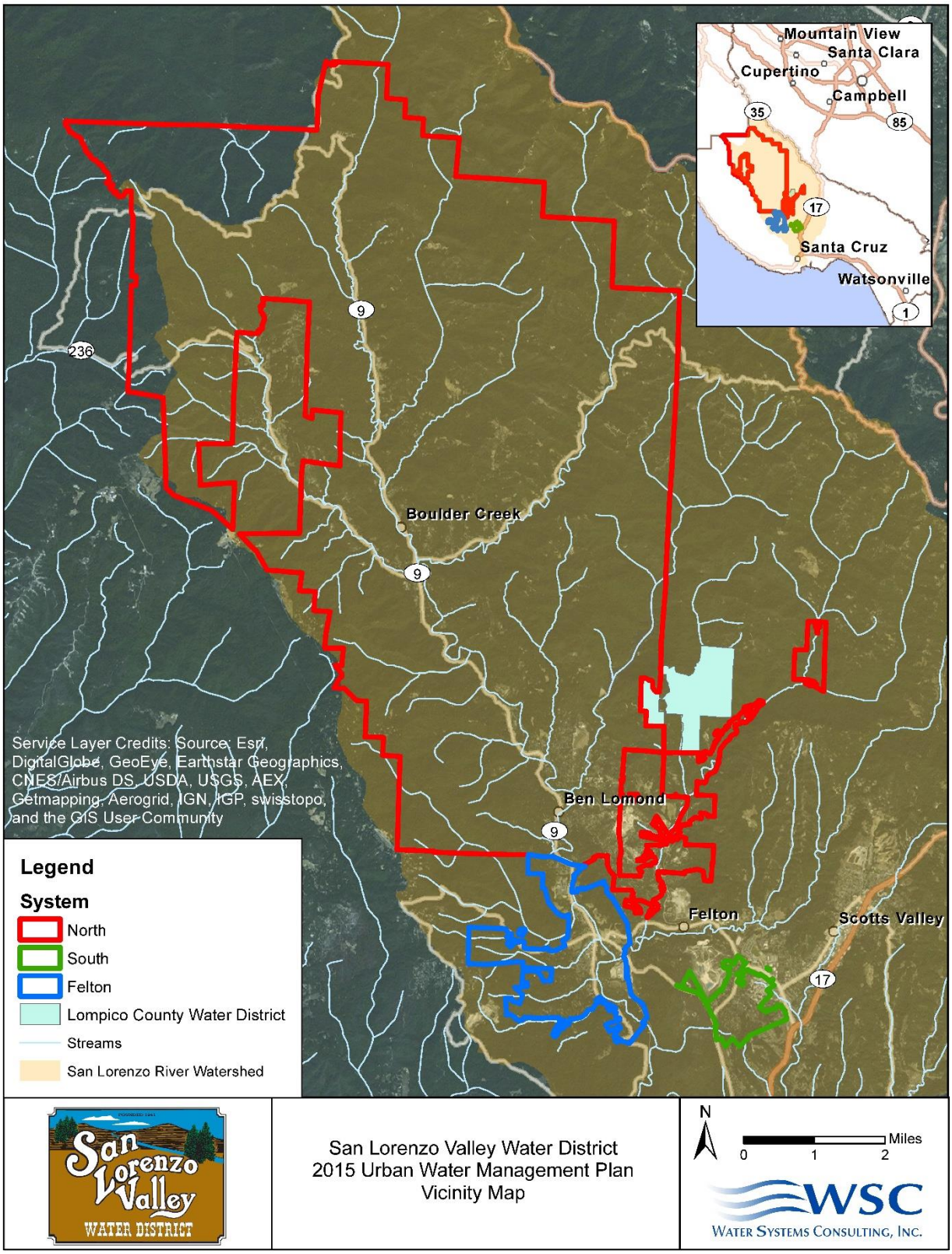

Figure 3-1 SLVWD Boundaries and Service Areas

3.2 SERVICE AREA CLIMATE

The District occupies a coastal valley climate zone that receives significant winter precipitation and relatively little summer coastal fog. The mean annual temperature at Ben Lomond is 57 degrees Fahrenheit (°F) and monthly mean temperatures range from 50°F in December and January to 63°F in August. This report refers to precipitation generally as rainfall, although snow occurs infrequently at higher elevations. Table 3-1 summarizes monthly average reference evapotranspiration (ETo) rates, rainfall, and temperature.

Table 3-1 Climate Data

	Jan	Feb	March	April	May	June	Annual
Standard Monthly Reference Evapotranspiration (Eto) (inches)[1]	1.61	2.11	3.56	4.43	5.18	5.48	
Average Total Precipitation (inches)[2]	6.14	5.42	4.33	1.92	0.8	0.22	
Average Temperature (Fahrenheit)[2]	49.7	51.7	53.52	55.75	58.38	61.43	
	July	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Annual**
Standard Monthly Reference Evapotranspiration (Eto) (inches)[1]	5.18	4.86	3.91	2.96	1.72	1.35	42.35
Average Total Precipitation (inches)[2]	0.06	0.07	0.42	1.39	3.31	5.24	29.33
Average Temperature (Fahrenheit)[2]	63.01	63.38	63.11	59.92	54.5	50.1	57.1

[1] Standard monthly reference evapotranspiration (Eto) data are from the California Irrigation Management Information System (CIMIS) web site at http://wwwcimis.water.ca.gov/WSNReportCriteria.aspx. Data from the Santa Cruz, CA station No. 104 over the time period September 1990 through May 2016.
[2] Average total precipitation and average temperature data are from the Western Regional Climatic Center administrated by NOAA at web site http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7916. Data from the Santa Cruz, CA station No. 047916 recorded from January 1, 1893 to January 20, 2015. Temperature data from the Santa Cruz, CA station No. 047916 recorded from January 1, 1893 to May 2015. http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7916

3.3 SERVICE AREA POPULATION

The population within the areas directly served by the District's distribution systems was approximately 21,924 in 2015. The Association of Monterey Bay Area Governments (AMBAG) estimated historical and forecasted population, housing and employment from 2010 through 2035 based on analysis of 2010 United States Census (US Census) data, California Department of Finance (DOF) data, and AMBAG's forecast data developed with the Santa Cruz Local Agency Formation Commission (LAFCO), cities, counties, and other agencies. (Association of Monterey Bay Area Governments, June 11, 2014). AMBAG uses these data sources and agency resources to incorporate

planned developments, specific and General Plan research, and economic development plans into their forecast data. AMBAG used this data to estimate historical and forecasted population, housing and employment for the County and then more specifically for more granular study areas called Transportation Analysis Zones (TAZs) within the County. The TAZ data was overlaid on the District's service areas using Geographical Information Systems (GIS) software to develop population growth rates as shown in Table 3-2. It was assumed that each of the District's service areas' population growth rates would be the same as the total population growth rates for the TAZs overlaying each service area.

Table 3-2 Annual Growth Rate Projections

	2016-2020[1]	2021-2025[1]	2026-2030[1]	2031-2035[1]
North System	0.57%	0.26%	0.47%	0.35%
South System	0.01%	0.08%	0.15%	0.12%
Felton System	0.69%	0.69%	0.69%	0.69%

[1] Annual growth rates were calculated based on the AMBAG 2014 Regional Growth Forecast for the TAZs overlaying each SLVWD service area.

Table 3-3 Historical, Current, & Projected Population

	2010	2015	2020	2025	2030	2035
North System	15,693	15,882	16,342	16,553	16,947	17,248
South System	2,763	2,796	2,798	2,810	2,831	2,848
Felton System	3,193	3,246	3,360	3,414	3,515	3,592
Total	**21,649**	**21,924**	**22,500**	**22,776**	**23,293**	**23,688**

Note: Population figures based on DWR population tool, 2010 Census Block data and the growth rates in Table 3-2.

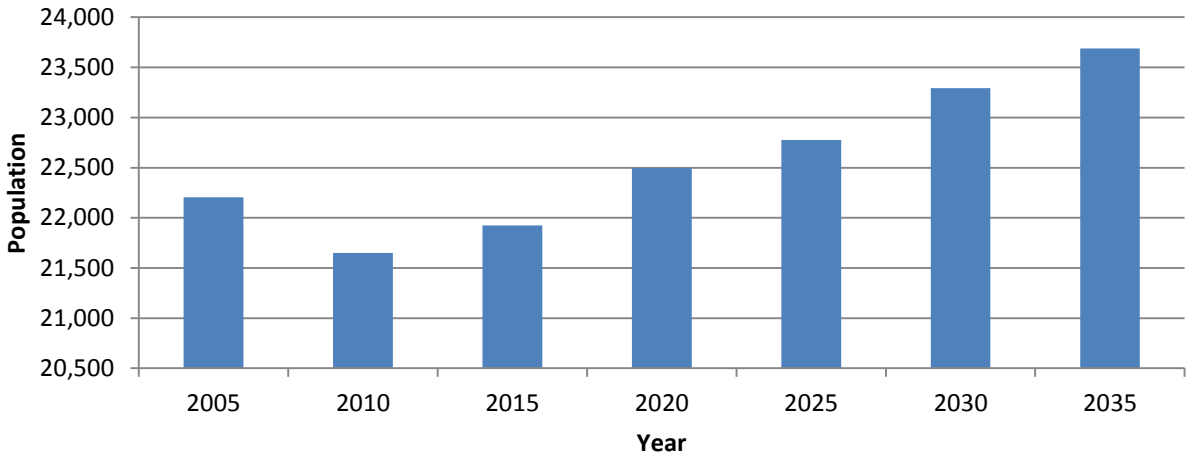

Figure 3-2 Historical, Current and Projected Population

3.4 SERVICE AREA DEMOGRAPHICS

Figure 3-3 shows the distribution of various land use types within SLVWD and the surrounding area. Land uses include timber, State and regional parks, rural residential, low-density urban residential and commercial, quarries, agriculture, and other open space. The majority of the District's customers are low density and rural residential customers within areas zoned primarily as rural (1 residence or less per acre). Population density varies between each service area with approximately 3 people per connection in the North System, 4.1 in the South System, and 2.4 in the Felton System.

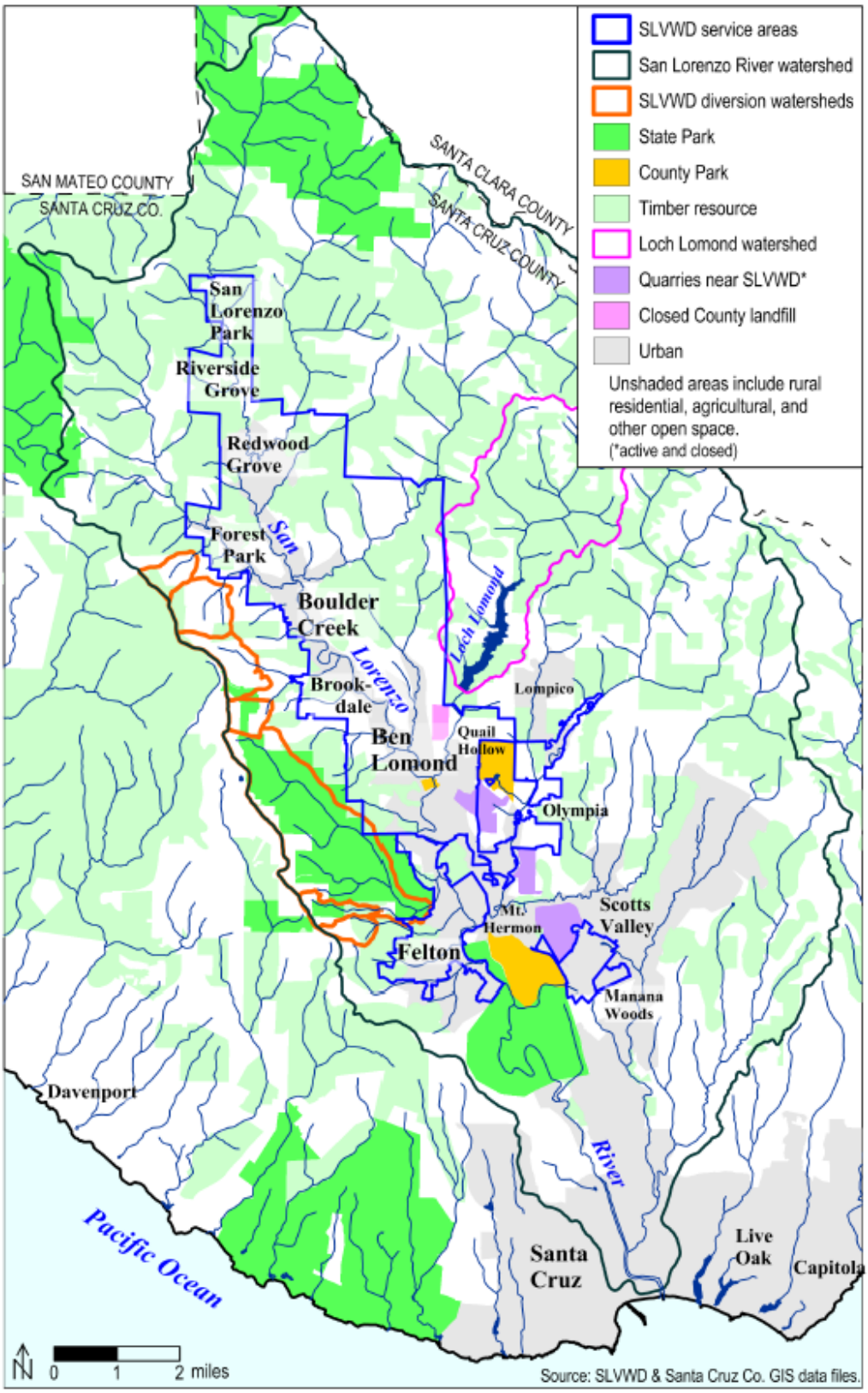

Figure 3-3 San Lorenzo Valley Land Uses (Nicholas M. Johnson, Ph.D., R.G., C.Hg., August 2015)

4 BASELINES AND TARGETS

Senate Bill x 7-7 (SB7), which was incorporated into the UWMP Act in 2009, requires all water suppliers to increase water use efficiency with the overall goal to decrease per-capita water consumption within the state by 20 percent by the year 2020. SB7 required DWR to develop certain criteria, methods, and standard reporting forms through a public process that could be used by water suppliers to establish baseline water use and determine water conservation targets. SB7 and the SB7 Guidebook specify methodologies for determining the baseline water demand, 2015 interim urban water use target, and the 2020 urban water use target for the District, as described in the following sections. The baseline, targets, and compliance per capita water use can be determined for each of the District's systems separately or for the entire District service area using a population weighted average. However, even if the compliance per capita water use is determined for each system separately, the entire District's per capita water use must meet the District-wide targets. Therefore, the District's final 2020 target water use of 84 gallons per capita per day (GPCD) for all systems was calculated using the SB7 Guidebook's Method 1 as described in Sections 4.2.1 and 4.4.

4.1 BASELINE WATER USE

The first step in developing the baseline water use for the District is determining the applicable range of years over which to calculate the baseline average. The UWMP Act stipulates that an agency may use either a 10- or 15-year average to determine their baseline. If 10 percent of total urban retail water deliveries in 2008 were from recycled water, then the agency can use a 15-year average baseline if it chooses. The District's recycled water use was less than 10 percent of its 2008 retail water delivery. Consequently, the first baseline period will consist of a continuous 10-year period that can be selected between 1995 and 2010.

As shown in Table 4-1, the District's selected 10-year base period begins in year 1999 and ends in year 2008[1]. This baseline period was chosen to give the District the most flexibility in meeting the state mandated water reduction requirement. In addition to the 10-year baseline, a 5-year baseline is also calculated, which is used to establish the minimum criteria for the District's use reduction targets. The UWMP Act requires the use of a continuous 5-year range with the end of the range ending between December 31, 2007 and December 31, 2010 to determine the baseline. As shown in Table 4-2, the

[1] It is important to note that the baseline period can end no later than 2010 to meet SB7 requirements. As described in Section 4.4, the selected target water use reflects expected demand patterns based on historical usage, anticipated climate change impacts, and the District's commitment to sustainable water resource management. Based on Governor Brown's Executive Order B-37-16, revised baselines, targets and water use reduction methodologies will be developed by 2017. The State Water Resource Control Board, DWR, California Public Utilities Commission and the California Energy Commission will develop an action plan to implement the Executive Order by 2017. It is anticipated that the implementation of the action plan will require legislative action to enact any new requirements. Depending on the outcome of the process, the District will respond accordingly to make any adjustments necessary to meet new requirements.

District's selected 5-year base period begins in year 2003 and ends in year 2007. The District's historical gross water use and per capita water use for the period of 1995 through 2015 is shown in Figure 4-1.

Table 4-1 Ten-Year Baseline Period

Calendar Year	Distribution System Population	Daily System Gross Water Use (mgd)	Annual Daily Per Capita Water Use (GPCD)	10 year running average
1995	22,252	2.09	94	
1996	22,353	2.22	99	
1997	22,455	2.14	96	
1998	22,556	2.13	94	
1999	22,658	2.29	101	
2000	22,759	2.33	102	
2001	22,648	2.39	105	
2002	22,537	2.41	107	
2003	22,426	2.36	105	
2004	22,315	2.38	107	
2005	22,204	2.33	105	102
2006	22,093	2.40	108	103
2007	21,982	2.32	105	104
2008	21,871	2.13	97	104
2009	21,760	1.97	90	103
2010	21,649	1.97	91	102
Base Daily Per Capita Water Use				**104**

Table 4-2 Five-Year Baseline Period

Calendar Year	Distribution System Population	Daily System Gross Water Use (mgd)	Annual Daily Per Capita Water Use (GPCD)	5 year running average
2003	22,426	2.4	105	
2004	22,315	2.4	107	
2005	22,204	2.3	105	
2006	22,093	2.4	108	
2007	21,982	2.3	105	106
2008	21,871	2.1	97	105
2009	21,760	2.0	90	101
2010	21,649	2.0	91	99
Base Daily Per Capita Water Use				**106**

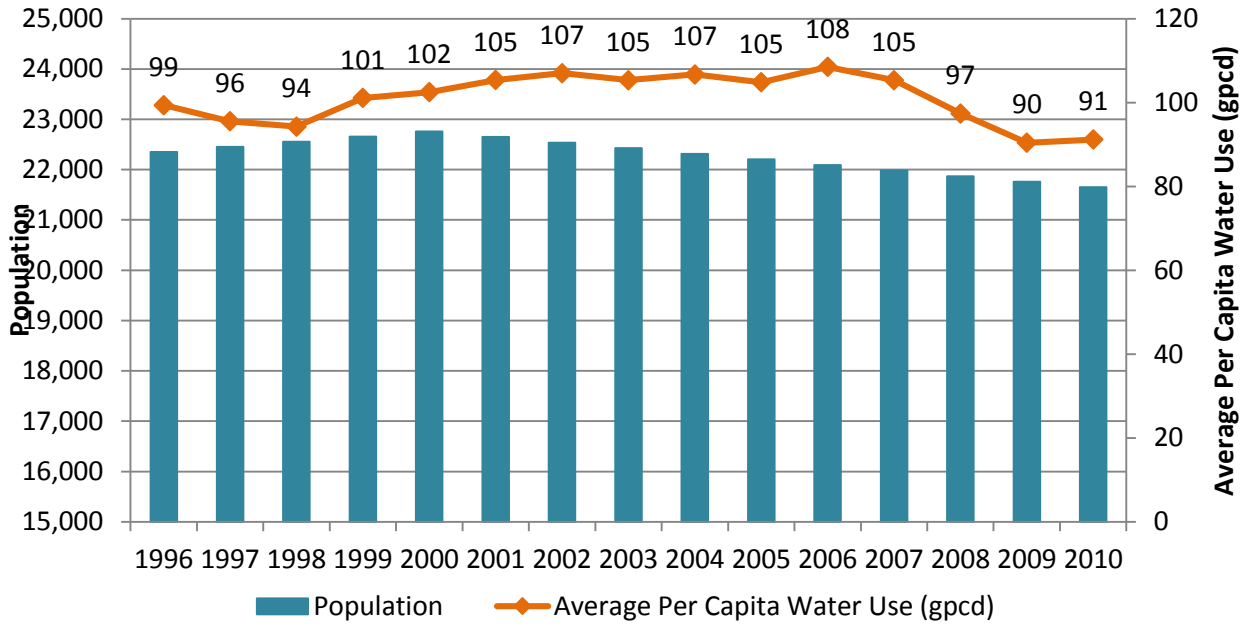

Figure 4-1 Historic Gross Water Use and Per Capita Water Use

4.2 TARGET WATER USE

DWR provided four different methods to establish water conservation targets. These four methods are summarized in the following sections.

4.2.1 Method 1 - Baseline Reduction Method

The Method 1 2020 water conservation target is defined as a 20 percent reduction of average per-capita use from the 10-year continuous baseline period. Based on the baseline daily per capita use of 104 gallons per capita per day (GPCD) determined previously, the target use for Method 1 is 84 GPCD. The 2015 interim water use target is simply the midpoint of the baseline and the 2020 water conservation target, or 94 GPCD for Method 1 in the District's case.

4.2.2 Method 2 - Efficiency Standard Method

The 2020 water conservation target of Method 2 is determined by calculating efficiency standards for indoor use separately from outdoor use for residential sectors, and an overall reduction of 10 percent for commercial, industrial, and institutional (CII) sectors. The aggregated total of the efficiency standards in each area is then used to create a conservation target.

Very few agencies within the State have the data necessary to determine a target water use using Method 2. It is not feasible for the District to use this methodology since the District lacks the detailed landscaped area estimates to calculate the landscaped area water use.

4.2.3 Method 3 - Hydrologic Region Method

This method uses the ten regional urban water use targets for the State. Based on the water supplier's location within these regions, a static water use conservation target for 2020 is assigned.

Urban water use targets (2020 conservation goals) for the hydrologic regions in California are included in the 2015 UWMP Guidebook. To determine the target using Method 3, 95 percent of the region-specific conservation goal is calculated. Based on a 2020 target of 123 GPCD for the Central Coast region, the District's Method 3 target is 117 GPCD for 2020. The District's 2015 interim water use target for Method 3 is calculated to be 120 GPCD.

4.2.4 Method 4 - BMP Based Method

Method 4 identifies water savings obtained through identified practices and subtracts them from the baseline daily per capita water use value identified for the water supplier. The water savings identified that can be used to reduce the baseline daily per capita water use value include:

- Indoor residential use savings;
- Commercial, industrial, and institutional savings;
- Landscape and water loss savings; and
- Metered savings.

The Method 4 per capita water use target was calculated using the District's 10-year baseline period (1999 to 2008). A discussion of each of the savings components and the subsequent calculated savings specifically for the District is included below.

- **Indoor Residential Savings.** Since indoor and outdoor water use is delivered through a single meter, an assumption of 70 GPCD has been provided by DWR for standard residential indoor water use. To determine indoor residential savings potential, the draft provisional method outlines two methodologies. First, a best management practices (BMP) calculator has been developed to sum the savings for four conservation elements including single- and multi-family residential housing toilets, residential washers, and showerheads. The District will use what has been termed the "default option" to determine these savings. Based on the provisional method, this default value is 15 GPCD reduction in indoor water use.
- **Commercial, Industrial, and Institutional Savings.** Baseline CII water use can be established for the District based on data provided in the District's 2010 UWMP for years 1999 to 2008. Based on this data, the baseline per capita CII water use is 209 GPCD. The draft provisional method estimates a default value for CII savings of 10 percent. The CII water savings are therefore 0.83 GPCD.

- **Landscape and Water Loss Savings.** The landscape and water loss water use is determined by subtracting the default indoor water use of 70 GPCD and CII water use of 8.3 GPCD from the calculated year's 1999 to 2008 baseline per capita use. Based on a 1999 to 2008 baseline per capita water use of 104 GPCD, the landscape and water loss use is 26.1 GPCD. The draft provisional method estimates a default value for landscape and water loss savings of 21.6 percent. The landscape and water loss savings are therefore 5.6 GPCD.
- **Metered Savings.** Metered savings are considered in addition to the savings attributed to the three sectors previously discussed. Because the District was fully metered in the midpoint year of 2003 (based on the methodology established by DWR) and no unmetered deliveries occurred, the unmetered per capita use was zero GPCD. Therefore, no savings from metering was calculated.

The District's 2020 target water use is calculated as the baseline water use minus the total savings (residential indoor, CII, landscape, and water loss, and meter savings). In the District's case, the total water savings accounts for 21.5 GPCD, which equates to a 2020 target water use of 82.9 GPCD in 2020, and a corresponding interim water use target for Method 4 of 93.7 GPCD in 2015.

4.3 MINIMUM WATER USE REDUCTION REQUIREMENT

The final step in determining the applicability of the water use target for the District is to confirm the water use targets meet the minimum reduction requirements as defined by DWR. To confirm the chosen 2020 per capita target, the 5-year average baseline previously determined in Table 4-2 is used. The chosen target (calculated using one of the four methods described above) must be less than 95 percent of the 5-year baseline. In order to meet this minimum criteria, the District's 2020 target per capita water use must be less than or equal to 101 GPCD.

4.4 SUMMARY OF BASELINE AND TARGET WATER USE

Based on the 2020 water use targets calculated using the four methodologies and minimum water use reduction requirements described previously, the 2020 urban water use target for the District is 84 GPCD. The 2015 interim water use target is 94 GPCD. This target was determined using Method 1. This method reflects expected demand patterns based on historical usage, anticipated climate change impacts, and the District's commitment to sustainable water resource management. According to the DWR guidelines, this target is valid since it meets the minimum 5-year baseline target confirmation criteria.

The baseline water use, target per capita use determined based on the four methods, and the selected target and interim target are summarized in Table 4-3. Table 4-4 and Figure 4-2 display the baseline and targets as well as historical and projected per capita water use for SLVWD as a whole and for each system. The projected per capita water use reflects a conservative water demand estimate considering that 2015 water production was at 73 GPCD, but it is assumed to be reasonable considering the 2013-2015 average was 84 GPCD, which reflects recent climatic drought conditions.

Table 4-3 Water Use Targets for each Method

Calculation Method	Water Use Target (GPCD)
Method 1: 80% of Baseline Per Capita Water Use	84
Method 2: Performance Standards	Not calculated
Method 3: 95% of Regional Target	117
Method 4: DWR Approach	83
Selected Urban Water Use Target	84

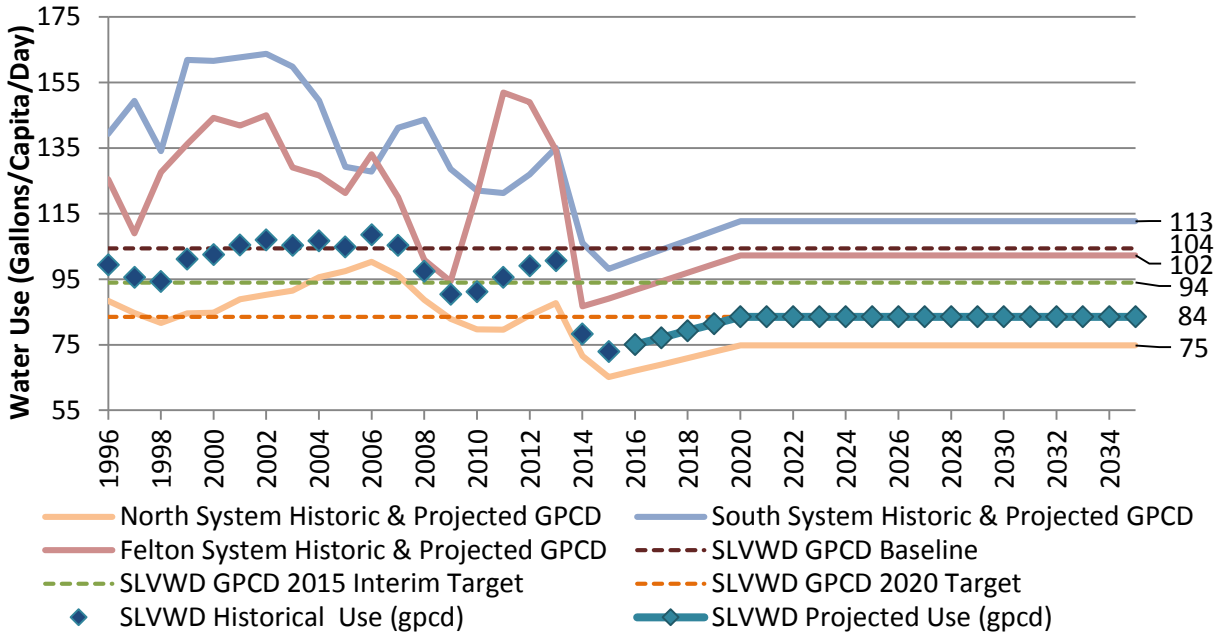

Figure 4-2 Historical, Baseline, Targets, and Projected GPCDs[2]

Table 4-4 Interim and Baseline Targets

Parameter	Water Use (GPCD)
Base Daily Per Capita Water Use	104
2015 Daily Per Capita Water Use	73
2015 Interim Urban Water Use Target	94
2020 Urban Water Use Target	84

[2] As described in Section 4, GPCD can be determined for each of SLVWD's systems separately; however, SLVWD's compliance GPCD must meet the District-wide targets as a whole. System specific GPCDs are shown to reflect each system's projected GPCD to meet SLVWD's overall 2020 target water use of 84 GPCD for all systems as described in Sections 4.2.1 and 4.4.

