

## II. WATER SUPPLY AND WATER SYSTEMS

### Level of Severity Criteria

#### WATER SUPPLY

Level of Severity	Water Supply Criteria
I	Water demand projected over 20 years equals or exceeds the estimated dependable supply. LOS I provides five years for preparation of resource capacity studies and evaluation of alternative courses of action.
II	Water demand projected over 15-20 years (or other lead time determined by a resource capacity study) equals or exceeds the estimated dependable supply.
III	Water demand projected over 15 years (or other lead time determined by a resource capacity study) equals or exceeds the estimated dependable supply  OR  The time required to correct the problem is longer than the time available before the dependable supply is reached.

#### WATER SYSTEMS

Level of Severity	Water System Criteria
I	The water system is projected to be operating at the design capacity within seven years. Two years would then be available for preparation of a resource capacity study and evaluation of alternative courses of action.
II	A five-year or less lead time (or other lead time determined by a resource capacity study) needed to design, fund and construct system improvements necessary to avoid a LOS III problem.
III	Water demand equals available capacity: a water distribution system is functioning at design capacity or will be functioning at capacity before improvements can be made. The capacity of a water system is the design capacity of its component parts: storage, pipelines, pumping stations and treatment plants.

## Water Purveyors Serving the Unincorporated County

Water purveyors serving the unincorporated county are summarized on Table II-1 and shown on Figure II-1.

Table II-1 – Water Purveyors Serving the Unincorporated County				
Community	Water Purveyors	Approx. Population Served (2014)	2012-13 Water Deliveries (AFY) <sup>4</sup>	2013-14 Water Deliveries (AFY)
Avila Beach Avila Valley	Avila CSD	450	(1)	86.6
	Avila Valley Mutual Water Co.	112	35.9	48.1
	San Miguelito Mutual Water Co.	1,200	(1)	179.5
Cambria	Cambria CSD	6,031	(1)	555.1
Cayucos	CSA 10A	2,185	110.1	112.0
	Morro Rock Mutual Water Co.		115.6	115.4
	Paso Robles Beach Water Assoc.		151.2	149.9
Edna Valley	Golden State Water Co.	1,960	297.9	286.8
Heritage Ranch	Heritage Ranch CSD	3,500	533.6	461.3
Los Osos	Los Osos CSD	7,086	670.8	645.1
	Golden State Water Co.	8,824	675.5	649.8
	S&T Mutual Water Co.	(1)	(1)	(1)
Nipomo	Nipomo CSD	12,484	2,376.4	2,517.0
	Woodland Mutual Water Co.	1,200	864.5	849.3
Oceano	Oceano CSD	7,294	829.1	832.8
Santa Margarita	CSA 23	1,265	156.1	157.2
San Miguel	San Miguel CSD	2,413	309.8	312.1
San Simeon	San Simeon CSD	462	(1)	72.1
Shandon	CSA 16	1,260	109.7	142.3
Templeton	Templeton CSD	6,885	(1)	1,344.3

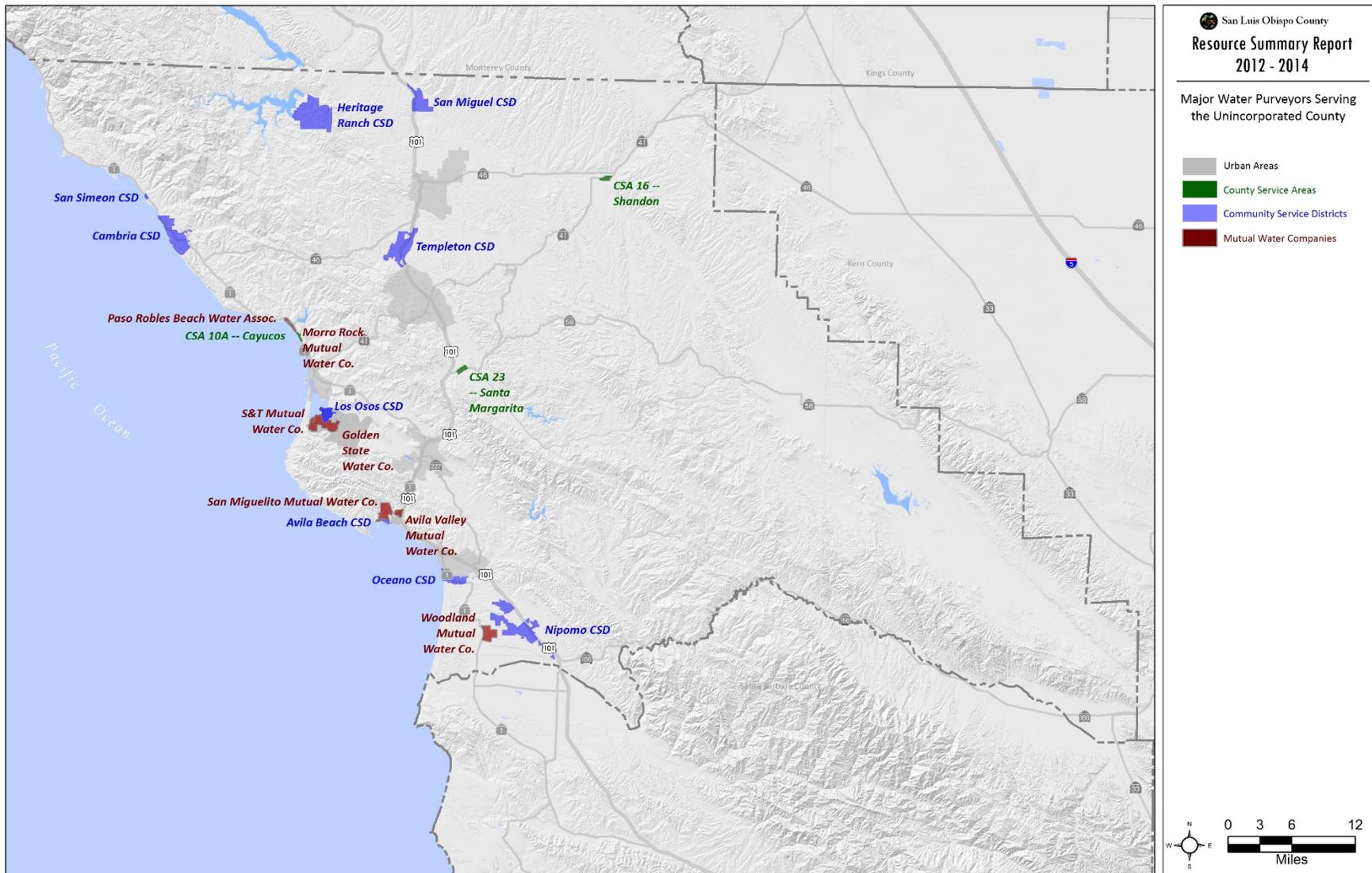
Source: San Luis Obispo County Flood Control and Water Conservation District, 2014

Notes:

- I. No data reported.

<sup>4</sup> Acre feet per year. An acre-foot is 325,851.4 gallons.

Figure II-1 –Water Purveyors Discussed In This RSR



## Water Resources

The following information regarding water resources serving the unincorporated county was summarized from the 2012 San Luis Obispo County Master Water Report which is available in its entirety at the County's<sup>5</sup> website:

<http://www.slocountywater.org/site/Frequent%20Downloads/Master%20Water%20Plan/>

## Groundwater Resources

Groundwater basins are summarized on Table II-2 and shown on Figure II-2.

Table II-2 – Groundwater Basins			
Location	Groundwater Basins/ Sub-basins	Safe Basin Yield (AFY)	Notes
San Simeon	San Carpaforo Valley	(1)	Rural and agricultural users only.
	Arroyo De La Cruz Valley	1,244	Rural and agricultural users only.
	Pico Creek Valley	120	Users include San Simeon CSD, Hearst Ranch and overlying users.
Cambria	San Simeon Valley	1,040	Users include Cambria CSD and overlying users.
	Santa Rosa Valley	2,260	Users include Cambria CSD and overlying users.
	Villa Valley	1,000	Rural and agricultural users only. Department of Water Resources estimate of safe yield from 1958. There has been no subsequent basin study to confirm or update this estimate.
Cayucos	Cayucos Valley	600	Morro Rock Mutual Water Company and Paso Robles Beach Water Association service areas overlie a portion of the basin; however, these purveyors do not pump from the Cayucos Valley basin. Department of Water Resources estimate of safe yield in 1958. There has been no subsequent basin study to confirm or update this estimate.
	Old Valley	(1)	Within the watershed of Whale Rock Reservoir. Users downstream of Whale Rock reservoir include members of the Cayucos Area Water Organization (CAWO), which include Morro Rock Mutual Water Company (Morro Rock MWC), Paso Robles Beach Water Association (PRBWA), County Service Area 10A (CSA 10A), the Cayucos Cemetery District (CCD), and two landowners.
	Toro Valley	532	Basin water users include Chevron (with agricultural tenants), and overlying residential and agricultural users.
Morro Bay	Morro Valley	1,500	Basin groundwater users include the City of Morro Bay, a cement plant, a small public water system (mobile home park), and residential and agricultural overlying users.
	Chorro Valley	2,210	Users include the City of Morro Bay, San Luis Obispo County, California State Parks, California State Polytechnic University, California National Guard, California Men's Colony, and residential and agricultural overlying users.
Los Osos	Los Osos Valley	3,200	Users include Golden State Water Company, S&T Mutual, the Los Osos Community Services District, and overlying private well users.

<sup>5</sup> "County" as used in this RSR includes the San Luis Obispo County Flood Control and Water Conservation District.

Table II-2 – Groundwater Basins			
Location	Groundwater Basins/ Sub-basins	Safe Basin Yield (AFY)	Notes
San Luis Obispo/ Edna Valley	San Luis Obispo Valley – San Luis Valley Sub-basin	2,000	A 1991 study reported a sustained yield of the entire San Luis Valley Groundwater Basin under existing conditions at 5,900 AFY. Sub-basin groundwater users include the City of San Luis Obispo; California State Polytechnic University; San Luis Coastal Unified School District; Chevron; close to two dozen small public water systems serving various commercial, industrial, and residential properties; agricultural growers; and private residences.
	San Luis Obispo Valley – Edna Valley Sub-basin	4,000	Users include Golden State Water Company, San Luis Country Club (golf course), a few small public water systems, agricultural growers, and private residences.
Avila Valley	San Luis Obispo Valley – Avila Valley Sub-basin	(1)	Users include Avila Valley Mutual Water Company and San Miguelito Mutual Water Company.
South County/ Nipomo	Santa Maria Valley -- Pismo Creek Valley Sub-basin	(1)	Users include residential and agricultural overlying users.
	Santa Maria Valley -- Arroyo Grande Valley Sub-basin	(1)	Sub-basin groundwater users include small public water systems (residential, commercial, and County park), and agricultural and residential overlying users.
	Santa Maria Valley -- Nipomo Valley Sub-basin	(1)	Sub-basin groundwater users include residential and agricultural overlying users. The Nipomo CSD operates wells within the boundaries of the sub-basin, but these wells tap the deeper fractured rock reservoirs. There is no existing estimate for the perennial yield of this sub-basin.
	Northern Cities Management Area	5,600 – 6,800	Basin groundwater users in the NCMA include City of Pismo Beach, City of Arroyo Grande, City of Grover Beach, Oceano Community Services District (Oceano CSD), small public water systems (including Halcyon Water System), Lucia Mar Unified School District, and residential and agricultural overlying users.
	Nipomo Mesa Management Area	4,800 – 6,000	Basin groundwater users in the Nipomo Mesa Management Area include Golden State Water Company, Rural Water Company, Woodlands Mutual Water Company (WMWC), ConocoPhillips, Nipomo Community Services District (Nipomo CSD), Lucia Mar Unified School District, small public water systems (serving residential, industrial and nursery/greenhouse operations), and commercial, agricultural and residential overlying users. DWR (2002) estimated the dependable yield (DWR 2002. Page ES21) at 4,800 AFY to 6,000 AFY, which was prior to the formal establishment of the NMMA.
Santa Maria Valley Management Area	124,000	Users include agricultural and residential overlying users and a small public water system. Safe Yield in the San Luis Obispo County portion of the Santa Maria Valley was estimated between 11,100 AFY and 13,000 AFY prior to the formal establishment of the SMVMA (DWR 2002).	
Huasna Valley	Huasna Valley	(1)	Basin water users are residential and agricultural overlying users.
Cuyama Valley	Cuyama Valley	10,000	Basin groundwater users in the San Luis Obispo County portion of the basin include oil field operators and residential/agricultural overlying users. There is no separate yield estimate for the San Luis Obispo County portion of the basin.
Carrizo Plain	Carrizo Plain	8,000 – 10,000	Users include agricultural and residential overlying users.
	Rafael Valley	(1)	Users include agricultural and residential overlying users
	Big Spring Area	(1)	Users include agricultural and residential overlying users

Table II-2 – Groundwater Basins			
Location	Groundwater Basins/ Sub-basins	Safe Basin Yield (AFY)	Notes
Santa Margarita	Santa Margarita Valley	(1)	Serves Santa Margarita by way of CSA 23. The average annual yield of the basin in the vicinity of the proposed Santa Margarita Ranch development may be in the range of 400 to 600 AFY.
	Rinconada Valley	(1)	All pumping in the basin is for agricultural purposes and by overlying users.
	Pozo Valley	1,000	There are some small public water systems in the basin. All other pumping is for residential and agricultural purposes by overlying users. Department of Water Resources estimate in 1958. There has been no subsequent basin study to confirm or update this estimate.
Atascadero/ Templeton	Paso Robles – Atascadero Sub-basin	16,400	Users include the City of Atascadero, Templeton CSD and Garden Farms.
Paso Robles	Paso Robles	97,700(2)	Water users in the basin include municipalities, communities, rural domestic residences, and agricultural users. The major municipal water purveyors include the Atascadero Mutual Water Company, City of Paso Robles, Templeton CSD, CSA 16-1 (Shandon), and San Miguel Community Services District (San Miguel CSD). Includes 16,400 AFY perennial yield from the Atascadero Groundwater Sub-basin.
Cholame	Cholame Valley	(1)	There are some small public water systems in the San Luis Obispo County portion of the basin. All other pumping is for residential and agricultural purposes by overlying users.