5 SYSTEM WATER USE

This section describes and quantifies the District's current and projected water use through the year 2035. Accurately tracking and reporting water use allows the District to properly analyze the use of their resources in order to conduct diligent resource planning. Estimating future water use as accurately as possible allows the District to manage its water supply and appropriately plan for infrastructure investments. Assessments of future growth and related water use provides essential information for developing water use projections to manage resources for the service areas' needs.

5.1 WATER DEMANDS

The following tables (Table 5-1, Table 5-2, Table 5-3, Table 5-4 and Table 5-5) show the past, current, and projected water deliveries for the District based on historical water use. Future water demands are projected using the SB7 per capita water use targets (see Section 4) and projected population (Table 3-3). A summary of the past, current and projected water deliveries is shown graphically in Figure 5-1.

Table 5-1 Water Deliveries, 2010, AFY

2010					
	Metered		Not Metered		Total
Water use sectors	**# of Connections**	**Volume**	**# of Connections**	**Volume**	**Volume**
General and Residential	6,990	1,591	0	0	1,591
Commercial	244	83	0	0	83
Institutional	55	92	0	0	92
Irrigation	12	11	0	0	11
Other	8	4	0	0	4
Total	**7,309**	**1,781**	**0**	**0**	**1,781**

Table 5-2 Water Deliveries, 2015, AFY

2015					
	Metered		Not Metered		Total
Water use sectors	**# of Connections**	**Volume**	**# of Connections**	**Volume**	**Volume**
General and Residential	7,124	1,298	0	0	1,298
Commercial	197	71	0	0	71
Institutional	61	82	0	0	82
Irrigation	12	11	0	0	11
Other	9	7	0	0	7
Total	**7,403**	**1,469**	**0**	**0**	**1,469**

Table 5-3 Projected Water Deliveries, 2020, AFY

2020					
	Metered		Not Metered		Total
Water use sectors	**# of Connections**	**Volume**	**# of Connections**	**Volume**	**Volume**
General and Residential	7,319	1,509	0	0	1,509
Commercial	203	83	0	0	83
Institutional	63	95	0	0	95
Irrigation	12	13	0	0	13
Other	9	8	0	0	8
Total	**7,606**	**1,708**	**0**	**0**	**1,708**

Table 5-4 Projected Water Deliveries, 2025-2030, AFY

	2025		2030	
	Metered		Metered	
Water use sectors	**# of Connections**	**Volume**	**# of Connections**	**Volume**
General and Residential	7,412	1,527	7,585	1,560
Commercial	206	84	211	86
Institutional	64	96	65	98
Irrigation	12	13	13	13
Other	9	8	10	8
Total	**7,703**	**1,728**	**7,883**	**1,766**

Table 5-5 Projected Water Deliveries 2035, AFY

	2035	
	Metered	
Water use sectors	**# of Connections**	**Volume**
General and Residential	7,717	1,586
Commercial	215	87
Institutional	66	100
Irrigation	13	13
Other	10	8
Total	**8,021**	**1,795**

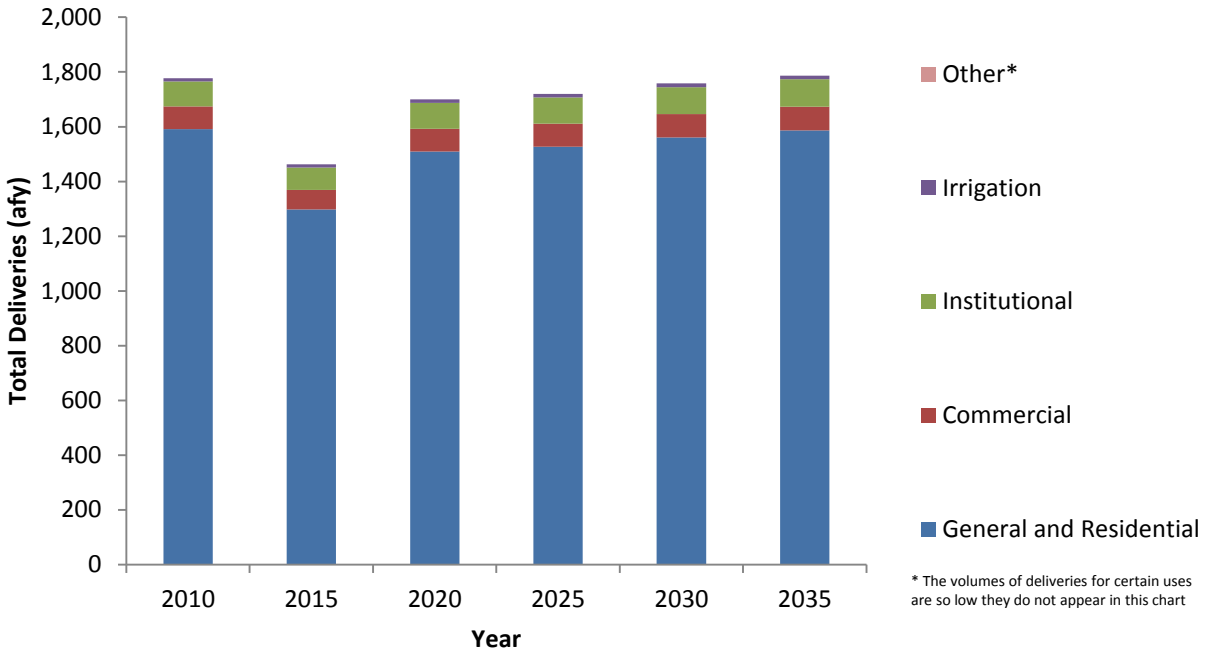

Figure 5-1 Past, Current and Projected Water Deliveries by Water Use Sector

5.1.1 Low-Income Demands

Changes to the California Water Code section 10631.1 since 2005 require demand projections to include projected water use for single-family and multi-family residential housing needed for lower income households. Low-income households are defined as households making less than 80% of median household income. The AMBAG *Regional Housing Needs Assessment Plan: 2014-2023* (Association of Monterey Bay Area Governments, October 2013) determines the housing needs in its service area over the planning period of 2014-2023. For this planning period, 2,515 new very low-income units and 1,640 new low-income units are projected to be needed by 2023 in the AMBAG region, which includes the counties of Monterey, Santa Cruz and San Benito. The allocation of these units throughout the region is based on the 2014 Regional Growth Forecast housing needs and employment growth over the planning period. Assuming the District's 2015 average water usage per connection, the projected demand for the low-income residential units within the District's service area is shown in Table 5-6. For the purposes of this UWMP, the low-income delivery projections are included in the District's total projected water deliveries shown in Table 5-1 through Table 5-5.

Table 5-6 Cumulative Low-Income Water Deliveries, AFY

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
New Low-Income Residential Demand Units- AMBAG Area	416	416	416	416	416	416	416	416	416	416	**4,155**
New Low-Income Residential Demand Units-District Service Area(Housing Units)[1]	13	13	13	13	13	13	13	13	13	13	**130**
New Low-Income Residential Demand Units Demands-District Service Area (AFY)[1]	3	3	3	3	3	3	3	3	3	3	**26**

[1]Assumes that the District will accommodate 3% of the population within the AMBAG service area based on the AMBAG derived District population of 23,737 in 2023 and a projected AMBAG total population of 699,873 in 2023 (23,737/699,873=.03). 3% of 4,155 new low and very low-income units is 130 units with the District's service area. The annual projected new low-income units within the District were multiplied by the 2015 average residential connection usage of 0.2 AFY to estimate annual new demands.

5.1.2 Sales to Other Water Agencies

The District does not sell water to other water agencies in the area.

5.1.3 Additional Water Uses and Losses

Table 5-7 shows the past, current and projected amount of non-revenue water (NRW) for the District. NRW is defined as the water losses plus authorized unbilled (metered and unmetered) water consumption. A detailed description of water losses and NRW is provided in Appendix D.

Table 5-7 Non-Revenue Water, AFY

Water use	2015	2020	2025	2030	2035
Non-revenue water (NRW)	320	399	404	413	421

5.1.4 Total Water Use

Table 5-8 shows the past, current, and projected total water use for the District. Total water use includes water delivered to customers and NRW. Water Deliveries and total water use for each service area are shown in Appendix E.

Table 5-8 Projected Total Water Use, AFY

Water Use	2015	2020	2025	2030	2035
Total water deliveries	1,469	1,708	1,728	1,766	1,795
Sales to other water agencies	0	0	0	0	0
Non-revenue water (NRW)	320	399	404	413	421
Total	**1,790**	**2,107**	**2,132**	**2,180**	**2,216**

5.2 WATER USE REDUCTION PLAN

Per capita water use for 2015 was 73 GPCD which is below the SB7 water use target of 84 GPCD and the interim target of 94 GPCD. Based on water use trends and water supply projections, the District will meet or exceed the projected water use targets by maintaining their current water conservation strategy and programs.

6 SYSTEM SUPPLIES

The following subsections provide an overview of the District's surface water and groundwater resources and describe supplies in detail for each of the North, South, and Felton systems. Production from these sources is projected through 2035 based on their estimated yields and the water demand projections presented in Section 5.

SLVWD's current and potential water supplies are grouped as follows:

1. Nine active stream diversions (surface water)
2. Eight active wells (groundwater)
3. One active spring (designated groundwater by CDDW)
4. Entitlement to a portion of surface water storage in Loch Lomond Reservoir
5. A potential water transfer from Santa Cruz City Water District (SCCWD) in lieu of direct diversions from Loch Lomond

The first three groups constitute the District's currently active supply (Johnson, May 2009). The District is studying options for the latter two water supplies (SPH Associates Consulting Engineers, 2010). The actual and potential supply provided by these sources depends on their conjunctive use within the constraints of the annual and long-term climatic cycle, existing and planned infrastructure, District water rights, and inter-agency agreements. Conjunctive use refers to the optimized, sustainable use of multiple sources of water throughout repeated climatic cycles.

The District has purchased small amounts of water from Scotts Valley Water District (SVWD) during short-term, quasi-emergency situations prior to 2010. This source is not considered significant with regard to the District's long-term water-supply planning.

Table 6-1 summarizes the current and projected water supplies for the District. Projections of average annual water production from each SLVWD source are based on total water use calculated based on population projections and per capita water use targets, as presented in Sections 4 and 5. The projected use of each source is proportional to its average contribution to system production during 2000-2015 as shown in Table 6-2. Similar to the historical record (Sections 4 and 5), water production is expected to vary above and below these projected averages as a function of climate and demand cycles.

SLVWD's use of individual water sources could depart from the average projections as a result of one or more potential factors, including the eventual use of interties between the District's three systems under non-emergency conditions; the use of interties with neighboring purveyors on a non-emergency basis (e.g., SVWD and SCCWD); the construction of infrastructure needed to utilize the District's allotment of Loch Lomond Reservoir, either as diverted raw water or SCCWD treated water; and the modification of water rights through the regulation of in-stream flows. These factors do not affect projected average total use, which is estimated from population and water use targets. Factors potentially affecting water supply reliability are discussed in Section 7.

Table 6-1 Current and Projected Water Supplies

Water Supply Sources	2015	2020	2025	2030	2035
North System					
Peavine Creek	107	126	128	131	133
Foreman Creek	432	510	517	529	538
Clear Creek	112	133	134	138	140
Sweetwater Creek	75	88	90	92	93
Quail Hollow Groundwater	178	211	214	219	222
Olympia Groundwater	255	301	305	312	318
Subtotal	***1,159***	***1,369***	***1,387***	***1,420***	***1,445***
South System					
Pasatiempo Groundwater	284	326	327	330	332
Mañana Woods Groundwater	24	27	27	27	28
Subtotal	***307***	***353***	***355***	***357***	***359***
Felton System					
Fall Creek	160	190	193	199	203
Bull Creek	73	87	89	91	93
Bennett Spring Diversion	86	102	104	107	109
Bennett Spring Groundwater	5	6	6	6	6
Subtotal	***324***	***385***	***391***	***403***	***412***
Total	***1,790***	***2,107***	***2,132***	***2,180***	***2,216***

Table 6-2 Supply Sources as Percent of Total Production per System

Calendar Year	North System				South System		Felton System			
	Stream Diversions		Groundwater		Groundwater		Diversions			
	Foreman & Peavine Creeks	Clear & Sweetwater Creeks	Quail Hollow Wells	Olympia Wells	Pasatiempo	Mañana Wds	Streams		Bennett Spring	
							Fall Creek	Bull Creek	to Kirby WTP	as groundwater
	% of North				% of South		% of Felton			
2000	41%	24%	10%	25%	85%	15%	33%	25%	41%	2%
2001	35%	19%	13%	33%	87%	13%	56%	16%	27%	1%
2002	49%	4%	21%	26%	87%	13%	49%	20%	29%	1%
2003	42%	13%	19%	26%	87%	13%	49%	23%	27%	2%
2004	39%	14%	22%	25%	87%	13%	51%	16%	30%	2%
2005	45%	18%	18%	19%	86%	14%	28%	28%	43%	2%
2006	44%	18%	20%	18%	-	-	27%	32%	39%	2%
2007	22%	18%	25%	35%	88%	12%	51%	21%	26%	2%
2008	27%	17%	23%	33%	89%	11%	45%	30%	22%	3%
2009	31%	19%	14%	36%	89%	11%	58%	19%	20%	2%
2010	52%	19%	13%	16%	91%	9%	52%	24%	23%	1%
2011	57%	22%	12%	9%	91%	9%	39%	30%	30%	1%
2012	37%	18%	15%	30%	92%	8%	45%	25%	29%	1%
2013	40%	5%	22%	33%	95%	5%	62%	11%	25%	2%
2014	24%	13%	21%	42%	95%	5%	76%	9%	14%	2%
2015	24%	18%	25%	34%	97%	3%	67%	17%	13%	2%
2000-2015 Avg	**38%**	**16%**	**18%**	**28%**	**90%**	**10%**	**49%**	**22%**	**27%**	**2%**

6.1 SPRING AND STREAM DIVERSIONS

SLVWD appropriative water rights are exercised through the following active diversions:

North System	Points of Diversion		Felton System	Points of Diversion
Peavine Creek	1		Fall Creek	1
Foreman Creek	1		Bennett Spring	1
Clear Creek	3		Bull Creek	2
Sweetwater Creek	1			

SLVWD's diversion watersheds are shown in Figure 6-1. The diversion watersheds are located along the steep eastern slopes of Ben Lomond Mountain and are underlain by granitic and metamorphic rock. Table 6-1 presents the District historic and projected stream and spring diversion records.

SLVWD's diversion watersheds have a combined area of approximately 4,310 acres, or 7.1 square miles, equal to 6.3 percent of the San Lorenzo River watershed above the USGS Big Trees gauge near Felton. Diversions on Peavine and Foreman creeks supply the North Service Area and have a

combined watershed area of 710 acres, or about 10 percent of the Boulder Creek watershed above its confluence with the San Lorenzo River. Diversions on Clear and Sweetwater creeks also supply the North Service Area and have a combined watershed area of 660 acres, or about 2 percent of the San Lorenzo River watershed above its confluence with Clear Creek.

SLVWD has four former minor diversions. Diversions from Earl and Manson springs were discontinued in 1993 and diversions from Harmon Creek, a 100-acre watershed, were discontinued in 1994. These diversions became impractical under the requirements of the 1990 Federal Surface-Water Treatment Rule, which also resulted in a combined 125-acre reduction in the diversion watershed areas of Clear and Sweetwater creeks. Diversions from the 30-acre Silver Creek watershed were discontinued in 2007 and reported in combination with Foreman Creek diversions.

Diversions on Fall and Bull creeks and Bennett Spring supply the Felton Service Area. The Fall Creek diversion has a watershed area of approximately 2,770 acres (4.3 square miles), including the 225-acre watershed above the Bennett Spring diversion. The two Bull Creek diversions have a combined watershed area of 175 acres. Bennett Spring and the springs supplying the Bull Creek diversions may have contributing groundwater recharge areas that differ from their respective drainage areas. Together, the Felton System diversion watersheds comprise 4.3 percent of the San Lorenzo River watershed above the Big Trees gage.

As described in Section 6, Table 6-1 summarizes the current and projected water supplies for the District. Projections of average annual water production from each SLVWD source are based on total demand calculated based on population projections and per capita water use targets, as presented in Section 4 and 5. The projected use of each source is proportional to its average contribution to system production during 2000-2015.

6.2 GROUNDWATER

SLVWD produces groundwater from three clusters of active wells, the Quail Hollow, Olympia, and Pasatiempo wellfields, and from a single active Mañana Woods well. The eight active wells are grouped as shown in Table 6-3 (well abbreviations given parenthetically).

Table 6-3 Active Well Groupings

North System
Quail Hollow wellfield: wells 4A and 5A (QH-4A & -5A)
Olympia wellfield: wells 2 and 3 (Oly-2 & -3)
South System
Pasatiempo wellfield: wells 5A, 6, and 7 (Paso-5A, -6, and -7)
Mañana Woods well 1 (MWd-1)

The District's eight active groundwater wells draw from the Santa Margarita and Lompico sandstone aquifers east of the San Lorenzo River between Ben Lomond and Scotts Valley. Figure 6-1 shows the active wells described above and boundaries of designated groundwater basins in the area, named and numbered as follows (California Department of Water Resources, January 2006):

3-21 Santa Cruz Purisima Formation Highlands

3-27 Scotts Valley

3-50 Felton Area

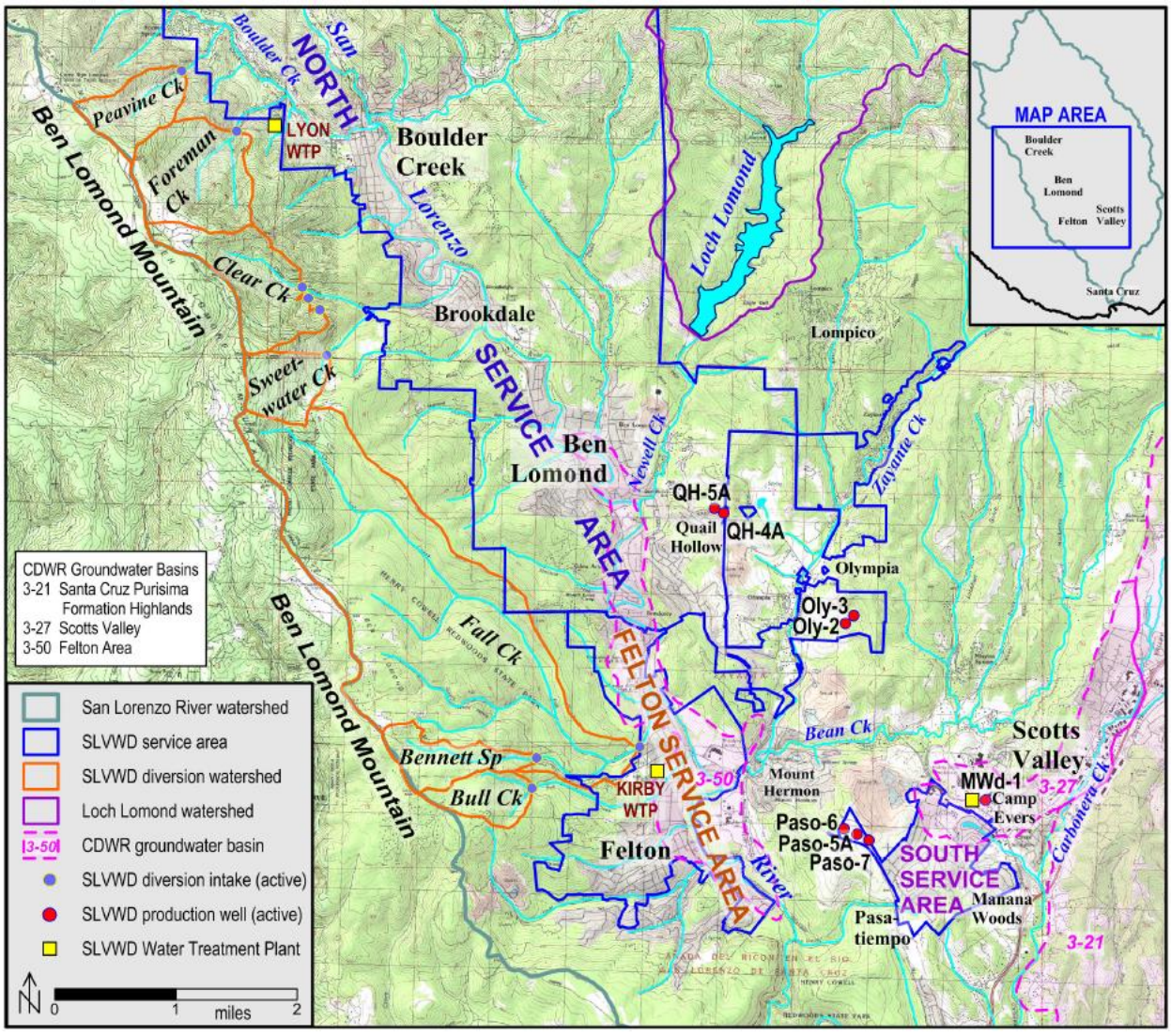

Figure 6-1 SLVWD Water Supply Sources (Nicholas M. Johnson, Ph.D., R.G., C.Hg., August 2015)

The Quail Hollow and Olympia wells supply water to the North System in conjunction with stream diversions. The Pasatiempo and Mañana Woods wells supply the entire water needs of the South System. A standby Mañana Woods well is referred to as MWd-2.

Figure 6-1 shows the location of active SLVWD production wells within the Quail Hollow, Olympia, Pasatiempo, and Camp Evers areas. These areas extend up to 4 miles east of the San Lorenzo River into the Scotts Valley area. Except for the fairly well-defined and hydraulically-separate Quail Hollow area, the delineated subareas are somewhat arbitrary, inasmuch as continuous aquifer zones extend between them. Groundwater rights are not adjudicated in these areas.

Table 6-4 presents the annual groundwater production record for each group of wells from 2011-2015 and Table 6-5 shows the projected groundwater pumping from 2020-2035. As described in Section 6, Table 6-1 summarizes the current and projected water supplies for the District. Projections of average annual water production from each SLVWD source are based on population projections and per capita water use targets, as presented in Section 4 and 5. The projected use of each source is proportional to its average contribution to system production during 2000-2015.

Table 6-4 Historic Groundwater Pumping, AFY

Basin Name(s)	2011	2012	2013	2014	2015
North System					
Quail Hollow Groundwater	174	219	337	264	288
Olympia Groundwater	130	450	510	535	391
South System					
Pasatiempo Groundwater	347	362	397	316	298
Mañana Woods Groundwater	33	33	22	15	9
Felton System					
Bennett Spring Groundwater	7	7	8	5	8
SLVWD					
Total groundwater pumped	**690**	**1,069**	**1,274**	**1,136**	**994**
Percent of total water supply	**30%**	**44%**	**52%**	**59%**	**56%**

Table 6-5 Projected Groundwater Pumping, AFY

Basin Name(s)	2020	2025	2030	2035
North System				
Quail Hollow Groundwater	211	214	219	222
Olympia Groundwater	301	305	312	318
South System				
Pasatiempo Groundwater	326	327	330	332
Mañana Woods Groundwater	27	27	27	28
Felton System				
Bennett Spring Groundwater	6	6	6	6
SLVWD				
Total groundwater pumped	**871**	**879**	**894**	**906**
Percent of total water supply	**41%**	**41%**	**41%**	**41%**

Figure 6-1 also shows the boundaries of local groundwater basins designated by DWR (California Department of Water Resources, January 2006). None of these basins are adjudicated. The groundwater basins designated by DWR do not provide useful planning units given that their boundaries are inconsistent with actual groundwater conditions. The Quail Hollow, Olympia, and Pasatiempo wells are not located within any of DWR's designated groundwater basins. DWR's "Felton Groundwater Basin" (No. 3-50) encompasses approximately 2 square miles of valley-floor alluvium along the San Lorenzo River, an area that does not contain any current or former municipal wells. DWR's description of this basin acknowledges that the Santa Margarita and Lompico sandstones are the primary water bearing formations in the surrounding area, and that SLVWD's wells draw from these two aquifers (California Department of Water Resources, February 2004). The Mañana Woods well is located within the DWR's "Scotts Valley Groundwater Basin" (no. 3-27). The designated area encompasses 1.2 square miles of alluvium and also includes several of SVWD's production wells. DWR's basin description acknowledges that the actual groundwater basin includes about 20 square miles of Tertiary sedimentary formations in the surrounding area (California Department of Water Resources, January 2006).

SLVWD shares its groundwater resources with neighboring water districts and residential and commercial properties with private wells. To address regional issues of water supply, sustainability, and cooperative management, SLVWD participates in the Santa Margarita Groundwater Basin Advisory Committee, established in 1995 and consisting of representatives from SLVWD, SVWD, Lompico

County Water District, the City of Scotts Valley, and the County of Santa Cruz. In 1985, in response to the discovery of groundwater contamination from an industrial solvent release near Scotts Valley, the U.S. Environmental Protection Agency (EPA) designated a 40-square-mile area encompassing all of SLVWD's and SVWD's production wells as the Scotts Valley Santa Margarita Sole Source Aquifer under the authority of the Safe Drinking Water Act. Neighboring SVWD has, and SLVWD has not, developed a groundwater management plan as allowed under Assembly Bill (AB) 3030 and the CWC Sections 10750 et seq. SLVWD is partnering with SVWD and the County of Santa Cruz to redraw the boundaries of the Santa Margarita Groundwater Basin. The SVWD Board of Directors took action October 8, 2015 to support the collaborative efforts by SVWD, SLVWD, the County of Santa Cruz and other Santa Margarita Groundwater Basin stakeholders in complying with the 2014 Sustainable Groundwater Management Act (SGMA) and to prepare and submit to DWR a Santa Margarita Groundwater Basin Boundary Revision Request. On November 25, 2015, in accordance with § 343.9, the SVWD submitted the Initial Notification of Potential Basin Boundary Modification Request. On March 24, 2016 the DWR determined the basin modification request to be complete. The latest information is available at: http://www.svwd.org/your-water/sgma.

6.3 NORTH SYSTEM WATER SUPPLIES

The North System is supplied by both stream diversions and groundwater wells (Figure 6-1). Six active points of diversion are located on Peavine, Foremen, Clear, and Sweetwater creeks. Clear Creek has three separate points of diversion and each of the other streams have one. Two active groundwater wells draw from the Santa Margarita Sandstone aquifer in each of the Quail Hollow and Olympia areas. On average, the North System obtains 54 percent of its water supply from stream diversions and 46 percent from groundwater pumping (Table 6-2).