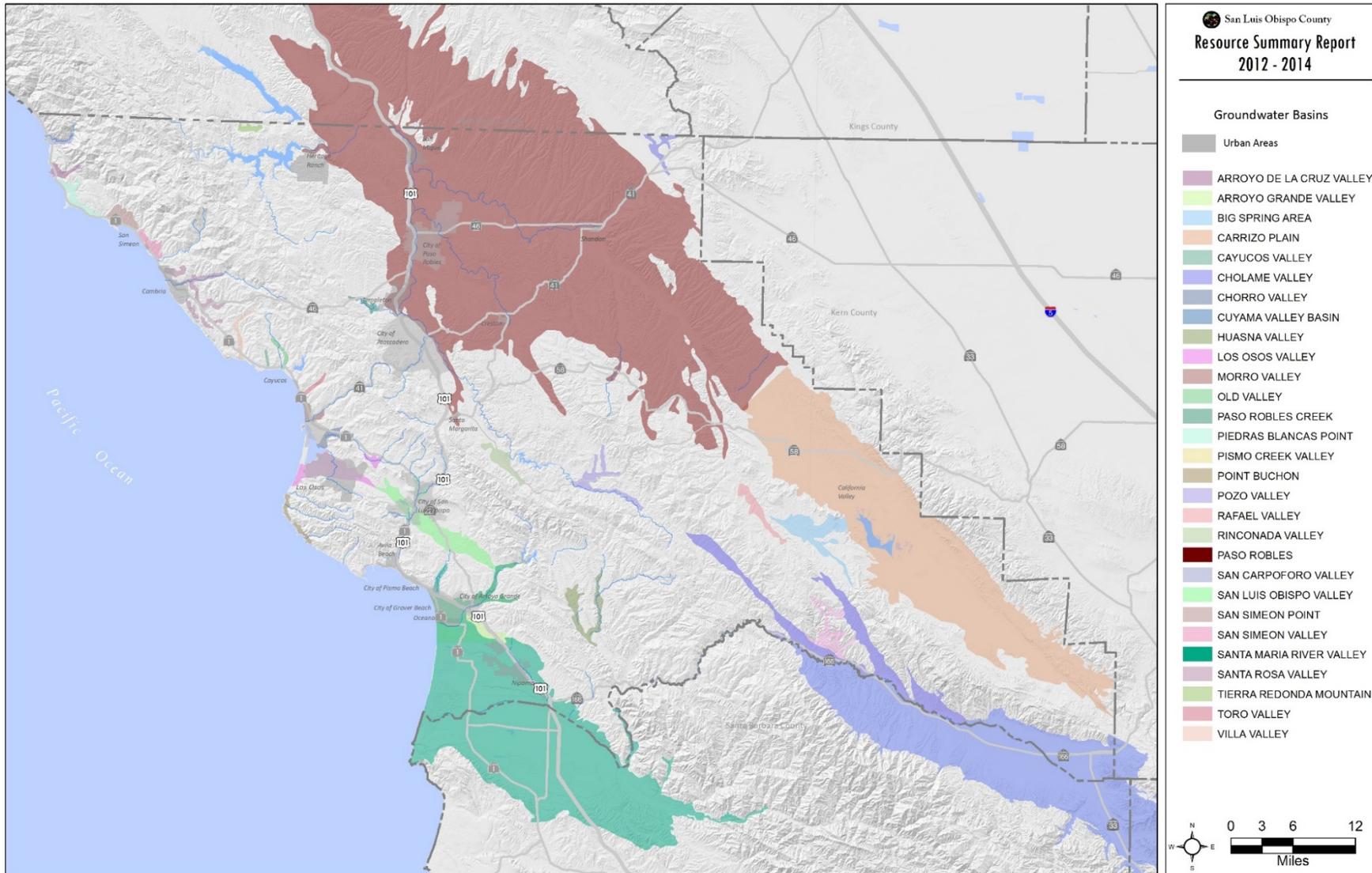
Source: San Luis Obispo County Master Water Report, 2012

Notes:

(1) No estimate available.

(2). The safe yield for the Paso Robles Groundwater Basin is currently being updated.

Figure II-2 – Groundwater Basins (Larger scale maps are provided with the discussion of each basin.)



## Surface Water Resources Serving the Unincorporated County

### State Water Project (SWP)

The California Department of Water Resources (DWR) owns and operates the State Water Project (SWP). In 1963 the San Luis Obispo County Flood Control and Water Conservation District (District) contracted DWR for 25,000 AFY of State Water. The SWP began delivering water to the Central Coast in 1997 upon completion of the Coastal Branch conveyance and treatment facilities, serving Santa Barbara and San Luis Obispo Counties. The SWP is considered a supplementary source of water supply since hydrologic variability, maintenance schedules, and repair requirements can cause reduced deliveries or complete shutdown of the delivery system. Since delivery to the Central Coast began, the SWP has provided between 50 and 100 percent of the contracted allocations, but recently, drought coupled with pumping restrictions in consideration of endangered species habitat lowered that amount to 35 percent in 2008 and 40 percent in 2009. To receive a greater portion of State Water during these shortages up to their full allocation (Water Service Amount), most agencies have entered into "Drought Buffer Water Agreements" with the District for use of an additional portion of the District's SWP allocation

Table II-2 provides a summary of SWP allocations to water purveyors serving the unincorporated county. Table II-2 lists the water service amount (WSA), drought buffer, and total reserve allocations for the County, but it also provides the average, maximum and minimum allocations based on the range of deliveries presented in Table 6.13 from the State Water Project Delivery Reliability Report 2007. The minimum, average, and maximum deliveries were 6, 66, and 100 percent of the maximum SWP Table A allocations, respectively. For long-term planning, it is assumed that SWP contractors will receive 66 percent of the maximum allocation in a given year. The District has 15,273 AFY of unsubscribed SWP allocation (District allocation (25,000 AFY) minus Total Reserved (9,727 AFY) equals 15,273 AFY), commonly referred to as the "excess allocation." Hydraulics, treatment plant capacity, and contractual terms and conditions limit how the excess allocation can be used. The County is currently evaluating the available hydraulic capacity in the treated water portion of the Coastal Branch. The following is a list of options for use of this excess allocation:

- Direct delivery after contract-revision negotiation for use of any additional capacity available in the Coastal Branch treatment and conveyance facilities;
- As additional drought buffer water;
- Permanent, multi-year or single year transfer or exchange; and/or
- As a source of either groundwater recharge or surface storage.

Table II-2 – State Water Project Water Service Amounts (AFY) To Water Purveyors Serving The Unincorporated County						
Contractor	Water Service Amount	Drought Buffer	Total	6 % Allocation Year	66-69% Allocation Year	100% Allocation Year
Oceano CSD	750	0	750	45	495	750
San Miguelito Mutual Water Co.	275	275	550	33	275	275
Avila Beach CSD	100	0	100	6	66	100
Avila Valley Mutual Water Co.	20	60	80	5	20	20
Shandon	100	0	100	6	66	100
Total:	1,245	335	1,580	95	922	1,245

Source: San Luis Obispo County Master Water Report, 2012, Table 4.5

Notes:

1. Minimum, average, and maximum allocations established in the State Water Project Delivery Reliability Report 2007 (August 2008), page 51, Table 6.13. This study used 66 percent for the average allocation year.

Many factors will affect future SWP deliveries to the County and SWP subcontractors within the County, including pumping restrictions for the Sacramento Delta and climate change. Estimating the delivery reliability of the SWP depends on many issues, including possible future regulatory standards in the Delta, population growth, water conservation, increased use of recycled water, drought buffer purchases, and water transfers. The DWR State Water Project Delivery Reliability Report 2007 (August 2008) estimates future (2027) SWP delivery reliability and incorporates the 2007 federal court ruling for Delta pumping and potential impacts of future climate change. When compared to previous reliability reports, total annual deliveries for 2027 show decreases in deliveries in most years if no actions are taken to address the factors causing the decrease in availability. It is important to recognize that actions to re-establish reliability are being evaluated by DWR State Water Contractors and other State and Federal agencies. Future actions may include new environmental efforts as well as infrastructure improvements envisioned when the SWP was originally scoped in the 1960s.

### Nacimiento Water Project

The Monterey County Flood Control and Water Conservation District (now known as the Monterey County Water Resources Agency (MCWRA) constructed the Nacimiento Dam in 1957. The dam and reservoir continue to be operated by MCWRA. The lake has a capacity of 377,900 acre-feet (AF) and a surface area of 5,727 acres. Water is collected from a 365 square mile watershed that is comprised of grazing lands and rugged wilderness.

In 1959, the County secured the rights to 17,500 AFY from Lake Nacimiento, with 1,750 AFY reserved for lakeside users and the Heritage Ranch Community Services District (Heritage Ranch CSD). After a long series of studies and negotiations, the Nacimiento Water Project (NWP) was initiated. The project delivers raw lake water from Lake Nacimiento to communities within San Luis Obispo County. Water purveyors serving the unincorporated county who are participating

in the Nacimiento Water Project, along with their contracted water amounts, are listed in Table II-3.

Table II-3 – Allocation of Nacimiento Water Project To Participants Serving the Unincorporated County	
Participants	Allocations (AFY)
Templeton CSD	250
CSA 10A (via exchange) <sup>1</sup>	25

Source: San Luis Obispo County Master Water Report, 2012, Table 4.6

Notes:

1. Discussed below under Whale Rock Reservoir.

### Whale Rock Reservoir

Whale Rock Reservoir is located on Old Creek Road approximately one-half mile east of the community of Cayucos. The State Department of Water Resources supervised the project's planning, design, and construction. Construction took place between October 1958 and April 1961. The reservoir is jointly owned by the City of San Luis Obispo, the California Men's Colony, and Cal Poly. These three agencies, with the addition of a representative from the Department of Water Resources, form the Whale Rock Commission, which is responsible for operational policy and administration of the reservoir and related facilities. Day-to-day operation is provided by the City of San Luis Obispo.

Whale Rock reservoir is formed by an earthen dam and was able to store an estimated 40,662 acre-feet of water at the time of construction. The calculation of the yield available is coordinated with Salinas Reservoir using a safe annual yield computer model. The model also evaluates the effect of siltation. The Whale Rock Commission has budgeted for a siltation study to be undertaken in the near future.

Table II-4 summarizes the current capacity rights for the joint right-holders (downstream water rights are accounted for separately). Each rights-holder manages reservoir withdrawals individually from their available water storage allocation. The Whale Rock Commission tracks withdrawals and reports available volume on a monthly basis.

Table II-4 – Whale Rock Reservoir Allocations		
Water Users	Percent	Allocations (AFY)
City of San Luis Obispo	55.05	22,383
Cal Poly	33.71	13,707
California Men's Colony	11.24	4,570
Total:	100	40,660

Source: San Luis Obispo County Master Water Report, 2012, Table 4.7

Several agreements establish policy for the operation of the Whale Rock system and actions of the member agencies. The downstream water rights agreement (the original 1958 agreement was amended in April 1996) define water entitlements for adjacent and downstream water users, including water purveyors serving the unincorporated County. The Cayucos Area Water Organization, one of the parties to this agreement, consists of three public water purveyors and the cemetery, all in the Cayucos area. In addition to the agencies, water entitlements were identified for two separate downstream land owners. An exchange agreement between CSA 10A and the City of San Luis Obispo (2005) allows the delivery of up to 90 AFY of the City's Whale Rock water allocation to CSA 10A in exchange for CSA 10A's purchase of an equivalent amount of Nacimiento Water for delivery to the City. The anticipated need for CSA 10A is 25 AFY at buildout.

Total Whale Rock Reservoir entitlements are summarized on Table II-5.

Table II-5 – Whale Rock Downstream Entitlements	
Water Users	Downstream Water Entitlements (AFY)
Cayucos Area Water Organization <sup>1</sup>	
Paso Robles Beach Water Association	222
Morro Rock Mutual Water Co.	170
County Service Area 10A	190 <sup>3</sup>
Cayucos-Morro Bay Cemetery District	18
Mainini Ranch <sup>2</sup>	50
Ogle <sup>2</sup>	14
Total:	664

Source: San Luis Obispo County Master Water Report, 2012, Table 4.8

Notes:

1. The referenced agreement establishes the amount of 600 AFY to CAWO. The allocations to the CAWO members are part of an internal agreement amongst the members.
2. The agencies generally receive their entitlements via pipeline from the reservoir, while the land owners' entitlement is released from the reservoir.
3. CSA 10A has procured 25 - 90 AFY of Nacimiento Water Project via exchange with City of San Luis Obispo for Whale Rock Reservoir water. Agreement provisions allow for up to 90 AFY of NWP if necessary. Nacimiento water could be delivered to Morro Rock MWC or Paso Robles Beach Water Association, as part of this arrangement.

### Lopez Lake/Reservoir

The County completed the Lopez Dam in 1968 to provide a reliable water supply for agricultural and municipal needs as well as flood protection for coastal communities. Lopez Reservoir has a capacity of 49,388 AF. The lake covers 950 acres and has 22 miles of oak covered shoreline.

Allocations for Lopez Lake water are based on a percentage of the safe yield of the reservoir, which is 8,730 AFY. Of that amount, 4,530 AFY are for pipeline deliveries and 4,200 AFY are reserved for downstream releases. The dam, terminal reservoir, treatment and conveyance facilities are a part of Flood Control Zone 3 (Zone 3). Water agencies serving the unincorporated County that contract for Lopez water in Zone 3 include the community of Oceano and CSA 12

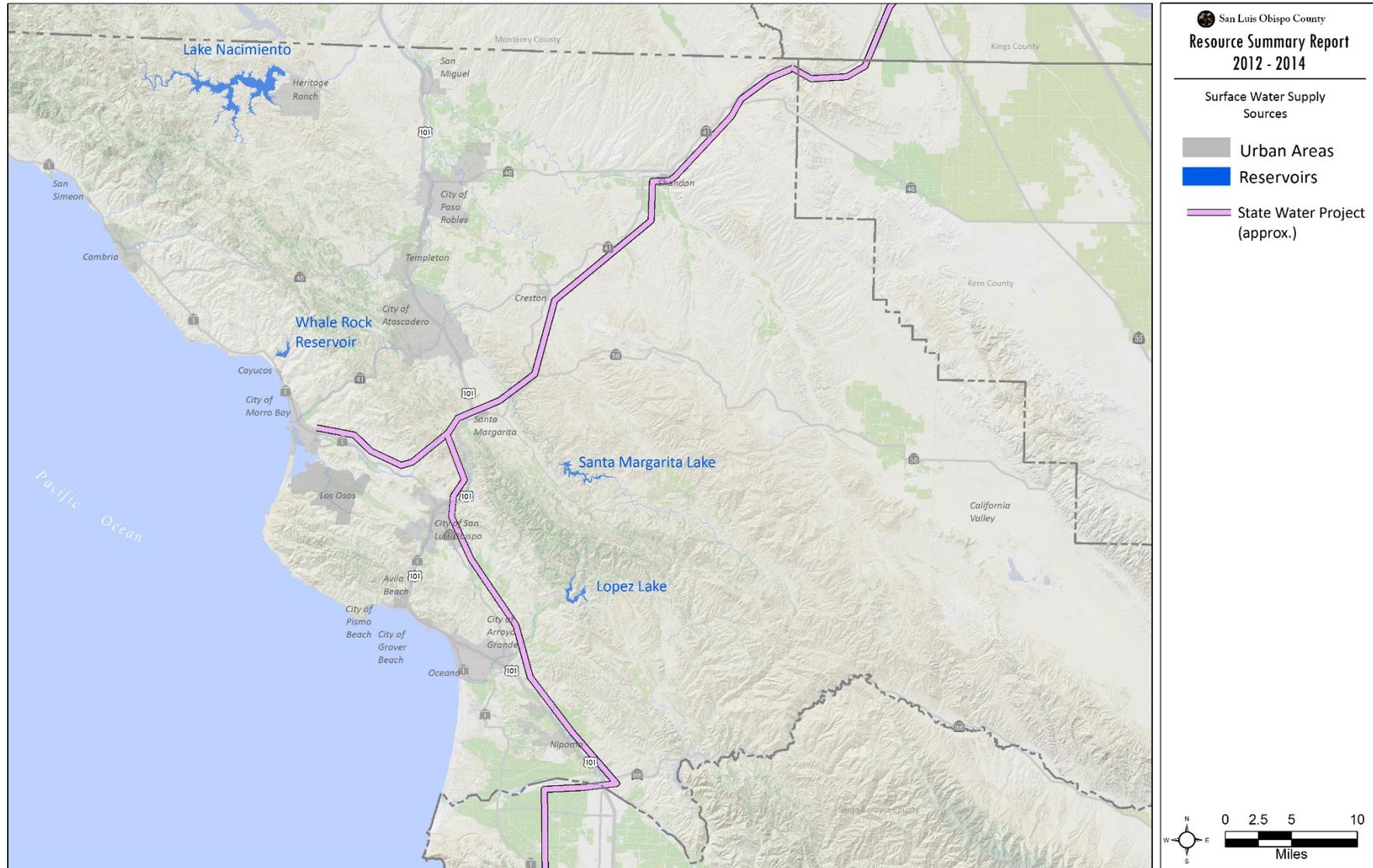
(including the Avila Beach area). Lopez Lake allocations to these purveyors are shown in Table II-6.

Two issues could change the amount of water available to contractors and the safe yield. The Arroyo Grande Habitat Conservation Plan, which is currently being developed, will likely require additional downstream releases. An interim downstream release schedule has reduced the amount of water available to municipalities. Changes in operation of the dam are being considered for reducing spills and optimizing future deliveries. Additionally, the City of Pismo Beach, on behalf of the Zone 3 agencies, has taken the lead on conducting a study to consider the feasibility of modifying the dam to augment capacity of the reservoir.