As practiced for the North System, conjunctive use (i.e., the optimized, sustainable use of multiple water sources throughout repeated climatic cycles under physical, legal, and environmental constraints) requires water production from stream diversions whenever possible. This allows a significant portion of unused and recharging groundwater to remain essentially stored for use during dry periods. The conjunctive use of these sources has met annual production demands since 1984, without a substantial decline in groundwater levels. Mandatory conservation measures were implemented once in 1977, the driest year on record and before the District established a groundwater supply and implemented other infrastructure improvements (e.g., the Lyon Water Treatment Plant [WTP]). The combined effects of drought, increased demand, modified water rights, and/or climate change could necessitate increased levels of conservation and/or further infrastructure improvements.

6.3.1 Surface Water Sources

Figure 6-1 shows the North System diversion watersheds west of the communities of Boulder Creek and Brookdale. The diversion watersheds occupy a total area of 1,623 acres of watershed land in one continuous piece along the upper eastern slopes of Ben Lomond Mountain upstream of the diversion

intakes. SLVWD owns more than half (55%) of its diversion watershed area. The six individual watersheds range from 20 to 480 acres upstream of their respective diversion intakes. Their combined area is about 4 percent of the San Lorenzo River watershed above Clear Creek and 2 percent of the river's watershed above the USGS stream gaging station at Big Trees.

SLVWD owns more than half (774 acres) of its diversion watershed area. These properties encompass the entire length of perennial stream channel (as designated on USGS quadrangle maps) upstream of the diversion intakes, except for the upper-most portion of Sweetwater Creek.

SLVWD's diversion watersheds are underlain by granitic rock except for a portion of the Sweetwater Creek watershed underlain by schist. Groundwater recharge into approximately 1 square mile of weathered granite west of the Ben Lomond Mountain drainage divide may contribute to baseflow upstream of SLVWD's diversions because of the steep gradient into the San Lorenzo Valley from an inferred groundwater flow divide west of the drainage divide.

North System raw water diversions are conveyed by pipeline to the Lyon WTP. Peavine Creek diversions are first conveyed to a mixing vault adjacent to the Foreman Creek diversion. Approximately 30 GPM of the Peavine Creek diversion is used to generate hydroelectric power for operating diversion facilities. The combined diversions of Clear and Sweetwater creeks are conveyed by SLVWD's Five-Mile Pipeline to the WTP. Annual diversion records mimic the climatic cycle indicated by the Ben Lomond annual rainfall record.

Stream diversions supply up to 100 percent of North Service Area water demand during winter and early spring months of non-drought years. During dry-season months, elevated demand and limited divertible streamflows necessitate groundwater production to meet up to 90 percent of demand.

The Lyon WTP has a maximum operating capacity of about 155 AF/month (51 MG/month), equivalent to a continuous rate of 1,150 GPM (Johnson, May 2009). This rate was nearly achieved in July 1998 at 138 AF/month. Peak production is limited by various constraints associated with stormflow, conveyance, and treatment (e.g., high-flow bypass, turbidity, aeration, pipeline capacity), as well as generally lower water demand during wet periods.

6.3.2 Groundwater Sources

The North System includes two active production wells in each of the Quail Hollow and Olympia areas, referred to as QH-4A and QH-5A, and Oly-2 and Oly-3, respectively (Figure 6-1). Each area encompasses approximately three square miles of partially exposed Santa Margarita Sandstone. The hydrogeology and water resource potential of these sandhill groundwater subbasins is described in several previous reports (Johnson, May 2009). The potential for locally significant groundwater production derives from the relatively high aquifer transmissivity (~2,000 square feet per day); high average rainfall (~45 in/yr); sandy soils with low runoff, low evapotranspiration, and high infiltration capacity; and a resulting high rate of average groundwater recharge (up to ~20 in/yr).

6.3.2.1 Quail Hollow Wells

Quail Hollow is an area of exposed Santa Margarita Sandstone between the communities of Ben Lomond, Glen Arbor, Felton, Zayante, and Lompico. Its sandhills rise 300 to 600 feet above the surrounding streams. The exposed sandstone is overlain by several neighborhoods of single-family homes supplied by either SLVWD or local private wells, and then treated using individual septic tank systems. The area also includes the 200-acre Quail Hollow sand quarry (operated by Granite Rock), Quail Hollow Ranch County Park (280 acres), and the closed Santa Cruz County Ben Lomond municipal landfill west of Newell Creek (24 acres). Quarry operations capture and percolate on-site runoff and used process water pumped from an on-site well. In addition to pumping wells, Quail Hollow groundwater discharges to springs and streams that contribute to the local and regional water supply.

Quail Hollow groundwater occurs under unconfined conditions within the Santa Margarita Sandstone. SLVWD wells are near the center of the sub-basin and on average produce the continuous equivalent of nearly 200 GPM. Residential wells generally yield 1 to 20 GPM along the area's margin where the aquifer's thickness is more limited.

SLVWD wells operate regularly throughout the dry season, beginning when stream diversions fall below North Service Area water demand. The Quail Hollow wells provide a reliable summer water supply during average and wet years, and a somewhat diminished supply during drought years. The full recovery of groundwater storage during wet periods indicates that the average annual rate of groundwater production from the Quail Hollow wells is sustainable given the current spatial and temporal distribution of recharge and pumping, and the conjunctive use of stream diversions (Johnson, May 2009).

6.3.2.2 Olympia Wells

The Olympia groundwater area is a hillslope area of partially exposed Santa Margarita Sandstone between the communities of Mount Hermon, Zayante, and Scotts Valley. Olympia groundwater supplies SLVWD and residential wells, flows into adjoining groundwater subareas, and discharges to springs and streams that contribute to both local and regional water supplies. The sandstone aquifer extends beneath Lockhart Gulch and Bean Creek into the adjacent Mission Springs and Camp Evers subareas. Much of the area is zoned for timber. Residential development is mostly clustered along stream corridors. Three closed sand quarries are located along the eastern margin of the Olympia area where the sandstone is exposed and the Olympia wells are located.

Groundwater within the Santa Margarita Sandstone aquifer occurs under unconfined conditions in the Olympia area, including where directly overlain by Santa Cruz Mudstone. This is because the entire sandstone thickness is not fully saturated. The aquifer lies partially within a structural depression (the Scotts Valley Syncline) formed within the underlying and less permeable Monterey Formation. The relative potential loss of groundwater storage as groundwater discharge to area streams is less than for the Quail Hollow area.

The combined average annual production of SLVWD's Olympia wells, Oly-2 and -3, is equivalent to a continuous 260 GPM. Other wells in the subarea serve individual residences and the Mission Springs conference grounds. Although groundwater levels recover during wet periods of reduced pumping, some long-term decline is apparent. The hydrograph for nearby Oly-1, which has been inactive since 1991, indicates a water-level decline of roughly 10 feet since the mid-1980s. Water levels may stabilize somewhat lower once aquifer conditions reach a long-term equilibrium (i.e., the induced hydraulic gradient captures sufficient recharge to supply the wells). Alternatively, sustainable average production under the current distribution of recharge and pumping may be somewhat less than the 2000-2012 average of 415 AFY (135 MGY).

6.4 SOUTH SYSTEM WATER SUPPLIES

The South System is supplied by groundwater wells producing from the Lompico Sandstone aquifer, and the overlying Santa Margarita Sandstone aquifer where saturated. These wells include three active Pasatiempo wells (Paso-5A, Paso-6, and Paso-7) in the Pasatiempo groundwater subarea and one active Mañana Woods well (MWd-1) in the Camp Evers subarea (Figure 6-1). The Pasatiempo and Mañana Woods systems were operated separately until December 2011, when SLVWD completed an intertie that is now used only occasionally.

Production from SLVWD's Pasatiempo wells has ranged from 205 to 445 AFY since 1984 and averaged about 380 AFY since 2000. The available record of annual production for the current and former Mañana Woods wells has ranged between approximately 9 and 75 AFY since 1989 and averaged about 45 AFY since 2000. These wells serve as the sole water source for the South Service Area, and thus operate throughout the year, and continuously during periods of high demand. Routine use of the new water supply pipeline intertie between the Pasatiempo and Mañana Woods service areas is currently limited by permitting and infrastructure constraints.

6.4.1 Pasatiempo Wells

The Pasatiempo groundwater subarea is a two square mile ridge and hillslope area of exposed sandstone between the communities of Mount Hermon and Camp Evers in the eastern Felton and southern Scotts Valley area (Figure 6-1). It encompasses SLVWD's Pasatiempo wells; over half of SLVWD's South Service Area; the Mount Hermon community and its three production wells; the nearly 300-acre closed Hansen Quarry and its former production wells; and a portion of Henry Cowell State Park. In this area, the Santa Margarita and Lompico sandstone aquifers are separated by 0 to 500 feet of the Monterey Formation aquitard. A deep well constructed in 2006 by Mount Hermon Association suggests the occurrence of an additional sandstone aquifer below the Lompico Sandstone. Pasatiempo groundwater also flows into the adjoining Camp Evers subarea and discharges as baseflow to springs, Bean Creek, and the San Lorenzo River.

The Pasatiempo subarea is underlain by a broad groundwater mound sustained by rainfall recharge into more than 1,000 acres of exposed Santa Margarita Sandstone. The Santa Margarita Sandstone has been largely dewatered in much of the subarea as a result of the increased demand for

groundwater in the Scotts Valley area since the 1980s. SLVWD's currently active Pasatiempo wells, Paso-5A, -6, and -7, produce groundwater from the underlying, semi-confined Lompico Sandstone. The newest of these wells, Paso-5A, was constructed in 2012 and put into service in May 2014 once its concentration of dissolved arsenic dropped below the Maximum Contaminant Level (MCL). The Mount Hermon Association's wells are located within 600 feet of Paso-6 and produce an average of about 120 GPM, mostly from the Lompico Sandstone. Groundwater use by Hansen Quarry, a significant portion of which percolated back into the aquifer, ceased when operations ended in 2004.

Static groundwater levels have declined about 135 feet since SLVWD's currently active Pasatiempo wells began operation in 1991. Pumping by Mount Hermon, Hansen Quarry, and SVWD in the Camp Evers area contributed to the decline in groundwater levels. The rate of decline has lessened and may have stabilized in recent years as a result of the closing of Hansen Quarry, reduced SVWD pumping in the Camp Evers area, and an approximatly 30 percent reduction in SLVWD pumping since 2000.

6.4.2 Mañana Woods Well

The Camp Evers groundwater subarea encompasses approximately one square mile of south-central Scotts Valley, an area of residential and commercial development on a small alluvial plain between Bean and Carbonera Creeks (Figure 6-1). Shallow alluvium overlies near-surface exposures of Santa Margarita Sandstone, which has been largely dewatered by pumping since the 1970s. Similar to the Pasatiempo subarea, the underlying Lompico Sandstone aquifer dips steeply beneath the Monterey Formation to the north. These aquifer zones are generally continuous with those of the adjacent Pasatiempo subarea to the west, Olympia and Mission Spring subareas to the north, and the remainder of Scotts Valley to the east and northeast. Additional aquifer zones include sandstone interbeds within the Monterey and Locatelli formations.

SLVWD operates well MWd-1 in the Camp Evers area. This well draws from the Lompico Sandstone and is used to produce an average continuous rate of about 30 GPM. Production from MWd-1 declined an average of 30 percent after SLVWD began metering connections in 2006 (based on a comparison of the four years before and after 2006).

SVWD has two active Camp Evers wells, SV-9 and SV-10A, located 1,000 feet north and 1,300 feet west of MWd-1, respectively. Their combined average rate of production was about 400 GPM during the 1980s and 1990s, and currently is about 250 GPM. SV-10A is a replacement well for SV-10. Although located together, the screened intervals of SV-10A are deeper and of greater total length than those of SV-10. Other Camp Evers wells include those operated by mutual water companies, businesses, residences, and remedial operations.

Long-term SVWD hydrographs show more than 150 feet of groundwater level decline during the 1980s and 1990s when total pumping was typically between 700 and 900 AFY. Since then, groundwater levels appear to have stabilized as SVWD shifted more of its groundwater production to wells northeast of Camp Evers. Since the late 1990s, total groundwater production has generally ranged between 400 and 600 AFY, and water levels have stabilized or more gradually declined. Groundwater

levels in SVWD monitoring wells SV-MW-9M has been essentially stable since 2000. The relative contribution of SV-9 to SVWD's total Camp Evers production has gradually declined since 1984, becoming zero in 2010.

The available groundwater level record for MWd-1 begins in 2007, the same year that SVWD shifted its production from SV-10 to SV-10A. The MWd-1 static water level hydrograph closely tracks the static water level hydrographs for SV-10 and -10A, generally declining about 40 feet since 2007. MWd-1 pumping water levels, however, have declined at a greater rate than SV-10A pumping levels, falling approximately 100 feet since 2007. SVWD's use of SV-10A appears to have a greater impact on MWd-1 water levels than the previous combined pumping of SV-9 and SV-10. Recently, MWd-1 pumping water levels appear to have stabilized near the top of the well's uppermost screened interval. The water-level stability of monitoring well SV-MW-9M since 2000 suggests that the recent combined average yield of Camp Evers wells is sustainable and that MWd-1 water levels will reach some equilibrium.

The natural quality of Camp Evers groundwater is generally good, with Total Dissolved Solids (TDS) concentrations of about 400 mg/L. Concentrations of iron and manganese, however, often exceed the secondary water quality standards. A DWSAP report for MWd-1 estimates that its recharge capture area encompasses nearly 90 acres.

Camp Evers groundwater has been impacted by contaminant releases from sources associated with dry cleaners, the electronics industry, and service stations. MWd-1 intercepts a contaminant plume originating from one or more service stations. Since 1990, groundwater pumped from MWd-1 has contained up to 76 µg/L of methyl tert-butyl ether, a gasoline additive (MTBE; MCL of 13 µg/L), and up to 20 µg/L of benzene (MCL of 1 µg/L), a component of gasoline, with concentrations trending downward since 2004. Groundwater pumped from MWd-1 is treated for these volatile organic compounds using a series of three granular activated carbon (GAC) adsorption beds.

6.5 FELTON SYSTEM WATER SUPPLIES

The Felton System is supplied by diversions from Fall Creek, Bull Creek, and Bennett Spring. Figure 6-1 shows the four points of diversion (two on Bull Creek), their contributing watersheds west and northwest of Felton, and the Kirby WTP in the town of Felton. The combined diversions are conveyed to the Kirby WTP, except for a small portion of the Bennett Spring diversion that serves as the sole water supply for one of the system's six pressure zones. The Bennett Spring diversion is a designated groundwater source with regard to required treatment.

During 2000-2015, the Felton System produced an average of approximately 443 AFY. During this period, the Fall Creek, Bull Creek, and Bennett Spring diversions supplied 49, 22, and 29 percent, respectively, of total system average production (Table 6-2). Less than 10 percent of the Bennett Spring diversion directly supplies one pressure zone as a groundwater source.

6.5.1 Stream and Spring Diversions

The watersheds upstream of the four Felton System diversion intakes have individual drainage areas ranging between 0.3 and 4.3 square miles, with a total drainage area of approximately 5 square miles. The diversions' total drainage area accounts for about 4.3 percent of the San Lorenzo River watershed above Big Trees. The diversion watersheds are underlain by granitic rock, schist, and small pockets of marble. Groundwater discharge to Bennett Spring and along portions of Fall and Bull creeks appears to be focused and enhanced by karst hydrogeology associated with the marble.

Fall Creek State Park encompasses approximately 65 percent (3.5 square miles) of the Felton System diversion watersheds. SLVWD owns 11 parcels with a total area of 247 acres (0.4 square mile) within and immediately adjacent to these watersheds. The remaining watershed areas consist primarily of rural residential parcels ranging from 0.2 to 90 acres. Additional land uses include timber preserve, agriculture, and undeveloped open space. The Felton diversion watersheds contain approximately 140 on-site wastewater disposal systems, of which more than 85 percent are located in the upper portions of the Fall Creek watershed (Johnson, N.M., March 2013).

Except for a small portion of the Bennett Spring diversion, raw water from the Felton System diversions is conveyed by pipeline to the Kirby WTP. In compliance with the EPA SWTR, the Kirby WTP was constructed and became operational in 1997. It controls the occurrence of water-borne pathogenic microorganisms through disinfection, filtration, and limitations on finished-water turbidity. It has a design and permitted capacity of 1 MG/day (93 AF/month) and a typical operational capacity of approximately 0.5 MG/day (47AF/month). Production is sometimes limited during stormflow periods of elevated raw-water turbidity, during which the system relies on finished-water storage.

Currently, stream and spring diversions supply the Felton Service Area's entire water demand. California American Water (CAW) discontinued use of the Felton Acres well in 1997, which supplied no more than 5 percent of demand. The total-diversion record of the Felton System does not vary with the climatic cycle in the same manner as the North System does, because of the latter's conjunctive use of groundwater. The record for 2008-2009 appears to be somewhat anomalous and/or partial as a result of changes in measurement, recording, and/or administration during and following the transition from CAW to SLVWD.

6.5.2 Groundwater Sources

Bennett Spring is designated by CDDW as a groundwater source, and thus does not require WTP filtration. On average, approximately 8 AFY of the spring diversion is delivered as groundwater to the pressure zone nearest the spring. Unlike groundwater produced from a well, the spring's discharge cannot be regulated or allowed to remain in storage.

The Felton System included operation of the Felton Acres well prior to 1997, which was prior to the system's operation by SLVWD. This 220-ft deep well drew from the Lompico Sandstone in southwestern Felton and produced as much as 24 AFY (8 MGY).

6.6 TRANSFER OPPORTUNITIES

SLVWD has purchased small amounts of water from SVWD during short-term, quasi-emergency situations, providing a maximum of 10 percent of South System monthly production and less than 0.1 percent of District total average annual use. This source is not considered significant with regard to the District's long-term water-supply planning.

6.7 DESALINATED WATER OPPORTUNITIES

Development of desalinated water is not being considered for the current planning period, due to the availability of groundwater and surface water to meet the current and projected demand and the District's proximity (distance) to the ocean which makes it cost prohibitive to consider desalination as a viable water supply alternative.

6.8 RECYCLED WATER OPPORTUNITIES

The UWMP Act requires that the UWMP address the opportunities for development of recycled water, including the description of existing recycled water applications, quantities of wastewater currently being treated to recycled water standards, limitations on the use of available recycled water, an estimate of projected recycled water use, the feasibility of projected uses, and practices to encourage the use of recycled water.

6.8.1 Wastewater System Description

SLVWD's North and Felton Service Areas rely on on-site wastewater disposal (i.e., septic tanks and leachfields), which effectively recycles water within the watershed. Planning studies conducted in the 1980s determined that sewering these areas would result in unacceptable environmental impacts.

Because of these conditions, SLVWD is not considering the use of recycled water at this time for wastewater generated in the North and Felton Service Areas.

SLVWD's South Service Area wastewater is treated by the City of Scotts Valley outside of the SLVWD service area. The Scotts Valley Water Reclamation Facility (Scotts Valley WRF) is owned and operated by the Scotts Valley Water District.

The Scotts Valley WRF was originally constructed in 1964 as a 30,000 gallon/day package wastewater treatment plant to provide secondary level wastewater treatment. In 1972, an activated sludge treatment system was added and plant capacity was expanded to 120,000 gallons/day. Over the years plant capacity has been expanded several times to serve growth in the community and now has the capacity to treat 1.5 million gallons each day, enough to see the City through planned build-out.

Recent plant upgrades include a Tertiary Treatment Facility that treats up to 1 MGD of recycled water. In 2001, the City received a permit from the Regional Water Quality Control Board to produce recycled water for unrestricted irrigation use. The recycled water is used primarily for irrigation at local parks, schools, residences, landscape medians, and businesses. State-of-the-art ultraviolet disinfection kills any pathogens (disease causing bacteria) without the use of chemicals such as chlorine. Following

disinfection, the tertiary treated water meets State Title 22 standards for water reuse in California and is safe for all permitted uses.

This wastewater is recycled by the SVWD, which delivered approximately 200 acre-feet of recycled water in 2013 (http://svwd.org/about-district/district-information). Some of this recycled water is returned and used within SLVWD's service area at the Spring Lakes Mobile Home Park. Spring Lakes purchases 50 gallons per minute of the recycled water each day, which equates to about 80.7 acre-feet per year.

6.8.2 Wastewater Flow Projections

Approximately 157.8 AF of wastewater generated in the SLVWD's South System is collected and recycled by the City of Scotts Valley at the Water Reclamation Facility (WRF). 51% (80.7 AF) of that volume is utilized within SLVWD's service area at the Spring Lakes Mobile Home Park. The remaining 49% (78 AF) of the reclaimed water generated in SLVWD's South Service Area is assumed to be recycled and utilized in the Scotts Valley service area or discharged outside of SLVWD's service area. The remaining SLVWD wastewater is treated onsite through septic systems and is discharged to the groundwater basin. Table 6-6 below describes the volume of SLVWD wastewater that the City of Scotts Valley treats at their water reclamation facility, the amount that is recycled in the South Service Area, and the amount that is recycled or discharged outside of the South Service Area. GIS boundary layers provided by SLVWD and the City of Scotts Valley were used to determine the area of the South Service Area that lies within Scotts Valley Water District's wastewater collection area. From the GIS data, it was determined that 15.2% of Scotts Valley WRF's wastewater is generated by the South Service Area of SLVWD. Scotts Valley WRF collected 1,042 AF of wastewater in 2015, of which 15.2 %, or 158.7 AF, is assumed to have come from SLVWD.

Table 6-6: Wastewater Treatment and Discharge within Service Area in 2015

Wastewater Treatment Plant Name	Method of Disposal	Treatment Level	2015 Volumes (Acre-Feet)			
			Waste-water Treated	Discharged Treated Waste-water	Recycled Within Service Area	Recycled Outside of Service Area
Scotts Valley WRF – Subtotal for SLVWD Service Area	Recycled Water Customers (Spring Lake Mobile Home Park)	Tertiary	158.7	158.7	80.7	78

6.8.3 Potential Uses of Recycled Water

As discussed in Section 6.8.1, SLVWD is not considering the use of recycled water at this time for the North and Felton service areas and recycled water collected from the South service area and treated at Scotts Valley WRF is currently delivered to Spring Valley Mobile Home Park in the South service area. As Scotts Valley WRF expands its recycled water capabilities, there is potential for more recycled water in SLVWD's South service area. However, this expansion is out of direct control of SLVWD and cannot be estimated at this time.

6.9 FUTURE WATER PROJECTS

Other sources of water potentially available to SLVWD include diversions from Loch Lomond reservoir and water transfers from neighboring water purveyors. Recycled water is not a potential additional source of water in the North and Felton Service Areas because these areas do not have centralized wastewater collection. Wastewater collected in the South Service Area is recycled by the City of Scotts Valley and delivered by Scotts Valley Water District.

6.9.1 Loch Lomond Reservoir

In 1958 SLVWD sold 2,500 acres encompassing a portion of the Newell Creek watershed to the City of Santa Cruz (City) with the agreement that the District would be entitled to purchase 12.5 percent of the annual safe yield from a reservoir planned by the City. The City created Loch Lomond Reservoir with the completion of Newell Creek Dam in 1960. The reservoir has a drainage area of 8.3 square miles and a reservoir capacity of approximately 9,000 AF. The City's appropriative right allows a maximum direct diversion of 3,200 AFY and a maximum use of 5,600 AFY.

SLVWD began receiving a portion of the reservoir yield after the dam was completed, although records are only available for 1976-77, when it received 353 AF (115 MG). Since implementation of the Surface Water Treatment Rule, SLVWD does not have the means to treat diversions from Loch Lomond. In 1996 the City and SLVWD reached a draft agreement that allows the SLVWD to purchase up to 313 AFY (102 MGY) of raw Loch Lomond water or purchase the same amount of treated city water with the understanding that it would be interruptible during declared water-shortage emergencies. SLVWD has yet to exercise either allowance under this agreement.

SLVWD commissioned a study to evaluate the feasibility and cost of utilizing its allotment of Loch Lomond (SPH Associates Consulting Engineers, October 2010). The study found that the City's diversion pipeline from Loch Lomond could be accessed by the Felton Kirby WTP. However, because of high concentrations of total organic carbon in Loch Lomond raw water, the District's existing water treatment process would produce water with excessive concentrations of disinfectant by-products (e.g., trihalomethanes) exceeding drinking water standards. Thus, blending and a WTP upgrade would be necessary. The cost of a project to upgrade the Kirby WTP and interconnect the Felton, North, and South systems was estimated at approximately $6.4 million. This would allow the District unrestricted use of its Loch Lomond entitlement during all seasons and water quality conditions.

6.9.2 SCCWD Treated Water

In lieu of a direct diversion from Loch Lomond, SLVWD has the option to purchase up to 313 AFY (102 MGY) of treated water produced by the SCCWD's Graham Hill WTP, with the exception that the supply could be interrupted during declared water-shortage emergencies (Kocher, B./SCCWD, 1996). Such a shortage would likely occur as a result of two or more consecutive dry years (Santa Cruz City Water Department (SCCWD), March 2009). The City of Santa Cruz's Water Shortage Contingency Plan anticipates such an emergency when a 15 percent or greater water shortage is projected for the dry season (Santa Cruz City Water Department (SCCWD), March 2009).

The purchase of treated water from SCCWD would require conveyance lines and a booster pump from the Graham Hill WTP at an estimated cost of approximately $3 million to serve the District's South System, or $4.3 million to serve the entire District (SPH Associates Consulting Engineers, 2010). None of these options is included in the District's 2010 Capital Improvement Plan (SLVWD, 2010).

6.9.3 Additional Groundwater Pumping Capacity

The SLVWD Water Supply Master Plan (Johnson, May 2009) discusses the potential for additional groundwater production wells. A third active well in the Quail Hollow area may be feasible and justified for reliability and redundancy, but may not represent a significant increase in supply. More favorable groundwater storage conditions in the Olympia area could support additional pumping from a new well if limited to drought periods. In light of long-term groundwater level declines in the vicinity of the Pasatiempo and Mañana Woods wells, additional pumping capacity may not increase supplies in these areas.

7 WATER SUPPLY RELIABILITY

Water supply reliability corresponds to an urban water supplier's ability to meet projected future customer demand under a variety of reasonably expected conditions, including the annual California dry season, recurring multi-year drought, and other natural disasters and emergencies. Section 7.1 presents an evaluation of SLVWD water supply reliability under normal, dry, and multiple dry year conditions. Section 7.2 assesses other reliability factors. Section 8 describes SLVWD contingency plans for drought and other emergencies, which include measures for addressing identified water supply deficiencies and uncertainties.

7.1 WATER SUPPLY RELIABILITY

This section considers the District's water supply reliability during three climate-related water scenarios: normal water year, single dry water year, and multiple dry water years. These scenarios are defined as follows:

- **Average Year**: A year, or an averaged range of years, that most closely represents the mean water supply available to the agency.
- **Single Dry Year**: The single-dry year is the year that represents the lowest water supply available to the agency.
- **Multiple Dry Years**: The multiple dry year period is the period that represents the lowest average water supply availability to the agency for a consecutive multiple year period (three years or more).

The 2010 UWMP analysis demonstrated that "SLVWD's existing water sources are capable of meeting projected 2035 water demand on a monthly basis throughout a design climatic cycle representative of 1970-2012 conditions" (Nicholas M. Johnson, Ph.D., R.G., C.Hg., August 2015). Projected demands and supplies presented in the following sections were compared to the 2010 UWMP analysis and in all conditions the projected supplies needed to meet 2035 demands as calculated in this UWMP were less than those projected in the 2010 UWMP, except for stream diversions in the North System and groundwater production in the South System during the first year of a multiple dry years when demand increases to 105% of the average year. Although the volumes of stream diversions in the North System and groundwater production in the South System in year 1 of the multiple dry years scenario exceed the volumes estimated in the 2010 UWMP, it is assumed these demands can be met due to the interconnection of the North and South Systems constructed after the 2010 UWMP analysis was completed. Therefore, it is projected that SLVWD can meet 100% of demand during average, single dry, and multiple dry years. The North System meets demand through conjunctive use of surface water and groundwater sources. The South System meets demand through an uncertain assumption that continued local groundwater overdraft is sustainable and that water can be supplied from North System sources through the systems' interconnection. The Felton System meets demand

largely because of the reliable yield of the relatively large Fall Creek watershed and the karst enhanced flows of all three creeks of Felton System.