<b>Table II-6 – Lopez Lake Water Allocations to Water Purveyors Serving the Unincorporated County</b>	
<b>Water Users</b>	<b>Allocations (AFY)</b>
Oceano CSD	303
County Service Area 12 (Avila Beach area)	241
Total:	544

Source: San Luis Obispo County Master Water Report, 2012, Table 4.9

Figure II-3 – Surface Water Supply Sources



## Recommended Levels of Severity

### Methodologies

#### Water Supply

Groundwater is the principal source of water in the County, and groundwater basins may serve multiple purveyors. Accordingly, the discussion of recommended Levels of Severity has been grouped by regions which generally coincide with the major groundwater basins. Information regarding the current status of each basin was derived from a variety of sources, including:

- The San Luis Obispo County Master Water Report, 2012
- The Draft Basin Plan for the Los Osos Groundwater Basin, August 2013
- The Paso Robles Groundwater Basin Management Plan, 2011
- The Paso Robles Groundwater Basin Computer Model, 2014
- The 2014 San Luis Obispo County Integrated Regional Water Management Plan

To determine recommended LOS for water supply, forecast demand from urban, rural, and agricultural users was projected over 15 years, 15-20 years, and 20 years and compared with the safe yield of the groundwater basins serving these users (where known). Levels of Severity were assigned based on whether the projected demand would exceed the dependable supply over these time periods.

#### Water Systems

To determine recommended LOS for water systems, water purveyors were asked to identify water system improvements necessary to accommodate current and projected water demand and the timeframe for the needed improvements. The timeframe for needed improvements then were compared with the LOS timeframes to assign a recommended LOS.

## San Simeon/Cambria Area Water Supply and Systems

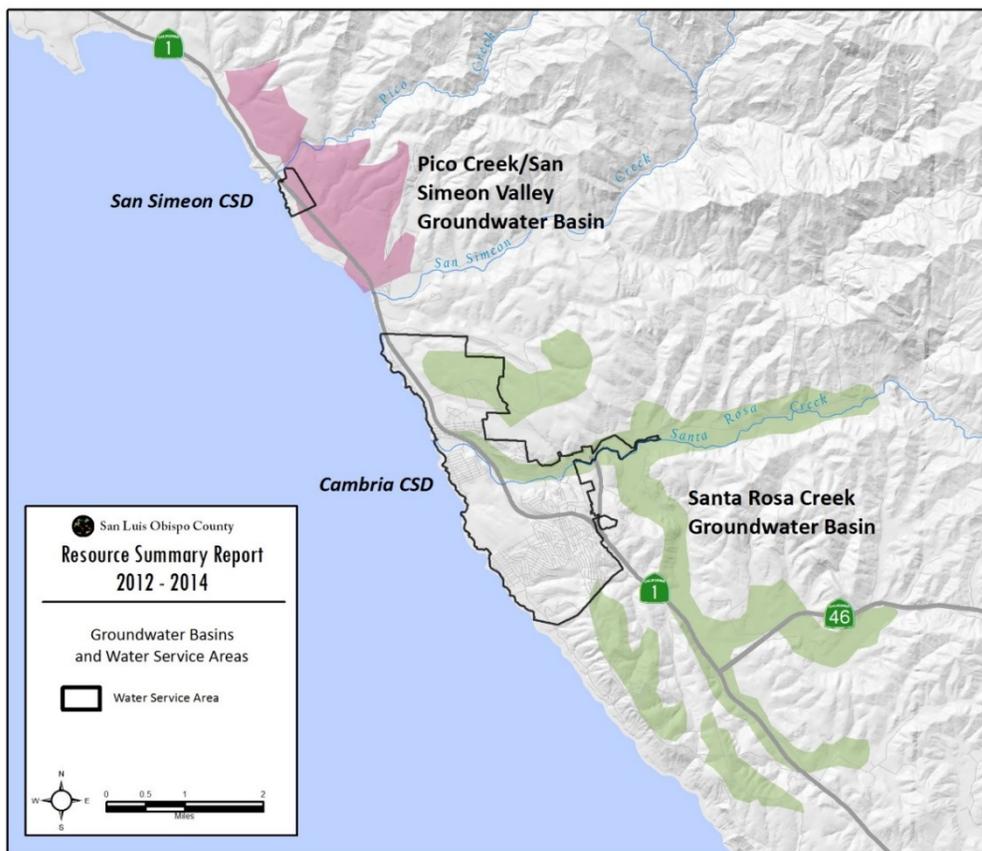


Figure II-4 – Groundwater Basins and Water Purveyors Serving the San Simeon/Cambria Area

### Pico Creek Valley Groundwater Basin

According to the 2012 Master Water Report, the basin yield is estimated to be 120 AFY (Cleath, 1986). Contamination of water supply wells due to seawater intrusion is a major water quality concern in the basin (Cleath, 1986). Lowering of groundwater levels below sea level in the basin during the summer months when creek flows are absent and pumping is active can result in the landward migration of the sea water/fresh groundwater interface. Since at least the mid-1980s, sea water intrusion has occurred within the Pico Creek Valley Groundwater Basin (Cleath, 1986). Although seawater intrusion has increased salinity levels in groundwater pumped from local water supply wells, it has not degraded water quality to the point that the water is non-potable. The primary constraints on water availability in the basin include physical limitations and potential water quality issues.

Users of the basin include the San Simeon CSD, rural and agricultural operations. Seventy percent of water used by the San Simeon CSD is for commercial use (tourist/hotels). Due to the supply limitations of the Pico Creek Valley Groundwater Basin, an alternative supply is necessary to meet future demands. Water conservation measures have been fully implemented and there is minimal or no opportunity to further reduce water demands. Three water management

strategies are likely the most feasible options to consider for San Simeon CSD's future water supply:

- Recycled water
- Groundwater supply sources (other than Pico Creek Valley Groundwater Basin)
- Desalination

The Arroyo De La Cruz Groundwater Basin is a possible option for a future water supply. Unfortunately, published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. The safe basin yield should be determined as part of any investigation of this basin as a future water supply.

San Simeon CSD could also implement a desalination project (similar to one being constructed by Cambria CSD). The implementation challenges would be similar to those experienced by Cambria CSD.

Table II-7 – Pico Creek Valley Groundwater Basin Existing and Forecasted Water Supply and Demand			
Demand	San Simeon CSD	Agriculture	Rural
Current Demand (AFY)	72.1 <sup>1</sup>	70 <sup>3</sup>	20 <sup>3</sup>
Forecast Demand In 15 Years (AFY)	71.1	65	35
Forecast Demand in 20 Years (AFY)	71.9	63.3	40
Buildout Demand (30 Or More Years) (AFY)	250 <sup>2</sup>	10-60 <sup>3</sup>	50 <sup>3</sup>
Supply			
Pico Creek Valley Basin (AFY)	120	Uncertain <sup>4</sup>	Uncertain <sup>4</sup>
<b>Water Supply Versus Forecast Demand</b>	Water demand projected over 15 years will equal or exceed the estimated dependable supply.		

Sources: Water System Usage forms: July 2012 – June 2013; July 2013 – June 2014, San Luis Obispo County Master Water Report, 2012, Table 4.54

Notes:

1. See Table II-1. Demand fluctuates due to changes in tourism. Data for agriculture and rural are from 2012.
2. Most recent master plan forecasts a build-out demand of 224 AFY, but San Simeon CSD's current build-out demand estimate is 250 AFY.
3. Agricultural and rural demand calculations do not account for livestock operations, and likely underestimates actual water demands.
4. Seventy (70) AFY of Pico Creek livestock and domestic usage was reported by Hearst Holdings Inc. to the SWRCB in June 2010.
5. Population within the San Simeon area is expected to decline slightly over the next 30 years.

The groundwater basin is considered an unreliable source within the timeframes prescribed by the LOS criteria because:

- Current estimated demand from urban, rural and agricultural users (162.1 AFY) exceeds the safe yield of the basin (120 AFY).

- Forecast demand from all sources in 30 or more years is expected to be between 310 and 360 AFY which exceeds the safe yield of the basin (120 AFY).
- The combination of seawater intrusion along with lowering groundwater levels during the dry season or times of drought.

Water demand projected over 15 years will equal or exceed the estimated dependable supply.

**Recommended Level of Severity III.**

## **San Simeon Valley and Santa Rosa Valley Groundwater Basins**

### **San Simeon Valley Groundwater Basin**

Water users in the basin include the Cambria CSD (discussed below under the Santa Rosa Valley Groundwater Basin) and overlying rural and agricultural users. The primary constraints on water availability in the basin include physical limitations and potential water quality issues. The State Water Resources Control Board (State Board) allows a maximum extraction of 1,230 AFY in the San Simeon Valley Groundwater Basin and a maximum dry season extraction of 370 AF (Cambria CSD Water Master Plan (WMP), 2008). Although the actual dates will vary each year depending on creek flows and rainfall occurrence, the dry season generally spans from May through October. In general, groundwater levels in the basin are typically highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. The primary constraints on water availability in the basin include physical limitations and potential water quality issues.

### **Santa Rosa Valley Groundwater Basin**

Water users in the basin include the Cambria CSD and overlying rural and agricultural users. According to the 2012 Master Water Report, the primary constraints on water availability in the basin include physical limitations and potential water quality issues. The State Board allows a maximum extraction of 518 AFY in the Santa Rosa Valley Groundwater Basin and a maximum dry season extraction of 260 AF (Cambria CSD WMP, 2008). The California Coastal Commission defines the Santa Rosa Creek dry period as July 1 to November 20. In general, groundwater levels in the basin are typically highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. Because of these limitations, the groundwater basin is considered an unreliable source to meet existing demands during the dry season.

Due to the supply limitations of the San Simeon and Santa Rosa Valley Groundwater Basins, an alternative supply is necessary to meet existing seasonal deficits and future demands. Water conservation measures have been implemented and there is minimal opportunity to further reduce water demands. Further mandatory or emergency conservation would be used to off-set an emergency or reliability supply, not to support growth. Two water management strategies are likely the most feasible options to consider for Cambria CSD's future water supply:

- Desalination
- Recycled water

To meet the additional water supply needs and to increase water supply reliability, the Cambria CSD has constructed a seawater desalination plant to produce up to 602 AFY. The plant will

operate during the dry season to augment supply during that period of high demand. A decentralized recycled water program is also planned, with an estimated 180 AFY made available for unrestricted irrigation use. Other water management strategies include further conservation and land use management (includes low impact development and rainwater harvesting).

Table II-8 -- San Simeon Valley and Santa Rosa Valley Groundwater Basins Existing and Forecasted Water Supply and Demand			
Demand	Cambria CSD	Agriculture	Rural
Current Demand (AFY) <sup>1</sup>	555.1	640	100
Forecast Demand in 15 Years (AFY)	570.7	1,065	160
Forecast Demand in 20 Years (AFY)	583.2	1,206.7	180
Buildout Demand (30 Or More Years) (AFY)	1,009 – 1,514 <sup>2</sup>	740-1,490	190-220
Supply			
San Simeon Valley Basin (AFY)	1,230	Uncertain	Uncertain
Santa Rosa Valley Basin (AFY)	518	Uncertain	Uncertain
Total Supply:	1,748	Uncertain	Uncertain
<b>Water Supply Versus Forecast Demand</b>	Water demand for the basins projected over 15 years will equal or exceed the estimated dependable supply. <sup>3,4</sup>		

Sources: Water System Usage forms: July 2012 – June 2013; July 2013 – June 2014, San Luis Obispo County Master Water Report, 2012, Table 4.55

Notes:

1. See Table II-1. Current demand data for agriculture and rural are from 2012.
2. The low end of the demand range for Cambria CSD represents maintaining current conservation practices and is the lowest demand scenario from the district's water master plan.
3. Although the existing annual supply and demand indicates a surplus, the dry season extraction limit creates a seasonal supply deficit.
4. It is uncertain whether an agricultural or rural supply deficit exists. Future studies should determine which groundwater basins are used by the agricultural and rural water users.

Because of the limitations on dry weather extractions, the San Simeon Valley and Santa Rosa Valley Groundwater Basins are considered an unreliable source within the timeframes prescribed by the LOS criteria. Therefore, water demand projected over 15 years will equal or exceed the estimated dependable supply. **Recommended Level of Severity III**

### San Simeon/Cambria Area Water Systems

#### San Simeon CSD

San Simeon CSD has considered upgrading its wastewater treatment facility to use the treated effluent as recycled water for landscape irrigation and possibly commercial uses (not for

seawater intrusion barrier). By July 2012, the facility was producing Title 22 recycled water, but it will only be available to commercial trucks that connect to an on-site tank. The long-term plan is to construct a recycled water distribution system.

No significant water system limitations were identified. No recommended Level Of Severity.

### **Cambria CSD**

In an effort to enhance Cambria's major water and wastewater infrastructure and other key projects that protect the safety and quality of life for Cambrians, the CCSD has prioritized a number of Capital Improvement Projects (CIP) as well as the non-CIP Buildout Reduction Program (BRP).

The CSD continues to pursue construction of an emergency water supply by treating brackish groundwater. The water will go through several stages of treatment to remove solids, salt, organic chemicals and other contaminants so that it is safe to drink. It will then be re-injected into the aquifer's freshwater supply. The brackish water to be treated is a combination of creek underflow, percolated wastewater treatment plant effluent, and a mix of freshwater and seawater that is within a deeper saltwater wedge. The extracted brackish water will have salt concentrations much lower than that of pure seawater. The project's intake well and treatment plant will be at least one-half mile inland from the ocean.

The San Simeon Creek Road facility will produce approximately 300 gallons per minute of potable water. This is about 1.32 acre-feet per day or nearly 40 acre-feet per month. The plant is expected to run mainly during the dry months, supplying about 240 acre-feet of water in a six-month dry season. This is about one-third of the community's normal water consumption for a full year.

No significant water system limitations were reported. No recommended Level Of Severity.

## Cayucos Area Water Supply and Systems

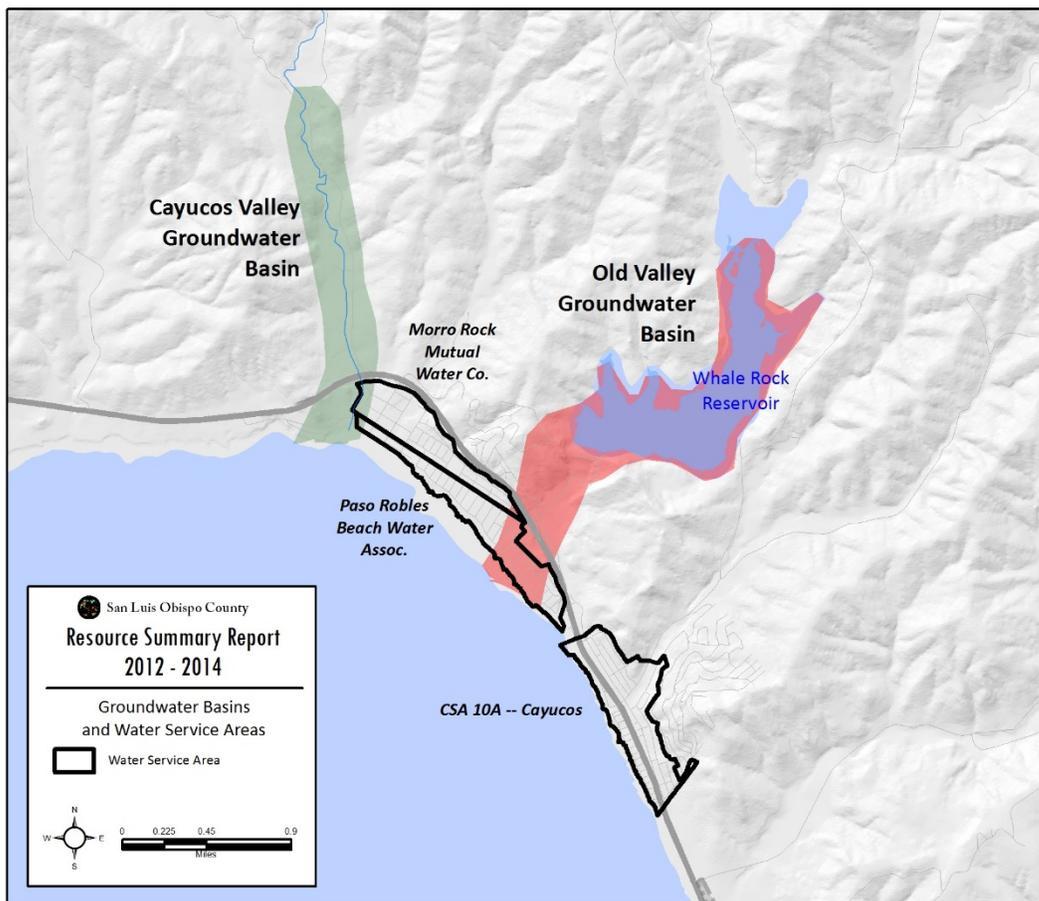


Figure II-5 – Groundwater Basins, Surface Water and Water Purveyors in the Cayucos Area

### Cayucos Valley Groundwater Basin

Constraints on water availability in this basin include both physical limitations and water quality issues. Water level and well capacity declines during drought will limit the availability of the resource, while in the lower valley area; sea water intrusion will be the primary constraint.

The Morro Rock Mutual Water Company and Paso Robles Beach Water Association service areas overlie a portion of the basin; however, these purveyors do not pump from the Cayucos Valley basin. No recommended Level Of Severity.

### Old Valley Groundwater Basin

Basin groundwater users downstream of Whale Rock reservoir include members of the Cayucos Area Water Organization, which include Morro Rock Mutual Water Company, Paso Robles Beach Water Association, CSA 10A, the Cayucos Cemetery District, and two landowners. The combined groundwater and Whale Rock Reservoir surface water allocation for CAWO in Old Valley is 600 AFY, distributed as follows:

- Morro Rock MWC: 170 AFY
- PRBWA: 222 AFY
- CSA 10A: 190 AFY (plus 25 AFY of San Luis Obispo’s entitlement via exchange for Lake Nacimiento water)
- CCD: 18 AFY
- Downstream land owners: 64 AFY

Constraints on water availability in this basin include physical limitations, water rights, and environmental considerations. Shallow alluvial deposits upstream of the reservoir are susceptible to drought impacts, having limited groundwater in storage. For the area below the reservoir, dam underflow may provide a source of recharge. Water agreements limit the amount of groundwater available to the members of CAWO and downstream landowners in Old Valley to the available sources. No recommended Level of Severity.

Whale Rock Reservoir allocations to CAWO members are sufficient to provide existing demands and meet forecast build-out demands. CSA 10A has procured an additional entitlement of 25 AFY through the Nacimiento Water Project. This water will be taken from the Whale Rock Reservoir in an exchange agreement with the City of San Luis Obispo. The agreement allows up to 90 AFY to be exchanged, which may be a way to address any future needs of the CAWO. Nacimiento Water Project water could be delivered to Morro Rock MWC or Paso Robles Beach Water Association as part of this arrangement.

Table II-9 -- Cayucos Valley and Old Valley Groundwater Basins Existing and Forecasted Water Supply and Demand						
Demand	Morro Rock MWC	Paso Robles Beach Water Assoc.	CSA 10A	Cayucos Cemetery District	Agriculture	Rural
Current Demand (AFY) <sup>1</sup>	115.4 <sup>1</sup>	149.9 <sup>1</sup>	110.1 <sup>1</sup>	Not provided	520	80
Forecast Demand in 15 Years (AFY)	118.6	154.1	115.1	16	660	110
Forecast Demand in 20 Years (AFY)	125.9	163.5	122.2	16	706.7	120
Buildout Demand (30 Or More Years) (AFY)	164-173	207-218	220-232	17-18	430-800	130-140
Supply						
Whale Rock Reservoir (Old Valley Basin)	170	222	190	18	64	0
Nacimiento Water Project	0	0	25-90	0	0	0
SWRCB Water Diversions	3 <sup>3</sup>	0	0	0	0	0
Cayucos Valley Basin	0	0	0	0	(4)	(4)
Total Supply:	173	222	215-280	18	Uncertain	Uncertain
<b>Water Supply Versus Forecast Demand</b>	Water demand for the basin projected over a period exceeding the LOS timeframe of 20 years will not equal or exceed the estimated dependable supply. Whale Rock					

	Reservoir allocations are sufficient to provide for forecast demand.
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Sources: Water System Usage forms: July 2012 – June 2013; July 2013 – June 2014, San Luis Obispo County Master Water Report, 2012, Table 4.56

Notes:

1. See Table II-1. Current demand data for agriculture and rural are from 2012. All data are as reported separately by purveyors in 2014. Not apportioned.
2. CSA 10A has procured 25 - 90 AFY of Nacimiento Water Project via exchange with City of San Luis Obispo for Whale Rock Reservoir water. Agreement provisions allow for up to 90 AFY of NWP if necessary. Nacimiento water could be delivered to Morro Rock MWC or Paso Robles Beach Water Association, as part of this arrangement.
3. Only 3 AFY is diverted for a school and park irrigation, but up to 56 AFY is the permitted diversion from Little Cayucos Creek underflow. 56 AFY is part of the 600 AFY safe basin yield for the Cayucos Valley Basin. Due to water quality, the remaining 53 AFY could be used for domestic supply following treatment.
4. Estimated safe basin yield is 600 AFY and the majority of pumping is for agricultural or rural users, but a small public water system does serve a mobile home park.

Staff of the Department of Planning and Building estimate that General Plan buildout for Cayucos is likely to be reached by the year 2044 (in 29 years) which is beyond the timeframe of the LOS criteria. Since the forecast build-out demands will push the CAWO members to their supply limit, an alternative supply should be developed as a reliability reserve over the next ten years. The most viable option for a reliability reserve supply is the NWP, since the existing agreement with CSA 10A allows up to 90 AFY to be exchanged.

The combination of full 90 AFY NWP exchange and emergency conservation measures would provide the CAWO members with a reliable supply for the next twenty or more years. Therefore, water demand projected over a period exceeding 20 years will not equal or exceed the estimated dependable supply. No recommended Level of Severity.

### **Cayucos Area Water Systems**

CSA 10A continues to make improvements to the overall water system to replace deteriorated and substandard waterlines and storage facilities. No significant water system limitations were reported by the other water purveyors. No recommended Level of Severity.

## Los Osos Water Supply and Systems

### Los Osos Groundwater Basin

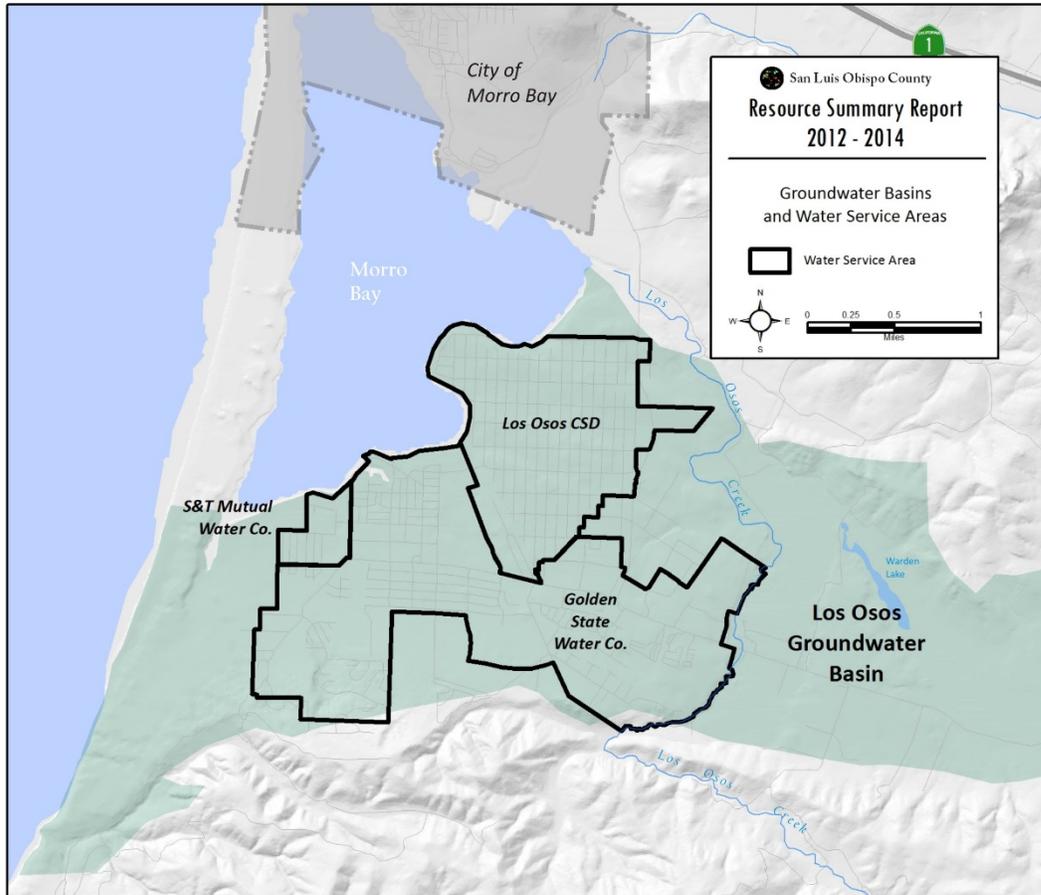


Figure II-6 – Los Osos Groundwater Basin and Water Purveyors Serving the Los Osos Area

Basin groundwater users in the Los Osos Valley basin include Golden State Water Company, S&T Mutual, the Los Osos Community Services District, and overlying private well users. Estimates of the safe yield of the groundwater basin have been developed for the current condition, with existing septic systems in place, and assuming no new water development. The safe yield estimate of the basin under current conditions is 3,200 AFY (ISJ Working Group, 2010).

According to the 2012 Master Water Report, the primary constraint on water availability in the Los Osos Valley Groundwater Basin is deteriorating water quality due to sea water intrusion and nitrate contamination. A wastewater collection, treatment and disposal system is currently under construction to address nitrate contamination of the basin.

The three local water purveyors (Golden State Water Company, S&T Mutual, the Los Osos Community Services District), along with the County of San Luis Obispo, are currently preparing a Basin Management Plan (BMP) under a court-approved Interlocutory Stipulated Judgment (ISJ Working Group). A draft of the BMP was published in August, 2013 and is being circulated for

public review and comment until December, 2014, and considers different scenarios for future water demand. The *No Further Development Scenario* assumes there is no future urban development beyond that which existed in 2010, the year of the most recent federal census. Policies of the County General Plan, the California Coastal Commission and the Regional Water Quality Control Board (RWQCB) will not allow additional development in Los Osos until the Basin is being managed on a sustainable basis. Thus the occurrence of any additional development is conditioned on the successful implementation of the BMP.

The *Buildout Development Scenario* assumes that future development in Los Osos follows the projections of the Draft Estero Area Plan (EAP). Those projections anticipate the population within the Urban Reserve Line (URL) for Los Osos to increase by roughly 35 percent through 2035, starting in 2016. Although the draft EAP for the Los Osos URL was not approved by the Coastal Commission because of water supply and other concerns, the projected level of development and population in the adopted EAP is widely considered to be unrealistic and likely to be revised downward as part of the Los Osos Community Plan update currently underway.

The No Further Development and Buildout Development Scenarios represent low and high marks for future urban water demand and the actual future demand will likely fall somewhere between these two scenarios and within the safe yield of the Basin as it changes with the implementation of the programs recommended by the Draft BMP. Programs being considered by the Draft BMP include the following:

**Groundwater Monitoring Program.** According to the Draft BMP, a comprehensive groundwater monitoring program is recommended to complete and consolidate data collection on groundwater resources in the Basin. The collected data will be used to inform Basin management decisions.

**Urban Water Use Efficiency Program.** According to the Draft BMP, improving urban water use efficiency is the highest priority program for balancing the Basin and preventing further seawater intrusion. More efficient urban water use will allow purveyors and well users to decrease the amount of groundwater extracted from the basin, thus ensuring that a sufficient amount of water remains to stabilize the freshwater-seawater interface.

**Urban Water Reinvestment Program.** In order to maximize the use of Basin resources, it is imperative that water used by urban consumers be reinvested in the hydrologic cycle in an appropriate manner. Accordingly, the Draft BMP promotes the increased use of recycled water for urban and agricultural water users. One of the key components of this program is implementation of the Los Osos Wastewater Project (LOWWP) expected to be completed and operating by 2016. To prevent the LOWWP from harming the Basin through additional seawater intrusion, conditions on the project require the LOWWP to reinvest all treated wastewater back into the Basin.

**Basin Infrastructure Improvements.** The Draft BMP recommends various infrastructure improvements to better manage the extraction, distribution, treatment and recycling of groundwater resources.

**Supplemental water Program.** The Draft BMP explores different options for developing sources of water other than water derived from the Basin. These sources include rainwater harvesting, stormwater capture, greywater reuse, and groundwater desalination.

Table II-10 -- Los Osos Groundwater Basin Existing and Forecasted Water Supply and Demand					
Demand	Los Osos CSD	S&T Mutual Water Co.	Golden State Water Co.	Agriculture	Rural
Current Demand (AFY)	645.1 <sup>1</sup>	Not Provided	649.8 <sup>1</sup>	3,290	20
Forecast Demand in 15 Years (AFY)	844.6	48	1,189.9	3,530	20
Forecast Demand in 20 Years (SFY)	911	64	1,369.9	3,610	20
Buildout Demand (30 Or More Years) (AFY)	835-1,044 <sup>2</sup>	77-96 <sup>2</sup>	1,384-1,730 <sup>2</sup>	2,750-3,770	20
Supply					
Los Osos Groundwater Basin	(3)	(3)	(3)	(3)	(3)
Total Supply:	(3)	(3)	(3)	(3)	(3)
<b>Water Supply Versus Forecast Demand</b>	Due to seawater intrusion and nitrate contamination, the groundwater basin remains an unreliable source to meet existing demand and water demand projected over 15 years will equal or exceed the estimated dependable supply. <sup>4</sup>				

Sources: Water System Usage forms: July 2012 – June 2013; July 2013 – June 2014, San Luis Obispo County Master Water Report, 2012, Table 4.58

Notes:

1. See Table II-1. Current year data for agriculture and rural are from 2012.
2. The low end of the forecast demand range assumes 20 percent additional conservation (beyond what has already been accomplished) at build-out of current general plan.
3. Estimated safe basin yield is 3,200 AFY and all pumping is for urban, agricultural or rural users. Purveyors have 2,100 AFY available for their use. The remaining 1,100 AFY is used for agricultural irrigation, private domestic use, and golf course irrigation (Los Osos Groundwater Basin Update, ISJ Working Group, May 4, 2010).
4. Development of the Basin Management Plan will evaluate and identify strategies to improve basin conditions.

Through the development of the BMP, the ISJ Working Group will be evaluating and identifying the management strategies to implement, in coordination with the County's wastewater project, in order to improve conditions in the basin. However, because of seawater intrusion and nitrate contamination, the groundwater basin remains an unreliable source to meet existing demand and water demand projected over 15 years will equal or exceed the estimated dependable supply. **Recommended Level of Severity III.**

### **Los Osos Area Water Systems**

Los Osos CSD continues to make improvements to the overall water system to replace deteriorated and substandard waterlines and storage facilities. No significant water system limitations were reported. No recommended Level of Severity.

Golden State Mutual Water Co. plans to invest more than \$2 million dollars in local infrastructure improvements in 2014. These improvements include water supply enhancements, distribution and ongoing improvements designed to replace old meters, mains and safety equipment. No recommended Level of Severity.