7.1.1 Basis of Water Year Data

Local climate and hydrology, and SLVWD's historical conjunctive use of surface water and groundwater resources were analyzed in the 2010 UWMP (Nicholas M. Johnson, Ph.D., R.G., C.Hg., August 2015) and updated with 2013-2015 rainfall and production data for this 2015 UWMP to establish a basis of average, single dry, and multiple dry years. Percentage of average annual rainfall is used as a water supply indicator for defining these periods. Correlations derived from available data indicate that rainfall is a suitable indicator for streamflow, diversions, and groundwater recharge (Nicholas M. Johnson, Ph.D., R.G., C.Hg., August 2015). As shown in Table 7-1, for the purposes of this report, the annual average of 2010-2013 is classified as an "average" year because rainfall was 101% of the long-term rainfall average (1974-2015); 2014 is classified as a "single dry" year because rainfall was 48% of the long-term rainfall average; and 2013-2015 are classified as "multiple dry" years because their three-year average rainfall was 66% of the long-term rainfall average. While 1977 was technically the minimum single dry year with 42% of the long-term rainfall average, 2014 was used because it provides a recent dataset reflecting the latest production strategies and demand responses.

Table 7-1 Basis of Water Year Data

Supply Source	Average Year (1)	Single Dry Year (2)	Multiple Dry Years(2)
Groundwater	2010-2013	2014	2013, 2014 and 2015
[1]Average, Single Dry, and Multiple Dry year supplies are based on historic rainfall totals and supply production analysis completed in the 2010 SLVWD UWMP (Nicholas M. Johnson, Ph.D., R.G., C.Hg., August 2015) updated with 2013-2015 data.			

Table 7-2 shows the water supplies during average, single dry, and multiple dry years using the base years provided in Table 7-1.

Table 7-2 Historical Water Supply Conditions, AFY

Supply Source	Average Year 2010-2013	Single Dry Year 2014	Multiple Dry Years 2013-2015		
			2013	2014	2015
North System					
Stream Diversions	906	472	705	472	479
Quail Hollow Groundwater	227	264	337	264	288
Olympia Groundwater	327	535	510	535	391
Subtotal	*1,460*	*1,271*	*1,552*	*1,271*	*1,159*
Percent of Average Year		***87%***	***106%***	***87%***	***79%***
South System					
Pasatiempo & Mañana Woods Groundwater	392	331	421	331	307
Percent of Average Year		***84%***	***107%***	***84%***	***78%***
Felton System					
Stream & Spring Diversions	500	314	485	314	324
Percent of Average Year		***63%***	***97%***	***63%***	***65%***
SLVWD					
Total	2,352	1,917	2,459	1,917	1,790
Percent of Average Year		**81%**	**105%**	**81%**	**76%**

7.1.2 Projected Average Year Supply/Demand

The available supplies during an average year are based on an analysis of rainfall data, production records, and static well levels and pump performance, which was completed as part of the 2010 UWMP (Nicholas M. Johnson, Ph.D., R.G., C.Hg., August 2015) as described in Sections 7.1 and 7.1.1. The Average year water demands through 2035 are estimated based on the per capita water use targets summarized in Section 4 and populations presented in Section 3.3. The Average year water supply and demand projections are provided in Table 7-3. The projected water demand figures are calculated by multiplying projected population, identified in Section 3.3, by the SB7 goal of 84 GPCD, discussed in Section 4.4. This is a conservative water demand estimate considering that 2015 water production was at 73 GPCD, but it is assumed to be reasonable because the District's 2013-2015 average GPCD was 84 reflecting permanent conservation improvements and expected demand patterns to target.

Table 7-3 Supply and Demand – Average Year, AFY

	2020	2025	2030	2035
Supply totals[1]	2,107	2,132	2,180	2,216
Demand totals[2]	2,107	2,132	2,180	2,216
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

[1] Based on combined production capabilities and production records from 2010-2013 as shown in Table 6-1.
[2] Demand totals are calculated by multiplying projected population by 84 GPCD (the District's SB7 water use target)

7.1.3 Projected Single Dry Year Supply/Demand

The projected single dry year water demands through 2035 are estimated to be 19% less than Average year demands based on 2014 production compared to the 2010-2013 average production. As shown in Table 7-4, the District's supplies are assumed to meet 100% of projected demands even during single-dry year conditions as described in Sections 7.1 and 7.1.1.

Table 7-4 Supply and Demand Comparisons – Single Dry Year, AFY

Water Supply Sources	2020	2025	2030	2035
North System				
Peavine Creek	35	36	36	37
Foreman Creek	255	258	264	269
Clear Creek	92	93	95	97
Sweetwater Creek	61	62	63	64
Quail Hollow Groundwater	247	251	257	261
Olympia Groundwater	502	508	521	530
Supply Subtotal[1]	***1,192***	***1,207***	***1,236***	***1,258***
Demand Subtotal[2]	***1,192***	***1,207***	***1,236***	***1,258***
South System				
Pasatiempo Groundwater	285	286	288	290
Mañana Woods Groundwater	14	14	14	14
Supply Subtotal[1]	***298***	***300***	***302***	***304***
Demand Subtotal[2]	***298***	***300***	***302***	***304***
Felton System				
Fall Creek	183	186	191	196
Bull Creek	22	22	23	23
Bennett Spring Diversion	33	34	35	36
Bennett Spring Groundwater	4	4	4	4
Supply Subtotal[1]	***242***	***246***	***253***	***259***
Demand Subtotal[2]	***242***	***246***	***253***	***259***
SLVWD				
Total Supply[1]	**1,732**	**1,753**	**1,791**	**1,820**
Total Demand[2]	**1,732**	**1,753**	**1,791**	**1,820**
Difference	**0**	**0**	**0**	**0**
Difference as % of Supply	**0**	**0**	**0**	**0**
Difference as % of Demand	**0**	**0**	**0**	**0**

[1] Based on combined production capabilities and production records for 2014.

[2] Demand totals are calculated by multiplying the average year demand by the single dry year percent of average year for each system as shown in Table 7-2.

7.1.4 Projected Multiple Dry Year Supply/Demand

The projected multiple dry years water demands through 2035 are estimated to be 5% higher in the first year, 19% less than average year demands in the second year, and 24% less than average year demands in the third year. The anticipated supplies during multiple dry years, compared to an average year, are based on well production records and the 2010 UWMP analysis discussed in in Sections 7.1 and 7.1.1. As shown in Table 7-5, the District's supplies meet 100% of projected demands even during multiple-dry year conditions. As described in Section 7.1.1, it is assumed, the South System meets demand through an uncertain assumption that continued local groundwater overdraft is sustainable and that water can be supplied from North System sources through the systems' interconnection. SLVWD is working with SVWD, the County and DWR to redraw groundwater boundaries in an effort to help sustainably manage groundwater as required by SGMA.

Table 7-5 Supply and Demand Comparison - Multiple Dry Year Events, AFY

Water Supply Sources	2020	2025	2030	2035
North System				
Peavine Creek	46	47	48	49
Foreman Creek	209	212	217	221
Clear Creek	111	112	115	117
Sweetwater Creek	82	84	86	87
Quail Hollow Groundwater	270	274	280	285
Olympia Groundwater	367	372	380	387
Supply Subtotal[1]	***1,087***	***1,101***	***1,127***	***1,147***
Demand Subtotal[2]	***1,087***	***1,101***	***1,127***	***1,147***
South System				
Pasatiempo Groundwater	268	269	271	273
Mañana Woods Groundwater	8	8	8	8
Supply Subtotal[1]	***277***	***278***	***280***	***282***
Demand Subtotal[2]	***277***	***278***	***280***	***282***
Felton System				
Fall Creek	168	171	176	180
Bull Creek	42	43	44	45
Bennett Spring Diversion	33	33	34	35
Bennett Spring Groundwater	6	6	6	6
Supply Subtotal[1]	***249***	***253***	***261***	***267***
Demand Subtotal[2]	***249***	***253***	***261***	***267***
SLVWD				
Total Supply[1]	**1,613**	**1,632**	**1,668**	**1,695**
Total Demand[2]	**1,613**	**1,632**	**1,668**	**1,695**
Difference	**0**	**0**	**0**	**0**
Difference as % of Supply	**0**	**0**	**0**	**0**
Difference as % of Demand	**0**	**0**	**0**	**0**

[1] Based on combined production capabilities and production records for 2015, which is representative of the third year in a multiple dry year scenario.

[2] Demand totals are calculated by multiplying the average year demand by the third multiple dry year (2015) percent of average year for each system as shown in Table 7-2.

7.1.5 Resource Maximization and Import Minimization

As stated in Section 6.1, the District's sole source of existing and planned water supply for the UWMP's planning horizon (2015-2035) is local groundwater and surface water. The District will maximize its local supply by implementing operational strategies and demand management measures that will keep the safe yield of the groundwater basins in balance. This will eliminate any current or future need to import water into the District's service area.

7.2 FACTORS AFFECTING SUPPLY RELIABILITY

Factors other than the climatic cycle that potentially affect the reliability of SLVWD water supplies include:

- Water supply interruptions as a result of storm damage (e.g., 1986), construction (e.g., the 1994-97 construction of the Five-Mile Pipeline), and maintenance (e.g., 2002 when the Five-Mile Pipeline was down for maintenance).
- Limited storage, other than natural groundwater storage. Existing total storage capacities are 21.8 AF for 33 tanks serving the North Service Area (about a 3 to 8 day supply, depending on season); 1.3 AF for five tanks serving the South Service Area, including Mañana Woods (3 to 6 days' supply); and 2.9 AF for eight tanks serving the Felton Service Area (2 to 3 days' supply).
- Diminished groundwater recharge as a result of urbanization and drainage improvements.
- Declining water quality, as has occurred to groundwater in the vicinity of the Mañana Woods well (elevated TDS, sulfate, iron, and manganese, in addition to contaminants derived from leaked fuel and solvents).
- Declining groundwater levels in the Pasatiempo and Camp Evers areas.
- Habitat related issues, such as requirements for stream alteration permits and potential water rights modifications as a result of regulated in-stream flow agreements. In 2014, SLVWD initiated a multi-year program to monitor stream flow and water temperature up and down stream of its diversion intakes in order to better understand potential effects on habitat values (Balance Hydrologics, April 2015). In consultation with State and Federal fish and wildlife agencies, this program is expected to result in the future development of a Habitat Conservation Plan.
- Drought conditions that are worse than represented by the design climatic cycle, such as may occur if the current drought that began in WY 2012 continues beyond WY 2016.
- Climate change that exacerbates drought conditions in ways not represented by the design climatic cycle (e.g., drought combined with a rise in air temperatures, as may be occurring during the current drought).

7.2.1 Water Quality Factors

SLVWD met or surpassed all State and Federal criteria for public health protection in 2015 as described in the SLVWD Consumer Confidence Report (San Lorenzo Valley Water District, July 2016). The following subsections describe water quality for each of the systems.

7.2.1.1 North System Water Quality

The Lyon WTP operates in compliance with EPA's 1989 Surface Water Treatment Rule (SWTR) and its subsequent enhancements. The occurrence of water-borne pathogenic microorganisms is controlled through disinfection, filtration, and limitations on finished-water turbidity. Inflow to the WTP is shut off when the influent turbidity generally exceeds 10 nephelometric turbidity units (NTUs), during which time the District draws from its finished-water storage tanks until the turbidity decreases. High

turbidity stormflows interrupt diversions during about 40 hours per year on average, ranging up to 60 hours during wet years.

As documented in Drinking Water Source and Assessment Protection (DWSAP) reports prepared for the diversion watersheds (Johnson, N.M., June 2005), approximately 140 on-site wastewater disposal systems (i.e., septic tanks with leachfields) occur within the watersheds and recharge areas contributing to North System diversions. About half of these are upstream of the Sweetwater Creek diversion, and the remainder occurs about equally upstream of the Foreman and Clear creek diversions.

Appendix F provides a summary of the raw water quality analyses for samples collected annually since 1979 from the North System stream diversions. The diverted streamflows have low mineral concentrations of a mixed-bicarbonate type and are of overall good quality. TDS concentrations are generally low at less than 150 milligrams per liter (mg/L). Nitrate concentrations are occasionally elevated above background levels in Clear and Sweetwater creek diversions, but well below the drinking water standard. Following filtration and disinfection, the diverted streamflows meet all drinking water standards except for infrequent exceedances of the secondary standards for iron and manganese. Additionally, the concentration of disinfection by-products (e.g., trihalomethanes) in Lyon WTP treatment plant finished water has been consistently below detection.

Quail Hollow groundwater is of a calcium-bicarbonate type and of good quality with low TDS (<130 mg/L), reflecting the high rate of aquifer flushing achieved by the area's high rate of rainfall recharge. The currently active wells QH-4A and -5A were installed in 2001 and produce water that meets all primary and secondary drinking water standards. SLVWD operates its Quail Hollow wells preferentially over its Olympia wells because the latter produce water with elevated manganese concentrations.

DWSAP reports prepared for QH-4A and -5A estimated a combined recharge capture area of slightly more than 200 acres for these two wells (Johnson, N.M., November 2001). Primary factors contributing to potential water-quality vulnerability include: (a) the high percolation capacity of the Santa Margarita Sandstone and associated Zayante soils, (b) the absence of a confining zone above the aquifer, (c) the existence of about 40 residential septic tank systems in the delineated protection zone, and (d) the potential for hazardous-material spills. Although well below drinking water standards, elevated nitrate concentrations may be attributable to wastewater disposal and landscape fertilizers.

Low concentrations of trichloroethene (TCE) were detected in wells QH-5 and QH-5A starting in 1994, and intermittently exceeded the primary drinking water standard (i.e., maximum contaminant level [MCL]) of 5 µg/L in 1998 and 1999. Levels declined to about 1 µg/L or less in 2001 and have been non-detect since 2008.)

DWSAP reports prepared for Oly-2 and -3 estimated a combined recharge capture area of approximately 400 acres for these two wells (Johnson, May 2009). Factors contributing to the potential water-quality vulnerability of these wells include the high percolation capacity of the exposed Santa Margarita Sandstone near and generally west of the wells. However, the recharge area

is predominantly undeveloped and there is no evidence of water quality degradation as a result of land use.

Oly-2 and -3 produce groundwater of calcium-bicarbonate and sodium-bicarbonate types, respectively. Compared to Quail Hollow groundwater, Olympia groundwater is somewhat more mineralized, with average higher TDS concentrations. Concentrations of iron and sulfate approach and sometimes exceed secondary drinking water standards, and manganese concentrations typically exceed secondary standards. SLVWD uses a poly-phosphate additive at each Olympia wellhead to bring iron and manganese concentrations into compliance with secondary standards. Elevated manganese, hardness, and taste are also addressed through blending with production from the Quail Hollow wells.

7.2.1.2 South System Water Quality

A DWSAP report estimated a combined recharge capture area of approximately 230 acres for Paso-5A, -6, and -7 (Johnson, N.M., October 2012). This area is largely undeveloped and there is no evidence of water quality degradation in the Lompico Sandstone aquifer as a result of land use. Factors contributing to potential water-quality vulnerability include (a) the high percolation capacity of the Santa Margarita Sandstone and associated Zayante soils, (b) the absence of a confining layer between the Santa Margarita and Lompico sandstones in portions of the recharge area, (c) wastewater leachfieds and sewer lines, mostly along the margins of the recharge area, and (d) the potential for hazardous-material spills.

Appendix F provides a summary of the water quality data for the South System in 2015. The water quality is generally good, of a mixed-bicarbonate type, with low mineral concentrations. TDS concentrations below 200 mg/L suggest that groundwater production derives largely from recharge rather than storage depletion. Concentrations of iron in groundwater produced from Paso-6 range up to 0.6 mg/L, typically exceeding the secondary standard of 0.3 mg/L. Similar to the Olympia wells, SLVWD uses a poly-phosphate additive at the Paso-6 wellhead to achieve compliance with the iron standard. Arsenic concentrations in Paso-6 groundwater have ranged up to 12.5 µg/L, exceeding the revised MCL that was lowered from 50 to 10 micrograms per liter (µg/L) in 2006. Compliance with the standard is achieved through blending the production of Paso-5A, -6, and -7.

7.2.1.3 Felton System Water Quality

Appendix F provides a summary of the water quality data for the Felton System in 2015. Total dissolved mineral concentrations are lowest for Fall Creek (around 150 mg/L) and highest for one of the Bull Creek diversions (around 300 mg/L), and meet all drinking water standards. The water is of a calcium-bicarbonate type.

8 WATER SHORTAGE CONTINGENCY PLANNING

Water shortage contingency planning is a strategic planning process to prepare for and respond to water shortages. Good planning and preparation provides the District with the tools to maintain reliable supplies and reduce the impacts of supply interruptions due to extended drought or catastrophic supply interruptions.

SLVWD adopted a Drought Contingency Management Plan in 2007 that provided demand reduction strategies and procedures for drought, natural disasters, and other emergency conditions when District water supplies may not meet customer demand. This plan consisted of three phases: 1) voluntary 15 percent conservation; 2) mandatory water conservation restrictions and prohibitions with respect to water wastage, leaks, irrigation, various other outdoor uses, and some types of commercial use, in order to achieve a 20 percent reduction in use; and 3) mandatory residential rationing on a per capita basis, mandatory commercial rationing based on a percentage of prior year use, and further restrictions on landscape irrigation, with associated penalties and a goal of achieving a 30 percent reduction in use.

In April 2014, in response to the drought that began in 2012, the SLVWD Board of Directors declared a water shortage emergency (Resolution 13-14) and adopted Ordinance 105 (Appendix G) as a replacement for the 2007 Drought Contingency Plan. Ordinance 105 "establishes water management requirements necessary to conserve water, enable effective water supply planning, assure reasonable and beneficial use of water, prevent unreasonable use of water, prevent unreasonable method of use of water within the San Lorenzo Valley Water District in order to assure adequate supplies of water to meet the needs of the public, and further the public health, safety, and welfare." It defines four stages of 10 to more than 30 percent water shortage, with increasing degrees of use restriction and prohibition at each stage, that are more specifically defined than in the previous plan. Residential and commercial rationing are added in stages 3 and 4, respectively, at levels to be defined by the District Manager. The District Board amended Ordinance 105 in May 2015 (Appendix G) with more specifically defined enforcement procedures and penalties.

8.1 STAGES OF ACTION AND REDUCTION OBJECTIVES

The District's water shortage plan describes four stages of water demand reductions that may be invoked during water supply shortages. Each stage includes a water reduction objective, conditions and percent of average year water demands, which may vary based on the nature of water supply emergency. The provisions of Ordinance 105 shall take effect whenever the District Manager, upon analysis of the District's water supplies, finds and determines that a water shortage exists or is imminent within District's service area and a declaration of a water shortage is made by a resolution of the Board of Directors, and they shall remain in effect for the duration of the water shortage set forth in the resolution. A combination of water conservation measures would be used to reduce water

usage in the event of water shortages. Table 8-1 shows the four stages and their representative shortage conditions and reduction objectives.

Table 8-1 Water Shortage Contingency - Rationing Stages

Stage	Condition	Reduction Objective
1. Water Shortage	• Anticipated water shortage will be 10% or less	Minimal consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water supply conditions
2. Water Shortage	• Anticipated water shortage will be between 10% and 20%	A moderate consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water supply conditions
3. Water Shortage	• Anticipated water shortage will be between 20% and 30%	A significant consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water supply conditions
4. Water Shortage	• Anticipated water shortage will be greater than 30%	An extraordinary consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water supply conditions. May require up to 50% mandatory reduction in total water demands.

8.2 MANDATORY PROHIBITIONS ON WATER WASTING

The District Manager is empowered to issue a Water Shortage stage notification and to enforce the water shortage restrictions in Table 8-2 upon finding the magnitude of an anticipated water shortage and consumer demand reduction necessary to make more efficient use of water and appropriately respond to existing water supply conditions.

Table 8-2 Water Shortage Contingency - Mandatory Prohibitions

#	Prohibitions	Mandatory Prohibition Stage
1	To water or irrigate lawn, landscape, or other vegetated areas between the hours of 10:00 a.m. and 5:00 p.m., except when performed with a bucket or watering can, or by use of a drip irrigation system or similar low volume, nonspray irrigation equipment, or for very short periods of time for the express purpose of allowing landscape contractors to adjust or repair an irrigation system.	Stage 1
2	To use a hose that is not equipped with a shutoff nozzle	Stage 1
3	To use potable water to wash down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking lots, tennis courts, patios, or other paved surfaces, except when it is necessary to alleviate safety or sanitation hazards or to prepare paved surfaces for sealing	Stage 1
4	To initially fill or to drain and refill residential swimming pools	Stage 1
5	To serve water in a restaurant or other commercial food service establishment except upon the request of a patron	Stage 1
6	To operate a hotel, motel or other commercial lodging establishment without offering patrons the option to forego the daily laundering of towels, sheets and linens	Stage 1
7	To water or irrigate lawn, landscape, or other vegetated areas on days of the week other than the days of the week authorized and noticed by the District Manager, except when performed with a bucket or watering can, or by use of a drip irrigation system or similar low volume, non-spray irrigation equipment, or for very short periods of time for the express purpose of allowing landscape contractors to adjust or repair an irrigation system. Hourly restrictions set forth in subsection 1 of Stage 1 water shortage restrictions set out in Section 6 above continue to apply on authorized watering days. This provision shall not apply to commercial growers/nurseries or to residential vegetable gardens/edible plantings watered with a hose equipped with a shutoff nozzle.	Stage 2
8	To water or irrigate lawn, landscape, or other vegetated area using an automatic irrigation system for more than fifteen minutes per watering station per assigned day. This provision shall not apply to automatic irrigation systems exclusively using low output sprinkler equipment, including rotors, stream rotors, or micro- spray systems	Stage 2

9	To wash the exterior of dwellings, buildings or structures (with the exception of window washing and preparation of property for painting or for sale)	Stage 2
10	To violate residential customer water rationing regulations, including regulations intended to preclude excessive water usage and specifying maximum water usage limitations, issued by the District Manager	Stage 3
11	To violate commercial customer water rationing regulations, including regulations intended to preclude excessive water usage and specifying maximum water usage limitations, issued by the District	Stage 4
12	To water lawns or turf, unless such watering is authorized by the District Manager in accordance with a landscape irrigation water	Stage 4
13	To install new landscaping which requires any irrigation or watering	Stage 4
14	To wash or clean vehicles, including but not limited to automobiles, trucks, vans, buses, motorcycles, boats, or trailers, including the washing of fleet vehicles	Stage 4
15	To exercise any rights conferred by hydrant and bulk water permits that were issued prior to the severe water shortage emergency declaration absent special permission granted by the District Manager. Said special permission may be granted only for projects necessary to protect the public health, safety and welfare where no alternative to potable water exists and for emergency response purposes.	Stage 4

8.3 PENALTIES

The purpose of the administrative penalties assessed pursuant to this section is to assure future compliance by the cited customer through the imposition of increasingly significant penalties so as to create a meaningful disincentive to commit future violations. The penalties are intended to equitably distribute available water among District customers and to assure that, to the extent feasible, District water is conserved and used only for purposes deemed necessary for public health and safety. Failure to comply with prohibitions listed in Table 8-2, based on Water Shortage stages listed in Table 8-1, would result in the following penalties commencing with Stage 1:

1. *First Offense. Written notice of violation and opportunity to correct violation.*

2. *Second Offense. A second violation within the preceding twelve calendar months is punishable by a fine not to exceed one hundred dollars.*

3. *Third Offense. A third violation within the preceding twelve calendar months is punishable by a fine not to exceed two hundred fifty dollars.*

4. *Fourth Offense. A fourth violation within the preceding twelve calendar months is punishable by a fine not to exceed five hundred dollars. In addition to any fines, the District Manager may order a water flow restrictor device be installed.*

> *5. Discontinuing Service. In addition to any fines and the installation of a water flow restrictor, the District Manager may disconnect a customer's water service for willful violations of mandatory restrictions and regulations in this Ordinance. Upon disconnection of water service, a written notice* shall be served upon the customer which shall state the time, place, and general description of the prohibited or restricted activity and the method by which reconnection can be made.

An excessive use penalty shall be assessed where the customer, during any given billing cycle, uses more than the customer's water allotment per the District's water rationing regulations issued pursuant to this Ordinance commencing with Stage 3 (Table 8-2). Excess use penalties shall be in addition to ordinary water consumption charges, as follows:

> *1. One percent to ten percent over customer rationing allotment: twenty-five dollars/CCF.*
>
> *2. More than ten percent over customer rationing allotment: fifty dollars/CCF.*
>
> *3. In addition to any excess use penalties, the District Manager may order a water flow restrictor device be installed and/or may disconnect a customer's water service for willful violations of the water rationing regulations in this Ordinance. Upon disconnection of water service, a written notice shall be served upon the customer which shall state the time, place, and general description of the prohibited or restricted activity and the method by which reconnection can be made.*

A person or entity that violates Ordinance 105 is responsible for payment of charges for installing and/or removing any flow- restricting device and for disconnecting and/or reconnecting. The charge for installing and/or removing any flow restricting device must be paid before the device is removed. Nonpayment will be subject to the same remedies as nonpayment of basic water rates.

In addition to the remedies referenced above, the District Manager is empowered to pursue any additional remedies necessary, including, but not limited to, other administrative, criminal, and civil remedies to correct a violation of Ordinance 105.

8.4 MECHANISM FOR DETERMINING WATER USE REDUCTIONS

Potable water production records are analyzed on a monthly basis. From this information, month to month and year to year statistics can be calculated to track water production. This data allows the District to determine the effectiveness of the implemented DMMs and/or water shortage reduction stage prohibitions. If reduction goals are not being met, the District Manager can make the necessary decisions for corrective action to be taken.

8.5 REVENUE AND EXPENDITURE IMPACTS

Reduced water demand as a result of conservation during periods of water shortage result in reduced District revenue just as drought-related operational costs increase. SLVWD implemented a drought surcharge effective January 2016 in order to ensure sufficient reserves to endure such periods.

8.6 ACTIONS DURING A CATASTROPHIC INTERRUPTION

SLVWD conducts vulnerability assessments as required by the U.S. Department of Homeland Security, EPA, and CDDW. In 2013, the District Board adopted an Emergency Response Plan and procedures manual.

8.7 PROJECTED THREE YEAR MINIMUM SUPPLY

The minimum supply for the District over the next three years is equal to the driest historic sequence, which occurred during the 1987-1994 drought discussed in Section 7.1.1. Table 8-3 shows the projected three-year minimum water supplies for the District based on the 1987-1994 drought supply and 2016-2018 projected demands.

Table 8-3 District's Projected Three-year Minimum Water Supplies, AFY

Supply Source[1]	**2016**	**2017**	**2018**
North System			
Stream Diversions	580	401	421
Quail Hollow Groundwater	277	224	253
Olympia Groundwater	419	455	344
Subtotal	*1,276*	*1,081*	*1,019*
South System			
Pasatiempo & Mañana Woods Groundwater	359	291	277
Felton System			
Stream & Spring Diversions	326	219	233
SLVWD			
Total	**1,961**	**1,590**	**1,529**

[1] Multiple Dry year values are based on the average production for 2013-2015, as calculated in Table 7-2, applied to projected 2016-2018 demands.

9 DEMAND MANAGEMENT MEASURES

The Demand Management Measures (DMM) section provides a comprehensive description of the water conservation programs that the District has implemented for the past five years, is currently implementing, and plans to implement in order to meet the 2020 urban water use reduction targets. The section of the CWC addressing DMMs was significantly modified in 2014, based on recommendations from the Independent Technical Panel (ITP) to the legislature. The ITP was formed by DWR to provide information and recommendations to DWR and the Legislature on new DMMs, technologies and approaches to water use efficiency. The ITP recommended, and the legislature enacted, streamlining the requirements from the 14 specific measures reported on in the 2010 UWMP to six more general requirements plus an "other" category for measures agencies implemented in addition to the required elements. The required measures are summarized in Table 9-1.

Table 9-1 Demand Management Measures

	Measure
1	Water waste prevention ordinances
2	Metering
3	Conservation pricing
4	Public education and outreach
5	Programs to assess and manage distribution system real loss
6	Water conservation program coordination and staffing
7	Other demand management measures

9.1 DEMAND MANAGEMENT MEASURES

9.1.1 DMM – Water Waste Prevention

According to the DWR 2015 UWMP Guidebook, a water waste ordinance explicitly states the waste of water is to be prohibited. The ordinance may prohibit specific actions that waste water, such as excessive runoff from landscape irrigation, or use of a hose outdoors without a shut off nozzle.

Prohibitions on water waste and other water-use restrictions are announced in water bill inserts, annual water quality reports mailed to District customers, the District website, and in press releases to local newspapers. The District's Ordinance 105 described in Section 8 lists the prohibited uses of water supplied by the District and defines water waste. The prohibited uses are summarized in Table 8-2. These prohibitions are in effect during declared water shortage emergencies, and violations are punishable by fines levied on customer water utility bills.

9.1.2 DMM – Metering

According to the DWR 2015 UWMP Guidebook, an agency that is fully metered will state that fact in the UWMP. If an agency is not yet fully metered, it will discuss its plans for becoming fully metered in accordance with CWC 527.

All District service connections are currently metered, and water meters are required for all new connections.

9.1.3 DMM – Conservation Pricing

According to the DWR 2015 UWMP Guidebook, retail water agencies need to describe the pricing structure that is used by the water agency. Conservation pricing is designed to discourage wasteful water habits and encourage conservation. The District applies a three tier rate structure to the single family residential customer class which accounts for 80% of the customer base. Rates based on volume of use encourage water conservation by customers. The District applies a uniform rate structure to the remaining customer classes: multi-family residential, commercial, institutional/landscape, and industrial.

SLVWD switched from a bi-monthly to a monthly billing cycle in May 2014 to help customers more closely track their water usage and conservation efforts. The redesigned monthly bills include information about each connection's daily usage compared to average daily usage the previous year.

Customers pay a basic service charge based on meter size, and tiered pricing based on the amount of water used (www.slvwd.com/account_billing.htm). Water consumption is measured in "units," where 1 unit equals 100 cubic feet or 748 gallons of water. As of January 1, 2015, SLVWD water pricing was as shown in Table 9-2. The District's pricing structure was modified previously in 2013, 2011, and 2008.

Table 9-2 Conservation Pricing Rate Structure

Water Meter Size	Monthly Base Charge (per meter)
5/8", 3/4", 1"F, 1K, 1.5"G, 2"H	$30.64
5/8"A, 3/4"A, 1", 1.5"F, 2"G, 2L	$51.00
5/8"B, 1"A, 1.5"	$102.50
5/8"C, 1"B, 1.5"A, 2"	$163.50
2"A, 3"	$307.00
1.5"C, 4"	$511.00
Water Units	**Monthly Consumption Charge (per unit)**
0 - 4	$3.43
5-15	$4.48
16 - 50	$5.37
Over 51	$5.95
Flat Rate	$4.18
Effective January 1, 2015	
http://www.slvwd.com/account_billing.htm	

9.1.4 DMM – Public Information Programs

SLVWD actively promotes public awareness and education of the District's water supply sources, the San Lorenzo River watershed, and the public's role in conserving water and protecting its shared resource. The District's website, http://www.slvwd.com/drought.html, provides seasonal water-use efficiency tips, informs customers when the drought contingency plan is in effect, posts restrictions or prohibitions for outdoor water use, and provides contacts for other partner organizations supporting water conservation. One of these organizations is the Water Conservation Coalition of Santa Cruz County, whose goal is to provide the community with effective tools to help make water conservation easy and fun. As a member of the Water Conservation Coalition of Santa Cruz County, the District uses its website www.watersavingtips.org to provide water saving tips, information on County-wide rebate programs, and educational materials (e.g., drought-tolerant plants suitable for local conditions). The Water Conservation Coalition of Santa Cruz County also works collaboratively to produce press releases, newspaper ads, radio ads, and informational booths at local events. SLVWD disseminates public information regarding water conservation via the following methods and media:

- The District website, http://www.slvwd.com/drought.html.
- Water utility bill inserts (seven to ten months per year; example provided in Appendix B) and other direct mailings.

- Customer bills that show the amount of water used in gallons per month and average gallons per day, compared to the amount used for the same period the prior year, and cumulative rainfall for the current water year.
- Paid advertising in local newspapers (e.g. Press Banner, Santa Cruz Sentinel)
- Weather information, including District rainfall records, posted on-line (www.slvwd.com/weather.htm) and via links from local news websites (www.boulder-creek.com/frmain2.htm).
- Monthly enewsletter
- 3-10 weekly posts on Facebook

9.1.5 DMM – Water Loss Control

SLVWD quantifies non-revenue water (NRW, or "losses") on a monthly basis by comparing produced and delivered water (Table 5-7), and prepares quarterly water loss and water audit status reports. To reduce NRW, the District replaces faulty water meters and locates and repairs leaks throughout its entire system. The District has historically conducted meter replacement programs every 15 to 20 years.

The District consults a number of resources and methods for estimating system water losses consistent with best practices advocated by the American Water Works Association (AWWA) and the International Water Association (IWA), including the Water Audit and Leak Detection Guidebook (California Department of Water Resources (CDWR) and American Water Works Association (AWWA) , June 1992) and Water Loss Control (Thorton, J., Sturm, R., Kunkel, G. , 2008).

The District notifies customers to report leaks and informs customers on how to read their meter and how to test for leaks. In the case of a leak on the customer's side of the meter, the District provides opportunity and incentive for customers to review their bills and promptly repair leaks through leak adjustment requests. The District reviews leak adjustment requests for evidence of leak repairs, and applies a credit to the water usage portion of a customer's bill. An emergency on-call service is available to report leaks outside normal business hours.

9.1.6 DMM – Conservation Coordinator and Staffing Support

SLVWD's Manager of Environmental Programs organizes, coordinates, and supervises the District's water conservation programs and activities and reports directly to the District Manager, as shown on the District organization chart (http://slvwd.com/Personnel/SAN%20LORENZO%20VALLEY%20WATER%20DISTRICT%20-%20Org%20Chart%202016%20rev1.pdf).

9.2 OTHER DEMAND MANAGEMENT MEASURES

The District is committed to implementing cost effective programs that will increase water efficiency District-wide. Though not required, the District has implemented the following DMMs during the past

five years and will continue implementation into the future in order to increase the overall water efficiency of the District's customers. The following is a brief description of each program.

9.2.1 Schools and Public Education

Since 2004, SLVWD has included approximately $17,500 in its annual budget to fund watershed education program grants, and an additional $15,000 for data collection and restoration program grants. These grants are awarded to local schools, camps, community groups, and individuals whose projects help improve the knowledge and environmental health of the San Lorenzo River watershed. The projects are foundational for engaging schools and the public in protecting and conserving the watershed resources. Projects have included events that focus on landscaping to conserve water, field studies to collect water quality data, watershed walks, and disseminating material emphasizing watershed protection concepts and practices. A complete list of projects can be found at www.slvwd.com/education.htm.

The Water Conservation Coalition of Santa Cruz County, of which SLVWD is a member, has developed an activity book about the water resources of Santa Cruz County. The educational material is targeted to middle schools and covers basic concepts of the hydrologic cycle, specific sources of water available to communities within Santa Cruz County, measuring and reducing personal indoor water use, and how the County is planning to help address future water needs under a growing population and potentially decreasing water supplies. SLVWD is a member of the State's Water Education–Water Awareness Committee (WEWAC) whose mission is to promote the efficient use of water. SLVWD provides a link to the WEWAC website (www.usewaterwisely.com), which presents a water saving topic each month. WEWAC members staff booths at local resource and educational fairs to promote water awareness.

The SLVWD website also links to the Use Water Wisely website, http://wateruseitwisely.com/. The Use it Wisely campaign was launched in 1999 to promote an ongoing water conservation ethic among the rapidly growing urban population of Arizona.

SLVWD, in partnership with other County groups, regularly places informational material in local newspapers. Recent examples include an article on rainwater harvesting by a local landscaping company in March 2012, and an article on the potential effect of climate change on the County's forested watersheds in February 2012.

9.2.2 Residential Programs

The majority of the District's customer accounts are residential; therefore, the District targets indoor and outdoor water savings programs toward these customers. Residential water conservation is promoted by disseminating technical information on methods to reduce indoor and outdoor water use and by offering credits on customer bills for installation and/or replacement of appliances and lawns with approved water saving appliances and plantings.

9.2.2.1 Residential Water Survey Assistance

SLVWD provides technical instruction to help customers manage their water use, in lieu of performing on-site residential surveys. The District's website (www.slvwd.com/cs/cs_index.html) provides a menu of customer services that include instruction and assistance on how to locate and read a water meter, how to conduct a leak test, and assistance in finding a leak once one is suspected. The District website provides a checklist of suggested water saving tips for inside the home (http://www.slvwd.com/_Indoor.htm) and outdoors (http://watersavingtips.org/act/outdoor-water-tips/), and provides a contact phone number for customer questions. Water saving tips include how to: water landscaping more efficiently; check nozzles and connectors for leaks; install aerators in sink faucets; install low-flow showerheads; and limit the amount of time that water runs during showers and washing.

9.2.2.2 Residential Plumbing Retrofit

SLVWD began to provide low-flow shower heads, faucet-aerators, and hose nozzles to residential customers in 2014. These retrofit opportunities are low cost, and easy to self-install. The District website and www.watersavingtips.org provides tips for saving water indoors, including these simple plumbing retrofits.

9.2.2.3 Residential Credit Programs

SLVWD offers credits on customer bills for the purchase and installation of high efficiency washing machines, greywater irrigation system credit and weather based irrigation controllers. Toilet and turf rebates have been suspended because the State is offering a similar program. SLVWD plans to reinstate the turf and toilet credit programs once the State suspends their programs. These programs have been in place since 2003 and offer customers credits ranging from $75 to $750 per installation for replacing appliances with low-water-use alternatives. Details of these programs can be found at http://slvwd.com/rebate.htm. As of 2015, SLVWD had processed a total of 2,306 customer credits for high efficiency toilets, washing machines, greywater irrigation systems, weather based irrigation controllers, and turf replacement. The total program cost as of 2015 was $258,942.

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APPENDIX A. DWR CHECKLIST

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	2.2
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	2.1
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	2
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	3.1
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	3.2
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	3.3
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	3.4
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	3.3
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	5

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	5.1.3; Appendix D
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	5.1.1
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	4.4
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App E	4.4
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply is the suppliers base gpcd is at or below 100.	Baselines and Targets	Section 5.7.2	4.3
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	4.4
1608.24(d)(2)	If the retail supplier adjusts its compliance gpcd using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	N/A
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	N/A

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10608.4	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	4.4
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	6
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	6.2
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	6.2
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	6.2
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	6.2
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	6.2
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.2.4	6.2
10631(b)(4)	Provide a detailed description and analysis of the amount and location	System Supplies	Sections 6.2	6.2

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
	of groundwater that is projected to be pumped.		and 6.9	
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long- term basis.	System Supplies	Section 6.7	6.6
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	6.9
10631(i)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	6.7
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	N/A
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	N/A
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	2.1; 6.8
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	6.8

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	6.8
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	6.8
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	6.8
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.4	6.8
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	6.8
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	6.8
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	7.1.5
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	7.1
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	7.1

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	7.1
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	7.2
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	7.1
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	8
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three- year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	8.7
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	8.6
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	8.2
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	8.2
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	8.3

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	8.5
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	8
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	8.4
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	9.1
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management	Sections 9.1 and 9.3	N/A
10631(j)	CUWCC members may submit their 2013- 2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	N/A
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	2.2; Appendix B

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	2.2; Appendix B
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	2.2; Appendix B
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR	Plan Adoption, Submittal, and Implementation	Section 10.4.4	2.2; Appendix B
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	2.2; Appendix B
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	2.2; Appendix B
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	2.2; Appendix B
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	2.2; Appendix B
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	2.2; Appendix B

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	2.2; Appendix B
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business	Plan Adoption, Submittal, and Implementation	Section 10.5	2.2; Appendix B

APPENDIX B. NOTIFICATION AND OUTREACH

SAN LORENZO VALLEY WATER DISTRICT
13060 Highway 9 • Boulder Creek, CA 95006-9119
Office (831) 338-2153 • Fax (831) 338-7986
Website: www.slvwd.com

July 11, 2016

5th District Supervisor
Bruce McPherson
SC County Board of Supervisors
701 Ocean Street, Rm. 500
Santa Cruz, CA 95060

Subject: San Lorenzo Valley Water District 2015 Urban Water Management Plan

Dear Supervisor McPherson:

San Lorenzo Valley Water District (District) is in the process of preparing its 2015 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (UWMP Act). The UWMP Act requires the District to notify cities and counties within its service areas that it is preparing its 2015 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. The District will notice the specific date, time, and location of this public hearing two weeks prior to its occurrence.

This letter serves as your official notice of preparation and intent to adopt the UWMP. A draft of the UWMP will be available for review in August 2016. Until that time, if you have any questions or comments regarding the District's 2015 UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP at:

Water Systems Consulting, Inc.
Attn. Spencer Waterman, Staff Planner
3765 South Higuera St. Suite 102
San Luis Obispo, California 93401
(805) 457-8833 ext. 102
swaterman@wsc-inc.com

Sincerely,

Jen Michelsen
Environmental Programs Manager
San Lorenzo Valley Water District

SAN LORENZO VALLEY WATER DISTRICT
13060 Highway 9 • Boulder Creek, CA 95006-9119
Office (831) 338-2153 • Fax (831) 338-7986
Website: www.slvwd.com

July 11, 2016

John Ricker
Environmental Health Services
Santa Cruz County
701 Ocean Street, Room 312
Santa Cruz, CA 95060

Subject: San Lorenzo Valley Water District 2015 Urban Water Management Plan

Dear Mr. Ricker:

San Lorenzo Valley Water District (District) is in the process of preparing its 2015 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (UWMP Act). The UWMP Act requires the District to notify cities and counties within its service areas that it is preparing its 2015 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. The District will notice the specific date, time, and location of this public hearing two weeks prior to its occurrence.

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Water Systems Consulting, Inc.
Attn. Spencer Waterman, Staff Planner
3765 South Higuera St. Suite 102
San Luis Obispo, California 93401
(805) 457-8833 ext. 102
swaterman@wsc-inc.com

Sincerely,

Jen Michelsen
Environmental Programs Manager
San Lorenzo Valley Water District

SAN LORENZO VALLEY WATER DISTRICT
13060 Highway 9 • Boulder Creek, CA 95006-9119
Office (831) 338-2153 • Fax (831) 338-7986
Website: www.slvwd.com

July 11, 2016

Chris Berry
Watershed Compliance Manager
City of Santa Cruz Water Department
715 Graham Hill Road
Santa Cruz, CA 95060

Subject: San Lorenzo Valley Water District 2015 Urban Water Management Plan

Dear Mr. Berry:

San Lorenzo Valley Water District (District) is in the process of preparing its 2015 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (UWMP Act). The UWMP Act requires the District to notify cities and counties within its service areas that it is preparing its 2015 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. The District will notice the specific date, time, and location of this public hearing two weeks prior to its occurrence.

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Water Systems Consulting, Inc.
Attn. Spencer Waterman, Staff Planner
3765 South Higuera St. Suite 102
San Luis Obispo, California 93401
(805) 457-8833 ext. 102
swaterman@wsc-inc.com

Sincerely,

Jen Michelsen
Environmental Programs Manager
San Lorenzo Valley Water District

SAN LORENZO VALLEY WATER DISTRICT
13060 Highway 9 • Boulder Creek, CA 95006-9119
Office (831) 338-2153 • Fax (831) 338-7986
Website: www.slvwd.com

July 11, 2016

Rosemary Menard
Water Director
City of Santa Cruz Water Department
212 Locust Street, Suite A
Santa Cruz, CA 95060

Subject: San Lorenzo Valley Water District 2015 Urban Water Management Plan

Dear Ms. Menard:

San Lorenzo Valley Water District (District) is in the process of preparing its 2015 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (UWMP Act). The UWMP Act requires the District to notify cities and counties within its service areas that it is preparing its 2015 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. The District will notice the specific date, time, and location of this public hearing two weeks prior to its occurrence.

This letter serves as your official notice of preparation and intent to adopt the UWMP. A draft of the UWMP will be available for review in August 2016. Until that time, if you have any questions or comments regarding the District's 2015 UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP at:

Water Systems Consulting, Inc.
Attn. Spencer Waterman, Staff Planner
3765 South Higuera St. Suite 102
San Luis Obispo, California 93401
(805) 457-8833 ext. 102
swaterman@wsc-inc.com

Sincerely,

Jen Michelsen
Environmental Programs Manager
San Lorenzo Valley Water District

SAN LORENZO VALLEY WATER DISTRICT
13060 Highway 9 • Boulder Creek, CA 95006-9119
Office (831) 338-2153 • Fax (831) 338-7986
Website: www.slvwd.com

July 11, 2016

Toby Goddard
Water Conservation Manager
City of Santa Cruz Water Department
212 Locust Street, Suite B
Santa Cruz, CA 95060

Subject: San Lorenzo Valley Water District 2015 Urban Water Management Plan

Dear Mr. Goddard:

San Lorenzo Valley Water District (District) is in the process of preparing its 2015 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (UWMP Act). The UWMP Act requires the District to notify cities and counties within its service areas that it is preparing its 2015 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. The District will notice the specific date, time, and location of this public hearing two weeks prior to its occurrence.

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Sincerely,

Jen Michelsen
Environmental Programs Manager
San Lorenzo Valley Water District

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Website: www.slvwd.com

July 11, 2016

Jim Moore
General Manager
Big Basin Water Company
P.O. Box 197
Boulder Creek, CA 95006

Subject: San Lorenzo Valley Water District 2015 Urban Water Management Plan

Dear Mr. Moore:

San Lorenzo Valley Water District (District) is in the process of preparing its 2015 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (UWMP Act). The UWMP Act requires the District to notify cities and counties within its service areas that it is preparing its 2015 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. The District will notice the specific date, time, and location of this public hearing two weeks prior to its occurrence.

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Sincerely,

Jen Michelsen
Environmental Programs Manager
San Lorenzo Valley Water District

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Website: www.slvwd.com

July 11, 2016

Piret Harmon
General Manager
Scott's Valley Water District
2 Civic Center Dr.
Scotts Valley, CA 95066

Subject: San Lorenzo Valley Water District 2015 Urban Water Management Plan

Dear Ms. Harmon:

San Lorenzo Valley Water District (District) is in the process of preparing its 2015 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (UWMP Act). The UWMP Act requires the District to notify cities and counties within its service areas that it is preparing its 2015 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. The District will notice the specific date, time, and location of this public hearing two weeks prior to its occurrence.

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3765 South Higuera St. Suite 102
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swaterman@wsc-inc.com

Sincerely,

Jen Michelsen
Environmental Programs Manager
San Lorenzo Valley Water District

SAN LORENZO VALLEY WATER DISTRICT
13060 Highway 9 • Boulder Creek, CA 95006-9119
Office (831) 338-2153 • Fax (831) 338-7986
Website: www.slvwd.com

July 11, 2016

Ron Duncan
General Manager
Soquel Creek Water District
5180 Soquel Drive
Soquel, CA 95073

Subject: San Lorenzo Valley Water District 2015 Urban Water Management Plan

Dear Mr. Duncan:

San Lorenzo Valley Water District (District) is in the process of preparing its 2015 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (UWMP Act). The UWMP Act requires the District to notify cities and counties within its service areas that it is preparing its 2015 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. The District will notice the specific date, time, and location of this public hearing two weeks prior to its occurrence.

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3765 South Higuera St. Suite 102
San Luis Obispo, California 93401
(805) 457-8833 ext. 102
swaterman@wsc-inc.com

Sincerely,

Jen Michelsen
Environmental Programs Manager
San Lorenzo Valley Water District

SAN LORENZO VALLEY WATER DISTRICT
13060 Highway 9 • Boulder Creek, CA 95006-9119
Office (831) 338-2153 • Fax (831) 338-7986
Website: www.slvwd.com

July 11, 2016

Shelly Flock
Conservation and Customer Service Field Manager
Soquel Creek Water District
5180 Soquel Drive
Soquel, CA 95073

Subject: San Lorenzo Valley Water District 2015 Urban Water Management Plan

Dear Ms. Flock:

San Lorenzo Valley Water District (District) is in the process of preparing its 2015 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (UWMP Act). The UWMP Act requires the District to notify cities and counties within its service areas that it is preparing its 2015 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. The District will notice the specific date, time, and location of this public hearing two weeks prior to its occurrence.

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Attn. Spencer Waterman, Staff Planner
3765 South Higuera St. Suite 102
San Luis Obispo, California 93401
(805) 457-8833 ext. 102
swaterman@wsc-inc.com

Sincerely,

Jen Michelsen
Environmental Programs Manager
San Lorenzo Valley Water District

MEMO

To: Board of Directors

From: District Manager

SUBJECT: DISCUSSION AND POSSIBLE ACTION REGARDING JOINT MEETING WITH SCOTTS VALLEY WATER DISTRICT TO DISCUSS URBAN WATER MANAGEMENT PLANS AND CONSERVATION MEASURES

DATE: May 19, 2016

RECOMMENDATION

It is recommended that the Board of Directors engage in a review and discussion of both District's efforts regarding the State required Urban Water Management Plans (UWMPs) and conservation measures.

BACKGROUND

Coordinated efforts between neighboring agencies is always good business practice. It is especially important for San Lorenzo Valley Water District and Scotts Valley Water District as both agencies, along with the County and private well owners, begin the process of forming a Groundwater Sustainability Agency in response to the State of California's Sustainable Groundwater Management Act (SGMA).

Staff encourages both agencies to continue working together in regard to future water demand and conservation measures.

STRATEGIC PLAN

Element 9.2 – Board Development

FISCAL IMPACT

None

2015 URBAN WATER MANAGEMENT PLANS

Santa Cruz County Local Agency Coordination Meeting

Date: **Thursday, February 4, 2016**

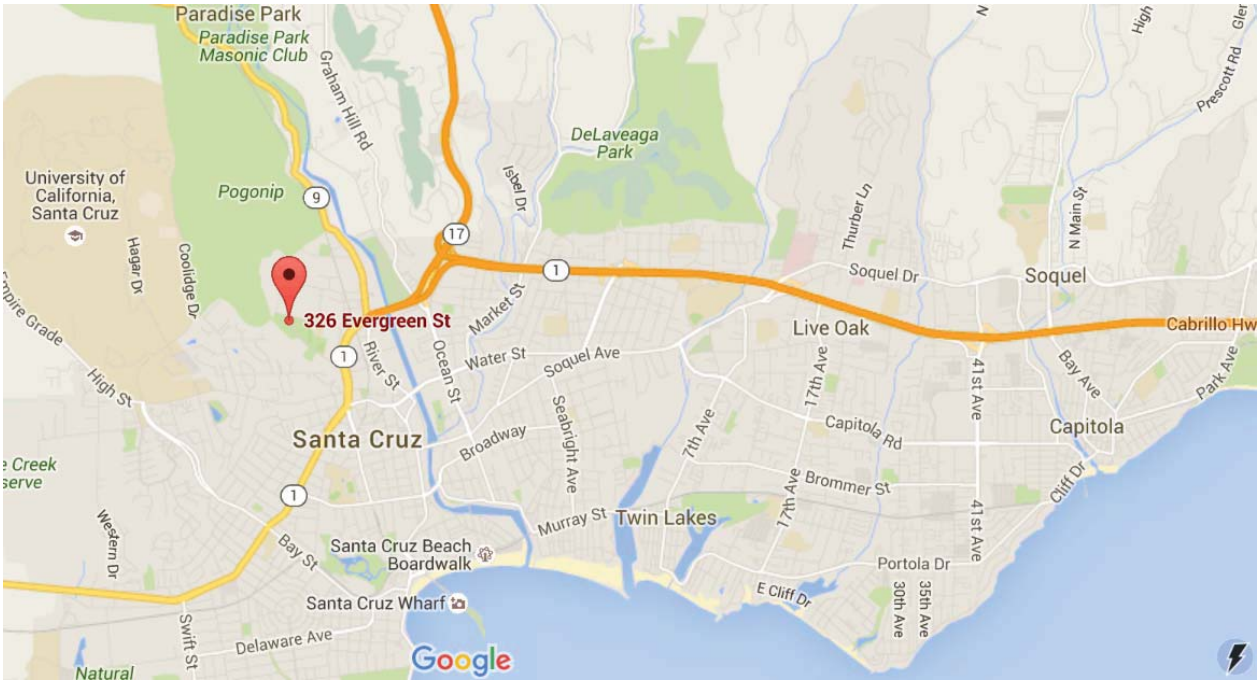
Time: **9:00 am – 11:00 am**

Location: **Harvey West Park Clubhouse, 326 Evergreen Street, Santa Cruz**

Facilitator: **Toby Goddard, City of Santa Cruz**

AGENDA TOPICS

Topic	Staff	Time (minutes)
1. Introductions and Purpose	All	5 min
2. Overview and Changes Since the 2010 Plans	Gwen Huff, CA DWR	30 min
3. Population and Regional Growth Forecast to 2035	AMBAG	15 min
4. Existing and Planned Sources of Water – transfers, exchanges, future projects, recycled water, etc.	All	30 min
5. Demand-side Issues: Future water demands, water conservation, water shortage planning	All	20 min
6. Round-Table Discussion, Q&A	All	15 min
7. Wrap-up	Toby	5 min
	Total	2 hours



BOARD OF DIRECTORS
SAN LORENZO VALLEY WATER DISTRICT
AGENDA
May 19, 2016

MISSION STATEMENT: Our Mission is to provide our customers and future generations with reliable, safe and high quality water at an equitable price; to create and maintain outstanding service and community relations; to manage and protect the environmental health of the aquifers and watersheds; and to ensure the fiscal vitality of the San Lorenzo Valley Water District.

Notice is hereby given that a regular meeting of the Board of Directors of the San Lorenzo Valley Water District will be held on **Thursday, May 19, 2016 at 6:00 p.m.,** at the Operations Building, 13057 Highway 9, Boulder Creek, California.

In compliance with the requirements of Title II of the American Disabilities Act of 1990, the San Lorenzo Valley Water District requests that any person in need of any type of special equipment, assistance or accommodation(s) in order to communicate at the District's Public Meeting can contact the District Secretary's Office at (831) 430-4636 a minimum of 72 hours prior to the scheduled meeting.

Agenda documents, including materials related to an item on this agenda submitted to the Board of Directors after distribution of the agenda packet, are available for public inspection and may be reviewed at the office of the District Secretary, 13060 Highway 9, Boulder Creek, CA 95006 during normal business hours. Such documents are also available on the District website at www.slvwd.com subject to staff's ability to post the documents before the meeting.

1. Convene Meeting/Roll Call

2. Additions and Deletions to Agenda:
   Additions to the Agenda, if any, may only be made in accordance with California Government Code Section 54954.2 (Ralph M. Brown Act) which includes, but is not limited to, additions for which the need to take action is declared to have arisen after the agenda was posted, as determined by a two-thirds vote of the Board of Directors (or if less than two-thirds of the members are present, a unanimous vote of those members present).

3. Oral Communications:
   This portion of the agenda is reserved for Oral Communications by the public for items which are on the Closed Session portion of the Agenda. Any person may address the Board of Directors at this time, on Closed Session items. Normally, presentations must not exceed three (3) minutes in length, and individuals may only speak once during Oral Communications. No actions may be taken by the Board of Directors on any Oral Communications presented; however, the Board of Directors may request that the matter be placed on a future agenda. Please state your name and town/city of residence at the beginning of your statement for the record.