## Avila Beach and Avila Valley Water Supply and Systems

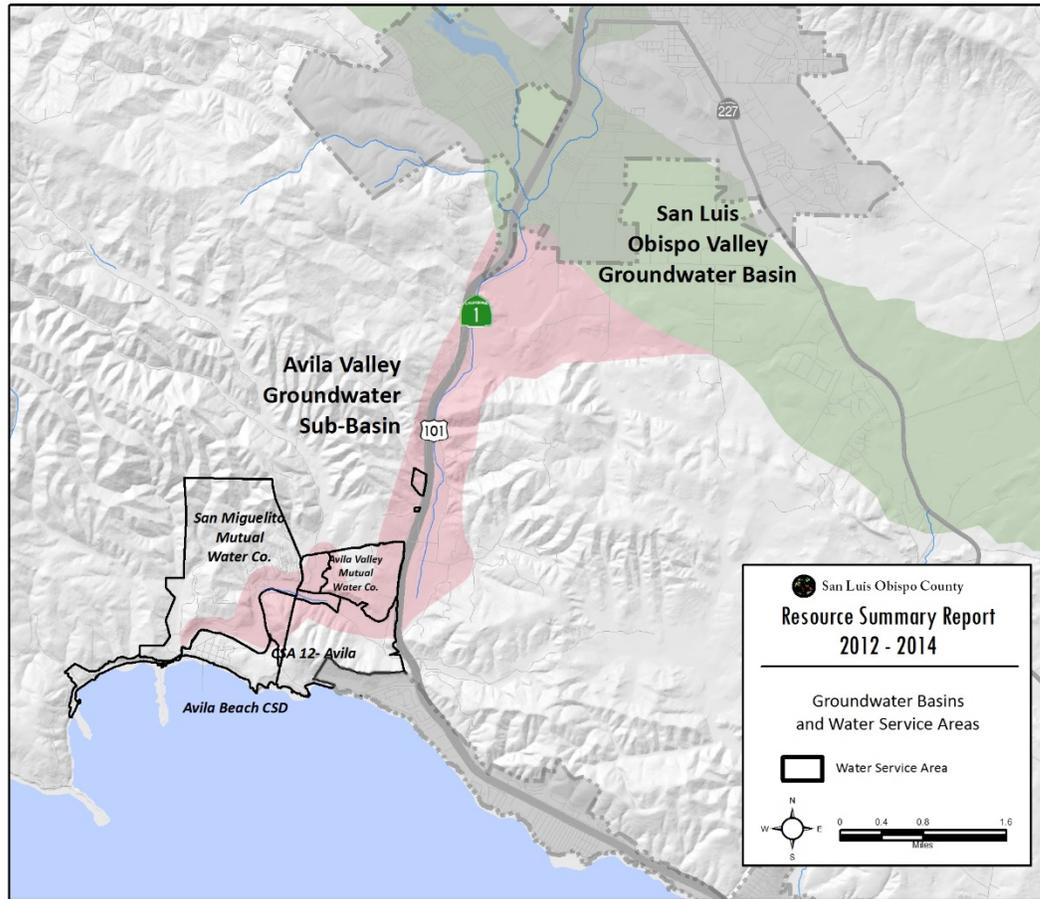


Figure II-7 -- Avila Valley Groundwater Sub-Basin and Water Purveyors

### San Luis Obispo Valley Groundwater Basin – Avila Valley Sub-basin

The Avila Valley Sub-basin serves urban development in the Avila Valley as well as overlying private well users. No basin yield numbers have been published for this sub-basin. The primary constraints on water availability in the Avila Valley Sub-basin are physical limitations and environmental demand. Shallow alluvial deposits are typically more susceptible to drought impacts. Releases from the City of San Luis Obispo Water Reclamation Facility into San Luis Obispo Creek significantly offset storage losses during drought, but are also intended to support steelhead habitat. Below the Marre Weir<sup>6</sup>, sea water intrusion is the primary constraint to water availability.

Water purveyors serving the area include the Avila Beach CSD, Avila Valley Mutual Water Co., San Miguelito Mutual Water Co., CSA 12 and Port San Luis. The San Luis Valley and Avila Valley Sub-basins do not provide a significant supply to the urban users when compared to surface

<sup>6</sup> The Marre Weir, located at the San Luis Obispo Creek Estuary is a metal sheet pile structure that spans the width of San Luis Obispo Creek. The purpose of the weir is to prevent saltwater incursion into the groundwater upstream. This groundwater is a principle water source for the adjacent housing development.

water supplies. The primary constraints on water availability include physical limitations, water quality issues, and environmental demand.

The State Water Project provides water to the Avila Beach CSD, Avila Valley MWC, San Miguelito MWC, and CSA 12. The SWP is considered a supplementary source of water since hydrologic variability, maintenance schedules, and repair requirements can cause reduced deliveries or complete shutdown of the delivery system. Since delivery to the Central Coast began, the SWP has provided between 50 and 100 percent of the contracted allocations, but recently, the drought coupled with pumping restrictions in consideration of endangered species habitat lowered that amount to 35 percent in 2008 and 40 percent in 2009. Lopez Lake Reservoir supplies water to Avila Beach CSD, Avila Valley MWC, and CSA 12.

According to the 2010 Master Water Report, the Avila Valley Sub-basin does not provide a significant supply to the urban users in the area when compared to surface water supplies (the State Water Project). The shallow alluvial deposits are typically more susceptible to drought impacts. Elevated nitrates are a constraint for drinking water availability in the Avila Valley Sub-basin. The reliability of the sub-basin to supplement surface supplies is uncertain because:

- The safe yield of the basin is unknown;
- Considerable variability in water deliveries from the State Water Project;

### **San Luis Obispo Valley Groundwater Basin – Edna Valley Sub-basin**

The Edna Valley Sub-basin serves limited urban development as well as overlying private well users. Water purveyors in the Edna Valley include Golden State Water Company. The primary constraints on water availability in the Edna Valley portion of the basin are physical limitations and environmental demand. Lowering groundwater levels due to production in the basin may impact base flows to Pismo Creek, which support steelhead habitat.

According to the 2010 Master Water Report, the estimated safe yield of the sub-basin is 4,000 AFY (DWR 1997). The primary constraints on water availability in the Edna Valley portion of the basin are physical limitations and environmental demand. Lowering groundwater levels due to production in the basin may impact base flows to Pismo Creek, which support steelhead habitat. The reliability of the sub-basin is uncertain in part because future demand associated with rural and agricultural users in the sub-basin is unknown. However, the relatively small population served when compared with the safe yield of the aquifer suggests that the sub-basin will remain a reliable source. No recommended Level of Severity.

Table II-11 – San Luis Obispo Valley Groundwater Basin – Avila Valley and Edna Valley Sub-basins Existing and Forecasted Water Supply and Demand								
Demand	Avila Beach CSD	Avila Valley MWC	San Miguelito MWC	CSA 12	Port San Luis	Golden State Water Co. (Edna Valley)	Agriculture	Rural
Current Demand (AFY)	86.6 <sup>1</sup>	48.1 <sup>1</sup>	179.5 <sup>1</sup>	68 <sup>2</sup>	35 <sup>2</sup>	286.8 <sup>1</sup>	3,610	450
Forecast Demand in 15 Years (AFY)	107.5	44.1	232.9	68	35	335.6.4	3,865	555
Forecast Demand in 20 Years (AFY)	128.3	40.1	286.3	68	35	372.2	3,950	590
Buildout Demand (30 Or More Years) (AFY)	162-170 <sup>3</sup>	30-32 <sup>3</sup>	373-393 <sup>3</sup>	65-68 <sup>3</sup>	33-35 <sup>3</sup>	434-482	2,810-4,120	610-660
Supply								
State Water Project <sup>4</sup>	66 <sup>5</sup>	20	275	7 <sup>6</sup>	0	0	0	0
Lopez Lake Reservoir	68	12	0	61	100	0	0	0
Avila Valley Sub-Basin <sup>7</sup>	0	Uncertain	118	Uncertain <sup>8</sup>	0	0	Uncertain <sup>9</sup>	Uncertain <sup>9</sup>
Edna Valley Sub-Basin	0	0	0	0	0	410	Uncertain <sup>10</sup>	Uncertain <sup>10</sup>
Total Supply:	134	32	393	68	100	410	Uncertain	Uncertain
<b>Water Supply Versus Forecast Demand</b>	Water demand projected over 20 years will not equal or exceed the estimated dependable supply. This is due primarily to a lack of information regarding the safe yield of the sub-basin.							

Sources: Water System Usage forms: July 2012 – June 2013; July 2013 – June 2014, San Luis Obispo County Master Water Report, 2012, Table 4.59

Notes:

1. See Table II-1. Current year data for agriculture and rural are from 2012.
2. 2011 data.
3. The low end of the forecast demand range assumes 5% additional conservation (beyond what has already been accomplished) at build-out for all urban users.
4. State Water Project average allocation assumed 66 percent of contract water service amount.
5. Avila Beach CSD has a 100 AFY allocation, but no drought buffer. Therefore, the 66 percent assumption for State Water Project delivery is 66 AFY.
6. Seven (7) AFY of SWP water allocated to the San Luis Coastal Unified School District.
7. No basin yield numbers have been published for the Avila Valley Sub-basin.
8. Individual water users within CSA 12 boundary could request an exemption to install a private well and pump water from the Avila Valley Sub-basin. It is unknown the number of users with private wells, but it is likely minimal.
9. No basin yield numbers have been published for the Avila Valley Sub-basin.

10. Estimated safe basin yield is 2,000 AFY and all pumping is for urban, agricultural or rural users. The City of San Luis Obispo's use is approximately 100 AFY, but the City does not consider their 500 AFY share of the safe yield as part of its water resource availability. The remaining 1,500 AFY is available for other urban users, agricultural irrigation, and private domestic use.

**Recommended Levels of Severity:**

San Luis Obispo Valley Groundwater Basin – Avila Valley Sub-basin. There is uncertainty regarding the safe yield of the Avila Valley Sub-basin. A conservative forecast of future demand for urban users suggests that the available supply will be equaled or exceeded at General Plan buildout. Staff of the Department of Planning and Building estimate that General Plan buildout is likely to be reached by the year 2047 (in 32 years) which is beyond the 20 year timeframe of the LOS criteria. Therefore, water demand projected over 20 years will not equal or exceed the estimated dependable supply. No recommended Level of Severity. However, this is due primarily to a lack of information regarding the safe yield of the sub-basin.

San Luis Obispo Valley Groundwater Basin – Edna Valley Sub-basin. Water demand projected over 20 years will not equal or exceed the estimated dependable supply. No recommended Level of Severity.

**Avila Beach and Avila Valley Water Systems**

No significant water system limitations were reported. No recommended Level of Severity.

## Oceano/Nipomo Area Water Supply and Water Systems

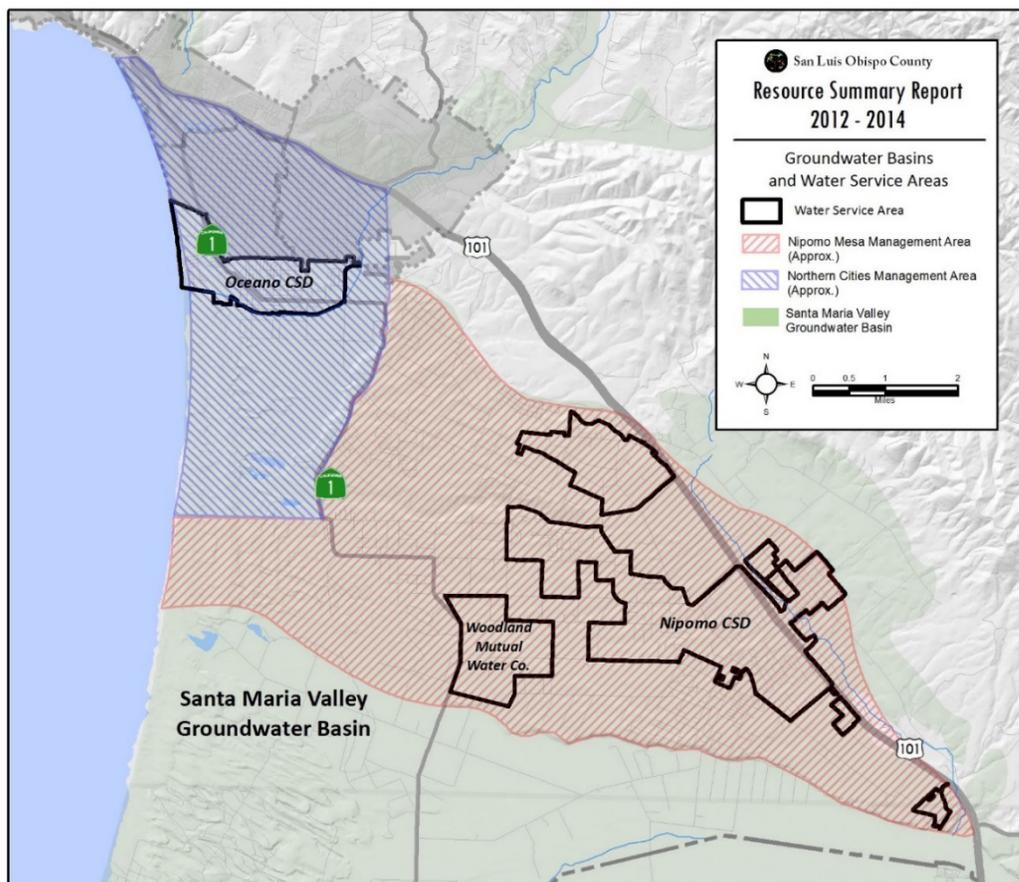


Figure II-8 -- Santa Maria Valley Groundwater Basin, Management Areas and Water Purveyors

### Santa Maria Valley Groundwater Basin

The Santa Maria Valley groundwater basin underlies the Santa Maria Valley in the coastal portion of northern Santa Barbara and southern San Luis Obispo Counties and serves urban users as well as overlying well users. The basin also underlies Nipomo and Tri-Cities Mesas, Arroyo Grande Plain, with sub-basins in the Nipomo, Arroyo Grande and Pismo Creek Valleys.

There are two boundaries currently in use for this basin, one defined by the California Department of Water Resources (DWR) and one defined by the Superior Court of California. The court-defined boundary was developed by a technical committee for use in basin adjudication. Three sub-basins have also been identified in San Luis Obispo County that are separated from the main basin by the Wilmar Avenue fault and are outside the area of adjudication. These are the Pismo Creek Valley (1,220 acres), Arroyo Grande Valley (3,860 acres), and Nipomo Valley (6,230 acres) Sub-basins.

The Santa Maria Valley Groundwater Basin has been adjudicated. In 2005, the Superior Court of California entered a Judgment for a basin-wide groundwater litigation case that defined three

basin management areas. These management areas are the Northern Cities Management Area (NCMA), the Nipomo Mesa Management Area (NMMA), and the Santa Maria Valley Management Area (SMVMA).

### Northern Cities Management Area

The Northern Cities Management Area (NCMA) is part of the Santa Maria Valley Groundwater Basin adjudicated area. The Oceano CSD is the only water purveyor serving the unincorporated County. The 2002 Groundwater Management Agreement (the “gentlemen’s agreement”) among the Northern Cities which includes the cities of Arroyo Grande, Pismo Beach and Grover Beach, along with the Oceano CSD, allocates an assumed safe yield of 9,500 AFY. The safe yield included subdivisions for agricultural irrigation (5,300 AFY), subsurface flow to the ocean (200 AFY) and urban uses (4,000 AFY). It also provided that urban groundwater allocations can be increased when land within the incorporated boundaries is converted from agricultural uses to urban uses, referred to as an agricultural conversion credit, or “ag credit.” The 2010 Annual Report for the Northern Cities Management Area (NCMA) summarizes the groundwater allocations for the Northern Cities as follows:

Table II-12 -- Allocation of Water Among Parties to The 2002 Northern Cities Management Agreement			
Urban Area	Allotment (AFY)	Ag Credit (AFY)	Total (AFY)
Arroyo Grande	1,202	112	1,314
Grover Beach	1,198	209	1,407
Pismo Beach	700	0	700
Oceano CSD	900	0	900
Total:	4,000	321	4,321

Source: San Luis Obispo County Master Water Report, 2012, page 4-30

The Arroyo Grande Plain Hydrologic Sub-area (part of the Santa Maria Valley Groundwater Basin) provides from 30 to 100 percent of the water supply for the urban users. The only water purveyor serving the unincorporated areas of the Northern Cities Management Area is the Oceano CSD. However, the groundwater extraction rights are shared by agreement with Pismo Beach, the City of Arroyo Grande, the City of Grover Beach, and the Oceano CSD. As party to the Santa Maria Valley Groundwater Basin litigation, extraction rights may be increased or decreased at a future date. Groundwater availability in the NCMA is primarily constrained by water quality issues and water rights. The major purveyors have agreed to share the water resources through a cooperative agreement that also sets aside water for agricultural use and for basin outflow, although the amount allocated for basin outflow has been deemed unreasonably low (Todd, 2007). Following the detection of evidence of seawater intrusion in 2009, the NCMA water purveyors worked cooperatively with each other and the County to reduce groundwater pumping.