4. Written Communications:

   a. DEPARTMENT OF WATER RESOURCES ACCEPTANCE LETTER OF 2010 URBAN WATER MANAGEMENT PLAN

5. Consent Agenda:

   The Consent Agenda contains items which are considered to be routine in nature and will be adopted by one (1) motion without discussion. Any Board member may request that an item be withdrawn from the Consent Agenda for separate discussion.

   a. MINUTES OF THE BOARD OF DIRECTORS MEETING FROM APRIL 21, 2016.
      Consideration and possible action by the Board to approve minutes for the April 21, 2016 Board of Directors meeting.

   b. BILL LIST FOR PERIOD ENDNG May 19, 2016
      Consideration and possible action by the Board regarding the Bill List for the period ending May 19, 2016.

   c. BRIAN C. LEE SALARY AGREEMENT - RESOLUTION NO. 36 (15-16)
      Consideration and possible action by the Board regarding Brian C. Lee Salary Agreement.

   d. SWIM TANK INITIAL STUDY
      Consideration and possible action by the Board regarding the Swim Tank Initial Study.

   e. FINANCIAL SUMMARY FOR PERIOD ENDING 3/31/16
      Consideration and possible action by the Board regarding the Financial Summary for 3/31/16.

   f. LOMPICO CONSOLIDATION STARTUP EXPENDITURES
      Consideration and possible action by the Board regarding Lompico Consolidation Startup Expenditures.

   g. THE GARDEN FAIRE
      Consideration and possible action by the Board regarding the Garden Faire.

   h. DIRECTOR RATCLIFFE TO SERVE ON ASSOCIATION OF CALIFORNIA WATER AGENCIES ENERGY COMMITTEE
      Consideration and possible action by the Board to approve Director Ratcliffe to serve on the ACWA Energy Committee.

6. Unfinished Business: None

   Members of the public will be given the opportunity to address each scheduled item prior to Board action. The Chairperson of the Board may establish a time limit for members of the public to address the Board on agendum.

7. New Business:
Members of the public will be given the opportunity to address each scheduled item prior to Board action. The Chairperson of the Board may establish a time limit for members of the public to address the Board on agendum.

a. JOINT MEETING WITH SCOTTS VALLEY WATER DISTRICT – URBAN WATER MANAGEMENT PLANS AND CONSERVATION MEASURES
Discussion and possible action by the Boards regarding the UWMPs and Conservation Measures of SLVWD and SVWD.

b. JOHNSON BUILDING
Discussion by the Board regarding the Johnson Building.

c. 2016-17 BUDGET
Discussion and possible action by the Board regarding the 2016-17 Budget.

d. RESOLUTION OF APPRECIATION FOR FRANCES ADAMSON
Discussion and possible action by the Board regarding a Resolution of Appreciation for Frances Adamson.

e. BOARD OF DIRECTORS POLICY MANUAL – SECTION 14 'COMMITTEES'
Discussion and possible action by the Board regarding Section 14 'Committees' of the Board of Directors Policy Manual.

8. District Manager Reports:
Information reports by the District Manager, Staff, Committee and Board of Directors.

a. MANAGER

(1) Department Status Reports
Receipt and consideration by the Board of Department Status Reports regarding ongoing projects and other activities.

(i) Q & A from prior Board Meetings
(ii) Admin/Engineering
(iii) Environmental
(iv) Finance
(v) Operations

b. COMMITTEE/DIRECTOR REPORTS:

(1) Future Committee Agenda Items

(2) Committee Meeting Notes

9. Informational Material:

a. Lompico Votes for Merger – Santa Cruz Sentinel 5.5.16

b. Inevitable Changes to Water in California – UC Davis Center for Watershed Sciences 5.8.16

c. Monthly Meter Reading – Gov. Brown

10. Adjournment to Closed Session

At any time during the regular session, the Board may adjourn to Closed Session in compliance with, and as authorized by, California Government Code Section 54956.9 and Brown Act, Government Code Section 54950. Members of the public will be given the opportunity to address any scheduled item prior to adjourning to closed session.

a. CONFERENCE WITH REAL PROPERTY NEGOTIATORS
Closed session pursuant to Government Code Section 54956.8
Property: 15685 Forest Hill Dr., Boulder Creek, CA 95006
Agency Negotiator: Brian Lee
Negotiating parties: Owner (or representative)
Under Negotiation: Price and terms of payment

b. CONFERENCE WITH LEGAL COUNSEL-EXISTING LITIGATION
Government Code Section 54956.9(d)(1)
Case Number CV180394(a)-Bruce Holloway, Plaintiff, v. Terry Vierra; San Lorenzo Valley Water District; Showcase Realty Agents, Inc.; Gregory Dildine; Edwige Dildine; and Does 1 to 25, Defendants.

c. CONFERENCE WITH LEGAL COUNSEL- EXISTING LITIGATION
Paragraph (1) of subdivision (d) of Government Code Section 54956.9
Santa Cruz County Superior Court Case No. CV176927
Name of Case: Charlene DeBert v. SLVWD

11. Reconvene to Open Session to Report Actions Taken in Closed Session

12. Adjournment

Certification of Posting

I hereby certify that on May 13, 2016 I posted a copy of the foregoing agenda in the outside display case at the District Office, 13060 Highway 9, Boulder Creek, California, said time being at least 72 hours in advance of the meeting of the Board of Directors of the San Lorenzo Valley Water District (Government Code Section 54954.2).

Executed at Boulder Creek, California on May 13, 2016

_____
Holly B. Morrison, Dist. Secretary
San Lorenzo Valley Water Dist.

San Lorenzo Valley Water District
2015 Urban Water Management Plan
Public Hearing November 3, 2015 @ 7:00 PM

Includes public comments via email, written letters, and verbal comments at the hearing and responses to written comments.

Email Message #1
From: Pete Norton <lompicopete@gmail.com>
Date: Oct 31, 2016 4:10 PM
Subject: comments on the 2015 UWMP
To: Board of Directors <bod@slvwd.com>
Cc:

BOD San Lorenzo Water District:

I have reviewed the draft of the 2015 UWMP and have noted the following major discrepancy that must be corrected before final approval by your board.

In June, 2016, The Lompico County Water District was absorbed fully and completely into the SLVWD. As such, customer numbers and all future water use and production estimates need to be updated. The Lompico system contains two major water sources, a stream diversion that has a state of the art treatment plant, and a well field that has its own brand new treatment facility that was required by your board for us to complete the merger of the two districts. The size of Lompico is comparable to the entire Southern section of your district and needs to be included in all of your estimates.

Thank you for your consideration,

Pete Norton
SLVWD customer

On 11/1/16, 10:08 AM, "Brian Lee" <blee@slvwd.com> wrote:

The State requires an update every five years. Technically, it is due on July 1st every year that ends in x1 or x6, covering years ending in x0 and x5. The majority of the data crunching work was completed early in 2016, before we knew Lompico/ SLV merger was certain.

Brian C. Lee, District Manager - 831.338.2153
San Lorenzo Valley Water District
13060 Highway 9
Boulder Creek, CA 95006

On 11/1/16, 9:55 AM, "Pete Norton" <lompicopete@gmail.com> wrote:

Hi Brian,

Thanks for getting back to me. I see your point, however the Loch Lomond water is also just a projected future figure. I realize that you did not include either Lompico usage or the potential

water contribution, which makes it pretty much balance out to zero.
How often will this report be revised?

Pete Norton

> On Oct 31, 2016, at 6:42 PM, Brian Lee <blee@slvwd.com> wrote:

Pete,
Got your message. We will include it in the comments section. This is a weird situation where the 2015 UWMP is based on the district as of Dec 31, 2015. Lompico and SLVWD didn't merge until June 2016, as you know. Even though we know the future includes Lompico, we can't include it for this report.
>
> Brian
> ----------
> Brian Lee
> San Lorenzo Valley Water District

Email Message #2
-----Original Message-----
From: Elizabeth Stephens [mailto:estephe@ucsc.edu]
Sent: Wednesday, November 02, 2016 8:58 PM
To: Board of Directors <bod@slvwd.com>
Subject: 2015 UWMP

Hi,

Who owns the water that Boulder Creek residents drink?
Thanks,
Beth Stephens

Response to #2

Dear Beth,

Thank you for your question. The water delivered to Boulder Creek residents comes from several sources.
There are 5 small creeks on Ben Lomond Mountain, which provide between 40-60 percent of water to residents (in the North System) depending on stream flow and drought conditions. The remaining water is pumped from groundwater aquifers located in Quail Hollow and the Zayante Watershed. The San Lorenzo Valley Water District holds pre 1914 water rights to the surface water sources and owns the wells.

Please let me know if you have any further questions. I'm happy to discuss more detail on the phone if you are interested.

Sincerely,

Jen Michelsen
SLVWD

Written Comments #1 of 1.
John R. Calaprice, Ph.D.
Attached:

November 2, 2016 2015 UWMP Public Hearing Verbal Comments:

Board member Chuck Baughman:

1. Clarify last sentence in the following paragraph:

> 6.8.2 Wastewater Flow Projections (Page 6-16)
> Table 6-7: Wastewater Treatment and Discharge within Service Area in 2015 below describes the volume of SLVWD wastewater that the City of Scotts Valley treats at their water reclamation facility and the amount that is recycled. GIS boundary layers provided by SLVWD and the City of Scotts Valley were used to determine the area of the South Service Area that lies within Scotts Valley Water District's wastewater collection area. From the GIS data, it was determined that 15.2% of Scotts Valley WRF's wastewater is generated by the South Service Area of SLVWD. Scotts Valley WRF collected 1,042 AF of wastewater in 2015, of which 15.2 %, or 158.7 AF, is assumed to have come from SLVWD. The volume of SLVWD wastewater that is recycled and the volumes that are discharged are assumed to come from wastewater generated in SLVWD's South Service Area. The remaining volume of SLVWD wastewater that is not recycled in the South Service Area is assumed to be recycled in Scotts Valley's service area or discharged to the Pacific Ocean. - Clarify that the Wastewater is from south system.

SLVWD response to clarification; Revise paragraph:
The volume of SLVWD wastewater that is recycled is about 51% of water generated in SLVWD's South Service Area. The remaining SLVWD wastewater is treated onsite through septic systems and is discharged to the groundwater basin. Water Resources Managers have postulated as much as 50% of water from onsite wastewater treatment systems contributes to baseflow in the San Lorenzo River Watershed (verbal communication from Santa Cruz County Water Resources Director).

2. Page 6-12 has references to figures that don't exist.
3. Add Nick's Map of basins.
4. Appendix D: Needs to be removed.

John Calaprice, Ph.D. Verbal Comment:
Page 6-9 Loch Lomond water rights. Check for accuracy.
Groundwater supply will not recharge and will not provide sufficient supply.
John Fasolas Verbal Comment:
The District has had an ongoing Fish monitoring program for 20 years. The District has participated in the California Climate Action Registry since 2008.
The District has been participating in the Santa Margarita Ground Water Technical Advisory Meetings for around 20 years. Groundwater Recharge can't happen faster.

Chuck Baughman (Board Member) Verbal Comment:
Groundwater Model was produced by the Santa Margarita Groundwater Agency of which the District is a member.

Deborah Lowen Verbal Comment: Marijuana cultivation should be included in the UWMP.

Rick Moran Verbal Comment: Happy with the consultant. This document is a great educational tool. GPCD is a useful tool. Likes what he read.

Dir. Margaret Bruce Moves to Approve Resolution 14 (16-17) to adopt the Draft 2015 UWMP with recommended changes. Vote: unanimous.
- Adopted

SAN LORENZO VALLEY WATER DISTRICT
13060 Highway 9 • Boulder Creek, CA 95006-9119
Office (831) 338-2153 • Fax (831) 338-7986
Website: www.slvwd.com

November 18, 2016

John R. Calaprice, Ph.D.
Ecosystems Engineering and Analysis, LLC
125 Clearview Place
Felton, CA 95018

Subject: San Lorenzo Valley Water District 2015 Urban Water Management Plan

Dear Dr. Calaprice:

Thank you for your thoughtful comments on the Draft 2015 Urban Water Management Plan. The District is currently planning water reliability and sustainability efforts to address the effects that climate change and the anticipated future dry years will have on our water resources. These were not summarized in the Final Draft UWMP; however, we have incorporated those efforts into the Executive Summary of the Final UWMP for clarification. Some of those efforts include the following:

Santa Margarita Groundwater Sustainability Agency Formation
The District is working with a multi-stakeholder group, primarily consisting of adjacent water agencies and the County of Santa Cruz, to form a Groundwater Sustainability Agency for the shared Santa Margarita Groundwater Basin. The Department of Water Resources recently accepted the stakeholder group's application to re-draw the boundary of the Santa Margarita Groundwater Basin to more accurately reflect the reality of the geology and topography delineating the aquifer. The stakeholder group is currently working on the Memorandum of Understanding (MOU) and other official documents, which will lead to agreements to sustainably manage the Santa Margarita and Lompico Groundwater Basin.

San Lorenzo Conjunctive Use and Baseflow Enhancement Plan
The District is collaborating with the County Water Resources Division on a prop 1 planning grant to develop a San Lorenzo Watershed Conjunctive Use and Baseflow Enhancement Plan (Plan) to improve water resource efficiency, thereby benefiting essential local fisheries, wildlife and the community. The Plan will provide guidance for diverting excess winter surface flow in the San Lorenzo River Watershed to meet water supply needs, resting groundwater wells, and providing active, passive and or in-lieu groundwater recharge. During the dry season, the augmented groundwater will be used to meet demands and reduce stream diversions. The District anticipates

that conjunctive use of surface and groundwater will lead to increased stream baseflow during summer and other critical times benefitting fisheries, and will also contribute to increased storage, recovery, and sustainable management of the Santa Margarita Groundwater Aquifer.

Felton Water System Infrastructure Improvement, Micro-Hydro Energy Efficiency Project, and Streamflow Enhancement on Fall Creek.
The District's Capital Improvement Plan has identified the Felton System as a priority for the District's next capital improvement project. The project will improve efficiencies in the Felton system by increasing the use of Bull and Bennett Creeks, increasing the bypass flows in Fall Creek, improving baseflow in the San Lorenzo River, and incorporating a micro-hydro energy plant adjacent to the surface water treatment plant in Felton. This project will have multiple benefits including decreasing the District's carbon footprint.

Zayante Creek Large Wood Project
The District is collaborating with the Santa Cruz County Health Services Agency, Environmental Health Services, Water Resources Division, the City of Santa Cruz, the County, and the Resource Conservation District of Santa Cruz County to install large wood into the creek bed on District property in the Upper Zayante Watershed. In addition to the many benefits to riparian and instream fish habitat, this project will build up the streambed, slow the water in the creek and allow for more percolation into the groundwater aquifer adding to aquifer storage and improve baseflow in the San Lorenzo Watershed.

Santa Margarita Aquifer Injection or In-lieu Recharge Project
The District is partnering with both the City of Santa Cruz Water Department and Scott's Valley Water District to evaluate options to actively recharge the Santa Margarita Groundwater Basin. This could include utilizing storm water runoff to actively inject water into the aquifer and/or to serve customers in groundwater areas to allow wells to rest and recover.

We appreciate your comments and encourage your participation with the Water District in future capacities.

Sincerely,

Jen Michelsen
Environmental Programs Manager
San Lorenzo Valley Water District

APPENDIX C. RESOLUTION OF ADOPTION

SAN LORENZO VALLEY WATER DISTRICT

RESOLUTION NO. 13 (16-17)

SUBJECT: APPROVAL OF THE 2015 URBAN WATER MANAGEMENT PLAN

WHEREAS, the California Legislature enacted Assembly Bill No 797 during the 1983-1984 Regular Session of the California Legislature (Water Code 10610, et. Seq.), known as the Urban Water Management Planning Act, and as amended subsequently, which mandates that every supplier providing water for municipal purposes to more than 3,000 service connections or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, AB 797 requires that said Plan be adopted by December 31, 1985, after pubic review and hearing, and filed with the California Department of Water Resources within thirty days of adoption; and

WHEREAS, AB 797 requires that said Plan be periodically reviewed at least once every five years, and that the urban water supplier shall make any amendments or changes to its Plan which are indicated by the review; and

WHEREAS, the District provided water to over 3,000 service connections, and has, therefore, prepared and circulated for public review a Draft 2015 Urban Water Management Plan, in compliance with the requirements of AB 797, and a properly noticed public hearing regarding said Draft Plan was held by the District Board on November 3, 2016;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the San Lorenzo Valley Water District as follows:

1. The 2015 Urban Water Management Plan is hereby adopted.

2. The District Manager is hereby authorized and directed to file the Plan with the California Department of Water Resources within 30 days after this date, in accordance with AB 797;

****

PASSED AND ADOPTED by the Board of Directors of the San Lorenzo Valley Water District, County of Santa Cruz, State of California, on the 3rd day of November, 2016, by the following vote:

AYES: Brown, Ratcliff, Baughman, Bruce
NOES:
ABSENT: Hammer
ABSTAIN:

Brian C. Lee, District Manager
San Lorenzo Valley Water District

APPENDIX D. AWWA WATER LOSS AUDIT

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0
American Water Works Association.

? Click to access definition
+ Click to add a comment

Water Audit Report for: San Lorenzo Valley Water District (CA4410014)
Reporting Year: 2015 | 1/2015 - 12/2015

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where

Master Meter and Supply Error Adjustments

WATER SUPPLIED

<---------- Enter grading in column 'E' and 'J' ----------> | Pcnt: | Value:

Volume from own sources:	+ ?	7	1,789.000	acre-ft/yr	+ ?	4	0.00%			acre-ft/yr
Water imported:	+ ?	10	0.000	acre-ft/yr	+ ?					acre-ft/yr
Water exported:	+ ?	10	0.000	acre-ft/yr	+ ?					acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 1,789.000 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

					Pcnt:	Value:	
Billed metered:	+ ?	6	1,469.000	acre-ft/yr			
Billed unmetered:	+ ?	5	0.000	acre-ft/yr			
Unbilled metered:	+ ?	5	0.000	acre-ft/yr			
Unbilled unmetered:	+ ?	5	22.363	acre-ft/yr	1.25%		acre-ft/yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

Use buttons to select percentage of water supplied OR value

AUTHORIZED CONSUMPTION: ? 1,491.363 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption)

297.638 acre-ft/yr

Apparent Losses

					Pcnt:	Value:	
Unauthorized consumption:	+ ?		4.473	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+ ?	7	0.000	acre-ft/yr			acre-ft/yr
Systematic data handling errors:	+ ?	9	3.673	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: ? 8.145 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? 289.493 acre-ft/yr

WATER LOSSES: 297.638 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: ? 320.000 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	3	180.0	miles	
Number of active AND inactive service connections:	+ ?	8	7,403		
Service connection density:	?		41	conn./mile main	
Are customer meters typically located at the curbstop or property line?			No		
Average length of customer service line:	+ ?	5	50.0	ft	(length of service line, beyond the property boundary, that is the responsibility of the utility)
Average operating pressure:	+ ?	7	80.0	psi	

COST DATA

Total annual cost of operating water system:	+ ?	10	$6,100,000	$/Year	
Customer retail unit cost (applied to Apparent Losses):	+ ?	8	$4.97	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	+ ?	9	$1,027.00	$/acre-ft	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 71 out of 100 ***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Volume from own sources
2: Billed metered
3: Unauthorized consumption

APPENDIX E. SERVICE AREA SPECIFIC TABLES

Output Tables for: North System

Table 6. Population Past, Current, & Projected (DWR Table 2)

	2005	2010	2015	2020	2025	2030	2035	2040	2045
North System	16,249	15,693	15,882	16,342	16,553	16,947	17,248	17,555	17,867

Table 8. Water Deliveries- Actual, 2010 (DWR Table 4), Volume in afy

	2010				
	Metered		Not Metered		Total
Water use sectors	# of Connections	Volume	# of Connections	Volume	Volume
General and Residential	5,152	1,011	0	0	1,011
Commercial	93	53	0	0	53
Institutional	32	58	0	0	58
Irrigation	11	9	0	0	9
Other	6	1	0	0	1
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
Total	5,294	1,132	0	0	1,132

Table 9. Water Deliveries- Projected 2015 (DWR Table 4), Volume in afy

	2015				
	Metered		Not Metered		Total
Water use sectors	# of Connections	Volume	# of Connections	Volume	Volume
General and Residential	5,216	814	0	0	814
Commercial	93	45	0	0	45
Institutional	32	52	0	0	52
Irrigation	11	8	0	0	8
Other	6	4	0	0	4
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
Total	5,358	924	0	0	924

924 check

Table 10. Water Deliveries- Projected, 2020 (DWR Table 6), Volume in afy

	2020				
	Metered		Not Metered		Total
Water use sectors	# of Connections	Volume	# of Connections	Volume	Volume
General and Residential	5,367	961	0	0	961
Commercial	96	54	0	0	54
Institutional	33	62	0	0	62
Irrigation	11	10	0	0	10
Other	6	4	0	0	4
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
Total	5,513	1,091	0	0	1,091

1091 check

Table 11. Water Deliveries- Projected, 2025, and 2030 (DWR Table 7)

	2025		2030	
	Metered		Metered	
Water use sectors	# of Connections	Volume	# of Connections	Volume
General and Residential	5,437	974	5,566	997
Commercial	97	54	99	56
Institutional	33	63	34	64
Irrigation	11	10	11	10
Other	6	4	7	4
	0	0	0	0
	0	0	0	0
	0	0	0	0
Total	5,584	1,105	5,717	1,131

1105

1131 check

Table 11. Water Deliveries- Projected, 2035, and 2040 (DWR Table 7)

	2035		2040		2045	
	Metered		Metered		Metered	
Water use sectors	# of Connections	Volume	# of Connections	Volume	# of Connections	Volume
General and Residential	5,665	1,014	5,766	1,032	5,868	1,051
Commercial	101	57	103	58	105	59
Institutional	35	65	35	66	36	68
Irrigation	12	10	12	11	12	11
Other	7	4	7	5	7	5
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
Total	5,819	1,151	5,922	1,172	6,028	1,192
		1151		1172		1192.448 check

Table 13. Sales to Other Water Agencies (DWR Table 9), afy

Water distributed	2005	2010	2015	2020	2025	2030	2035	2040	2045
name of agency	0	0	0	0	0	0	0	0	0
name of agency	0	0	0	0	0	0	0	0	0
name of agency	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0

Table 14. Additional Water Uses and Losses (DWR Table 10), afy

Water use	2005	2010	2015	2020	2025	2030	2035	2040	2045
Saline barriers	0	0	0	0	0	0	0	0	0
Groundwater recharge	0	0	0	0	0	0	0	0	0
Conjunctive use	0	0	0	0	0	0	0	0	0
Raw water	0	0	0	0	0	0	0	0	0
Recycled water	0	0	0	0	0	0	0	0	0
Non-revenue water (NRW)	0	269	235	278	282	289	294	299	304
Total	0	269	235	278	282	289	294	299	304

Table 15. Total Water Use (DWR Table 11), afy

Water Use	2005	2010	2015	2020	2025	2030	2035	2040	2045
Total Water Deliveries	0	1,132	924	1,091	1,105	1,131	1,151	1,172	1,192
Sales to other water agencies	0	0	0	0	0	0	0	0	0
Additional water uses and losses	0	269	235	278	282	289	294	299	304
Total	0	1,401	1,159	1,369	1,387	1,420	1,445	1,471	1,497

Output Tables for: South System

Table 6. Population Past, Current, & Projected (DWR Table 2)

	2005	2010	2015	2020	2025	2030	2035	2040	2045
South System	2,780	2,763	2,796	2,798	2,810	2,831	2,848	2,864	2,881

Table 8. Water Deliveries- Actual, 2010 (DWR Table 4), Volume in afy

	2010				
	Metered		Not Metered		Total
Water use sectors	# of Connections	Volume	# of Connections	Volume	Volume
General and Residential	662	286	0	0	286
Commercial	12	15	0	0	15
Institutional	4	16	0	0	16
Irrigation	1	2	0	0	2
Other	1	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
Total	680	320	0	0	320

Table 9. Water Deliveries- Projected 2015 (DWR Table 4), Volume in afy

	2015				
	Metered		Not Metered		Total
Water use sectors	# of Connections	Volume	# of Connections	Volume	Volume
General and Residential	670	232	0	0	232
Commercial	12	13	0	0	13
Institutional	4	15	0	0	15
Irrigation	1	2	0	0	2
Other	1	1	0	0	1
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
Total	688	264	0	0	264

264 check

Table 10. Water Deliveries- Projected, 2020 (DWR Table 6), Volume in afy

	2020				
	Metered		Not Metered		Total
Water use sectors	# of Connections	Volume	# of Connections	Volume	Volume
General and Residential	670	275	0	0	275
Commercial	12	15	0	0	15
Institutional	4	18	0	0	18
Irrigation	1	3	0	0	3
Other	1	1	0	0	1
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
Total	688	312	0	0	312

312 check

Table 11. Water Deliveries- Projected, 2025, and 2030 (DWR Table 7)

	2025		2030	
	Metered		Metered	
Water use sectors	# of Connections	Volume	# of Connections	Volume
General and Residential	673	276	678	278
Commercial	12	15	12	16
Institutional	4	18	4	18
Irrigation	1	3	1	3
Other	1	1	1	1
	0	0	0	0
	0	0	0	0
	0	0	0	0
Total	691	313	697	315
		313		315 check

Table 11. Water Deliveries- Projected, 2035, and 2040 (DWR Table 7)

	2035		2040		2045	
	Metered		Metered		Metered	
Water use sectors	# of Connections	Volume	# of Connections	Volume	# of Connections	Volume
General and Residential	682	280	686	281	690	283
Commercial	12	16	12	16	12	16
Institutional	4	18	4	18	4	18
Irrigation	1	3	1	3	1	3
Other	1	1	1	1	1	1
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
Total	701	317	705	319	709	321

Table 13. Sales to Other Water Agencies (DWR Table 9), afy

Water distributed	2005	2010	2015	2020	2025	2030	2035	2040	2045
name of agency	5	0	0	0	0	0	0	0	0
name of agency	0	0	0	0	0	0	0	0	0
name of agency	0	0	0	0	0	0	0	0	0
Total	5	0	0	0	0	0	0	0	0

Table 14. Additional Water Uses and Losses (DWR Table 10), afy

Water use	2005	2010	2015	2020	2025	2030	2035	2040	2045
Saline barriers	0	0	0	0	0	0	0	0	0
Groundwater recharge	0	0	0	0	0	0	0	0	0
Conjunctive use	0	0	0	0	0	0	0	0	0
Raw water	0	0	0	0	0	0	0	0	0
Recycled water	0	0	0	0	0	0	0	0	0
Non-revenue water (NRW)	0	58	44	42	42	42	42	42	43
Total	0	58	44	42	42	42	42	42	43

Table 15. Total Water Use (DWR Table 11), afy

Water Use	2005	2010	2015	2020	2025	2030	2035	2040	2045
Total Water Deliveries	0	320	264	312	313	315	317	319	321
Sales to other water agencies	5	0	0	0	0	0	0	0	0
Additional water uses and losses	0	58	44	42	42	42	42	42	43
Total	5	378	307	353	355	357	359	362	364

Output Tables for: Felton System

Table 6. Population Past, Current, & Projected (DWR Table 2)

	2005	2010	2015	2020	2025	2030	2035	2040	2045
Felton System	3,176	3,193	3,246	3,360	3,414	3,515	3,592	3,671	3,752

Table 8. Water Deliveries- Actual, 2010 (DWR Table 4), Volume in afy

	2010				
	Metered		Not Metered		Total
Water use sectors	# of Connections	Volume	# of Connections	Volume	Volume
General and Residential	1,176	294	0	0	294
Commercial	139	15	0	0	15
Institutional	19	17	0	0	17
Irrigation	0	0	0	0	0
Other	1	3	0	0	3
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
Total	1,335	329	0	0	329

Table 9. Water Deliveries- Projected 2015 (DWR Table 4), Volume in afy

	2015				
	Metered		Not Metered		Total
Water use sectors	# of Connections	Volume	# of Connections	Volume	Volume
General and Residential	1,238	252	0	0	252
Commercial	92	13	0	0	13
Institutional	25	15	0	0	15
Irrigation	0	0	0	0	0
Other	2	2	0	0	2
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
Total	1,357	282	0	0	282

282 check

Table 10. Water Deliveries- Projected, 2020 (DWR Table 6), Volume in afy

	2020				
	Metered		Not Metered		Total
Water use sectors	# of Connections	Volume	# of Connections	Volume	Volume
General and Residential	1,281	273	0	0	273
Commercial	95	14	0	0	14
Institutional	26	16	0	0	16
Irrigation	0	0	0	0	0
Other	2	3	0	0	3
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
Total	1,405	306	0	0	306

306 check

Table 11. Water Deliveries- Projected, 2025, and 2030 (DWR Table 7)

	2025		2030	
	Metered		Metered	
Water use sectors	# of Connections	Volume	# of Connections	Volume
General and Residential	1,302	278	1,341	286
Commercial	97	14	100	15
Institutional	26	16	27	16
Irrigation	0	0	0	0
Other	2	3	2	3
	0	0	0	0
	0	0	0	0
	0	0	0	0
Total	1,427	311	1,470	320
		311		320 check

Table 11. Water Deliveries- Projected, 2035, and 2040 (DWR Table 7)

	2035		2040		2045	
	Metered		Metered		Metered	
Water use sectors	# of Connections	Volume	# of Connections	Volume	# of Connections	Volume
General and Residential	1,370	292	1,400	298	1,431	305
Commercial	102	15	104	16	106	16
Institutional	28	17	28	17	29	18
Irrigation	0	0	0	0	0	0
Other	2	3	2	3	2	3
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
Total	1,502	327	1,535	334	1,569	341

Table 13. Sales to Other Water Agencies (DWR Table 9), afy

Water distributed	2005	2010	2015	2020	2025	2030	2035	2040	2045
name of agency	0	0	0	0	0	0	0	0	0
name of agency	0	0	0	0	0	0	0	0	0
name of agency	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0

Table 14. Additional Water Uses and Losses (DWR Table 10), afy

Water use	2005	2010	2015	2020	2025	2030	2035	2040	2045
Saline barriers	0	0	0	0	0	0	0	0	0
Groundwater recharge	0	0	0	0	0	0	0	0	0
Conjunctive use	0	0	0	0	0	0	0	0	0
Raw water	0	0	0	0	0	0	0	0	0
Recycled water	0	0	0	0	0	0	0	0	0
Non-revenue water (NRW)	0	103	42	79	80	83	85	87	88
Total	0	103	42	79	80	83	85	87	88

Table 15. Total Water Use (DWR Table 11), afy

Water Use	2005	2010	2015	2020	2025	2030	2035	2040	2045
Total Water Deliveries	#DIV/0!	329	282	306	311	320	327	334	341
Sales to other water agencies	0	0	0	0	0	0	0	0	0
Additional water uses and losses	0	103	42	79	80	83	85	87	88
Total	#DIV/0!	432	324	385	391	403	412	421	430

APPENDIX F. WATER QUALITY REPORT

San Lorenzo Valley Water District Consumer Confidence Report

WATER QUALITY 2015 | WWW.SLVWD.COM | JULY 2016

Your Water Passes All Tests

Once again, San Lorenzo Valley Water District is pleased to report that our water quality met, or surpassed, all State and Federal criteria for public health protection. SLVWD operates four (4) independent water systems, each of which has its own source water supply. The four water systems are: North System, South System, Felton System and Manana Woods Systems. For additional information regarding water quality, please contact the San Lorenzo Valley Water District's Water Treatment and System Supervisor, Nate Gillespie, at (831) 430-4629 or e-mail to ngillespie@slvwd.com.

Sources of Water

The sources of drinking water (both tap and bottled water) include: rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals including radioactive material and other substances resulting from the presence of animals or from human activity.

Public Involvement

The Board of Directors of the San Lorenzo Valley Water District invites you to attend its meetings to express your views and opinions. The Board meets on the 1st and 3rd Thursday of each month. Meetings start at 6:00 p.m. at the District's Operations Building, 13057 Highway 9, Boulder Creek. Agenda information for the Board of Director's meetings can be obtained from the District by calling (831) 430-4636 or the District website www.slvwd.com.

Is the Water Safe for Everyone to Drink?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA / Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline 800-426-4791 or on the internet at http://www.epa.gov/safewater

New Customer Service Programs

The San Lorenzo Valley Water District has introduced two new customer service programs.

The first "Bill Pay" allows a customer to access their accounts on line and make payments from your bank account or credit card. Customers can also set up "auto bill pay" which automatically deducts your payment from your bank account and providing paperless bills.

The second program "Customer Notification System" will provide personalized communication to the District's customers by phone (voice and/or text) email regarding payment reminders to help avoid late fees and for emergency notifications.

You can find more information and how to register for Bill Pay or Customer Notification System on the Districts web site at www.slvwd.com or call 831-338-2153.

Water Conservation Tips for Consumers

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference – try one today and soon it will become second nature.

• Take short showers – a 5 minutes shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.

• Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month.

• Use a water-efficient showerhead. They are inexpensive, easy to install, and can save you up to 7

• Use a water-efficient showerhead. They are inexpensive, easy to install, and can save you up to 750 gallons a month.

• Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.

• Water plants only when necessary.

• Fix leaking toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.

• Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.

• Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!

San Lorenzo Valley Water District
13060 Highway 9
Boulder Creek, CA. 95006-9119

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Este reporte contiene información muy importante sobre su agua beber. Traduzcalo ó hable con alguien que lo entienda bien.

In an effort to provide this report to everyone, the District encourages landlords to provide a copy of this report to their tenants.

Water Quality

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the California State Water Resources Control Board prescribe regulations that limit the amount of certain contaminants in water provided by public water systems.Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791) or on the web at www.epa.gov/safewater.

Possible Contaminants

Contaminants that may be in the water prior to treatment may include:

Microbial Contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

Inorganic Contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

Pesticides and Herbicides, that may come from a variety of sources such as agricultural, urban stormwater runoff, and residential uses.

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.

State Standards and Monitoring

Individual water suppliers do not arbitrarily decide what constitutes "safe" drinking water. The U.S. Environmental Protection Agency and the California State Water Resources Control Board require all public water suppliers to meet stringent quality standards. Compliance is mandatory for public water utilities.

In California, drinking water standards (also called Maximum Contaminant Levels, or MCLs) are established for two categories. Primary Standards are set for the protection of public health. Secondary Standards are set only for aesthetic qualities such as taste, odor and color, but do not represent any threat to health.

The District maintains a monitoring program to sample and test all water sources in accordance with State and Federal standards. Should the District fail to monitor, or the District's water exceed the MCLs allowable in the Primary Standards, it is required by law to notify all customers of the nature of the problem and any possible health effects. Some contaminants that are routinely monitored by the District are bacteria, turbidity, inorganic chemicals, metals, general minerals, volatile organic chemicals (VOCs), disinfection by-products (THMs), and radiation. The table in this report shows our test results for 2015. Once again, the San Lorenzo Valley Water District is pleased to report that our water quality met or surpassed all State and Federal criteria for public health protection. For additional information regarding water quality, please contact the San Lorenzo Valley Water District at (831) 338-2153.

Protecting Our Watershed

Many common household products are hazardous if carelessly handled or stored. Chemicals poured on the ground or down the drain or toilet can pollute our drinking water. Of particular concern are volatile organic chemicals (VOCs) and synthetic organic chemicals (SOCs). VOCs are chemicals commonly found in paints, thinners, solvents, degreasers, and automotive products. SOCs are found in herbicides and pesticides. These products should never be poured down the sink, toilet or drain.The County of Santa Cruz receives household hazardous waste at the Ben Lomond Transfer Station. The District strongly encourages consumers to make use of this convenient program and to dispose of household hazardous waste in a proper and responsible manner. For more information on disposal and receiving times, you may call the County at (831) 454-2606. You can help protect our drinking water from sources of pollution. It is extremely important to help protect our drinking water from possible sources of pollution by exercising care with all household chemicals. A little pollution can go a long way!

Mission Statement

Our mission is to provide our customers and all future generations with reliable, safe and high quality water at an equitable price; to create and maintain outstanding customer service; to manage and protect the environmental health of the aquifers and watersheds; and, to ensure the fiscal vitality of the San Lorenzo Valley Water District."

Source Water Assessments

In 2002 and 2004 the District completed source water assessments of its deep water well aquifers and surface water watershed in Ben Lomond, Zayante and Boulder Creek. A source water assessment lists possible contaminating activities and the susceptibility of identified contamination threats that might affect the quality of our drinking water supplies.

Quail Hollow Well Field Aquifer

Factors contributing to the potential vulnerability of the District's Quail Hollow Wells include: the high percolation capacity of the Santa Margarita Sandstone Aquifer and associated Zayante soils, the absence of a confining zone above the aquifer, residential septic tank systems, and unused production wells.

Olympia Well Field Aquifer

Factors contributing to the potential water-quality vulnerability of the District's Olympia wells include: the high percolation capacity of the Santa Margarita Sandstone Aquifer, residential septic tank systems, and equestrian activities.

Foreman, Peavine, Clear, and Sweetwater Creeks Watershed

Factors contributing to the potential vulnerability of the District's surface water include: managed forests, septic systems, recreational, government or institutional facilities. Copies of the Source Water Assessments for each water source are available at the District Office.

Mañana Woods

In 2002 the County of Santa Cruz completed source water assessments of the Mañana Woods Well. A source water assessment lists possible contaminating activities, and the susceptibility of identified contamination threats that might affect the quality of the drinking water supply. Factors contributing to the potential vulnerability of the Mañana Woods Well to water-quality degradation include: dry cleaners, historic gas stations, historic waste dumps/landfills, known contaminant plumes, and underground storage tanks with confirmed leakage.

Lead in Your Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. San Lorenzo Valley Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewter/lead.

The San Lorenzo Valley Water District monitors for lead and copper at the customers tap throughout the District on a regular basis in accordance with the USEPA's Lead and Copper Rule regulations. The rule requires public water systems to sample at customers' homes that meet specific criteria where elevated levels of lead and copper are more likely to be found. Since 1993 samples have shown levels of lead and copper in District homes to be well below the action levels set by the USEPA. See the enclosed water quality table for test results from the latest round of sampling.

Notice About Arsenic

Arsenic above 5ppb up through 10 ppb: While your drinking water meets the current standard for arsenic, it does contain low levels of arsenic. The standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The California Department of Public Health continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems. Arsenic above 10 ppb up through 50 ppb: Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

Using Your Water Meter to Check for Leaks

1. It's good preventive maintenance to conduct a leak check of your house periodically.

2. Start by firmly turning off all water devices inside and outside the house.

3. Next, go outside to the meter and mark down the reading, including the red flow detection indicator.

4. Wait 15 minutes and then check the meter again.

If the meter has not moved, your house is leak free. If the meter has moved, you have a leak to hunt down. The most likely cause is a leaking toilet. Most meters also have a triangular low-flow indicator, which should not be spinning unless a leak is present. To avoid receiving a surprisingly high water bill caused by an undetected leak, we suggest you check your meter regularly.

SAN LORENZO VALEY WATER DISTRICT WATER QUALITY REPORT 2015				NORTH SYSTEM Boulder Creek, Brookdale, Ben Lomond, Zayante Routes No. 21 - 22 and 30 - 97						FELTON SYSTEM Routes No. 23 - 29						SAN LORENZO VALLEY WATER DISTRICT WATER QUALITY REPORT 2015
				GROUND WATER			SURFACE WATER			GROUND WATER			SURFACE WATER			
PRIMARY HEALTH STANDARDS	Notes	MCL or [MRDL]	PHG or [MRDLG]	Sample Year*	Range of Detection	Average Amount	Sample Year*	Range of Detection	Average Amount	Sample Year*	Range of Detection	Average Amount	Sample Year*	Range of Detection	Average Amount	MAJOR SOURCES IN DRINKING WATER
Inorganic Constituents Aluminum (ppm)	1	1	0.6	2015	< 0.05	< 0.05	2015	< 0.05	< 0.05	2015	Single Sample	< 0.05	2015	Single Sample	< 0.05	Erosion of natural deposits; residue from some surface water treatment processes.
Arsenic (ppb)	1	10	0.004	2015	< 1 - 2.8	1.2	2015	< 1	< 1	2015	Single Sample	< 1	2015	< 1 - 1.3	< 1	Erosion of natural deposits.
Fluoride (ppb)	1	2000	1000	2015	140 - 480	240	2015	< 100	< 100	2015	Single Sample	100	2015	< 100 - 120	110	Erosion of natural deposits.
Hexavavent Chromium (ppb)		10	0.02	2014	< 1	< 1	2015	< 1	< 1	2014	Single Sample	< 1	2015	< 1	< 1	Erosion of natural deposits / Industrial waste.
Nickel (ppb)	1	100	12	2015	< 10	< 10	2015	< 10	< 10	2015	Single Sample	< 10	2015	Single Sample	< 10	Erosion of natural deposits; discharge from metal factories.
Nitrate (as Nitrogen) (ppm)		10	10	2015	N.D. - 2.2	0.7	2015	< 0.4	< 0.4.	2015	Single Sample	< 0.4	2015	< 0.4	< 0.4	Runoff / leaching from natural deposits.
Radioactive Constituents Gross Alpha (pCi/L)	1	15	0	2012	< 3.0 - 3.2	< 3.0	2012	< 3.0	< 3.0	2014	< 3.0	< 3.0	2014	< 3.0 - 4.3	< 3.0	Erosion of natural deposits.
Turbidity [Nephlometric Turbidity Units] (NTU's)		(TT) = 95% of Samples ≤ 0.2 NTU	N/A	N/A	N/A	N/A	2015	< or = to 0.2 in 100% of Samples	Highest measurement = 0.16	N/A	N/A	N/A	2015	< or = to 0.2 in 99.5 % of Samples	Highest measurement = 0.21	Soil runoff. Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
SECONDARY STANDARDS		MCL or [MRDL]	PHG or [MRDLG]	Sample Year*	Range of Detection	Average Amount	Sample Year*	Range of Detection	Average Amount	Sample Year*	Range of Detection	Average Amount	Sample Year*	Range of Detection	Average Amount	MAJOR SOURCES IN DRINKING WATER
Chloride (ppm)	1	500	N/A	2015	5.7 - 8.8	7.3	2015	5.7 - 6.6	6.3	2015	Single Sample	7.1	2015	7.9 - 10.0	9.1	Runoff / leaching from natural deposits.
Iron (ppb)	1, 3	300	**	2015	< 100 - 340	108	2015	< 100	< 100	2015	Single Sample	< 100	2015	< 100	< 100	Leaching from natural deposits.
Manganese (ppb)	3	50	**	2015	< 20 - 320	120	2015	< 20	< 20	2015	Single Sample	< 20	2015	< 20	< 20	Leaching from natural deposits.
Sulfate (ppm)	1	500	**	2015	8 - 200	89	2015	3.8 - 4.7	4.3	2015	Single Sample	12.0	2015	10.0 - 11.0	11.0	Runoff / leaching from natural deposits.
Total Dissolved Solids (TDS) (ppm)	1	1000	**	2015	120 - 550	308	2015	120 - 150	135	2015	Single Sample	280	2015	180 - 350	283	Runoff / leaching from natural deposits.
Turbidity [Nephlometric Turbidity Units] (NTU's)		5	N/A	2015	0.40 - 12	3.09	2015	0.40 - 0.68	0.51	2015	Single Sample	0.28	2015	0.35 - 0.56	0.44	Soil runoff. Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants.
ADDITIONAL CONSTITUENTS ANALYZED		MCL or [MRDL]	PHG or [MRDLG]	Sample Year*	Range of Detection	Average Amount	Sample Year*	Range of Detection	Average Amount	Sample Year*	Range of Detection	Average Amounts	Sample Year*	Range of Detection	Average Amount	MAJOR SOURCES IN DRINKING WATER
Sodium (ppm)		N/A	N/A	2015	10 - 14	12	2015	9.8 - 11.0	10.0	2015	Single Sample	6.7	2015	9.0 - 11.0	10.0	Refers to the salt present in the water and is generally naturally occurring.
Total Hardness (ppm)		N/A	N/A	2015	46 - 400	204	2015	68 - 94	80	2015	Single Sample	220	2015	110 - 280	217	Hardness is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring.
Phosphate PO_4 (ppm)		N/A	N/A	2015	0.8 - 4.5	2.8	N/A	N/A	N/A	2013	N/A	N/A	2013	N/A	N/A	Treatment additive.
Vanadium (ppb)	Notification Level = 50			2014	< 3	< 3	2014	< 3	< 3	2008	< 3 - 4.6	< 3	N/A	N/A	N/A	Erosion of natural deposits.
				DISTRIBUTION SYSTEM						DISTRIBUTION SYSTEM						
PRIMARY HEALTH STANDARDS		MCL or [MRDL]	PHG or [MRDLG]	Sample Year*	Range of Detection		Average Amount			Sample Year*	Range of Detection		Average Amount			MAJOR SOURCES IN DRINKING WATER
Disinfection By-products/Residules* TTHM (Total Trihalomethanes) (ppb)		80	N/A	2015	3.8 - 50		34			2015	21 -38		32			By-product of drinking water disinfection.
HAA5 (Haloacetic Acids) (ppb)		60	N/A	2015	< 2 - 43		19			2015	12 - 34		22			By-product of drinking water disinfection.
Chlorine (ppm)		[4.0]	[4.0]	2015	0.11 - 1.31		0.81			2015	0.24 - 0.91		0.59			Drinking water disinfectant added for treatment.
MICROBIAL CONTAMINANTS Total Coliform Bacteria (Total Coliform Rule) (P/A)		No more than 5% Positive Samples in any one month.	0	2015	0% - 1.59%		0 Positive			2015	0 Positive		0 Positive.			Naturally present in the environment
E. Coli		0	0	2015	0 Positive		0 Positive			2015	0 Positive		0 Positive			E. Coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes
ADDITIONAL CONSTITUENTS ANALYZED		MCL or [MRDL]	PHG or [MRDLG	Sample Year	Range of Detection		Average Amount			Sample Year	Range of Detection		Average Amount			MAJOR SOURCES IN DRINKING WATER
pH (unitless)(USEPA)		6.5 - 8.5	N/A	2015	6.5 - 8.9		7.4			2015	7.5 - 8.0		7.7			A measure of the acidity or alkalinity.
PRIMARY STANDARDS REGULATED AT TAP		Action Level (AL)	PHG or [MRDLG]	Sample Year	Number of Samples	Tap Water				Sample Year	Number of Samples	Tap Water				MAJOR SOURCES IN DRINKING WATERE
Lead (ppb)		15	0.2	2014	23	90th Percentile = < 5 Sites Above (AL) = 0				2014	21	90th Percentile = < 5 Sites Above (AL) = 0				Corrosion of household plumbing, discharges from industrial manufacturers, erosion of natural deposits.
Copper (ppb)		1300	170	2014	23	90th Percentile = 450 Sites Above (AL) = 0				2014	21	90th Percentile = 390 Sites Above (AL) = 0				Corrosion of household plumbing, erosion of natural deposits, leaching from wood preservatives.

SAN LORENZO VALEY WATER DISTRICT WATER QUALITY REPORT 2015				SOUTHERN SYSTEM Lockwood Lane, Whispering Pines **Routes No. 11 - 13** GROUND WATER			MAÑANA WOODS **Routes No. 14** GROUND WATER			SAN LORENZO VALLEY WATER DISTRICT WATER QUALITY REPORT 2015
PRIMARY HEALTH STANDARDS	Notes	MCL or [MRDL]	PHG or [MRDLG]	Sample Year*	Range of Detection	Average Amount	Sample Year*	Range of Detection	Average Amount	MAJOR SOURCES IN DRINKING WATER
Inorganic Constituents Aluminum (ppm)	1	1	0.6	2015	< 0.05	< 0.05	2015	Single Sample	0.36	Erosion of natural deposits; residue from some surface water treatment processes.
Arsenic (ppb)	1	10	0.004	2015	< 1 - 17	5.8	2015	Single Sample	< 1	Erosion of natural deposits.
Fluoride (ppb)	1	2000	1000	2015	< 100- 110	< 100	2015	Single Sample	2000	Erosion of natural deposits.
Hexavavent Chromium (ppb)		10	.02	2015	< 1	< 1	2015	Single Sample	N.D.	Erosion of natural deposits / Industrial waste.
Nickel (ppb)	1	100	12	2015	< 10	< 10	2015	Single Sample	30	Erosion of natural deposits; discharge from metal factories.
Nitrate (as Nitrogen) (ppm)		10	10	2015	N.D. - 0.6	< 0.4	2015	< 0.4- 0.7	< 0.4	Runoff / leaching from natural deposits.
Radioactive Constituents Gross Alpha (pCi/L)	1	15	0	2015	< 3	< 3	2015	Single Sample	4.6	Erosion of natural deposits.
Turbidity [Nephlometric Turbidity Units] (NTU's)		(TT) = 95% of Samples ≤ 0.2 NTU	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Soil runoff. Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
SECONDARY STANDARDS		MCL or [MRDL]	PHG or [MRDLG]	Sample Year*	Range of Detection	Average Amount	Sample Year*	Range of Detection	Average Amount	MAJOR SOURCES IN DRINKING WATER
Chloride (ppm)	1	500	N/A	2015	6.6 - 6.9	6.7	2015	Single Sample	36	Runoff / leaching from natural deposits.
Iron (ppb)	1, 3	300	**	2015	< 100 - 1100	588	2015	< 100 - 340	170	Leaching from natural deposits.
Manganese (ppb)	3	50	**	2015	< 20 - 33	< 20	2015	200 2000	555	Leaching from natural deposits.
Sulfate (ppm)	1	500	**	2015	30 - 33	32	2015	Single Sample	250	Runoff / leaching from natural deposits.
Total Dissolved Solids (TDS) (ppm)	1	1000	**	2015	120 - 140	133	2015	Single Sample	670	Runoff / leaching from natural deposits.
Turbidity [Nephlometric Turbidity Units] (NTU's)		5	N/A	2015	0.84 - 2.5	1.7	2015	31- 58	44.5	Soil runoff. Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants.
ADDITIONAL CONSTITUENTS ANALYZED		MCL or [MRDL]	PHG or [MRDLG]	Sample Year*	Range of Detection	Average Amount	Sample Year*	Range of Detection	Average Amount	MAJOR SOURCES IN DRINKING WATER
Sodium (ppm)		N/A	N/A	2015	16 - 17	16.5	2015	Single Sample	52	Refers to the salt present in the water and is generally naturally occurring.
Total Hardness (ppm)		N/A	N/A	2015	36 - 59	47	2015	Single Sample	370	Hardness is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring.
Phosphate Po4 (ppm)		N/A	N/A	2015	1.6 - 6.1	4.2	N/A	N/A	N/A	Treatment additive.
Vanadium (ppb)		Notification Level = 50		2014	< 3	< 3	N/A	N/A	N/A	Erosion of natural deposits.
				DISTRIBUTION SYSTEM			DISTRIBUTION SYSTEM			
PRIMARY HEALTH STANDARDS		MCL or [MRDL]	PHG or [MRDLG]	Sample Year*	Range of Detection	Average Amount	Sample Year*	Range of Detection	Average Amount	MAJOR SOURCES IN DRINKING WATER
Disinfection By-products/Residules* TTHM (Total Trihalomethanes) (ppb)		80	N/A	2013	1.1 - 26	9.8	2015	5.0 - 7.8	6.0	By-product of drinking water disinfection.
HAA5 (Haloacetic Acids) (ppb)		60	N/A	2013	< 2 - 22.0	8.6	2015	< 2	< 2	By-product of drinking water disinfection.
Chlorine (ppm)		[4.0]	[4.0]	2015	0.45 - 1.52	0.90	2015	0.22 - 1.40	0.76	Drinking water disinfectant added for treatment.
MICROBIAL CONTAMINANTS Total Coliform Bacteria (Total Coliform Rule) (P/A)		No more than 2 Samples Positive in any one month.	0	2015	0 Positive	0 Positive	2015	0 Positive	0 Positive	Naturally present in the environment
E. Coli		0	0	2015	0 Positive	0 Positive	2015	0 Positive	0 Positive	E. Coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes
ADDITIONAL CONSTITUENTS ANALYZED		MCL or [MRDL]	PHG or [MRDLG	Sample Year	Range of Detection	Average Amount	Sample Year	Range of Detection	Average Amount	MAJOR SOURCES IN DRINKING WATER
pH (unitless)(USEPA)		6.5 - 8.5	N/A	2015	6.8 - 7.5	7.1	2015	6.6 - 7.5	7.0	A measure of the acidity or alkalinity.
PRIMARY STANDARDS REGULATED AT TAP		Action Level (AL)	PHG or [MRDLG]	Sample Year	Number of Samples	Tap Water	Sample Year	Number of Samples	Tap Water	MAJOR SOURCES IN DRINKING WATER
Lead (ppb)		15	0.2	2014	6	90th Percentile < 5 Sites Above (AL) = 0	2014	5	90th Percentile < 5 Sites Above (AL) = 0	Corrosion of household plumbing, discharges from industrial manufacturers, erosion of natural deposits.
Copper (ppb)		1300	170	2014	6	90th Percentile =470 Sites Above (AL) = 0	2014	5	90th Percentile = 840 Sites Above (AL) = 0	Corrosion of household plumbing, erosion of natural deposits, leaching from wood preservatives.

SLVWD Operates Four (4) independent water systems, each of which has its own source water supply.

The four water systems are: North System, South System, Felton System and Manana Woods Systems.

You can determine which system provides you water service by reviewing the "Route Number" on your water bill.

The route number denotes the water system as follows:

Route No, 11 - 13 denotes South Water System (Pasatiempo Pines, Scotts Valley).

Route No. 14 denotes Manana Woods System.

Route No. 23 - 29 denotes Felton Water System.

Route No. 21 - 22 and 30 - 97 denotes North Water System (San Lorenzo Valley, Olympia, Zayante)

The District invites all of our customers to visit the District's web site. The web site provides a great deal of information regarding water quality, customer service, Board Meetings, local weather, drought status, historical rainfall, watershed management, water conservation, fiscal budgets, and the District's Water Master Plan. Visit the web site www.slvwd.com

Where Does Your Water Come From?

All water comes in the form of precipitation. Surface water accumulates mainly as a result of direct runoff from precipitation in the form of streams. Part of the precipitation that falls infiltrates the soil. Water drains downward (percolates) below the soil surface reaching a level at which all of the openings or voids in the ground are filled with water. This zone of saturation is referred to as groundwater. The District operates four independent water systems as follows:

San Lorenzo Valley Water District;North System

Services the areas of North Boulder Creek, Boulder Creek, Brookdale, Ben Lomond, Quail Hollow, Glen Arbor, and Zayante. Water supply in these areas primary uses surface water sources from November to May. During these months, surface water may provide up to 100% of all drinking water. Streams utilized by the District contain water from granite formations with very low mineral content. This results in very soft, pleasant tasting water. Collection points for these streams are in remote areas high within the District's protected watershed, away from human contamination. During the summer months from June-November the District blends surface water with groundwater sources (wells) located in the Ben Lomond and Zayante areas. All wells conform to state construction standards. These wells with the exception of Olympia 2 and 3 in the Zayante area produce very soft water with quality similar to the District's surface water. Olympia Wells 2 and 3 have a higher mineral content, primarily iron, manganese and carbonate hardness. These minerals are harmless when consumed in water, but affect the aesthetic qualities of the water such as taste, odor, and color. Dissolved gases present in groundwater may also affect taste. Consumers in the Hihn Road and Zayante areas, from time to time, may experience periods of discolored water caused by iron and manganese. As water comes in contact with chlorine at the well head and with oxygen during the trip through the mainline distribution piping, the iron and manganese precipitate deposits in the water mains. The District adds a polyphosphate chemical to slow down this process. However, this is not totally effective and some deposition still occurs. Occasionally, during higher flows, the deposits become dislodged resulting in discolored water. During this time, water is safe to use; however, you may want to avoid washing laundry as staining may occur. If you experience periods of discolored water, please contact the District at (831) 338-2153.