Water availability in the NCMA is primarily constrained by water quality issues and water rights. Basin sediments in the management area extend offshore along several miles of coastline, where sea water intrusion is the greatest potential threat to the supply. Low coastal groundwater levels indicated a potential for seawater intrusion that was locally manifested in

senry wells 32S/13E N02 and N03 in 2009 after 3 dry years, with levels and water quality improving after an average rainfall year in 2010. The major purveyors have agreed to share the water resources through a cooperative agreement that also sets aside water for agricultural use and for basin outflow. Following the detection of evidence of seawater intrusion in 2009, the NCMA water purveyors worked cooperatively with each other and the District to reduce groundwater pumping. This approach included the following management strategies:

- Increased surface water use through delivery of surplus supplies from Lopez reservoir
- Expanded conservation programs and customer education
- Negotiations to secure an emergency allocation of additional State Water Project supplies, if needed
- Hydraulic evaluation and maintenance of the Lopez pipeline
- Increased groundwater monitoring
- Expanded regional cooperation

Going forward, the NCMA water purveyors plan to implement several initiatives to improve the long-term sustainability of their water supplies. These initiatives could include:

- Development of a groundwater model for the Santa Maria Valley Groundwater Basin
- Pursuit of additional permanent and emergency allocations of State Water Project supplies
- Enhanced conjunctive use of the groundwater basin
- Regional recycled water projects

Oceano CSD maintains adequate supply to meet existing and forecast build-out demands. With sufficient conservation, Oceano CSD should have adequate supply to not only meet its customer's needs, but also maintain a reliability supply. Oceano CSD's participation in the County's drought buffer program for State Water would improve water supply reliability in the event of drastic cut backs in State Water Project supplies.

Water demand projected over 20 years will not equal or exceed the estimated dependable supply for the Northern Cities Management Area. No recommended Level of Severity.

Table II-13 – Santa Maria Groundwater Basin -- Northern Cities Management Area Existing and Forecasted Water Supply and Demand			
Demand	Oceano CSD	Agriculture	Rural
Current Demand (AFY)	832.8 <sup>1</sup>	2,056	38
Forecast Demand in 15 Years (AFY)	909.5	2,399	38
Forecast Demand in 20 Years (AFY)	973.9	2,513	38
Buildout Demand (30 Or More Years) (AFY)	1,277 -1,419 <sup>2</sup>	2,742	38
Supply			
State Water Project (AFY) <sup>3</sup>	495 <sup>4</sup>	0	0
Lopez Lake Reservoir (AFY)	303	0	0
Santa Maria Valley Groundwater Basin -- Arroyo Grande Plain Sub-Area (AFY) <sup>5</sup>	900	5,300 <sup>7</sup>	36
Transfers <sup>6</sup>	-100	0	0
Total Supply:	1,598	Uncertain	Uncertain
<b>Water Supply Versus Forecast Demand</b>	Water demand projected over 20 years will not equal or exceed the estimated dependable supply. <sup>8</sup>		

Sources: Water System Usage forms: July 2012 – June 2013; July 2013 – June 2014, San Luis Obispo County Master Water Report, 2012, Table 4.60

Notes:

1. See Table II-1. Current year data for agriculture and rural are from 2012.
2. Ten percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand, except for Grover Beach, which assumed 20% additional reduction.
3. State Water Project average allocation assumed 66 percent of contract water service amount.
4. Oceano CSD has a 750 AFY allocation, but no drought buffer. Therefore, the 66 percent assumption for State Water Project delivery is 495 AFY.
5. Safe yield of 9,500 AFY with subdivisions for applied irrigation (5,300 AFY), subsurface outflow to the ocean (200 AFY), and urban use (4,000 AFY). The 2002 Groundwater Management Agreement safe yield allotment for urban use is broken down per the number shown.
6. Arroyo Grande has an active agreement to purchase 100 AFY of Oceano CSD supplies from groundwater or Lopez Lake water. This temporary agreement ends in 2014.
7. Safe yield of 9,500 AFY with subdivisions for applied irrigation (5,300 AFY), subsurface outflow to the ocean (200 AFY), and urban use (4,000 AFY). The 2002 Groundwater Management Agreement safe yield allotment for urban use is broken down per the numbers shown.
8. NCMA cities, NMMA cities, County, District, and local land owners actively and cooperatively manage surface and groundwater with the goal of preserving the long-term integrity of water supplies in the NCMA and NMMA.

### Nipomo Mesa Management Area

Groundwater is pumped from the Nipomo Mesa Hydrologic Sub-area that is part of the Santa Maria Valley Groundwater Basin. Litigation involving use of this groundwater basin, which began in 1997, has resulted in stipulations and judgments in 2005 and 2008. As party to the Santa Maria Groundwater Basin litigation, extraction rights for Golden State Water Company, Rural Water Company, Woodlands Mutual Water Co., ConocoPhillips and Nipomo CSD may be affected at a future date. In addition, the stipulated judgment required these users (except for ConocoPhillips) to develop alternative sources to import a minimum of 2,500 AFY. The primary

constraints on water availability in the NMMA are physical limitations to the east, water quality on the west, and water rights.

Even with additional conservation measures in place, Golden State Water Company, Rural Water Company, Woodlands MWC, and Nipomo CSD could experience supply deficits if groundwater is insufficient to meet increases in demands. To address this need, recycled water, investigating other groundwater supply sources, and increasing delivery from the Nipomo Supplemental Water Project (discussed below) are considered the most feasible water management strategy options to consider implementing.

Nipomo Supplemental Water Project. The Nipomo CSD has investigated multiple sources of supplemental water and, as a result, signed an agreement with the City of Santa Maria to pursue an intertie project. The January 5, 2010 Wholesale Water Supply Agreement established the basis for purchase and delivery of water from the City to the Nipomo CSD. The project is currently under construction. When completed, it will be capable of delivering up to 3,000 AFY and could be completed in two and a half years. Once the supplemental water system is in place, Nipomo CSD will be required to purchase 2,167 AFY of that supply. Three other water purveyors, Woodlands MWC, Golden State Water Company, and Rural Water Company will share in the project costs and will together receive one-third of the mandated minimum water delivery (833 of 2,500 AFY). The additional 500 AFY capacity has been reserved for use by the Nipomo CSD for infill but no annexations or General Plan Amendments may use this water. Additional water via the City of Santa Maria (if possible), desalination and recycled water are also being considered as a long-term alternative source for the Nipomo CSD and others in the region.

Although the Santa Maria Groundwater Basin has been adjudicated, the potential for shortfalls to purveyors and overlying users that continue to rely primarily on groundwater remains. The NMMA, the County, and local land owners actively and cooperatively manage surface and groundwater with the goal of preserving the long-term integrity of water supplies in the NMMA. However, uncertainties remain about the reliability of water resources serving the Nipomo Mesa Management Area.

Water demand projected over 15 years is projected to equal or exceed the estimated dependable supply. **Recommended Level of Severity III.**

Table II-13 -- Santa Maria Valley Groundwater Basin – Nipomo Mesa Management Area Existing and Forecasted Water Supply and Demand				
Demand	Nipomo CSD	Woodlands Mutual Water Co.	Agriculture	Rural
Current Demand (AFY) <sup>1</sup>	2,517.0	849.3	3,800	1,700
Forecast Demand in 15 Years (AFY)	2,790.5	895.6	4,050	1,700
Forecast Demand in 20 Years (AFY)	2,906.3	932.8	4,133.3	1,700
Buildout Demand (30 Or More Years) (AFY)	2,984 <sup>2</sup>	1,440-1,600 <sup>2</sup>	3,800-4,300	1,700
Supply				
State Water Project (AFY) <sup>3</sup>	0	0	0	0
Lopez Lake Reservoir (AFY)	0	0	0	0
Santa Maria Valley Groundwater Basin -- Arroyo Grande Plain Sub- Area (AFY) <sup>4</sup>	0	0	0	0
Transfers <sup>5</sup>	0	0	0	0
Nipomo Supplemental Water Project (AFY) <sup>6</sup>	2,157	417	0	0
Santa Maria Valley Groundwater Basin -- Nipomo Mesa Sub-Area (AFY)	457	365	4,300	1,700
Recycled Water (AFY)	60-74	24-28	0	0
Total Supply:	2,698	810	Uncertain	Uncertain
<b>Water Supply Versus Forecast Demand</b>	Water demand projected over 15 years is projected to equal or exceed the estimated dependable supply. <sup>7</sup>			

Sources: Water System Usage forms: July 2012 – June 2013; July 2013 – June 2014, San Luis Obispo County Master Water Report, 2012, Table 4.60

Notes:

1. See Table II-1. Current year data for agriculture and rural are from 2012.
2. Ten percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand, except for Grover Beach, which assumed 20% additional reduction.
3. State Water Project average allocation assumed 66 percent of contract water service amount.
4. Safe yield of 9,500 AFY with subdivisions for applied irrigation (5,300 AFY), subsurface outflow to the ocean (200 AFY), and urban use (4,000 AFY). The 2002 Groundwater Management Agreement safe yield allotment for urban use is broken down per the number shown.
5. Arroyo Grande has an active agreement to purchase 100 AFY of Oceano CSD supplies from groundwater or Lopez Lake water. This temporary agreement ends in 2014.
6. Nipomo supplemental water project includes Nipomo CSD, Woodlands MWC, Golden State Water Company, and Rural Water Company. Nipomo CSD will receive approximately 1,667 AFY and has reserved an additional 500 AFY. The other three will receive 833 AFY.
7. The NCMA cities, NMMA cities, County, District, and local land owners actively and cooperatively manage surface and groundwater with the goal of preserving the long-term integrity of water supplies in the NCMA and NMMA.

### **Oceano/Nipomo Area Water Systems**

Nipomo CSD is currently constructing the Supplemental Water Project, described above. No other significant water system improvements or limitations were reported. No recommended Levels of Severity.

## Santa Margarita Area Water Supply and Systems

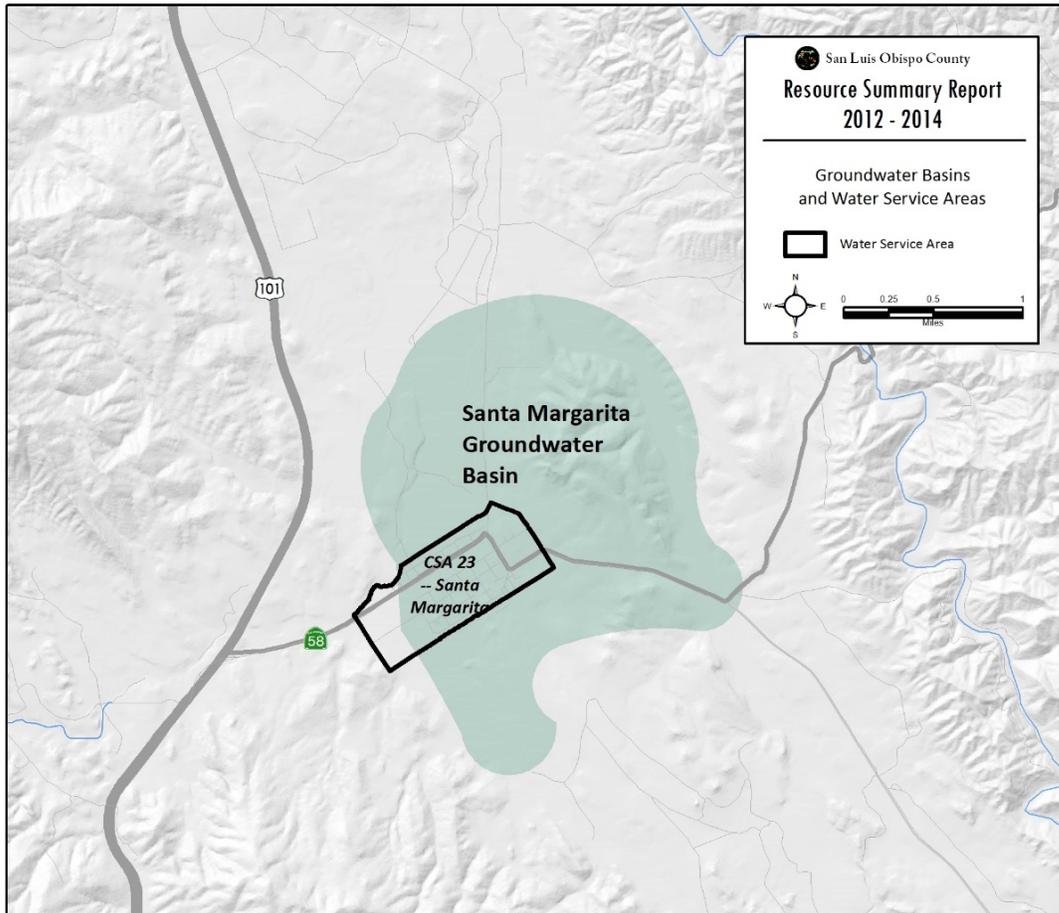


Figure II-9 -- Santa Margarita Valley Groundwater Basin and CSA 23

### Santa Margarita Valley Groundwater Basin

The Santa Margarita Valley Groundwater Basin includes the unincorporated town of Santa Margarita and surrounding rural residences and agricultural fields. The total drainage area associated with the basin consists of four watersheds that collectively drain in the northerly direction into the Salinas River. Water users in the Santa Margarita area include the unincorporated town of Santa Margarita and overlying users. Santa Margarita Ranch is primarily an agricultural operation, but residential subdivisions are approved on the Ranch.

The primary constraint on water availability in the Santa Margarita Valley Groundwater Basin are physical limitations. No comprehensive studies to determine the perennial yield are known to exist. Based on an evaluation of available data used for the Santa Margarita Ranch Environmental Impact Report, however, Hopkins (2006) indicated that the average annual yield of the basin in the vicinity of the proposed Santa Margarita Ranch development may be in the range of 400 to 600 AFY.

Although the Santa Margarita Creek alluvial aquifer serves as the primary source of water for the town of Santa Margarita, there is no safe yield estimate. Although the alluvial aquifer is considered to be highly productive, it is shallow in vertical extent (i.e., 50 feet thick) and therefore highly susceptible to seasonal fluctuations in groundwater levels of about 15 to 20 feet. During dry water years or extended droughts, well yields may be significantly reduced due to low groundwater levels (Todd, 2004). Recharge in the shallow alluvial deposits for a particular year is dependent on rainfall, creek stream flows, and precipitation runoff generated in the four watersheds. Wells developed in the deeper Santa Margarita Formation generally do not have sufficient yields to reliably replace the wells in the alluvial aquifer. Hydrographs of deep wells in the area indicate that groundwater levels have been trending downward for at least the last decade (Hopkins, 2006). Therefore, a conservative estimate of the reliable yield from the Santa Margarita Creek alluvial aquifer (164 AFY) has been used as the available groundwater supplies serving CSA 23 and the Santa Margarita Ranch.

Population projections prepared by staff of the Department of Planning and Building suggest that the current population of the community of Santa Margarita is about 1,273 (Table I-I). Assuming the 2014 per capita demand continues into the future, the safe yield of the Santa Margarita Creek alluvial aquifer will be reached by the year 2025 when the population is projected to reach 1,328. It should be noted that future per capita demand will likely be greater than in 2014 because of water conservation efforts imposed as a result of drought conditions which have persisted over the past three years. Water demand projected over 15 years is expected to equal or exceed the estimated dependable supply. **Recommended Level of Severity III.**

Table II-14 -- Santa Margarita Groundwater Basin Existing and Forecasted Water Supply and Demand				
Demand	CSA 23	Santa Margarita Ranch	Agriculture	Rural
Current Demand (AFY) <sup>1</sup>	157.2	1,621	1,770	240
Forecast Demand in 15 Years (AFY)	167.7	3,755.5	2,225	380
Forecast Demand in 20 Years (AFY)	170.5	4,467	2,376.7	426.7
Buildout Demand (30 Or More Years) (AFY)	173-192 <sup>2</sup>	5,301-5,890	1,720-2,680	450-520
Supply				
San Margarita Valley Groundwater Basin (AFY) <sup>3</sup>	164	1,621	Uncertain	Uncertain
SWRCB Water Diversions	0	22	(4)	(4)
Total Supply:	164	1,643	Uncertain <sup>5</sup>	Uncertain <sup>5</sup>
<b>Water Supply Versus Forecast Demand</b>	Water demand projected over 15 years is expected to equal or exceed the estimated dependable supply. <sup>6</sup>			

Sources: Water System Usage forms: July 2012 – June 2013; July 2013 – June 2014, San Luis Obispo County Master Water Report, 2012, Table 4.65

Notes:

1. See Table II-1. Current year data for agriculture and rural are from 2012.

2. Ten percent water conservation assumed for the low end of the forecast build-out demand. Although the existing annual supply and demand indicates a surplus, the dry season extraction limit creates a seasonal supply deficit.
3. Although some reports indicate an average annual yield may range between 400 to 600 AFY, no comprehensive studies to determine the perennial yield are known to exist. Therefore, a conservative estimate of the reliable yield from the Santa Margarita Creek alluvial aquifer has been used as the available groundwater supplies serving CSA 23 and the Santa Margarita Ranch.
4. Diversions do not distinguish type of use. Potentially 417 AFY could be diverted for use to either agriculture or rural residential.
5. It is uncertain which basins are used and the quantity of water pumped from each basin. Future studies should invest the resources to quantify the location of and use within each basin.
6. It is likely that a deficit exists because the combined existing urban, agricultural, and rural demands exceed the Santa Margarita Valley basin yield/storage.