An emergency intertie connection exists between the SLVWD North System and the SLVWD Felton System. The SLVWD North System received about 0.5% of its total supply, or approximately 1.8 million gallons of water through this intertie. Please consult the Felton System water quality data table for water quality results representative of water supplied through this intertie in 2015

San Lorenzo Valley Water District; Mañana Woods System

Services the general areas of La Cuesta Drive, El Sereno Drive, Miraflores Drive, and Canepa Drive.

The water supply for Mañana Woods comes from a groundwater aquifer located near Kings Village Shopping Center in Scotts Valley. In 1989 gasoline contaminates were detected in the Mañana Woods groundwater supply aquifer. The Regional Water Quality Control Board (RWQCB) concluded that gasoline stations located at the intersection of Scotts Valley Drive and Mt. Hermon Road are the most likely source of these contaminates. The area has been a RWQCB cleanup site since 1989. The most common contaminates in the source water are petroleum hydrocarbons and gasoline additives. Benzene, methyl-tert-butyl ether (MtBE) and tert-butyl alcohol (tBA) have been detected in the Mañana Woods water supply well. Levels of these contaminates in the source water (before treatment) range between 1-2 parts per billion (ppb) for benzene, 2-13 ppb for MtBE and ND-1.0 ppb for tBA. In previous years, the levels of these contaminates were higher. However, the levels of these contaminates has been trending downward, which may indicate that contaminates concentrations in the groundwater aquifer are decreasing. Benzene and MtBE are chemicals regulated in drinking water by the California Department of Public Health (CDPH) The CDPH has established a Maximum Contaminate Level (MCL) of 1.0 ppb for benzene and 13 ppb for MtBE. The established MCL is the maximum permissible level of a contaminate in water which is delivered to any customer. For comparison purposes, one (1) ppb is equal to one (1) second in 32 yrs. Contaminate levels detectable below a MCL are not known or anticipated to cause adverse human health effects. A public notification level of 12 ppb has been established for tBA. To evaluate the effectiveness of the treatment process the District routinely samples and monitors water leaving the treatment plant for benzene, MtBE, tBA and other chemicals. The District has an established goal to operate the Mañana Woods Treatment Plant to remove all detectible gasoline contaminates prior to distribution to our customers.

An intertie connection exists between the SLVWD Manana Woods System and the SLVWD South System. The SLVWD Manana Woods System received 67% of its total supply, or approximately 6.1 million gallons of water through this intertie. Please consult the South System water quality data table for water quality results representative of water supplied through this intertie in 2015.

San Lorenzo Valley Water District; Felton System
Services the areas of the town of Felton, Highway 9 South to Big Trees, San Lorenzo Avenue, Felton Empire Grade, Felton Grove, and El Solyo Heights. District customers in the Felton Water System are supply water from the Bennett Spring, Bull Springs and Fall Creek. Drinking water treatment technologies used in your water system include conventional treatment (coagulation, filtration, and disinfection) to ensure the bacteriological quality.
An emergency intertie connection exists between the SLVWD Felton System and the SLVWD North System. The SLVWD Felton System received about 0.2% of its total supply, or approximately 0.20 million gallons of water through this intertie. Please consult the North System water quality data table for water quality results representative of water supplied through this intertie in 2015.

San Lorenzo Valley Water District; South System (Pasatiempo Pines, Scotts Valley)
Services the areas of Whispering Pines Drive, Lockwood Lane, Hidden Glen, Estrella Drive, Twin Pines Drive, Oak Tree Villa, Spring Lakes and Vista Del Lago Mobile Home Parks. District customers in the Southern Pasatiempo Pines areas are supply groundwater sources located from within the Southern Distribution System. All wells conform to State construction standards.

Terms and Definitions used in table: (Next Page)

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLG's are set by the U.S. Environmental Protection Agency.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's are set by the U.S. Environmental Protection Agency.

Primary Drinking Water Standards (PDWS): MCL's and MRDL's for contaminants that effect health along with their monitoring and reporting requirements, and water treatment requirements.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCL's are set as close to the PHG's or (MCLG's) as is economically and technologically feasible. Secondary MCL's are set to protect the odor, taste and appearance of drinking water.

Regulatory Action Level (AL): The concentration of a contaminant which, when exceeded, triggers treatment or other requirements that a water system must follow.

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHG's are set by the California Environmental Protection Agency.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

NTU: Nephlometric Turbidity Units. **ppb:** Parts per billion or micrograms per liter **CU:** Color Units

ppm: Parts per million or milligrams per liter. **P/A:** Presence /Absence **N/A.:** Not Applicable

N.D.: Not Detectable at testing limit. * Some of our data, though representative, are more than one year old.

** There are no PHGs, MCLGs, or mandatory standard health effects language for these constituents because secondary MCLs are set on the basis of asthetics.

Notes: 1) The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently.

Notes: 2) Surface Water Treatment Technique (Type of Approved Filtration Technology); Microfloc package plant with upflow clarification and gravity filtration.

Notes: 3) District Wells, Olympia 2 and 3 and the Mañana Woods Well, periodically exceed the Secondary Maximum Contaminant Level (MCL) for Manganese. Secondary MCL's are set for aesthetic reasons only, and do not cause adverse health effects. Manganese can cause discolored water and staining. To offset this effect, the District adds phosphate, which acts to keep the Manganese in solution and help prevent problems associated with this mineral.

APPENDIX G. DROUGHT CONTINGENCY MANAGEMENT PLAN

SAN LORENZO VALLEY WATER DISTRICT

ORDINANCE NO. 105

SUBJECT: WATER SHORTAGE EMERGENCY

WHEREAS, Article 10, Section 2 of the California Constitution declares that waters of the State are to be put to beneficial use, that waste, unreasonable use, or unreasonable method of use of water be prevented, and that water be conserved for public welfare; and

WHEREAS, on January 17, 2014 Governor Brown declared a State of Emergency to exist in California due to prolonged drought conditions; and

WHEREAS, conservation of current water supplies and minimization of the effects of water supply shortages that are the result of drought are essential to the public health, safety and welfare; and

WHEREAS, San Lorenzo Valley Water District system draws exclusively on local sources of supply, whose yield varies from year to year depending on the amount of rainfall received; and

WHEREAS, the District's water system is susceptible to water shortages in dry years or in periods of prolonged regional drought when water conditions characterized by low surface flows in stream sources and low levels in local aquifers', reduce the available supply to a level that cannot support seasonal water demand; and

WHEREAS, California Water Code Sections 350 et seq. authorize water suppliers, after holding a properly noticed public hearing, and after making certain findings, to declare a water shortage (emergency) and to adopt such regulations and restrictions to conserve the water supply for the greatest public benefit with particular regard for domestic use, sanitation, and fire protection; and

WHEREAS, the water conservation measures and progressive restrictions on water use and method of use set forth herein provide an effective and immediately available means to conserve water which is essential during periods of water shortage to ensure a reliable and sustainable minimum supply of water for public health, safety, and welfare; to preserve valuable limited water storage capacity; to avoid depleting water storage to an unacceptably low level; and to lessen the possibility of experiencing more critical shortages if dry conditions continue or worsen; and

WHEREAS, the usage regulations and restrictions hereinafter established will equitably spread the burden of restricted and prohibited usage over all San Lorenzo Valley Water District customers and other consumers; and

WHEREAS, the purposes of this Ordinance are to conserve the water supply of the San Lorenzo Valley Water District's for the greatest public benefit, to mitigate the effects of a water

supply shortage on public health and safety and economic activity, and to budget water use so that a reliable and sustainable minimum supply of water will be available for the most essential purposes for the entire duration of the water shortage;

NOW, THEREFORE, BE IT ORDAINED by the Board of Directors of the San Lorenzo Valley Water District as follows:

Section 1. Declaration of Necessity and Intent: This Ordinance establishes water management requirements necessary to conserve water, enable effective water supply planning, assure reasonable and beneficial use of water, prevent unreasonable use of water, prevent unreasonable method of use of water within the San Lorenzo Valley Water District in order to assure adequate supplies of water to meet the needs of the public, and further the public health, safety, and welfare.

Section 2. Declaration of Water Shortage: The provisions of this Ordinance shall take effect whenever the District Manager, upon analysis of the District's water supplies, finds and determines that a water shortage exists or is imminent within District's service area and a declaration of a water shortage is made by a resolution of the Board of Directors, and they shall remain in effect for the duration of the water shortage set forth in the resolution.

Section 3. Application of Regulations: The provisions of this Ordinance shall apply to any person in the use of any water provided by the San Lorenzo Valley Water District.

Section 4. Precedence of Regulations. Where other provisions of the San Lorenzo Valley Water District, whether enacted prior or subsequent to this Ordinance, are inconsistent with the provisions of this Ordinance, the provisions of this Ordinance shall supersede and control for the duration of the water shortage set forth in the resolution of the Board of Directors.

Section 5. Water Waste Prohibitions. It shall be unlawful during any water shortage stage for any person, firm, partnership, association, corporation, political entity or any other water customer to use water for any of the following:

(a) Fire Hydrants. Use of water from any fire hydrant, unless specifically authorized by the District, except by regularly constituted fire protection agencies for fire suppression purposes.

(b) Watering/Irrigation. The watering of grass, lawn, groundcover, shrubbery, open ground, crops and trees, including agricultural irrigation, in a manner or to an extent that causes or allows excessive water flow or runoff onto an adjoining sidewalk, driveway, street, gutter or ditch.

(c) Plumbing Leaks. The escape of water through leaks, breaks, or other malfunctions within the water user's plumbing or distribution system for any period of time after such break or leak should have reasonably been discovered and corrected. It shall be presumed that a period of twenty-four hours after the water user discovers such break, leak or malfunction, or receives notice from the District of such condition, whichever occurs first, is a reasonable time within which to correct such condition or to make arrangements for correction.

(d) Washing of Exterior Surfaces. The washing of sidewalks, walkways, driveways, parking lots, patios, or other exterior surfaces unless the hose is equipped with an automatic shutoff nozzle.

(e) Cleaning of Structures and Vehicles. The cleaning of building exteriors, mobile homes, cars, boats, and recreational vehicles unless the hose is equipped with an automatic shutoff nozzle.
(f) Fountains and Decorative Water Features. The operation of a water fountain or other decorative water feature that does not use re-circulated water.
(g) Construction. The use of potable water for dust control or soil compaction purposes in construction activities where there is a reasonably available source of reclaimed water appropriate for such use.
(h) The indiscriminate running of water or washing with water, not otherwise prohibited in this section which is wasteful and without reasonable purpose.

Section 6. Stage 1 Water Shortage. The District Manager is empowered to issue a Stage 1 Water Shortage notification and to enforce the water shortage restrictions in this section upon finding that the magnitude of an anticipated water shortage will be ten (10) percent or less, and a minimal consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water supply conditions. In a Stage 1 Water Shortage, the District will enforce the following water shortage restrictions. During a Phase 1 Water Shortage it shall be unlawful for any person, firm, partnership, association, corporation, political entity or any other water District customer:

1. To water or irrigate lawn, landscape, or other vegetated areas between the hours of 10:00 a.m. and 5:00 p.m., except when performed with a bucket or watering can, or by use of a drip irrigation system or similar low volume, nonspray irrigation equipment, or for very short periods of time for the express purpose of allowing landscape contractors to adjust or repair an irrigation system;
2. To use a hose that is not equipped with a shutoff nozzle;
3. To use potable water to wash down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking lots, tennis courts, patios, or other paved surfaces, except when it is necessary to alleviate safety or sanitation hazards or to prepare paved surfaces for sealing;
4. To initially fill or to drain and refill residential swimming pools;
5. To serve water in a restaurant or other commercial food service establishment except upon the request of a patron; and/or
6. To operate a hotel, motel or other commercial lodging establishment without offering patrons the option to forego the daily laundering of towels, sheets and linens.

Section 7. Stage 2 Water Shortage. The District Manager is empowered to issue a Stage 2 Water Shortage notification and to enforce the water shortage restrictions in this section upon finding that the magnitude of an anticipated water shortage will be between ten (10) percent and twenty (20) percent, and a moderate consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water supply conditions. In a Stage 2 Water Shortage, the District will enforce the following water shortage restrictions. During a Stage 2 Water Shortage it shall be unlawful for any person, firm, partnership, association, corporation, political body or other District customer:

1. To water or irrigate lawn, landscape, or other vegetated areas between the hours of 10:00 a.m. and 5:00 p.m., except when performed with a bucket or watering can, or by use of a drip irrigation system or similar low volume, nonspray

irrigation equipment, or for very short periods of time for the express purpose of allowing landscape contractors to adjust or repair an irrigation system;

2. To use a hose that is not equipped with a shutoff nozzle;

3. To use potable water to wash down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking lots, tennis courts, patios, or other paved surfaces, except when it is necessary to alleviate safety or sanitation hazards or to prepare paved surfaces for sealing;

4. To initially fill or to drain and refill residential swimming pools;

5. To serve water in a restaurant or other commercial food service establishment except upon the request of a patron;

6. To operate a hotel, motel or other commercial lodging establishment without offering patrons the option to forego the daily laundering of towels, sheets and linens;

7. To water or irrigate lawn, landscape, or other vegetated areas on days of the week other than the days of the week authorized and noticed by the District Manager, except when performed with a bucket or watering can, or by use of a drip irrigation system or similar low volume, nonspray irrigation equipment, or for very short periods of time for the express purpose of allowing landscape contractors to adjust or repair an irrigation system. Hourly restrictions set forth in subsection 1 continue to apply on authorized watering days. This provision shall not apply to commercial growers/nurseries or to residential vegetable gardens/edible plantings watered with a hose equipped with a shutoff nozzle;

8. To water or irrigate lawn, landscape, or other vegetated area using an automatic irrigation system for more than fifteen minutes per watering station per assigned day. This provision shall not apply to automatic irrigation systems exclusively using low output sprinkler equipment, including rotors, stream rotors, or micro-spray systems; and/or

9. To wash the exterior of dwellings, buildings or structures (with the exception of window washing and preparation of property for painting or for sale);

Section 8. Stage 3 Water Shortage. The District Manager is empowered to issue a Stage 3 Water Shortage notification and to enforce the water shortage restrictions in this section upon finding that the magnitude of an anticipated water shortage will be between twenty (20) percent and thirty (30) percent, and a significant consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water supply conditions. In a Stage 3 Water Shortage, the District will enforce the following water shortage restrictions. During Stage 3 Water Shortage it shall be unlawful for any person, firm, partnership, association, corporation, political body or other District customer:

1. To water or irrigate lawn, landscape, or other vegetated areas between the hours of 10:00 a.m. and 5:00 p.m., except when performed with a bucket or watering can, or by use of a drip irrigation system or similar low volume, nonspray irrigation equipment, or for very short periods of time for the express purpose of allowing landscape contractors to adjust or repair an irrigation system;

2. To use a hose that is not equipped with a shutoff nozzle;

3. To use potable water to wash down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking lots, tennis courts, patios, or

other paved surfaces, except when it is necessary to alleviate safety or sanitation hazards or to prepare paved surfaces for sealing;

4. To initially fill or to drain and refill any swimming pools, outdoor spas, wading pools, and ornamental water features;

5. To serve water in a restaurant or other commercial food service establishment except upon the request of a patron;

6. To operate a hotel, motel or other commercial lodging establishment without offering patrons the option to forego the daily laundering of towels, sheets and linens;

7. To water or irrigate lawn, landscape, or other vegetated area on days of the week other than the specified day(s) of the week authorized and noticed by the District Manager, except when performed with a bucket or watering can, or by use of a drip irrigation system or similar low volume, nonspray irrigation equipment, or for very short periods of time for the express purpose of allowing landscape contractors to adjust or repair an irrigation system. Hourly restrictions set forth in subsection 1 continue to apply on authorized watering days. This provision shall not apply to commercial growers/nurseries or to residential vegetable gardens/edible plantings watered with a hose equipped with a shutoff nozzle;

8. To water or irrigate lawn, landscape, or other vegetated area using an automatic irrigation system for more than ten minutes per watering station per assigned day. This provision shall not apply to automatic irrigation systems exclusively using low output sprinkler equipment, including rotors, stream rotors, or micro-spray systems;

9. To wash the exterior of dwellings, buildings or structures (with the exception of window washing and preparation of property for painting or for sale); and/or

10. To violate residential customer water rationing regulations, including regulations intended to preclude excessive water usage and specifying maximum water usage limitations, issued by the District Manager.

Section 9. Stage 4 Water Shortage. The District Manager is empowered to issue a Stage 4 Water Shortage notification and to enforce the water shortage restrictions in this section upon finding that the magnitude of an anticipated water shortage will be greater than thirty (30) percent and an extraordinary consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water supply conditions. In a Stage 4 water shortage, the District will enforce the following water shortage restrictions. During Stage 4 Water Shortage it shall be unlawful for any person, firm, partnership, association, corporation, political body or other water department customer:

1. To water or irrigate landscape or other vegetated area between the hours of 10:00 a.m. and 5:00 p.m., except when performed with a bucket or watering can, or by use of a drip irrigation system or similar low volume, nonspray irrigation equipment, or for very short periods of time for the express purpose of allowing landscape contractors to adjust or repair an irrigation system;

2. To use a hose that is not equipped with a shutoff nozzle;

3. To use potable water to wash down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking lots, tennis courts, patios, or other paved surfaces, except when it is necessary to alleviate safety or sanitation hazards or to prepare paved surfaces for sealing;

4. To fill or to top off any swimming pools, outdoor spas, wading pools, and ornamental water features;
5. To serve water in a restaurant or other commercial food service establishment except upon the request of a patron;
6. To operate a hotel, motel or other commercial lodging establishment without offering patrons the option to forego the daily laundering of towels, sheets and linens;
7. To water or irrigate landscape or other vegetated area on days of the week other than the specified day(s) of the week authorized and publicized by the District Manager, except when performed with a bucket or watering can, or by use of a drip irrigation system or similar low volume, nonspray irrigation equipment, or for very short periods of time for the express purpose of allowing landscape contractors to adjust or repair an irrigation system. Hourly restrictions set forth in subsection 1 continue to apply on authorized watering days. This provision shall not apply to commercial growers/nurseries or to residential vegetable gardens/edible plantings watered with a hose equipped with a shutoff nozzle;
8. To water landscapes using automatic irrigation systems for more than ten minutes per watering station per assigned day. This provision does not apply to automatic irrigation systems using water-efficient devices, including but not limited to weather-based controllers, drip/micro-irrigation systems and stream rotor sprinklers;
9. To wash the exterior of dwellings, buildings or structures (with the exception of window washing and preparation of property for painting or for sale);
10. To violate residential customer water rationing regulations, including regulations intended to preclude excessive water usage and specifying maximum water usage limitations, issued by the District Manager;
11. To violate commercial customer water rationing regulations, including regulations intended to preclude excessive water usage and specifying maximum water usage limitations, issued by the District;
12. To water lawns or turf, unless such watering is authorized by the District Manager in accordance with a landscape irrigation water;
13. To install new landscaping which requires any irrigation or watering;
14. To wash or clean vehicles, including but not limited to automobiles, trucks, vans, buses, motorcycles, boats, or trailers, including the washing of fleet vehicles; and/or
15. To exercise any rights conferred by hydrant and bulk water permits that were issued prior to the severe water shortage emergency declaration absent special permission granted by the District Manager. Said special permission may be granted only for projects necessary to protect the public health, safety and welfare where no alternative to potable water exists and for emergency response purposes.

Section 10. Exceptions. The District Manager, upon application made in writing by a customer on a form promulgated by the District and accompanied by supporting documentation, shall be authorized to issue an exception from the strict application of any restriction, regulation or prohibition enforced pursuant to this Ordinance, upon the customer's production of substantial evidence demonstrating the existence of one or more of the following circumstances that are particular to that customer and which are not generally shared by other District customers:

1. Failure to approve the requested exception would cause a condition having an adverse effect on the health, sanitation, fire protection, or safety of the customer or members of the public served by the customer;

2. Strict application of the subject restriction, regulation or prohibition would impose a severe or undue hardship on a particular business customer or render it infeasible for a particular business customer or class of business customers to remain in operation;

3. Alternative restrictions to which the customer is willing to adhere are available that would achieve the same level of demand reduction as the restriction for which an exception is being sought and such alternative restrictions are enforceable by the District;

4. Circumstances concerning the customer's property or business have changed since the implementation of the subject restriction warranting a change in the customer's water usage allocation;

5. A health care facility customer using industry best management practices is eligible for an exception upon demonstrating that the subject restriction, regulation or prohibition is interfering with or preventing it from providing health care service to its customers in accordance with industry hygiene, sanitation and health care standards; or

6. A business customer has already implemented environmental sustainability measures that have reduced water consumption to the maximum extent feasible. As used in this subsection the term "environmental sustainability measures" refers to installation of high efficiency plumbing fixtures, devices, equipment, and appliances, recycled water systems, and landscaping consisting exclusively of low-water-using plant materials using drip or similar high efficiency, nonspray irrigation systems, or to buildings that are designed, built, and continuously operated according to Leadership in Energy and Environmental Design (LEED) certification standards.

Section 11. Water Shortage Appeal Board.

(a) A Water Shortage Appeal Board is hereby established and shall be eligible to convene upon the District Manager's issuance of any water shortage notification declaration the implementation of water shortage restrictions pursuant to this Ordinance. Thereafter, the Water Shortage Appeal Board will remain available to convene for as long as the water shortage remains in effect.

(b) The Water Shortage Appeal Board shall be comprised of three (3) members of the Board of Directors, and shall be appointed thereto by the President of the Board of Directors.

(c) Any customer who considers an action taken by the District Manager or an enforcement official under the provisions of this Ordinance, including actions on exception applications and the assessment of administrative penalties, to have been erroneously taken or issued may appeal that action or penalty to the Water Shortage Appeal Board in the following manner:

1. The appeal shall be made in writing, shall state the nature of the appeal specifying the action or penalty that is being appealed and the basis upon which the action or penalty is alleged to be in error. Penalty appeals shall include a copy of the notice of violation;

2. An appeal, to be effective, must be received by the District Manager not later than ten (10) business days following the date of the notice of violation or the date that the District Manager took the action which is the subject of the appeal;

(A) A water service resident who is not the account customer may notify the District of his or her intention to file a petition to force the resident's account customer to appeal an excess water use penalty within ten business days following the penalty;

(B) If the District has been given a notice of intention to file a petition per subsection (c)(2)(A) by a water service resident who is not an account customer, the appeal from the account customer must be received within fifteen business days after the account customer has been petitioned by the resident;

3. The District Manager shall schedule the appeal for consideration by the Water Shortage Appeal Board at a Water Shortage Appeal Board meeting. The Water Shortage Appeal Board shall hear the appeal within ninety (90) days of the date of the appeal and issue its decision within thirty days of the date of the hearing;

4. The decision of the Water Shortage Appeal Board shall be final. In ruling on appeals, the Water Shortage Appeal Board shall strictly apply the provisions of this Ordinance, and shall not impose or grant terms and conditions not otherwise authorized by this Ordinance.

Section 12. Administrative Enforcement.

(a) Any person, firm, partnership, association, corporation, political entity or other water customer violating any provision of this Ordinance may be assessed an administrative penalty.

(b) Each and every day a violation of this Ordinance constitutes a separate and distinct offense for which an administrative penalty may be assessed.

(c) Penalties. The purpose of the administrative penalties assessed pursuant to this section is to assure future compliance by the cited customer through the imposition of increasingly significant penalties so as to create a meaningful disincentive to commit future violations. In acknowledgment of the fact that the District's water is a scarce and irreplaceable commodity and that this Ordinance is intended to equitably distribute that commodity among District customers and to assure that, to the extent feasible, District water is conserved and used only for purposes deemed necessary for public health and safety, the penalty schedule herein prescribed is not to be construed as creating a "water pricing" structure pursuant to which customers may elect to pay for additional water at significantly higher rates. To this end, a customer's repeated violation of this Ordinance shall result in either the installation of a flow restriction device or disconnection of the customer's property from the District's water service system at the customer's cost.

(d) Administrative penalties for failure to comply with water waste prohibitions requirements in Section 5, and mandatory water use restrictions and regulations commencing with a Stage 1 Water Shortage in Section 6 are as follows:

1. First Offense. Written notice of violation and opportunity to correct violation.

2. Second Offense. A second violation within the preceding twelve calendar months is punishable by a fine not to exceed one hundred dollars.

3. Third Offense. A third violation within the preceding twelve calendar months is punishable by a fine not to exceed two hundred fifty dollars.

4. Fourth Offense. A fourth violation within the preceding twelve calendar months is punishable by a fine not to exceed five hundred dollars. In addition to any fines, the District Manager may order a water flow restrictor device be installed.

5. Discontinuing Service. In addition to any fines and the installation of a water flow restrictor, the District Manager may disconnect a customer's water service for willful violations of mandatory restrictions and regulations in this Ordinance. Upon disconnection of water service, a written notice shall be served upon the customer which shall state the time, place, and general description of the prohibited or restricted activity and the method by which reconnection can be made.

(e) Excessive Water Use Penalties. An excessive use penalty shall be assessed where the customer, during any given billing cycle, uses more than the customer's water allotment per the District's water rationing regulations issued pursuant to this Ordinance commencing with Stage 3 in Section 8. Excess use penalties shall be in addition to ordinary water consumption charges, as follows:

1. One percent to ten percent over customer rationing allotment: twenty-five dollars/CCF.

2. More than ten percent over customer rationing allotment: fifty dollars/CCF.

3. In addition to any excess use penalties, the District Manager may order a water flow restrictor device be installed and/or may disconnect a customer's water service for willful violations of the water rationing regulations in this Ordinance. Upon disconnection of water service, a written notice shall be served upon the customer which shall state the time, place, and general description of the prohibited or restricted activity and the method by which reconnection can be made.

(f) Cost of Flow Restrictor and Disconnecting Service. A person or entity that violates this Ordinance is responsible for payment of charges for installing and/or removing any flow-restricting device and for disconnecting and/or reconnecting. The charge for installing and/or removing any flow restricting device must be paid before the device is removed. Nonpayment will be subject to the same remedies as nonpayment of basic water rates.

(g) Notice and Hearing. The District Manager will issue a notice of violation by mail or personal delivery at least ten business days before taking any enforcement action described in

subsection (d). Such notice must describe the violation and the date by which corrective action must be taken. A customer may appeal the notice of violation by filing a written notice of appeal with the District no later than the close of the business day before the date scheduled for enforcement action, accompanied by a twenty-five dollar ($25.00) appeal fee. Any notice of violation not timely appealed will be final. Upon receipt of a timely appeal, a hearing on the appeal will be scheduled, and the District will mail written notice of the hearing date to the customer at least ten days before the date of the hearing. Pending receipt of a written appeal or pending a hearing pursuant to an appeal, the District Manager may take appropriate steps to prevent the unauthorized use of water as appropriate to the nature and extent of the violation and the current declared water shortage condition.

Section 12. Additional Enforcement Authority. In addition to the remedies referenced above, the District Manager is empowered to pursue any additional remedies necessary, including, but not limited to, other administrative, criminal, and civil remedies to correct a violation of this Ordinance.

Section 13. Severability. If any portion of this Ordinance is held to be unconstitutional, it is the intent of the Board of Directors that such portion of the chapter be severable from the remainder and that the remainder be given full force and effect.

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PASSED AND ADOPTED by the Board of Directors of the San Lorenzo Valley Water District, County of Santa Cruz, State of California, on the 3rd day of April, 2014, by the following vote of the members thereof:

AYES:	Bruce, Prather, Rapoza Vierra, Brown
NOES:	None
ABSTAIN:	None
ABSENT:	None

James A. Mueller
Acting District Secretary
San Lorenzo Valley Water District