### **Santa Margarita Area Water Systems**

In 2012, the County considered the construction of a physical connection between an existing water transmission pipeline (the State water pipeline) which is a component of the State Water Project and the existing local water distribution system of CSA 23. The purpose of the project (the Santa Margarita Emergency Intertie Project) was to provide properties within an assessment district access to a reliable supply of water in the event of a drought of sufficient duration and severity which would render the existing groundwater supply insufficient. Environmental review was completed in 2013 and funding options are being investigated. No recommended Levels of Severity.

## Templeton/San Miguel/Shandon Water Supply and Systems

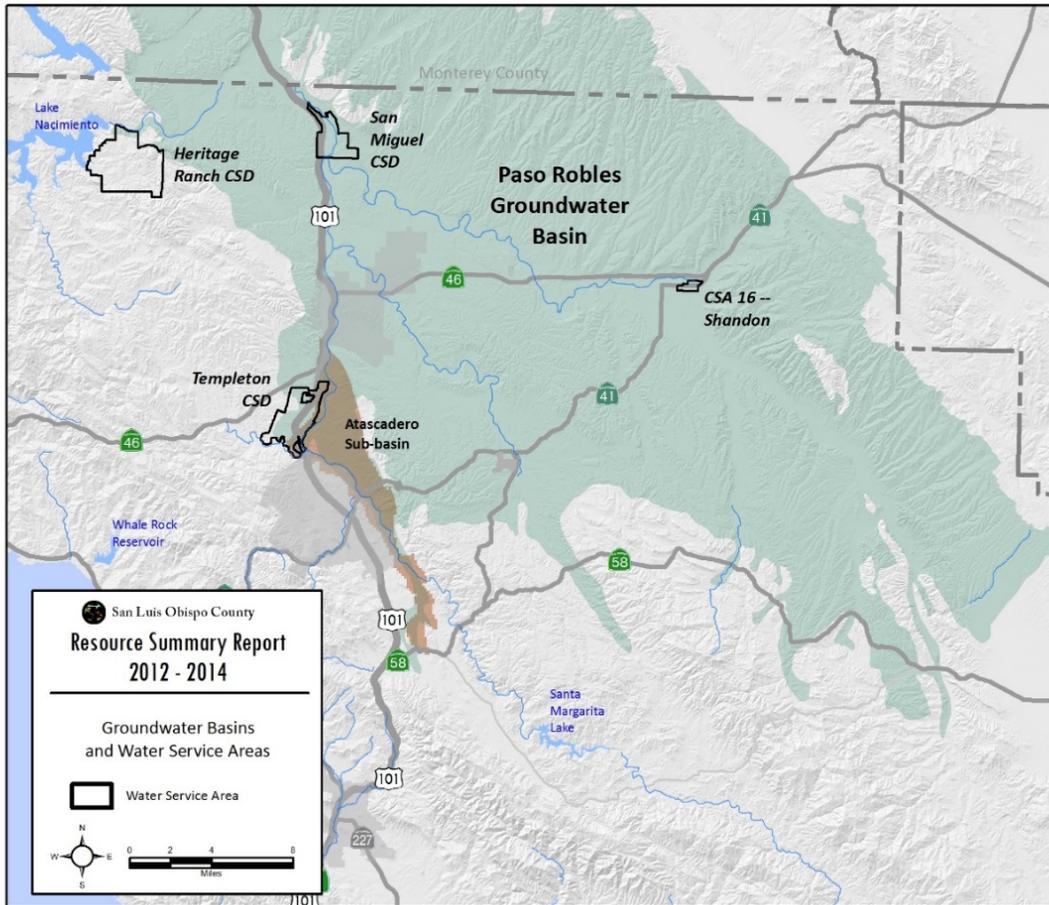


Figure II-10 -- Paso Robles Groundwater Basin, Atascadero Sub-basin and Water Purveyors

### Paso Robles Groundwater Basin

The Paso Robles Groundwater Basin is located in both Monterey and San Luis Obispo counties and is 505,000 acres (790 square miles) in size. The basin ranges from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon.

Water purveyors serving the unincorporated County include the San Miguel CSD and CSA 16 which serves the Shandon area. Groundwater from the Paso Robles Groundwater Basin is the primary source of water; CSA 16 has an allocation of 100 AFY of State Water Project water (but no drought buffer), but has not developed this supply due to high cost.

Portions of the Paso Robles Groundwater Basin have experienced significant water level declines over the past 15 to 20 years (Todd 2007, Todd 2009). The area of particular concern is the Estrella subarea, primarily from the eastern part of the City of Paso Robles, eastward along the Highway 46 corridor to Whitley Gardens.

The following is a chronology of key events in the ongoing management of the Paso Robles Groundwater Basin:

- In 2005, the County, City of Paso Robles, CSA 16 – Shandon, San Miguel CSD, and approximately 20 landowners organized as the Paso Robles Imperiled Overlying Rights (PRIOR) group to participate in the Paso Robles Groundwater Basin Agreement (Agreement). Key elements of the Agreement are a clear acknowledgement that the Paso Robles Groundwater Basin was not in overdraft at the time of the agreement, and that the parties will not take court action to establish any priority of groundwater rights over another party as long as the Agreement is in effect. In addition, the parties agree to participate in a meaningful way in groundwater management activities, and to develop a plan for monitoring groundwater conditions in the groundwater basin.
- A Resource Capacity Study was completed in 2011 for the “area of concern” where groundwater levels have experienced significant declines. The RCS concluded that the groundwater basin is approaching or has reached its perennial yield. The RCS recommended groundwater monitoring, water conservation, and land use measures to address groundwater demand.
- On August 28, 2012 the Board of Supervisors awarded a contract to Geoscience, Inc. to update the computer model for the Basin. The scope of work for the project includes:
  - Updating the model to extend the period covered from 1981-1997 to 1981-2011
  - Refining the perennial (safe) yield for the Basin
  - Assessing the model input parameters that have the greatest effects on the model's simulation results to determine the certainty of model predictions
  - Evaluating the Basin's response to "growth" and "no-growth" scenarios projected over the period 2011 to 2041 (i.e. simulating how water levels would change)
- The Paso Robles Groundwater Basin Urgency Ordinance (Ordinance) was adopted on August 27, 2013. The emergency ordinance established a moratorium on new or expanded irrigated crop production, conversion of dry farm or grazing land to new or expanded irrigated crop production, as well as new development dependent upon a well in the Paso Robles Groundwater Basin unless such uses offset their total projected water use by a ratio of 1:1.
- In September, 2014 Assembly Bill 2453 (Achadjian) was signed into law amending Section 37900 of the California Water Code. The bill provides for the formation of the *Paso Robles Basin Water District* to provide a governmental framework for the management of groundwater resources within the basin. The district would be formed in accordance with the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 and the boundaries would be established by the San Luis Obispo County Local Agency Formation Commission (LAFCo). The bill authorizes the district to develop, adopt, and implement a groundwater management plan to control extractions from the Paso Robles Groundwater Basin.

- A Draft Final Report for the Paso Robles Groundwater Basin Computer Model Update was distributed for public review and comment on November 13, 2014. Key outcomes of the model update and calibrations include the following:
  - Updated Perennial Yield Estimate for the Basin. The period of 1982 to 2010 is representative of the historical average rainfall in the Basin area. The updated estimate for the perennial yield based on that period is 89,648 acre-feet per year (AFY). For the period of 1981 to 2011, outflows exceeded inflows to the Basin by 2,473 AF on an average annual basis (i.e. more water left the Basin than was replenished). This is updated from the preliminary results presented in December 2013, which were 89,200 AFY and 2,900 AF, respectively.
  - Future Year Simulations. The model was run to evaluate the Basin's response to "no-growth" and "growth" scenarios projected over a future thirty year period. The no-growth scenario projects that outflows would exceed inflows on an average annual basis over the thirty year period by 5,592 AFY. The growth scenario projects that outflows would exceed inflows on an average annual basis over the thirty year period by 20,900 AFY.

Preliminary results of the groundwater computer model suggest that outflows from the basin currently exceed inflows. County staff are currently (December, 2014) developing recommendations for consideration by the Board of Supervisors at its January 6, 2014 meeting. The formation of a groundwater management district is currently being considered by the various affected parties and LAFCo. In the meantime the emergency ordinance remains in effect. Water demand projected over 15 years will equal or exceed the estimated dependable supply.

**Recommended Level of Severity III.**

**Table II-16 -- Paso Robles Groundwater Basin  
Existing and Forecasted Water Supply and Demand**

<b>Demand</b>	<b>San Miguel CSD</b>	<b>CSA 16 - Shandon</b>	<b>City of Paso Robles</b>	<b>Agriculture</b>	<b>Rural</b>
Current Demand (AFY)	312.1 <sup>1</sup>	142.3 <sup>1</sup>	3,569	67,610	3,590
Forecast Demand in 15 Years (AFY)	447.1	621.2	6,670	77,215	4,910
Forecast Demand in 20 Years (AFY)	492	780.8	7,704	80,416.7	5,350
Buildout Demand (30 Or More Years) (AFY)	466-582 <sup>2</sup>	271-1,100 <sup>3</sup>	8,422-9,772	60,740-86,820	5,570-6,230
<b>Supply</b>					
Paso Robles Groundwater Basin <sup>8</sup> (AFY)					
Paso Robles Formation (AFY)	235	147	2,856	(6)	(6)
Salinas River Underflow (AFY)	0	0	537/872 <sup>10</sup>	738 <sup>7</sup>	0
Other Groundwater Sources (AFY)	0	0	0	Uncertain	Uncertain
State Water Project (AFY)	0	66 <sup>4</sup>	0	0	0
Nacimiento Project	0	0	4,000	0	0
Total Supply:	235	213	7,728	Uncertain	Uncertain
<b>Water Supply Versus Forecast Demand</b>	Water demand projected over 15 years will equal or exceed the estimated dependable supply. <sup>5</sup>				

Sources: Water System Usage forms: July 2012 – June 2013; July 2013 – June 2014, San Luis Obispo County Master Water Report, 2012, Table 4.67

Notes:

1. See Table II-1. Current year data for agriculture and rural are from 2012.
2. Twenty (20) percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand for San Miguel and 10% for Paso Robles.
3. Upper end of the range reflects demand projected in accordance with the draft Shandon Community Plan should it be approved by the Board of Supervisors in the future.
4. CSA 16 has an allocation of 100 AFY of State Water Project (but no drought buffer), but has not developed this supply due to high cost. State Water Project average allocation assumed 66 percent of contract water service amount, which equates to 66 AFY.
5. Including demand in the Monterey County portion of the basin, and depending on the estimated use for the Agricultural and Rural sectors and future hydrology, basin studies are indicating that the perennial yield may be exceeded in the future. The agencies, County, District, and local land owners intend to actively and cooperatively manage the groundwater basin via the development of a Groundwater Management Plan. It is possible that a future supply deficit will exist for agriculture and rural users because the forecast agricultural and rural demands, excluding demands in the Monterey County portion of the basin, exceed the basin yield. It is uncertain how much of the rural and agricultural demand is supplied by sources outside the basin.
6. It is assumed that the majority of water supply for agriculture and rural users comes from the Paso Robles Groundwater Basin.
7. SWRCB records indicate that 738 AFY could be diverted from the Salinas River (direct diversion or underflow). It is assumed that the entire amount is used for agriculture.
8. The safe yield of the Paso Robles Groundwater Basin is currently being updated
9. It was assumed that Paso Robles currently extracts one-half of its current groundwater demand and one-half of its total future groundwater demand from the Atascadero Sub-basin.

10. The City of Paso Robles is permitted to extract up to 8 cfs (3,590 gpm) with a maximum extraction of 4,600 AFY (January 1 to December 31). For the purposes of this analysis, it was assumed that half (4,063 AFY) of the existing demand of 8,126 AFY was extracted from the Salinas River Underflow via the Thunderbird Wellfield

### **The Atascadero Sub-basin of the Paso Robles Groundwater Basin**

The Atascadero Sub-basin is a sub-basin of the Paso Robles Groundwater Basin. The eastern boundary is the Rinconada fault. Because the fault displaces the Paso Robles Formation, the hydraulic connection between the aquifer across the Rinconada fault has been considered sufficient to warrant the classification of this area as a distinct sub-basin. Therefore, the Atascadero Groundwater Sub-basin is defined as that portion of the basin west of the Rinconada fault.

Primary constraints on water availability in the sub-basin include water rights and physical limitations. The rights to surface water flows in the Salinas River and associated pumping from the alluvium (Salinas River Underflow) have been fully appropriated by the State Water Resources Control Board (State Board) and no plans exist to increase these rights beyond the current allocations. Full appropriation implies that no additional rights to the Salinas River flows are being issued by the State Board at this time nor is any additional pumping for existing rights being granted. Therefore, the Salinas River does not represent a future source of water supply that can be developed beyond its present appropriation.

The Templeton CSD is the sole water purveyor serving the unincorporated County within the Sub-basin. Groundwater from the Atascadero Groundwater Sub-basin is the primary water supply source for the CSD; recycled water and water from the Nacimiento Water Project (NWP) are also sources. An additional source of water for Templeton CSD comes from their re-use program with disposal of treated wastewater effluent from the Meadowbrook WWTP percolation ponds. This program allows the Templeton CSD to percolate treated effluent into the groundwater basin/Salinas River Underflow and subsequently extract the same amount of water 28 months later. The Templeton CSD is also under contract to receive 250 AFY from the NWP. The Atascadero MWC is a major partner of the Nacimiento Water Project, having contracted for a 2,000 AFY allotment of this future supply.

The perennial yield of the Sub-basin was estimated in 2002 to be 16,400 AFY (Fugro, 2002). The estimated gross groundwater pumping in the Sub-basin during 2006 was determined to be 15,545 AF (Todd 2009), which is 95 percent of the Sub-basin perennial yield of 16,400 AFY. A more recent estimate based on data from the 2012 Master Water Report and data collected from the purveyors within the Sub-basin (Table II-15) suggests that water demand from urban, rural and agricultural users is currently about 22,212 AFY which exceeds the perennial yield of the Sub-basin.

Recent modeling summarized in the Paso Robles Groundwater Basin Model Update Draft Final Report (Todd, 2014) assumes the Sub-basin is hydraulically separate from the main Basin, but does not calculate a separate perennial yield or water budget (i.e., average annual inflow and outflow). An evaluation of the conceptualized aquifer system used in the Basin Model Update was inconclusive as to whether the Rinconada Fault serves as a hydraulic barrier that separates the Sub-basin from the main Basin. Accordingly, the Basin Model Update calculates the water budget for the Paso Robles Groundwater Basin as a whole inclusive of the Atascadero Sub-basin

and concludes that the perennial yield is currently being exceeded and will continue to be exceeded under a No Growth scenario.

The Atascadero Sub-basin will be included in the Basin Management Plan and groundwater management district currently being considered by the County and affected stakeholders. One of the goals of the Basin Plan is to identify a sustainable management strategy for the Paso Robles Groundwater Basin as a whole, including the Sub-basin. Further study is needed to determine the connectivity between the Sub-basin and main basin and the effect that deliveries from the Nacimiento Project will have on the perennial yield. However, because demand for water from the Paso Robles Groundwater Basin currently exceeds the perennial yield, and the hydraulic separation of the Sub-basin has not been determined conclusively, water demand projected over 15 years will equal or exceed the estimated dependable supply. **Recommended Level of Severity III.**

Table II-15 -- Atascadero Sub-basin Existing and Forecasted Water Supply and Demand						
Demand	Templeton CSD	Garden Farms	Atascadero MWC	City of Paso Robles	Agriculture	Rural
Current Demand (AFY)	1,344.3 <sup>1</sup>	(5)	5,525	3,243 <sup>9</sup>	10,620	1,480
Forecast Demand in 15 Years (AFY)	1,892.2	46.5	6,562	3,485.5	12,610	1,705
Forecast Demand in 20 Years (AFY)	1,954.8	62	6,908.3	3,566.3	13,272.3	1,780
Buildout Demand (30 Or More Years) (AFY)	2,034-2,260 <sup>2</sup>	48-93	6,840 – 7,600 <sup>2</sup>	3,728	9,740-14,600	1,810-1,930
Supply						
Atascadero Groundwater Sub-basin (AFY) <sup>3</sup>						
Paso Robles Formation (AFY) <sup>4</sup>	1,050	48-93	3,193	3,728 <sup>9</sup>	(6)	(6)
Salinas River Underflow (AFY) <sup>4</sup>	500	0	3,372	4,063	745 <sup>7</sup>	0
Recycled Water (AFY)	132/475	0	0	0	0	0
Nacimiento Water Project (AFY)	250	0	2,000	0	0	0
Other Groundwater Sources (AFY)	0	0	0	0	Uncertain	Uncertain
Total Supply:	1,932	48-93	8,565	4,063	Uncertain	Uncertain
<b>Water Supply Versus Forecast Demand</b>	Because water demand from basin currently exceeds the perennial yield, and the hydraulic separation of the Sub-basin has not been determined conclusively, water demand projected over 15 years will equal or exceed the estimated dependable supply. <sup>8</sup>					

Sources: Water System Usage forms: July 2012 – June 2013; July 2013 – June 2014, San Luis Obispo County Master Water Report, 2012, Table 4.66

## Notes:

1. See Table II-1. Current year data for agriculture and rural are from 2012.
2. Ten (10) percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand.
3. The agencies, County, District, and local land owners intend to actively and cooperatively manage the Paso Robles Groundwater Basin (which includes the Sub-basin) via the development of a Groundwater Management Plan.
4. The perennial yield was estimated to be 16,400 AFY. Extractions from the Sub-basin occur primarily from the Salinas River Underflow and deeper formations. Depending on the estimated use for the Agricultural and Rural sectors, future hydrology and whether additional Nacimiento supplies are utilized, Sub-basin studies are indicating that the perennial yield may be exceeded in the future. However, the safe yield of the Paso Robles Groundwater Basin is currently being updated.
5. No data were provided.
6. It is assumed that the majority of water supply for rural users and about 13 percent of the supply for agricultural users comes from the Sub-basin.
7. SWRCB records indicate that 745 AFY could be diverted from the Salinas River (direct diversion or underflow). It is assumed that the entire amount is used for agriculture.
8. It is uncertain whether the sources of supply outside the Sub-basin in addition to the Sub-basin itself are sufficient to sustain the level of demand.
9. It was assumed that Paso Robles currently extracts one-half of its current groundwater demand and one-half of its total future groundwater demand from the Atascadero Sub-basin.

**Templeton/San Miguel/Shandon Water Systems**

Future water supply for the Templeton CSD will likely come from the Nacimiento Water Project (NWP). Templeton CSD could increase its NWP allotment. Templeton CSD would percolate raw water from the NWP into the Salinas River Underflow, in a similar manner that they percolate effluent from the Meadowbrook WWTP percolation ponds (Selby Pond site). In addition, the Templeton CSD might divert additional wastewater flows to the Meadowbrook WWTP (which currently flow to the City of Paso Robles WWTP), which will allow them to increase percolation into and extraction from the Salinas River Underflow by as much as 343 AFY. However, no plans are in place to develop these sources.

No significant water system limitations were reported. No recommended Levels of Severity.

## Lake Nacimiento Area Water Supply and Systems

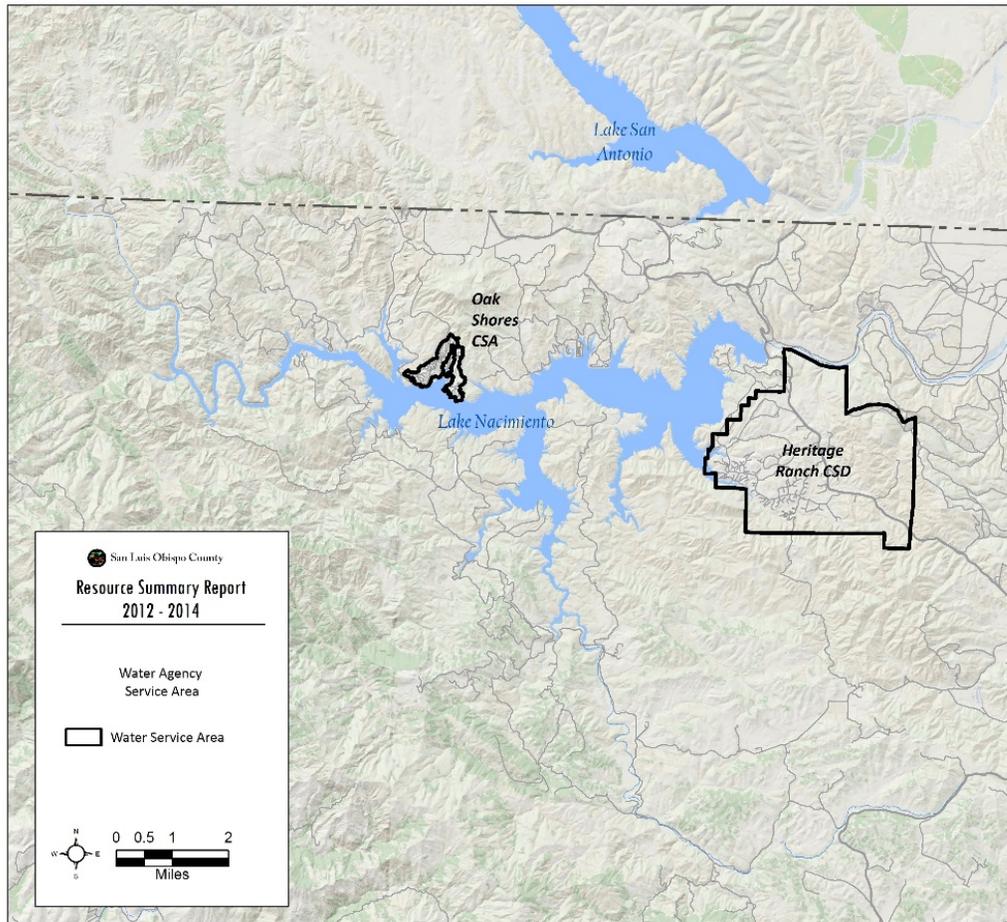


Figure II-11 – Lake Nacimiento Area and Water Service Areas

There are two water purveyors serving the Lake Nacimiento area, the Heritage Ranch CSD and the Nacimiento Water Company which serves the community of Oak Shores. The Heritage Ranch CSD has only one water supply source, the Gallery Well, which is fed via three horizontal wells located in the Nacimiento River bed just downstream of the Nacimiento Dam. Heritage Ranch CSD serves a residential community along the southern shores of Lake Nacimiento. Typically, the Nacimiento River is fed year-round by the release of water through the upper and/or lower outlet works in the dam at Lake Nacimiento. If no water is released from the lake, the Heritage Ranch CSD will not have a water supply. The 1,100 AFY of allocation of Nacimiento Reservoir water designated for use in Heritage Ranch's service area is part of the 1,750 AFY reserved for County residents in the Lake Nacimiento area.

The 1,100 AFY Nacimiento Reservoir allocation for Heritage Ranch CSD is sufficient to provide water for anticipated build-out demand, but the configuration of the delivery system leaves the Heritage Ranch CSD vulnerable to a termination in water supply in an extreme drought. If the lake's water level drops below the dam outlet (has never occurred but came to within two feet of the lower outlet works in October 1989), then Heritage Ranch CSD could temporarily lose its

water supply. Alternative sources are under consideration, including taking water directly from the lake and connecting to the Nacimiento Water Project pipeline.

The Nacimiento Water Company (NWC) serves the community of Oak Shores, which is on the banks of Nacimiento Lake. The NWC currently serves a population of 275 residents with water drawn from the lake, which is then treated prior to distribution. Plans to develop an additional 345 lots as part of Oak Shores Estates are currently on hold. The water supply allocation for Oak Shores is part of the 1,750 AFY reserved for County residents in the Lake Nacimiento area. The 600 AFY Nacimiento Reservoir allocation for the Nacimiento Water Company is sufficient to provide water for anticipated build-out demand for the Oak Shores Area.

Water demand projected over 20 years is not expected to equal or exceed the dependable supply. No recommended Level of Severity.

Table II-17 -- Lake Nacimiento Area Existing and Forecasted Water Supply and Demand				
Demand	Heritage Ranch CSD <sup>1</sup>	Nacimiento Water Company	Agriculture	Rural
Current Demand (AFY)	461.3	(4)	3,860	280
Forecast Demand in 15 Years (AFY)	508.8	(4)	5,490	580
Forecast Demand in 20 Years (AFY)	526.4	(4)	6,033.3	680
Buildout Demand (30 Or More Years) (AFY)	935 – 1,039 <sup>2</sup>	(4)	4,740-7,120	730-880
Supply				
Lake Nacimiento (AFY)	1,100 <sup>2</sup>	600 <sup>5</sup>	0	0
Other Groundwater Sources (AFY)	0	0	(5)	(5)
SWRCB Water Diversions (AFY)	0	0	(6)	(6)
Total Supply:	1,100	600	Uncertain	Uncertain
<b>Water Supply Versus Forecast Demand</b>	Water demand projected over 20 years is not expected to equal or exceed the dependable supply. <sup>3,6</sup>			

Sources: Water System Usage forms: July 2012 – June 2013; July 2013 – June 2014, San Luis Obispo County Master Water Report, 2012, Table 4.69

Notes:

1. See Table II-1. Current year data for agriculture and rural are from 2012.
2. Heritage Ranch CSD's allocation of Lake Nacimiento is 1,100 AFY.
3. The Lake Nacimiento supply allocation is sufficient to meet forecast demands. However, if the lake's water level drops below the dam outlet (has never occurred but came to within two feet of the lower outlet works in October 1989), then Heritage Ranch CSD could lose its water supply.
4. No estimate of existing or forecast demand is available.
5. Groundwater supply sources around Lake Nacimiento are the typical sources of supply for wells that serve agricultural and rural users. There is no information describing the yield for these groundwater supplies.
6. Diversions do not distinguish type of use. Potentially 1,048 AFY could be diverted for use to either agriculture or rural residential.

7. It is uncertain whether an agricultural or rural supply deficit exists. Future studies should invest the resources to determine the basin yield for these groundwater supplies and the uses for the creek/river diversions. It is possible that the combined supplies from groundwater and creek diversions are sufficient to meet the agricultural and rural demands.

### **Lake Nacimiento Area Water Systems**

No significant water system limitations were reported. No recommended Levels of Severity.

## Summary of Recommended Levels of Severity

### Water Supply

Table II-18 -- Summary of Recommended Levels of Severity	
Groundwater Basins and Affected Water Purveyors	Recommended LOS
Pico Creek Valley Groundwater Basin  <u>Water Purveyors</u> San Simeon CSD	III
San Simeon Valley Groundwater Basin Santa Rosa Valley Groundwater Basin  <u>Water Purveyors</u> Cambria CSD	III III
Cayucos Valley Groundwater Basin Old Valley Groundwater Basin  <u>Water Purveyors</u> CSA 10A Morro Rock Mutual Water Co. Paso Robles Water Assoc.	None None
Los Osos Valley Groundwater Basin  <u>Water Purveyors</u> Los Osos CSD S&T Mutual Water Co. Golden State Water Co.	III
San Luis Obispo Valley Groundwater Basin – San Luis Sub-basin San Luis Obispo Valley Groundwater Basin – Avila Valley Sub-basin  <u>Water Purveyors</u> Avila Beach CSD Avila Valley Mutual Water Co. San Miguelito Mutual Water Co. CSA 12	None None
Santa Maria Valley Groundwater Basin – Northern Cities Management Area Santa Maria Valley Groundwater Basin – Nipomo Mesa Management Area	None III

Table II-18 -- Summary of Recommended Levels of Severity	
Groundwater Basins and Affected Water Purveyors	Recommended LOS
<u>Water Purveyors</u> Nipomo CSD Woodlands Mutual Water Co. Oceano CSD	
Santa Margarita Groundwater Basin  <u>Water Purveyors</u> CSA 23	III
Paso Robles Groundwater Basin  <u>Water Purveyors</u> San Miguel CSD CSA 16 – Shandon	III
Paso Robles Groundwater Basin – Atascadero Sub-basin  <u>Water Purveyors</u> Templeton CSD	III
Lake Nacimiento Area  <u>Water Purveyors</u> Heritage Ranch CSD Nacimiento Water Co.	None

**Water Systems**

No Levels of Severity are recommended.

**Recommended Actions**

**General Recommendations**

- Continue to support efforts to improve water conservation, the efficient use of water, and water re-use.
- Continue to collect development impact fees for the construction of water supply infrastructure.
- Support efforts to complete a Basin Management Plan for the Los Osos Groundwater Basin and the Paso Robles groundwater Basin.
- Support efforts to develop sustainable supplemental sources of water.

**San Simeon Valley and Santa Rosa Valley Groundwater Basins (Cambria)**

1. LOS III to remain in place.
2. Collaborate with the Cambria Community Services District to address issuance of a limited number of intent-to-serve letters and building permits based on the aggressive water conservation program developed by Maddaus.
3. Collaborate with the Cambria Community Services District to revise the County Growth Management Ordinance to reflect the issuance of a small number of building permits for new development as part of a temporary pilot program.
4. Collaborate with the Cambria Community Services District to prepare a CEQA determination, with the County acting as a Responsible Agency, that identifies the potentially significant impacts of a temporary, small scale pilot program to issue intent-to-serve letters and building permits for new development.

**Cayucos Valley and Old Valley Groundwater Basins (Cayucos)**

1. Support efforts to secure an alternative supply as a reliability reserve, perhaps through the acquisition of an additional allocation from the Nacimiento Water Project.

**Los Osos Groundwater Basin**

1. LOS III to remain in place.
2. Continue to support efforts to complete and implement a Basin Management Plan.
3. Support efforts to complete the wastewater project.

**San Luis Obispo Valley Groundwater Basin**

1. Support efforts to determine the safe yield of the Avila Valley Sub-basin.

**Santa Maria Valley groundwater Basin (Nipomo Mesa Area)**

1. Consider ending the Title 8 retrofit-upon-sale ordinance in the NMWCA. The program has run for four years and approximately 5% of homes have needed retrofitting.
2. Follow the progress of the *Supplemental Water Alternatives Evaluation Committee*. Coordinate any needed County actions such as an AB 1600 study to quantify the costs and benefits of the identified supplemental water project for groundwater users outside the Nipomo CSD.
3. Collaborate with the Nipomo CSD and other stakeholders to assist in their efforts to address area wide water issues.
4. Continue to help fund area wide water conservation through the fee on new construction.

**Paso Robles Groundwater Basin**

1. LOS III for the Basin as a whole and for the Atascadero Sub-basin.
2. Continue to support efforts to complete and implement a Basin Management Plan.

**Santa Margarita Groundwater Basin**

1. Recommended LOS II.
2. Support efforts to determine the safe yield of the Santa Margarita Groundwater Basin.
3. Support efforts to develop additional sustainable water supplies for CSA 23.